FINAL SUSTAINABLE COMMUNITIES STRATEGY

PROGRAM AND EVALUATION GUIDELINES

NOVEMBER 2019

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Abbreviations

AAA	American Automobile Association
AB	Assembly Bill
ABM	Activity Based Model
AMBAG	Association of Monterey Bay Area Governments
AOC	Auto Operating Cost
APS	Alternative Planning Strategy
APTA	American Public Transportation Association
AVO	Average Vehicle Occupancy
BCAG	Butte County Association of Governments
CARB	California Air Resources Board
CEC	California Energy Commission
CFR	Code of Federal Regulations
CHTS	California Household Travel Survey
CO_2	Carbon Dioxide
CTC	California Transportation Commission
DGE	Diesel Gallon Equivalent
EMFAC	EMission FACtor Model
EV	Electric Vehicle
FCOG	Fresno Council of Governments
GGE	Gasoline Gallon Equivalent
GHG	Greenhouse Gas Emissions
HBO	Home-Based-Other
HBSh	Home-Based-Shopping
HBW	Home-Based-Work
HH	Household
HOT	High Occupancy Tolls
HOV	High Occupancy Vehicle
HQTA	High-Quality Transit Areas
HW	Home-Work
ICE	Internal Combustion Engine
II	Internal-Internal Trips
IX	Internal-External Trips
KCAG	Kings County Association of Governments
KCOG	Kern Council of Governments
LCSF	Low Carbon Fuel Standards
LDA	Light Duty Automobiles (Passenger Cars)
LDT1	Light-Duty Trucks (GVWR <6000 lbs. And ETW <= 3750 lbs)
LDT2	Light-Duty Trucks (GVWR <6000 lbs. And ETW 3751-5750 lbs)
LDV	Light-Duty Vehicle
LEV	Low-Emission Vehicle
MCAG	Merced County Association of Governments
MCTC	Madera County Transportation Commission
MDV	Medium-Duty Trucks (GVWR 6000-8500 lbs)

Abbreviations

MPG	Miles Per Gallon
MPO	Metropolitan Planning Organization
MRT	Maintenance, Repair, and Tires
MSF	Mode Shift Factor
MTC/ABAG	Metropolitan Transportation Commission/Association of Bay Area Governments
OPR	Governor's Office of Planning and Research
PHEV	Plug-In Hybrid Electric Vehicle
RTAC	Regional Targets Advisory Committee
RTP	Regional Transportation Plan
SACOG	Sacramento Area Council of Governments
SANDAG	San Diego Association of Governments
SB	Senate Bill
SBCAG	Santa Barbara County Association of Governments
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
SJCOG	San Joaquin Council of Governments
SLOCOG	San Luis Obispo Council of Governments
SRTA	Shasta County Regional Transportation Planning Agency
StanCOG	Stanislaus Council of Governments
SUV	Sport Utility Vehicle
TAZ	Traffic Analysis Zone
TCAG	Tulare County Association of Governments
TPA	Transit Priority Areas
TIP	Transportation Improvement Program
TMPO	Tahoe Metropolitan Planning Organization
TNC	Transportation Network Company
TSM	Transportation System Management
VMT	Vehicle Miles Traveled
XI	External-Internal
XX	External-External
ZEV	Zero Emission Vehicle

Key Terms

Commitments or Key Actions: The specific key actions or commitments that implement the RTP/SCS Strategies. These actions could include specific investments, subsidies, partnerships, policy guidance, etc. related to the RTP/SCS strategies. (See **Table** 2 for additional examples)

MPO Data Submittals: SCS data provided to CARB by the MPO in order for CARB to determine if the SCS meets the SB 375 targets as part of the SCS Evaluation.

Performance Indicator: A quantifiable measure of the outcomes of key land use and transportation system attributes used to gauge performance of an RTP/SCS Strategy over time.

RTP/SCS Strategies: The land use and transportation goals and policies of RTP/SCS. (See **Table** 2 for additional examples)

SCS Evaluation Process: Review and analysis of an MPO's adopted SCS by CARB staff, using the methodology and approach in the *SCS Program and Evaluation Guidelines*, that consists of one SB 375 GHG emission reduction target determination (**Policy Commitments**) and three reporting components (**Incremental Progress**, **Tracking Implementation (SB 150)**, and **Equity**).

SCS Evaluation Staff Report: The final publication by CARB documenting the SB 375 GHG emission reduction target determination and reporting of an MPO's SCS. The *SCS Evaluation Staff Report* consisting of one SB 375 GHG emission reduction target determination component (**Policy Commitments**) that evaluates whether the implemented RTP/SCS strategies and commitments would achieve the MPO's GHG emission reduction targets and three reporting components (**Incremental Progress**, **Tracking Implementation (SB 150)**, and **Equity**).

Technical Methodology: A document prepared and submitted to CARB by an MPO that describes the methodology the MPO intends to estimate the GHG emission reductions associated with its RTP/SCS strategies and is submitted prior to the RTP public participation process, as required by statute. The transmittal of the *Technical Methodology* is the first submittal in the SCS Evaluation Process by an MPO to CARB.

Executive Summary

The California Global Warming Solutions Act of 2006, Assembly Bill (AB) 32[1] serves as the foundation for California's goals to reduce greenhouse gas (GHG) emissions and is the basis for almost all of California's subsequent efforts to reduce GHG emissions. In 2008, the California Legislature passed the Sustainable Communities and Climate Protection Act of 2008, Senate Bill (SB) 375[2] as a first-of-its-kind law to recognize the critical role of integrated transportation, land use, and housing decisions to meet State climate goals. The law requires each of California's 18 Metropolitan Planning Organizations (MPOs) to include a Sustainable Communities Strategy (SCS) as part of the long-range Regional Transportation Plans (RTP). In the SCS, the MPO, in partnership with local member agencies and the State, identifies strategies to reduce GHG emissions from driving, which can also foster healthier, more equitable, and sustainable communities. Under SB 375, MPOs have spent almost 10 years engaged in planning and developing SCSs tailored to each region that outline multiple benefits for the environment, public health, social justice, and access to opportunities.

Building on the subsequent GHG emission reduction goals established under AB 32, SB 32[3] and Executive Order B-55-18[4] established more aggressive Statewide GHG emission reduction goals (40 percent below 1990 levels by 2030 and carbon neutrality by 2045, respectively) than were in place when SB 375 was passed in 2008. CARB updated its Climate Change Scoping Plan[5] in 2017 to address these more aggressive reduction goals. This plan identified the need for greater GHG emission reductions from all sectors, including passenger vehicle travel and integrated land conservation and development strategies, of which SB 375 is an integral part.

After CARB set the first SB 375 GHG emission reduction targets in 2010, CARB staff published its initial guidance describing the methodology for evaluating GHG emission reductions attributable to an SCS and determining SB 375 target achievement, *Description of Methodology for ARB Staff Review of Greenhouse Gas Reductions from*

[1] AB 32 (Nunez, Chapter 488, Statutes of 2006).
[2] SB 375 (Steinberg, Chapter 728, Statutes of 2008).
[3] SB 32 (Pavley, Chapter 249, Statutes of 2016).
[4] Executive Order B-55-18. September 2018. Available at: https://www.gov.ca.gov/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf
[5] California Air Resources Board. *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target*. November 2017. Available at: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

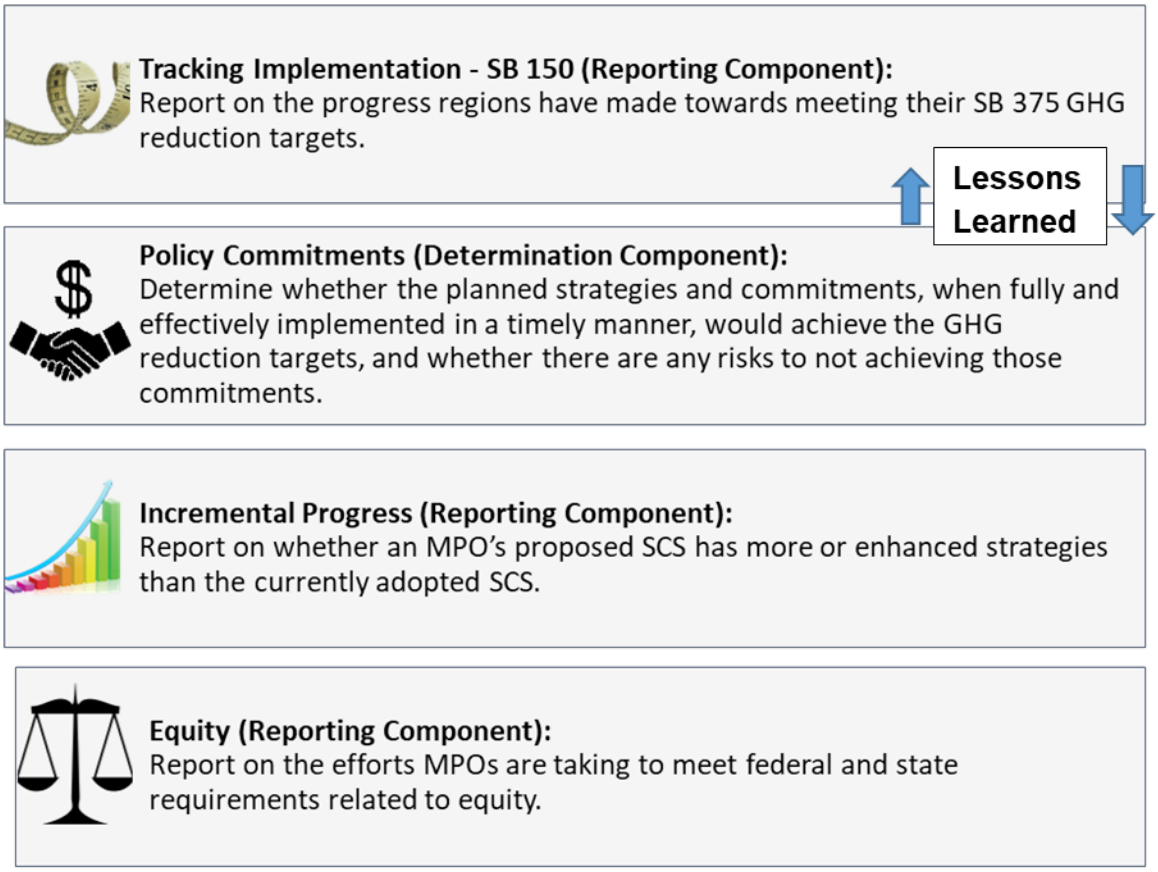
Sustainable Communities Strategies Pursuant to SB 375.[6] This initial guidance focused primarily on the technical aspects of the regional modeling and supporting analysis related to GHG emission reduction quantification.

In 2018, the CARB updated the SB 375 GHG emission reduction targets for the first time since the first targets were set in 2010. The 2018 GHG emission reduction targets increased for most of the MPOs from the original targets set in 2010. At that time the Board also provided new direction to CARB staff regarding how SCSs are evaluated pursuant to SB 375 GHG emission reduction targets. Specifically, the Board directed CARB staff to place greater attention on the strategies, key actions, and investments committed by the MPOs. The Board also directed CARB staff to develop additional reporting and tracking guidance.

In the 10 years since SB 375 passed, CARB has evaluated about 25 SCSs. Through these evaluations, CARB staff have gained additional insight and understanding of the MPOs' RTP/SCS development process. During this period, MPOs have identified barriers to implementation and learned what strategies reduce GHG emissions throughout each region. Consistent with the Board's direction and building on the last 10 years of experience, CARB is issuing updated guidance to establish a strategy-based SCS Evaluation Process, with a focus on the efforts MPOs are making to plan for more sustainable communities. This guidance document, *SCS Program and Evaluation Guidelines*, is intended to clarify the scope of the updated strategy-based SCS Evaluation Process, which consists of the following four key components: **Tracking Implementation (SB 150)**, **Policy Commitments**, **Incremental Progress**, and **Equity** (**Figure 1**). Collectively, these four components constitute the *SCS Evaluation Staff Report* prepared by CARB staff. However, the **Policy Commitments** component is the only component used by CARB staff as the basis for accepting or rejecting the MPO's SB 375 GHG emission reduction target determination (MPO's determination). The other three reporting components (**Tracking Implementation (SB 150)**, **Incremental Progress**, and **Equity**) are included to identify the effectiveness of prior SCS implementation and increase overall transparency of the SCS for the public and other stakeholders.

[6] California Air Resources Board. *Description of Methodology for ARB Staff Review of Greenhouse Gas Reductions from Sustainable Communities Strategies Pursuant to SB 375.* July 2011. Available at: https://www.arb.ca.gov/cc/sb375/scs_review_methodology.pdf.

