

CAMBRIDGE
SYSTEMATICS

Think  Forward

COG/TPB Model Stakeholder Survey

Initial Results

presented to

TPB Travel Forecasting Subcommittee

presented by

Cambridge Systematics, Inc.

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Overview

- MWCOCG is developing a strategic modeling plan
- Survey objective: Obtain input on current models (Gen2, Gen3) from users of the models
- Stakeholders
 - » MWCOCG staff
 - » Agencies in the region (state, county, MPO, etc.)
 - » Consultants/academics

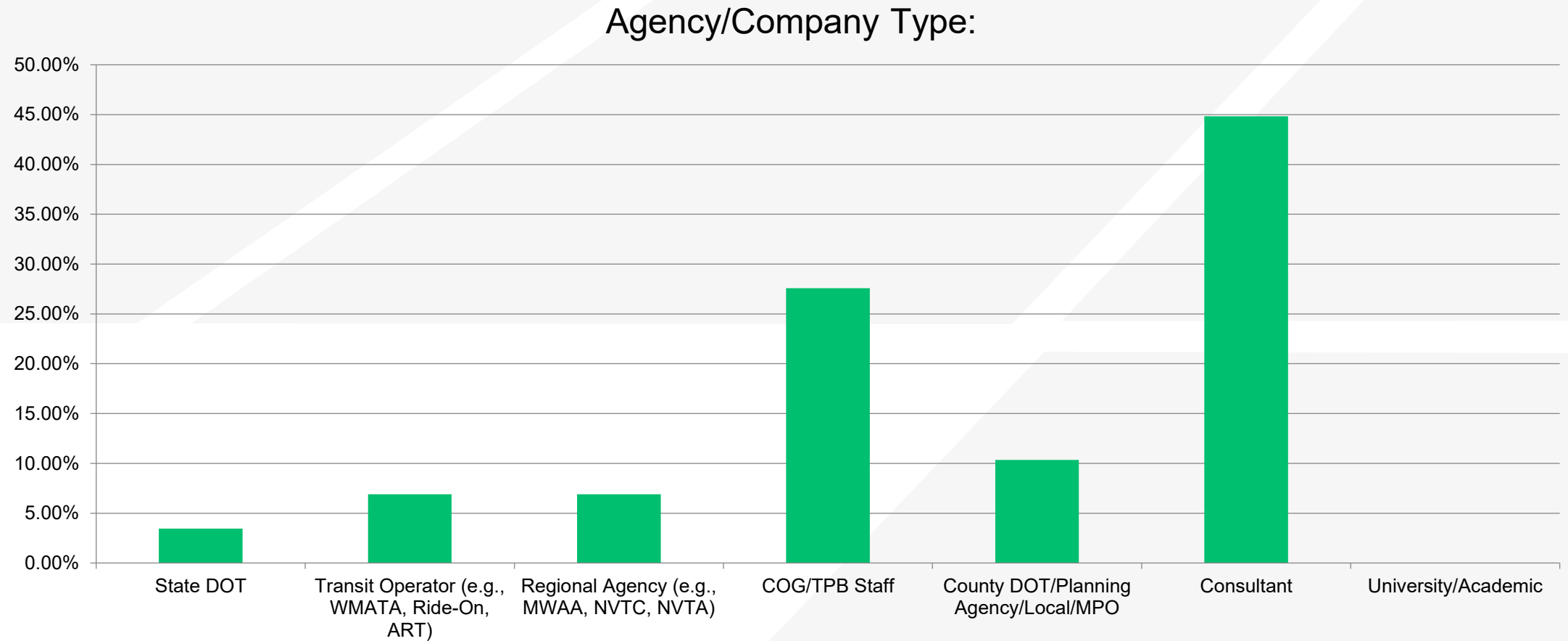
Invited Respondents

- MWCOCG staff (identified by MWCOCG modeling staff)
- TFS members and meeting attendees
- People who requested the model from MWCOCG over the past two years

