

Draft for Comments Only

**FINAL DRAFT SUSTAINABLE COMMUNITIES STRATEGY
PROGRAM AND EVALUATION GUIDELINES**

MARCH 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)

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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) 32¹ 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) 375² 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 greenhouse gas emissions from driving, which can also foster healthier and 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 public health, the environment, social justice, and access to opportunities.

Building on the subsequent GHG emission reduction goals established under AB 32, SB 32³ and Executive Order B-55-18⁴ 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. California updated its Climate Change Scoping Plan⁵ in 2017 to address these more aggressive reduction goals, and 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.

In 2011, CARB 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*

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.

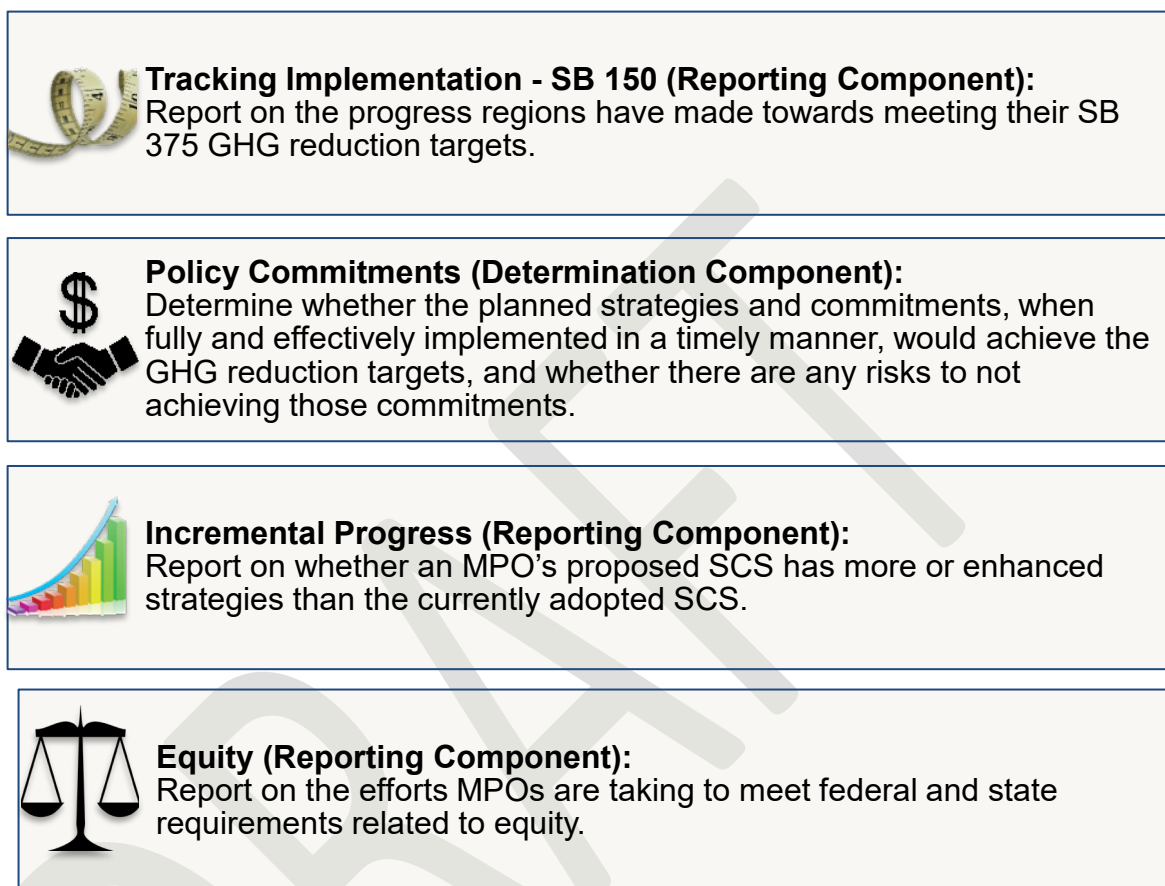
*Reductions from Sustainable Communities Strategies Pursuant to SB 375.*⁶ This initial guidance focused on the technical aspects of the regional modeling and supporting analysis related to GHG emission reduction quantification.

