

# DEVELOPING THE TPB'S GENERATION-3 (GEN3) TRAVEL DEMAND FORECASTING MODEL

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## Status report

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TPB Travel Forecasting Subcommittee  
September 21, 2018



# Overview

- Updated schedule
  - Gen3 model development
  - Strategic plan
- Current status of RFI phase
- Selected findings from the RFI phase (aggregated and anonymized)
- Next steps

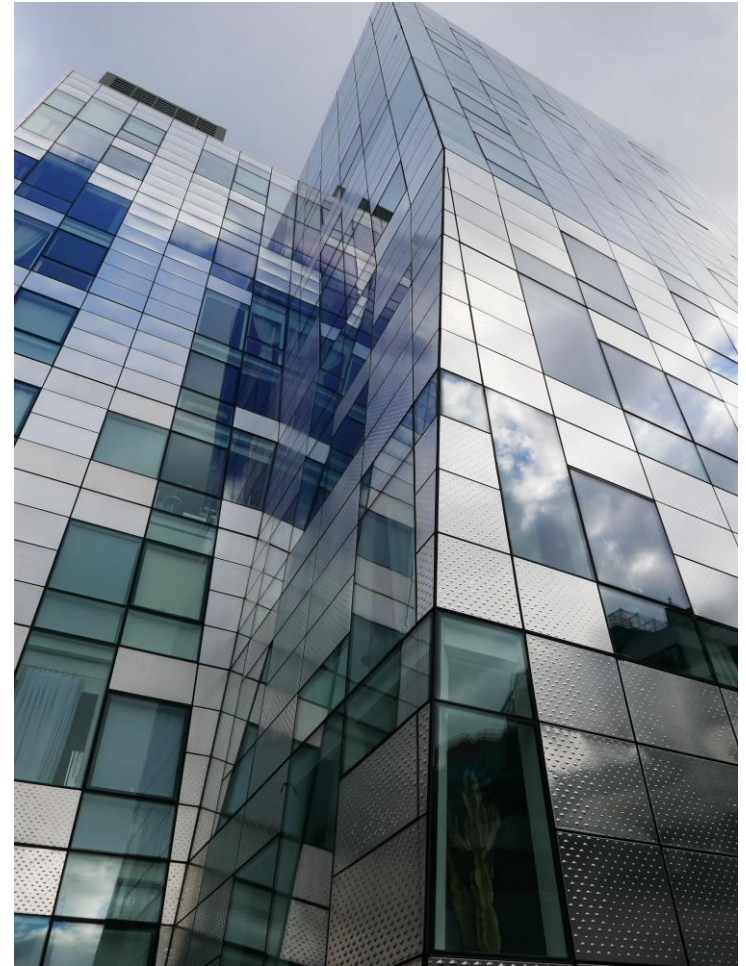


Image credit: Mark Moran, 2018



# Project timeline: Devel. of Gen3 model

Step	Approx. Duration	Approx. Dates	Fiscal Year				
			18	19	20	21	22
Request for Information (RFI)	8 months*	Jan. to Sep. 2018	X	X			
Request for Proposals (RFP)	3 months**	Sep. to Dec. 2018		X			
Vendor selection	1 month	Dec. 2018 to Feb. 2019		X			
Start of contract		Mar. 2019		X			
Investigations (consultant)	4 months	Mar. to Jul. 2019		X	X		
Decisions (TPB staff)	3 weeks	Jul. 2019			X		
Development and implementation of Gen3 model	15 months	Jul. 2019 to Oct. 2020			X	X	
Data collection for Gen3 or Gen4 model?	6 to 15 months	Jul. 2019 to Oct. 2020			X	X	
Testing, sensitivity analyses, and updates	15 months	Oct. 2020 to Feb. 2022				X	X
Final decision: Is Gen3 model ready for use?		Feb. 2022					X
End of contract		Feb. 2022					X

\* RFI: It is planned that vendors would have about 1.5 months (30 working days) to submit a response to the RFI (ca. 6/4/18 to 7/17/18)

\*\* RFP: It is planned that vendors would have about 1 month (22 working days) to submit a response to the RFP (ca. 11/20/18 to 12/21/18)

Principal changes since July:

- Have moved from RFI phase to RFP phase (developing scope of work)
- Duration of RFI phase was extended to allow more review time
- RFP advertisement period shifted from Sept./Oct. to Nov./Dec.
- Start of contract shifted from Nov. 2018 to Mar. 2019



# Strategic Plan for Model Improvement

- Three phases over 9 years (as of 9/18/18)

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).



