Greenhouse Gases and Vehicle Miles Traveled: An overview of State requirements and SANDAG modeling tools

Board of Directors Item 4 | February 14, 2020
Panel Members

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Caltrans
What is an activity-based model and what drives it?
What influences the model?

- Existing Transportation Facilities
- New Transportation Facilities
- Demographics
- Transportation & Land Use Policies
- Environmental Constraints
- Economics
- Surveys
- Growth Forecast

Model Runs
**Decision Tree**

**Jenny**
- 50 years old
- lives in La Mesa
- married
- son (12 years old)
- works downtown
- 2 car family
Decision Tree

25 min
$2 fuel
$6 parking
$6 maintenance & depreciation

50 min
$2.50

1 hour
free
What if…

1 mpg more fuel efficient

0.7%

100% EV fleet

100%

1 mile less per day

4.7%
What if we reduced congestion on the freeway network?

CO2 Emissions (EMFAC 2017) by Speed Bin

- 2020 LDV Fleet
- 2035 LDV Fleet
What decreases GHG & VMT?

**policies**
- Parking management
- Pricing
- Land Use

**programs**
- Incentives and subsidies
- Rideshare services

**technology**
- Intelligent transportation
- Active management
- Next OS
SR 78 Example

What if we added one managed lane in each direction?

- Current volume (in thousands) with improvements:
  - 34,000 VMT Daily
  - 9,000 average daily trips
  - 128.0
  - 135.4
  - 125.2
  - 132.0
  - 154.7
  - 161.7
  - 175.9
  - 181.8
  - 190.8
SR 52 Example

What if we…?

5,000 VMT Daily

10,000 average daily trips on SR-52

4,000 average daily trips on I-8

current volume (in thousands) with improvements
Next Steps

- ABM2+ Development
- Model network configuration and coding
- Regional Growth Forecast
- Regional Plan/EIR modeling and analysis
A New Era for Planning in California

Kate Gordon
Director of the Governor’s Office of Planning & Research
Senior Advisor to the Governor on Climate
Climate-Related Risks
Housing Crisis – Affordability
Housing Crisis – Climate Resilience
Transportation Crisis – Congestion
424.1 MMTCO\textsubscript{2}e
2017 TOTAL CA EMISSIONS

(Source: 2017 California GHG Emissions Inventory)
SB 150
2018 PROGRESS REPORT
“California cannot meet its climate goals without curbing growth in single-occupancy vehicle activity.”
AMBITION

• 100% Clean Energy by 2045
• Carbon Neutrality by 2045
TO ACTION

EO N-19-19
Alignment of state investments with state climate goals

Climate Budget
Integrated, multi-sectoral approach
FY ‘20-21 CA CLIMATE BUDGET
Integrated, Collaborative, Comprehensive

Climate Resilience Bond
Climate Catalyst Revolving Loan Fund
Cap-and-Trade Expenditure Plan
Climate Budget
$1.1 BILLION INVESTED ACROSS THE STATE

104 SUSTAINABLE PROJECTS WILL RESULT IN THE EQUIVALENT OF 14,862 FEWER CARS ON THE ROAD EVERY YEAR AND 5.3 BILLION FEWER MILES DRIVEN

Affordable Housing & Sustainable Communities (AHSC)
Integrating affordable homes and sustainable transportation
SOUTH BAY BUS RAPID TRANSIT

Round: 1 (FY2014-2015)

Project Location: San Diego

Applicant Name: SANDAG

Project Type: Integrated Connectivity

Disadvantaged Community: Yes

Total Award: $7,000,000

➢ Transportation Related Infrastructure: $7,000,000
CORNERSTONE PLACE

Round: 2 (FY2015-2016)

Project Location: El Cajon

Applicant Name: Domus Development, LLC

Project Type: Integrated Connectivity

Disadvantaged Community: Yes

Percentage of Units Affordable: 99%

Total Award: $12,090,713
KEELER COURT

Round: 3 (FY2016-2017)

Project Location: San Diego

Applicant Name: Community Housing Works

Project Type: Integrated Connectivity

Disadvantaged Community: 86-90%

# of Affordable Units: 71

Total Award: $9,934,273
13th & BROADWAY

Round: 4 (FY2017-2018)

