TECHNICAL ADVISORY COMMITTEE (TAC)

Thursday, October 23, 2014

9:30 –11:30 am

Caltrans Headquarters

1120 N Street, Room 3442, 3rd Floor

Sacramento, CA 95814

Ron West CSTDM

Analysis Framework

- Objective: Analyze impacts of all strategies using a common metric: Vehicle Miles Traveled (VMT)
- Combination of CSTDM and Off Model calculations
- Aspiration objectives are ones where there is no set policy, and can be used as advocacy pieces. Example: Increase in biking

Off model data sources

- Looked into MPO SCS data
- SCSs have done off model calculations
- ARB policy briefs also a source
- CAPCOA report data seemed to be oriented to site specific activities, and generally doesn't apply state wide
- TCRP 118 (BRT)
    - Provides information on ridership
    - Convert local bus travel to VMT

Scenario Strategies

- Ron will be looking at MPO plans for HOV & HOT lane calculations

- HOV/HOT lanes strategy is currently incomplete, but is in the process of being updated, and be captured later
- Ron believes that there may be a symbiotic relationship when all strategies are calculated

Pricing

- Road User Charge (RUC) and Transit Service Improvements have the biggest change in VMT when implemented
- Vehicles are projected to become more efficient, so there will be a slightly smaller auto operating cost in the future
- Ron modeled a 73% increase in RUC by 2040
- RUC cannot be directly modeled, so auto operating cost has to be increased
- This resulted in a 17% VMT decrease (16 cent/mile increase in auto operating costs)
- This is predicted to be a contentious issue since it doubles the costs of driving, greatly moved the needle resulting in a 23% reduction in VMT
- Other Tests:

Year	Percent increase	Auto Operating Costs	VMT decrease
2010	100%	22 cents/mile	23%
2040	73%	16 cent/mile	17%
2040	36%	8 cent/mile	11%
2040	9%	2 cent/mile	3%

- Ron stated that it takes one week to run the (CSTDM) model

Transportation Alternatives

- Car sharing: MTC predicts net 5% increase in car shared applied to statewide short distance model
- Ron got a 1.1% decrease in total VMT when applying carsharing statewide since the CSTDM includes long distance travel
- Telecommuting: Ron assumed modest increase in telecommunications and work from home (resulting in less than .5% reduction in VMT)
- Carpooling: The 2.9% VMT reduction and 5% increase in carpooling is not MTC data, Cambridge's own calculation
- Joshua Cunnigham asked how CSTDM calculates a reduction in car sharing, and Ron West responded that he will be sharing all links to his calculations

Mode Shift-Transit

- Convert 20% of local bus routes to BRT (did not add any new lines), assumed timed transfers, and double the speeds of operation and service for 2040. This results in 6% reduction in VMT

- Ron said that he is also working on a model for 2020.
- The model is more sensitive to changes in service than travel time
- Perceived time vs real time is important to take into consideration (ex: waiting for bus)
- These are draft strategies. Want PAC and the TAC to comment on this to refine the end product

<u>Mode Shift- Bicycle and Pedestrian</u>

- Looked at California household survey for Bike/Ped data
- Doubled bike and pedestrian trips
- Avg. walk trip .55 miles (after looking at report Wendy had suggested with ¾ mile average trip – but survey oversamples bike riders and walkers)
- Assumed 50% are off-setting auto trips (replaced)
- Avg. bike trip 3 miles
- .4% reduction in VMT both bike and walk

<u>Mode Shift- Carpool</u>

- Raised HOV occupancy statewide to 3+ in the model
- Resulted in 0.8% reduction in VMT
- The issue is that raising occupancy rates, forces some drivers back into single occupancy vehicles
- Carpool lanes are going to become more crowded if this were to occur.
- However, carpool drivers need a speed advantage, which is why carpools give drivers an incentive to commute with more people to work
- Add HOV Lanes: Going to take Ron some more time, still calculating

<u>Operational Efficiencies</u>

- Joshua: Vision has a VMT scale, so there might be some double counting. BUT, this is SO small that it might not be significant
- We need to be transparent with our assumptions, and add any footnotes when needed
- Ron is using an additive method with all the off-model calculations, but open to suggestions to calculate any symbiotic relationships
- Ron reiterated that these are draft model runs, and we have time after workshops and public drafts to tweak to model and calculations
- Behavior change provides a decrease in VMT
- ARB would like to see all the data presented by a single driver, and Ron agrees, and would like to use representative driver examples
- Ron is completing Alternative 2 this week, and then doing the off model calculations
- We are not looking at alternative land use strategies with the CSTDM