# Current status of RFI phase

- Request for information (RFI)
  - Advertisement ended July 12
  - Excellent response!
    - 7 formal responses;  
2 informal responses
  - Formal responses
    - Two from software vendors
    - Five from consulting firms
  - In cases where we had questions, we followed up with those respondents

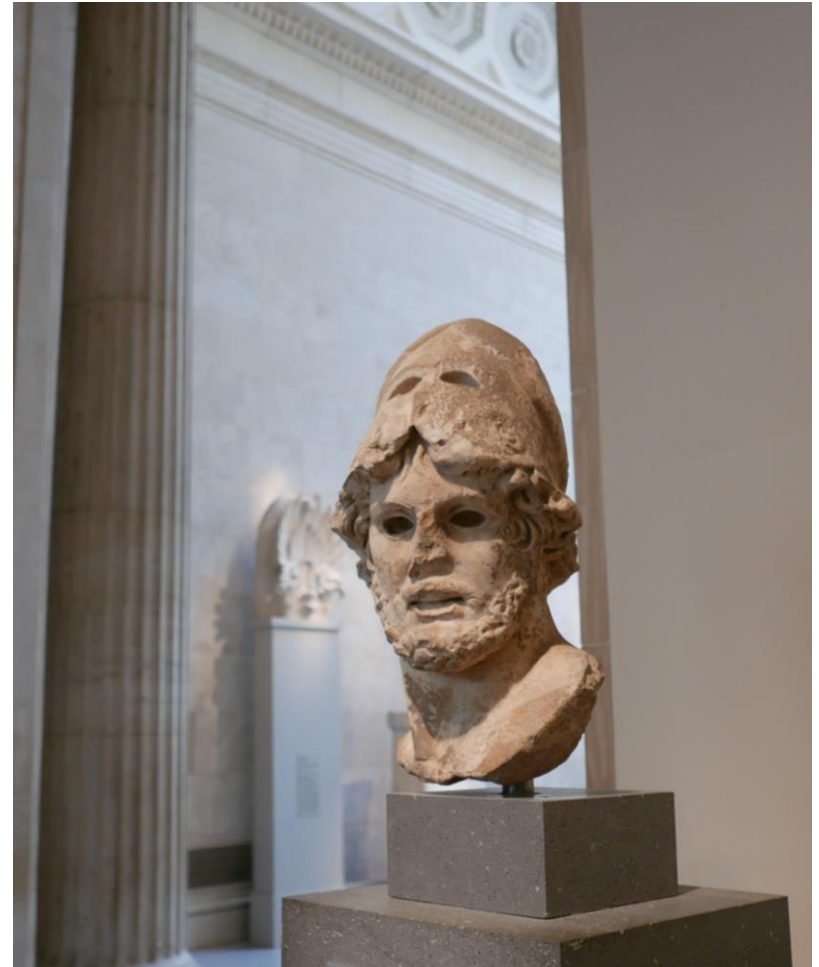


Image credit: Mark Moran, 2018



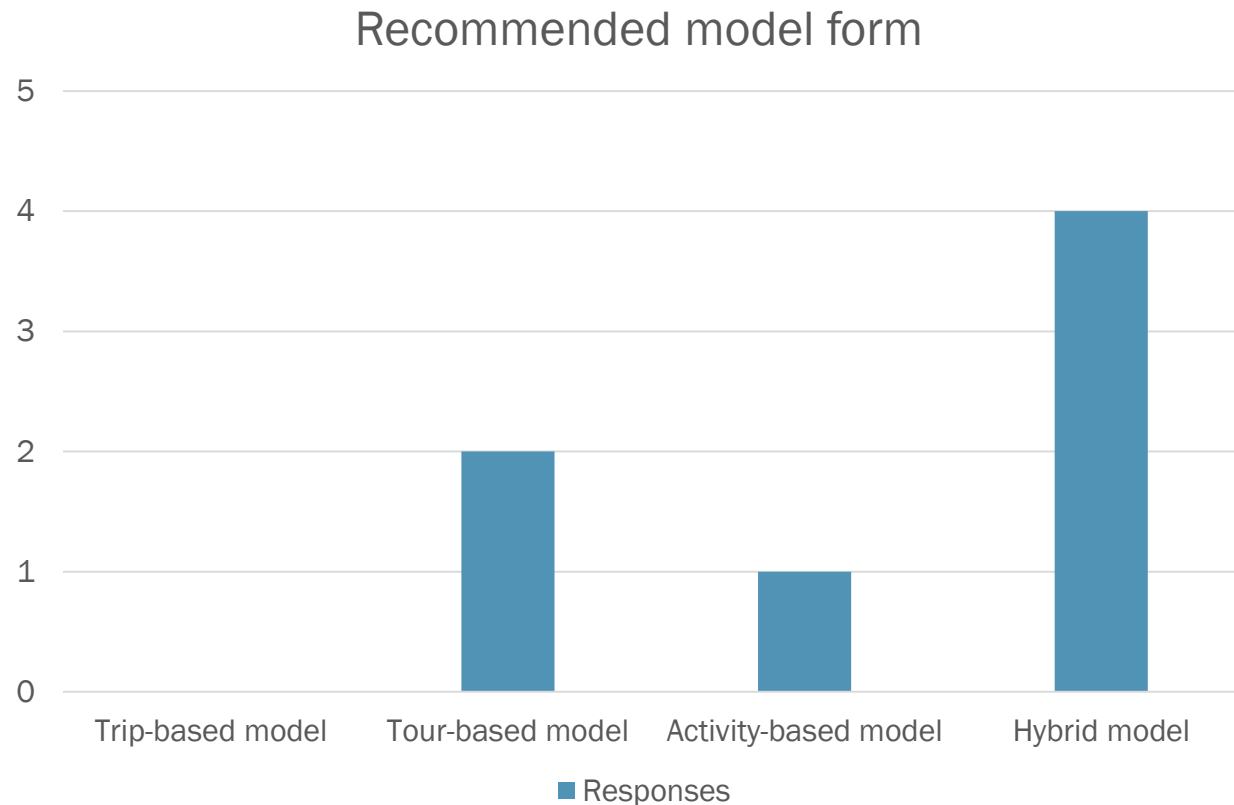
# Notes about the RFI phase

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- Intended to be an information-gathering phase, to aid in the writing of the scope of work for the RFP
- Vendors were told that we would not share details of their RFI response reports with others
- Nonetheless, we can provide the TFS some aggregate, anonymized summaries
- Caveat: This is not an election, i.e., a majority of responses for a particular model characteristic does not necessarily imply that we will choose to move in that direction with the RFP.
  - It simply indicates the opinions of the 7 responding firms
- We are presenting only a subset of the aggregate summaries