In 2018, the California Air Resources Board (CARB) updated the SB 375 GHG emission reduction targets for the first time since the passage of SB 375. GHG emission reduction targets increased for most of the MPOs from the original targets set in 2010, and the Board provided new direction 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)**. When taken together, 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 150⁷ 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

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>

Program and Evaluation Guidelines will serve as a way to report on the progress of SCS strategy implementation and document 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***

Under SB 375, CARB is required to review an MPO's proposed technical methodology for quantifying GHG emission reductions from the SCS, as well as the final quantification of GHG emission reductions. Based on this review, CARB staff must either accept or reject the MPO's determination that its implemented SCS would achieve the applicable GHG emission reduction targets. 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*. Further, this review includes 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 emissions reduction targets are based on the entire body of evidence analyzed in the **Policy Commitments** component analyses conducted by CARB staff. In other words, this component, taken in its entirety, will provide the sole basis for CARB's SCS determination of SCS GHG emission reduction target achievement.

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 its Resolution 18-12,¹⁰ CARB staff will include an analysis of the incremental progress between RTP/SCSs that focuses on the efforts MPOs are taking 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 such factors outside the MPOs' control. This assessment will illustrate that 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 four¹² 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 reductions 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, household income, and fleet efficiency). 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 GHG emission reduction targets will be difficult to achieve with current resources, let alone

¹⁰ Ibid.

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.

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 857¹⁶ established promotion of equity as a State planning priority alongside strengthening the economy, protecting the environment, and promoting public health and safety. In 2012, AB 441¹⁷ 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 requirements¹⁸ 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 Transportation Plan Guidelines for Metropolitan Planning Organizations*¹⁹ states that the

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.

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>.

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 effective, streamlined, and consistent evaluation process that will best serve the requirements and intent of SB 375, as this document is intended to help MPO’s meet SB 375 requirements and to provide consistency in CARB’s SCS Evaluation Process and prepares *SCS Evaluation Staff Reports*.

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. This means different approaches are usually necessary for developing GHG emission reduction strategies. Also, that 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 effort, 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 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.

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 lower 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 federal 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 the 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 32²⁵ and Governor’s Executive Order B-55-18²⁶ 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 identifying and making recommendations on various measures to achieve the State’s

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>.

climate goals.²⁷ CARB updated its Climate Change Scoping Plan in 2017²⁸ to address California's subsequent climate goals which include more aggressive GHG emission reduction targets, and identify 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.

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.

Where and how growth occurs matters.

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

²⁷ Health & Safety. Code § 38561.

²⁸ California Air Resources Board. *California's 2017 Climate Change Scoping Plan*. November 2017. Available at:

https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

²⁹ California Air Resources Board. *The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target*. January 2017. Available at:

https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

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.

Technical Methodology Submittal

Prior to starting the statutory public participation process for development of an RTP/SCS, SB 375 requires that an MPO must 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

SCS Development and Submittal

SB 375 requires MPOs to create 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 consist of computer-based calculation tools used to forecast future travel based on simulations 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, nor sufficiently robust, 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.

Alternative Planning Strategy

To the extent an MPO's implemented 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 SCS, or APS if applicable, to determine whether the implemented SCS would achieve the GHG emission reduction targets. If CARB finds that the MPOs'

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>.

SCS or APS would not achieve its targets, the MPO must revise the SCS or APS, with a minimum requirement that the MPO receive CARB acceptance that an APS, would achieve the GHG emission reduction targets.

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 years³³. On September 23, 2010, the Board approved 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 indicated, 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 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.

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>.

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 five 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 determination³⁷ and to publish the *SCS Evaluation Staff Report*.

Monitoring and Tracking under SB 150

SB 150³⁸ 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.

³⁶ Gov. Code § 65080, subdivision (b)(2)(I)(ii).

³⁷ Ibid.

³⁸ SB 150 (Allen, Chapter 646, Statutes of 2017).

II. Purpose for Updating the *SCS Program and Evaluation Guidelines*

CARB is updating the SCS Program and Evaluation Guidelines to:

- Incorporate Board direction^{39,40,41} into the SCS Evaluation Process;
- Make improvements to the manner in which CARB staff conducts the SCS Evaluation Process and prepares *SCS Evaluation Staff Reports*; and
- Provide guidance and standardize review of 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^{42,43,44} 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, enacted in 2017, also 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

³⁹ 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>.

