



NAPA VALLEY TRANSPORTATION AUTHORITY Board Agenda Letter

TO: Board of Directors
FROM: Kate Miller, Executive Director
REPORT BY: Alberto Esqueda, Senior Program Planner/ Administrator
(707) 259-5976 / Email: aesqueda@nvta.ca.gov
SUBJECT: Amendment No. 1 to NVTA Agreement No. 18-6 with Solano Transportation Authority

RECOMMENDATION

That the Napa Valley Transportation Authority (NVTA) Board approve Amendment No. 1 to NVTA Agreement No. 18-06 with Solano Transportation Authority (Attachment 1) to update the Napa Activity-Based Travel Demand Model in amount not to exceed \$85,000.

OTHER OPTIONS FOR CONSIDERATION

Option #1: Approve the amendment which would update Napa's Travel Model to include public transit, autonomous vehicles, transportation network companies (TNC), and the Metropolitan Transportation Commission's (MTC) most recent land use forecasts.

Option #2: Not approve the amendment and NVTA would use the existing model with outdated assumptions.

COMMITTEE RECOMMENDATION

The Technical Advisory Committee recommended that the Board approve the Napa Activity-Based Travel Demand Model Update in amount not to exceed \$85,000 at its July 11th meeting.

EXECUTIVE SUMMARY

An activity-based travel model is an analysis tool that NVTA uses to make informed decisions on how the transportation system will perform in the future. Travel models support decision making by providing projections about the impacts of capital investments, alternative transportation, land use investments and policies, as well as, demographic and economic trends. Travel models produce quantitative information

about travel demand and transportation system performance that can be used to evaluate alternatives and make informed decisions.

The Napa Activity-Based Model was developed as a focused version of the Metropolitan Transportation Commission's (MTC's) Travel Model One. The base year was updated to 2015 conditions by Cambridge Systematics (CS) in February 2015-16. Recently TJKM updated the Peak Hour model validation. However, this work did not look into public transit ridership in Napa County. The model was not calibrated or validated to provide public transit ridership forecasts. Also, the model was developed using MTC's 2013 Plan Bay Area (PBA) Regional Transportation Plan (RTP) land use forecasts. To maintain a relevant model it needs to be updated using the latest 2019 RTP land use data.

PROCEDURAL REQUIREMENTS

1. Staff Report
2. Public Comments
3. Motion, Second, Discussion and Vote

FISCAL IMPACT

Is there a Fiscal Impact? Yes, \$ 85,000

Is it currently budgeted? Yes

Where is it budgeted? CMA Planning Funds

Future fiscal impact? No

Consequences if not approved: NVRTA would not have a reliable tool to analyze the performance of the future transportation system.

STRATEGIC GOALS MET BY THIS PROPOSAL

Goal 1 - Serve the transportation needs of the entire community regardless of age, income, or ability

Goal 2 - Improve system safety in order to support all modes and serve all users

Goal 3 - Use taxpayer dollars efficiently

Goal 4 - Support Napa County's economic vitality

Goal 5 - Minimize the energy and other resources required to move people and goods

CEQA REQUIREMENTS

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 16378 (California Environmental Quality Act (CEQA) Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

TJKM will work with RSG Inc. to update the Napa Activity Model to use the model structure of MTC Travel Model 1.5. This model includes a number of enhancements including a new population synthesis software, inclusion of TNCs and autonomous vehicles (this is optional in the model and can be turned on if desired) and better calibration to perform public transit forecasts.

The current version of the Napa Model uses a 15% sample rate, which is not a technically sound approach as it can result in under prediction or over prediction of mode split and travel in certain corridors. The team's experience implementing the model for Marin County has informed how to improve the sample rate in Napa, Solano and neighboring counties and adjusted it to reduce the influence of zones farther away from the county. This would ensure that the model uses more local data samples to estimate forecasts. It is expected that this methodology would better simulate travel in Napa/Solano Counties and improves transit and highway validation. The new population synthesis software also allows the user to make changes to specific zones impacted by a project and keep other data constant which is useful for getting stable results for project impact studies.

Undertaking this model improvement study will ensure consistency with MTC's Travel Model 1.5 and give NVTA a tool that would provide reliable transit and highway forecasts for the next several years until the time MTC updates its model.