Overview of Results

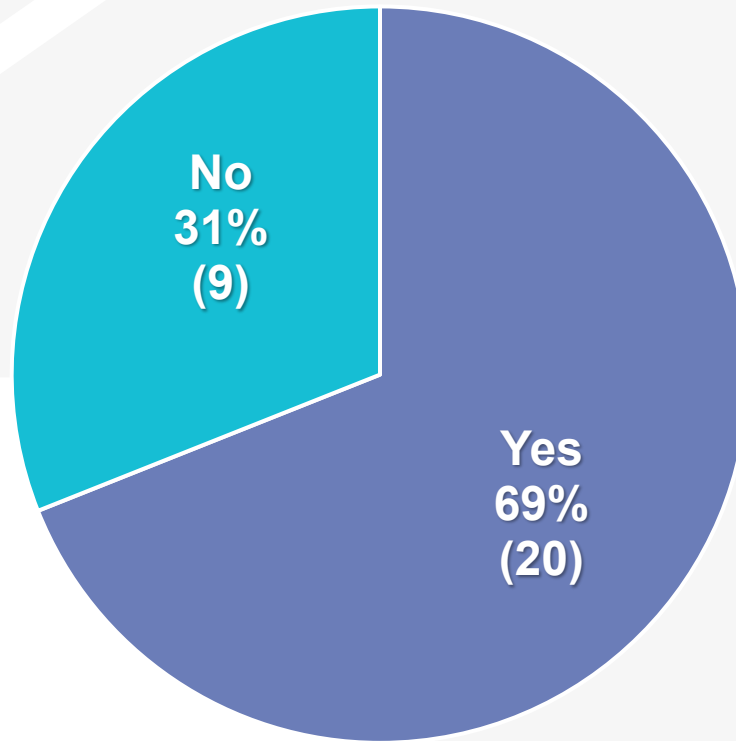
- 121 invitations sent
 - » 40 to MWCOG staff
 - » 81 to others (7 returned undeliverable/no longer with org.)
- 43 total respondents
 - » 29 completed the full survey (plus one late response not yet examined)
 - 8 MWCOG, 21 other
 - » 14 incomplete responses
- Results shown reflect the 29 full responses

Respondent Agency Type



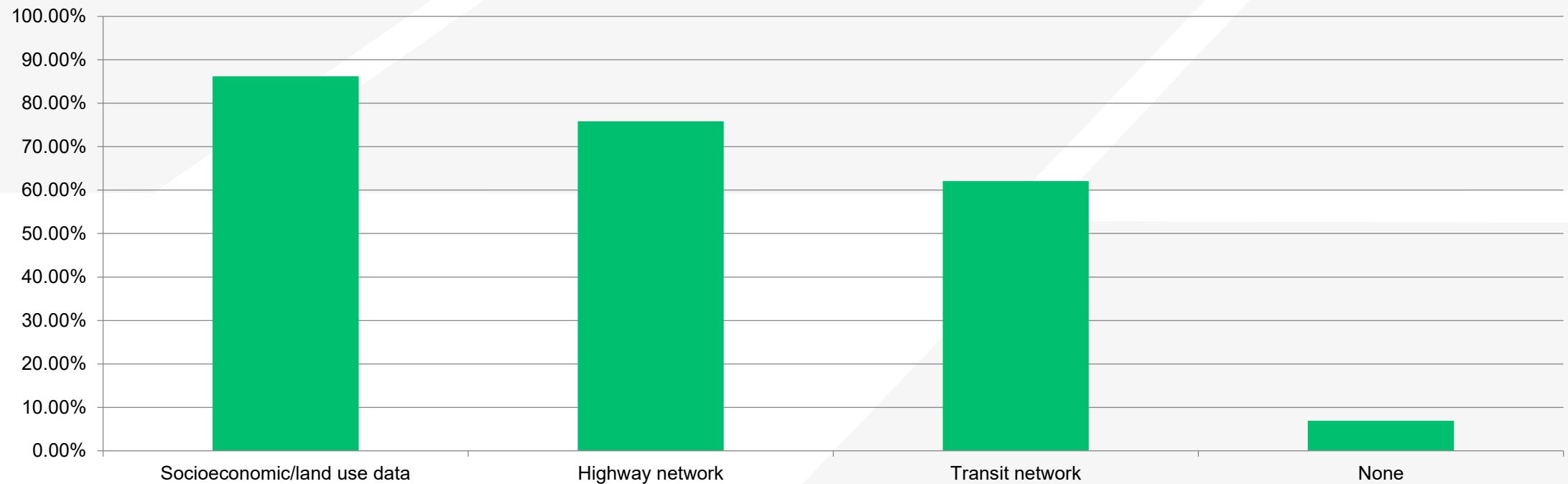
TPB Model Execution

Have you executed the adopted TPB travel model during the past three years?



