

Wasatch Front Mode Choice Model Update Request for Qualifications

Wasatch Front Regional Council (WFRC) is inviting firms to submit a Statements of Qualifications (SOQ) in response to this Request for Qualifications (RFQ). Please direct all questions regarding this Request to the WFRC Procurement Agent listed below.

SUMMARY INFORMATION

Project	
Location	Combined Metropolitan Planning Organization (MPO) jurisdictional areas of the Wasatch Front Regional Council (WFRC) and Mountainland Association of Governments (MAG)
Project Manager	
WFRC Project Manager (PM)	Chad Worthen
PM Email Address	cworthen@wfr.org
Submittal Instructions and Schedule	
Date Sending Request to Consultants	Tuesday December 31, 2019
Submission Deadline for Statements of Qualifications (SOQs)	Wednesday January 29, 2020 by noon MST. Responses submitted after this deadline will not be accepted.
Format Instructions, Selection Process and Criteria, Disqualifications	See pages 2-3
Scope, Schedule, Budget	See pages 4-7
Submittal Instructions	<p>Questions regarding this RFQ must be emailed to WFRC Procurement Agent, Ned Hacker (nhacker@wfr.org) no later than noon MST on Wednesday January 22, 2020. Answers to questions will be posted on the WFRC website, https://wfr.org/contact/request-for-proposals/ by noon on Friday January 24, 2020.</p> <p>Responses to this RFQ must be contained in a single PDF document submitted by email to the WFRC Procurement Agent, Ned Hacker (nhacker@wfr.org), no later than noon MST on Wednesday January 29, 2020.</p>

CONSULTANT RESPONSE FORMATTING

Cover

Content limited to image, project title, firm name, and logos.

1 page

Cover Letter

1 page

Project Team

Relevant experience of proposed project personnel.

Limit 3 pages.

Project Understanding, Approach and Schedule

Limit 2 pages.

EVALUATION and SELECTION PROCESS

Selection Process

The Selection Team will evaluate and score SOQs, submitted in response to this RFQ, based on the selection criteria listed below.

Selection Criteria

Project Team: weighted 70%

- Describe the qualifications and experience, including relevant project work, of key personnel on your proposed project team. A description of firm capabilities not linked to key personnel on your proposed project team will not be considered the same as demonstrated capability of the proposed project team in the submittal's scoring.
- Please provide a statement of the availability of the key staff on your proposed project team for the expected time period of this project. (Note: do not include percentages of availability, as this may be misinterpreted.)

Project Team Approach: weighted 30%

- Describe basic approach to working with the agency in accomplishing the scope found in this Request for Qualifications. Outline significant opportunities/constraints, key issues regarding the project, and basic course of action. Identify provisions for dealing with potential impacts, impediments, or conflicts.

DISQUALIFICATION

Late Submission

Any submittal received by the WFRC Project Manager after the deadline listed in this Request for Qualification Summary Information.

Non-electronic Submission

Submit electronically a PDF file containing all of the sections to the WFRC Project Manager. Paper submission is not allowed.

Use of WFRC staff and/or Project Selection Committee

Use of current or former WFRC, MAG, UDOT, or UTA staff involved within 6 months of project award announcement is grounds for disqualification.

Violation of Page Maximum

A page is defined as a single-sided 8.5" x 11" sized sheet that contains text, pictures, tables, graphs, charts, plan sheets, or any other graphics. A section separator page with less than 20 words will not be counted as part of a page limit. Do not include links to additional information as this will be considered a violation of the maximum page limit.

Other

WFRC reserves the right to disqualify a submittal when the intent of the Request for Qualification process is violated.

Submittals violating any of the above requirements will be considered non-responsive and will be disqualified by WFRC.

SUMMARY

WFRC reserves the right, without incurring any liability, to change any aspect of the proposed procurement described above, including the right to not proceed with the procurement and/or the right to proceed in a different manner or on a different timeline than as described herein.

SCOPE OF WORK

Introduction

In cooperation with its transportation partner agencies – Mountainland Association of Governments, Utah Department of Transportation, and Utah Transit Authority -- WFRC is seeking external consulting services to assist in an update to the Wasatch Front Travel Demand Model's mode choice model.