Figure 1. Strategy-Based SCS Evaluation Process



Reporting Component: ***Tracking Implementation (SB 150)***

Recognizing the importance of realizing and measuring the benefits identified through the SB 375 planning work, the Legislature passed SB 150[7] in 2017, which tasked CARB with periodically analyzing the progress regions have made towards meeting the SB 375 GHG emission reduction targets through RTP/SCS implementation, and to include data-supported metrics for strategies utilized to meet the GHG emission reduction targets. Regional actions and empirical data from the last 10 years reveal both best practices and ongoing challenges, as well as the impacts of State policies and funding, and SB 150 directs CARB to summarize these lessons learned in a quadrennial report to the Legislature. As directed by the Board in its Resolution 18-12, approved on March 22, 2018,[8] the **Tracking Implementation (SB 150)** component included in the *SCS Program and Evaluation Guidelines* will serve as a way to report on the progress of

[7] SB 150 (Allen, Chapter 646, Statutes of 2017).
[8] Resolution 18-12. *Proposed Update to Senate Bill 375 Greenhouse Gas Emissions Reduction Targets*. March 2018. Available at: https://www.arb.ca.gov/cc/sb375/finalres18-12.pdf.

SCS strategy implementation and the progress that a region has made towards meeting the SB 375 GHG emission reduction targets. This reporting will build upon the work for SB 150 and may use data-supported metrics similar to those found in the *2018 Progress Report: California's Sustainable Communities and Climate Protection Act*,[9] prepared pursuant to SB 150. A key differentiator between the SB 150 progress report and the SB 375 **Tracking Implementation (SB 150)** component included in the SCS Evaluation Process is that the SB 150 progress report evaluates regional progress using a common set of metrics across all MPOs, while the SB 375 **Tracking Implementation (SB 150)** component will include additional indicators for each MPO that are specific to that MPOs RTP/SCS strategies, key actions, and implementing entities.

Determination Component: ***Policy Commitments***

Pursuant to SB 375, CARB is required to review the MPO's proposed technical methodology for quantifying GHG emission reductions from the SCS prior to their public process, as well as the final quantification of GHG emission reduction published in their adopted SCS. Based on this review, CARB must either accept or reject the MPO's determination that the SCS would achieve the applicable GHG emission reduction targets, when implemented. When assessing an MPO's determination, CARB staff will assess whether the MPO's RTP/SCS strategies and commitments support the stated GHG emission reductions, and whether there are any risks to not achieving those strategies and commitments. The **Policy Commitments** review includes analyses previously used by CARB staff in prior *SCS Evaluation Staff Reports,* as well as new analyses that assess whether there are supportive key actions (e.g., investments and whether the region is making plan adjustments and evaluating potential risks to achieving land use and transportation goals, as necessary, to meet the targets) for the RTP/SCS strategies.

CARB's statutory requirement to accept or reject the MPO's determination that the implemented SCS would achieve (when fully and effectively implemented) the applicable GHG emission reduction targets are based on the entire body of evidence produced in the **Policy Commitments** component analyses conducted by CARB staff. In other words, this component will provide the basis for CARB's SCS determination of SCS GHG emission reduction target achievement.

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[9] California Air Resources Board. *2018 Progress Report: California's Sustainable Communities and Climate Protection Act*. November 2018. Available at: https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf.

Reporting Component: ***Incremental Progress***

As directed by the Board in Resolution 18-12,[10] CARB staff will include an analysis of the incremental progress between RTP/SCSs that focuses on the efforts MPOs have taken to make progress from one plan to the next in terms of RTP/SCS strategies in the *SCS Evaluation Staff Report*. CARB staff propose a modeling-based or performance indicator-based approach to overcome the effects of assumptions (e.g., changes in travel characteristics and socioeconomic data) and control for factors outside the MPOs' control. This assessment will illustrate how the MPOs are making an effort to achieve the GHG emission reduction targets through additional or enhanced strategies. It will also inform the next round of GHG emission reduction target setting for SB 375. The **Incremental Progress** component will serve to inform the public on the plan level changes that the regions have made between RTPs/SCSs. Based on CARB staff recommendations outlined in the *Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*,[11] the **Incremental Progress** component is applicable to the big four[12] and eight Valley MPOs.[13]

The reason for this Board direction was that, during the 2018 GHG emission reduction target update process, a few MPOs reported to CARB that it will require an even greater level of effort to achieve the same per capita GHG emission reduction reported in the current SCSs due to changes in factors and assumptions outside of the MPOs control that are important determinants of travel behavior (such as the price of fuel, fleet efficiency, and socioeconomic data). CARB staff recognize that the MPOs are required to update these factors and assumptions in each RTP/SCS to be consistent with the latest available data, which can either diminish or enhance the effects of the vehicle miles traveled (VMT) estimates and GHG emission reduction strategies. According to these MPOs, simply staying on course to achieve the previously demonstrated SB 375

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[10] Resolution 18-12. *Proposed Update to Senate Bill 375 Greenhouse Gas Emissions Reduction Targets*. March 2018. Available at: https://www.arb.ca.gov/cc/sb375/finalres18-12.pdf.

[11] California Air Resources Board. *Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets. APPENDIX A. MPO Target Recommendations and CARB Staff Recommendations*. February 2018. Available at: https://www.arb.ca.gov/cc/sb375/appendix_a_feb2018.pdf?_ga=2.245154247.316839538.1551994664-284387270.1551726542.

[12] This includes Metropolitan Transportation Commission/Association of Bay Area Governments, Sacramento Area Council of Governments, San Diego Association of Governments, and Southern California Association of Governments.

[13] This includes Fresno Council of Governments, Kern Council of Governments, Kings County Association of Governments, Madera County Transportation Commission, Merced County Association of Governments, San Joaquin Council of Governments, Stanislaus Council of Governments, and Tulare Association of Governments.

GHG emission reduction targets will be difficult to achieve with current resources, let alone achieving the incrementally more aggressive GHG emission reduction targets adopted by the Board in 2018.

Reporting Component: ***Equity***

Consistent with AB 857 and Board direction, **Equity** is a new reporting component of the *SCS Evaluation Staff Report*. In the 2018 regional GHG emission reduction target update process, discussion from members of CARB's Board included a request that SCSs contain a "robust social equity analysis.[14] The Board Resolution 18-12 from the GHG emission reduction target update process indicates: "The Proposed Updated Regional Targets will help incentivize the regions to implement more sustainable planning policies that promote walking, bicycling, less traffic congestion, and more transportation choices, which can provide air quality, public health, and social equity benefits."[15] Further, the Board indicated the need to highlight efforts MPOs are taking to address equity.

This direction aligns with existing legislative priorities to promote equity as an important State planning goal and with federal requirements for equity considerations. In 2002, AB 857[16] established the promotion of equity as a State planning priority alongside strengthening the economy, protecting the environment, and promoting public health and safety. In 2012, AB 441[17] was passed to capture the work the MPOs are doing to promote health and equity through policies in the RTP/SCSs. Additionally, several federal and State legal requirements[18] work to protect low income and minority populations. The environmental justice and equity analysis requirements found in the RTP Guidelines are based on these requirements. In accordance with these requirements, the California Transportation Commission's (CTC) *2017 Regional*

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[14] J&K Court Reporting. *Meeting of California Air Resources Board: Thursday, March 22, 2018*. March, 2018. Available at: https://www.arb.ca.gov/board/mt/2018/mt032218.pdf?_ga=2.243746631.330498114.1544123257-322284002.1543529202.

[15] Resolution 18-12. *Proposed Update to Senate Bill 375 Greenhouse Gas Emissions Reduction Targets*. March 2018. Available at: https://www.arb.ca.gov/cc/sb375/finalres18-12.pdf

[16] AB 857 (Wiggins, Chapter 1016, Statutes of 2002).

[17] AB 441 (Monning, Chapter 365, Statutes of 2012).

[18] Title 23 CFR Part 450.316(a); Title 42 U.S.C. Chapter 21 Section 2000(d) (Title VI of the federal Civil Rights Act of 1964); Title 49 CFR Part 21 (Title VI Regulations); portions of FTA Circular 4702.1B – Title VI Requirements and Guidelines for FTA Recipients; Presidential Executive Order 12898 on Environmental Justice (1994): portions of U.S. DOT Order 5610.2(a) (2012) and Federal Highway Administration Order 6640.23A (2012); California Government Code Section 11135.

Transportation Plan Guidelines for Metropolitan Planning Organizations[19] states that the guidelines serve to help "[p]romote an integrated, statewide, multimodal, regional transportation planning process and effective transportation investments and [s]et forth a uniform transportation planning framework throughout California by identifying federal and State requirements and statutes impacting the development of RTPs."

SCS Program and Evaluation Guidelines Development

CARB staff will use the *SCS Program and Evaluation Guidelines* to strive for an effective, streamlined, and consistent evaluation process that will best serve the requirements and intent of SB 375. Further, this document is intended to help MPOs meet SB 375 requirements and to provide common and consistent approaches to estimate GHG emission reductions.

One of the challenges in developing guidelines for 18 MPOs across California is that each region of the State consists of unique geographic, economic, and funding characteristics. Due to these unique characteristics, region-specific approaches are usually necessary for developing GHG emission reduction strategies. In addition, the information/data requested during the SCS Evaluation Process may be more readily available for some MPOs than for others due to availability of MPO resources (e.g., staffing, funding, and schedule), datasets, and other related information about strategies. To account for differences in regions and resources across MPOs, CARB is:

1) Streamlining the information needed under the SCS Evaluation Process, which has resulted in fewer metrics being requested overall than in the 2011 Guidelines;
2) Committed to working with MPOs to identify alternative attributes, data, or methods if there are potential issues with the ability of MPOs to provide information requested by CARB staff and/or if CARB staff have identified potential risks to the MPO achieving the strategies and commitments identified in the SCS; and
3) Providing alternative analyses that CARB staff will conduct if the MPO does not have the resources to conduct such analyses.

The *SCS Program and Evaluation Guidelines* has been prepared based on outreach with stakeholders, including the public, and incorporates applicable stakeholder feedback. SCS development under SB 375 is a long-term and iterative process, as SB 375 requires CARB to update GHG emission reduction targets and MPOs to update the RTP/SCSs regularly. With each iteration, the SCS evaluation process will continue to evolve and improve as MPOs gain experience with SCS development and

[19] 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.

implementation. The updated *SCS Program and Evaluation Guidelines* will apply only to the MPOs third SCSs, and may be updated again as new information and data become available.

I. Introduction and Background

The Sustainable Communities and Climate Protection Act of 2008, SB 375,[20] is intended to encourage regional planning that integrates land use and transportation policy in a way that reduces GHG emissions from driving, and ultimately results in healthier, more efficient, and equitable communities. Under SB 375, the development and implementation of SCSs, which link transportation, land use, housing, and climate policy, are designed to reduce per capita GHG emissions, while improving air quality, expanding transportation and housing options, and promoting land conservation.

Over the last decade, SB 375 has transformed regional planning in California by raising awareness of the importance of transportation planning as a means of shaping more livable and equitable communities. It has resulted in greater communication between regional planning agencies, local governments, and stakeholders who support more sustainable land use and transportation policies. Furthermore, it has encouraged development of a new generation of regional transportation plans that include more creative thinking about smart growth and increasing mobility choices to reduce GHG emissions, as well as generate numerous public health, economic, mobility, housing, and land conservation benefits associated with a low-carbon future.

Federal Planning Context

Under federal law, MPOs are required to develop and adopt an RTP covering a minimum 20-year planning period and updated every four years.[21] The requirements for RTP development are outlined in the federal Final Rule on Statewide and Non-metropolitan Transportation Planning and Metropolitan Transportation Planning are codified in 23 CFR Parts 450 and 771 and 49 CFR Part 613. As indicated in the CTC's *2017 Regional Transportation Plan Guidelines for Metropolitan Planning Organizations*, under federal law, RTPs must consider the following planning factors:

- "Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized, and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users;
- Increase accessibility and mobility of people and freight;

[20] SB 375 (Steinberg, Chapter 728, Statutes of 2008).
[21] Title 23 U.S.C. § 134.

- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between (regional) transportation improvements and State and local planned growth and economic development patterns;
- Enhance the integration of connectivity of the transportation system across and between modes, for people and freight;
- Promote efficient system management and operation;
- Emphasize the preservation of the existing transportation system;
- Improve the resiliency and reliability of the transportation system and reduce or mitigate storm water impacts to surface transportation; and
- Enhance travel and tourism."[22]

In addition to the factors above, and among other requirements, MPO RTP/SCSs are required to comply with Title VI of the Civil Rights Act of 1964.[23] Title VI of the Civil Rights Act of 1964 ensures that all people have equal access to the transportation planning process. Title VI states: *all people regardless of race, sexual orientation, or income level, will be included in the decision-making process*.

State Planning Context

AB 32,[24] passed in 2006, serves as the foundation for California's goals to reduce GHG emissions and is the basis for almost all of California's subsequent efforts to reduce GHG emissions. Building on the GHG emission reduction goals established under AB 32, SB 32[25] and Governor's Executive Order B-55-18[26], which established more aggressive statewide GHG emission reduction goals (40 percent below 1990 levels by 2030, and carbon neutrality goal by 2045) than were in place when SB 375 signed into a law in 2008. CARB is required to prepare a Scoping Plan which identifies and recommends various measures to achieve the State's climate

As stated in SB 375, "[w]ithout improved land use and transportation policy, California will not be able to achieve the goals of AB 32."