⁴⁰ 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.

⁴¹ 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.

⁴² 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>.

⁴³ 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.

⁴⁴ 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.

the GHG 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 existing guidance describing the methodology for evaluating GHG emission reductions attributable to an SCS and for determining SCS target achievement.⁴⁵ This existing guidance 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 the MPOs and stakeholders over the years, 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, 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.

⁴⁵ 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 are implementing a new direction in the way it evaluates SCSs. 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 is incorporating reporting components that are not part of CARB's SCS determination, but are important to understanding the planning context within each region and are now required based on the direction provided by the Board during the 2018 GHG emission reduction target update process.^{46,47,48} Specifically, the *SCS Program and Evaluation Guidelines* improves the scope of CARB's SCS Evaluation Process to include the following:

Incorporate Board direction^{49,50,51} into the SCS Evaluation Process:

- Increase focus on land use and transportation strategies and evaluate how these strategies are performing in the SCS;
- Increase analysis of the investments and strategies MPO regions are making as compared to the last SCS. This enhanced assessment broadens the SCS Evaluation Process: **Policy Commitments** component;
- Increase program transparency and accountability through the development of additional reporting and tracking guidance within the SCS Evaluation Process. This additional guidance for reporting and tracking includes the addition of two new components to the SCS Evaluation Process: **Incremental Progress** and **Tracking Implementation (SB 150)**.

⁴⁶ 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>.

⁴⁷ 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.

⁴⁸ 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.

⁴⁹ 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>.

⁵⁰ 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.

⁵¹ 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 reporting the efforts MPOs are taking as part of the RTP/SCS social equity analyses.

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;
- 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 and methodologies;⁵²
- Establish clear guidelines on what MPOs should submit to CARB;
- Clarify expectations regarding level of detail and resolution of data submitted by MPOs to CARB;

Purpose of this Document

The purpose of this document, the *SCS Program and Evaluation Guidelines*, 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.

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.

⁵² Note: 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.

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*,⁵³ and its requirements. Additional background information about CARB's current methodology for evaluating GHG emission reductions 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>.

⁵³ 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 Component	Report the progress of SCS strategy 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 Component	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. ⁵⁴
Equity	Reporting Component	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. Some 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 five different analyses (Trend, Elasticity, Policy, Investment, and Plan Adjustment) to verify short-term and long-term RTP/SCS strategies are supported by

⁵⁴ California Air Resources B. *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 reductions quantified in the SCS. As 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 SB 375 planning goals. Land use and transportation strategies pose the greatest opportunities to maximize GHG emission reductions, but some of these also require more time to realize those benefits. As such, the SCS Evaluation Process takes a comprehensive and holistic approach to evaluation 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, and get the RTP/SCS back on track. As CARB is updating the *SCS Program and Evaluation Guidelines* to establish a strategy-based SCS Evaluation Process, the evaluation of modeling assumptions and tools are not the central focus of CARB's SCS Evaluation Process. However, this review will still remain as one consideration in how the SCS meets the GHG emission reduction targets. If the MPO's validate and calibrate the travel demand models to meet the applicable requirements of the *RTP Guidelines*, 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 emissions 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 reductions 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 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. CARB staff will report whether MPOs are conducting equity analyses as part of the RTP/SCS. This **Equity** reporting will focus on the MPO's identification of vulnerable communities within the region, the metrics and performance measures identified by MPOs to ensure no disproportionately high and adverse effect on human health and environment, the types of qualitative and quantitative equity analyses conducted by MPOs, and the stakeholder outreach and engagement process established by MPOs.

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

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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, identifying the MPO's commitment to the SCS strategies, and 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 key components, **Tracking Implementation (SB 150), Policy Commitments, Incremental Progress, and Equity**. These four components evaluate RTP/SCS strategies that are classified into five broad categories:

1. Housing and employment (land use);
2. Public transit and active transportation;
3. Local/regional pricing;
4. New mobility; and
5. Transportation System Management/Transportation Demand Management (TSM/TDM).