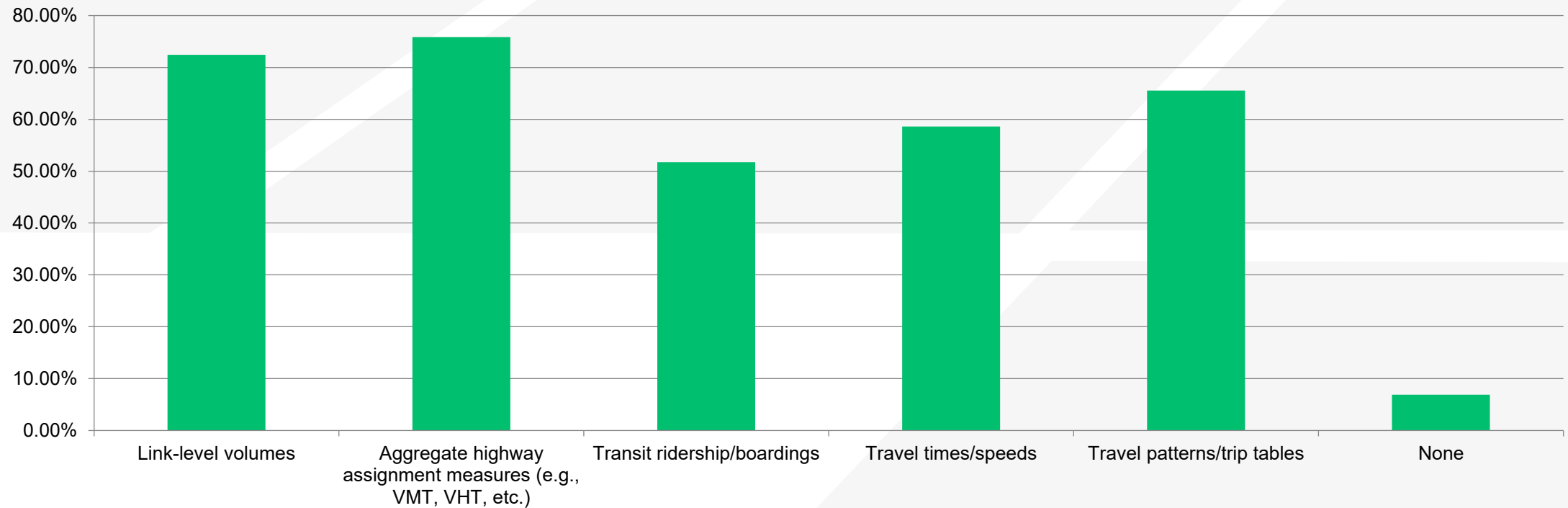
TPB Model Input Use

Which of the following TPB travel model inputs have you used, whether for modeling or non-modeling purposes, during the past three years?
(Check all that apply)



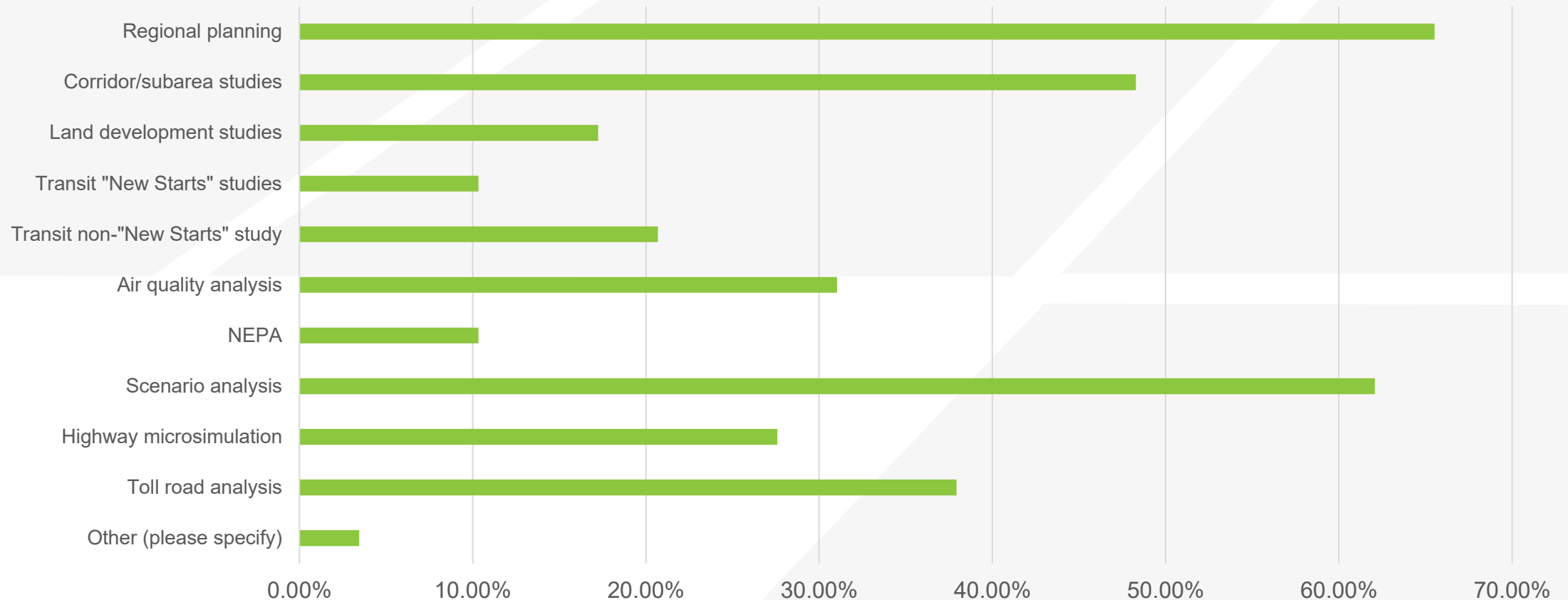
TPB Model Output Use

Which of the following TPB travel model outputs have you used during the past three years? (Check all that apply)



