



Association of Metropolitan Planning Organizations Research Foundation Request for Proposals for Consolidated Travel Model Software Platform Development and Enhancement

I. Introduction

The Association of Metropolitan Planning Organizations (AMPO) is a nonprofit, membership organization established in 1994 to serve the needs and interests of metropolitan planning organizations (MPOs) nationwide. Federal statutes require, as a condition for spending federal highway or transit funds in urbanized areas, the designation of MPOs. MPOs have responsibility for planning, programming and coordination of federal surface transportation investments. AMPO offers its member MPOs technical assistance and training, conferences and workshops, print and electronic communications, research, a forum for transportation policy development and coalition building, and a variety of other services. The nine-member AMPO Board of Directors is directly elected by the membership.

The Association of Metropolitan Planning Organizations Research Foundation (AMPORF), a federal 501(c)(3) organization, is the educational and research foundation of AMPO. AMPORF undertakes work that improves livability and quality of life in cities through metropolitan transportation planning. AMPORF is governed by the AMPO Board of Directors.

The San Diego Association of Governments (SANDAG) of San Diego, California, and the Metropolitan Transportation Commission (MTC) of Oakland, California, and the Atlanta Regional Commission (ARC) of Atlanta, Georgia (hereinafter collectively referred to as the “MPO Partners”) aspire to develop a common transportation modeling platform. A consolidated platform will reduce the overall costs of maintenance and development of innovative new model components associated with isolated model implementations. Each MPO Partner will benefit from enhancements championed by other MPO Partners, and a common platform should expand the modeling knowledge base. The MPO Partners will further benefit from bug fixes, model enhancements, and performance improvements identified and completed by their fellow colleagues.

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AMPO and the MPO Partners have committed to a governance structure and funding of a technical program to develop this common platform for the next three (3) years. Appendix 1 contains a Memorandum of Agreement (MOA) between AMPO and the MPO Partners. AMPORF, on behalf of AMPO and the MPO Partners, has issued this Request for Proposals to procure services to develop this common platform.

II. Overview of Work

SANDAG, MTC, and ARC plan to develop a common transportation modeling platform. Each MPO Partner currently uses, or is in the process of developing, a Coordinated Travel and Regional Activity Model Platform (CT-RAMP) Activity-Based Model (ABM). The consolidated modeling platform developed under this effort should combine the current CT-RAMP code branches developed for each MPO Partner into a consolidated trunk for use by each organization. Once consolidated, a MPO Partner steering committee will determine a development roadmap that best serves the common needs of the MPO Partners.

The core code base (defined by consultant and MPO Partners) at each participant MPO shall be identical once the consolidation is complete. The MPO Partners shall only be required to customize parameter and input files specific to their region. The consolidated code trunk shall provide a robust platform to calibrate the model for each region; no changes to compiled libraries shall be required to calibrate a model for a specified region.

Where code branches are necessary for a particular MPO Partner's implementation, the branches should only extend or implement core model functionality defined in the main trunk. At a minimum, any unique branch functionality shall be present as an unimplemented interface integrated into the main trunk. For example, if SANDAG requires a tolling module outside of the agreed roadmap, the consultant shall define tolling interface hooks in the main trunk and build the SANDAG specific module as a series of classes implementing the trunk interfaces.

Cloud Computing

The MPO Partners are interested in deploying future versions of the modeling software in a scalable cloud (or local computing grid) implementation. While a scalable foundation does exist in CT-RAMP through its implementation of the Java Parallel Processing Framework (JPPF), the MPO Partners believe usability and performance enhancements could be made to make the application completely compatible with virtual and distributed hardware platform implementation. Evaluating improvements necessary to ensure the modeling software is compatible and optimized for a virtual and distributed deployment will be a high priority under this scope of work.

