



Transportation Modeling Forum

August 10th 2023

Farewell to Wu Sun!

- 16 years of service and leadership to the Region.
- Led development and deployment of SANDAG's Activity Based Model (ABM).
- Significant contributions to many SANDAG accomplishments.
- A wonderful and kind colleague.

Congratulations to Wu on his retirement from SANDAG!



Agenda



Welcome



**ABM3 Development
Update**



2025 Regional Plan

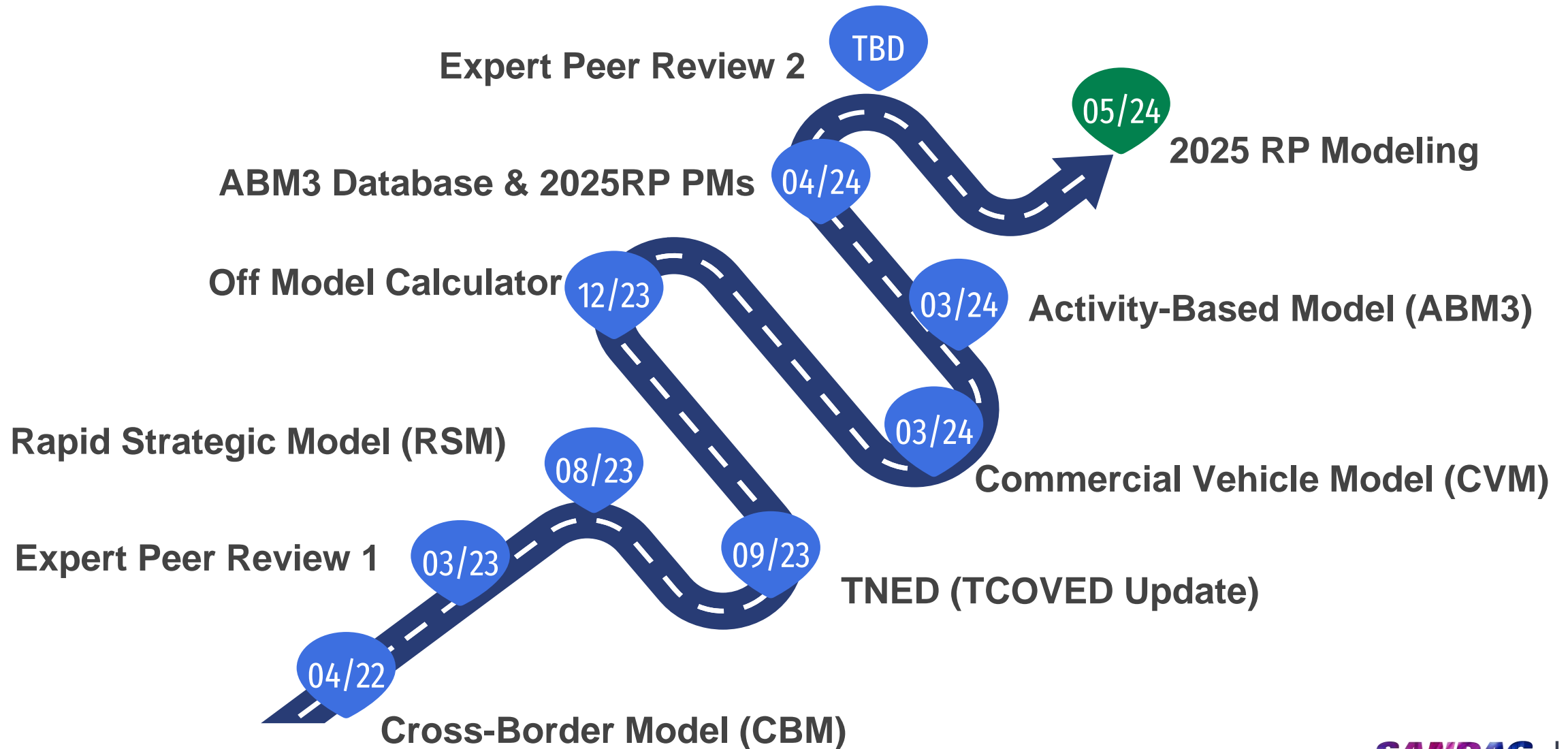


**Service Bureau Modeling
Update**

ABM 3 Development Update

Status Update

Modeling Roadmap to 2025RP



Rapid Strategic Model

- Rough approximation to ABM
 - Currently uses ABM2+
- Runs in ~1/3 of the time
 - Two global iterations
 - Special market model demand fixed
 - Zones aggregated to larger zones
 - Speeds up traffic assignment
 - Simulate only 25% of households
 - Can be 100% in designated project area
- Allows planners to get general idea of impact of policy in less time