An independent review of the Wasatch Front mode choice model found the structure of the model to be in the realm of current state of the practice. However, recent calibration efforts showed the transit assignment validation, when compared to observed boardings, and the mode specific constants were not as close as desired. It was determined that to make improvements to the model, an update to mode choice model was warranted.

WFRC is seeking a more rigorous and thorough evaluation of the model's performance compared to existing data sources, such as from UTA's most recent transit on-board survey. In addition, WFRC is seeking to reframe the mode choice model to better answer questions related to emerging transportation modes, such as microtransit, micromobility (walk, bike, scooters, electric bikes and scooters, bike-share, etc.), transportation network companies (TNC), autonomous vehicles, etc., as well as to develop a mode choice model that is more sensitive to urban form. Finally, WFRC is seeking to simplify and improve the mode choice model structure in the accomplishment of the previously stated objectives.

Agency staff time and expertise are expected to significantly contribute to the project. Agency staff time will include activities such as model scripting, data development, project management, setting up and running the travel model, and setting up and reviewing model performance tests. Consultant effort will be expected to leverage agency staff contributions in accomplishing this scope of work. After selection, it is expected that agency staff and the selected consultant will work together to develop the work plan for the mode choice model update and would negotiate the agency and consultant roles in accomplishing the work plan tasks.

Scope of Work

A preliminary scope of work for the Wasatch Front mode choice model update is described below. The tasks identified in the scope represent WFRC's current thinking and does not necessarily represent an exhaustive list of the items needed to accomplish the mode choice model update. Additional items the consultant believes the agency ought to consider may be included in the approach section in the consultant's submittal.

TASK 1: Review of key input data and modeling steps pre-mode choice

Before estimating or calibrating the mode choice model, the travel model's preceding modeling steps and key data inputs will be reviewed for adequacy, including:

- Highway and transit network coding
- Home-based college student location model

- Life cycle, household disaggregation and auto ownership models (or a new auto sufficiency model)
- Trip generation model
- Distribution model (including intrazonal trips)

It is expected that agency staff will provide validation reports and the results of other tests to the project team for review. The consultant will be expected to evaluate the validation results and provide comments and insights into the adequacy of the models as well as recommend additional tests that may shed light on the models' performance and input data. Any corrections or updates to data or the pre-mode choice models is expected to be done by agency staff with guidance from the consultant.

TASK 2: Evaluate the existing travel markets by mode

An up-front analysis of existing transit markets utilizing UTA's most recent on-board surveys will be conducted. This analysis of the existing transit markets can proactively inform and shape the model development by identifying the key characteristics of transit travel the mode choice model must understand, such as:

- Identifying and quantifying key transit markets
- Identifying transit rider characteristics (e.g. auto ownership and/or income)
- Identifying non-traditional transit markets
- Quantifying the amount of transit sub-mode competition occurring on the existing system
- Quantifying the size of the bike-to-transit, kiss-n-ride, and park-n-ride markets
- Identifying and quantifying other markets, as observed through subsequent data tabulation and analysis

Ultimately this up-front work would establish the characteristics of current transit travel the model needs to grasp and focus the model development effort to ensure that the model succeeds at understanding these characteristics. This step also clarifies the validation tests that need to be performed to ensure the model grasps these markets in sufficient detail.

Similarly, the 2012 household travel survey or other data sources will be utilized to do an up-front analysis of the existing auto markets. The analysis will identify key characteristics to better understand auto markets, such as ride sharing (e.g. the formation of carpools from individual of multiple households vs. individuals of the same household) and the propensity to use toll facilities. Characteristics will be identified to help understand mode sensitivity to policies such as gas prices, congestion pricing, and other road usage charges.

The 2012 household travel survey and the 2012 bicycle survey, along with other data sources will be utilized to better understand non-motorized travel markets. This effort will incorporate recent efforts to understand the non-motorized/micromobility market, such as the [Active Transportation/Micromobility Toolset](#)¹ project (WFRC and partners, currently ongoing) and the

¹ <https://drive.google.com/file/d/12onJSSEcRHhzLInglCWnU078Dq7zpQps/view>

Key Enhancements to the [WFRC/MAG Conventional Travel Demand Model²](#) project (UDOT Research Division, Report No. UT-19.14, completed August 2019).