Existing Implementation

CT-RAMP is programmed in Java (currently v1.6) and uses the Java Parallel Processing Framework (JPPF) for distributing computing. The code base is governed by the Apache Software Foundation

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License Version 2, and the MPO Partners intend to keep the code base under this licensing structure.

The MPO Partners are open to a comprehensive review of the Java implementation and an evaluation as to whether another software language would be more appropriate based on algorithm efficiency, maintenance, and existing skill sets.

The existing implementation can be found at <http://github.com/SANDAG/ABM>. The existing code base includes a Maven POM file for compiling the code into a working Java ARchive (JAR).

Miscellaneous Requirements

- The consolidated model software must support a variety of database platforms including SQL Server and PostgreSQL.
- The consolidated model software must be fully compatible with Caliper, Citilabs, and INRO transportation modeling software. The consolidated model software must be compatible with the current release and one prior release of the existing transportation modeling software described above.
- Open source technologies should be used whenever possible.
- Each MPO Partner will format data inputs in a common framework including database, schema, table, and field names.

MPO Partner Governance

The MPO Partners will define a road map of future enhancements as described below. The MPO Partners, with the guidance of the selected vendor, will develop a common work order tool to evaluate and prioritize bug fixes, performance improvements, and model enhancements in a coordinated manner. The work order tool will also be used to schedule software releases among the MPO Partners.

The MPO Partners will maintain a common code repository using GitHub or some other publically-accessible repository.

The future road map will be defined through unanimous consensus among the MPO Partners on an annual basis. The MPO Partners, in preparation of each fiscal year (July 1 – June 30), shall prepare and unanimously agree on the work plan for the following fiscal year in coordination with the selected vendor. The MPO Partners intend to provide a minimum funding level annually to support this initiative.

If an MPO Partner chooses to prioritize a development task ahead of the agreed upon roadmap, that MPO Partner is fully responsible for funding the task. The selected vendor along with the MPO Partners also must be assured that the additional tasks will not affect the development schedule of the consolidated, agreed upon annual work program. Further, the MPO Partner

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seeking the improvement must work with the vendor to ensure that any new components are completely integrated into the common code base and are accessible to other MPO Partners.

Potential Enhancements to CT-RAMP

The list below provides a general concept of future enhancements the MPO Partners would like to include in the model software development road map. The enhancements are not listed in any order of importance or potential likelihood of implementation, but are merely an illustrative example of the potential opportunities.

The MPO Partners assume code consolidation, testing, and implementation will take approximately two years, during which time little to no enhancements would be requested by the MPO Partners as a whole. Once the initial code consolidation is complete, the MPO Partners will prioritize these future enhancements.

- Dynamic Traffic Assignment and Activity Based Integration
- Spatial Disaggregation Enhancements
- Improved Sensitivity to Non-motorized Transportation Modes
- Expanded Toll and Revenue Estimating Techniques (specifically dynamically priced facilities)
- Fuel Type and Vehicle Type Add-on to Car Ownership Model
- Improved Freight Flow Coordination with PECAS
- Weekend Model
- Transit Pass Ownership
- FTA New Start Compliance Audit and Related Improvements

III. Schedule and Contract Value

The MPO Partners estimate two (2) years to consolidate the code base into one trunk and rework existing calibration components. Task 1 in Appendix 2 outlines the scope of work for the first two years. Work beyond the first two years is described in Tasks 2 and 3. The MPO Partners shall, subject to annual budget decisions at each agency, provide on-going annual maintenance support to the vendor for three (3) years to provide for technical support and the potential development of new common components as described above. The length of this contract is three (3) years.

The MPO Partners have budgeted seventy-five thousand dollars (\$75,000) for this initial effort. The MPO Partners intend to seek additional funding through each agency's annual or biannual budgeting process and add these additional funds each fiscal year.

AMPO and the MPO Partners expect the work to commence on or about December 2013. At AMPO and the MPO Partners' sole option, the contract may be extended for five (5) additional years for work related to building a consolidated travel model software platform.