[22] 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.
[23] Title 42 U.S.C. Chapter 21 § 2000(d). Title VI of the federal Civil Rights Act of 1964.
[24] AB 32 (Nunez, Chapter 488, Statutes of 2006).
[25] SB 32 (Pavley, Chapter 249, Statutes of 2016)
[26] Executive Order B-55-18. September 2018. Available at: https://www.gov.ca.gov/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf.

goals.[27] In 2017, CARB updated its Climate Change Scoping Plan in 2017[28] to address California's subsequent climate goals, which includes more aggressive GHG emission reduction targets, and identifies the need for greater GHG emission reductions from all sectors, including passenger vehicle travel, and integrated land conservation and development strategies, of which SB 375 is an integral part.[29]

Regional Planning Context

MPOs are responsible for transportation planning at the regional level. Through these planning efforts, MPOs develop strategies for operating, managing, maintaining, and financing the region's transportation system in a way that advances the region's long-term goals through collaboration with local jurisdictions. Since the passage of SB 375, coordination of transportation and land use planning have become critical to regional achievement of the SB 375 GHG emission reduction targets. SB 375 requires each MPO to adopt an action-oriented SCS, which serves as an integrated regional land use, housing, and transportation plan that is part of each MPO's federally required RTP.

Where and *how* growth occurs matters.

The State and MPOs prepare growth projections to forecast the long-range population and employment growth across the State as a whole, and within each county. The rate of growth projected in each region determines the future demand on the transportation system. By accommodating planned future growth, a region commits to adding some increment of passenger VMT and associated GHG emissions. SB 375 acknowledges that where and how that growth occurs matters. SB 375 requires planning for a region's growth in coordination with the transportation system to occur in a way that reduces regional per capita GHG emissions compared to year 2005 levels according to respective GHG emission reduction targets adopted by CARB.

[27] Health & Safety. Code § 38561.
[28] California Air Resources Board. *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target*. November 2017. Available at: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.
[29] Ibid.

MPO Roles and Responsibilities Under SB 375

Over the last ten years, CARB staff and MPO staff have developed a strong practice of collaboration through the SCS Evaluation Process under SB 375. CARB staff appreciates the longstanding commitment of staff resources that MPOs have allocated to work with CARB on the *SCS Evaluation Staff Reports*. As an MPO develops its RTP/SCS, an information exchange between CARB and the MPO exists throughout the process.

Technical Methodology Submittal

Prior to starting the statutory public participation process for development of an RTP/SCS, SB 375 requires each MPO to first submit a *Technical Methodology* to CARB that describes the methodology the MPO intends to use to estimate the GHG emission reductions associated with its SCS.[30] For more information regarding the *Technical Methodology*, including guidance, see **Appendix A**.

SCS Development and Submittal

SB 375 requires MPOs to develop an SCS, which is an action-oriented plan that aligns financially constrained regional transportation investments, housing, and land use planning.[31] The SCS includes specific planned or enacted strategies and investments identified by the MPO that describe how the region will achieve the regional GHG emission reduction targets set by CARB. These RTP/SCS strategies are typically evaluated in the MPO's travel demand model, which is a computer-based calculation tool used to forecast future travel behavior based on the simulation of complex interactions among demographics, land use development patterns, transportation system, and other related factors. Federal and State requirements for MPO models are documented in CTC's *2017 Regional Transportation Plan Guidelines for Metropolitan Planning Organizations*.[32] In the event the MPO's travel demand model does not have sufficient resolution, to characterize the effects of an MPO's RTP/SCS strategy, SB 375 allows for the use of off-model calculations and other approaches to characterize the effectiveness of an RTP/SCS strategy. For more information regarding off-model strategies, including quantification methodologies, see **Appendix E**.

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[30] Gov. Code § 65080, subdivision (b)(2)(J)(i).
[31] Gov. Code § 65080, subdivision (b)(2)(B).
[32] 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.

Alternative Planning Strategy

To the extent an MPO's SCS is unable to demonstrate it would achieve the GHG emission reduction targets set by CARB, the law requires the MPO to prepare an Alternative Planning Strategy (APS) to the SCS demonstrating how the GHG emission reduction targets would be achieved. CARB is required to evaluate each MPOs' final adopted APS to determine whether the APS, if implemented, would achieve the GHG emission reduction targets. If CARB finds that the MPOs' APS would not achieve its targets, the MPO must revise the APS, with a minimum requirement that the MPO receive CARB acceptance that an APS, would achieve the GHG emission reduction targets. To date, no MPO has submitted an APS.

CARB Roles and Responsibilities Under SB 375 and SB 150

GHG Emission Reduction Targets

Under SB 375, CARB is required to establish GHG emission reduction targets for each of the State's 18 MPOs at least every eight years, and may revise the GHG emission reduction targets every four years.[33] On September 23, 2010, the Board approved the first 2020 and 2035 per capita GHG emission reduction targets for each of the 18 MPO regions, as required by SB 375. Subsequently, CARB developed guidance for MPOs in 2011 describing its methodology for evaluating GHG emission reductions attributable to an SCS and determining SCS target achievement, *Description of Methodology for ARB Staff Review of Greenhouse Gas Reductions from Sustainable Communities Strategies Pursuant to SB 375.*[34] CARB updated the GHG emission reduction targets in March 2018, and those new targets took effect in October 2018.[35] This document serves as an update to the 2011 guidelines to be used when evaluating SCSs developed to meet these new targets.

Technical Methodology

As previously discussed, MPOs must submit a *Technical Methodology* to CARB prior to the MPO's statutorily-required RTP public participation process. Upon receipt of an MPO's *Technical Methodology*, CARB staff evaluates the proposed Technical Methodology to ensure it would yield accurate estimates of GHG emissions, identify any potential deficiencies, and suggest recommendations for improvements to the

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[33] Gov. Code § 65080, subdivision (b)(2)(A)(iv).

[34] California Air Resources Board. *Description of Methodology for ARB Staff Review of Greenhouse Gas Reductions from Sustainable Communities Strategies Pursuant to SB 375.* July 2011. Available at: https://www.arb.ca.gov/cc/sb375/scs_review_methodology.pdf.

[35] Resolution 18-12. *Proposed Update to Senate Bill 375 Greenhouse Gas Emissions Reduction Targets*. March 2018. Available at: https://www.arb.ca.gov/cc/sb375/finalres18-12.pdf.

MPO's proposed *Technical Methodology*. This can be an iterative process as MPOs and CARB work to address any questions, concerns, and recommendations CARB may have. If CARB deems the MPO's *Technical Methodology* adequate, CARB then provides a formal letter of acceptance to the MPO.

SCS Evaluation Process

The MPO's final adopted SCS is submitted to CARB for review upon adoption by the MPO.[36] Pursuant to SB 375, CARB must evaluate the MPO's quantification of GHG emission reductions as well as the MPO's description of the *Technical Methodology* used to quantify the SCS's GHG emission reductions. Based on this review, CARB must either accept or reject the MPO's determination that its implemented SCS would achieve the assigned regional GHG emission reduction targets. CARB's SCS determination is based on the entire body of evidence, data, and results from the four analyses that comprise the **Policy Commitments** component. In addition to the SCS determination, CARB will also report the following three components: **Tracking Implementation (SB 150)**, **Incremental Progress**, and **Equity** to identify the effectiveness of prior SCS implementation and increase overall transparency of the SCS for the public and other stakeholders. These four components comprise CARB's SCS Evaluation Process, and CARB staff will prepare an *SCS Evaluation Staff Report* detailing the results of each component. As part of the SCS Evaluation Process, CARB staff encourages feedback from the public. Upon receipt of a complete SCS submission, CARB has 60 days to evaluate the MPOs determination[37] and to publish the *SCS Evaluation Staff Report*.

Monitoring and Tracking under SB 150

SB 150[38] requires CARB to prepare a report to the Legislature starting in 2018, and every four years thereafter, to discuss progress related to SB 375 implementation. This report must assess progress toward meeting the regional GHG emission reduction targets, provide data-supported metrics about the strategies used to meet the targets, identify best practices and challenges to achieving greater reductions, and discuss the impact of State policies and funding. The first SB 150 report[39], was published by CARB in November 2018.

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[36] Gov. Code § 65080, subdivision (b)(2)(I)(ii).
[37] Ibid.
[38] SB 150 (Allen, Chapter 646, Statutes of 2017).
[39] California Air Resources Board. *2018 Progress Report: California's Sustainable Communities and Climate Protection Act*. November 2018. Available at: https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf.

II. Purpose for Updating the SCS Program and Evaluation Guidelines

CARB is updating the *SCS Program and Evaluation Guidelines* to:

- Incorporate Board direction[40,41,42] into the SCS Evaluation Process;
- Improve standardization of CARB staff's SCS Evaluation Process and *SCS Evaluation Staff Reports*; and
- Provide guidance on GHG emissions quantification and MPO data submittals.

In March 2018, CARB updated the GHG emission reduction targets for the first time since the passage of SB 375. These new targets became effective on October 1, 2018. At that time, the Board increased the GHG emission reduction targets for most of the MPOs from the original targets that were set in 2010, and also directed[43,44,45] staff to shift the way in which CARB staff evaluates each SCS pursuant to SB 375 targets toward evaluating the benefits of policies and strategies rather than on modeling outputs. In addition, SB 150, passed in 2017, directed CARB to examine and report to the Legislature on evidence of implementation progress and impacts of policy change on GHG emission reductions. Through SB 150, the Legislature requested CARB to conclude, based on data-supported metrics, whether the SCSs are achieving the GHG

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[40] Resolution 18-12. *Proposed Update to Senate Bill 375 Greenhouse Gas Emissions Reduction Targets*. March 2018. Available at: https://www.arb.ca.gov/cc/sb375/finalres18-12.pdf.

[41] California Air Resources Board. *Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*. February 2018. Available at: https://www.arb.ca.gov/cc/sb375/sb375_target_update_final_staff_report_feb2018.pdf.

[42] J&K Court Reporting. *Meeting of California Air Resources Board: Thursday, March 22, 2018*. March, 2018. Available at: https://www.arb.ca.gov/board/mt/2018/mt032218.pdf?_ga=2.243746631.330498114.1544123257-322284002.1543529202.

[43] Resolution 18-12. *Proposed Update to Senate Bill 375 Greenhouse Gas Emissions Reduction Targets*. March 2018. Available at: https://www.arb.ca.gov/cc/sb375/finalres18-12.pdf.

[44] California Air Resource Board. *Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*. February 2018. Available at https://www.arb.ca.gov/cc/sb375/sb375_target_update_final_staff_report_feb2018.pdf.

[45] J&K Court Reporting. *Meeting of California Air Resources Board: Thursday, March 22, 2018*. March, 2018. Available at: https://www.arb.ca.gov/board/mt/2018/mt032218.pdf?_ga=2.243746631.330498114.1544123257-322284002.1543529202.

emission reduction targets, and if not, an assessment of the challenges to achieving the GHG emission reduction targets established by SB 375.

After SB 375 was adopted and the first set of GHG emission reduction targets were established for the 18 MPOs, CARB published its first guidance describing the methodology for evaluating GHG emission reductions attributable to an SCS and for determining SCS target achievement.[46] This guidance primarily focused on the technical aspects of the regional modeling and supporting analysis related to GHG emission reduction quantification and consisted of the following components: model inputs and assumptions, modeling tools, model sensitivity tests, and performance indicators. This existing guidance has been used exclusively over the last eight years to evaluate over 25 SCSs, and is focused on the capabilities, performance, and input assumptions of MPOs' land use and travel demand models. Over the past decade, it has become clear that models are only one of many tools that are available for measuring RTP/SCS performance, but when used alone, models are limited in producing results about the performance of an RTP/SCS.

Based on feedback from MPOs and stakeholders, CARB is proposing a variety of updates including the manner in which CARB staff conducts the SCS Evaluation Process and prepares *SCS Evaluation Staff Reports.* Further, it provides clarity on the information exchange process and expectations between MPOs and CARB, and guidance and standardized approaches to review GHG emissions quantification and MPO data submittals.

CARB recognizes that an MPO's SCS performance is not solely dependent on factors MPOs can control like policies and investments. SCS performance is also affected by factors outside of MPO control like changes to forecasted demographics, fuel price, fleet mix, local land use authority, etc. In practice, this has resulted in an unproductive effort focused around assumptions for factors outside of any regional or State agency's control. In addition, during the 2018 GHG emission reduction target update process, some MPOs reported to CARB that, due to changes in factors and assumptions (e.g., changes in travel characteristics and socioeconomic data) beyond MPO control, even greater level of effort would be required to achieve the same per capita GHG emission reductions reported in the current SCSs. As a result, CARB staff are including an additional reporting component to assess **Incremental Progress** in the next SCS cycle.

