

TPB'S DEVELOPMENTAL TRAVEL DEMAND FORECASTING MODELS

Gen3 Model status report

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Overview

- RFP status report
- Purpose and need
- Planning issues in our region
- Strategic plan for improving the TPB travel modeling methods
- Planned work tasks
- Planned timeline
- Next steps

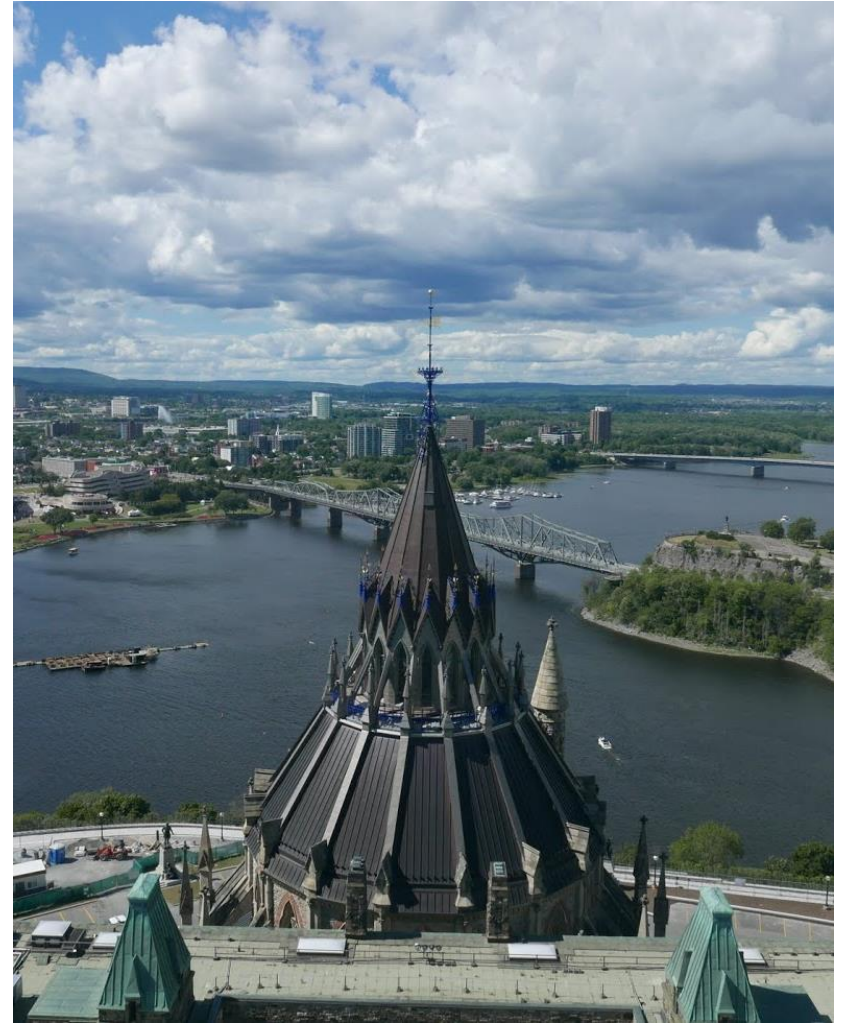


Image credit: Mark Moran



Development of TPB's Gen3 Model: Status report

- RFP advertisement period began May 15
- Consultant assistance sought for the following:
 - Development of COG's next-generation regional travel demand forecasting model, known as the Generation-3 or Gen3 Model
 - Model estimation, calibration, validation, and sensitivity testing, leading to a final model application package that is useable by TPB staff
 - Documentation and training



Image credit: Mark Moran



Development of TPB's Gen3 Model: Status report

- This is planned as a three-year, \$900,000 project
- Please consult COG RFP 19-015, which can be found here:
<https://www.mwcog.org/purchasing-and-bids/cog-bids-and-rfps/2019/05/15/rfp-19-015---generation-3-model/>
- Key Dates
 - Pre-proposal meeting: Tuesday, 5/28/19 at 2:00 PM
 - Questions deadline: Wednesday, 6/12/19 at 12:00 noon
 - Proposals deadline: Friday, 6/21/19 at 2:00 PM
- **Technical and procedural questions concerning the RFP must be submitted in writing to purchasing@mwkog.org**
- RFP advertisement period: 5/15/2019 - 6/21/2019



Purpose and need

- To ensure that the COG/TPB travel demand forecasting methods are either state of the practice or state of the art with respect to the modeling practices of our peer MPOs.
- To address current shortcomings with the TPB's adopted, production-use travel demand model (currently the Ver. 2.3 Model).
- To ensure that the new model has the capability to address all the pressing regional transportation planning issues in the metropolitan Washington region.