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Total Value of Contract

Over the course of three years, the total value of this contract is anticipated to be up to \$300,000. The budget and authorized tasks will depend upon on-going funding from MPO Partners through each agency's annual or biannual budgeting process. The consortium of MPO Partners may also grow to include more MPOs. As MPO Partners are added, the consortium may adjust the scope of work or funding levels to adequately address new demands.

IV. Methodology for Responding to the RFP

Task Orders 1-3 are contained in Appendix 2. Prospective bidders should prepare a methodology and full cost estimate for completing all of the items in the Task Order 1 Scope of Work. Prospective bidders should propose the cost of adequately completing Task Order 1, irrespective of the \$75,000 currently allocated. The MPO Partners intend to add additional funds in subsequent fiscal years and these funds can be applied to Task Order 1, if needed. For Task Order 2 and Task Order 3, prospective bidders should prepare only a proposed methodology. A detailed cost estimate for Task Order 2 and Task Order 3 will be prepared after the completion of Task Order 1.

Proposal Structure

Respondents must follow the prescribed format or they shall be deemed nonresponsive. Adherence to the proposal format by all respondents will ensure a fair evaluation and one which can evaluate each response with regard to the needs of AMPORF. Proposals should be prepared as described below.

Cover:

The cover shall contain the name and location (city, state) of the primary submitting agency and the name and telephone number of the Principal Investigator (PI) bearing primary responsibility for the project.

Introductory Letter:

This letter shall contain the name and address of the primary submitting agency and any proposed subcontractors, as well as the name, address, telephone number, and email address of the PI. The letter must be signed by an officer authorized to bind the respondent contractually as required by this RFP. The letter shall indicate whether there are any conflicts of interest, actual or apparent, that would limit the proposer's ability to provide the requested services and describe the plan for mitigating such conflicts. The letter shall indicate that the proposal is a firm offer to enter into a contract to perform work related to this RFP for a period of one hundred twenty (120) days from the due date for proposals.

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Table of Contents:

List each chapter and appendix.

Chapter 1: Overview and Summary

This section should convey the proposer's understanding of the nature of the work and the general approach to be taken, and identify any specific considerations. It should include, but not limited to, the following:

- A discussion of the project's purpose;
- A summary of the approach; and
- Assumptions made in selecting the approach.

Chapter 1 should be no longer than three (3) pages.

Chapter 2: Qualifications of the Firms and Personnel

This section shall provide the professional credentials and experience of the firm and any subcontractors, and the key personnel of all firms proposed for this effort. The absence of such specific information shall be considered as nonresponsive. A maximum of ten (10) pages is allowed for Chapter 2. Standard personnel resumes shall be included in an appendix to the proposal, and do not count towards the 10-page requirement.

Amplification of personnel credentials specific to this RFP is required in this section. Information shall be provided showing:

- Experience and familiarity with travel demand modeling in MPOs;
- Experience and familiarity with the advanced modeling issues confronting the MPO community, including knowledge of the modeling process.

The research shall be performed under the technical direction of a PI identified in the proposal. It is expected that the PI will be available for the full contract period and will have major involvement in the pursuit of the research objectives.

As timely completion of this project is critical, the respondent shall stipulate its ability to meet the deadlines presented herein.

Chapter 3: Proposed Work Plan and Budget

Provide a proposed scope of work for each item in Task Order 1, including time estimates for completion of project components and an overall project timeline. Provide the names of key staff assigned to each task in the proposed scope of work.

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For each item, identify the estimated cost. Budgets shall include the salaries and wages of each employee participating in the task (with fully-loaded cost presented), materials and services, communications, shipping, travel, and any other expected costs. A maximum of fifteen (15) pages is allowed for Chapter 3. Detailed budget tables and related information can be included in an appendix to the proposal, and do not count towards the 15-page requirement.