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[46] California Air Resources Board. *Description of Methodology for ARB Staff Review of Greenhouse Gas Reductions from Sustainable Communities Strategies Pursuant to SB 375.* July 2011. Available at: https://www.arb.ca.gov/cc/sb375/scs_review_methodology.pdf.

III. Goals for Updating the SCS Evaluation Process

To address the needs discussed above, CARB staff aim to shift the focus of the SCS Evaluation Process to the strategies, policies, and investments in the SCS. In addition, CARB staff are incorporating reporting components that are not part of CARB's SCS determination, but are important to understanding the planning context within each region. These new reporting components have been added to address the Board's direction provided during the 2018 GHG emission reduction target update process.[47,48,49] Specifically, the *SCS Program and Evaluation Guidelines* improves the scope of CARB's SCS Evaluation Process to include the following:

Incorporate Board direction[50,51,52] *into the SCS Evaluation Process:*

- Increase focus on land use and transportation strategies and evaluate how these strategies are performing in the SCS, which is addressed in the **Policy Commitments** component.
- Increase analysis of the investments and strategies MPO regions are making as compared to the last SCS, which is addressed by the **Policy Commitments** component.
- Increase program transparency and accountability through the development of additional reporting and tracking guidance within the SCS Evaluation Process, which are addressed by the **Incremental Progress** and **Tracking Implementation (SB 150)** components.

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[47] Resolution 18-12. *Proposed Update to Senate Bill 375 Greenhouse Gas Emissions Reduction Targets*. March 2018. Available at: https://www.arb.ca.gov/cc/sb375/finalres18-12.pdf.

[48] California Air Resources Board. *Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*. February 2018. Available at: https://www.arb.ca.gov/cc/sb375/sb375_target_update_final_staff_report_feb2018.pdf.

[49] J&K Court Reporting. *Meeting of California Air Resources Board: Thursday, March 22, 2018*. March, 2018. Available at: https://www.arb.ca.gov/board/mt/2018/mt032218.pdf?_ga=2.243746631.330498114.1544123257-322284002.1543529202.

[50] Resolution 18-12. *Proposed Update to Senate Bill 375 Greenhouse Gas Emissions Reduction Targets*. March 2018. Available at: https://www.arb.ca.gov/cc/sb375/finalres18-12.pdf.

[51] California Air Resources Board. *Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*. February 2018. Available at: https://www.arb.ca.gov/cc/sb375/sb375_target_update_final_staff_report_feb2018.pdf.

[52] J&K Court Reporting. *Meeting of California Air Resources Board: Thursday, March 22, 2018*. March, 2018. Available at: https://www.arb.ca.gov/board/mt/2018/mt032218.pdf?_ga=2.243746631.330498114.1544123257-322284002.1543529202.

- Address **Equity** as part of the program by summarizing the efforts MPOs are taking as part of the RTP/SCS social equity analyses pursuant to CTC's RTP Guidelines.

Make improvements to the manner in which CARB staff conducts the SCS Evaluation Process and prepares SCS Evaluation Staff Reports:

- Clarify expectations to MPOs and stakeholders about CARB's SCS Evaluation Process;
- Provide more transparency and consistency in the SCS Evaluation Process;
- Better align the timing and content of MPO data submittals and documents along with the SCS; and
- Clarify and consolidate data requested by CARB staff to minimize ad-hoc requests of MPO staff during the SCS Evaluation Process.

Provide guidance and standardize approaches to GHG emissions quantification and MPO data submittals:

- Identify common and consistent approaches for MPOs to estimate GHG emission reductions by outlining the key technical aspects that underlie GHG quantification methodologies;[53]
- Establish clear guidelines on what MPOs should submit to CARB; and
- Clarify expectations regarding level of detail and resolution of data submitted by MPOs to CARB.

Purpose of this Document

The purpose of this document is to present the updated SCS Evaluation Process. These updates are guided by the legislative authority granted to CARB by SB 375 to establish appropriate methods for technical review of an MPO's SCS, directives from the Board, and lessons learned from conducting nearly a decade of SCS Evaluations. The updated SCS Evaluation Process will apply only to the MPOs third SCSs, and may be updated again as new information and data become available. More information about GHG emission reduction targets, and previous

This updated SCS Program and Evaluation Guidelines will apply only to the MPOs third SCSs, and may be updated again as new information and data become available.

[53] MPOs have discretion in the methodologies used to quantify GHG emissions within their respective SCSs. All methodologies used must be documented in the respective MPO's *Technical Methodology* and should be shared with CARB in advance of the statutorily required public comment period.

MPO SCSs and CARB technical reviews, can be found online at https://ww2.arb.ca.gov/resources/documents/scs-evaluation-resources.

This document is primarily intended for stakeholders who are familiar with the existing SCS Evaluation Process published by CARB in 2011, *Description of Methodology for ARB Staff Review of Greenhouse Gas Reductions from Sustainable Communities Strategies Pursuant to SB 375,*[54] and its requirements. Additional background information about CARB's current methodology for evaluating GHG emission reduction for an SCS and related materials, including regional GHG emission reduction targets, CARB *Staff Reports*, and previous MPO SCSs and CARB technical reviews, can be found online at https://ww2.arb.ca.gov/resources/documents/scs-evaluation-resources.

[54] California Air Resources Board. *Description of Methodology for ARB Staff Review of Greenhouse Gas Reductions from Sustainable Communities Strategies Pursuant to SB 375.* July 2011. Available at: https://www.arb.ca.gov/cc/sb375/scs_review_methodology.pdf.

IV. SCS Evaluation Components

The strategy-based SCS Evaluation Process consists of four components that, when put together, provide a broad picture of the MPO's RTP/SCS strategies and how MPOs plan to achieve the SB 375 GHG emission reduction targets. A description of the four components is provided in **Table 1**.

Table 1. Strategy-Based SCS Evaluation Components

SCS Program and Evaluation Components	Reporting or Determination?	Component Description
Tracking Implementation (SB 150)	Reporting	Report the progress of SCS implementation that the region has made toward meeting the SB 375 GHG emission reduction targets.
Policy Commitments	Determination	Evaluate an SCS's land use and transportation strategies and the likelihood or tendency toward reducing VMT and GHG emissions consistent with the MPO's determination; evaluate potential risks to RTP/SCS strategies and associated impact on reducing per capita GHG emissions and VMT; and basis for accepting or rejecting the MPO's determination that an SCS would achieve the applicable GHG emission reduction targets.
Incremental Progress	Reporting	Report on incremental progress of the proposed SCS relative to the currently adopted SCS, and whether the MPO is making incremental progress consistent with information shared during the 2018 GHG emission reduction target setting process.[55]
Equity	Reporting	Report on the effort the MPO is taking to meet federal and State requirements related to equity.

CARB has enhanced the SCS Evaluation Process with a new component for **Tracking Implementation (SB 150)**. This allows CARB staff to compare progress an MPO has included in its SCS through data-supported metrics, to understand the progress a region has made towards meeting the GHG emission reduction targets, and how well strategies are working. MPOs may provide an RTP/SCS implementation assessment report for this component that describes the implementation status of adopted RTP/SCS strategies.

As part of the **Policy Commitments** component of the *SCS Evaluation Process*, CARB staff will perform four different analyses (Trend, Policy, Investment, and Plan Adjustment) to verify short-term and long-term RTP/SCS strategies are supported by

[55] California Air Resources Board. *Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*. February 2018. Available at: https://www.arb.ca.gov/cc/sb375/sb375_target_update_final_staff_report_feb2018.pdf.

key actions and investments that yield the projected changes in land use patterns, mode share, VMT, and other metrics that are consistent with the per capita GHG emission reduction quantified in the SCS. Since the objective of SB 375 is to reduce GHG emissions through better alignment of land use and transportation planning, the SCS Evaluation Process places emphasis on these planning goals. Land use and transportation strategies pose the greatest opportunities to maximize GHG emission reduction, but these strategies also require more time to realize those benefits. The SCS Evaluation Process takes a comprehensive and holistic approach to evaluating strategies that are both long-term (such as land use and behavioral changes) and short-term (such as technologies and funding).

CARB staff will assess whether SCS performance indicators are trending in a direction that supports GHG emission reductions and whether the magnitude of the stated GHG emission reductions are generally supported by empirical literature and data. In addition, if the region is falling behind on implementing strategies, CARB staff will also assess what measures are being taken to correct course, as necessary to meet the target. The new approach establishes a strategy-based SCS Evaluation Process, where the evaluation of modeling assumptions and tools are not the central focus of CARB's SCS Evaluation Process. However, this review of modeling assumptions and tools will remain one consideration in how the SCS meets the GHG emission reduction targets. If the MPOs validate and calibrate the travel demand models to meet the applicable requirements of the *RTP Guidelines*[56], then CARB considers the model valid. CARB staff will continue to collect information about the sensitivity of the modeling tools used by the MPOs to determine whether the modeling tools are capable of reflecting the stated RTP/SCS strategies and producing correspondingly sound results. CARB staff aims to make this process more consistent and transparent across MPOs.

CARB staff are also including a new component that reports the **Incremental Progress** in per capita GHG emission reductions from one plan to the next, as applicable. During the 2018 GHG emission reduction target update process, some MPOs reported to CARB that, due to changes in factors and assumptions (e.g., changes in travel characteristics and socioeconomic data) beyond MPO control, even greater level of effort would be required to achieve the same per capita GHG emission reduction reported in the current SCSs. According to these MPOs, simply staying on course to achieve the previously demonstrated SB 375 GHG emission reduction targets will be a stretch of current resources, let alone achieving the more aggressive targets adopted by the Board in 2018. In order to continue to meet the SB 375 GHG emission reduction

[56] 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

targets, the MPOs would need to make up respective gaps through additional innovation and strategies that reduce GHG emissions. In order to illustrate the MPOs are, in fact, stretching to achieve the GHG emission reduction targets, this portion of the evaluation will focus more squarely on the RTP/SCS strategy commitments MPOs are making from one plan to the next.

Finally, **Equity** is included as a reporting component of the SCS Evaluation Process. MPOs may report to CARB a summary of how they are conducting equity analyses in accordance with CTC's RTP Guidelines. This **Equity** reporting component will describe how MPO identify vulnerable communities within the region, the metrics and performance measures used by the MPO to ensure no disproportionately high and adverse effect on human health and environment, and the stakeholder outreach and engagement process established by MPO. CARB will include a summary in the *SCS Evaluation Staff Report*, based on reporting provided by the MPO. In absence of equity reporting from an MPO, CARB staff will develop the summary.

Each component of the SCS Evaluation Process are further described in more detail in the subsequent sections of this report.

V. Strategy-Based SCS Evaluation Process

The purpose of the strategy-based SCS Evaluation Process is to enhance transparency of the strategies within the SCS, identify the MPO's commitment to the SCS strategies, and determine whether the proposed strategies support the calculated GHG emission reductions. CARB staff recognize that California's 18 MPOs represent a wide variety of land use types, transportation systems, population centers, and development patterns. RTP/SCS strategies work differently in each region depending on a number of factors, including the existing infrastructure, growth allocation (e.g., urban, suburban, or rural), and the natural environment. To account for these differences and to gain a better understanding of what is occurring within the region, CARB has developed the strategy-based SCS Evaluation Process that consists of the following four components, **Tracking Implementation (SB 150)**, **Policy Commitments**, **Incremental Progress**, and **Equity**. These four components evaluate RTP/SCS strategies that are classified into four broad categories:

1. Land use and housing;
2. Transportation;
3. Local/regional pricing; and
4. New mobility;

Table 2 provides a non-exhaustive list of example RTP/SCS strategy-types and possible key actions for which MPOs can calculate GHG emission reductions under SB 375, and also indicates the level of detail which CARB staff will evaluate RTP/SCS strategies and key actions. In no way does this table suggest limited policy commitments from MPOs.

Table 2. RTP/SCS Strategy and Key Action Examples

Strategy Category	Strategy Examples	Key Action Examples
Land Use and Housing	Focus housing and job growth in urban areas near existing infrastructure to support connections to transit.	• Allocate resources to update local plans and zoning to increase density in targeted areas. • Fund affordable housing near transit and jobs.
Transportation	Increase transportation access by providing additional reliable and efficient mobility options.	• 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. • Partner with bike and scooter share programs to provide alternative mobility services in low-income communities. • Incentivize trip reduction programs or vanpool with subsidies. • Continue to provide employers with tools to coordinate carpool and ride matching programs.
Local/Regional Pricing	Relieve congestion and support pooling and transit usage	• Provide incentives to local governments who reduce local parking requirements with zoning updates. • Establish bike share programs close to new multi-family housing units or provide an incentive funding source to developers to purchase bicycles for renters. • Provide policy guidance for implementing local toll lanes
New Mobility	Foster new mobility within the region that provides more transportation options to support use of public transportation and alternative modes.	• Subsidize shared/pooled transportation network company (TNC) rides. • Partner with local agencies to provide electric vehicle car share programs and infrastructure to low-income communities. • Coordinate with locals on regional policies which support use of app-based active transportation programs without compromising public safety.
		•

VI. Information and Data Needed for Strategy-Based SCS Evaluation Process

Under the strategy-based SCS Evaluation Process, MPOs should submit the following SCS land use and transportation system characteristics and performance indicators for 2005, the RTP/SCS base year, 2020, 2035, and the RTP/SCS horizon year to CARB.