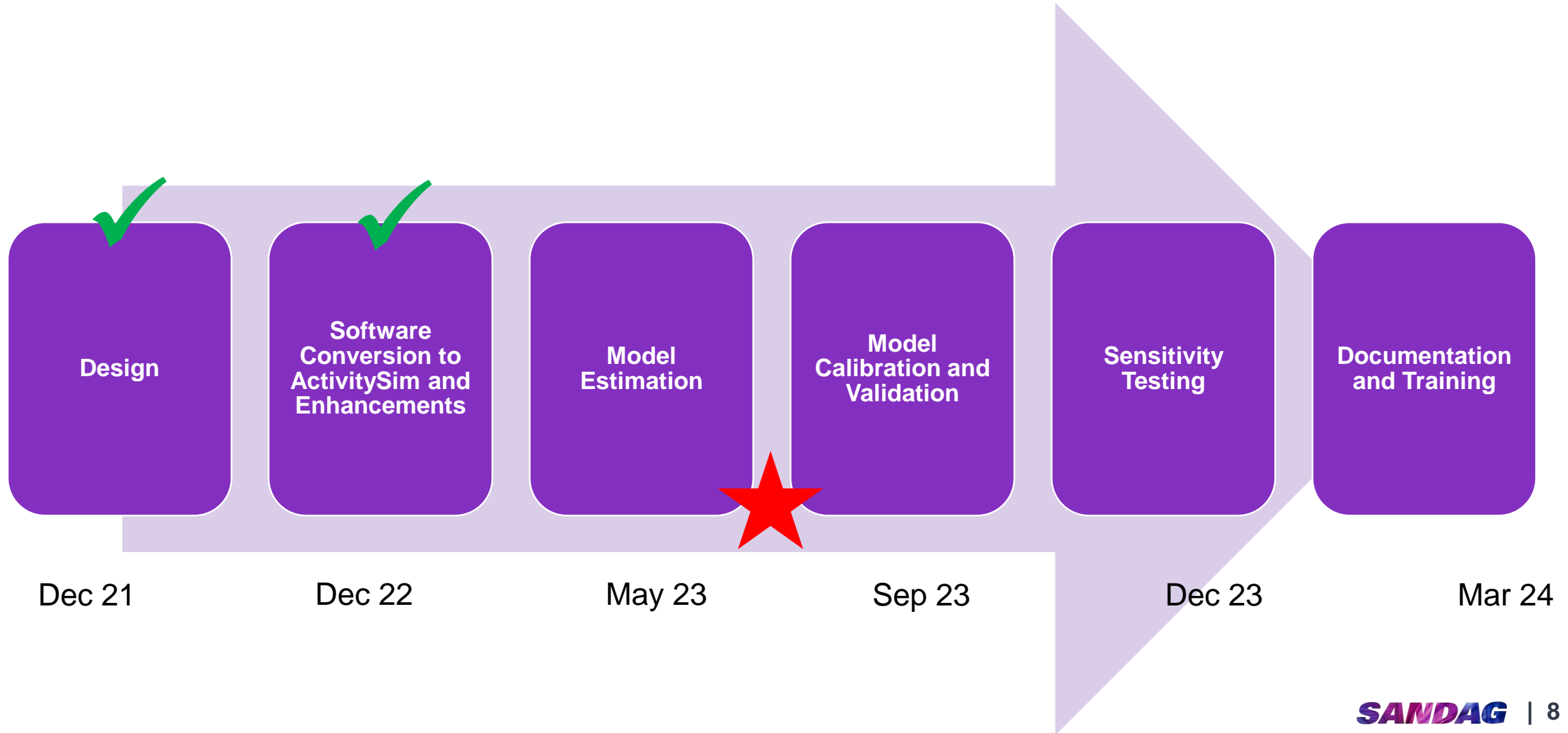


Rapid Strategic Model

- MVP released in April
 - Generally matched ABM with regional policies
- Beta version to be finished by end of month
 - Includes enhancements to ideally improve project-level policies
 - Currently running sensitivity tests
- Currently works with ABM2+, but planning on getting it to work with ABM3



ABM3 Estimation/Calibration/Validation



ABM3 Estimation Plan