Table 2 provides a few examples of RTP/SCS strategy types and some possible key actions for which MPOs can calculate GHG emission reductions under SB 375, and the presence of which CARB staff will evaluate. This non-exhaustive table intentionally lists only one strategy per stagey category since the intention of the table is to serve an example to the level of detail CARB staff will evaluate. In no way should this table suggest limited policy commitments from MPOs.

Table 2. RTP/SCS Strategy and Key Action Examples

Strategy Category	Strategy Examples	Key Action Examples
Housing and Employment (Land Use)	Focus housing and job growth in urban areas building off existing infrastructure to support connections to transit.	<ul style="list-style-type: none"> • Allocate resources to update local plans and zoning to increase density in targeted areas. • Fund affordable housing near transit and jobs.
Public Transit and Active Transportation	Increase transportation access by providing additional reliable and efficient mobility options.	<ul style="list-style-type: none"> • 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.
Local/Regional Pricing	Relieve congestion and support pooling and transit usage	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.
Transportation System Management (TSM) Transportation Demand Management (TDM)	Support regional rideshare matching programs to reduce vehicle trips.	<ul style="list-style-type: none"> • Incentivize trip reduction programs or vanpool with subsidies. • Continue to provide employers with tools to coordinate carpool and ride matching programs.

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 below, 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. As such, 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 risks to the MPO achieving 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 reductions. For more information on land use and transportation network characteristics along with SCS performance indicators, including a description and methodology for calculating, see **Appendix C**.

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.

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.⁵⁵

- 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)

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 geography⁵⁶ as appropriate to each region (e.g., base year through 2020, 2020 through 2035, or the RTP/SCS horizon year).

⁵⁵ MPOs may provide data for alternative performance indicators, as applicable. By providing alternative data, MPOs may also need to provide an explanation for applicability.

⁵⁶ 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.

- MPO's adopted **transportation project and program investment list**, including project costs, funding source (if known/available), project time period (e.g., base year through 2020, 2020 through 2035, or the RTP/SCS horizon year), and project locations, in Excel format.⁵⁷

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 are 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**.

⁵⁷ 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		
	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 data?

The forecasted development pattern will provide CARB staff with the understanding of how the MPO envisions the proportion of new growth that is directed toward existing communities and infill areas served by existing transit and active transportation infrastructure relative to Greenfield areas. Siting development in areas where residents are in close proximity to daily needs with access to transit or active transportation options can also reduce VMT. Where and how new growth is accommodated is central to the RTP/SCS land use strategies.

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

Tracking Implementation - SB 150 (Reporting Component)

- Report the performance of RTP/SCS strategies that the region has made towards meeting the GHG emission reduction targets. Is the region meeting, or on track to meet, the targets? Are key regional metrics trending with the expectations set out in previous SCSs? What barriers exist to implementing the policy commitments from the previous SCS?

Policy Commitments (Determination Component)

- Assess whether the RTP/SCS strategies and commitments support the stated GHG reductions, and whether there are any risks to not achieving those reductions.
This component will be comprised of the following five analyses:
- **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) Elasticity Analysis (pilot):** Does the scientific literature support the stated GHG emissions reductions?
- **3) Policy Analysis:** Are there supportive key actions for the RTP/SCS strategies?
- **4) Investment Analysis:** Do the investments support the stated GHG emissions reductions or key actions?
- **5) 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?

Incremental Progress (Reporting Component)

- Report on whether an MPO's proposed SCS has more or enhanced RTP/SCS strategies than the currently adopted SCS. Is this SCS achieving greater reductions due to RTP/SCS strategies compared to the last SCS, and consistent with information the MPO shared during the 2018 target setting process?

Equity (Reporting Component)

- Report on equity. What are the efforts undertaken by the MPO to meet federal & state requirements related to equity?

Reporting Component: Tracking Implementation (SB 150)

Pursuant to SB 150, CARB staff published the *2018 Progress Report: California's Sustainable Communities and Climate Protection Act*⁵⁸ 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 emissions 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.⁵⁹ 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 affected stakeholders, it 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 emissions 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 adjust 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 that reports the level of implementation of an individual MPO's RTP/SCS has been added to the SCS

⁵⁸ 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>.

⁵⁹ 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>.