Joshua Cunningham, ARB

Introduction

- ARB is taking Alternatives from CSTDM and putting them into ARB models
- CSTDM providing VMT, then VISION calculating GHG reductions

How Scenario Results Are Used in ARB Policy Decisions (Slide 3)

- VISION will highlight the gap between Alternative 2, and where we need to be by 2050 with GHG emissions (then use alternative fuels and technology to get us there)
- ARB is exploring "What If" scenarios – and scenario planning is valuable to get examples of results when you push strategies to inform current policies

Model Overview: User Input Choices & Summary Results (Slide 5)

- Large number of inputs for model
- For every car classification, there is the ability to scale any year and model between now and 2050
- Model broken down by vehicle fleet
- Key user input: choice of fuel
    - Renewable diesel
    - Advanced car technology
- ARB is using technology assessments to tweak knobs on their new test
    - Any information they find they will use
- ARB Scoping Plan intended to provide information on new car technology
    - Look at the market potential
    - 5-10 year technology assessment will be important
    - Model is set up to do air pollution tests

Sectors in Vision Model 2.0 (Slide 6)

- VISION model shows more than just the transportation sector
- Most detail in the Vision model is in the transportation sect~~i~~or, however, there is rich detail with the factories that produce fuels, and Vision 2.0 now takes into account all houses and commercial buildings
- In the model, you can time how technology is updated, it is an annual variable that can be adjusted

Basic Model Structure (Slide 7)

- What will fleet population look like?: How many electric vehicles, hybrids, etc. translate fuel demand from fleet of vehicles
- Can also determine fuel choice by user before picking the fleet
- Model derives aggregate fuel demand according to the population

- We need to determine what results we need and want to present
- Gabe says for the plan we need to focus on how the Alternatives perform against the transportation sector of AB 32 and the Governors Executive Order goals, tank to wheel needs to be shown, not well to wheel

Models, Data Handoffs, etc (Slide 9&10)

- Alternative 1 from CSTDM is delivered to ARB by speed bin for 4 vehicle classifications
- ARB first puts data into EMFAC 2014
- EMFAC is now embedded into Vision model
- The reason the CSTDM data need to go into EMFAC first, is because it is difficult to tweak speed bin data in Vision
- Chris Ratekin wants to make sure data isn't diluted by putting it into so many models
- Joshua ensures that we are going to be as transparent as possible with the modeling process
- ARB is hosting Vision public outreach this fall
- Since 2035 is a key year for SB 375, we need to show in charts
- 2035 will need to be extrapolated by ARB
- Vision will align with the Rail and Aviations plans, as well as calculate High Speed Rail
- Alternative 3 will be much more speculative, but will be transparent

Three CTP2040 Alternatives (Slide 11)

- Make sure public alternatives show a few different cases to not appear biased towards a specific technology or fuel alternative

How to show the Alternatives (Slide 13-14)

- Joshua showed various ways to show the difference amongst the alternatives through graphs
- Only count interstate flights emissions, Vision tool has ability to look at out of state flights as well
    - About 10% is for the interstate flight
- Entering/Exiting, foreign implications to measure Entering/Exiting flights

ARB Pitch

- Need input on things to put into the report
    - What our audiences wants to see

Integrated Transportation Systems Perspective (Slide 22)

- This examples is to describe qualitatively what State needs to do to reach targets
- Scenarios say to take many actions to get these results

Fuel Transportation: Regional Implications (Slide 24)

- Local agencies have to take into account that there will be more truck trips once hydrogen fueled trucks are implemented

Scenario Results: Fueling Infrastructure Impacts (Slide 26)

- Estimation of about 10,000 gas stations or so in the state
- New gas stations to be built do not come cheap
- How to address transformations of energy infrastructure
    - (Ex: Current gas stations converted into bio-fuel/electric charging facilities)
- ARB needs to make an off-model assumption of how many new facilities will be needed
    - MPO's are focusing on tailpipe, CO2 emission reduction