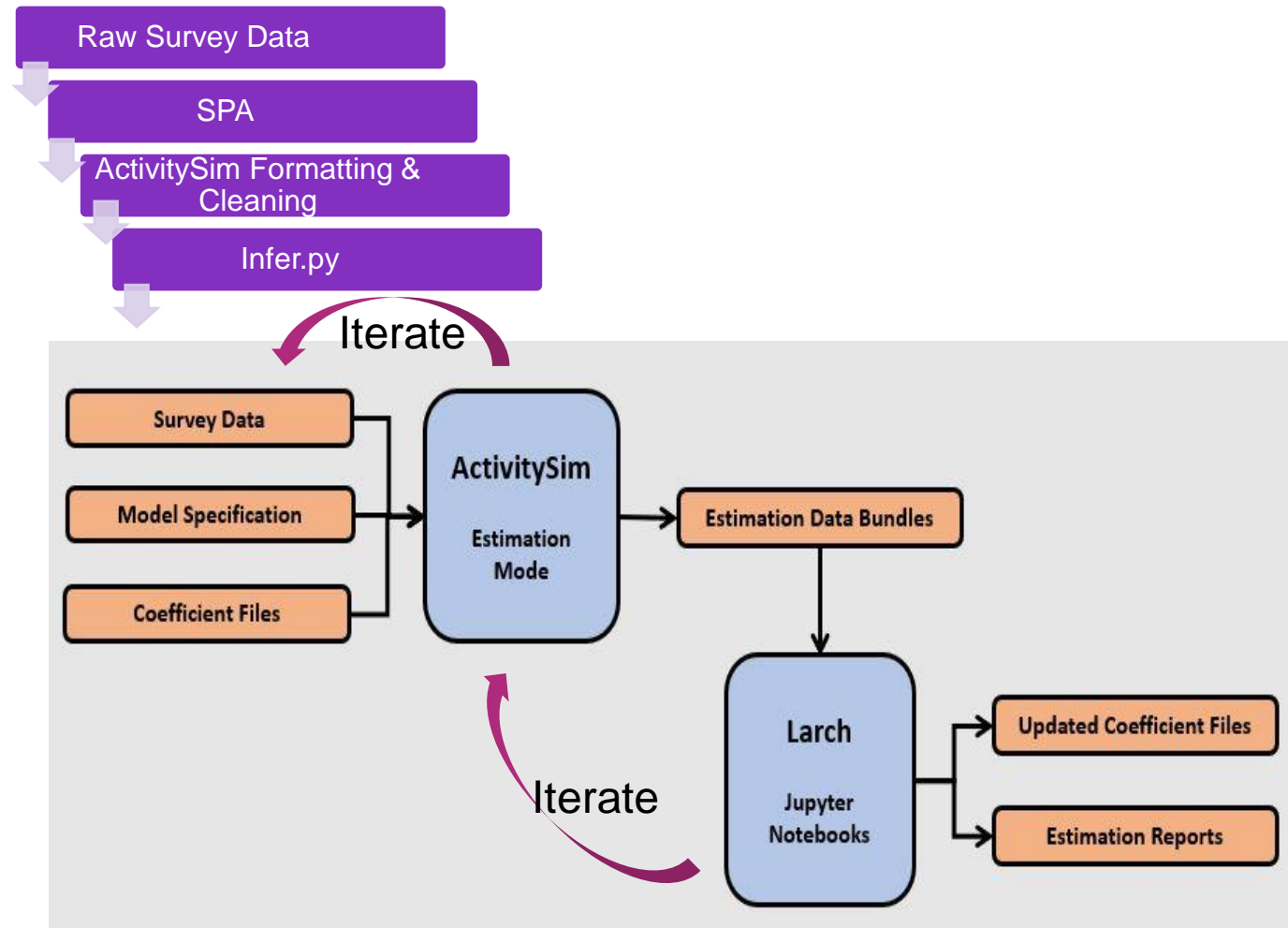
MODEL COMPONENT	ESTIMATE/CALIBRATE/ASSERT
Work from home	Estimate
External worker choice	Estimate
External worker location choice	Estimate
Work location choice	Calibrate
Transit subsidy model	Estimate
Transit pass model	Estimate
AV ownership	Assert
Auto ownership	Estimate
Vehicle type choice	Calibrate
Toll transponder ownership	Estimate
CDAP model	Estimate
Mandatory tour frequency	Calibrate