Project Location: San Diego

Applicant Name: S.V.D.P. Management, Inc., City of San Diego

Project Type: Transit Oriented Development

Disadvantaged Community: 75-80%

# of Affordable Units: 273

Total Award: $20,000,000
Natural land emits 50-70x less emissions than urban areas & have the ability to sequester excess carbon.
SMART GROWTH IN ACTION
SB 375 and VMT Reduction

Jennifer Gress, Ph.D.
SANDAG Board Meeting
February 14, 2020
State climate and air quality commitments

Set 40 percent below 1990 levels by 2030 target

SB 32 (2016)
Requires at least 40 percent below 1990 levels by 2030

CARB Scoping Plan Update (2017)
Quantifies VMT compatible with achieving State targets

Executive Order B-55-18 (2018)
Carbon neutrality no later than 2045

Leverage transportation investments to reduce VMT
Other Policy Tools

- SB 743 Implementation: Support infill and transit-oriented development
- Safer Affordable Fuel-Efficient Vehicle Rule
100% Pure ZEV Sales Starting in 2035

Projected Statewide On-Road Vehicle Population through 2045
Reducing VMT solves problems electric vehicles and clean fuels cannot

20% of Household Income is spent on

Source: Orange County Register
Progress to Date

California is not on track to meet emissions reductions anticipated from existing SCSs.

(Source: CARB, CA Dept. of Tax & Fee Admin.)
Californians Continue to Drive Alone as their Primary Mode of Travel

(Source: American Community Survey)
Transit Ridership is Falling

(Source: National Transit Database)
### SB 375 Regional GHG Reduction Targets

<table>
<thead>
<tr>
<th>Original SANDAG 2035 Target</th>
<th>Updated SANDAG 2035 Target</th>
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<tbody>
<tr>
<td>% Reduction Passenger Vehicle CO₂ Per Capita (Compared to 2005)</td>
<td></td>
</tr>
<tr>
<td>-13%</td>
<td>-19%</td>
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</tbody>
</table>
Opportunities for SANDAG Leadership

• Transportation pricing
• Improving transit and traveler experience with tools and incentives
• Developing clean mobility options
• Identifying opportunities for neighborhood mobility solutions
• Funding to implement transit-oriented development
Solving our transportation challenges requires regions and the State to move forward together to **THINK BIG** and **rethink traditional strategies**

**SCS Updates Underway**
- SCAG – 2020
- SANDAG – 2021
- MTC – 2021

Executive Order N-19-19
Jennifer Gress, Ph.D.
Chief, Sustainable Transportation & Communities Division
Jennifer.Gress@arb.ca.gov
CALTRANS IMPLEMENTATION OF SB 743

Presentation to SANDAG Board and Committees

Ellen Greenberg & Chris Schmidt

02.14.2020
Presentation Outline

- SB 743 Overview
- Potential Project Delivery Impacts
- SANDAG Project Delivery Example
Policy Priorities

- Transportation Improvements
- Climate
- Housing
- Environmental Protections
Supporting a Different Transportation Future

- CEQA Guidelines and ARB 2017 Scoping Plan identify VMT reductions as necessary to meet the State’s goals
- Now analyze, disclose, select and consider alternatives, and identify mitigation differently
- Align project-level decision making with achieving climate goals while providing needed accessibility and mobility
“Modernization” of transportation analysis

Streamline infill development and affordable housing to reflect lower level of car use

Shift focus of impact assessment - prohibit use of Level of Service / Delay
SB 743 Timeline

- **SB 743**: 2013
- **CEQA Guidelines**: 2018
- **Caltrans Implements**: 2020
- **Future Efforts**: 2020+
Caltrans Activities Affected

- CEQA analysis for capacity-increasing projects on the State Highway System
- Caltrans Local Development / Intergovernmental Review Process
- Related mitigation activities
SB 743: Land Use Project Review

- Caltrans supports use of OPR Technical Advisory
  - Project streamlining for infill and TOD
  - VMT determinations for other projects
- Automobile delay no longer a CEQA impact for development projects in any location
Transportation Projects: Proposed Caltrans Policy

“Vehicle Miles Traveled (VMT) is the most appropriate primary measure of transportation impacts for capacity-increasing transportation projects on the SHS.

