

**EVALUATION OF THE TAHOE  
REGIONAL PLANNING AGENCY'S  
SB 375 2020 SUSTAINABLE  
COMMUNITIES STRATEGY**

May 2023



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## Overview

On April 28, 2021, the Tahoe Regional Planning Agency (TRPA), which serves as the metropolitan planning organization (MPO) for the Tahoe region, adopted its 2020 Regional Transportation Plan (2020 SCS).<sup>1</sup> TRPA provided a complete submittal of the 2020 SCS and all necessary supporting information for CARB staff's review on March 1, 2022. TRPA's 2020 SCS estimates an 8.8 percent and a 12.4 percent 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 8 percent in 2020 and 5 percent in 2035, compared to 2005 levels, as adopted by the California Air Resources Board (CARB or Board) in 2018.<sup>2</sup> This report reflects CARB staff's evaluation of TRPA's 2020 SCS and TRPA'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<sup>3</sup> (2019 Evaluation Guidelines), CARB staff accepts that TRPA's 2020 SCS and supplemental materials reasonably demonstrate that the region met its 2020 target and that its SCS would meet its 2035 target, when fully implemented. However, CARB staff identified concerns with implementation of the 2020 SCS, and this report offers recommendations to support the successful implementation of the SCS and the 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 2019 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.

Evaluation of SCS strategies, key supporting actions, and investments serves as the basis for CARB accepting or rejecting a metropolitan planning organization's (MPO) SB 375 GHG determination. CARB staff's evaluation relies not only on a review of TRPA's 2020 SCS but also on additional SCS submittal materials provided by TRPA and on information gathered in follow-up conversations with TRPA staff. For a summary of strategies and quantification methods evaluated as part of TRPA's 2020 SCS submittal see [Appendix A: TRPA's 2020 SCS Strategy Table](#).

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<sup>1</sup> Tahoe Regional Planning Agency. [2020 Regional Transportation Plan](#) (April 2021).

<sup>2</sup> CARB. [Board Resolution 18-12](#) (March 22, 2018).

<sup>3</sup> CARB. [Final Sustainable Communities Strategy Program and Evaluation Guidelines](#). (November 2019).

## Trend Analysis

Under the SCS evaluation process, an MPO should provide key performance metrics to show 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 TRPA's 2020 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](#).

### Findings

The trend analysis suggests that the TRPA region will reduce VMT in 2035 primarily through the shift from vehicle travel to other travel modes. The mode share metric for 2035 shows the single-occupancy vehicle (SOV) drive alone mode share declining 2 percent from the 2018 value, and the high-occupancy vehicle (HOV) mode share declining 2 percent, while transit use rises 3 percent and walk/bike rises 1 percent. Daily transit ridership is forecasted to increase 126 percent between 2005 and 2035.

One concern is that the average trip length by SOVs, which decreased from 2005 to 2018, is forecasted to increase through 2035, with a total 13.5 percent increase between 2005 and 2035. Likewise, average SOV and HOV travel times decline while transit and walk/bike travel times increase, potentially making the mode shift from vehicles to transit and walk/bike less likely. The changes in these metrics suggest that the 2020 SCS transportation strategies (see [Appendix A: TRPA's 2020 SCS Strategy Table](#)), such as parking pricing, making long-distance transit use easier, and adding pedestrian and bicycle infrastructure, play key roles in achieving the plan's emissions reductions.

The statute requires MPOs to show in an SCS submitted to CARB how the region will meet the GHG emissions reduction targets for 2020 and 2035. TRPA did not model the year 2020 due to its proximity to the transportation demand model's 2018 base year, as modeling years so close together would add little to TRPA's understanding of overall plan performance. TRPA determined that the region achieved its 2020 target of an 8 percent reduction based on observed vehicle activity data. TRPA should have also identified progress implementing measures and strategies utilized to meet the 2020 target, consistent with the 2019 Evaluation Guidelines. CARB's analysis found that based on the information TRPA provided and CARB's analysis of calculated regional VMT data up to 2019 for the *Draft 2022 Progress Report: California's Sustainable Communities and Climate Protection Act* (Draft 2022 Progress Report), the TRPA region achieved a 10 percent GHG reduction from 2005 in 2019 and would have been likely to achieve its 2020 target of 8 percent reduction even in absence of Covid-

19 impacts on passenger vehicle travel. Note that the TRPA region is one of only two MPO regions in California to achieve this highly commendable result.<sup>4</sup>

In summary, the 2020 SCS performance indicators for 2035 used to conduct the Trend Analysis support the planned outcomes projected in TRPA'S 2020 SCS and thus appear to be sufficiently trending in the right direction to meet the 2035 target.

## 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 targets if the region is not achieving the reductions anticipated through the prior SCS.

### *Findings*

As mentioned above, in CARB's Draft 2022 Progress Report, the TRPA region seemed to be on track to achieve its 2020 target, even without the travel disruption caused by Covid-19. However, in that report, CARB staff also found that the TRPA region was not on track to achieve its previous 2017 SCS planned outcomes for daily transit ridership for 2035.<sup>5</sup> In addition, observed data for the region show a significant pre-Covid decline in transit ridership, which is inconsistent with the trends and values assumed in the 2017 SCS to meet the region's GHG emission reduction targets.

However, CARB staff finds that the 2020 SCS shows evidence of changes and adjustments in the latest plan that are intended to help meet the region's transit ridership target. CARB staff's review of the 2020 SCS and other materials found that TRPA builds upon and expands the land use and transportation strategies that were included in its previous plan and has also included new strategies such as microtransit and micromobility. In particular:

- TRPA's 2020 SCS includes additional supporting actions to bring housing inside the Lake Tahoe basin (basin) and place it within 1/2 mile of transit. These actions are intended to stem recent housing and job trends that have led to additional in-commuting and to disbursed residential development.
- The 2020 SCS also emphasizes investments in transit and active modes, including mobility hubs and intercept (park and ride) lots.
- Beginning with this plan cycle, TRPA is also collaborating with other agencies in the region to establish new, sustainable, long-term funding mechanisms to

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<sup>4</sup> For more information about CARB's regional VMT analysis and Draft 2022 Progress Report findings visit: <https://ww2.arb.ca.gov/resources/documents/tracking-progress>

<sup>5</sup> For more information about CARB's comparison of observed data with SCS planned outcomes for 2020 and 2035 visit: [https://ww2.arb.ca.gov/sites/default/files/2022-07/2022\\_SB\\_150\\_Appendix\\_B\\_Draft\\_ADA.pdf](https://ww2.arb.ca.gov/sites/default/files/2022-07/2022_SB_150_Appendix_B_Draft_ADA.pdf)

support these and other transportation investments such as regional transit service and the Dennis T. Machida Memorial Greenway.

These actions suggest that the region is adjusting its strategies and actively seeking new funding and strategies to increase the viability and use of transit in the region.

## Policy Analysis

Under the SCS evaluation process, CARB staff analyze whether SCS strategies for meeting the GHG emission reduction targets are supported by key policies, investments, 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 vehicle and new mobility. In general, across all strategy 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 would 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.

### *Findings*

Overall, CARB staff's analysis found that TRPA's 2020 SCS includes a sufficient set of strategies that would together achieve the GHG emission reduction targets and evidence of policy commitments for each 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.

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## LAND USE AND HOUSING STRATEGY COMMITMENTS

TRPA is unique as an MPO in California because it has direct authority over land use and transportation regulations through the Lake Tahoe Bi-State Compact between California and Nevada, adopted in 1969 and revised in 1980.<sup>6</sup> Generally, development allotments are metered out to cities and counties within the region based on growth projections and remaining capacity within an overall regional development cap. Sub-

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<sup>6</sup> See the [Bi-State Compact webpage](#) for further information.

jurisdictions do their own zoning but must remain consistent with the region's overall cap.

TRPA's 2020 SCS includes a land use and housing strategy that seeks to consolidate development to create compact and diverse centers, put residents and activity locations closer together, and make transit and active transportation more effective options. The region has designated town centers within the region for concentrated growth and transportation improvements, as shown in Figure 1. Due to use of the trip reduction impact analysis (TRIA) modeling methodology, the decrease in per capita GHG emissions from land use and housing is incorporated into total reductions and cannot be separately listed. See [Appendix A](#) for a full list of on-model and off-model strategies.

### 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 2018 and 2035. Specifically, the plan assumes the following outcomes:<sup>7</sup>

- The addition of 3,215 new housing units and 285 new jobs.
- A 4.3 percent increase in the region's overall net density and a 10.4 percent increase in town center net residential density. See Figure 1 for town center locations.
- The addition of 1,985 housing units and 6,291 jobs within ½-mile of high-quality transit stations,<sup>8</sup> from zero housing units and jobs in these locations in 2018.