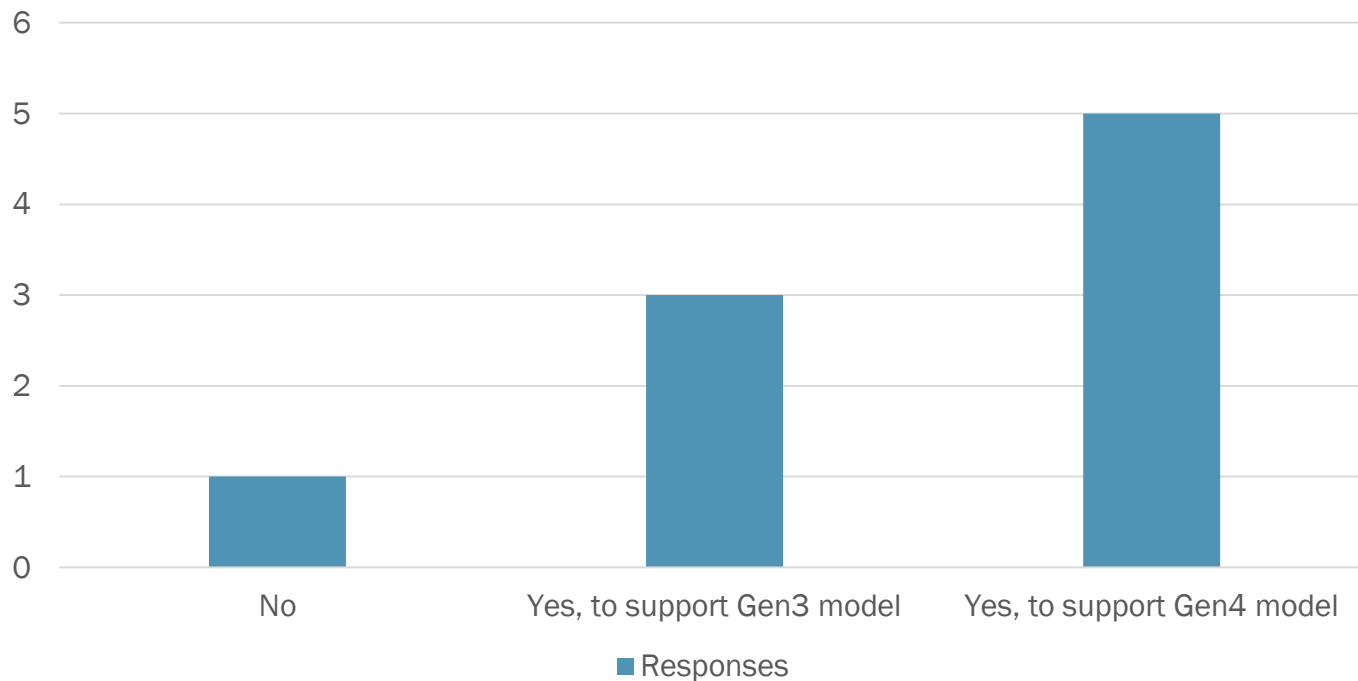


# A few aggregate findings from RFI phase



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Are you recommending new data collection as