Land Use and Transportation System Characteristics

Land Use Characteristics

- Residential densities (total regional and by place type or sub-regional geography as defined by the MPO)
- Employment densities (total regional and by place type or sub-regional geography as defined by the MPO)
- Total regional housing product type/mix (single-family/multi-family)
- Total regional developed acres
- Total housing units and employment within ½ mile of a High-Quality Transit Station

Transportation System Characteristics

- Lane miles of roadway by functional classification
- Transit headways
- Transit operation miles
- Transit service hours
- Class I, II, and IV bike lane miles
- Average toll rate/congestion pricing per unit

These unique characteristics may represent many RTP/SCS strategies, and are indicators of how the region aims to change over time. If an MPO does not have the specific information and data identified above, the MPO should coordinate with CARB to identify alternative information that represents the specific RTP/SCS Strategies. CARB staff recognizes that information and data requested in this *SCS Program and Evaluation Guidelines* may be more readily available for some MPOs than for others due to availability of MPO resources (e.g., staffing, funding, and schedule), datasets, and other related information about strategies. CARB is committed to working with MPOs to identify alternative attributes, data, or methods if there are potential issues with the ability of MPOs to provide information requested by CARB staff and/or if CARB staff have identified potential risk(s) indicating an MPO may not achieve the strategies and commitments identified in the SCS.

The combination of land use and transportation system characteristics that represent the RTP/SCS should result in RTP/SCS performance outcomes that demonstrate VMT and associated per capita GHG emission reduction. For more information on land use and transportation network characteristics along with SCS performance indicators, including a description and calculation methodology, see **Appendix C**.

Performance Indicators

RTP/SCS performance indicators are central to CARB's SCS Evaluation Process to determine whether an SCS meets the SB 375 GHG emission reduction targets. MPOs are encouraged to publicly report these indicators as early as possible in the RTP/SCS scenario development process.[57]

- Household vehicle ownership
- Mode split
- Average travel time by mode
- Transit ridership
- Average vehicle trip length
- Seat utilization or Load factor
- Household VMT (external-external [XX] trips excluded)
- per capita VMT (external-external [XX] trips excluded)

Performance indicators are central to CARB's SCS Evaluation Process to determine whether an SCS meets the SB 375 GHG emission reduction targets, MPOs are encouraged to publicly report these indicators as early as possible in the RTP/SCS scenario development process.

In addition, MPOs should submit the following information:

- MPO's adopted **forecasted development pattern** (total new population growth, housing growth, and employment growth) tabulated by place type or sub-regional geography[58] as appropriate to each region (e.g., base year through 2020, 2020 through 2035, or the RTP/SCS horizon year).
- MPO's adopted **transportation project and program investment list,** including project costs, funding source (if known/available), project time period (e.g., base

[57] MPOs may provide data for alternative performance indicators, as applicable. By providing alternative data, MPOs may also need to provide an explanation for applicability.

[58] CARB staff will review the forecasted development pattern data provided by the MPO to verify alignment between strategies and place type/sub-regional information. For example, if transit oriented development or infill is proposed by the MPO, then CARB staff will review data provided by the MPO to ensure these place types are being proposed in expected locations and are not being proposed in greenfield locations.

year through 2020, 2020 through 2035, or the RTP/SCS horizon year), and project locations, in Excel format.[59]

For the forecasted development pattern, MPOs may use sub-regional definitions that are currently available within the RTP/SCS (e.g., place type) or develop new definitions suitable for classifying where new growth is planned. For example, MPOs may use political boundaries (incorporated cities, unincorporated areas), or place types such as urban, suburban, rural, existing community, developing community, and/or Transit Priority Area (TPA) or High-Quality Transit Areas (HQTA) as the sub-regional geographic definition, or a combination of both. The minimum resolution of the forecasted development pattern should be sufficiently detailed to convey how strategies will be implemented to achieve the stated outcomes. For example, if increasing density around existing transit corridors is the MPO's key land use strategy, then the MPO, should define a land use category or place type that represents the existing transit corridors.

The minimum resolution of the forecasted development pattern should be sufficiently detailed to convey how strategies are implemented to achieve the stated outcomes.

CARB encourages MPOs to submit the forecasted development pattern at the highest geographic resolution available. An example format for the forecasted development pattern is provided in **Table 3**.

[59] The preferred format for the transportation project and program investment list is Excel, although MPOs may provide data in alternative formats, as applicable, with an explanation for why the alternative format is provided.

Table 3: Example Forecasted Development Pattern

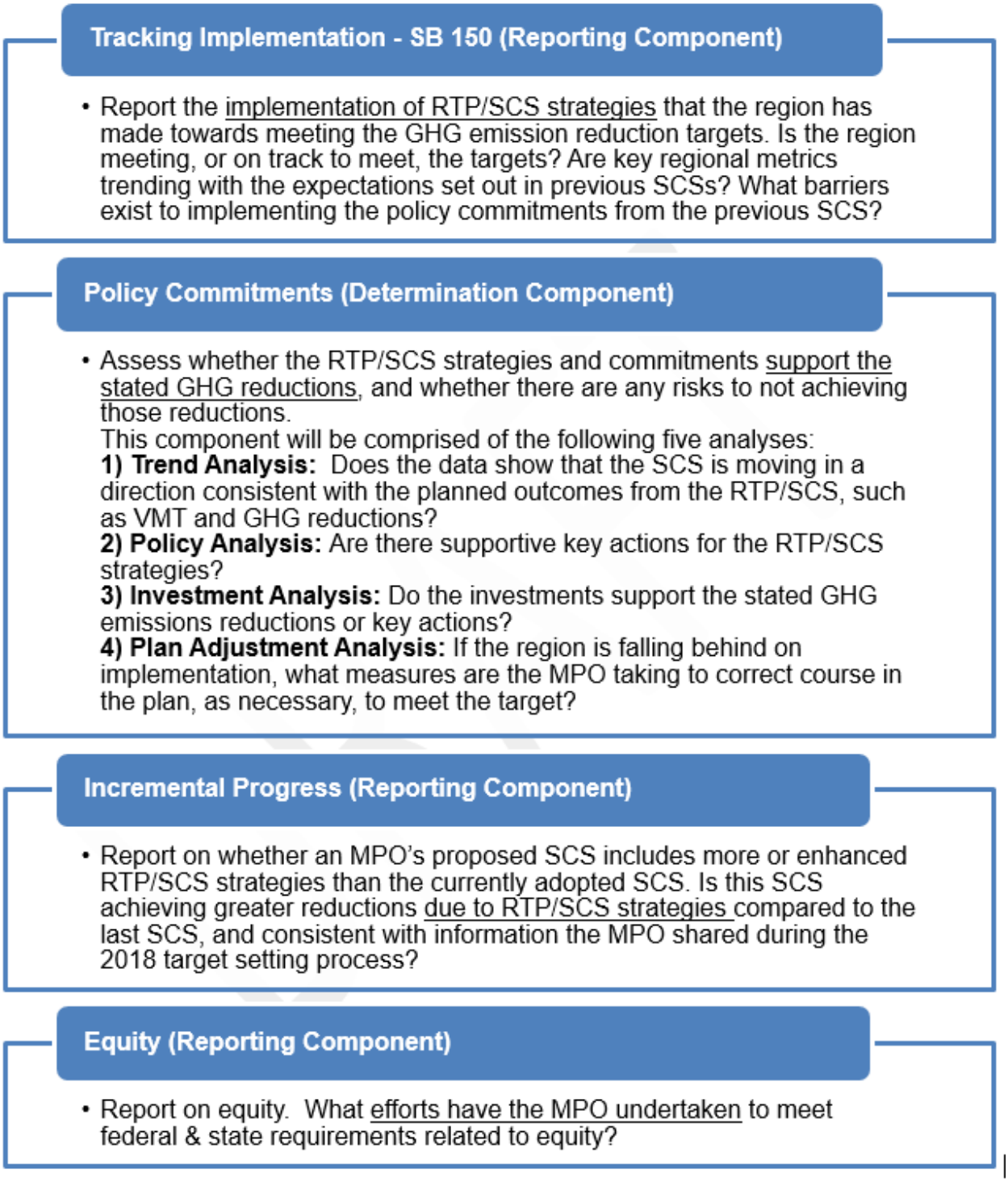
RTP/SCS Forecasted Development Pattern	Base Year			2035			RTP/SCS Horizon Year			General Plan Buildout Estimate		
Example Place Type	**Jobs**	**Housing (du)**	**Density (du/ac)**	**Jobs**	**Housing (du)**	**Density (du/ac)**	**Jobs**	**Housing (du)**	**Density (du/ac)**	**Jobs**	**Housing (du)**	**Density (du/ac)**
Transit Priority Areas												
Existing Communities												
Developing Communities												
Rural												
Region Total												
Notes: du = dwelling units; du/ac = dwelling units per acre.												

How Does CARB Use The Data?

The forecasted development pattern will provide CARB staff with an understanding of how new growth in existing communities and infill areas served by existing transit and active transportation infrastructure compares to new growth in greenfield areas. Siting development in areas where residents are in close proximity to daily needs with access to transit or active transportation options can reduce VMT. Where and how new growth is accommodated is central to the RTP/SCS.

CARB staff will use the transportation project list information to sort transportation investments by project type, mode, cost, timing, and/or geography when available to better understand the location and type of investment priorities, how and where investments are being distributed in the region relative to new growth. The transportation project list and forecasted development pattern is primarily used to support the Policy Analysis portion of the SCS Evaluation Process. In addition, CARB will use the land use and transportation system characteristics and performance indicators provided by the MPOs to help answer the questions listed in **Figure 2.**

Figure 2. SCS Evaluation Components



Reporting Component: Tracking Implementation (SB 150)

Pursuant to SB 150, CARB staff published the *2018 Progress Report*[60] in November 2018, the first-of-its-kind assessment reporting on what progress has occurred under SB 375 to date. The report found that California is not on track to meet GHG emission reductions expected under SB 375, based on CARB's analysis of 24 data-supported indicators and interviews with MPOs, State agencies, local governments, academics, industry experts and advocates.[61] The report highlights over 60 regional best practices and other important progress that has been made in the State. Through consultation with MPOs and other stakeholders, the report also identifies eight challenge areas for SCS implementation.

Based upon the data and interviews, the report concludes that California will not achieve the necessary GHG emission reductions to meet mandates for 2030 and beyond without significant changes to how communities and transportation systems are planned, funded, and built. It outlines the need for structural changes and additional work by all levels of government to achieve State climate goals and the other important public health, equity, economic, mobility, housing, and other benefits that SB 375 SCSs are expected to deliver. To meet this challenge, it offers suggestions on ways to overcome these challenges.

Because RTP/SCSs are long-term plans covering multiple decades, a significant amount of effort to date has been made to forecast what will happen in the future, while less effort has been made looking back to assess the progress. To assure future success, CARB staff will start reporting in each *SCS Evaluation Staff Report* whether the strategies an MPO includes in the RTP/SCS are being implemented and will evaluate performance to date using data-supported metrics similar to those published in the 2018 progress report. With this information, CARB can better understand if regions are on track to meet the GHG emission reduction targets, and what may be done to correct course if the regions are not.

Building on the work done for the first SB 150 report to the Legislature on SB 375 implementation, a **Tracking Implementation (SB 150)** component has been added to the SCS Evaluation Process that reports the level of implementation of an individual MPO's RTP/SCS. The goal of this component is to answer the following questions for each MPO's SCS:

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[60] California Air Resources Board. *2018 Progress Report: California's Sustainable Communities and Climate Protection Act*. November 2018. Available at: https://ww2.arb.ca.gov/resources/documents/tracking-progress.

[61] Ibid.

- Is the region meeting, or on track to meet, its RTP/SCS GHG emission reduction targets?
- Are key regional metrics consistent with the expectations set out in previous SCSs?
- What barriers exist to implementing the strategy commitments from the previous RTP/SCS?

CARB staff will report on whether the region is following through on its policy commitments in the previous RTP/SCS by comparing observed data with projections provided by the MPO from the previous RTP/SCS for key performance indicators such as multi-family housing units, miles of bike lanes, and improvements to transit service to see if the region implemented projects as planned. CARB staff will also report on whether VMT per capita is directionally tracking with reported GHG per capita.