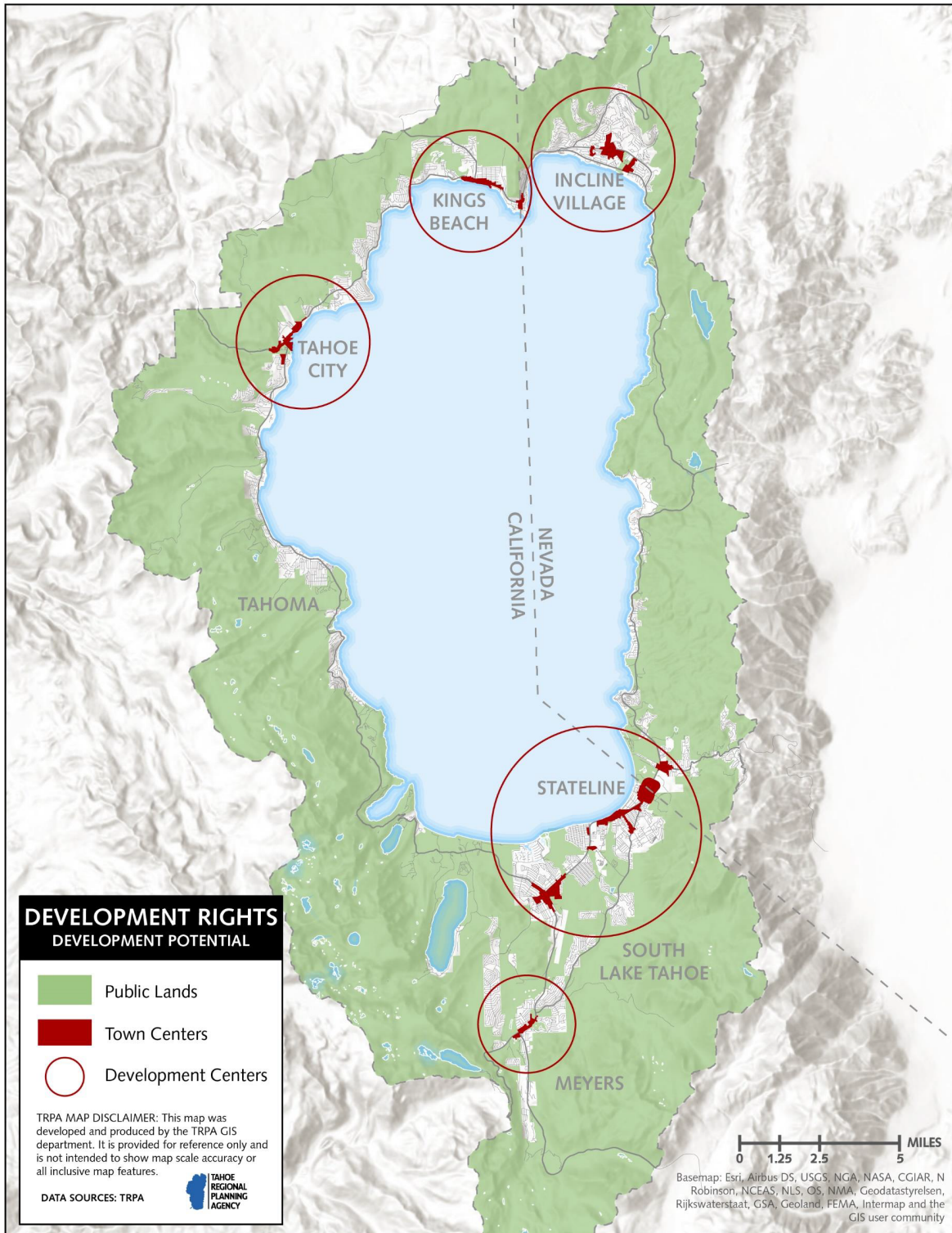
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<sup>7</sup> This subsection includes information based on the Appendix C: Data Table and compares demographic and land use indicators from the 2018 base year to 2035.

<sup>8</sup> High-quality transit is defined in CARB's [Final Sustainable Communities Strategy Program and Evaluation Guidelines Appendices](#) as fixed-route bus or rail service with transit headways no longer than 15 minutes during peak commute hours.



Figure 1. TRPA's 2020 SCS Development Rights Potential Map



Source: TRPA 2020 SCS, Figure 55

For assistance interpreting this map, contact CARB at [sustainablecommunities@arb.ca.gov](mailto:sustainablecommunities@arb.ca.gov).



## Findings

CARB staff found that the 2020 SCS land use and housing planned outcomes are supported by some planning actions. The 2020 SCS contains established programs and commitments to support the implementation of the Tahoe region's SCS land use and housing strategy. Notable examples of TRPA's actions to implement this strategy include reduced mitigations for low-VMT projects, a transfer of development rights program that incentivizes development in town centers and near transit,<sup>9</sup> and a residential bonus unit program that aims to expand opportunities for workforce housing in town centers and near transit.<sup>10</sup>

While CARB staff's analysis supports a conclusion that TRPA's 2020 SCS would meet the target, if implemented, CARB staff has concerns 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 strategy and actions to support all the plan's assumptions. CARB staff is especially concerned with the region's ability to meet its target of 10 percent growth in town center housing units between 2019 and 2035. Data from TRPA's SCS submittal show that there was only a 1.5 percent growth in town center housing units between 2005 and 2018, a similar amount of time. Additionally, the SCS assumes that new housing units will be 60 percent multifamily and 40 percent single-family, despite the existing unit mix in the region of 20 percent multifamily and 80 percent single-family and no sufficient explanation for this shift.<sup>11</sup> CARB staff has concerns about whether the programs and commitments included in the SCS will be enough to support these levels of forecasted growth in town centers and near transit. This is because the TRPA *Regional Data Trends Report*<sup>12</sup> shows the use of residential bonus units fell far short of the forecast in the 2017 SCS. These residential bonus units, awarded as an incentive for production of housing that is affordable for full-time residents, were used at just 3 percent of the rate assumed in the 2017 SCS, with 2 development rights units used per year from 2013-2018. Further, while the data show development rights transfers have helped move development away from sensitive lands, it also shows that transfers have not served to concentrate development in town

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<sup>9</sup> From TRPA, "Development rights are land use units someone must acquire before a property is developed. Development rights include tourist accommodation units (TAUs), single- and multifamily residential units of use (RUUs), and commercial floor area (CFA)." See the TRPA [Development Rights Acquisition & Transactions fact sheet](#) and the [Development Rights](#) webpage for more information.

<sup>10</sup> A property within one-half mile of an existing transit stop or town center or zoned for multifamily housing is eligible to receive a TRPA accessory dwelling unit development right at no cost. This development right is a "bonus unit." Bonus units must be deed-restricted for affordable, moderate, or achievable income level occupants. See the TRPA [Accessory Dwelling Units \(ADUs\)](#) webpage and the [TRPA Residential Bonus Unit Program Fact Sheet](#) for more information.

<sup>11</sup> From TRPA 2020 SCS, Appendix G, Forecast Methodology.

<sup>12</sup> The [Regional Data Trends Report](#) shows trends in population, lodging, visitation, traffic, development, and other regional planning information.

centers, instead resulting in the removal of 25 net residential units from town centers between 2013 and 2018.<sup>13</sup> Tourist accommodation units have likewise been decentralizing, with 101 net units removed from town centers and added to remote areas. The extent to which the plan diverges from the trends makes it important to clearly identify who will have responsibility for making this shift occur, and the plan does not do so. Yet, while these programs have not performed as well as forecasted thus far, with revisions and monitoring they can be a useful framework for promoting development in efficient locations and achieving SCS goals.

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## TRANSPORTATION INFRASTRUCTURE AND NETWORK STRATEGY COMMITMENTS

TRPA included seven transportation-related strategies in the 2020 SCS. The strategies are completing the bicycle and pedestrian network, adding transit services and facilities, providing intercept (park and ride) lots, implementing microtransit service areas, using intelligent transportation systems (ITS) for transit information and coordination, implementing dynamic ridesharing, and transportation demand management (TDM). Together these transportation strategies support TRPA's goal of building and maintaining a safe, resilient, and multimodal transportation system. However, due to the use of the TRIA modeling system, the decrease in per capita GHG emissions from these strategies is incorporated into total reductions and cannot be individually calculated. See [Appendix A](#) for a full list of on-model and off-model strategies.

### SCS Planned Outcomes

These strategies are reflected in assumptions about changes to the transportation infrastructure and network that will serve the region between 2018 and 2035.<sup>14</sup> These outcomes would support the shift away from passenger vehicle travel embedded in the plan's GHG emissions reductions. Specifically, the plan assumes the following outcomes:

- A 135 percent increase in the region's total transit operational miles compared to 2018, from 1,246,767 to 2,933,632, supported by operations and fleet replacement funding and by a fleet maintenance and administration facility.
- A 266 percent increase in the region's total daily transit vehicle service hours, from 228 to 835.
- A 7 percent increase in the region's total bike and pedestrian lane miles compared to 2018, from 205.7 to 219.7, including new sidewalks, bicycle lanes,

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<sup>13</sup> See the [Regional Data Trends Report](#), Development Right Conversions and Transfers, on page 18.

<sup>14</sup> This subsection includes information based on the [Appendix C: Data Table](#) and compares transportation indicators from the 2018 base year to 2035.

and bicycle trails like the Tahoe City Lakeside Trail and the South Tahoe Greenway Shared Use Trail.

- No change in freeway/general purpose lane miles and local lane miles between 2018 and 2035, at 114 miles and 583 miles, respectively.