part of the Gen3 or Gen4 model development work?

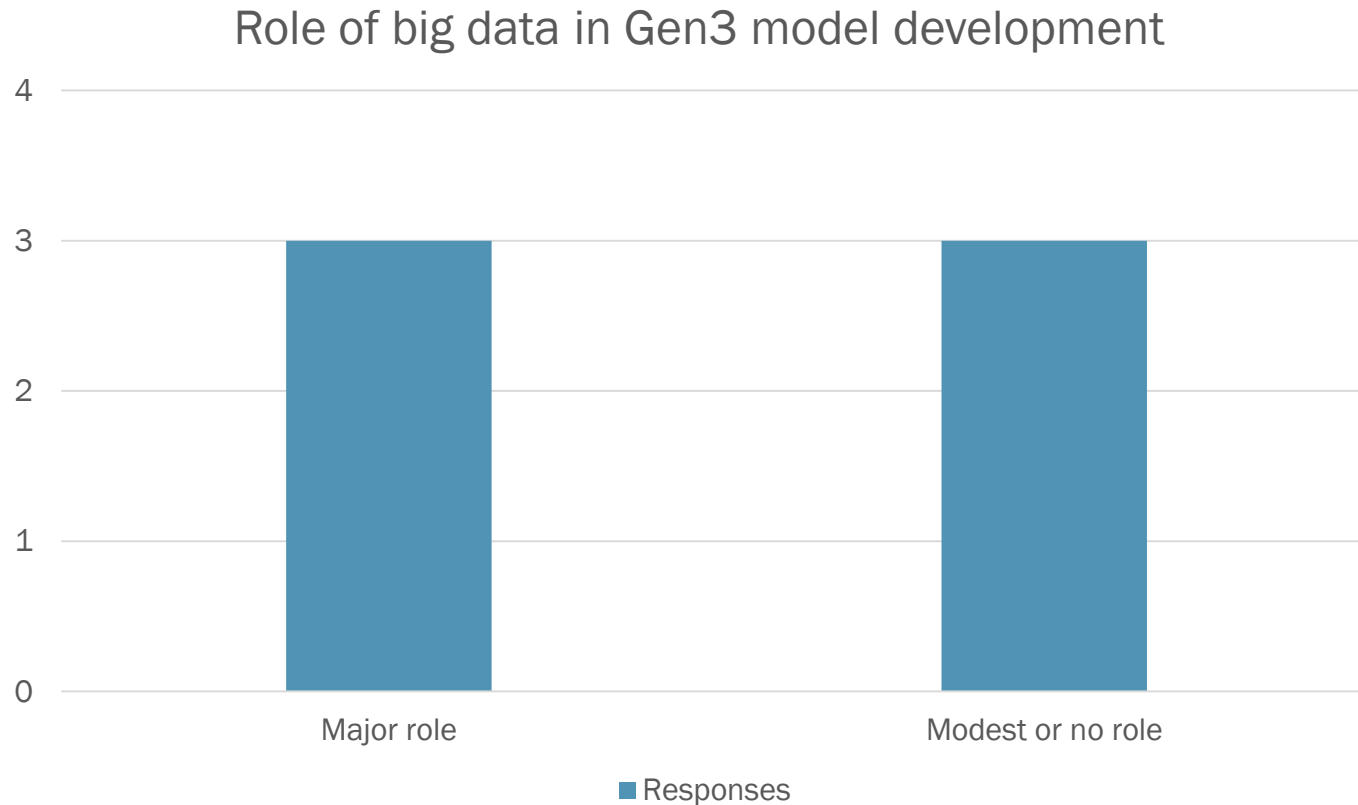


Total number of responses can be > 7 or < 7 due to multiple responses or item non response.



