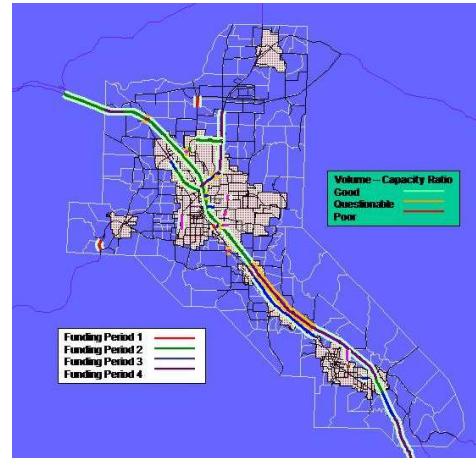
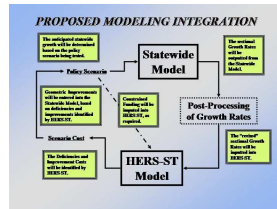


“Using the Highway Economic Requirements System and the Travel Demand Model to Facilitate Long-Range Planning in Oregon”

Rich Arnold, P.E.
Oregon Department of Transportation

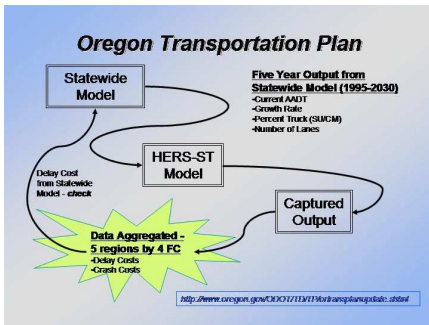
HERS-ST Model

- Strengths**
 - Optimized list of improvements given a set of decision criteria and budget
 - Deals with small sections and operating characteristics of roadway
 - Sensitive to geometric changes (i.e., curves/grades)
- Weaknesses**
 - Indirect ways to address shifts in traffic
 - Is not directly sensitive to transportation policies - rerouting (or reassignment) of traffic, transit, etc
 - Not able to deal with dynamic aspects of traffic flow



RVMPO Data Tie

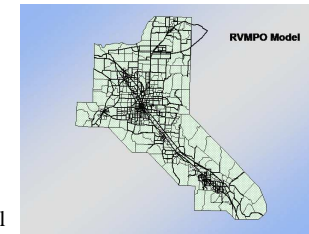
- Defined the RVMPO model network,
- Identified sample segments from HPMS dataset,
- Overlaid the model networks in GIS and determined what data still needed to be collected,
- RVCOG staff collected additional data, reduced from the list of 98 HPMS data items since some defaults were defined,
- Loaded data into HERS-ST and ran analysis – Parameters/Analysis set so:
 - No pavement related improvements were allowed
 - Widening restriction – Maximum widening of one lane per direction
 - No alignment improvements – prohibitive cost
- Developed two primary scenarios
 - Full Needs (See Figure 2)
 - Min BCR
- Developed State Improvement File, based on projected RTP (2009-2034) improvements – To force HERS-ST to evaluate RTP projects, and to provide a platform for prioritize based on BCR, plus it provided an opportunity to evaluate additional improvements: Interstate 5 example,
- Develop Interim Data for proposed Bi-Pass option (yet to be done), and
- Have hearty discussion with MPO Policy Board regarding the complete model analysis; working with them to understand the results as it pertains to the decision-making process.



Rogue Valley Metropolitan Planning Organization (RVMPO) RVMPO Model

Current plan is to develop data tie to join HERS-ST data (both input and output) with RVMPO Travel Demand Model. The plan is to use the travel demand model to

- Develop link volumes for the defined travel demand model network,
- Batch volumes into the appropriate HERS-ST records,
- Run HERS-ST to evaluate needs and simulate improvements,
- Feed the improvements back into travel demand model, and
- Rerun travel demand model to impacts of HERS-ST improvements at the regional planning level.



State and Federal Requirements

The modeling scale for a Metropolitan Planning Organization (MPO) are directly related to its responsibilities for meeting specific urban transportation planning requirements established by federal law. These are defined by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) and described in Title 23 (Highways) and Title 49 (Transportation) of the Code of Federal Regulations (CFR). Among those requirements is the development of a 20-year transportation plan that includes both long range and short range strategies that lead to the development of an integrated intermodal transportation system.

Additional modeling needs are related to Oregon's Transportation Planning Rule (TPR) requirement for the preparation of local transportation system plans (LSTP) that "establish a system of transportation facilities and services adequate to meet identified local transportation needs". While the TPR does not regulate transportation modeling, it does set planning requirements that have direct implications for the type of models that are needed to develop LSTPs.

* Code of Federal Regulations, Title 23 (http://www.ecfr.gov/cgi-bin/ecfr-0606.pl?SID=546312_21) (last modified 10/15/2006)
 * Code of Federal Regulations, Title 49 (http://www.ecfr.gov/cgi-bin/ecfr-0606.pl?SID=546312_21) (last modified 10/15/2006)
 * Oregon Land Conservation and Development, OAR 660-012-0000 (ORMC)

Travel Demand Models

- Strengths**
 - Trip generation and distribution along network
 - Reassignment of traffic due to changes in network
 - Evaluate transportation policy issues
- Weaknesses**
 - General volume/delay functions
 - Generalized segment, not sensitive to curve/grades
 - Do not identify sets of improvements for criteria and budget scenario
 - Not able to deal with dynamic aspects of traffic flow



Bridge Limitation Study

- Oregon aging structures on key state highway routes
- Economic impact due to Bridge Restrictions or Closures
- Statewide Land-Use & Travel Demand Model primary analysis tool used
- HERS-OR played minor role
 - Congestion analysis
 - Provided detailed segment data

Economic and Transportation Modeling and Analysis of Bridge Options: Technical Report