The respondent shall also identify and explain in this chapter any problem areas and/or potential obstacles to successful completion of Task Order 1.

Chapter 4: References

The proposed Contractor and any Subcontractors shall provide a listing, as well as references, of similar work completed or in progress for other clients. Preferred references will be from work conducted within the last three years. References will include complete contact information (name, title, organization, address, email address, and telephone number). References should include work in which key personnel proposed to AMPORF for this program have served. A maximum of five (5) pages is allowed for Chapter 4.

Appendices: As Needed

V. Disadvantaged Business Enterprise Participation

It is the policy of each of the MPO Partners that Disadvantaged Business Enterprises (DBEs), as defined in Chapter 49, Part 26 of the Code of Federal Regulations, have the maximum opportunity to participate, either as contractors or as subcontractors, in the performance of contracts to the extent practical and consistent with the efficient performance of the contract. Among the MPO Partners, ARC currently has the highest DBE goal, 15.1%. Accordingly, AMPORF is adopting ARC's DBE requirements and goal for this contract.

Appendix 3 contains ARC's Title VI and DBE Requirements for Prime Contractors and Sub-grant Recipients. Appendix 3 also contains a DBE Utilization Plan form. This form must be completed for each DBE firm participating in this proposal.

Additional information regarding ARC's DBE Program can be found at <http://www.atlantaregional.com/about-us/business-opportunities>.

AMPORF will accept a DBE certification from an entity that receives US Department of Transportation funds if the certification specifies compliance under the Code of Federal Regulations Title 49, Section 26.

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VI. Method of Proposal Evaluation and Selection

The MPO Partners and AMPORF project manager will evaluate proposals. The MPO Partners may hold, at AMPORF's option, a pre-selection meeting with the top ranked respondents. The final recommendation for selection may be made based upon interviews and/or a best and final offer submitted by the respondents, if required by the MPO Partners. AMPORF reserves the right not to convene oral interviews or discussions, and to make the award on the basis of initial proposals. Accordingly, each initial proposal should be submitted on the most favorable terms from a price and technical standpoint.

In evaluating the proposals, the following factors will be considered, with points awarded up to the maximum shown:

FACTOR	POINTS
1. Qualifications of firm and key personnel.	40
2. Written communication skills based on proposal.	20
3. Approach to completing the project, including but not limited to: understanding of the needs, requirements, and timeline; proposed approach to tasks, ability to anticipate and respond to potential challenges, strategy for managing resources, and approach to quality control and quality assurances.	30
4. Cost effectiveness, including hourly rates, basis for escalation over term of contracts, reasonableness, and appropriateness of preliminary task budget.	10
Maximum Total Points	100

This RFP does not commit AMPORF to award a contract or to pay any costs incurred in the preparation of a proposal in response to the RFP. AMPORF reserves the right to accept or reject all proposals submitted, waive minor irregularities, request additional information, and negotiate with any or all proposers.

VII. Notification and Additional Information

AMPORF requests that prospective proposers provide notification of their intention to propose. Please send notification to the AMPORF Project Manager, Rich Denbow, at rdenbow@ampo.org, on or before 5:00 PM EDT 10/16/2013.

If there is sufficient interest from prospective proposers in holding a pre-briefing conference call, AMPORF will do so on the afternoon of 10/02/2013. Proposers may notify Rich Denbow at rdenbow@ampo.org by 5:00 pm EDT on 9/30/2013 if they are interested in such a call. Teleconference information will be provided to all firms and individuals who have provided notification of their intent to bid.

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Questions

All questions and contact regarding the RFP must be directed to the AMPORF project manager, Rich Denbow, and not to the MPO Partners. Questions may be sent to rdenbow@ampo.org until seven calendar days prior to the proposal due date. All questions received, and responses by AMPORF, will be posted weekly at <http://www.ampo.org/amporf-rfp-2013>.

Submission Date and Contact

Project proposals must be received no later than 5:00 pm EDT on 10/31/2013.