## Findings

CARB staff found that the 2020 SCS active transportation, transit, ITS, and TDM assumptions are sufficiently supported by region-specific funding and planning actions. In particular, the 2020 SCS includes project commitments such as mobility hubs<sup>15</sup> that align with the Tahoe region's SCS land use and housing strategies and help advance GHG emission reductions. As part of the project list adopted with TRPA's 2020 SCS, CARB staff found multimodal projects that are intended to improve transit, bicycle, and pedestrian options in the region by the 2035 target year.

While CARB staff's analysis supports a conclusion that TRPA's 2020 SCS would meet the 2035 target, if implemented, see CARB staff's [Investment Analysis](#) below for discussion of CARB staff's concerns that the SCS transportation strategies may not be funded at nearly the level anticipated and thus may not realize the anticipated emission reductions because the SCS assumes a considerable amount of project funding from yet-to-be-secured revenue sources, which are likely to impact the viability of its transit projects, which are weighted heavily toward later plan years.

CARB evaluated the project list for capacity-increasing projects, which would be counter to the State's climate and air quality goals, and found that TRPA avoids the construction of new road miles (via TRPA's informal internal policy), thus avoiding the potential for inducing additional vehicular travel, which is in alignment with achievement of the GHG emissions reduction target. Evolving and improving the transportation system without resorting to expanded vehicle capacity is a laudable element of TRPA's plan and an important example for California of changing the last century's transportation planning mindset that still privileges automobiles over all other modes.

TRPA will need to be vigilant about monitoring, implementation, and deployment of transit and active transportation projects through 2035 to ensure planned reductions and SB 375 goals are achieved. This is especially important given the need to increase transit ridership by about 63 percent, increase bike and pedestrian lane miles by 7 percent, and increase the walk/bike mode share by 1 percent compared to 2018 levels. Delays or removals of transit and active transportation projects will prevent the TRPA region from meeting its regional targets.

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<sup>15</sup> Mobility hubs combine transit, park and ride, active transportation connections, and zero-emission vehicle facilities to provide travel options for working, living, shopping, and playing. Seventeen mobility hubs and transit centers will serve the TRPA region.

## LOCAL AND REGIONAL PRICING STRATEGY COMMITMENTS

TRPA has included one pricing strategy in the 2020 SCS, which is parking pricing. This strategy is expected to reduce vehicle trips and miles traveled and will be implemented through a variety of programs in multiple locations within the region. Due to use of the TRIA modeling system, the decrease in per capita GHG emissions from this strategy is incorporated into total reductions and cannot be individually calculated. See [Appendix A](#) for a full list of on-model and off-model strategies.

### SCS Planned Outcomes

This strategy translates into assumptions about changes to the cost of transportation options between 2018 and 2035 through the cost to drivers for parking. Specifically, the plan assumes the following outcome:

- A \$3 increase in the daily cost of driving to locations that are trip origins or destinations for 90 percent of non-recreational vehicle trips in the region.

### Findings

CARB staff found that the 2020 SCS parking pricing assumptions are somewhat supported by planning actions, as well as through investments in the project list adopted with the 2020 SCS. In particular, the 2020 SCS project list includes multiple upcoming plans and projects that include parking pricing, management, and information sharing, such as the SR 89/Fanny Bridge Community Revitalization Project Phase 2, the Tahoe City Parking Management and Wayfinding project, and the SR 89 Recreation Corridor Improvements project. CARB staff could not find specific information about planned expenditures of parking pricing revenue, though the SCS notes that this is an expanding revenue source.

While CARB staff's analysis supports a conclusion that TRPA's 2020 SCS would meet the target, if implemented, CARB staff has concerns about whether the assumed impact of parking pricing on regional travel will be achieved through implementation measures found in the plan. Specifically, while there is a general emphasis on parking management and pricing in the SCS and in associated projects, the plan appears to assume these individual efforts will end up affecting 90 percent of non-recreational vehicle trips in the region in absence of a coordinated, basin-wide program. This is an ambitious target that could require a more comprehensive implementation plan to achieve.

## ELECTRIC VEHICLE AND NEW MOBILITY STRATEGY COMMITMENTS

TRPA has included two strategies related to new mobility services, which are the promotion of electric bicycle (e-bike) use and a new strategy of shared micromobility.<sup>16</sup> These strategies seek to increase active transportation and micromobility options to induce mode shift away from driving. Due to the use of the TRIA modeling system, the decrease in per capita GHG emissions from these strategies is incorporated into total reductions and cannot be individually calculated. See [Appendix A](#) for a full list of on-model and off-model strategies.

### SCS Planned Outcomes

These strategies translate into assumptions about e-bike mode share and the use of other micromobility fleets that will serve the region between 2018 and 2035. Specifically, the plan assumes the following outcomes:

- An increase in the mode share of bicycles for trips between three and five miles to 6.9 percent, the same as the current bicycle mode share for all trips, due to people's willingness to travel twice as far on e-bikes than standard bicycles.
- Replacement of 0.63 percent of vehicle trips with e-scooter trips in areas where e-scooters are available.

### Findings

CARB staff found that the 2020 SCS EV and new mobility strategy assumptions are somewhat supported by region-specific planning actions, including education, information sharing, collaboration, technical assistance, and performance monitoring. TRPA has participated in the Pathway Partnership committee<sup>17</sup> to help create messaging on e-bike use and includes advice on e-bikes in the Commute Tahoe<sup>18</sup> TDM guide for employers. However, actions to promote the availability of micromobility are less defined and limited to collaborating with advocates and offering "technical assistance to analyze data and promote the use of micromobility," according to the 2020 SCS submission materials.

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<sup>16</sup> TRPA's program promoting electric vehicles was quantified as a GHG emissions reduction strategy in the 2017 SCS but not in the 2020 SCS. Nonetheless, the program continues, with 78 direct current fast charging (commonly, DC fast charging) and level 2 charging ports installed, work with utilities on incentives for charging infrastructure, 3 electric buses purchased by the Tahoe Transportation District, and the region's first electric school bus.

<sup>17</sup> From [TRPA's website](#), "The Pathway Partnership is a collaborative group of agencies, non-profits, and advocacy groups. The vision of the group is to create an interconnected and attractive non-motorized network at Lake Tahoe that contributes to the environment, economy, and communities."

<sup>18</sup> [Commute Tahoe](#) is a TRPA program to help employers encourage employees to commute by bicycle, as a pedestrian, in a carpool, or by transit.

While CARB staff's analysis supports a conclusion that TRPA's SCS would meet the targets if implemented, CARB staff has concerns that while there are some actions supporting the plan new mobility strategy commitments, the actions are not enough to support achievement of the forecasted outcomes. New mobility strategies are at risk from the decisions of private companies (for shared micromobility) and individuals (for e-bike purchase and use). These strategies may not be fully implemented and realize the anticipated emission reductions because the SCS does not include commitments from the parties implementing these strategies and TRPA does not have the authority or committed funding for them. Private companies may or may not enhance the availability of micromobility, and funding incentives for e-bike use in the region are not certain, leaving the future of these strategies ambiguous and their widespread adoption unclear. Without funding support, TRPA's ability to affect the outcome is limited. Strong action is needed from the MPO in coordination with private companies and individuals to achieve the usage levels assumed. In addition, TRPA should engage in ongoing monitoring and adjustment to ensure assumptions are realized.

Looking across all four policy analysis categories, CARB staff's analysis found that TRPA's 2020 SCS includes evidence of policy commitments for its strategies, that if implemented would meet the target, with areas of concern as noted above.

## Investment Analysis

CARB staff evaluated whether the planned investments in the project list adopted with the 2020 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 analyses of the 2020 SCS planned investments is shown in [Appendix D: TRPA's 2020 SCS Planned Investments](#).

### *Findings*

Based on CARB staff's review of TRPA's project list for overall expenditures and expenditures in the California portion of the region, CARB staff found that the 2020 SCS included projects that would advance implementation of the SCS, although staff have some concerns. Overall spending in the California portion of the region through 2035 declines from \$1.17 billion in the 2017 SCS to \$863 million in the 2020 SCS, based on CARB staff's analysis, a decline of 26 percent. This is at least partially due to the shorter amount of time remaining until 2035 in the latest SCS. However, the projected expenditures for transit decline even more, from \$622 million in the 2017 SCS to \$302 million in the 2020 SCS, a decline from 53 percent of spending in the 2017 SCS to 35 percent of plan spending in the California portion of the region. Based on a comparison of the project lists and expenditures between the plans, this transit spending decline arises from three sources: general declines in transit capital spending and operations funding, a delay in the implementation of cross-lake ferry service, and a higher proportion of spending in Nevada versus California in the 2017



SCS (thus reducing spending in the California portion of the region). The plan invests \$404 million in transit and active transportation in the California portion of the region by 2035, 47 percent of total spending, and avoids adding new road lane miles. Nonetheless, a decline in investment in transit is not aligned with TRPA's assumptions around increasing transit mode share by 2035. CARB staff also has concerns about the ability of transit to operate effectively considering the potential for congestion on lakeside corridors and absence of ferry service.

CARB staff also looked at the distribution of planned investments by mode across the 2021 to 2035 period, as well as the assumed available revenue sources to fund the planned investments. Roadway improvement funding in the California portion of the region comes early in the plan period, with over 80 percent of funding for roadway improvement projects prior to 2025. A high proportion of active transportation funding also comes by 2025, showing a healthy early investment in active modes. In contrast, transit funding is weighted heavily toward later plan years, although this is somewhat due to inflationary increases in operations and maintenance funding.