Evaluation Process. The goal of this component is to answer the following questions for each MPO's SCS:

- 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 RTP/SCS performance benchmarks 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 through a series of five **Policy Commitments** analyses evaluating 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 five analyses include the following, and are described in more detail below:

- 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. Elasticity Analysis.** Does the scientific literature support the stated GHG emissions reductions?
- 3. Policy Analysis.** Are there supportive key actions for the RTP/SCS strategies?
- 4. Investment Analysis.** Do the investments support the stated GHG emissions reductions?
- 5. 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 five 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, elasticities, SCS Strategies, investments) start to identify questions and point to potential issues, CARB will likely require additional coordination with and information from the MPO to help resolve any potential issues identified during CARB staff’s analysis prior to publication of the *SCS Evaluation Staff Report*.

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, such as VMT and GHG emission reductions. 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 continue to analyze the trends in the performance indicators listed below for directionality that support the stated GHG emission reductions.

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/capita	(-)
Notes:	
¹ The average vehicle trip length may go up if 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 not consistent with planned outcomes from the RTP/SCS, such as VMT and GHG

reductions, CARB will look to the MPO to provide potential additional information and context for inconsistencies.

Elasticity Analysis

The Elasticity Analysis is a new part of CARB's SCS Evaluation Process to determine whether the implemented SCS would achieve the applicable GHG emission reduction targets, and as such will be piloted for the third round of SCS evaluations. The Elasticity Analysis evaluates whether the scientific literature supports the stated GHG emission reductions from the SCS. Currently MPOs employ land use and travel demand models to quantify potential VMT and GHG changes resulting from the RTP/SCS strategies, and factors that can influence the results of these models include the synergistic effects of strategies, demographic changes, model performance, and other assumptions.

A number of studies report that regional VMT has a quantitative relationship with the implementation of land use, transportation, and other development strategies. These relationships are often referred to as elasticities and are based on decades of research across multiple regions throughout the country and California. MPOs often use these same elasticities as part of the travel demand model development. Using this data, other empirical evidence, where available, and the MPO's own sensitivity results of its travel demand model, CARB staff has developed an elasticity analysis method to evaluate the contribution of RTP/SCS strategies and exogenous variables to the total VMT and GHG changes resulting from the RTP/SCS as a check on the MPO's reported VMT and GHG results. It should be noted the Elasticity Analysis is not designed, nor able, to distinguish the effectiveness of individual RTP/SCS strategies; and may not be sufficiently robust to discern effects for similar spatial resolutions. Given these limitations, the Elasticity Analysis described in this section still a reasonable approach to evaluate the RTP/SCS strategies with a balance between transparency and technicality.

The Elasticity Analysis utilizes the following formula to determine how changes in attributes associated with RTP/SCS strategies influence changes in the RTP/SCS strategy performance indicators:

$$\% \Delta \text{ Performance Indicator} = \% \Delta \text{ RTP/SCS Attribute} * \text{Elasticity} * \text{RTP/SCS Strategy Extent}$$

$\% \Delta \text{ Performance Indicator} =$	The expected quantitative outcome due to the change in RTP/SCS Strategy
$\% \Delta \text{ RTP/SCS Attribute} =$	Changes in the RTP/SCS strategy that are known to be directly associated with VMT and GHG
Elasticity =	The quantitative relationship between the change in the RTP/SCS Strategy and the Performance Indicator, which can be obtained from literature, MPO's sensitivity tests, ⁶⁰ and/or other empirical sources;
RTP/SCS Strategy Extent =	A participation rate; an optional coefficient (e.g., % of population/household/employment in the region) used to scale the impact of RTP/SCS Strategy that does not universally apply to the entire region.

For each factor included in the elasticity analysis, CARB staff will:

1. Identify the available data for performing the Elasticity Analysis (source, geographic granularity, level of aggregation, etc.); and
2. Discuss uncertainties related to potential double-counting, omission of synergistic effects, or other methodological issues inherent in cumulating individual elasticities to estimate a total effect.

The sum of the aggregated result may be a range, and is not intended to match the total regional GHG emission reductions due to the lack of synergistic effects and other confounding factors such as the spatial location of strategies. This analysis is used as one component of the **Policy Commitments**, will expand upon the Trend Analysis described earlier, and serves as a check on whether the scale of the stated GHG emission reductions from the RTP/SCS is sufficiently supported by the literature.