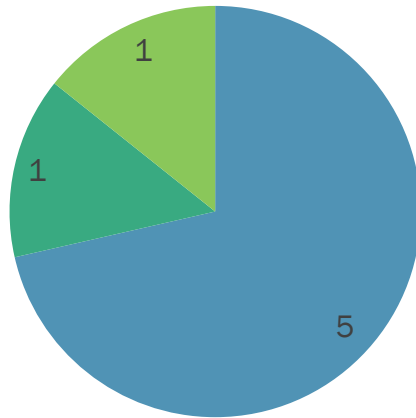


# A few aggregate findings from RFI phase



# A few aggregate findings from RFI phase

Over the long term, what path should be taken to get from aggregate trip-based model to disaggregate demand and supply models?



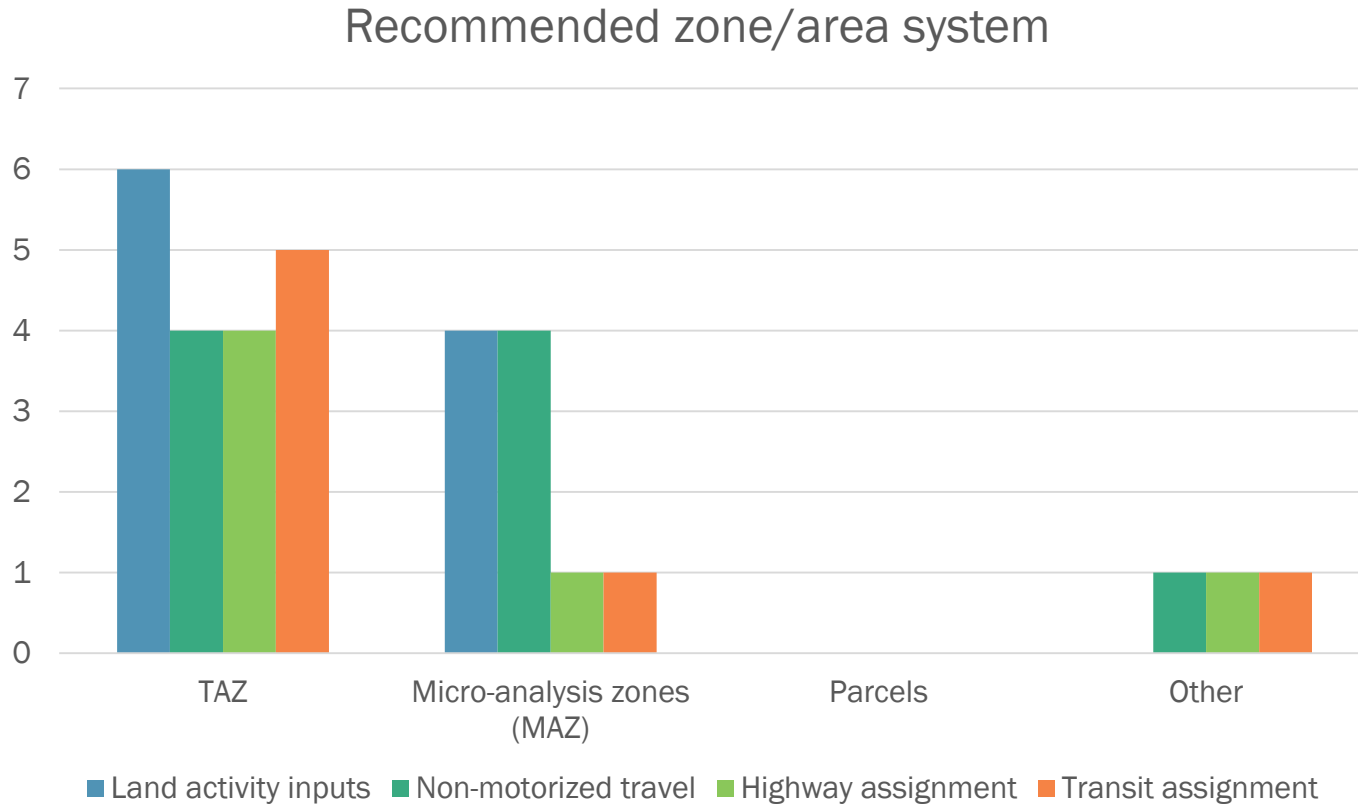
- Move to disaggregate demand (e.g., ABM/hybrid) first
- Move to disaggregate supply (e.g., DTA) first
- Move to both disaggregate demand & supply models at the same time

		Travel Supply and Trip Assignment	
		Aggregate (e.g., TAZ-level, macroscopic traffic assignment)	Disaggregate (e.g., TAZ, MAZ, or parcel-level; DTA/mesoscopic/microscopic assignment)
Travel Demand	Aggregate (e.g., zone-level, trip-based, 4-step model)	Quadrant 1 (current TPB travel model)	Quadrant 2
	Disaggregate (e.g., person and household level, activity-based model)	Quadrant 3	Quadrant 4 (long-term goal)

Diagram annotations: A blue arrow points from Quadrant 1 to Quadrant 3. A green arrow points from Quadrant 1 to Quadrant 2. A green arrow points from Quadrant 2 to Quadrant 4.