TPB Model Use in Projects

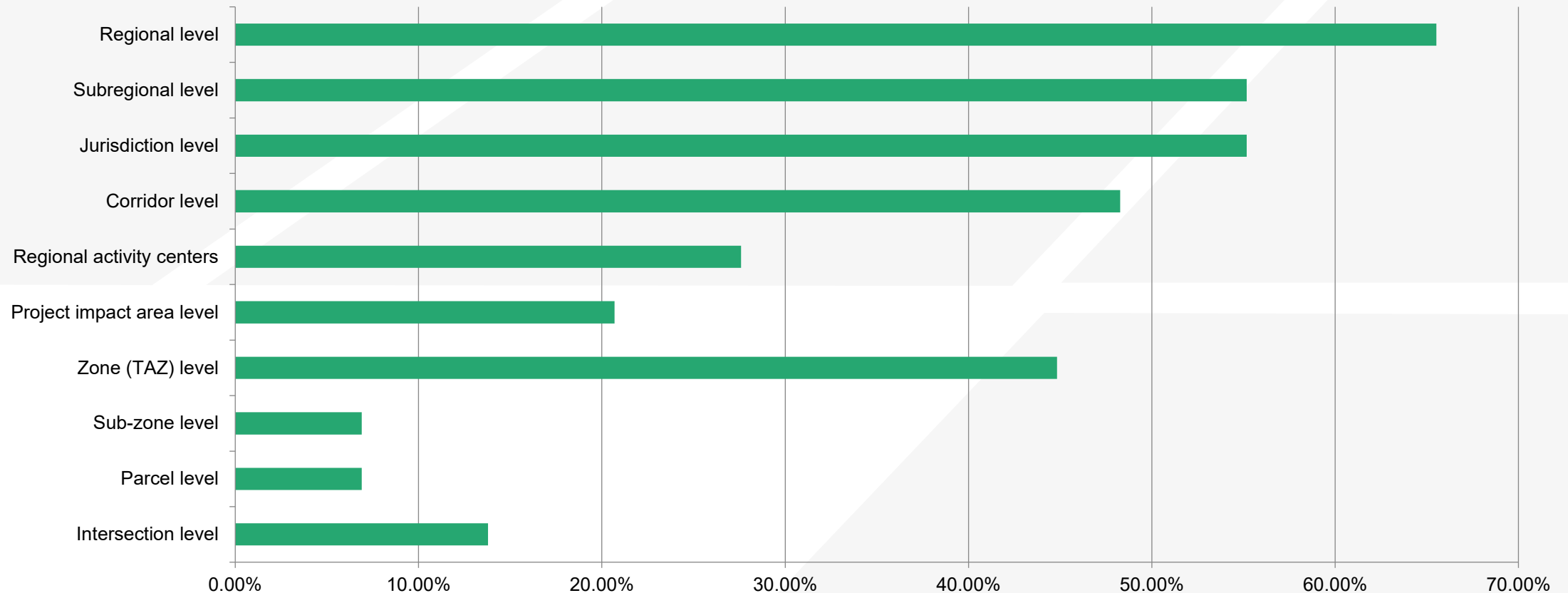
What types of projects have you undertaken in the past three years that used the TPB travel model or its data? (Check all that apply)



Other response was "Estimation, Calibration, and Validation"