CARB staff reviewed assumed revenue sources for funding the plan's investments and has concerns that the planned investments may be delayed or not made given that the largest single funding source in 2026-2035 is to be the regional [Sustainable Transportation Funding Initiative](#) (Funding Initiative), an effort to find long-term funding sources for all spending categories (active transportation, roadway improvements, roadway maintenance, technology, and transit). For this initiative, a bi-state working group of federal, State, and local / private sector partners has agreed on a shared funding framework called the "7-7-7" strategy, where each category of partners would each seek to contribute \$7 million per year for regional transportation funding. Potential funding sources at the local / private sector level include a zonal congestion management fee, local taxes (sales, hotel, vacancy), fees, and increased general fund allocations. Other sources, such as a basin entry fee, have been considered as well.

TRPA assumes Funding Initiative funds to be \$219 million from 2026-2035, which is 27 percent of total funding during that period. This is roughly equal to other local funding (29 percent) and to other federal funding (28 percent) projected in the plan and double TRPA's total anticipated other State funding (12 percent) for that period. Among the potential local funding sources considered are ones that would require considerable effort to enact if the region chose to pursue them. CARB staff is concerned that if the Funding Initiative's strategies are delayed or not implemented or cannot match funding requirements from the various potential sources, transit and to a lesser extent active transportation projects that advance achievement of the SCS targets will not be funded at nearly the level anticipated.

Overall, CARB staff finds that the 2020 RTP/SCS project investments support the implementation of the 2020 SCS transportation strategies and achievement of the SCS's estimated GHG reduction benefits, if implemented. CARB staff has identified risk to delivery of SCS-supportive projects on the project list by 2035 due to the

uncertainty of the Funding Initiative. Depending on the funding methods identified by the plan, however, the Funding Initiative holds potential both as a way to fund VMT-reducing transportation projects and also as a way to directly shape transportation mode choice decisions.

For a summary of the 2020 TRPA SCS reporting components, see [Appendix E: MPO Reporting Components](#).

## CARB's Determination and Recommendations

ACCEPT

(WITH CONCERNS REGARDING IMPLEMENTATION AND MONITORING)

Based on a review of all available evidence and in consideration of CARB's 2019 Evaluation Guidelines, CARB staff accepts TRPA's determination that its 2020 SCS would meet the targets of an 8 percent reduction in GHG emissions by 2020 and a 5 percent reduction in GHG emissions by 2035, compared to 2005 levels, when fully implemented.

TRPA has continued its forward-thinking adjustments to regulations which are intended to incentivize development in town centers and near transit and create housing for full-time residents. However, recent patterns of development have shown decentralization and low usage of residential bonus units. Likewise, the forecasted mix of single-family versus multifamily housing development in the plan diverges greatly from the existing unit mix. These issues suggest TRPA's assumptions may be overly optimistic and create risk to achievement of the SCS's emissions reduction target.

CARB staff also has serious concerns about funding of SCS strategies and plan investments. Key strategies identified in the SCS to increase transit coverage and ridership and the use of alternative modes such as e-bikes and micromobility will require additional partnership and funding commitments to implement. The Sustainable Transportation Funding Initiative holds promise but is a severe risk to implementation, particularly for improvements in transit, if the Initiative does not deliver the expected levels of funding.

Furthermore, expenditures in the 2020 SCS still emphasize transit over road spending but with a smaller proportion of total spending on transit than in the 2017 SCS, as noted in the [Investment Analysis section](#) above. Roadway improvement expenditures are largely front-loaded compared to transit. This spending timing is contrary to achieving the GHG emissions targets of the plan, though TRPA's avoidance of capacity increases is highly commendable.

TRPA has exercised regional leadership and has identified concrete steps toward implementing the plan. 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 2020 SCS, CARB staff has the following recommendations. CARB staff also requests that TRPA set up regular monitoring of the implementation actions associated with its SCS strategies in consultation with CARB and other relevant agencies.

## Recommendations

### ACCELERATE GROWTH IN TOWN CENTERS TO FURTHER SCS IMPLEMENTATION AND GOALS

Recent regional development trends of decentralization and slow workforce housing production call for monitoring the effectiveness of TRPA's strategies promoting development in town centers and near transit on an ongoing basis and making adjustments should the desired results not match expectations, as noted above in the [Policy Analysis](#) section. TRPA should monitor transfer of development rights activity and development right conversion and monitor new multifamily versus single-family development to ensure that the change in unit type mix is occurring and trending in the direction assumed in the SCS. TRPA should also closely monitor the effectiveness of actions to limit housing conversions to tourist units and to increase deed-restricted workforce housing, as success will impact both equity for low-income people and VMT.

TRPA may also want to consider additional actions to support implementation of these strategies. For example, TRPA could consider pursuing itself or promoting to local agencies additional funding sources for infill development such as Prohousing,<sup>19</sup> Affordable Housing and Sustainable Communities (AHSC),<sup>20</sup> Transformative Climate Communities (TCC),<sup>21</sup> Infill Infrastructure Grant Program (IIG),<sup>22</sup> and Permanent Local Housing Allocation (SB 2's PLHA).<sup>23</sup> In addition, TRPA could partner with the California Department of Housing and Community Development on providing technical

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<sup>19</sup> For more information about Prohousing visit: <https://www.hcd.ca.gov/planning-and-community-development/prohousing-designation-program>

<sup>20</sup> For more information about AHSC visit: <https://sgc.ca.gov/programs/ahsc/>. This program also funds transit capital and operations as well as active transportation infrastructure.

<sup>21</sup> For more information about TCC visit: <https://www.sgc.ca.gov/programs/tcc/>

<sup>22</sup> For more information about IIG visit: <https://www.hcd.ca.gov/grants-and-funding/programs-active/infill-infrastructure-grant>

<sup>23</sup> For more information about SB 2 Planning Grants visit: <https://www.hcd.ca.gov/grants-and-funding/programs-active/sb-2-planning-grants>

assistance to its local members around implementation of Affirmatively Furthering Fair Housing (AFFH)<sup>24</sup> and Annual Progress Reports (APRs).<sup>25</sup>

TRPA could also develop and facilitate partnerships between local jurisdictions, employers, and affordable housing developers to encourage new development consistent with the 2020 SCS and successful application for applicable funding such as the Affordable Housing and Sustainable Communities (AHSC) program. Additionally, TRPA could partner with local jurisdictions, economic development departments, downtown associations, and private employers to promote job creation in existing communities where fewer jobs are situated, to promote a greater job-housing balance. TRPA could also consider tying increases in employment directly to the creation of workforce housing, something like the commercial linkage fee used by the City of San José.<sup>26</sup>

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### IDENTIFY FUNDING FOR TRANSIT AND ACTIVE TRANSPORTATION PROJECTS THAT ADVANCE SCS IMPLEMENTATION AND GOALS

CARB staff's Investment Analysis noted declines in transit funding within the California portion of the region. CARB staff also noted the potential risk to delivering needed transit and active transportation projects that advance the SCS given the high proportion of future revenues assumed to come from the Funding Initiative, a new funding source which the region hopes to secure through bi-state cooperation.

TRPA should focus on achieving the funding goals of the regional Funding Initiative and develop contingency plans for spending allocations, especially for the planned transit and active transportation projects through 2035, should that initiative fail to meet expectations. TRPA should focus the Funding Initiative's local, state, and regional fundraising efforts on the areas where funds are crucial and likely to fall short, such as transit. TRPA may also wish to consider expanding the Funding Initiative to the point that it can provide some e-bike incentives in the region. When determining funding sources, TRPA should also consider the potential of the Funding Initiative's chosen funding method(s), such as pricing or a basin entry fee, to directly affect transportation mode choice and reduce VMT in ways that align with the SCS.

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<sup>24</sup> For more information about AFFH visit: <https://www.hcd.ca.gov/planning-and-community-development/affirmatively-furthering-fair-housing>

<sup>25</sup> For more information about APRs visit: <https://www.hcd.ca.gov/planning-and-community-development/annual-progress-reports>

<sup>26</sup> 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>.

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## IMPROVE GHG BENEFIT ESTIMATES FOR OFF-MODEL STRATEGIES

While CARB generally approves of TRPA's GHG emission reduction estimate calculation methods for its 13 off-model strategies, CARB is concerned that TRPA may be overestimating the VMT reductions for some of the strategies, including electric bicycle, electric scooter, intercept lot, intelligent transportation system technologies, parking management, and dynamic ridesharing strategies by using non-region specific data for estimating impacts.<sup>27</sup> While TRPA made some effort to adjust its methodologies for differences between its region and the cited sources, CARB is concerned that these adjustments may not be sufficient. In the next SCS, CARB recommends that TRPA ensure that these methodologies sufficiently account for differences in geographic factors, demographic factors, strategy scope, and the region's current implementation progress.

For the e-bike calculation, CARB staff are concerned that the calculated effect may not capture nuances of trip purposes that could affect mode shift. TRPA notes that the current average bicycle trip length in the region is 2.4 miles and that people are willing to travel twice as far by e-bike than a regular bike, thus raising the anticipated bicycle mode split for trips between 3 and 5 miles. Without further information on the differences between shorter and longer trips, however, it is risky to assume any particular mode shift toward e-bikes for longer trips. For instance, these longer trips may involve different purposes, maybe more often made by different travelers, including with children as passengers, and may be at different times of the day. Further investigation is warranted to understand the effects of e-bikes on vehicle travel in the region.