Determination Component: Policy Commitments

To determine whether the implemented SCS would achieve the applicable GHG emission reduction targets, CARB staff will conduct a series of four **Policy Commitments** analyses which will evaluate whether the strategies, key actions and investments from the RTP/SCS support its stated GHG emission reductions. In addition, CARB staff will evaluate whether there are any risks to not achieving the SCS GHG emission reductions. These four analyses include the following:

1. **Trend Analysis.** Does the data show that the SCS is moving in a direction consistent with the planned outcomes from the RTP/SCS, such as VMT and GHG reductions?
2. **Policy Analysis.** Are there supportive key actions for the RTP/SCS strategies?
3. **Investment Analysis.** Do the investments support the stated GHG emission reductions?
4. **Plan Adjustment Analysis.** If the region is falling behind on implementation, what measures are the MPO taking to correct course in the plan, as necessary, to meet the target?

CARB staff will use the entire body of evidence, data, and results from the four analyses that comprise the **Policy Commitments** component to determine whether the MPO's RTP/SCS strategies and commitments support the SCS's stated GHG emission reductions, and whether there are any risks to not achieving those strategies and commitments. As CARB prepares an SCS determination, if the observed body of evidence (e.g., trend analysis, sensitivity analysis, policy analysis, investments) lead to

unresolved questions and/or point to potential issues, additional coordination and information from the MPO will be necessary for CARB staff's analysis.

Trend Analysis

The Trend Analysis evaluates whether the data and performance indicators provided by the MPO indicates the SCS is moving in a direction consistent with the planned outcomes from the RTP/SCS. CARB staff quantifies the changes of all MPO-provided data and performance indicators from base year to GHG emission reduction target years to analyze whether the calculated changes are consistent with the RTP/SCS's planned outcomes. CARB staff will analyze the trends in the performance indicators listed below for directionality that support the GHG emission reductions as stated in the RTP/SCS.

Screening Criteria: CARB staff will perform a Trend Analysis by observing the directionality of trends, as measured in 2035 compared with 2005, for the following performance indicators listed in **Table 4**. In the Trend Analysis, all RTP/SCS performance indicators should track the direction of the sign noted (-) decreasing or (+) increasing

Table 4. Directionality of Performance Indicators for Trend Analysis

Performance Indicator	**Trend directionality (-) decreasing and (+) increasing.**
Household vehicle ownership	(-)
Mode split	Non-auto: (+); Auto: (-)
Travel time by mode	Non-auto: (-)
Transit ridership	(+)
Average vehicle trip length[1]	(-)
Seat utilization	(+)
Household per capita VMT[2]	(-)
GHG per capita	(-)
Notes:[1] The average vehicle trip length may go up if the MPOs shift the short distance trips to active transportation through RTP/SCS strategies. [2] External-external [XX] trips excluded	

If the directionality of the performance indicators from the Trend Analysis is inconsistent with planned outcomes from the RTP/SCS, CARB will work with the MPO to provide potential additional information and context for trend inconsistencies.

Policy Analysis

The Policy Analysis evaluates whether the RTP/SCS contains supportive key actions for the strategies identified in the RTP/SCS. CARB staff will look for evidence of supportive key actions for the RTP/SCS strategies where investments support the stated GHG emission reductions, and that the region is adjusting policy commitments and investments in the RTP/SCS if the region is falling behind on implementation, as necessary to meet the target. CARB staff will conduct the Policy Analysis through independent review of the MPO's SCS, dialogue with MPO staff, and researching relevant planning efforts and key actions, for four broad categories of strategies from the RTP/SCS:

1. Land use and housing
2. Transportation
3. Local/Regional Pricing
4. New Mobility

Land Use and Housing Policy

CARB staff will qualitatively evaluate the relationship between the RTP/SCS forecasted development pattern and adopted RTP/SCS key actions. For example, the allocation of regional funding to local governments that funds transit-oriented development and incentives in support of the SCS's housing strategies. On the other hand, not reflecting approved large development projects or annexed new growth that were not envisioned or analyzed in the prior SCS suggests to CARB that the SCS may be at risk of not meeting its targets unless plan adjustments are made.

Transportation Policy

CARB staff will qualitatively evaluate the relationship between the stated GHG emission reduction in the RTP/SCS and relevant MPO and local transportation key actions and investments. For example, key actions could include grant or incentive funds for projects that make better use of regional existing transit systems through first/ last mile connection (e.g., micro transit, bike share program), and subsidizing on-demand dynamic ridesharing that support key SCS transportation strategies. On the other hand, not assessing short- and long-run impacts of capacity-increasing projects

and associated induced VMT[62,63] in the region's analysis, suggests to CARB that the SCS may be at risk of not meetings its GHG emission reduction targets.

Local/Regional Pricing Policy

A number of MPOs have indicated interest in exploring road-pricing strategies in future RTP/SCSs. SB 375 provides that when establishing the GHG emission reduction targets, CARB shall take into account GHG reductions that will be achieved by improved vehicle emission standards, changes in fuel composition, and other State measures (including prospective measures) that will reduce GHG emissions in the affected region.[64] In other words, SB 375 does not allow MPOs to take credit for State programs that improve vehicle emissions standards, changes in fuel composition, and other State measures that reduce GHG emissions to demonstrate target achievement. When CARB updated the SB 375 targets in March 2018, CARB took into account GHG reductions from these CARB measures and also potential future State pricing.[65] State-initiated strategies will complement and support achievement of greater GHG emission reductions through SB 375. Statewide road user pricing is an example of a potential future State-initiated strategy that an MPO should not use to demonstrate compliance with the SB 375 GHG emission reduction targets. However, the MPO could potentially demonstrate compliance with the SB 375 GHG emission reduction targets through its ability to make reasonable assumptions about revenues available to the MPO from State road user pricing that could be re-invested to further the region's RTP/SCS. If an MPO were to initiate a specific regional or local pricing RTP/SCS strategy (e.g., local/regional tolls or congestion pricing) through action taken by the MPO's Board of Directors or local jurisdictions, then the MPO could take full credit for the VMT and associated GHG emission reductions attributable to that action toward SB 375 GHG emission reduction target achievement.

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[62] Given that lead agencies have discretion in choosing their methodology, and the studies on induced travel reveal a range of elasticities, appropriate professional judgment may be used when evaluating the transportation effects. However, MPOs must document its methodology, assumptions, and datasets used to evaluate these effects.

[63] Tools are available to help MPOs evaluate the effects of induced travel. Examples include, but are not limited to, *University of California, Davis National Center for Sustainable Transportation's Induced Travel Calculator*, available at: https://ncst.ucdavis.edu/research/tools/ and *Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions*. October 2013. Available at: https://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_brief.pdf.

[64] Gov. Code § 65080, subdivision (b)(2)(A)(iii).

[65] California Air Resources Board. *Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*. February 2018. Available at: https://www.arb.ca.gov/cc/sb375/sb375_target_update_final_staff_report_feb2018.pdf.

New Mobility Policy

With the deployment of advanced vehicle technology, California is embarking on a new era of mobility brought about by the emergence of transportation network companies, automated vehicle technology, and connected transportation infrastructure. This new mobility is likely to yield the greatest transformation to the transportation system since the State Highway System was built, and has the potential to transform personal travel over the next 20 years and beyond.

If an MPO is claiming GHG emission reductions for enhanced mobility strategies,[66] CARB expects the MPO to clearly define all data sources, assumptions, and the calculation methodology. CARB staff expect the MPO to utilize reasonable region-specific assumptions as part of the calculation methodology.

Investment Analysis

The Investment Analysis evaluates whether RTP/SCS investments support the region's expected GHG emission reductions. CARB staff will evaluate and compare the expenditures in the proposed RTP/SCS and the previous RTP/SCS, looking for evidence of whether the planned investments support the stated RTP/SCS strategies and associated GHG reductions and whether the MPOs are shifting investment priorities consistent with RTP/SCS strategies. This analysis could look at both capital and operating investments. For example, if RTP/SCS strategies are focusing on transit, CARB staff will assess whether modeled projections of transit ridership and VMT reductions are associated with capital and operating investments through review of applicable data submitted by the MPO, such as the transportation project list, investments in transit operations, and programs and investments to reduce transit fares. As another example, if RTP/SCS strategies rely upon increased density near transit areas, CARB staff will consider whether the MPO uses discretionary funds to foster or incentivize targeted local actions to increase density in the right places. Similar to the analysis above, CARB staff will also conduct a standalone analysis of the proposed RTP/SCS expenditure to understand how MPOs are shifting investments in their current plan. Instead of comparing the proportion of proposed investments to the previous plan, this analysis will focus solely on the proposed expenditure and will look at the overall

[66] In response to recent direction from the Governor, CARB is assessing the viability of new regulations to increase zero emission vehicle adoption rates in public and private fleets across the state, including the light-duty fleets owned by transportation network companies that provide on-demand ride-hailing services. Available at: https://www.arb.ca.gov/msprog/zero_emission_fleet_letter_080118.pdf. For more information about related legislation, SB 1014, the California Clean Miles Standard and Incentive Program: Zero-Emission Vehicles (Skinner, Chapter 369, Statutes of 2018). Available at: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1014.

changes in capital and operational costs by mode. This analysis will provide transparency and further evidence of whether proposed investments are heading in the right direction to support RTP/SCS strategies and GHG reductions.

To obtain a better understanding of how the region prioritizes near-term spending, CARB staff may evaluate how short-term funding allocations align with the region's long-range planning efforts. The region's shorter-term Transportation Improvement Program (TIP) is one example of a spending plan that CARB staff may evaluate for this purpose. If the types of near-term investments in the TIP are consistent with the long-range priorities in the RTP/SCS, this suggests to CARB that investments are already being made that support RTP/SCS strategies. CARB staff understands the TIP may not reflect all sources of investments, such as State, local or formula funding. However, these plans can give CARB staff an understanding of what projects are already in the pipeline and how those may change travel patterns in the future. For example, if a major transit construction project began recently, transit ridership would be more likely to increase in coming years. CARB staff will use the transportation project list information to sort transportation investments by project type, mode, cost, timing, and/or geography when available, to better understand the location and type of investment priorities, as well as how and where investments are being distributed in the region relative to new growth. CARB staff will determine whether to adjust the methodology as necessary to inform the analysis depending on the availability of information provided.

Plan Adjustment Analysis

The Plan Adjustment Analysis evaluates what measures are being taken, as necessary, to correct course to meet the target if the region is falling behind on implementation of RTP/SCS strategies. CARB staff will review RTP/SCS implementation using land use and transportation system variables and performance indicators of overall GHG emission reduction target achievement. If CARB staff identifies that an MPO is not on track to achieve the GHG emission reduction targets under current SCS implementation, then CARB staff will look to the MPO for evidence that the MPO has considered these challenges and has either changed its RTP/SCS strategy, or is putting measures in place to accelerate implementation in order to stay on track, as necessary to meet the target. Some MPOs have indicated interest in providing an RTP/SCS implementation assessment report for this component that describes the implementation status of adopted RTP/SCS strategies. During CARB's public process to update the *SCS Program and Evaluation Guidelines*, the public indicated interest in having the RTP/SCS identify whether each of its key strategies and commitments is being implemented, as contemplated in the RTP/SCS, and assess measures taken by MPOs to adjust policy commitments and investments in the RTP/SCS, as necessary, to meet the GHG emission reduction targets.

If the region is falling significantly behind on implementation, and there is insufficient evidence that an MPO is adjusting policy commitments and investments, then the RTP/SCS may be at risk of not meeting the GHG emission reduction targets.

Reporting Component: Incremental Progress

During the 2018 GHG emission reduction target update process, some of the MPOs reported to CARB that, due to external factors, even greater effort would be required to achieve the same level of per capita GHG emission reduction reported in the current RTP/SCSs. According to the MPOs, simply staying on course to achieve the previously demonstrated SB 375 GHG emission reduction targets will be a stretch of current resources, let alone achieving the more aggressive targets adopted by the Board in 2018. For example, the Southern California Association of Governments (SCAG) and the Sacramento Area Council of Governments (SACOG) estimated that the currently adopted RTP/SCS would achieve approximately 3 to 5 percent less today than when it was adopted in 2016 simply due to changes in associated auto operating cost and growth forecasts.[67] In order to continue to meet the SB 375 GHG emission reduction targets, the MPOs would need to make up the respective gaps through and combination of innovation, additional strategies, and/or enhancements to existing strategies that reduce GHG emissions.

Thus, in order to illustrate that the MPOs are, in fact, stretching to achieve the GHG emission reduction targets, this reporting section proposes a method to focus on the efforts to reduce GHG emissions through land use and transportation strategies from one plan to the next.

CARB staff seek to answer the following questions in this evaluation section:

- What strategies have changed or been added since the last RTP/SCS?
- What is the incremental progress achieved through the strategies in this RTP/SCS as compared to the last RTP/SCS?

While incremental progress is not used for CARB's SCS determination, CARB expects MPOs to achieve incremental progress due to its RTP/SCS land use and transportation strategy commitments from its second RTP/SCS to its third RTP/SCS consistent with information shared during the GHG emission reduction target setting process. The

[67] California Air Resources Board. *Final Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets: Appendix B. MPO Scenario and Data Submittals*. October 2017. Available at: https://www.arb.ca.gov/cc/sb375/appendix_b_mpo_scenario_and_data_submittals_october_2017.pdf.

