

ACTION TRANSMITTAL No. 2016-60

DATE: December 1, 2016

TO: Transportation Advisory Board

FROM: MTS Staff

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SUBJECT: Funding Strategy for the Travel Behavior Inventory (TBI) and Regional Model

REQUESTED ACTION: Approve \$2.7 million from the 2016 Regional Solicitation for the TBI and Regional Model

RECOMMENDED MOTION: Approve \$2.7 million from the 2016 Regional Solicitation for the TBI and Regional Model with the following TAC Work Group's Recommendations:

- That consultant selection committees for TBI and modeling related activities include local agency representation.
- That Council modeling staff establish an on-going regional transportation mode technical work group, inclusive of the counties and other interested agencies, to advise on how to best assure that the Regional Model is of optimal use to the Council's regional partners.

BACKGROUND AND PURPOSE OF ACTION: The Metropolitan Council, like all large MPOs, maintains a regional transportation forecasting model. This model is regularly updated to reflect changes in regional demographics, transportation networks, and observed travel patterns and behaviors. Federal laws and regulations and industry best practices requires the regular maintenance and update of the model for project planning, alternatives analysis, air quality analysis, funding, and environmental justice purposes.

The Council uses the regional model to demonstrate conformity of the regional TIP and TPP to the Clean Air Act, enabling federal transportation funds to be spent in the region. The regional travel model is used for project forecasting by MnDOT, Metro Transit, counties and cities. The information put out by the model is used for project justification, planning, estimation of environmental impacts, and for design. The right-sizing of major infrastructure projects, such as the TH 169/I-494 interchange in Hennepin County is an important use of the model. The Council's role in project forecasting is to maintain the model and its input data, provide technical support to users of the model, and review model validation and results. The credibility of model forecasts is crucial to major highway and transit projects; models that lack credibility and currency expose major projects to litigation risk.

The region's model is only as good as the data that is used to develop it. The program used to collect our region's data is known as the Travel Behavior Inventory (TBI) and has been an on-going data collection program since 1949. Traditionally the TBI data have come from a decennial household travel survey and a transit on board survey every five years. From 2015-2016 the Council engaged a

consultant to make recommendations for the future structure and frequency of the TBI program considering the needs of the model, contemporary policy concerns, the pace at which changes in travel patterns now occur and advances in technology. The work of the consultant was overseen by a technical advisory group which included members of TAC. The consultant recommendations included increasing the frequency of data collection.

RELATIONSHIP TO REGIONAL POLICY: The regional travel demand model is used by all major transportation stakeholders across the Twin Cities and is a requirement of the TPP and TIP to determine regional air quality conformity.

STAFF ANALYSIS: Previous conversations with the TAC and TAB indicate a high level of interest in maintaining a current and valid model for regional use. The proposal submitted for TAB consideration incorporates the consultant recommendation to conduct more frequent travel sampling and will allow for a sampling of travel behavior within the region every two years plus surveys of transit, airport, and University of Minnesota travel areas every five years along with continuing updates and improvements to the regional model. The estimated cost for this work is approximately \$2.55 million every two years.

At its October 19, 2016, meeting, TAB passed a motion directing staff to develop a memorandum of agreement for future funding based on the principle of equal funding shares between the Council, MnDOT, and TAB. The TAB also directed staff to show the TBI as off-the-top funding in funding scenarios being developed for the 2016 Regional Solicitation.

Since the October TAB meeting, MnDOT’s Transportation Programming and Investment Committee (TPIC) committed to participating in 1/3 of the cost of the TBI on an ongoing basis, beginning with \$850,000 in 2019. The Metropolitan Council also has committed its share of the on-going funding.

MnDOT funds will likely be federal funds provided through the state’s “District C” program. The Council funds will be a mix of local Council revenues and federal funds with the exact mix identified through the Council’s annual internal budgeting process. As a portion of its share, the Council has committed to including the required non-federal matching funds to all federal money provided from the Regional Solicitation and MnDOT.

For the first six years of the program, the breakdown of funding partner contributions is outlined below.

