

GEN2/VER. 2.3 MODEL DEVELOPMENT

Part 1 of 2: Status Report

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Background: TPB Gen2 production travel models

Model Version	Description
Version 2.3.75	Currently adopted/production-use model
Version 2.3.78	<p>Model envisioned for use in the upcoming air quality analysis of the FY 2021-2024 TIP and Plan:</p> <ul style="list-style-type: none">○ Essentially the same as V2.3.75, but with enhanced QA/QC procedures and minor revisions (described last July). No change in model results○ Anticipated to become the adopted model in spring of 2020



Background: TPB Gen2 developmental travel models

Model Version	Description
Version 2.4	<p>Model currently in active development</p> <ul style="list-style-type: none">○ Structural and parametric updates are envisioned (V2.3.82)○ Focus of development is on a year 2014 validation
Version 2.5	<p>Model development activities are currently on hold (as announced in July)</p> <ul style="list-style-type: none">○ Staff may revisit this process in fall



Version 2.4 development objectives

1. Improve the model's performance for commuter rail ridership
 - To address an under-estimation of VRE ridership
2. Refine external auto trip distribution
 - To address noted excessive trip lengths of external travel
3. Validate to observed year-2014 traffic counts and transit ridership
 - 2014 is the most recent year for which comprehensive observed data exists



Other considerations relating to modeling improvements that are acknowledged

- Travel behaviors in the region are changing almost daily
 - Transportation Network Company (TNC) ridership is increasing
 - Personal Transportation Devices (PTDs) are gaining popularity
 - Telecommuting rate is increasing (35% telework at least occasionally - as per the 2019 State of the Commute Survey)
- 2017/18 Regional Travel Survey: data cleaning is in progress
 - Will hopefully shed light on understanding new travel behavior
- The longer-term Gen3 model effort is intended to provide a more robust platform for addressing emerging trends and for modeling travel demand in greater detail



The Version 2.4 development has proceeded as two parallel activities during the past two months

1. Commuter rail improvements:
 - 2007 calibration targets have been revisited, updated
 - Nesting constants have been re-calibrated (per new targets)
 - Existing path parameters of transit sub-modes have been revisited
2. External trip distribution improvements:
 - External trip F-Factors have been re-estimated using available 2014 cellular data
 - Model includes trip-end adjustments (based on jurisdiction) to ensure internal trip-ends comport with observed patterns

-- *The final model will reflect the blending of the two activities* --



Next steps:

- Staff will merge the two developmental activities into a consolidated model version (Version 2.4)
- Full model performance (Est./Obs.) evaluation will be prepared
 - Transit ridership by sub-mode
 - Highway screenline crossings
 - Highway percent RMSE statistics
 - Jurisdictional VMT
- Testing of the final model will be undertaken, including:
 - Evaluation of base and future year modeling results
 - Evaluation of Plan performance metrics

Work accomplished to date indicates that the new model's performance is looking promising



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