The urgency to update the travel model is so that it can be used to gauge performance metrics for the Countywide Transportation Plan (CTP) update. The updated CTP, *Advancing Mobility 2045*, will include performance metrics tied to Board adopted goals and objectives and the model will be useful in measuring systemwide performance.

SUPPORTING DOCUMENTS

Attachment: (1) Draft Amendment 1 to NVTA Agreement 18-06

FIRST AMENDMENT TO FUNDING AGREEMENT

THIS FIRST AMENDMENT ("First Amendment") is made and entered into as of this day of _____, 2019, by and between the SOLANO TRANSPORTATION AUTHORITY, a joint powers entity organized under Government Code section 65000 et seq. ("STA"), and THE NAPA VALLEY TRANSPORTATION AUTHORITY, a joint powers entity organized under Government Code section 6500 et seq. ("NVTA").

RECITALS

WHEREAS, STA and NVTA entered into an agreement ("Funding Agreement") on March 1, 2018, to maintain, operate and upgrade the two-county centered traffic projection model ("SOLANO-NAPA ACTIVITY BASED MODEL"); and

WHEREAS, STA and NVTA have jointly financed the services of a professional traffic model consultant; specifically, STA has contracted with the TJKM; and

WHEREAS, the parties now desire to upgrade the current version of the Solano-Napa Activity Model to the model structure of the Metropolitan Transportation Commission (MTC) Travel Model 1.5 version; and

WHEREAS, TJKM is able to provide the service upgrade needed for both parties at a total not-to-exceed cost of \$175,000 of which the amount is to be shared as agreed upon between STA and NVTA.

TERMS

NOW, THEREFORE, in consideration of the mutual promises of STA and NVTA contained herein, STA and NVTA agree to amend the Funding Agreement as follows:

- 1. Payment of Funds by NVTA to STA.** NVTA shall pay the STA in the amount not to exceed \$75,046.67 for services under the task deliverables as listed in the consultant's proposal (EXHIBIT A).
- 2. Prior Terms and Conditions.** Except as set forth in this First Amendment, all terms and conditions of the Funding Agreement shall remain in full force and effect.



IN WITNESS WHEREOF, the duly authorized representatives of the parties to this First Amendment have executed it as of the date first above written.

STA

NVTA

By:

By:

DARYL K. HALLS, Executive Director

KATE MILLER, Executive Director

APPROVED AS TO FORM

APPROVED AS TO FORM

By: _____
STA Legal Counsel

By: _____
DEEANNE GILLICK, General Counsel



May 28th, 2019

Robert Guerrero, STA
Alberto Esqueda, NVTa

Subject: Proposal to Validate and Calibrate Public Transit Ridership within the SNABM for Solano and Napa Counties

Dear Robert and Alberto

TJKM Transportation Consultants is pleased to submit our proposal to validate and calibrate public transit ridership forecasts within the Solano Napa Activity Based Model for Solano and Napa Counties under the existing On-Call Contract.

PROJECT DEFINITION

The Solano Napa Activity-Based Model (SNABM) was developed as a focused version of the Metropolitan Transportation Commission's (MTC's) Travel Model One. The base year was updated to 2015 conditions by Cambridge Systematics (CS) in February 2015-16. Recently TJKM updated the Peak Hour model validation. However, this work did not look into public transit ridership in Napa and Solano Counties. The model was not calibrated or validated or setup to provide public transit ridership forecasts. Also, the model was developed using 2013 MTC Plan Bay Area (PBA) Regional Transportation Plan (RTP) land use forecasts. It might be prudent to update the model using the latest 2019 RTP land use data.

To conduct this work, TJKM will work with RSG Inc. to update the Solano Napa Activity Model to use the model structure of MTC Travel Model 1.5. This model includes a number of enhancements including a new population synthesis software, inclusion of TNC's and autonomous vehicles (this is optional in the model and can be turned off if not required) and has been better calibrated to perform public transit forecasts.