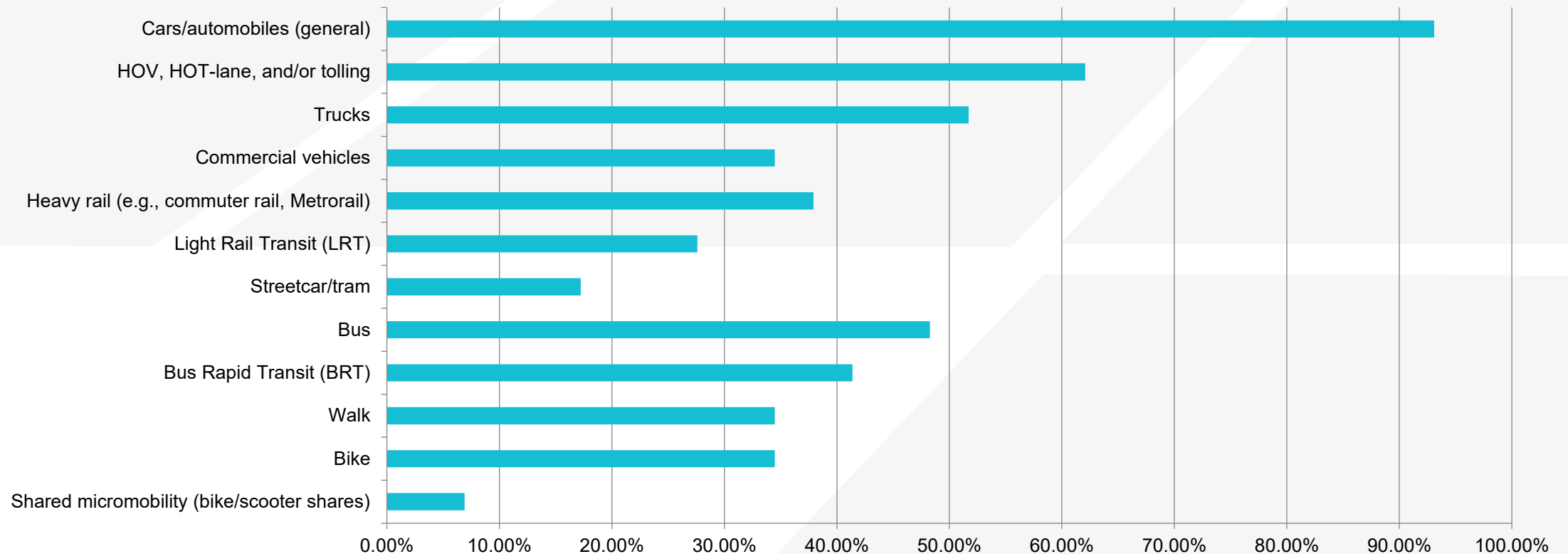
Geographic Level of Analysis

What was the geographic level of analysis of the studies you have worked on in the past three years that used the TPB travel model or its data? (Check all that apply)



Transportation Modes

Please select the transportation modes that were the focus of studies that you have conducted over the past three years that used the TPB travel model or its data (Optional, but check all that apply)



Importance of Model for Analyses

How important is it to you that the COG/TPB travel models can be used for the following transportation analyses?

	Not Important	Neutral	Somewhat Important	Very Important	Total
Traffic congestion	0.00%	3.57%	17.86%	78.57%	28
Roadway projects	3.70%	3.70%	18.52%	74.07%	27
Congestion pricing/managed lanes	0.00%	3.85%	34.62%	61.54%	26
Regional accessibility	8.00%	0.00%	28.00%	64.00%	25
Travel demand management	0.00%	24.00%	28.00%	48.00%	25
TNCs (Lyft, Uber, etc.)	12.50%	29.17%	50.00%	8.33%	24
Connected/autonomous vehicles	8.00%	32.00%	36.00%	24.00%	25
Traffic microsimulation	15.38%	30.77%	38.46%	15.38%	26
Transit ridership	3.70%	3.70%	37.04%	55.56%	27
Transit improvements (service, route changes)	8.33%	20.83%	29.17%	41.67%	24
Transit oriented development	4.17%	16.67%	45.83%	33.33%	24
Transit access/egress	12.50%	25.00%	50.00%	12.50%	24
Transit fare policy	8.33%	29.17%	50.00%	12.50%	24
Transit crowding	12.50%	41.67%	33.33%	12.50%	24
Land use - transportation coordination	0.00%	8.00%	40.00%	52.00%	25
Non-motorized travel (bike, walk)	16.67%	20.83%	33.33%	29.17%	24
Telecommuting behavior	8.33%	12.50%	33.33%	45.83%	24
Greenhouse gas emissions/ZEV travel	4.35%	26.09%	30.43%	39.13%	23
Freight studies	0.00%	24.00%	44.00%	32.00%	25
Peak spreading	0.00%	12.00%	60.00%	28.00%	25
Equity	8.33%	37.50%	20.83%	33.33%	24
Airport access studies	0.00%	54.17%	33.33%	12.50%	24
Visitor studies	8.33%	50.00%	37.50%	4.17%	24
Special events planning	8.33%	37.50%	37.50%	16.67%	24
E-commerce impacts/curb management	21.74%	52.17%	17.39%	8.70%	23

Satisfaction with Gen2 Model

Please indicate your level of satisfaction with TPB's current Gen2 regional travel demand forecasting process in the following areas.

	#	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Model run time	28	0.00%	10.71%	42.86%	39.29%	7.14%
Model's ease of use	28	3.57%	7.14%	35.71%	46.43%	7.14%
Model's adaptability	24	0.00%	0.00%	54.17%	37.50%	8.33%
Model hardware/system requirements	27	0.00%	0.00%	29.63%	62.96%	7.41%
Model documentation	27	0.00%	3.70%	25.93%	40.74%	29.63%
Non-motorized travel (bike, walk)	25	4.00%	20.00%	64.00%	12.00%	0.00%
Model outputs	26	0.00%	3.85%	26.92%	61.54%	7.69%
Software used to apply the model	27	3.70%	3.70%	37.04%	40.74%	14.81%
Technical support	26	3.85%	3.85%	34.62%	34.62%	23.08%
Calibration/validation data	26	3.85%	7.69%	38.46%	42.31%	7.69%
Model's accuracy/precision of estimates	28	3.57%	10.71%	28.57%	53.57%	3.57%
Model maintenance/updates	26	0.00%	3.85%	30.77%	38.46%	26.92%
Overall level of comfort	26	0.00%	3.85%	30.77%	50.00%	15.38%

Addressing Issues with Gen2 Model

In your opinion, how well does TPB's current Gen2 regional travel demand forecasting process address the following traditional transportation issues?