MODEL COMPONENT	ESTIMATE/CALIBRATE/ASSERT
Mandatory tour scheduling	Calibrate
School pickup/dropoff model	Calibrate
Joint tour frequency	Calibrate
Non-mandatory tour frequency	Estimate
Non-mandatory tour location choice	Calibrate
Non-mandatory tour scheduling	Calibrate
At-work tour frequency	Calibrate
AV availability	Assert
Tour mode choice	Calibrate
Stop frequency	Estimate
Stop location	Calibrate
Stop departure time	Calibrate
Trip mode choice	Calibrate
Parking location choice	Calibrate

Finished In-Progress Pending

ABM3 Estimation/Calibration/Validation

- Model estimation
 - An iterative process
 - Need the data to be consistent within ActivitySim
 - Need desired terms in the estimation data bundle
- Model Calibration
 - Using the visualizer
- Model Validation
 - PowerBI for ABM validation



Commercial Vehicle Model (CVM) Heavy Truck Model (HTM)

- CVM update using recent establishment/driver surveys
 - Use new commercial vehicle surveys (2022)
 - Develop new application software
 - Represent first/last-mile pickups/deliveries, e-commerce
- HTM update to use FAF5
- CVM and HTM model update to be production ready by February 2024



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2025 Regional Plan

Major Requirements



Equity



Air Quality



Greenhouse Gas Emissions

Equity Requirements



- **Title VI** prohibits discrimination on the basis of race, color, or national origin
- **Americans with Disabilities Act** prohibits discrimination on the basis of disability and requires equal opportunity to benefit from services in the implementation of programs and projects
- **Executive Order 12898** mandates a commitment to address environmental justice for people of color and low-income populations
- **Executive Order 13166** requires providing meaningful access to services for people with limited English proficiency
- **Executive Order 13175** requires consultation and coordination with Indian Tribal Governments
- **CA Assembly Bill 805** requires strategies that provide mode shift to public transportation and transportation strategies to reduce pollution exposure in disadvantaged communities

Air Quality Conformity

- **Federal Clean Air Act** mandates air quality standards for six criteria air pollutants, including ground level ozone
- **San Diego region is currently non-attainment for ozone**
- **San Diego region must model ROG and NOx (i.e. smog) levels for 2026, 2029, 2032, 2040, and 2050 to demonstrate that projected regional ozone levels do not exceed the federal standards**



California Senate Bill 375 and SCS

- **CARB sets regional targets** for cars and light trucks for reduction of GHG
- **CARB evaluates Regional Plan's SCS** to determine whether the strategies and investments support stated GHG emission reductions. This includes:
 - Trend analysis of performance indicators: mode split, auto ownership, VMT, transit ridership, non-auto travel time, seat utilization, trip length and GHG
 - Evaluation of any risks to not achieving the SCS GHG emission reductions
- **CARB tracks implementation** (SB 150) on whether VMT per capita is directionally tracking with reported GHG per capita