The determination of significance of VMT impact will require a supporting induced travel analysis for capacity-increasing transportation projects on the SHS when Caltrans is lead agency or when Caltrans designates another entity as lead agency.”
About Induced Travel and VMT

**Induced Travel**
In response to added capacity, drivers change their behavior to take advantage of shorter travel times. The additional trip-making is “induced travel,” which can also be associated with land use change.

**Vehicle miles traveled (VMT)** is a cumulative measure of distance driven by passenger vehicles.
In evaluating Vehicle Miles Traveled (VMT) in CEQA, the impact assessed is VMT induced by the project.

- Projects that reduce or do not impact VMT are presumed to have a less than significant impact.
- Focus is on capacity-increasing projects.
CEQA Changes to Transportation Project Analysis with SB 743
Evaluating Capacity-Increasing Projects

- Existing Conditions
- VMT at Project Opening
- VMT Without Project
- VMT With Project
- VMT Induced by the Project

- Time
- Horizon Year
- PROJECT OPENING
- Existing Conditions

- Total VMT
- VMT Induced by the Project
Caltrans Next Steps

- Caltrans producing guidance on methods for transportation analysis using VMT
  - TISG (land use)
  - TAF (transportation projects)
  - TAC (transportation projects)
- Review and feedback opportunities coming soon (February and March)
Potential Project Delivery Impacts
Potential Impacts on Project Delivery

- Schedule
- Budget
- Environmental document escalation
- Mitigation requirements
Mitigating VMT Impacts

- Follows established CEQA procedures, including those related to mitigation
- Strategies: pricing, transportation demand management, bike/ped facilities, and more
- Outcomes: mode shift, shorter vehicle trips, higher vehicle occupancy, trip chaining
- Explore compatible VMT and GHG mitigation measures
Congestion Pricing

SHARE OF PERSON TRIPS BY HOUSEHOLD INCOME
A.M. PEAK

- AUTO
- TRANSIT
- OTHER

OVER $150K

$100 - 150K

$75 - 100K

$50 - 75K
Potential Project Delivery Impacts with SANDAG Example
A $6.5 billion comprehensive and sustainable solution for the region that integrates:
• Express Lanes on I-5
• Double tracking the coastal rail line
• Bike & Pedestrian improvements
• Community & Habitat enhancements
NCC Objectives: Improve mobility, livability & the environment

- Provide competitive alternatives to the single occupant vehicle that reduce VMT and GHG
- Protect coastal location which defines San Diego
- Enhance Coastal access
- NCC is one of only two economic lifelines for the region.
- Support future growth more urbanized coastal areas instead of rural/suburban areas.
$1.5 BILLION IN CORRIDOR SINCE 2006

<table>
<thead>
<tr>
<th>CONTEXT</th>
<th>POPULATION</th>
<th>JOBS</th>
<th>HOUSING UNITS</th>
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</thead>
<tbody>
<tr>
<td>SAN DIEGO COUNTY FROM 2006 - 2017</td>
<td>13% increase</td>
<td>9% increase</td>
<td>8% increase</td>
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<table>
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<tr>
<th>ENVIRONMENTAL ENHANCEMENTS</th>
<th>HIGH OCCUPANCY VEHICLE Lanes</th>
<th>LOSSAN DOUBLE TRACK</th>
<th>BIKEWAY</th>
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<tbody>
<tr>
<td><strong>2022</strong></td>
<td><strong>2006</strong></td>
<td><strong>2022</strong></td>
<td><strong>2006</strong></td>
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<tr>
<td><strong>1,209 acres</strong></td>
<td><strong>5.5 miles</strong></td>
<td><strong>25 miles</strong></td>
<td><strong>5.3 miles</strong></td>
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(2.85 miles shovel-ready, pending funding)
NCC Improvements would

• Accommodate a 29% increase in population
• Reduce Vehicle Hours Traveled by 4%
• Reduce Delay on I-5 by 47%
• Part of a regional plan to reduce VMT by 5.5%
• Increase LOSSAN capacity to 47,000 users.
• Increases VMT in the corridor by approximately 5% (Compared to “No Build”)
• 5%-10% reduction in local arterial ADT.
700,000 TRAVEL TRIPS/DAY
NEARLY $90 BILLION IN ANNUAL GOODS MOVEMENT
SUPPORTS

278,000

JOBS
32 MILLION VISITORS/YEAR
Thank you.
Questions?
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