

Draft Memorandum for the Record Boston Region Metropolitan Planning Organization Unified Planning Work Program Committee Meeting Summary

November 18, 2021, Meeting

9:00 AM–10:00 AM, Zoom Video Conferencing Platform:

<https://www.youtube.com/watch?v=nlwCDZ4ExOg>

Eric Bourassa, representing the Metropolitan Area Planning Council

Decisions

The Boston Region Metropolitan Planning Organization's (MPO) Unified Planning Work Program (UPWP) Committee agreed to the following:

- Approve the summary of the October 21, 2021, Committee meeting
- Recommend Amendment One of the federal fiscal year (FFY) 2022 UPWP for endorsement by the MPO

Materials

Materials for this meeting included the following:

1. [Draft meeting summary of October 21, 2021](#)
2. [A memorandum detailing Amendment One to the FFY 2022 UPWP](#)
3. A [redlined version](#) and a [clean version](#) of the FFY 2022 UPWP reflecting changes proposed by Amendment One

Meeting Agenda and Summary of Discussion

1. Introductions

See attendance on page 8.

2. Public Comments

There was none.

3. Meeting Summary of October 21, 2021—*Approval of this summary*

Daniel Amstutz (Town of Arlington) noted that two agenda items had duplicate descriptions.

A motion to approve the revised summary was made by the Town of Arlington (D. Amstutz) and seconded by the City of Newton (David Koses). The motion carried.

4. Amendment One to the FFY 2022 UPWP—*Sandy Johnston, UPWP Manager*

S. Johnston stated that the MPO released Amendment One for a 21-day public comment period on October 21, 2021. MPO staff received no comments during this time.

S. Johnston provided an overview of Amendment One. Amendment One directs \$45,000 of combined 3C funds for two major purposes:

- An additional \$20,000 would be allocated toward Professional Development, bringing total funding to \$64,500. These funds would support new skill development, with a focus on preparing staff to implement a new suite of modeling tools. A relatively small amount of non-MPO-funded project work beginning in July 2022 has created staff availability.
- An additional \$25,000 would be allocated to Direct/Non-Labor Support, bringing total funding to \$117,000. These funds would be used to procure support from Caliper, a company that develops travel demand models and software used by MPO staff (TransCAD). This support would provide an opportunity to accelerate development of the next phase of modeling tools.

This amendment utilizes extended FFY 2021 UPWP funds and will have no negative impact on work programs in the FFY 2022 UPWP. The amendment also includes several minor corrections to text and updates, such as the insertion of project ID numbers previously listed as “TBD.”

S. Johnston requested that members vote to recommend Amendment One for endorsement at the November 18, 2021, MPO meeting.

Vote

A motion to recommend endorsement of Amendment One was made by MassDOT (Derek Shooster) and seconded by the Inner Core Committee (Tom Bent, City of Somerville). The motion carried.

5. Tools to Analyze Congestion Pricing in MPO Planning—*Tegin Teich, Executive Director, and Marty Milkovits, Director of Modeling and Analytics*

T. Teich stated that the Universe of Potential Studies developed for the FFY 2022 UPWP initially included a study on congestion pricing. This study was removed from the revised Universe presented to the Committee on July 1, 2021, primarily due to budget constraints and feedback from MassDOT on the timing and usefulness of the proposed study.

Some Committee members requested a commitment to include a congestion pricing study in the FFY 2023 UPWP. The discussion included how analysis of congestion pricing could be folded into the overall planning process for the Long-Range Transportation Plan (LRTP). The Committee Chair suggested that MPO staff more explicitly state how the LRTP process could incorporate congestion pricing.

M. Milkovits stated that the purpose of his presentation is to explain MPO staff's current modeling capabilities and the capabilities they will have with the next generation of travel demand modeling (TDM) tools, as well as to see where there may be limitations in quantitative analysis of congestion.

M. Milkovits shared that there are two essential components to the model: the inputs and the theories or assumptions. However, an equally important component to modeling is the stakeholder. The stakeholder must have an active role in the modeling process. Their needs are what determine the relevant items to be in the model, which are the inputs, assumptions, and results. If the results of modeling are useful, they assist the stakeholder in decision-making.