# A few aggregate findings from RFI phase

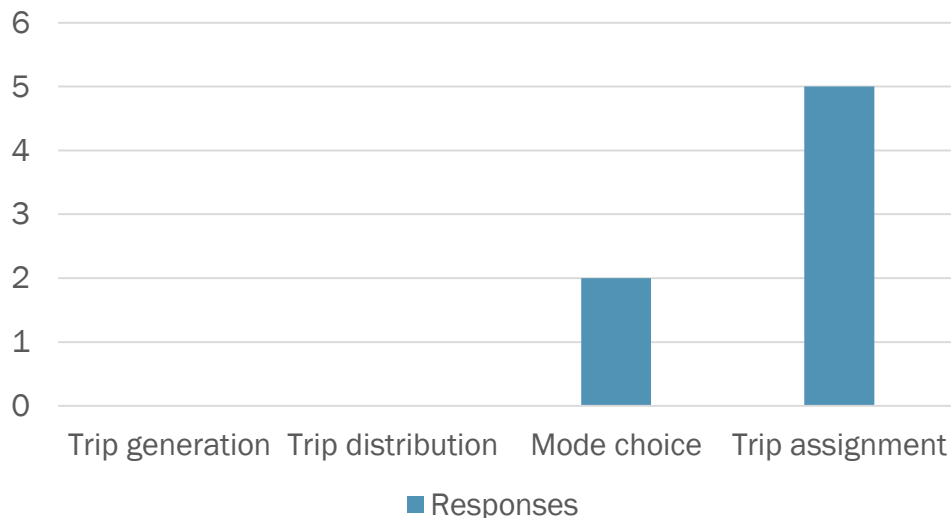


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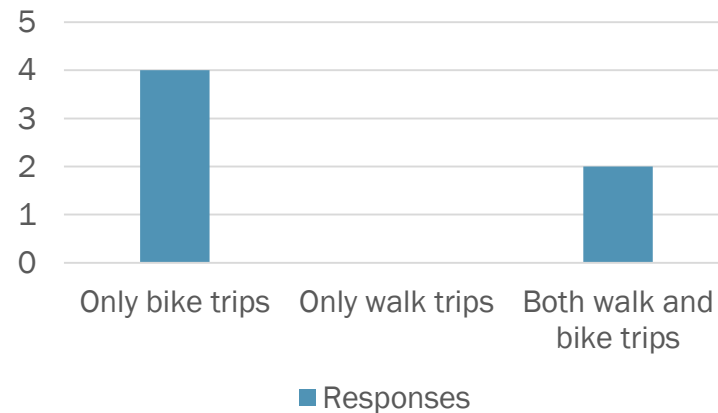