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## DEVELOP AN SCS IMPLEMENTATION PLAN AND MONITOR IMPLEMENTATION OF THE ADOPTED SCS STRATEGIES, ACTIONS, AND TRANSPORTATION PROJECT LIST

Given that recent trends in certain key policy areas, such as housing production and transit ridership, differ significantly from the trajectory necessary for this plan to succeed, TRPA should carefully watch to see if activity is shifting to the degree necessary, and if not, take prompt action to adjust accordingly. Delays or removals of transit and active transportation projects or strategies will prevent the TRPA region from meeting its GHG emission reduction targets and should be accompanied by recalculation and discussion of whether and how SCS target achievement is maintained.

To help with this, CARB recommends TRPA develop an implementation plan for its 2020 SCS that identifies the actions, steps, and funding that TRPA has and is pursuing

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<sup>27</sup> These strategies relied on the following data sources: NPD Group e-bike sales data, Portland and Chicago electric scooter data, Alameda County ITS data, Humboldt County, Missoula, and Google Transit data, and MIT Rideshare research.

in partnership with other public agencies, non-profit organizations, and businesses to advance SCS implementation. This will help TRPA and its local and State partners understand the concrete actions and shared commitments needed across the region to implement each SCS strategy.

As part of this work, CARB staff encourages TRPA and its member agencies to develop a regional database with metrics and milestones to track, report, and assess implementation of its identified strategies.<sup>28</sup> Tracking strategy implementation will help inform TRPA, its member agencies, and the public on what strategies are performing well, what strategies should be adjusted, or what strategies should be removed. This will also inform what types of projects and investments the region should consider making to achieve the SB 375 GHG emission reduction targets.

The second recommendation in CARB's 2017 SCS evaluation was that TRPA closely monitor progress on transit ridership. CARB staff does not find information in the 2020 SCS submittal about this monitoring, and transit figures on the [TRPA indicators website](#) include ridership only to 2013. CARB staff's analysis shows declining transit ridership, which makes it crucial that TRPA monitors the progress of transit ridership as a part of SCS implementation and report such in the next SCS submittal.

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#### PROVIDE ALL TREND ANALYSIS METRICS

TRPA's SCS submittal lacks data on household vehicle ownership and transit seat utilization, which are two of the eight metrics that CARB analyzes as part of the trend analysis. This information is important as it can be used to demonstrate how well transit and active modes compete with vehicles for everyday transportation and how transit strategies in the SCS support growth in public transit ridership and GHG reductions. Providing these performance indicators may require TRPA to update its travel demand model and collect additional information. CARB requests that these metrics be analyzed and included in TRPA's next SCS.

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#### IMPROVE SUPPORTING ACTIONS TO ACHIEVE ESTIMATED PRICING STRATEGY GHG BENEFIT ESTIMATES

Managing parking, including availability and pricing, is an effective way to affect the amount of vehicular travel.<sup>29</sup> Parking frequently goes underpriced, which means parking is subsidized by everyone, including non-drivers, and which necessitates high requirements for parking spaces in private development, spreading out urban areas and making them less accessible by non-auto travel modes. TRPA is undertaking

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<sup>28</sup> 2020 SCS Policy 4.16 is in line with this recommendation. Monitoring and evaluating the resulting information will be essential.

<sup>29</sup> For information, see CARB's Policy Brief on parking pricing and parking management here: [https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts\\_of\\_Parking\\_Pricing\\_Based\\_on\\_a\\_Review\\_of\\_the\\_Empirical\\_Literature\\_Policy\\_Brief.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Parking_Pricing_Based_on_a_Review_of_the_Empirical_Literature_Policy_Brief.pdf).



efforts to manage and price parking as a GHG emissions reduction strategy. In the 2020 SCS, this effort consists of the inclusion of parking management in multiple projects.

As noted in the Policy Analysis section above, CARB staff has concerns that the ambitious impact of parking management and pricing will be hard to achieve. TRPA should monitor whether these parking management efforts are having the desired impact in reducing vehicle trip generation and incorporate the resulting knowledge in its next plan cycle to continue receiving credit for the full assumed GHG emission reductions. TRPA will need to track the impact of the parking management and pricing strategy to ensure implementation at the assumed level and achievement of the planned impact. In addition, CARB staff encourage TRPA to consider a holistic look at parking within the basin such as through a comprehensive parking space survey, usage analysis, and management and pricing plan as a way to manage the balance of vehicular and other travel modes in general and thus affect GHG emissions, VMT, congestion, and other related impacts of automobile travel.

## Appendix A: TRPA’s 2020 SCS Strategy Table

This is a summary table based on TRPA’s submittal that compares the key land use and transportation strategies between the 2017 and 2020 SCSs. This table also illustrates how GHG emissions were estimated for each strategy.

Category: 2020 SCS Strategy Name	New/Carryover Strategy from 2017 SCS	Analysis Type	Estimated Percent GHG Emission Reduction in 2035 <sup>30</sup>
<p><i>Land Use &amp; Housing:</i></p> <p>Reduced impact mitigations for low-VMT projects, planning for and incentivizing development in centers and near transit, expanding opportunities for workforce housing in centers and near transit</p>	Carryover	On-model	GHG emissions reductions of on-model strategies cannot be listed separately due to TRPA methodology. See the footnote for this column for explanation.
<p><i>Transportation:</i></p> <p>Fixed-route transit service (see below for intra-regional transit capital projects)</p>	Carryover	On-model	GHG emissions reductions of on-model strategies cannot be listed separately due to TRPA methodology. See the footnote for this column for explanation.
<p><i>Transportation: Parking - Parking pricing and parking management strategies including demand-responsive pricing in commercial areas with residential permits to prevent parking spillover into residential areas, changes to parking standards, shared parking arrangements, etc.</i></p>	Carryover	Off-model	1.2%

<sup>30</sup> CARB staff calculated the GHG reduction percent for 2020 SCS off-model strategy categories by apportioning the plan’s total year 2035 12.4 percent reduction by the proportion of vehicle trip reductions listed for each category in plan Appendix G, Table 37, “Total Proportion of Vehicle Trip Reductions.” In using this method, the estimated percent GHG emission reduction figures for each of these transportation strategies includes the embedded effects of the on-model land use and housing and fixed-route transit service strategies.

Category: 2020 SCS Strategy Name	New/Carryover Strategy from 2017 SCS	Analysis Type	Estimated Percent GHG Emission Reduction in 2035 <sup>30</sup>
<p><i>Transportation: Transportation Demand Management (TDM) - Improve existing employer vehicle trip reduction program (carpool and vanpool matching programs, employee shuttles, on-site secure bicycle storage and shower facilities, flexible work hours, parking, and transit use incentives)</i></p>	Carryover	Off-model	2.7%
<p><i>Transportation: Transit - Intra-regional transit capital projects - within the Tahoe basin; currently this only includes south shore water taxi service</i></p> <p><i>Transportation: Transit - Inter-regional transit service - that extends outside the Tahoe basin</i></p> <p><i>Transportation: Transit - Intercept lots - at entrances to the Tahoe basin providing frequent shuttle service into the Region</i></p> <p><i>Transportation: Transit - Microtransit service areas – that serve defined areas with small vehicles and flexible routing.</i></p> <p><i>Transportation: Transit (ITS) - Improved transit coordination - between local and regional providers through simplified trip planning (for example Google Transit) and the elimination or shortened wait time of transfers, improvements to ticketing structure, and agency cooperation to eliminate "transfer anxiety"</i></p> <p><i>Transportation: Transit (ITS) - Real-time arrival information - at transit stops, online, and/or via web-enabled mobile devices</i></p>	Carryover and new	Both on-model and off-model	4.1%

<b>Category: 2020 SCS Strategy Name</b>	<b>New/Carryover Strategy from 2017 SCS</b>	<b>Analysis Type</b>	<b>Estimated Percent GHG Emission Reduction in 2035<sup>30</sup></b>
<i>Transportation: Rideshare (ITS) - Regionally implemented dynamic ridesharing</i>	Carryover	Off-model	0.5%
<i>Transportation: Bicycle/Pedestrian: Complete regional network of bike and pedestrian facilities (includes expanded bike parking)</i>  <i>Transportation: Bicycle/Pedestrian - promotion of electric bicycle use</i>	Carryover	Off-model	3.0%
<i>New Mobility: Shared micromobility service areas</i>	New	Off-model	0.8%
<i>New Mobility: Electric vehicle infrastructure</i>	Used in 2017 SCS but not quantified in 2020 SCS although the program continues	N/A	N/A
<i>Total Reduction</i>	N/A	N/A	12.4% (the numbers above add to 12.3% due to rounding)

Table Notes: N/A means not available or not applicable.

## Appendix B: Trend Analysis Results

This table summarizes CARB staff’s analysis of key plan performance indicators provided by TRPA to support the 2020 SCS’s stated GHG and 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. TRPA provided data for 6 of the 8 requested performance indicators. TRPA did not provide household vehicle ownership or seat utilization data, so CARB staff could not review the trend for those data.