Piloted Screening Criteria: CARB staff will apply the following standard in its elasticity analysis. In the Elasticity Analysis Screening, CARB's analysis should show that the

⁶⁰ See Appendix B for a detailed discussion of the sensitivity tests using land use and travel demand models requested of MPOs. The results of these sensitivity tests are validated against peer-reviewed literature by CARB staff. If the MPO's model is valid for a given test, the elasticity from the MPO's travel demand model can be used in the calculation for that SCS Strategy. If the MPO's model is outside the statistical range provided by the literature, then data from the literature will be the basis for the calculation.

aggregated elasticity result (including exogenous variables, strategies and off-model calculations) can account for at least 85 percent⁶¹ of the reported plan performance.

Table 5 illustrates an example hypothetical Elasticity Analysis. The screening criteria developed for the Elasticity Analysis are meant to serve as a means of identifying potential issues or problems that warrant additional review by CARB staff and/or coordination with MPO staff. In other words, if the model-based result is sufficiently different from the elasticity-based result beyond an error range that CARB staff deems problematic with respect to the State's GHG emission reduction goals, then CARB staff will take additional steps to collect more information and discuss potential explanations with the MPO. It may be possible that an MPO's RTP/SCS scenario is not well-described by the land use and transportation system characteristics used in the screening analysis. In this case, CARB staff will work with the MPO staff to develop substitute information that can be used to complete the Elasticity Analysis.

⁶¹ CARB established the 85% screening criteria to be a conservative rule of thumb to help identify where additional coordination and discussion may be warranted. The intent of the 85% screening criteria is not to fail an SCS if the results of the elasticity analysis are less than 85%. Rather, it serves to streamline the analysis, or identify where more information and coordination may be needed between CARB and the MPO to better understand the synergistic effects of multiple RTP/SCS strategies.

Table 5. Example Elasticity Analysis

RTP/SCS Strategies	% Δ RTP/SCS Attribute from 2005-2035 ¹	Elasticity ²	RTP/SCS Strategy Extent	% Δ VMT or % Δ GHG
Net Residential Density	25%	-0.05	100% regional average	-6.12%
Increased Transit Frequency	40%	-0.8	15% regional coverage; 4% mode share	
Transit Capacity Expansion	15%	-0.7	30% regional coverage	
Bike and Pedestrian Infrastructure	30%	-0.04	40% regional coverage	
Toll Rate	20%	-0.3	30% regional coverage	
Roadway Capacity	5%	+0.6	25% new population growth	
Off-Model Strategies (TDM, Electric vehicle network, Telecommute) ³				-3.50%
Subtotal Contribution from RTP/SCS Strategies				-9.62%
Auto Operating Cost	42%	-0.15	100% regional coverage	-9.1%
Household Income	-25%	-0.11	100% regional coverage	
Aggregated Result Grand Total⁴				-18.7%
Plan Performance				-19%
Piloted Screening Criteria: within no less than 85% of reported plan performance				√ screening criteria met
<p>Notes:</p> <p>¹ Data reported by MPO in required data submittal to CARB</p> <p>² Elasticity expressed in percent change in VMT or GHG due to 1 percent change in RTP/SCS strategy (based on sensitivity tests and literature review).</p> <p>³ Calculations of GHG emission reductions from off-model strategies are independently evaluated by CARB staff.</p> <p>⁴ The total in this example is a simple sum, and does not account for loading order nor the synergistic effects of strategies. In addition, the aggregated grand total is the summation of change in individual RTP/SCS strategy multiplied by respective elasticities.</p>				

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 making course corrections to 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. Transportation
2. Land use and housing
3. Pricing
4. New mobility

Transportation Policy

CARB staff will qualitatively evaluate the relationship between the stated GHG emission reductions 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), 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 (e.g. elasticity analysis or other approaches, as applicable), suggests to CARB that the SCS may be at risk of not meeting its GHG emission reduction targets.

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

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.

regional funding to local governments that is linked to incentivizing transit-oriented development 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.

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 will reduce GHG emissions to demonstrate achievement of their target. 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 emissions 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 appropriated 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 achievement of its SB 375 GHG emission reduction targets.

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 automated vehicle technology and connected transportation infrastructure. This new mobility is likely to yield the greatest

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.