# A few aggregate findings from RFI phase

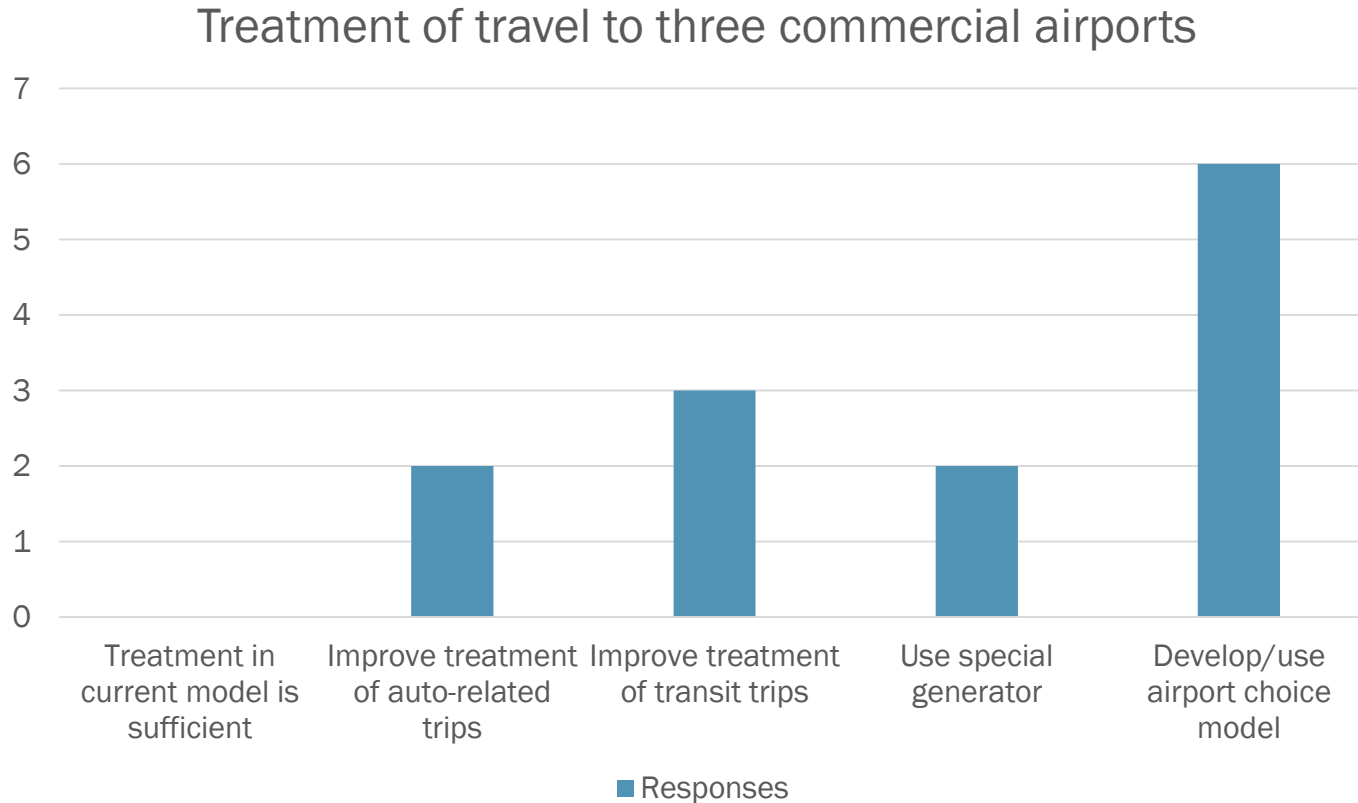
How far should non-motorized travel be estimated in proposed model?



If yes to “Trip assignment” above, which types of non-motorized trips should be assigned to network?