Performance Indicator	Forecast Change 2005 to 2035*	Trend Analysis
Average Trip Length by Mode**	SOV (+13.5%) HOV (0.0%) Transit (+49.2%) Walk/Bike (+27.1%)	TRPA’s 2020 SCS forecasts an increase in the average single-occupancy vehicle (SOV) trip length from 5.98 miles/day in 2005 to 6.79 in 2035. Over the same period, trip lengths for walk/bike increased from 1.07 to 1.36 miles/day, and transit increased from 4.19 to 6.25 miles/day. CARB staff finds the transit and walk/bike trends directionally consistent with increased transit and active modes. However, the greater SOV trip length does not support reduced overall VMT and, thus, reduced GHG emissions. Please see <a href="#">Appendix C: Data Table</a> for more details.
Average Travel Time by Mode	SOV (-12.9%) HOV (-26.4%) Transit (+44.9%) Walk/Bike (+20.2%)	TRPA’s 2020 SCS forecasts a decrease in the average SOV travel time from 20.1 minutes in 2005 to 17.5 minutes in 2035. Over the same period, travel time for high-occupancy vehicles (HOV) decreased from 27.3 minutes to 20.1, while transit increased from 7.87 minutes to 11.4. Walk/bike increased from 2.67 minutes in 2005 to 3.21 minutes in 2035. CARB staff finds the trends for transit and walk/bike directionally supportive of reducing GHG emissions and consistent with the relationship shown in the empirical literature that travel time and trip length change proportionally. However, reduced SOV and HOV travel times combined with greater and equal trip lengths, respectively, indicate vehicular trips at higher speeds and the associated potential for induced travel. Please see <a href="#">Appendix C: Data Table</a> for more details.

Performance Indicator	Forecast Change 2005 to 2035*	Trend Analysis
Mode Share	SOV (-2%) HOV (-2%) Transit (+3%) Walk/Bike (+1%)	Due to the TRPA model's inability to calculate mode shares for 2005, the base year of 2018 has been used for comparison. SOV decreases from 43% in 2018 to 41% in 2035; HOV decreases from 39% to 37%; transit increases from 4% to 7%; and walk/bike increases from 14% to 15%. CARB staff finds these trends directionally supportive and consistent with the relationship shown in the empirical literature that shifting away from driving alone to other modes, such as transit and bike reduces per capita VMT and GHG emissions. Please see <a href="#">Appendix C: Data Table</a> for more details.
Daily Transit Ridership	+126%	TRPA's 2020 SCS forecasts daily transit ridership increases from 1,780 riders in 2005 to 4,011 in 2035. CARB staff finds this trend directionally supportive and consistent with the relationship shown in the empirical literature that increasing transit ridership will reduce GHG emissions. Please see <a href="#">Appendix C: Data Table</a> for more details.
Household Vehicle Ownership	Not available	Due to the TRPA model's inability to calculate household vehicle ownership, no information is available.
VMT per Capita	-7.6%	TRPA's 2020 SCS forecasts VMT to decrease from 21.6 VMT/capita/day in 2005 to 19.9 VMT/capita/day in 2035. CARB staff finds this trend directionally supportive and consistent with the relationship shown in the empirical literature that a reduction in VMT per capita will reduce GHG emissions. Please see <a href="#">Appendix C: Data Table</a> for more details.
GHG per Capita Reduction Between 2005 and 2035	-12.4%	TRPA's 2020 SCS forecasts GHG per capita to decrease from 18.8 GHG pounds/day in 2005 to 16.5 GHG pounds/day in 2035. The GHG per capita reduction forecasted by TRPA meets the target established by CARB. Please see <a href="#">Appendix C: Data Table</a> for more details.
Seat Utilization	TRPA did not provide this data.	Not applicable

\* (-) decreasing, (+) increasing, (~) no change

\*\* Trip length by mode figures do not account for the impacts from off-model strategies.



## Appendix C: Data Table

Modeling Parameters	2005	2018 Plan Base Year	2035	2045 Plan Horizon Year	Data Sources	Notes
Modeled population	41,338	37,625	41,951	43,468	Travel Demand Model input	California portion only
Vehicle operating costs (dollars per mile)	N/A (see table note 1)	N/A	N/A	N/A	Travel Demand Model input	Information is not available
Average toll price (dollars per mile)	N/A	N/A	N/A	N/A	Travel Demand Model input	No tolls in the region
Average median household income (dollars per year)	90,000	90,000	90,000	90,000	Travel Demand Model input	Entire TRPA region
Total number of households	16,551	15,397	17,113	17,730	Travel Demand Model input	California portion only
Total number of jobs	12,294	17,507	17,792	18,022	Travel Demand Model input	California portion only
Total developed acres	N/A	N/A	N/A	N/A	Travel Demand Model input/GIS	Information is not available

Modeling Parameters	2005	2018 Plan Base Year	2035	2045 Plan Horizon Year	Data Sources	Notes
Total housing units	35,260	35,690	38,905	40,034	Travel Demand Model input	California Portion Only
Total single-family housing units	N/A	N/A	N/A	N/A	Travel Demand Model input	TRPA does not explicitly track or forecast single-versus multifamily housing
Total multifamily housing units	N/A	N/A	N/A	N/A	Travel Demand	TRPA does not explicitly track or forecast single-versus multifamily housing
Net residential density (dwelling units per acre) regional total	0.23	0.23	0.24	0.25	Travel Demand Model input	Entire TRPA region
Net residential density (dwelling units per acre) Place Type 1 - Town Center	1.23	1.25	1.38	1.41	Travel Demand Model input	Entire TRPA region
Net residential density (dwelling units/acre) Place Type 2 - Non-Town Center	0.14	0.14	0.14	0.15	Travel Demand Model input	Entire TRPA region

Modeling Parameters	2005	2018 Plan Base Year	2035	2045 Plan Horizon Year	Data Sources	Notes
Total housing units within ½ mile of a high-quality transit station	0	0	1,985	2,059	Travel Demand Model input/GIS	Entire TRPA region
Total jobs within ½ mile of a high-quality transit station	0	0	6,291	6,314	Travel Demand Model input/GIS	Entire TRPA region
Freeway and general-purpose lanes - mixed-flow, auxiliary, etc. (lane miles)	114	114	114	114	Travel Demand Model input	Entire TRPA region
Freeway tolled lanes (lane miles)	N/A	N/A	N/A	N/A	Travel Demand Model input	TRPA region has limited roadway types
Freeway HOV lanes (lane miles)	N/A	N/A	N/A	N/A	Travel Demand Model input	TRPA region has limited roadway types
Arterial / expressway (lane miles)	N/A	N/A	N/A	N/A	Travel Demand Model input	TRPA region has limited roadway types

Modeling Parameters	2005	2018 Plan Base Year	2035	2045 Plan Horizon Year	Data Sources	Notes
Local (lane miles)	583	583	583	583	Travel Demand Model input	TRPA region has limited roadway types
Average transit headway (minutes)	N/A	51	36	37	Travel Demand Model input	Entire TRPA region
Total transit operation miles	N/A	1,246,767	2,933,632	6,642,391	Travel Demand Model input	Entire TRPA region
Transit total daily vehicle service hours	N/A	228	835	1,275	Travel Demand Model input	Entire TRPA region
Bike and pedestrian lane (class I, II, & IV) miles	N/A	205.7	219.7	349.5	Travel Demand Model input	Entire TRPA region
Household vehicle ownership	N/A	N/A	N/A	N/A	Travel Demand Model output	Information is not available
Drive alone trip length (miles per day)	5.98	5.58	6.79	7.21	Travel Demand Model output	Entire TRPA region
Shared ride trip length (miles per day)	7.57	7.22	7.55	7.6	Travel Demand Model output	Entire TRPA region

Modeling Parameters	2005	2018 Plan Base Year	2035	2045 Plan Horizon Year	Data Sources	Notes
Public transit trip length (miles per day)	4.19	5.18	6.25	5.29	Travel Demand Model output	Entire TRPA region
Bike & walk trip length (miles per day)	1.07	1.15	1.36	1.35	Travel Demand Model output	Entire TRPA region
Average commute trip travel time (minutes)	23.1	15.9	20.5	20.4	Travel Demand Model output	Entire TRPA region
Average non-commute trip travel time (minutes)	20	18.7	16.9	16.9	Travel Demand Model output	Entire TRPA region
Average drive alone travel time (minutes)	20.1	17	17.5	17.3	Travel Demand Model output	Entire TRPA region
Average drive alone (TNC) travel time (minutes)	N/A	N/A	N/A	N/A	Travel Demand Model output	Information is not available
Average shared ride travel time (minutes)	27.3	25.2	20.1	20.3	Travel Demand Model output	Entire TRPA region
Average shared ride (pooled TNC) travel time (minutes)	N/A	N/A	N/A	N/A	Travel Demand Model output	Information is not available