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.

Investment Analysis

The Investment Analysis evaluates whether RTP/SCS investments support the region's expected GHG emissions 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.

In addition, CARB staff may compare the region's long-range funding RTP/SCS strategy to the region's shorter-term Transportation Improvement Program (TIP) as one source to obtain a better understanding of how the region has been planning to prioritize near-term spending. If the types of near-term investments are consistent with the priorities in the RTP/SCS, this will suggest to CARB that investments are already being made that support RTP/SCS strategies. CARB staff understands that 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

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.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1014.

construction project was recently begun, transit ridership would be more likely to increase in coming years).

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 hitting milestones with respect to 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 correct course in the RTP/SCS, as necessary, to meet the GHG emission reduction targets.

If the region is falling significantly behind on implementation or not hitting performance benchmarks, and there is insufficient evidence that a course correction is underway, 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 reductions reported in the current RTP/SCSs. This information was shared with CARB as part of the 2018 target update process. 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 a 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 more squarely 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 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.

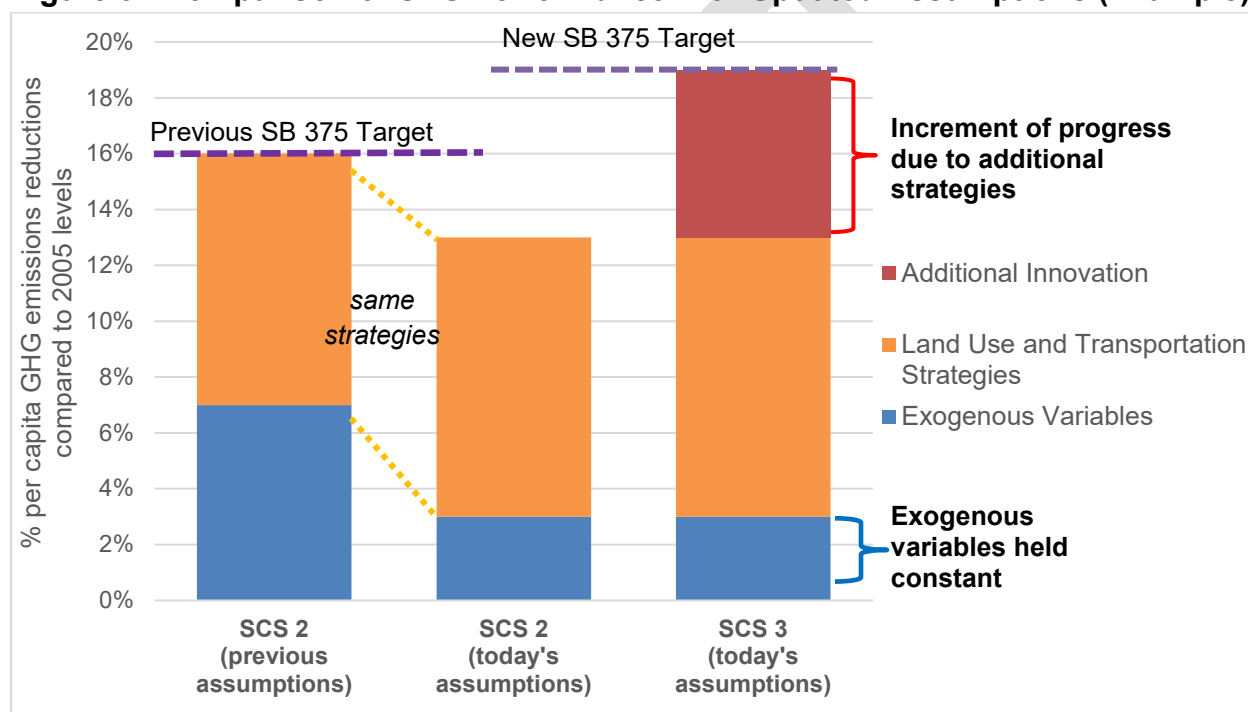
For example, if the price of fuel is expected to increase in the future, the MPO would expect to see a reduction in VMT (assuming all other factors stay constant). Household income is also known to influence vehicle ownership and VMT. These factors are sometimes referred to as "exogenous" variables in the travel demand model. As economic conditions change, MPOs must forecast such 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

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.