Updated Vision and Goals

Vision:

The Regional Plan envisions a sustainable and resilient future for our region and economy – supported by a transportation network that is **convenient, equitable, healthy, and safe.**

Goals:

Convenient

and reliable movement of people and goods

Equitable

access to essential needs and opportunities

Healthy

communities and environment for everyone

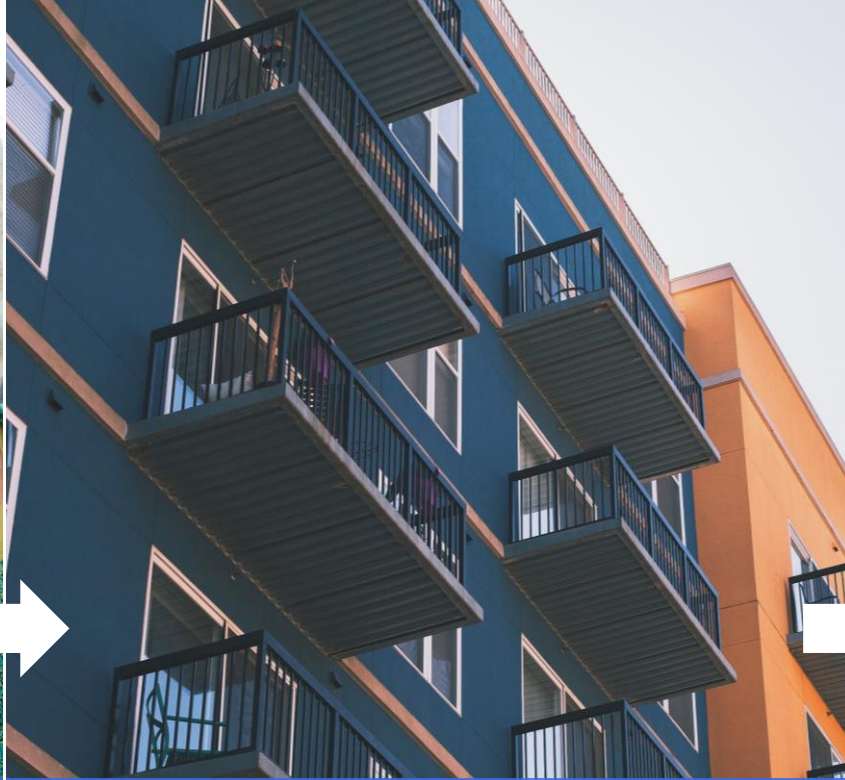
Safe

transportation network for all users

Series 15 Forecast for the 2025 Regional Plan



Population

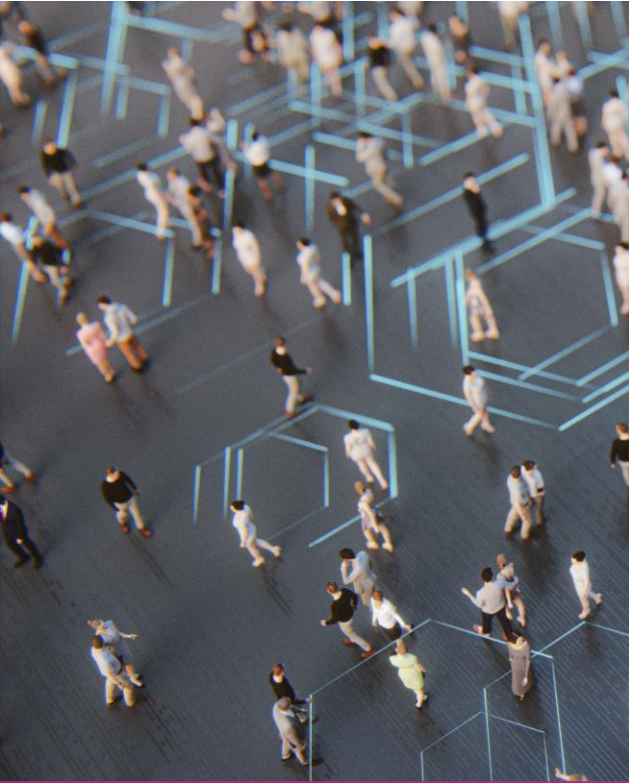


Housing



Jobs

What Will the Region Look Like in the Future?