It is anticipated that the consultant will be primarily responsible for the market analyses with support and guidance from agency staff. Reports on key findings and results from these analyses will be the responsibility of the consultant.

TASK 3: Design mode choice model structure

It is anticipated that the consultant will work jointly with agency staff to develop a mode choice model architecture that incorporates the auto, transit and micromobility modes in a manner that provides the best opportunity to address current and future transportation planning needs. In the mode choice model development, the consultant and agency will review and consider the potential architecture design, including:

- Good/best mode choice modeling practice
- Data (availability, accuracy, sufficiency, etc.)
- Model maintenance burden
- Forecastability and sensitivity to urban form, policies, modes, etc.
- Incorporation into the travel modeling system
- Expected model runtime burden
- Usability and understandability of the new mode model
- Uncertainty/risk assumed by the proposed architecture

The design of the mode choice model structure will consider, but not be limited to, recent efforts to better understand the Wasatch Front mode choice model documented in the [Mode Choice Model Review and Recommendations³](#) report (RSG, February 2019).

It is anticipated that the consultant will be primarily responsible to generate ideas and concepts for the updated mode choice architecture with support and guidance from agency staff. The consultant will be responsible for documenting the proposed mode choice model architecture.

TASK 4: Develop and refine model data and scripts

Any refinements to the travel demand model to accommodate the updated mode choice model architecture is anticipated to be made by agency staff with support from the consultant. These refinements might include updates to the model's input data and files as well as any alteration to scripts and model output.

TASK 5: Estimate the updated mode choice model parameters

It is anticipated that the consultant will identify the variables needed for the new mode choice model in TASK 3. It is anticipated that the consultant will be responsible to estimate the mode choice model's parameters (coefficients and constants). It is anticipated that agency staff will work with the consultant and provide support to the mode choice model estimation, such as:

- Providing guidance

² <https://drive.google.com/a/wfrc.org/file/d/1M1XmEXkf90tQ91NCOzfi6mKaN3-yfzmA/view>

³ https://drive.google.com/a/wfrc.org/file/d/1MC2yPbYQpY5CjyWCR9sShWq_svlUtf0-/view

- Reviewing results
- Preparing data tabulations for checking
- Preparing model runs

The consultant will be responsible to document the mode choice model estimation results.

TASK 6: Calibrate and validate the updated mode choice model

Model validation, calibration and forecasting tests are essential parts of the model development process. The consultant will be primarily responsible for designing the calibration and validation tests to ensure the updated mode choice model responds in predictive and plausible ways and the base year calibration appears reasonable. Calibration and validation tests could include:

- Before-and-after tests
- Back-casting
- Tests to investigate the mode’s response to investment/policy changes, such as transit service changes, pricing scenarios, etc.

Agency staff will support this effort by sharing responsibility for:

- Guiding the design of the calibration and validation tests
- Preparing calibration and validation data sets
- Helping to prepare calibration and validation tools (e.g. spreadsheets or voyager scripts)
- Performing calibration and validation tests

The consultant will be responsible to document the calibration and validation test results.

TASK 7: Participate in a peer review of the mode choice model

After the mode choice model update is complete, agency staff will prepare a peer review to review work products of the completed model. The consultant will be invited to act as extended staff to WFRC and its transportation partners in presenting the model updates to the peer review panelists and to help respond to panelists’ questions. The agencies will be responsible for preparing the peer review meeting, presentation materials, and documentation.

SCHEDULE

WFRC anticipates a schedule of approximately 18 months from notice to proceed will be required to accomplish this scope of work. The actual schedule will be negotiated with the selected firm based on consultant and agency staff availability and any updates to the proposed scope of work.

BUDGET

WFRC and its partners have budgeted \$150,000 to procure the consultant services needed to support the accomplishment of the scope of work. Cost information should not be submitted as part of a response to this RFQ. Any cost or pricing information submitted with an SOQ response will be removed prior to the Section Team’s evaluation process.