The current version of the SNABM model uses a 15% sample rate which is not a technically sound approach as it can result in under prediction or over prediction of mode split and travel in certain corridors. Based on the team's experience in implementing the model for Marin County, we will improve the sample rate in Solano, Napa and neighboring counties and reduce it for zones farther away from the county. This would ensure that the model uses more local data samples to estimate forecasts. It is expected that this methodology would better simulate travel in Solano / Napa Counties and helps with transit and highway validation. This would make the model results a lot of more reasonable given changes in model inputs, particularly for traffic studies. The new population synthesis software also allows the user to make changes only to zones impacted by the project and keep other data constant which is very useful for getting stable results for impact studies.

Undertaking this model improvement study will ensure consistency with MTC's Travel Model 1.5 and give STA and NVTa a tool that would provide reliable transit and highway forecasts for the next several years until MTC's Travel Model 2 is adopted and accepted.

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Page 3 of 5
DBE #4077254 SBE #38780

Below is our high level scope of work.

SCOPE OF WORK

Task 1: Update Networks, Land use, Freight Generators and Externals

The team will update roadway and public transit networks based on inputs from STA and NVTA. Traffic Analysis zones will be split near major public transport stops (for example on express route stops) to improve modeling of access and egress. Land use for the splits will be updated based on information from ABAG and inputs from local jurisdictions. Also, land use and demographic data will be updated to the latest 2019 RTP. Freight generators currently used in the model will be reviewed and updated if necessary. External trips into and outside Solano and Napa counties will be revisited and updated using the CA Statewide Model trip tables and calibrated to match traffic counts.

Task 2: Model implementation

The team will obtain the Solano\Napa model and implement the model on their servers. The team will integrate MTC's most recent travel model (TM1.5) with existing Solano\Napa networks and TAZ system. The team will make any necessary changes to TM1.5 Cube scripts to address differences between the Solano-Napa model roadway and public transit network and TM1.5 networks.

Task 3: Implement PopulationSim and Household Sampling

The team will implement MTC's new population synthesis software (PopulationSim) using Solano\Napa TAZ data for base-year and one future year. We will implement household sampling in TM1.5 in order to reduce Monte Carlo variation in Solano\Napa counties.

Task 4: Calibration

The team will calibrate model to improve highway and transit validation, starting from TM 1.5 model parameters. Destination and mode choice models will be calibrated to ensure that trip patterns and mode choice from the model match observed data. Available Streetlight data will be used for calibration

Task 5: Highway and Public Transport Model Validation

The team will take the calibrated model from the above steps and set up separate procedures for assignments for Napa and Solano counties. We will separately validate both the county models to ensure that the highway assignment volumes match observed traffic counts for daily and AM, PM peak hour time periods. Public Transit assignment validation will be conducted to ensure that the model boarding's and alighting's match observed ridership. The team will use available on-board surveys and observed ridership during calibration and validation.

Task 6: Documentation

The team will document changes to implementation, population synthesis results, calibration adjustments, calibration results and validation statistics.



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BUDGET

Based on our Scope of Work, our estimated level of effort is a not-to-exceed amount of \$175,000. TJKM will bill on a time and material basis on monthly basis. Below is a breakdown of our level of effort by task.

Task	Notes	Total Cost	STA	NVTA	Split
1	Separate Effort	\$ 15,000.00	\$ 10,000.00	\$ 5,000.00	STA 2/3; NVTA 1/3
2	Common Effort	\$ 26,170.00	\$ 13,085.00	\$ 13,085.00	STA 1/2; NVTA 1/2
3	Common Effort	\$ 22,345.00	\$ 11,172.50	\$ 11,172.50	STA 1/2; NVTA 1/2
4	Common Effort	\$ 33,465.00	\$ 16,732.50	\$ 16,732.50	STA 1/2; NVTA 1/2
5	Separate Effort	\$ 59,720.00	\$ 39,813.33	\$ 19,906.67	STA 2/3; NVTA 1/3
6	Common Effort	\$ 17,000.00	\$ 8,500.00	\$ 8,500.00	STA 1/2; NVTA 1/2
Direct Expense	Common Effort	\$ 1,300.00	\$ 650.00	\$ 650.00	STA 1/2; NVTA 1/2
Total		\$ 175,000.00	\$ 99,953.33	\$ 75,046.67	

We look forward working with you on this task.

Sincerely,

Nayan Amin
President
TJKM Transportation Consultants