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## VDOT Travel Demand Model Application Checklist

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VDOT currently uses the procedures listed in this checklist for in-house evaluation of travel demand models used in planning or decision-making processes, and distributes this checklist to consultants and other jurisdictions in the region, free of charge. We recommend use of the checklist to guide travel demand model forecasting analyses, to help track travel demand model work, and as a guide in drafting project scopes of work.

Our goal is to help promote quality control and consistency for travel demand model forecasting throughout the region. If you have suggestions for additional criteria or other specific requirements, or if you need help drafting a scope of work or checking final products against this checklist, please contact a member of the VDOT Travel Demand Modeling Application Checklist staff:

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# VDOT Travel Model Application Checklist

## 1. Scope of Study

- \_\_\_\_\_ Is the study area identified by the consultant wide enough to cover the area significantly impacted by the project? (If not, recommend that the study area be expanded.)
- \_\_\_\_\_ Are there any other SYIP (Six-Year Improvement Program) projects in the area that need modeling/forecasting information in the near future? (Research the SYIP list).
- \_\_\_\_\_ Have you coordinated with other SYIP projects in the study area to combine your study efforts? (If not, please coordinate).
- \_\_\_\_\_ Have you checked to see what modeling efforts have been done in the study area in the past? (Please check for air quality conformity analyses, traffic studies, or Environmental Impact Statements done for any project in the study area within the last few years).

## 2. VDOT model assumptions

- \_\_\_\_\_ Has the consultant reviewed the study area land use and network assumptions in the VDOT model?
  - \_\_\_\_\_ Base year
  - \_\_\_\_\_ Future year
- \_\_\_\_\_ Does the consultant have better information or has the consultant chosen different assumptions than the VDOT model? If yes:
  - \_\_\_\_\_ Has the consultant reviewed the new information with VDOT staff?
  - \_\_\_\_\_ Has the consultant documented the differences?
- \_\_\_\_\_ Has the consultant reviewed area SYIP assumptions and reached agreement with VDOT staff on the projects and configurations to be included in future scenarios?

## 3. Study area enhancements to VDOT model

- \_\_\_\_\_ Has the consultant provided better land use/network information or chosen different assumptions than the VDOT model within the study area? (The consultant needs to expand network detail, review and modify land use as needed, and modify the zone system within study area as needed). If yes:
  - \_\_\_\_\_ Has the consultant reviewed the new information with VDOT staff?
  - \_\_\_\_\_ Has the consultant documented the differences?
- \_\_\_\_\_ Has the consultant reviewed the study area zone system in the VDOT model, and provided additional zone detail where necessary? (The consultant needs to split zones, distribute land use within new zones, and document their work).
- \_\_\_\_\_ Has the consultant provided land use comparisons of VDOT and new study area zones (if any) for validation?
- \_\_\_\_\_ Has the consultant reviewed the following model network components, but not limited, within area impacting the study area? \_\_\_Speeds, \_\_\_Centroid locations, \_\_\_Centroid connectors, \_\_\_Capacities, \_\_\_Local streets, \_\_\_Turn penalties
  - \_\_\_\_\_ Has the consultant provided a list and a map identifying locations of all changes?
- \_\_\_\_\_ Has the VDOT staff reviewed and agreed with the proposed changes?
- \_\_\_\_\_ Has the consultant reviewed the following assumptions?
  - \_\_\_\_\_ Trip rates,
  - \_\_\_\_\_ Special generators,
  - \_\_\_\_\_ Peak factors (3 hour to 1 hour, daily to 3 hours).
    - \_\_\_\_\_ Has the consultant made any new recommendations?
    - \_\_\_\_\_ Has the consultant reviewed these new recommendations with VDOT staff?
    - \_\_\_\_\_ Has the consultant documented these new recommendations?
- \_\_\_\_\_ Has the consultant made changes to any network attributes which affect modeled travel times? \_\_\_Link Length, \_\_\_Speed, \_\_\_Capacity, \_\_\_Volume/Delay functions, \_\_\_Others (specify)
  - \_\_\_\_\_ Has the consultant provided a list and a map identifying locations of all changes?
- \_\_\_\_\_ If yes, did the consultant rerun the trip distributions? (This includes base year calibration as well as all future year alternatives).
  - \_\_\_\_\_ Did the consultant rerun the traffic assignment? (This includes base year calibration as well as all future year alternatives).
  - \_\_\_\_\_ Has the consultant review resulted in any land use changes and if so, has the trip generation model been rerun?

#### 4. Screenline/Cutline Validation

- \_\_\_\_\_ Has the consultant discussed the location of screenlines and cutlines with VDOT Staff before preparing calibration documentation?
- \_\_\_\_\_ Has the consultant discussed with VDOT staff which screenline and cutline results will be acceptable in their final evaluations?
- \_\_\_ Has the VDOT staff agreed with the consultants' recommendations?
- \_\_\_ Has the consultant documented these agreements?
- \_\_\_\_\_ Do the final screenline and cutline results match original expectations?
- \_\_\_\_\_ If not, has the consultant documented its evaluation?
- \_\_\_\_\_ Has the consultant provided link-by-link screenline and cutline results and totals?

#### 5. Post-processing

- \_\_\_\_\_ Will turn movements be adjusted by link or individual turn movement counts?
- \_\_\_\_\_ Are intersections balanced to match link forecasts?
- \_\_\_\_\_ Will the post-processing ensure consistent forecasts along intersections in the same corridor?

#### 6. HOV

- \_\_\_\_\_ Will base HOV assumptions come from VDOT model or another source?
- \_\_\_ Has the consultant provided any documentation?
- \_\_\_\_\_ How will mode shift impacts be determined for different alternatives?
- \_\_\_ Has the consultant provided any documentation?

#### 7. Forecasts beyond the model year

- \_\_\_\_\_ Will the growth factor be calculated by area or by link?
- \_\_\_ Has the consultant discussed this with VDOT staff?
- \_\_\_\_\_ If link based, how will factors be calculated for links that are not in the VDOT model?
- \_\_\_ Has the consultant provided any documentation?

#### 8. Additional comments

- \_\_\_\_\_ Has the consultant provided an overall evaluation of the model and calibration results for reasonableness?
- \_\_\_\_\_ Has the consultant checked to see if results from the new study are consistent with the work done in the past in the same study area?
- \_\_\_ If the results are different, has the consultant documented the reasons why?
- \_\_\_\_\_ How will the model be used to analyze the impacts of non-capacity related projects?