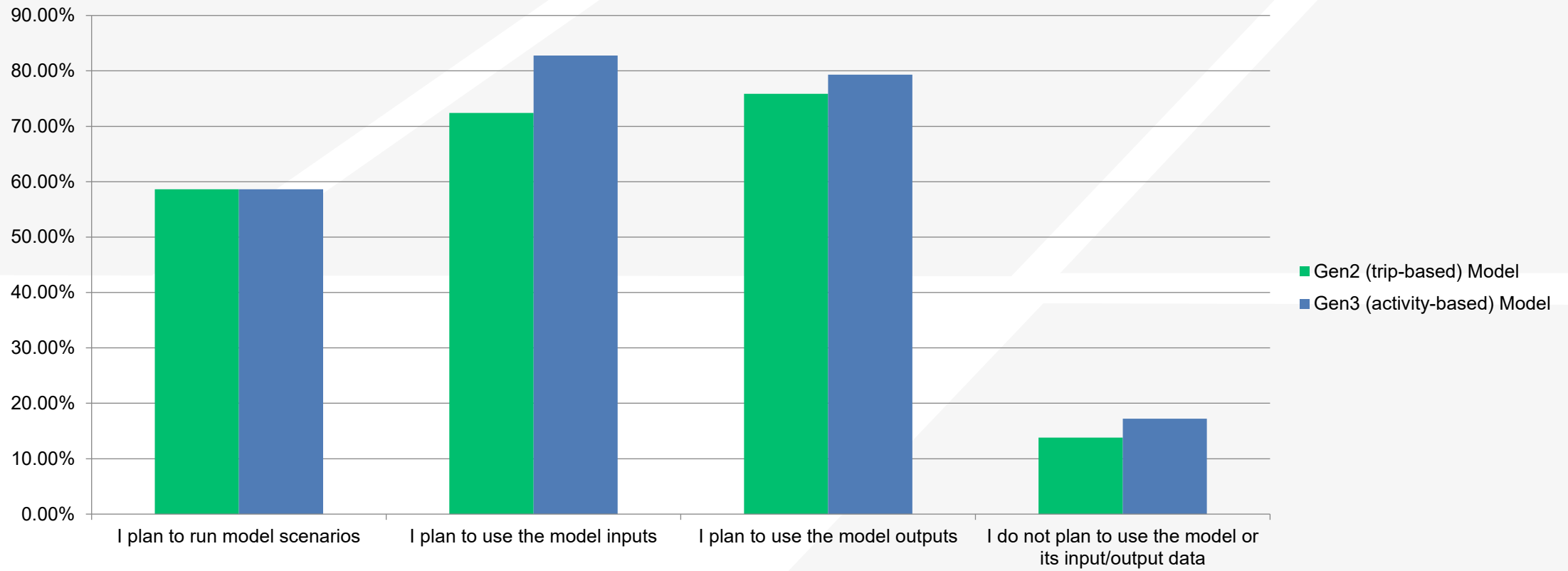
	#	Not Addressed	Poorly Addressed	Neutral	Somewhat Addressed	Well Addressed
Roadway projects and network enhancements	28	0.00%	3.57%	25.00%	21.43%	50.00%
Competition among/choice of travel modes	27	0.00%	3.70%	25.93%	37.04%	33.33%
Congestion pricing/managed lanes	28	0.00%	14.29%	28.57%	39.29%	17.86%
Mobile source pollution analysis	25	0.00%	0.00%	52.00%	24.00%	24.00%
Highway pricing (fuel, parking)	26	3.85%	19.23%	42.31%	30.77%	3.85%
Travel demand management	25	0.00%	8.00%	40.00%	48.00%	4.00%
Transit oriented development	25	0.00%	0.00%	48.00%	48.00%	4.00%
Transit fare policy	25	0.00%	12.00%	52.00%	36.00%	0.00%
Transit submode analysis	25	0.00%	8.00%	60.00%	20.00%	12.00%
Transit projects and service improvements	26	0.00%	3.85%	53.85%	26.92%	15.38%
Land use scenarios	26	0.00%	7.69%	38.46%	38.46%	15.38%
Site/development impacts	25	8.00%	16.00%	52.00%	20.00%	4.00%

Other:

- I have not used TPB's Gen2 regional travel demand model.
- Transit metrics are very difficult for a model user to process without extensive knowledge of the travel demand model. It is also very difficult to create travel demand management scenarios without significant adjustments made to the model. These require very deep knowledge of the travel demand model to undertake.