# A few aggregate findings from RFI phase

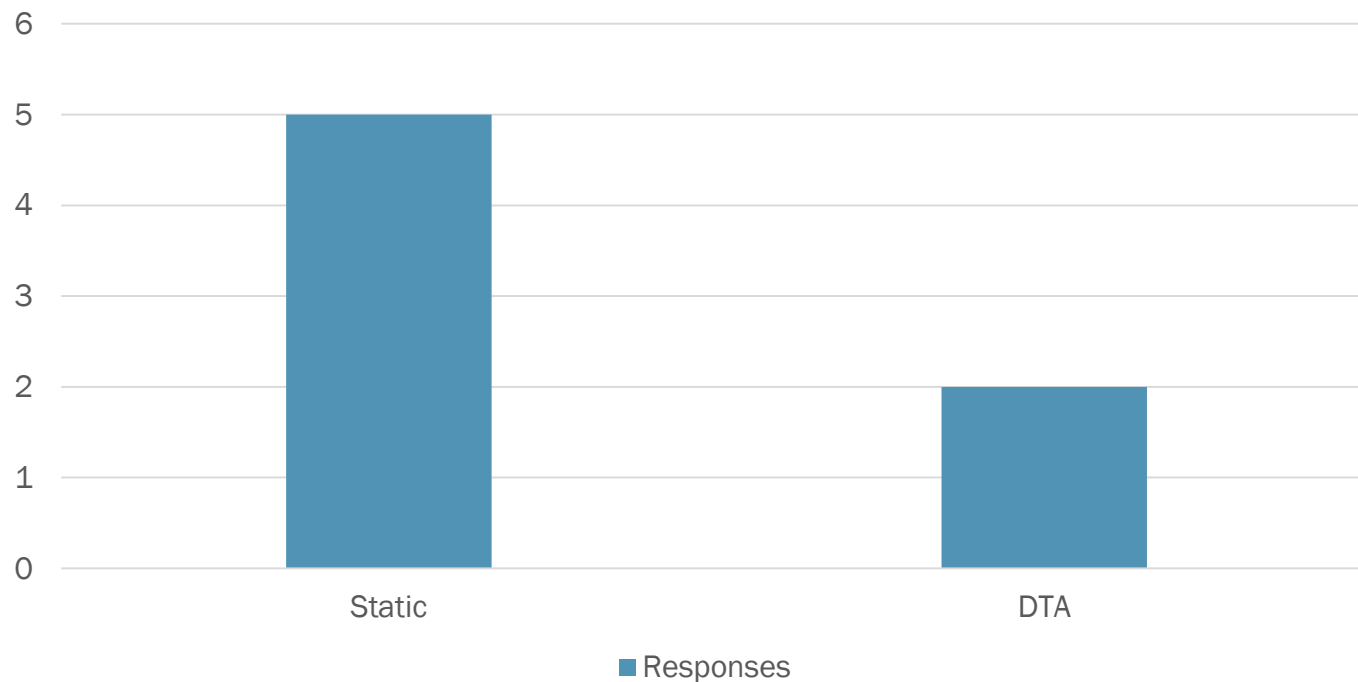


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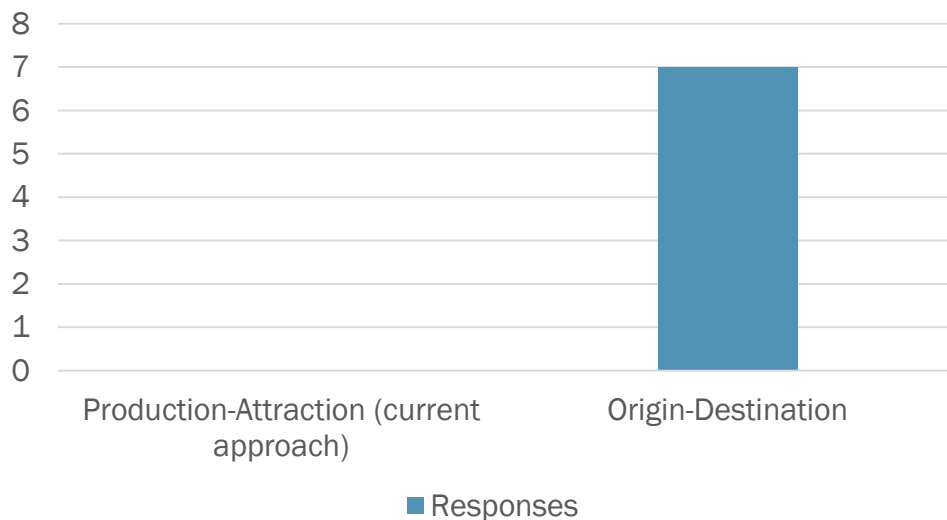
# A few aggregate findings from RFI phase

Recommendations for traffic assignment in Gen3 model

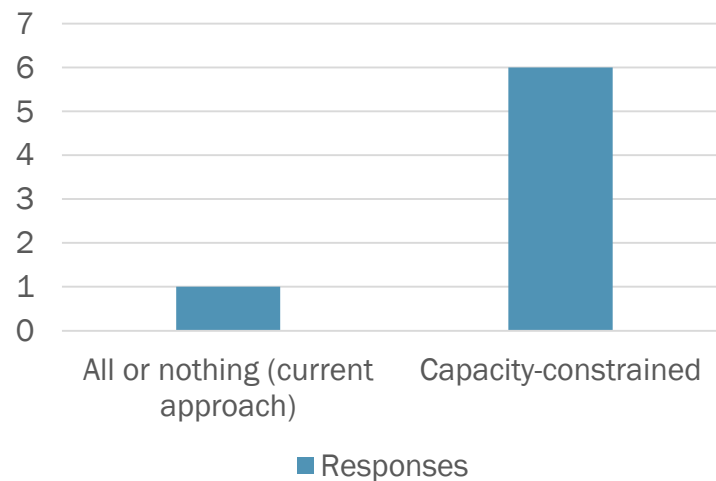


# A few aggregate findings from RFI phase

## Transit assignment format for Gen3 model



## Transit assignment approach for Gen3 model



# Next steps

- RFP phase about to begin. Planned dates
  - Advertisement period: Nov. to Dec.
  - Vendor selection: Jan. to Feb.
  - Start of contract: Mar. 2019



Image credit: Mark Moran, 2018





# Acknowledgements

- We would like to acknowledge the efforts of the seven vendors and two non-vendors who prepared responses to the RFI
- Also, Ray Ngo, for help summarizing findings, and Ron Milone, for his review and guidance.



Image credit: Mark Moran, Marseille, 2017



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