M. Milkovits provided a broad overview of modeling tools, from the most detailed to high-level tools:

- Operational tools (microsimulation, dynamic traffic assignment)
- Demand (trip-based and activity-based)
- Strategic (VisionEval)
- Sketch (spreadsheet rates/factors)
- Qualitative

M. Milkovits provided an overview of the components of a trip-based models. He placed the inputs into two categories: special inputs and roadway and transit inputs.

MPO staff utilize transportation analysis zones (TAZs) to represent space. The Boston region is represented by approximately 2,700 TAZs in the model. TAZs capture categorical information about a geographic area, including density; socio-economic data (households, jobs, and school enrollment); direct trip inputs, including special trip generators; and land use inputs, which includes parking cost.

M. Milkovits stated that network inputs consist of nodes and links, with links connecting each node. He noted that not all roadways are represented in the model; the model includes larger roadways representative of travel volumes. This is due to budget constraints, as representing every local street would be time-intensive, and how the model products used by MPO staff operate under a very detailed road network. He noted that dense areas, such as downtown Boston, include most local roads.

M. Milkovits provided an overview of the primary model steps and how assumptions are applied. He explained that each step answers a question. He noted that the model steps are sequential, with each step building upon previously answered questions.

- Inputs/Initialization (Who are you? Where do you live?)
- Vehicle Availability (How many vehicles are available to your household?)
- Remote Work (How much does each worker go into the office?)
- Trip Generation (How many trips does your household make?)
- Trip Distribution (Where do they go?)
- Mode Choice (How do they get there?)
- Time of Day (When do you travel?)
- Assignment (Which routes do you take?)

M. Milkovits presented example congestion pricing strategies: parking pricing, cordon toll, and managed. These strategies would impact the inputs or initialization, trip distribution, mode choice, and assignment. In each analysis, the model would provide information on the following:

- How mode share/travel demand would change by trip purpose and zone

- The location and intensity of the traffic congestion impact
- The portion of trips by home-TAZ that would be most impacted (equity analysis)

M. Milkovits stated that parking pricing would be represented in the model through a TAZ-level parking price cost or surcharge. He noted that the model cannot distinguish which trips have a destination that includes employer-provided parking. As such, all trips would be treated as paying the same cost for parking. Value of time (in this strategy, paying for parking to have a shorter commute) is not highly distinguished within the model. The model would also not represent the ability of drivers to park several blocks away from their destination in order to reduce their costs; accounting for this would require significant, specific data.

Lenard Diggins (Regional Transportation Advisory Council) asked why time of day was not highlighted as an area of impact, as the implementation of congestion pricing can include varying costs based on time of day. M. Milkovits stated that the model is not capable of showing changes in travel patterns based on increased parking costs.

D. Amstutz asked if trails and shared-use paths are accounted for when analyzing trip assignment. M. Milkovits stated that the model does not assign non-vehicle and non-transit trips; the model does not estimate how bicycle and pedestrian trips are routed. The next generation of the model will account for mode choices, including use of trails and shared-use paths. However, the model will not account for how some bicycle and pedestrian facilities may encourage mode shift more than others, such as off-road cycle tracks versus sharrows.

M. Milkovits stated that a cordon toll would be represented in the model through a roadway link level attribute; a toll value would be attributed to every link that comprise the analyzed cordon, and every vehicle passing through the cordon would pay this toll.

M. Milkovits noted that the cordon location and toll boundary will need to be defined before running an analysis; the model cannot provide data on the optimal location for a cordon or an ideal toll amount. He added that, in practice, a cordon toll would be a once-per-day fee; if a vehicle crosses the cordon once, it can then cross it repeatedly without multiple payments. However, this cannot be captured in the model, as the analysis would be done at a trip level.

A managed lane strategy would also be represented on the link level. However, for this analysis, modelers would add parallel links next to the existing links to represent the managed lane. This would allow the model to show potential improvement in travel times despite the congestion price.