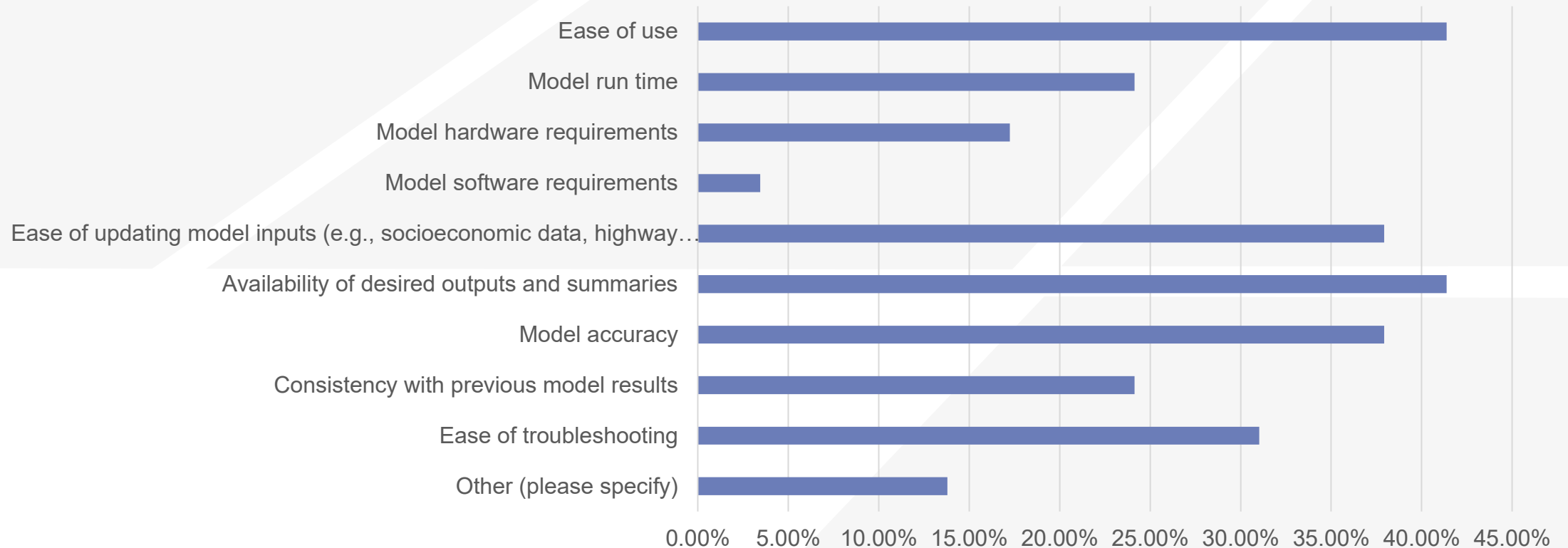
Plans to Use Gen2 and Gen3 Models

In the next year, what are your plans for using the Gen2 (trip-based) and/or Gen3 (activity-based) models? (Check all that apply)



Top 3 Concerns with Gen3 Model

What are your top three concerns about using the new TPB activity-based Gen3 Travel Model? (Check all that apply)



Top 3 Concerns with Gen3 Model - Other

- Unavailability of output data in formats suitable or allowable for visualization and/or presentation
- Quality of input data

Types of Analyses for Gen3

What type of analyses are you likely to use the new Gen3 Model for?

	#	Very Unlikely	Unlikely	Neutral	Somewhat Likely	Very Likely
Traffic congestion	27	7.41%	0.00%	14.81%	22.22%	55.56%
Roadway projects	27	7.41%	3.70%	14.81%	14.81%	59.26%
Congestion pricing/managed lanes	25	8.00%	4.00%	16.00%	28.00%	44.00%
Regional accessibility	23	4.35%	13.04%	21.74%	17.39%	43.48%
Travel demand management	26	3.85%	15.38%	26.92%	38.46%	15.38%
Taxis/ TNCs (Lyft, Uber, etc.)	23	8.70%	17.39%	39.13%	30.43%	4.35%
Connected/autonomous vehicles	24	12.50%	12.50%	37.50%	29.17%	8.33%
Traffic microsimulation	25	12.00%	12.00%	44.00%	16.00%	16.00%
Cordon pricing	23	13.04%	8.70%	34.78%	26.09%	17.39%
Transit ridership	24	8.33%	8.33%	20.83%	20.83%	41.67%
Transit improvements (service, route changes)	24	8.33%	8.33%	25.00%	33.33%	25.00%
Transit oriented development	24	8.33%	8.33%	29.17%	45.83%	8.33%
Transit access/egress	24	8.33%	8.33%	50.00%	29.17%	4.17%
Transit fare policy	24	16.67%	12.50%	50.00%	16.67%	4.17%
Transit crowding	24	16.67%	16.67%	54.17%	8.33%	4.17%
Land use – transportation coordination	23	4.35%	4.35%	21.74%	30.43%	39.13%
Non-motorized travel (bike, walk)	24	8.33%	8.33%	33.33%	33.33%	16.67%
Telecommuting behavior	25	4.00%	0.00%	20.00%	56.00%	20.00%
Greenhouse gas emissions/ZEV travel	23	13.04%	13.04%	34.78%	21.74%	17.39%
Freight studies	25	12.00%	4.00%	24.00%	48.00%	12.00%
Peak spreading	25	0.00%	8.00%	36.00%	48.00%	8.00%
Equity	22	22.73%	22.73%	27.27%	13.64%	13.64%
Airport access studies	24	20.83%	20.83%	33.33%	20.83%	4.17%
Visitor studies	24	16.67%	25.00%	33.33%	25.00%	0.00%
Special events planning	24	12.50%	29.17%	29.17%	20.83%	8.33%
E-commerce impacts/curb management	23	17.39%	26.09%	47.83%	4.35%	4.35%