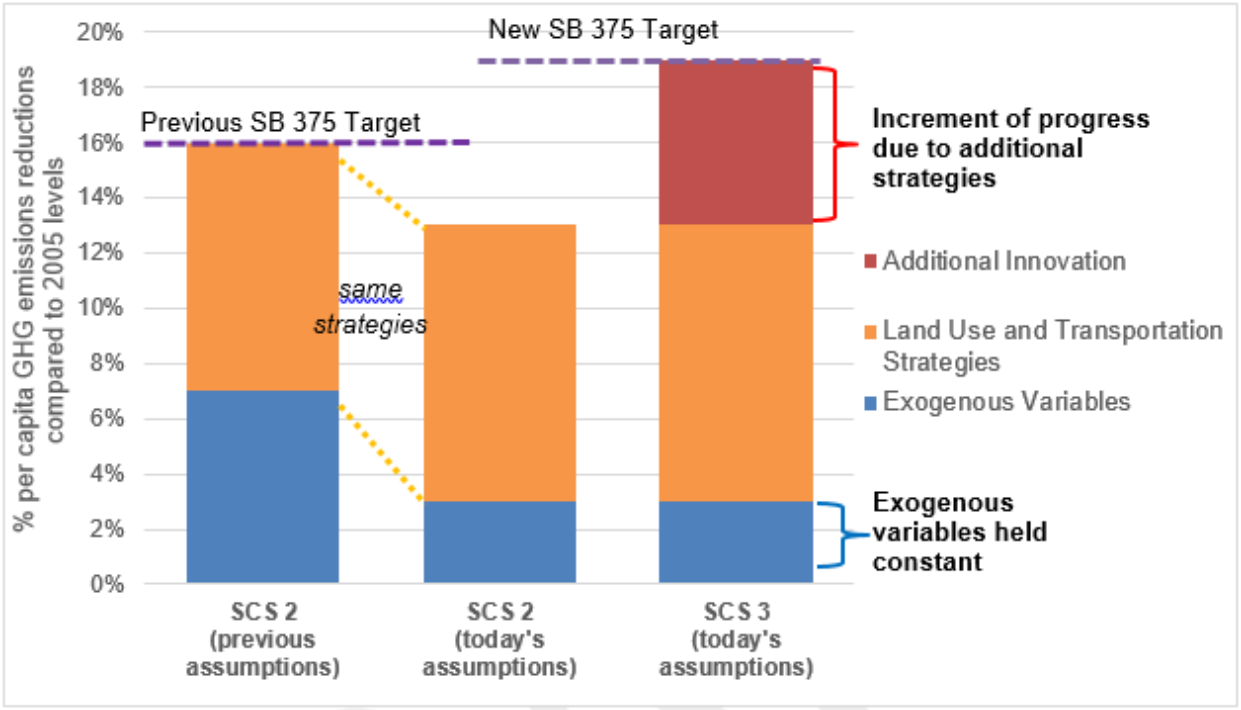
results of the analysis will be included in the *SCS Evaluation Staff Report*, and shared with the Board.

Figure 3 illustrates a hypothetical graphical representation of the exercise that many MPOs already conduct at the outset of the RTP/SCS development process to project whether there is a “gap” or “surplus” with respect to SB 375 GHG emission reduction target achievement. In fact, some MPOs have discovered that an identical set of strategies achieves lower per capita GHG emission reduction simply due to changes in data on fuel price, household income, and fleet efficiency.

For example, if the price of fuel is expected to increase in the future, the MPO would expect to see a reduction in VMT (assuming all other factors stay constant). Household income is also known to influence vehicle ownership and VMT. These factors are sometimes referred to as exogenous variables in the travel demand model. As economic conditions change, MPOs must forecast socioeconomic conditions to reflect the best available information in the travel demand models. Similarly, demographic trends in a region influence how much people drive. These sometimes confounding factors are central determinants of travel behavior, and should be updated as conditions change. However, these factors and assumptions (e.g., changes in travel characteristics and socioeconomic data) are outside of the MPOs’ control, and have nothing to do with the level of effort represented in the RTP/SCS.

Figure 3 graphically illustrates an example comparison of the incremental progress between a hypothetical MPO’s previous RTP/SCS and updated RTP/SCS when controlling for exogenous factors, along with the relationship to the previous SB 375 GHG emission reduction targets and the newly adopted 2018 targets. The values reflected in this figure are a hypothetical representation, and not intended to imply a numeric target.

Figure 3. Comparison of SCS Performance with Updated Assumptions (Example)



For the **Incremental Progress** component, MPOs would conduct a scenario analysis using input datasets that allows for a normalized comparison, to the greatest degree feasible, of the previously submitted RTP/SCS to the proposed RTP/SCS. This would include applying current exogenous variables to the previous RTP/SCS. A list of recommended exogenous variables to normalize for the **Incremental Progress** assessment is found in **Table 5**. Because the new and updated assumptions for exogenous variables may be available at the same time as MPOs are preparing their *Technical Methodology* (discussed in **Appendix A**) under California Government Code § 65080(b)(2)(J)(i), CARB requests that MPOs submit the results of these analyses prior to submittal of the *Technical Methodology*. If this is infeasible, MPOs should provide this information to CARB as part of an updated *Technical Methodology*. Based on CARB staff recommendations outlined in the *Updated Final Staff Report: Proposed*

Update to the SB 375 Greenhouse Gas Emission Reduction Targets,[68] the **Incremental Progress** component is applicable to the big four[69] and eight Valley MPOs.[70]

Table 5. List of Exogenous Variables for Incremental Progress Assessment

Category of Variable (as applicable)	Variable Specification in Model[1]	Example Assumption in 2035
Demographics	Population, employment & housing	Population: 7 million Employment: 3 Million Housing: 2.5 Million
Auto operating cost	Fuel and non-fuel related costs (maintenance, repair, and tire wear)	22 cents/mile
Vehicle fleet efficiency	EMFAC model	Average fuel economy 36 mpg
Household income	Median or distribution	Median income: $63,000 per year
Share of TNC Trips, single and pooled[2]	Number of trips by TNC for different trip purposes	HBW: 15% HBSh: 20% HBO: 10% NHB: 5%
Household demographics	Household size, workers, age	HH Size: 3.1 persons/HH; Workers: 1.3 persons/HH
Commercial vehicle activity	Number of commercial vehicle trips	10% of regional VMT (external-external)
Interregional Travel	Share of external interregional VMT	5% of regional VMT (external-external)
MPO travel demand model version		Trip-based or ABM Version X.x

[1] Comparing the relationship of certain variables back to the modeling conducted for the previous RTP/SCS may require MPO staff discretion and interpretation. For example, updated household demographic variables (such as household size) may result in a change to the regional population compared to the previously submitted SCS. CARB staff expects a good-faith effort to construct a reasonable approximation. Exact accounting is not necessary.
[2] Where available and sufficient for forecasting purposes.
Notes: ABM = activity based model; HBO = home-based-other; HBSh = home-based-shopping; HBW = home-based-work; HH = household; mpg = miles per gallon; MPO = Metropolitan Planning Organization; TNC = transportation network company; VMT = vehicle miles traveled.

[68] California Air Resources Board. *Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets. APPENDIX A. MPO Target Recommendations and CARB Staff Recommendations*. February 2018. Available at: https://www.arb.ca.gov/cc/sb375/appendix_a_feb2018.pdf?_ga=2.245154247.316839538.1551994664-284387270.1551726542.

[69] This includes Metropolitan Transportation Commission/Association of Bay Area Governments, Sacramento Area Council of Governments, San Diego Association of Governments, and Southern California Association of Governments.

[70] This includes Fresno Council of Governments, Kern Council of Governments, Kings County Association of Governments, Madera County Transportation Commission, Merced County Association of Governments, San Joaquin Council of Governments, Stanislaus Council of Governments, and Tulare Association of Governments.

Under the **Incremental Progress** component, CARB staff will compare the differences in the per capita GHG emissions between the proposed RTP/SCS and the previously submitted RTP/SCS (to which current exogenous variables have been applied) to determine the plan-over-plan incremental progress and whether the outcomes are consistent with information shared during the target setting process. In addition, CARB staff will look for evidence that the RTP/SCS contains changes in strategies, key actions and investment that are supportive of incremental progress between the previously submitted and current RTP/SCS. CARB staff may also look at the phasing of investments, when available, as phasing affects how much cumulative reductions will be achieved by years 2030 and 2050 in support of broader State climate goals.

Incremental Progress Alternative Method

CARB staff will conduct an independent assessment of **Incremental Progress** using the alternative method described below if any of the following occur:

- CARB staff recognize a modeling approach for the **Incremental Progress** component may not be feasible for an MPO because the need to continually update modeling platforms and forecasts, which may not allow the MPO to report an apples-to-apples comparison of the proposed RTP/SCS to the previously submitted RTP/SCS.
- Availability of MPO resources (e.g., staffing, funding, and schedule), datasets, and other related information about strategies place an undue burden on MPO resources.
- In the case where a direct model-to-model comparison between the proposed RTP/SCS and the previously submitted RTP/SCS is not possible, or if the MPO does not report its incremental progress for any reason, CARB staff will conduct this alternative Incremental Progress assessment. The alternative analysis will compare the year 2035 land use and transportation system characteristics data submitted by the MPOs with those obtained from previously submitted RTPs/SCSs (including data submittals) to determine the incremental progress in those strategies. As part of the alternative analysis, CARB staff will assess whether MPOs are increasing net regional average density, share of multi-family housing, transit frequency and service, and miles of bike infrastructure, as well as demonstrating the improved key actions and investments necessary to accomplish the strategies. MPOs meeting these metrics would be considered as making suitable incremental progress on strategies under the alternative Incremental Progress analysis. CARB staff will also compare the performance indicators for year 2035 with those obtained from previously submitted RTPs/SCSs to verify whether the progress of MPO strategies are translating to VMT and GHG emission reductions across plans.

Reporting Component: Equity

Consistent with Board direction, **Equity** is a new reporting component of the *SCS Evaluation Staff Report*. This direction aligns with existing legislative priorities to promote equity as an important State-planning goal and with federal requirements for equity considerations. Currently, the CTC's *2017 Regional Transportation Plan Guidelines for Metropolitan Planning Organizations*[71] provide guidance for MPOs to conduct a required equity analysis. Addressing equity ensures the programs, policies, and activities associated with regional transportation improvements identified in the RTP/SCS do not have a disproportionately high and adverse impact on low income or minority populations. The goal of CARB's SCS Evaluation Process is to report the type of qualitative and quantitative equity analyses currently conducted by MPOs.

The following sections describes the elements of equity analysis developed in accordance with the *2017 Regional Transportation Plan Guidelines for Metropolitan Planning Organizations that will be summarized in the SCS Evaluation Staff Report:*

- **Identifying vulnerable communities:** How MPOs identified vulnerable communities within the region
- **Measurement of Impact:** The metrics and performance measures identified by MPOs to "determine (under Title VI) whether transportation and land use changes identified in the RTP result in disparate impacts to minority communities and populations and (with respect to EJ) to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of programs, policies, and activities on low-income populations and minority populations resulting from the transportation and land use changes in the RTP."[72]
- **Equity Analysis:** The quantitative and qualitative equity analysis conducted by MPOs. This includes any disparate impacts on the basis of race, color, or national origin and whether any disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations are identified and addressed, as appropriate.
- **Public Outreach and Engagement:** The stakeholder engagement process established by MPOs for public outreach and engagement with potentially affected vulnerable communities.

MPOs may report to CARB a summary of how they are conducting equity analyses that includes four elements mentioned above in accordance with CTC's RTP Guidelines. In absence of equity reporting from MPO, CARB staff will summarize what the MPO has done pursuant to CTC guidelines.

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[71] 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.

[72] Ibid.

VII. Overall SCS Evaluation

The *SCS Program and Evaluation Guidelines* updates and expands the scope, components, and methodology of the SCS Evaluation Process for determining whether to accept or reject the MPO's determination that an implemented SCS would achieve the applicable GHG emission reduction targets per Government Code § 65080 (b)(2)(I)(ii). Historically, CARB's SCS determination has primarily relied on use of travel demand and emissions modeling output provided by the MPO. This quantitative determination prepared by the MPO will continue to be used to analyze whether the SB 375 GHG emission reduction targets would be met, but the additional strategy-based analyses would further assess whether there are supportive key actions and investments for the RTP/SCS strategies. These additional analyses include an evaluation of whether the direction of the RTP/SCS is consistent with planned outcomes; whether the GHG emission reductions are supported by scientific literature; and whether the region is making plan adjustments, as necessary to meet the GHG emission reduction targets. In other words, the outcomes of the following four **Policy Commitments** analyses will give CARB staff the confidence to accept an MPO's determination that an SCS meets the applicable GHG emission reduction targets:

1) **Trend Analysis:** Does the data show that the plan is moving in a direction consistent with the planned outcomes, including the planned regional GHG reductions?
2) **Policy Analysis:** Are there supportive key actions for the RTP/SCS strategies?
3) **Investment Analysis:** Do the investments support the stated GHG emission reductions?
4) **Plan Adjustment Analysis:** If the region is falling behind on implementation, what measures are the MPO taking to correct course in the plan?