Population will increase but then decrease



Population will be older



More households and houses



Jobs in the region will continue to grow

Key 2023-2024 Workplan

2023 Q3:

- Develop Preliminary Networks (Unconstrained) - August
- Initial Cost Estimates - September
- Draft Revenue Assumptions - September

2024 Q1:

- Off Model Calculators
- Submit CARB Technical Methodology memo
- ABM3 Beta Testing
- SCS Land Use Scenario

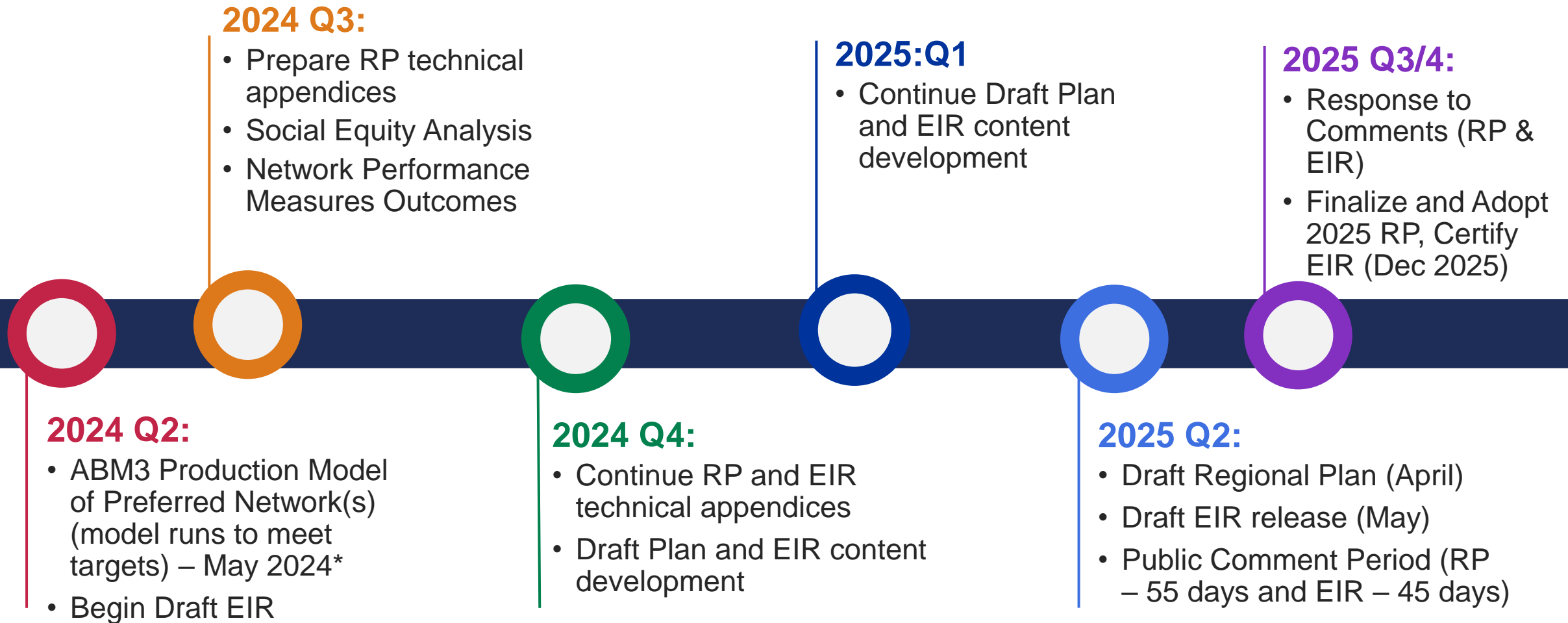
2023 Q2:

- Series 15 Regional Forecasts
- Vision, goals and performance measures
- Perform Network Sensitivity Tests
- Develop cost estimate methodology
- Initial revenue assumptions

2023 Q4:

- Project Phasing/Prioritization
- Revenue Constrained Network(s)
- Draft Cost Estimates
- Develop policy assumptions
- Series 15 Subregional

Key 2024-2025 Workplan Items



* Preferred network must be complete no later than July 2024 for a Dec 2025 RP adoption.

Model Application Update

- Auto Operating Cost Methodology
 - California Big 4 MPO Collaboration
- Network Performance Sensitivity Tests
 - Transit Leap
 - Complete Corridors – Managed Lane Analysis
 - Active Transportation
 - Support for Mobility Hubs Update
- TNED - Network Editing Tool Migration
- Arterial Network Online Review Tool
 - Local jurisdiction comments for 2022 and future years
- Base Year (2022) Network Ground Truth
- Off-Model Calculator Update

Service Bureau Update

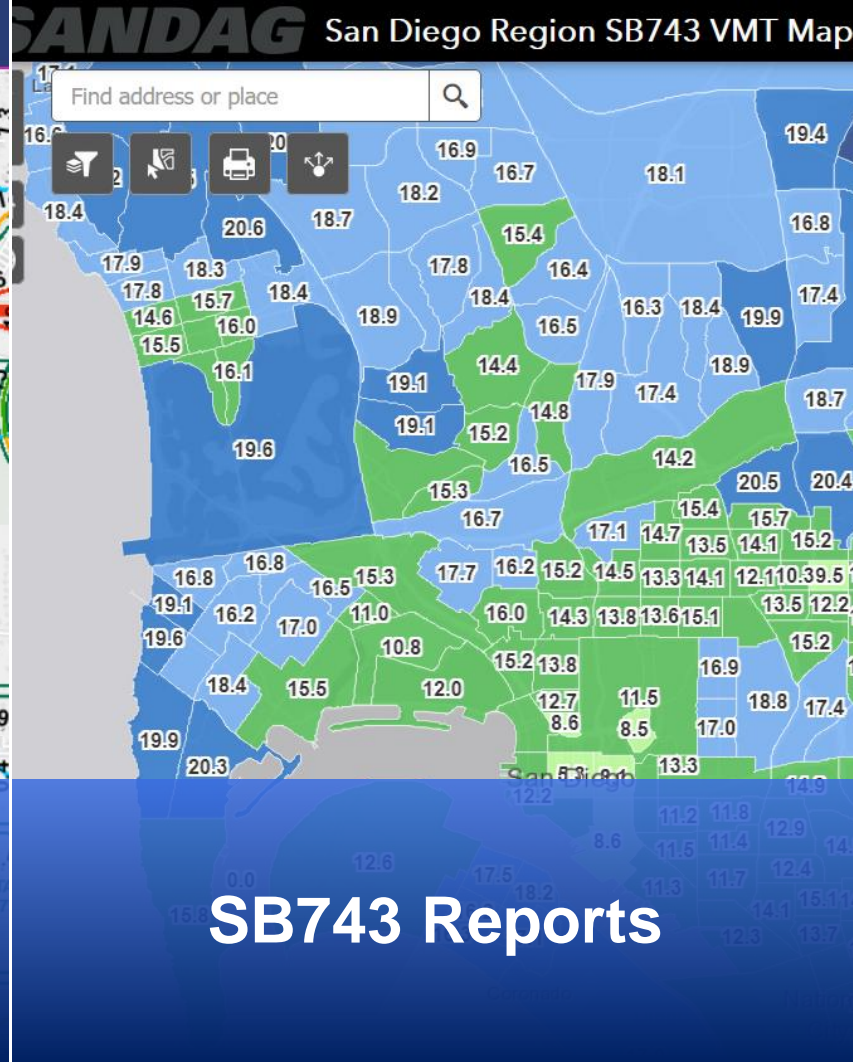
2021 RP/SCS Amendment & Series 14

- 2021 RP/SCS
 - Status update on modeling
 - Data release policy
- Series 14 Forecast
 - Pre-SR14 review
 - New guide to Series 14 and the DS classification system