Types of Analyses for Gen3 - Other

- Unlikely to use Gen3
- It is still using the old travel 2 processes for visitors, taxis, etc. correct?
- Resiliency
- Why does this survey even ask about using a UPWP (i.e. federal) funded model to conduct equity analysis when MPOs are prohibited by federal regulations to consider equity?

Importance of Model Development

How important is it to you and your agency/company that MWCOG continues to develop, maintain, and update the following modeling tools?

	Not Important	Neutral	Somewhat Important	Very Important
Gen2 (trip-based) Model	7.14%	21.43%	25.00%	46.43%
Gen3 (activity-based) Model	0.00%	14.29%	17.86%	67.86%

Other:

- The ability to use the Gen 3 models for corridor and jurisdictional modeling remains to be seen

Model Refinements

What refinements to the regional travel model would most effectively serve your day-to-day planning needs in the next five years? (optional)

If the regional travel model were better calibrated at significant corridors in the region by time-periods. Better resolution of network, especially given the managed lanes for various access points. Better representation of time-of-day dynamics, dynamic traffic assignment with considerations for peak spreading.

I created a few refinements to the Gen 2 model focusing on highway assignment and how to better represent toll cost in route choice. I assume the Gen3 model will still have the ability to adjust the assignment process as a part of adjusting the model to better represent corridor and specific roadways.

Dynamic Traffic Assignment

Software and tools that can be easily installed on networks that have to meet organizational security requirements.

Current Gen2 and Gen3 model outputs I am applying for emissions estimations are good enough, not needing any refinements on my ends.

Better GUI user interface and scenario management.

Better support of subregional corridor studies and project analyses and more detailed networks. CLEAN UP THE TRANSIT NETWORKS !!!!

We often need to split TAZs to match project boundaries. I hope that splitting TAZs can be conducted more easily.

Proper validation and DTA implementation to handle tolled lanes.

Packaged updates: transit line files, demographic data and highway networks

Not Applicable

Simplicity for everything related to transit - impacting transit ridership, inputting transit lines, travel demand management, etc

Unsure - as a non-modeling staff member I leave this to the experts!

None I can think of, I am new to both models (I have prior experience with other models). The Gen3 ABM will have a higher learning curve for me, but I am excited to gain experience with it and become more familiar. I think as the model continues to develop the barrier of complexity will (hopefully) gradually lower.

Additional Comments

Are there any other comments or suggestions you would care to make regarding the TPB's model development plans? (optional)

Please don't set it in stone. The world is rapidly changing currently; you will need to revisit the plan every 2 years to meet the needs of the region.

In Gen3 model, please make data input process for the scenario studies easy.

The level of documentation is greatly appreciated.

No.

MWCOG model source code should be open to users so that an AI agent can learn it and enable users to customize the model.

Really need time period networks. Need validation at smaller than regionwide/jurisdiction level, especially inside DC.

Incorporate a plan for providing model output that is able to be shared, visualized or otherwise more accessible than to transportation modelers. Create standard datasets of output to share internally and externally; work with fellow MPO staff to develop products using model-based data

Consider updating TAZs by using Census geography (block groups and blocks to create TAZs)

I think COG needs to take a step back and re-evaluate the highway network and sedata inputs. The network looks like it's from the 1950s (courtesy of Cube Voyager). Then consider improvements to Gen3 that would decrease the astronomic RAM requirement. 30+ hours to run sucks, but needing 256 GB of RAM or more is really difficult for model use, particularly when the users may not be ActivitySim experts and may not understand ActivitySim error messages (which may be a problem caused by an input, or may be insufficient RAM).

Not Applicable

Incorporation of non-modeling TPB staff to become familiar with use and analysis of the models, and their respective capabilities.

No, I think maintaining the Gen2 model for the time being and prioritizing the Gen3 model in the near term future is a good plan.

Next Steps

- Copies of survey responses to be provided to those who requested it in the next couple of weeks
- Peer MPO survey in progress
- Results from both surveys will be used in the strategic plan to identify:
 - » Strengths of the models – features to retain
 - » Desirable features to add – analysis the models used for
 - » Potential areas of improvement to the models