Image credit: Mark Moran



Planning issues in our region

- Modeling of transit and transit sub-modes (e.g., bus versus light rail)
- Modeling highway travel (including toll, HOV, & HOT)
- Modeling non-motorized modes (walk and bike)
- Assessing the effect of land development patterns and job/housing balance on transportation system performance
- Modeling the effect of travel time unreliability, including on transit (e.g., maintenance closures, such as Metrorail's SafeTrack)
- Estimating the impacts of infill development on mode share/choice, particularly with regards to walk and bike modes
- Modeling the effect of the employer-based transit subsidies
- Telework
- Increasing use of transportation network companies (TNCs) and other shared-mobility modes
- Visitor/tourist travel



Strategic Plan for Model Improvement

- Three phases over 9 years

Phase	Description	Duration (Years)	Fiscal Years
1	Updates to the existing four-step model (Gen2, Ver. 2.3 => Ver. 2.5)	4	2016-2019
2	Development of a next-generation (Gen3) model with existing data*	4	2019-2022
3	Development of a Gen4 model with new data*	2	2023-2024

* Data collection for the 2017/2018 Regional Travel Survey is scheduled to finish in Dec. 2018. Based on the experience of the previous survey (2007/2008), data cleaning and factoring could take one to two years, which means that the survey data would likely be ready for use in 2020 (FY 2020 or 2021).



Planned work tasks: Overview (1 of 4)

First 1.5 years

1. Project management plan
2. Investigations (consultant)
3. Decisions (TPB staff)
4. Development of the Gen3 Model (consultant, with assistance by TPB staff)

Second 1.5 years

4. Second round of model calibration and validation
5. Final testing of Gen3 Model by TPB staff & decision about its readiness for production work
6. End of contract



Investigations (2 of 4)

1. Strengths and weakness of current travel model
2. Recommended model form, including delineation of data sets to be used for current effort and to be collected for future work
3. Recommended approach for traffic and transit assignment
4. Quality control and quality assurance (QC/QA)
5. Recommended software

(Following the consultant reports, decisions would be made by TPB staff)



Development of the Gen3 Model (3 of 4)

1. Model specification
2. Model estimation
3. Model implementation
4. Model calibration
5. Model validation
 1. Validation tests
 2. Sensitivity tests
6. Draft model documentation
7. Delivery of draft Gen3 Model to TPB staff and training



Image credit: Mark Moran



2nd round, model calibration & validation (4 of 4)

1. Model re-estimation
2. Model re-calibration
3. Model re-validation
 1. Validation tests
 2. Sensitivity tests
4. Final model documentation
5. Delivery of final Gen3 Model to TPB staff and training