Operational issues, such as queueing and spillback from converting a general-purpose lane to a managed lane, are critical to determining the success of this strategy. The model will also assume that all vehicles have the same “desire” to either pay or not pay the toll.

Discussion

L. Diggins expressed that the benefits of congestion pricing will be difficult to determine without the model capturing time of day, as congestion pricing would ideally reduce demand during peak periods. M. Milkovits stated that the model includes four blocks of time, and travel times are aggregated within each block. This allows modelers to describe the consistency of travel time within a block, and some shifts in travel time may be within a given block. He stated that an activity-based modeling approach shows promise for capturing nuances of changed travel patterns; for example, if someone arrived slightly late for work, they would make their return trip slightly later. However, there are still challenges to accurately capturing this behavior in activity-based modeling.

D. Koses asked if the model can account for alternative routes that drivers could use to avoid paying additional tolls. M. Milkovits stated that the model can provide useful information on which routes are taken in response to additional tolls on a facility. This rerouting and displacement of trips can then be used to show shifted delay in the region.

Regarding parking pricing, D. Koses noted that ample free parking exists in most communities. M. Milkovits stated that the model interprets its inputs literally. If an input categorizes an area as charging a certain amount per day, it will not account for potential free parking on side streets. As such, the model would need additional inputs to account for this. He noted that capturing the nuances of the region will require significant attention to detail to ensure that outputs do not overstate the efficacy of the strategies.

Jen Rowe (Boston Transportation Department) asked if the model’s analysis of impacts on trips by home-TAZ can include information such as race and income. M. Milkovits stated that a challenge of TAZ-level analysis is that some TAZs contain a mix of equity and non-equity households. Beyond the number of trips leaving a given household, the model does not account for which type of household a trip originates from. However, equity zones are defined in the model. He added that MPO staff are now working with fully disaggregate household data. Under its upcoming modeling platform, MPO staff will experiment with analyzing per household trips.

Bill Conroy (Boston Transportation Department) asked how the current and upcoming modeling platforms could be applied to major infrastructure projects which include managed lanes and bus rapid transit. Analyses could be used to inform municipal decisions on project design, such as needed lanes on a corridor based on future travel demand needs. M. Milkovits stated that the model will not answer every question about the future needs of the region, though it can provide a multitude of insights. For example, the model can show the flow of demand across all modes and the relationship between socioeconomic forecasts and travel demand. Modelers can also experiment with different scenarios that could reduce demand and accommodate fewer lanes.

E. Bourassa suggested that M. Milkovits attend a future UPWP Committee meeting to further discuss

6. Members Items

There were none.

7. Next Meeting

S. Johnston stated that the next UPWP Committee meeting has not yet been scheduled. He directed members to the [UPWP development web site](#).

8. Adjourn

A motion to adjourn was made by MassDOT (D. Shooster) and seconded by the Inner Core Committee (T. Bent, City of Somerville). The motion carried.

Attendance

Members	Representatives and Alternates
Massachusetts Department of Transportation (Office of Transportation Planning)	Derek Shooster
Metropolitan Area Planning Council	Eric Bourassa
Regional Transportation Advisory Council	Lenard Diggins
At-Large City (City of Newton)	David Koses
At-Large Town (Town of Arlington)	Daniel Amstutz
City of Boston (Boston Transportation Department)	Bill Conroy, Jen Rowe
Inner Core Committee (City of Somerville)	Tom Bent
Three Rivers Interlocal Council (Town of Norwood/Neponset Valley Chamber of Commerce)	Tom O'Rourke
Three Rivers Interlocal Council alternate (Town of Westwood)	Steve Olanoff
City of Framingham (Metrowest Regional Collaborative)	Erika Oliver Jerram

Other Attendees Affiliation

Benjamin Muller	MassDOT District 6
Chris Klem	MassDOT
JR Frey	Town of Hingham

MPO Staff/Central Transportation Planning Staff

Tegin Teich
Annette Demchur
Rebecca Morgan
Hiral Gandhi
Mark Abbott
Marty Milkovits
Jonathan Church
Sandy Johnston
Anne McGahan
Michelle Scott
Matt Archer

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