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

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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 prioritization 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.

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 scenarios
  - Not able to deal with dynamic aspects of traffic flow

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
  - Reran travel demand model to impacts of HERS-ST improvements at the regional planning level.

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