Funding Request for First Six Years of the Program

Funding Partner	Funding	% of Total	2017-18	2019-20	2021-22
TAB	\$2.7 million	36%	\$1,000,000	\$850,000	\$850,000
Met Council	\$3.2 million	42%	\$1,700,000	\$1,000,000	\$500,000
MnDOT	\$1.7 million	22%		\$850,000	\$850,000
Total	\$7.6 million	100%	\$2.7 million	\$2.7 million	\$2.2 million

For the remainder of the program, the total cost will be equally divided so that each of the three partners pays one-third of the total cost. For the work beginning in 2017 MnDOT had already programmed all of its available funding so is not able to contribute funds until 2019. This accounts for the different percentages among funding partners in the first six years of the program.

In future Regional Solicitations, the Council will continue to submit a funding proposal to TAB and MnDOT for the anticipated TBI and model update tasks and provide cost estimates for the program. The TBI and Modeling technical advisory work group will provide input into all future program scope and funding requests. A letter of support from MnDOT will accompany the request to TAB.

If approved, the \$2.7 million 2016 Regional Solicitation request would be funded with 2018 program year funds, of which there is \$15.66 million available. The 2018 program year begins in just over six months (July 1, 2017), so funding a non-capital project such as this will help ensure that 2018 funds are not turned back to the region due to the complexity of delivering a federally funded capital project in a relatively short amount of time.

Regional Solicitation Funds Available for 2018-2021

	2018	2019	2020	2021	Total
Regional Solicitation Funds	\$15,663,691	\$6,871,033	\$89,387,700	\$89,387,700	\$201,310,124

COMMITTEE COMMENTS AND ACTION: At the July 20, 2016, meeting, TAB directed staff to examine a long-term funding solution for the Travel Behavior Inventory in conjunction with the Metropolitan Council and MnDOT.

At its October 5, 2016, meeting, TAC requested a work group of TAC Planning and TAC Funding & Programming Committee members be formed to further explore technical issues related to TBI implementation. That work group, consisting of representatives from five counties, MnDOT, TAB, and the Council, made the following suggestions:

- That consultant selection committees for TBI and modeling related activities include local agency representation.
- That Council modeling staff establish a regional transportation modeling work group, inclusive of the counties and other interested agencies, to establish how to best assure that the Regional Model is of optimal use to the Council’s regional partners.
- That Council staff provide a graphic version of TBI and modeling activities.
- That a scope of work be provided.
- That a breakdown of funding sources be provided.

At its November 2, 2016, meeting, TAC recommended that if the TBI and Regional Model are funded by TAB, that the work group’s recommendations be included with the decision.

At the November 16, 2016, meeting, TAB approved motions to make a decision on TBI funding at its next meeting in December and to include the TAC Work Group recommendations in any future funding approval.

The third and fourth recommendations in the list above are already satisfied with the attachments to this action item, and the fifth is described in the staff analysis above. As such, they are not included in the recommended motion.

ROUTING

TO	ACTION REQUESTED	COMPLETION DATE
Transportation Advisory Board	Review & Approve	

Travel Behavior Inventory and Regional Model

Draft Scope of Work- Years 1-6

The Travel Behavior Inventory and regional model program is a ten-year program consisting of a biennial household travel survey, a once-in-five years transit on board survey and other direct and 3rd party travel behavior data collection to support the currency and validity of the regional travel demand forecast model. Below is a brief summary of each element of the program in the first six years of the program.

Funding / Contracting Year	Elements	Estimated Cost
2017	“Kick-Start” household survey 3 rd party data Model update	\$2,200,000 \$200,000 \$300,000
2019	Household survey Special generator Transit on-board survey	\$900,000 \$200,000 \$1,600,000
2021	Household survey Special generator Model overhaul	\$1,000,000 \$100,000 \$1,100,000
Total		\$7,600,000

Household Travel Survey

A consultant will be engaged to perform a regional household travel survey in biennial waves, with the initial survey wave being 2.5 times larger than successive waves to allow for immediate use of the data. Similar survey instruments and sample approaches will be used for each wave. The survey is intended to be a year-long cross-sectional survey, with some oversampling targeted populations in each wave. Data collected will include person and household demographics, school and work locations, employment/student status, activity types and duration, travel modes and times. Effort will be made to include new and emerging modes of travel (including transportation network services, car/bike sharing, autonomous vehicles). Smartphone prompted-recall GPS technology will be the main mode of data collection. The consultant will be expected to develop a sample plan that addresses people without smartphones (including children in a household), as well as known and common sources of bias in household surveys. The consultant will field the survey. The consultant will process, geocode, and assemble the survey results into a database. The consultant will provide initial analysis of survey data, including developing expansion weights, and fully document all aspects of the survey design, collection, and analysis. In subsequent waves, the consultant will develop methodology to combine data from previous years.