2021 RP/SCS Amendment

- All modeling was completed in early 2023
 - RP/SCS Amendment has been presented to the SANDAG board
 - Public comment period for plan: June 13 – August 8
 - Public comment period for SEIR: July 13 – August 28
 - Anticipated SANDAG board action late Summer or early Fall
 - If approved, amendment will be sent to the Air Resources Board for acceptance

2021 RP/SCS Data Products



2021 Regional Plan
Programs and Policies

CLIMATE
ACTION
PLANNING

CAP Data Support

This figure shows the cover of the 2021 Regional Plan Programs and Policies. The cover features the text "2021 Regional Plan Programs and Policies" at the top, followed by "CLIMATE ACTION PLANNING" in large, white, sans-serif capital letters on a green background. Below the main title, the text "CAP Data Support" is visible. The cover also includes a small map of the San Diego region in the bottom right corner.

2021 RP/SCS Data Release Procedure

- Model Run Data
 - Model run data is available for release
 - Data will be released in ‘as-is’ condition as a public record
 - No additional analysis may be conducted at this time
- RP/SCS Amendment Data Products
 - TFIC, SB-743, & CAP data products will not be produced until the amendment is approved by the SANDAG board
- Disclaimer
 - All model run data and any model run data products will not become official until approval/adoption from the California Air Resources Board. Any work conducted before this should be considered ‘at risk’.

Forecast Series Review

2011 RP/SCS

Series 12
ABM1
TransCAD

2015 RP/SCS

Series 13
ABM2
TransCAD

2019 Federal RTP

Series 14
ABM2+
Emme
14.1.1
DS-17

2021 RP/SCS

Series 14
ABM2+
Emme
14.2.2

5 Big Moves (Build)

DS-38 Plan
DS-42 Amendment
SCS Land Use Assumptions
RP/SCS Projects & Policies

No Build

DS-39 Plan
DS-41 Amendment
Baseline Land Use Assumptions
No build Projects & Policies

Pre DS versioning

DS versioning implemented

DS Nomenclature & Versioning

- “DS” + [number] = “DS ID”
 - DS stands for “Data Source”
 - [number] represents the version number
 - Transition from “series” to “series + DS ID” nomenclature for correspondence and model run specifications
- RP/SCS Projects & Policies
 - It is recommended that DS forecast versions remain consistent with RP/SCS projects & policies
 - Roadway, transit, & bike/ped network procedure remains unchanged
 - Some polices may be modified

Service Bureau DS Guide (Coming Soon)

Updated for new DS versions

- DS-41 succeeds DS-39
- DS-42 succeeds DS-38

Characteristics	DS-41	DS-42
Aliases	<ul style="list-style-type: none"> • No Build • Non-SCS 	<ul style="list-style-type: none"> • Build • Vision • Sustainable Communities Strategy (SCS)
Related DS ID Used for December 2021 RP/SCS	DS-39	DS-38
Mobility Hubs	✗	✓
Telework	✗	✓
Parking Policies	✗	✓
Transit Improvements	✗	✓
Transit Fare Reductions	✗	✓
Managed Lanes Enhancements	✗	✓
Toll Pricing Enhancements	✗	✓
Transportation Network Companies (TNC) Enhancements	✗	✓
Microtransit Enhancements	✗	✓
Micromobility Enhancements	✗	✓
Consistent with Jurisdiction General Plans	✓	✗
Central Mobility Hub (NAVWAR)	✗	✓
Full Buildout of SDSU West	✗	✗
Consistent with preferred alternative from 2021 Regional Plan	✗	✓

Thank you for attending the modeling forum!

See you in December!

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 Email: pio@sandag.org

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