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 illustrates graphically 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 6**. Because the new and updated assumptions for exogenous variables may be available at the same time as MPOs prepare a 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 MPO 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 four⁶⁹ and eight Valley MPOs.⁷⁰

Table 6. 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
<p>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.</p> <p>² where available and sufficient for forecasting purposes.</p> <p>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.</p>		

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 effects 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 either of the following occur:

- CARB staff recognize a modeling approach will not always work for every MPO because of the continuing need to update modeling platforms and forecasts. An MPO has significantly updated or upgraded its travel demand model, or some other aspect of its modeling has substantially changed in a manner that will 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 look to see 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 that are 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 how CARB staff will report the equity analysis conducted by MPOs as laid out in the *2017 Regional Transportation Plan Guidelines for Metropolitan Planning Organizations*:

- **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.

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 five **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) **Elasticity Analysis:** Does the scientific literature support the stated GHG emissions reductions?
- 3) **Policy Analysis:** Are there supportive key actions for the RTP/SCS strategies?
- 4) **Investment Analysis:** Do the investments support the stated GHG emissions reductions?
- 5) **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 also report three additional components including **Tracking Implementation (SB 150)**, **Incremental Progress**, and **Equity**. However, these components are not used for CARB's SCS determination.

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

*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.*

CARB staff will use the entire body of evidence, data, and results from the five 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 a SCS determination, if the observed body of evidence (e.g., trend analysis, elasticities, key actions, investments) start to identify questions and point to potential issues, CARB staff will likely require additional coordination with and information from the MPO to help resolve any potential issues identified during CARB staff's analysis prior to publication of the *SCS Evaluation Staff Report*.

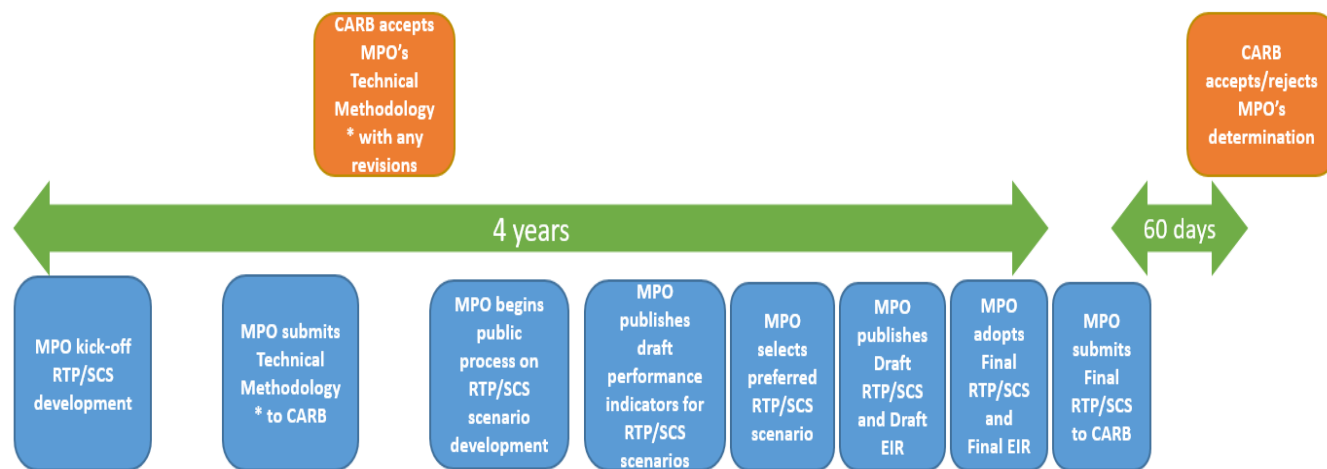
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VIII. MPO-CARB Information Exchange and Submittals

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 in through 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 available to the public key data sets and other information used in its SCS Evaluation Process.

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 its 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, including specifically describing any aspects of that methodology it concludes will not yield accurate estimates of GHG emissions, and suggested remedies. A checklist including an example of what information and data should be included in a Technical Methodology can be found in **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 7 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.

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Table 7. 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 Tolloed 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)						
Commuter Trip						Travel Demand Model output
Non-Commuter 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 CO₂ 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