Travel Demand Model Questions

- Are we using the right kind of tools to address the scenarios we are trying to analyze? Are we missing tools?
- Are we working at the appropriate level of spatial, temporal and contextual resolution? Are the models reasonably well designed to address these scenarios?
- Are there alternative ways to either model or analyze these scenarios? Is there any experience about which tools worked well and which did not work in specific applications?
Travel Demand Model

- A perfect travel demand model would be all things to all people, would provide both precise and accurate forecasts for all types of possible changes, and would provide results in 30 minutes or less.
- Most of this is not possible
MSTM

- Advanced trip based travel demand model
  - Synthetic population generation
  - LogSum based destination choice
  - Truck travel add-on
- Most elements, e.g. generation rates, mode choice elasticities, nesting coefficients, seem reasonable
- Model was peer reviewed in 2014
- Not clear how transportation related emissions are determined
Peer Review Recommendations (Long term)

- Support research for incorporating analytic DTA and reliability measurement in the model.
- Activity-Based Model development and incremental incorporation into the MSTM following the development of BMC’s activity-based model.
- Freight mode choice development through partnering with adjacent states to develop area-appropriate methodologies.
Possible issues/enhancements

- Better treatment of non-motorized trips as they relate to changes in suburban development patterns (e.g., in choice model structure.)
- Modeling HOT lanes – is this a part of the choice model or of the assignment process?
  - Especially difficult for dynamic pricing
  - This affects destination and path choice along with funding and the pace of system development
Possible issues/enhancements

- Impact of autonomous vehicles; car sharing, Uber, etc.
  - These can effect values of time.
  - Changes cost considerations from major capital (i.e. auto purchase) to per trip.
  - Does this change model parameters?
Possible issues/enhancements

- Inclusion of costs in highway and transit path building and distribution? esp. transit fares, HOT lanes
  - Note: Costs are included in destination choice through use of the LogSum term
- Need to determine how to treat BRT in mode choice (see BRT guide or TCQSM for bias constant factors)
- Time of day vs. peak spreading (may relate to dynamic pricing - both HOT lanes and Uber)
Possible issues/enhancements

- Freight – importance of Port of Baltimore
  - Truck assignment
  - Goods to and from port
  - Truck vs rail split for both through traffic and for port
  - Need to consider impact of new NE Corridor tunnels
Broader Issues

- Are transport models sensitive to the factors that define the scenarios?
- Are models more complex than warranted given the scope of the scenarios?
- Model run times? Can variations from base analyses be run quickly?
- Do the models produce meaningful measures?
Indicators

- Why "transit Indicators" re: road focused model - Why isolate transit? why not transportation as a whole? e.g., time to opportunities? travel time vs distance
- Transportation Choices - Drive, Walk, Bike, Transit, Uber, etc. More is better?
- Sustainability related measures e.g., energy consumed for personal travel
Alternative Approach

- NCHRP 20-83(06) Effects of Socio-Demographics on Travel Demand
- [http://www.trb.org/Main/Blurbs/171200.aspx](http://www.trb.org/Main/Blurbs/171200.aspx)