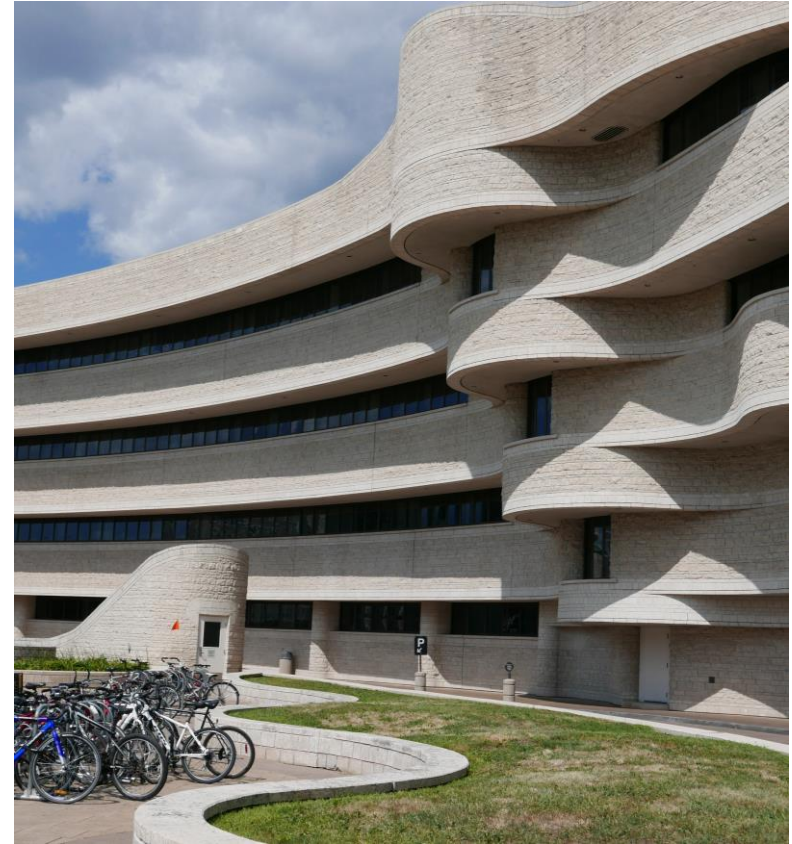


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Current planned timeline, Gen3 Model

Step	Approx. Duration	Approx. Dates	Fiscal Year					
			18	19	20	21	22	23
Request for Information (RFI) advertisement	1.5 months	5/31/18 to 7/12/18	X	X				
Request for Proposals (RFP) advertisement	1 month	May to Jun. 2019		X				
Vendor selection	1 month	Jun. to Aug. 2019		X	X			
Start of contract		Sep. 2019			X			
Investigations (consultant)	4 months	Sep. 2019 to Jan. 2020			X			
Decisions (TPB staff)	3 weeks	Jan. 2019 to Feb. 2020			X			
Development of Gen3 Model (mainly consultant)	15 months	Feb. 2020 to May 2021			X	X		
<ul style="list-style-type: none"> • Model specification & estimation • Model calibration • Model validation (incl. sensitivity testing) • Delivery of draft Gen3 Model • Draft documentation & training 								
Data collection for Gen3 or Gen4 model?	6 to 15 months	Feb. 2020 to May 2021			X	X		
Second round of model calibration & validation (mainly consultant)	15 months	May. 2021 to Aug. 2022					X	X
<ul style="list-style-type: none"> • Model estimation & calibration • Model validation (incl. sensitivity testing) • Delivery of final Gen3 Model • Final documentation & training 								
Final decision: Is Gen3 model ready for use?		Sep. 2022						X
End of contract		Sep. 2022						X

Note: 2017-2018 Regional Travel Survey (RTS): Data collection completed in Dec. 2018. As of March 2019, it is expected that data cleaning and factoring of the survey will be completed in 2020, possibly by spring (FY 2020), but maybe as late as fall (FY 2021).



Next steps

- Pre-proposal meeting: Tue., 5/28/19 at 2:00 PM
- Questions deadline: Wed., 6/12/19 at 12:00 noon
- Proposals deadline: Fri., 6/21/19 at 2:00 PM
- Convene Technical Selection Committee (TSC)
 - Review & score proposals (ca. 6/24 – 7/15)
- Start of contract: Sept. 2019
- Issue initial task order to begin work

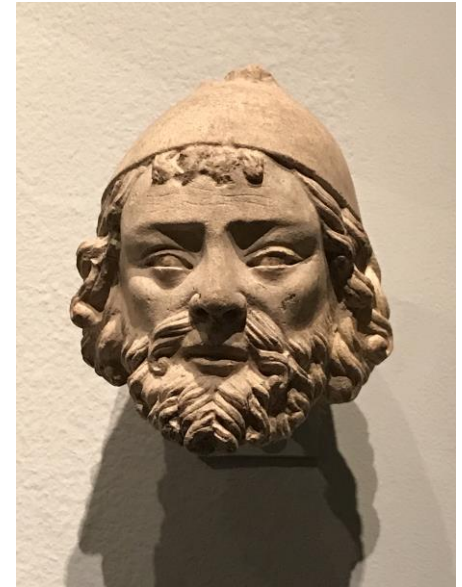


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Acknowledgements

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Image credit: Mark Moran



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