Modeling Parameters	2005	2018 Plan Base Year	2035	2045 Plan Horizon Year	Data Sources	Notes
Average public transit travel time (minutes)	7.87	10.6	11.4	10	Travel Demand Model output	Entire TRPA region
Average bike & walk travel time (minutes)	2.67	2.84	3.21	3.21	Travel Demand Model output	Entire TRPA region
Average travel time for low-income populations (minutes)	N/A	N/A	N/A	N/A	Travel Demand Model output	Information is not available
Drive alone mode share (percent)	N/A	43%	41%	40%	Travel Demand Model output	See table note 2
Drive alone (TNC) mode share (percent)	N/A	0%	0%	0%	Travel Demand Model output	See table note 2
Shared ride mode share (percent)	N/A	39%	37%	37%	Travel Demand Model output	See table note 2
Shared ride (pooled TNC) mode share (percent)	N/A	0%	0%	0%	Travel Demand Model output	See table note 2
Public transit mode share (percent)	N/A	4%	7%	8%	Travel Demand Model output	See table note 2



Modeling Parameters	2005	2018 Plan Base Year	2035	2045 Plan Horizon Year	Data Sources	Notes
Bike mode share (percent)	N/A	14%	15%	15%	Travel Demand Model output	See table note 2
Walk mode share (percent)	N/A	0%	0%	0%	Travel Demand Model output	See table note 2
Seat utilization (percent)	N/A	N/A	N/A	N/A	Travel Demand Model output	See table note 2
Transit ridership (average daily boardings)	1,780	2,465	4,011	4,024	Travel Demand Model output	Entire TRPA region
Total VMT per weekday (all vehicle class) (miles)	892,487	825,746	836,503	855,450	Travel Demand Model output	California portion only
Total VMT per weekday for passenger vehicles (carb vehicle classes LDA, LDT1, LDT2, and MDV) (miles)	892,487	825,746	836,503	855,450	Travel Demand Model output	California portion only
Total II VMT per weekday for passenger vehicles (miles)	725,843	802,888	809,823	831,991	Travel Demand Model output	Entire TRPA region

Modeling Parameters	2005	2018 Plan Base Year	2035	2045 Plan Horizon Year	Data Sources	Notes
Total IX/XI VMT per weekday for passenger vehicles (miles)	844,034	563,418	557,366	556,531	Travel Demand Model output	Entire TRPA region
Total XX VMT per weekday for passenger vehicles (miles)	33,213	32,517	32,491	33,282	Travel Demand Model output	Entire TRPA region
SB 375 VMT per capita (miles)	21.59	21.95	19.94	19.68	Calculated: (II + IX/XI passenger VMT) / population	California portion only
Total CO <sub>2</sub> emissions per weekday (all vehicle class) (tons per day)	N/A	N/A	N/A	N/A	EMFAC model output	This information is not available
Total SB 375 CO <sub>2</sub> emissions per weekday for passenger vehicles (CARB vehicle classes LDA, LDT1, LDT2, and MDV) (tons per day)	388.8	N/A	345.5	352.9	EMFAC model output	California portion only
Total II CO <sub>2</sub> emissions per weekday for passenger vehicles (tons per day)	N/A	N/A	N/A	N/A	EMFAC model output	This information is not available

Modeling Parameters	2005	2018 Plan Base Year	2035	2045 Plan Horizon Year	Data Sources	Notes
Total IX/XI CO <sub>2</sub> emissions per weekday for passenger vehicles (tons per day)	N/A	N/A	N/A	N/A	EMFAC model output	This information is not available
Total XX CO <sub>2</sub> emissions per weekday for passenger vehicles (tons per day)	N/A	N/A	N/A	N/A	EMFAC model output	This information is not available
SB 375 CO <sub>2</sub> per capita (pounds per day)	18.81	N/A	16.47	16.24	Calculated: (II + IX/XI CO <sub>2</sub> ) / population / 2,000 lbs./ton	California portion only
EMFAC Adjustment Factor (if applicable)	N/A	N/A	0.17%	N/A	CARB Methodology for Estimating CO <sub>2</sub> Adjustment	None
Parking – percent of total off-model trip reductions	N/A	N/A	N/A	9.8%	MPO estimated	See table note 3
Transportation Demand Management (TDM) – percent of total off-model trip reductions	N/A	N/A	N/A	22.1%	MPO estimated	See table note 3

Modeling Parameters	2005	2018 Plan Base Year	2035	2045 Plan Horizon Year	Data Sources	Notes
Transit – percent of total off-model trip reductions	N/A	N/A	N/A	32.9%	MPO estimated	See table note 3
Rideshare – percent of total off-model trip reductions	N/A	N/A	N/A	4.3%	MPO estimated	See table note 3
Bicycle/Pedestrian – percent of total off-model trip reductions	N/A	N/A	N/A	24.0%	MPO estimated	See table note 3
Micromobility – percent of total off-model trip reductions	N/A	N/A	N/A	6.8%	MPO estimated	See table note 3

**Table notes:**

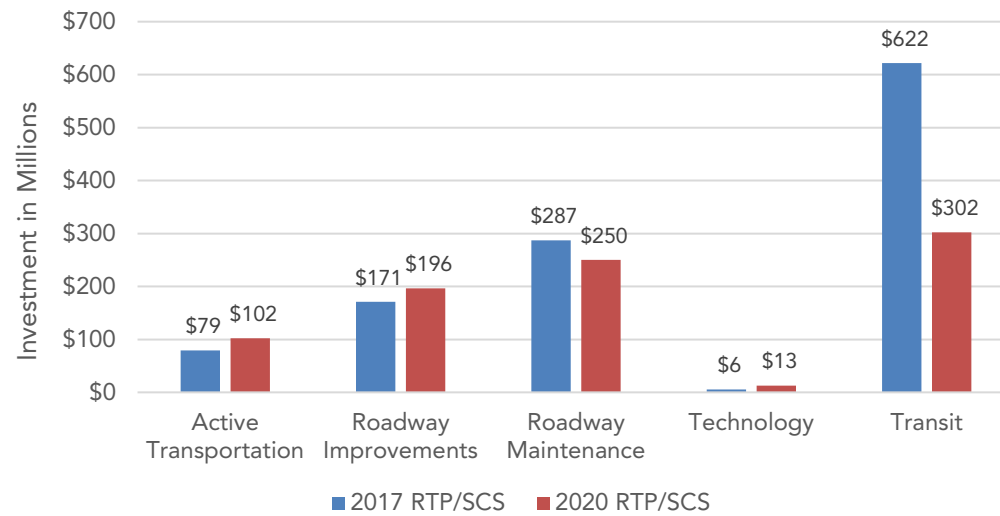
1) N/A means Not Available

2) TRPA’s TRIA post processor works by reducing the number of vehicle trips but does not explicitly reassign those previous vehicle trips to different modes. Those trips have been allocated to different categories based on the expected mode shift of the strategy. The travel demand model does not differentiate between pedestrian and biking trips, so they are combined under bike. In short, an accurate forecast of mode share between bike and walk modes is not possible.

3) TRPA uses the TRIA tool for off-model strategy estimation. TRIA provides vehicle trip reductions (numbers of trips) to be applied as transportation demand model inputs, not overall VMT or GHG emissions reductions. See the Travel Demand Model Integration section of the [TRPA 2020 RTP/SCS](#) for more information. The figures in the Data Table above are also shown in Table 37 in Appendix G. The percentages represent the proportion of the total vehicle trip reductions associated with each strategy or set of strategies (they total 100%). Note also, these figures were provided for the plan horizon year, 2045, not the SB 375 target year, 2035.

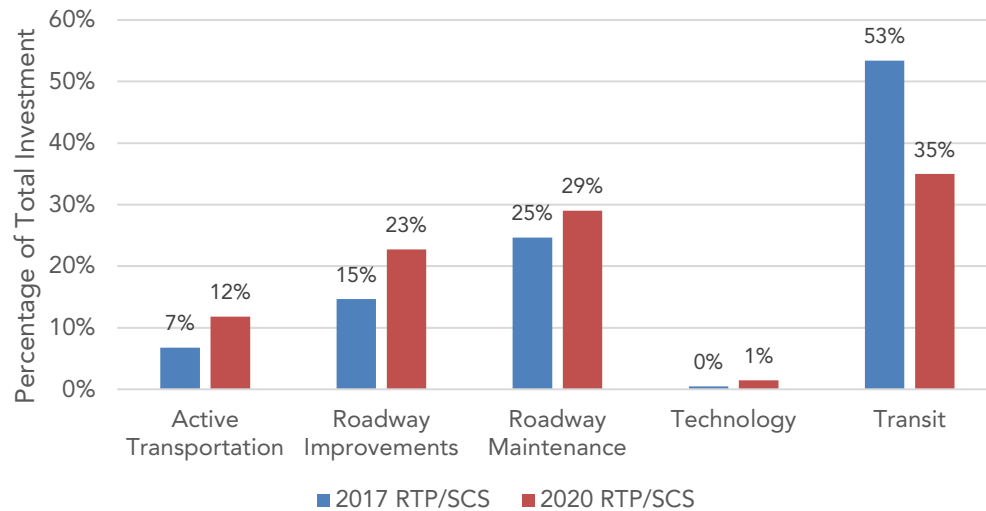
# Appendix D: TRPA's 2020 SCS Planned Investments

**Investments by Mode in TRPA's 2020 SCS  
Compared to the 2017 SCS – California Portion Only (Dollars)**



(the amount for the 2017 RTP/SCS is the left bar of each pair and amount for the 2020 RTP/SCS is the right bar)

**Investments by Mode in TRPA's 2020 SCS  
Compared to the 2017 SCS – California Portion Only (Percent of Total Investment)**



(the percentage for the 2017 RTP/SCS is the left bar of each pair and percentage for the 2020 RTP/SCS is the right bar)

**TRPA SCS Investment Breakdown by Expenditure Category and Period – California Portion Only**

<b>Expenditure Category</b>	<b>Through 2025</b>	<b>2026-2035</b>	<b>Total</b>
Transit	\$77,540,462 (25.7%)	\$224,330,516 (74.3%)	<b>\$301,870,977</b>
Roadway Maintenance	\$72,119,617 (28.8%)	\$178,131,724 (71.2%)	<b>\$250,251,340</b>
Roadway Improvements	\$157,548,063 (80.3%)	\$38,646,343 (19.7%)	<b>\$196,194,406</b>
Active Transportation	\$58,185,810 (57.1%)	\$43,648,862 (42.9%)	<b>\$101,834,672</b>
Technology	\$12,602,702 (100.0%)	-	<b>\$12,602,702</b>
<b>Total</b>	<b>\$377,996,654 (43.8%)</b>	<b>\$484,757,444 (56.2%)</b>	<b>\$862,754,097</b>

Note: These numbers were derived from the 2020 TRPA RTP/SCS and supporting materials and include only investments in California through 2035.