Further, CARB's Strategy-based SCS Evaluation Process will report three additional components including **Tracking Implementation (SB 150)**, **Incremental Progress**, and **Equity**. However, these components are not used for CARB's SCS determination.

*If any **Policy Commitments** analysis screening criteria are not met, CARB staff will look to the MPO to provide supporting information to explain the outcome. If there is insufficient evidence to explain or overcome a deficiency in any of the assessments, this could be grounds for CARB staff to reject an MPO's determination.*

This is to identify the effectiveness of prior SCS implementation and increase overall transparency of the SCS for the public and other stakeholders.

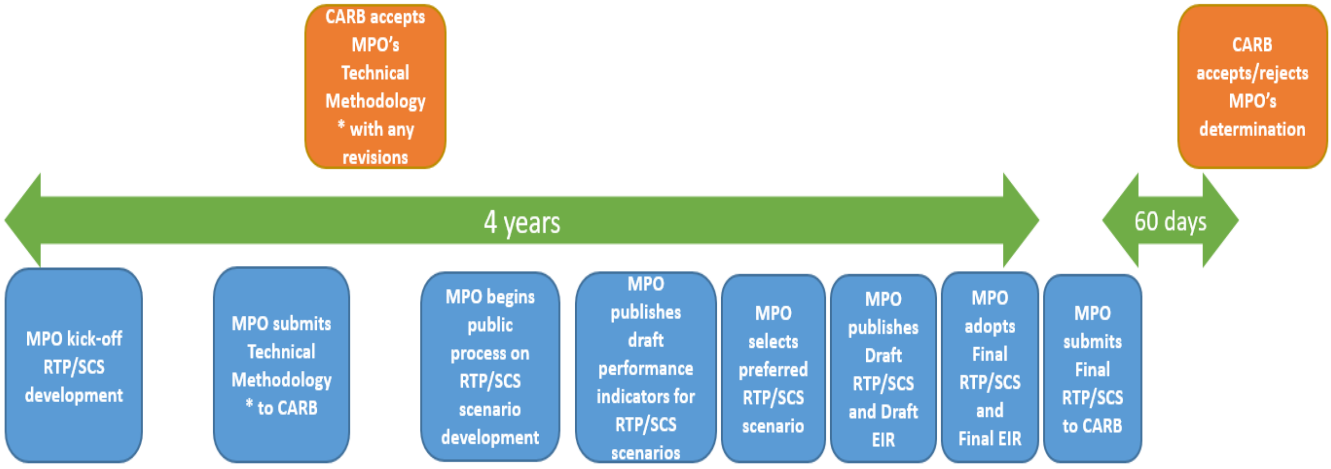
CARB staff will use the entire body of evidence, data, and results from the four analyses that comprise the **Policy Commitments** component to determine whether the MPO's RTP/SCS strategies and commitments support the SCS's stated GHG emission reductions, and whether there are any risks to not achieving those strategies and commitments. If any **Policy Commitments** analysis screening criteria (e.g., trend analysis, sensitivity analysis, key actions, investments) are not met, CARB staff will look to the MPO to provide supporting information to explain the outcome. If there is insufficient evidence to explain or overcome a deficiency in any of the assessments, this could be grounds for CARB staff to reject an MPO's determination.

VIII. MPO-CARB Information Exchange and Submittals

Summary of Collaboration Milestones between CARB and MPO staff

CARB and MPO staff have developed a strong practice of collaboration over the last ten years through the SCS Evaluation Process under SB 375. CARB staff appreciates the longstanding commitment of staff resources that MPOs have allocated to working with CARB on *SCS Evaluation Staff Reports*. As an MPO develops its RTP/SCS, an information exchange between CARB and the MPO exists throughout the process of development of the RTP/SCS. This process begins early with the submittal of the *Technical Methodology* and ends with the submittal of a region's adopted RTP/SCS and accompanying CARB data request. **Figure 4** illustrates a conceptual diagram of the collaboration milestones between the MPO and CARB throughout the RTP/SCS development and approval process. As part of the information exchanges process, CARB will make key data sets and other information used in its SCS Evaluation Process available to the public.

Figure 4. Process Diagram for MPO and CARB Collaboration Milestones



* The MPO is required under Government Code § 65080(b)(2)(J)(i) to submit a *Technical Methodology* that it intends to use to estimate GHG emissions from its SCS to CARB prior to starting the public participation process adopted pursuant to Government Code § 65080(b)(2)(F).

Technical Methodology to Quantify GHG Emissions

The MPO is required under Government Code § 65080(b)(2)(J)(i) to submit a *Technical Methodology* that it intends to use to estimate GHG emissions from its SCS to CARB

prior to starting the public participation process adopted pursuant to Government Code § 65080(b)(2)(F).

> *Prior to starting the public participation process adopted pursuant to subparagraph (F), the metropolitan planning organization shall submit a description to the state board of the technical methodology it intends to use to estimate the greenhouse gas emissions from its sustainable communities strategy and, if appropriate, its alternative planning strategy. The state board shall respond to the metropolitan planning organization in a timely manner with written comments about the technical methodology, including specifically describing any aspects of that methodology it concludes will not yield accurate estimates of greenhouse gas emissions, and suggested remedies. The metropolitan planning organization is encouraged to work with the state board until the state board concludes that the technical methodology operates accurately.*

The submission of the *Technical Methodology* occurs after the MPO has developed the overall framework for the RTP/SCS and includes a description of the methodology the MPO intends to use to estimate the GHG emissions from its SCS. Upon receipt of the *Technical Methodology*, CARB responds to the MPO with written comments about the *Technical Methodology*, specifically describing any aspects of that methodology it concludes will not yield accurate estimates of GHG emissions, and suggested remedies. For a checklist including an example of what information and data should be included in a *Technical Methodology*, see **Appendix A**.

Submittal of Final RTP/SCS to CARB

Once the Final RTP/SCS is adopted by the MPO governing Board, the MPO submits its adopted Final RTP/SCS to CARB. CARB will publish its evaluation within 60 business days of receipt of the final plan, including all supporting data needed to complete staff's evaluation.

Summary of MPO Data Submittal

- Forecasted development pattern tabulated by place type
- Transportation project list tabulated in Excel (including project type, cost, funding source (if known), project time period [e.g., base year through 2020, 2020 through 2035, or beyond 2035], and location)
- List of RTP/SCS strategies and related key actions compared to the prior RTP/SCS
- MPO data submittal (below)
- Off-model documentation and calculations (if applicable)

- EMFAC input and output files
- Model sensitivity test results
- Model validation report
- Any other information to support GHG quantification (if applicable)

Table 6 provides a MPO Data Submittal template for table format and parameters. CARB staff will be flexible in allowing changes to the table format and/or parameters should data be unavailable or not applicable. By providing alternative data, MPOs may also need to provide an explanation for applicability.

Table 6. MPO Data Table Submittal to CARB

MPO Data Submittal to CARB						
Modeling Parameters	**2005**	**Base Year**	**2020**	**2035**	**Plan Horizon Year**	**Data Source**
Socioeconomic and Demographic Data						
Modeled Population[1]						Travel Demand Model input
Vehicle Operating Costs ($/mile)						Travel Demand Model input
Average Toll Price ($/mile)						Travel Demand Model input
Average median Household Income ($/year)						Travel Demand Model input
Total Number of Households						Travel Demand Model input
Total Number of Jobs						Travel Demand Model input
Land Use Data						
Total Developed Acres						Travel Demand Model input/GIS
Total Housing Units						Travel Demand Model input
Total Single-Family Housing Units (du)						Travel Demand Model input
Share of Single-Family Housing Units (%)						Calculated: (Total single-family units/total housing units)
Total Multi-Family Housing Units (du)						Travel Demand
Share of Multi-Family Housing Units (%)						Calculated: (Total multi-family units/total housing units
Net Residential Density (dwelling units/acre)						
Regional Total						Travel Demand Model input
Place Type 1						Travel Demand Model input
Place Type 2						Travel Demand Model input
Place Type 3						Travel Demand Model input
Place Type 4						Travel Demand Model input

MPO Data Submittal to CARB						
Modeling Parameters	**2005**	**Base Year**	**2020**	**2035**	**Plan Horizon Year**	**Data Source**
Total Housing Units Within ½ Mile of a High-Quality Transit Station						Travel Demand Model input/GIS
Total Jobs Within ½ Mile of a High-Quality Transit Station						Travel Demand Model input/GIS
Transportation Network Data						
Freeway and General Purpose Lanes - Mixed Flow, auxiliary, etc. (lane miles)						Travel Demand Model input
Freeway Tolled Lanes (lane miles)						Travel Demand Model input
Freeway HOV Lanes (lane miles)						Travel Demand Model input
Arterial/Expressway (lane miles)						Travel Demand Model input
Collector (lane miles)						Travel Demand Model input
Average Transit Headway (minutes)						Travel Demand Model input
Total Transit Operation Miles						Travel Demand Model input
Transit Total Daily Vehicle Service Hours						Travel Demand Model input
Bike and Pedestrian Lane (class I, II, & IV) Miles						Travel Demand Model input
Plan Performance Indicators						
Household Vehicle Ownership						Travel Demand Model output
Average Trip Length (miles/day)						Travel Demand Model output
Drive Alone						Travel Demand Model output
Shared Ride						Travel Demand Model output

MPO Data Submittal to CARB						
Modeling Parameters	**2005**	**Base Year**	**2020**	**2035**	**Plan Horizon Year**	**Data Source**
Public Transit						Travel Demand Model output
Bike & Walk						Travel Demand Model output
Average Travel Time by Trip Purpose (minutes)						
Commute Trip						Travel Demand Model output
Non-Commute Trip						Travel Demand Model output
Average Travel Time by Mode (minutes)						
Drive Alone						Travel Demand Model output
Drive Alone (TNC)						Travel Demand Model output
Shared Ride						Travel Demand Model output
Shared Ride (pooled TNC)						Travel Demand Model output
Public Transit						Travel Demand Model output
Bike						Travel Demand Model output
Walk						Travel Demand Model output
Average Travel Time for Low-Income Populations (minutes)						Travel Demand Model output
Mode Share (%)						
Drive Alone						Travel Demand Model output
Drive Alone (TNC)						Travel Demand Model input
Shared Ride						Travel Demand Model output
Shared Ride (pooled TNC)						Travel Demand Model input
Public Transit						Travel Demand Model output
Bike						Travel Demand Model output
Walk						Travel Demand Model output
Seat Utilization						Travel Demand Model output
Transit Ridership (Average daily boardings)						Travel Demand Model output
Total VMT per weekday (all vehicle class) (miles)						Travel Demand Model output

MPO Data Submittal to CARB						
Modeling Parameters	**2005**	**Base Year**	**2020**	**2035**	**Plan Horizon Year**	**Data Source**
Total VMT per weekday for passenger vehicles (CARB vehicle classes LDA, LDT1, LDT2, and MDV)						Travel Demand Model output
Total II VMT per weekday for passenger vehicles (miles)						Travel Demand Model output
Total IX/XI VMT per weekday for passenger vehicles (miles)						Travel Demand Model output
Total XX VMT per weekday for passenger vehicles (miles)						Travel Demand Model output
SB 375 VMT per capita						Calculated: (II + IX/XI passenger VMT) / population
GHG Emissions Data						
Total CO_2 emissions per weekday (all vehicle class) (tons/day)						EMFAC model output
Total SB375 CO_2 emissions per weekday for passenger vehicles (CARB vehicle classes LDA, LDT1, LDT2, and MDV) (tons/day)						EMFAC model output
Total II CO_2 emissions per weekday for passenger vehicles (tons/day)						EMFAC model output
Total IX/XI CO_2 emissions per weekday for passenger vehicles (tons/day)						EMFAC model output

MPO Data Submittal to CARB						
Modeling Parameters	**2005**	**Base Year**	**2020**	**2035**	**Plan Horizon Year**	**Data Source**
Total XX CO_2 emissions per weekday for passenger vehicles (tons/day)						EMFAC model output
SB 375 CO_2 per capita (lbs./day)						Calculated: (II + IX/XI CO_2) / population / 2000 lbs./ton
EMFAC Adjustment Factor (if applicable)	n/a	n/a			n/a	CARB Methodology for Estimating CO_2 Adjustment
Off-Model CO_2 Emissions Reductions (%)						
RTP/SCS Strategy 1	n/a	n/a				MPO estimated
RTP/SCS Strategy 2	n/a	n/a				MPO estimated
RTP/SCS Strategy 3	n/a	n/a				MPO estimated
RTP/SCS Strategy 4	n/a	n/a				MPO estimated
RTP/SCS Strategy 5	n/a	n/a				MPO estimated