Cost (Y.O.E dollars): \$2,200,000 for first wave, \$900,000-\$1,000,000 for successive waves.

Cost assumptions: 7,500 households for first wave, 3,000 for successive waves. \$260/HH based on peer comparison, judgement of TBI Program Evaluation consultant and Council staff.
Contract years: 2017, 2019, 2021

Third Party Data Collection

The Council will contract with a commercial transportation data provider to provide origin-destination data for travelers entering and departing the Twin Cities region. The data will be provided at a level of geographic and travel purpose granularity to allow use in regional travel model estimation and validation.

Cost: \$200,000

Cost assumptions: Judgment of TBI Program Evaluation consultant and Council staff.

Contract Years: 2018

Transit On-Board Survey

A consultant will be engaged to perform a transit on board survey every five years per FTA recommendation. A survey will be administered to a sample of riders on all fixed-route buses and trains operated by all providers in the region. The survey will collect origin-destination and demographic data on riders. The preferred survey mode will be in-person interview with tablet computer. The consultant will be responsible for survey design, sample design (including addressing known sources of bias), fielding the survey, processing and expanding data, initial analysis of survey data, and complete documentation. The survey will be designed to meet needs for transit agency Title VI analysis as well as FTA requirements for before and after studies for New Starts projects.

Cost (Y.O.E dollars): \$1,600,000 per survey

Cost assumptions: 2016 on board survey proposals, peer experience, 10% overall sample

Contract Years: 2020

Regional Model Update

A consultant will be hired to evaluate and update the regional model in light of data from the 2016 on-board survey, the 2018 household survey, and the 2018 external data purchase, as well as use experience since 2015. Model estimation data sets will be developed, and each component of the regional model will be re-estimated and re-validated as necessary. Council staff will work in advance of hiring a consultant to determine with stakeholder input desired enhancements to the model, which will also be incorporated.

Cost (Y.O.E dollars): \$300,000

Cost assumptions: past experience, judgement of Council staff

Contract Years: 2018

University Special Generator Survey

A consultant will be hired to perform this survey, which will measure the travel behavior of university students. The consultant will work with Council staff and staff at local universities, colleges, and community colleges to determine the appropriate distribution and form of data collection. The data collection may consist of a specially designed survey, or may involve incorporating samples of students into an ongoing wave of the household travel survey. The consultant will be responsible for survey and

sample design, execution of the survey, data assembly and weighing, and initial analysis and documentation.

Cost (Y.O.E dollars): \$200,000

Cost assumptions: past experience, judgement of Council staff

Contract Years: 2019

Airport Special Generator Survey

A consultant will be hired to perform this survey, which will measure the travel behavior of MSP airport visitors. The consultant will work with Council staff and staff at MAC to determine the appropriate distribution and form of data collection. The data collection may consist, as in 2010, of a departure gate in-person interview or it may involve third-party data purchases, or both. The of a specially designed survey, or may involve incorporating samples of students into an ongoing wave of the household travel survey. The consultant will be responsible for survey and sample design, execution of the survey, data assembly and weighing, and initial analysis and documentation.

Cost (Y.O.E dollars): \$100,000

Cost assumptions: past experience, judgement of Council staff

Contract Years: 2021

Regional Model Overhaul

A consultant will be hired to evaluate and update the regional model in light of data from data collection to-date. Potential major structural changes to the regional model will be assessed. The consultant will work with council staff and model stakeholders to determine the most effective and efficient form for the model based on current policy concerns and state-of-the-practice methods. Model estimation data sets will be developed, and each component of the regional model will be re-estimated and re-validated as necessary.

Cost (Y.O.E dollars): \$1,100,000

Cost assumptions: past experience, judgement of Council staff

Contract Years: 2021

TBI Activity Timeline