## Appendix E: MPO Reporting Components

This section summarizes the three reporting components called for in the 2019 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.

### Tracking Implementation

The purpose of this section is to report on the progress the TRPA 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 and plan performance indicators provided by TRPA, and they represent a snapshot of the region's current standing. 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 plan is as follows:

- **VMT per capita**<sup>31</sup> was very low and steady between 2010 and 2012, increased 400 percent in 2013, decreased by almost 50 percent in 2014, returned to the 2013 level in 2015, and then gradually decreased through 2019. The 2019 per capita VMT is lower than the 2035 forecasted SCS per capita VMT, and the trend between 2017 and 2019 is heading in the right direction.
- **GHG per capita**<sup>32</sup> increased overall from 2010 to 2017, with several declines interspersed, but decreased from 2017 to 2019. The 2035 forecasted GHG per capita is 7.3 percent below the observed 2019 value, but the trend beginning in 2017 is heading in the right direction.
- **Regional average household vehicle ownership**<sup>33</sup> decreased by 23 percent in the TRPA region from 2010 to 2019, from 0.61 to 0.47. As TRPA could not provide forecasted household vehicle ownership data from its travel demand

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<sup>31</sup> The observed data is from [Federal Highway Administration Highway Performance Monitoring System \(HPMS\)](#) and [California Department of Finance County Population Estimates](#).

<sup>32</sup> The observed data is from [Federal Highway Administration Highway Performance Monitoring System \(HPMS\)](#) and [California Department of Finance County Population Estimates](#).

<sup>33</sup> The observed data is from [U.S. Census Bureau American Community Survey](#), [California Department of Finance County Population Estimates](#), and [EMFAC2021 Demographics](#).



mode, no comparisons could be made, but the trend is heading in the right direction.

- **Annual transit ridership**<sup>34</sup> doubled from 2015 to 2016, stayed steady through 2017, then plunged to 25 percent of the 2017 level by 2020. The 2020 annual transit ridership is 20 percent of the 2035 forecasted ridership, and the trend is heading in the wrong direction.
- **Daily transit revenue hours**<sup>35</sup> increased from 2015 to 2016 and then held relatively steady through 2020. The 2020 annual transit revenue hours are approximately 25 percent of the 2035 forecasted hours, and the current flat trend is not leading toward the achievement of the forecast.
- **Commute trip travel time**<sup>36</sup> stayed steady near 30 minutes each way between 2010 and 2019. The current neutral trend is not leading toward the achievement of the 2035 forecasted 20.5-minute commute travel time.
- **Cumulative new homes built**<sup>37</sup> is increasing in the TRPA region consistent with the 2035 forecast. As TRPA did not distinguish single-family or multifamily housing from its travel demand model in the submitted SCS materials, no analysis could be made with regards to the mix of single-family and multifamily housing.

VMT per capita, GHG per capita, vehicle ownership, and new homes built in the TRPA region are heading in the right direction toward the expected plan outcomes. Transit revenue hours and commute trip travel time are holding steady but not moving in the direction needed to support the achievement of what the plan forecasts is needed, and the annual transit ridership number is heading in the wrong direction.<sup>38</sup>

## Incremental Progress

Based on the 2019 Evaluation Guidelines,<sup>39</sup> the incremental progress reporting component is not applicable to TRPA. Therefore, no analysis was done.

## 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*

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<sup>34</sup> The observed data is from [Federal Transit Administration National Transit Database](#).

<sup>35</sup> The observed data is from [Federal Transit Administration National Transit Database](#).

<sup>36</sup> The observed data is from [U.S. Census Bureau American Community Survey](#).

<sup>37</sup> The observed data is from [California Department of Finance Estimates](#).

<sup>38</sup> To view the latest observed regional data trends related to implementation of SB 375 visit: <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/sb-150-dashboard-tracking-progress-sustainable>.

<sup>39</sup> CARB. [Final Sustainable Communities Strategy Program and Evaluation Guidelines](#). (November 2019).

*Transportation Plan Guidelines for Metropolitan Planning Organizations.*<sup>40</sup> TRPA included information on its equity efforts with the SCS submission materials. CARB staff reviewed this information and prepared this section to summarize TRPA's 2020 SCS equity work, including identified communities of concern, equity performance measures, equity analysis, and public participation efforts.

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## IDENTIFYING VULNERABLE COMMUNITIES

For environmental justice demographic analysis, TRPA defined Priority Community Zones as neighborhoods with higher densities of three or more of the following:

- Zero vehicle households
- People 65 years and older
- Persons below poverty or median income levels
- People with a disability
- Minorities

See Figure 2 for a plan showing the five resulting Priority Community Zones, which include the Tahoe Valley area.<sup>41</sup>

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<sup>40</sup> California Transportation Commission. *2017 Regional Transportation Plan Guidelines for Metropolitan Planning Organizations*. January 2017. Available at: <http://www.dot.ca.gov/hq/tpp/offices/orip/rtp/docs/2017RTPGuidelinesforMPOs.pdf>.

<sup>41</sup> Note that Priority Community Zones within the document and on associated figures are also referred to as Community Priority Zones and as Priority Communities.

Figure 2. TRPA's 2045 Access to Transit Map, including Priority Community Zones



Source: TRPA 2020 SCS, Appendix F, Figure 116  
 For assistance interpreting this map, contact CARB at [sustainablecommunities@arb.ca.gov](mailto:sustainablecommunities@arb.ca.gov).

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## PUBLIC OUTREACH AND ENGAGEMENT<sup>42</sup>

In-person outreach was curtailed by the Covid-19 pandemic starting in early 2020. Prior to that, TRPA staff attended and presented at meetings and public events. Following the beginning of the pandemic, outreach was done online.

TRPA did direct consultation with the one tribal government in the region, the Washoe Tribe of Nevada and California, for the SCS and for supporting plans and projects.

TRPA also worked to make materials available in Spanish and tried to meet underserved communities in locations that may be convenient, including parent teacher association meetings and at community centers.

Outreach activities for the 2020 SCS were meetings; promotional materials; translation services; a monthly newsletter; open houses; pop-up booths at locations like grocery stores, schools, and restaurants; social media; and paid advertising.

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## EQUITY PERFORMANCE MEASURES<sup>43</sup>

TRPA measured transportation access for Priority Community Zones, defining reasonable access as 1/4 mile to a transit stop, 1/2 mile to a bike path, and 1/4 mile to a bike path or sidewalk. TRPA used these measures to evaluate the before and after conditions for SCS projects in Priority Community Zones, as seen below in Figure 3. The trends of TRPA's performance measures for these communities generally improve through 2045, with increased access to transit stops, bike paths, and sidewalks. TRPA calculated that 60 percent of SCS project funding impacts Priority Community Zones.<sup>44</sup>

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<sup>42</sup> For further information, see Appendix E: Public Participation, Consultation, and Cooperation of the TRPA [Regional Transportation Plan](#).

<sup>43</sup> For further information, see Appendix F: Environmental Justice of the TRPA [Regional Transportation Plan](#).

<sup>44</sup> For this spending analysis, see Appendix F: Environmental Justice of the TRPA [Regional Transportation Plan](#).

**Figure 3. TRPA Equity Performance Analysis**

Priority Community Zones	1/2 Mile Access to Bike Paths: existing	1/2 Mile Access to Bike Paths: proposed (2045)	1/4 Mile Access to Sidewalks and Bike Paths: existing	1/4 Mile Access to Sidewalks and Bike Paths: proposed (2045)	1/4 Mile Access to Transit Stops: existing	1/4 Mile Access to Transit Stops: proposed (2045)
Tahoe Verde	56%	87%	62%	67%	45%	40%
Sierra Tract	100%	100%	92%	97%	9%	100%
Bijou / Stateline	96%	98%	74%	91%	65%	97%
Kings Beach	0%	97%	99%	99%	57%	99%
Incline Village	100%	100%	99%	99%	56%	99%

Source: TRPA 2020 SCS, Appendix F, Table 19