This deadline for receiving proposals is rigid, and extensions will not be granted. In order to be considered, proposals must be received not later than the deadline shown. Without exception, all proposals arriving after the deadline shown on the project statement will be rejected. Proposers may withdraw their proposals at any time.

Proposals must be sent via email to Rich Denbow at rdenbow@ampo.org. Confirmation of receipt will be provided.

Appendix 1 – Memorandum of Agreement

**MEMORANDUM OF AGREEMENT
COOPERATIVE TRAVEL MODEL SOFTWARE DEVELOPMENT
SANDAG AGREEMENT 5004156**

This Memorandum of Agreement (“MOA”) is made and entered into this 1st day of June 2013, by and between the Atlanta Regional Commission (ARC) of Atlanta, Georgia, and the San Diego Association of Governments (SANDAG) of San Diego, California, and the Metropolitan Transportation Commission (MTC) of Oakland, California (hereinafter collectively referred to as the “MPO Partners”) and the Association of Metropolitan Planning Organizations of Washington, DC (hereinafter referred to as “AMPO”).

RECITALS

WHEREAS, the MPO Partners are responsible for providing travel modeling services for their respective metropolitan areas; and,

WHEREAS, the MPO Partners desire to use a common travel model software platform for the implementation of their travel models; and

WHEREAS, the MPO Partners do not have the expertise and resources necessary to efficiently develop, maintain, and improve travel model software; and

WHEREAS, the MPO Partners believe it is cost effective and efficient to share costs to obtain the technical services needed for a project to develop, maintain, and improve travel model software (“Model Software Project”); and

WHEREAS, AMPO has the experience and ability to procure services for and manage a technical program on behalf of the MPO Partners, and in particular, the Model Software Project; and

WHEREAS, by entering into this MOA, the MPO Partners and AMPO intend to describe their respective responsibilities and establish a joint cooperative structure for their participation in the Model Software Project;

NOW, THEREFORE, the parties hereto agree as follows:

1. Coordination and Direction of the Model Software Project
 - a. The MPO Partners shall have the authority to direct all work performed under this MOA, including but not limited to, determining the services necessary to perform the Model Software Project, the process for procuring services related to the Model Software Project, the scope(s) of work related to the Model Software Project, the budget for the Model Software Project, the sufficiency of deliverables related to the Model Software Project, and the term of contracts entered into for purposes related to the Model Software Project.

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- b. AMPO shall have the authority to procure services and enter into and administer contracts related to the Project on behalf and at the direction of the MPO Partners.
- c. The MPO Partners shall attempt to reach a consensus on all decisions; when unanimity cannot be reached, a vote will be taken of all members and a simple majority of members will carry; and the MPO Partners shall reach agreement on the procedures for such a vote.

2. Duties of MPO Partners

- a. Subject to the availability of funding and approval of their respective boards, the MPO Partners agree to provide funding for their respective shares of costs related to the Model Software Project in a timely manner.
- b. The MPO Partners agree to attend all meetings related to the Model Software Project, via conference call, after reasonable prior notice.
- c. The MPO Partners agree to provide direction to AMPO in good faith and cooperation to achieve the objectives of this MOA.

3. Duties of AMPO

- a. AMPO agrees to procure at the direction of the MPO Partners and contract with consultants selected by the MPO Partners to collect deliverables as generally described in Attachment 1 - Deliverables.
- b. AMPO agrees to establish a 15.1 percent Disadvantaged Business Enterprise (DBE) goal for this procurement.
- c. AMPO agrees to monitor the progress of consultant work and provide information on such progress to the MPO Partners.
- d. AMPO agrees to call, schedule, and chair meetings, including those deemed necessary by the MPO Partners, and provide meeting notices and working agendas.
- e. AMPO agrees to coordinate and communicate with consultants and MPO Partners.
- f. AMPO agrees to receive invoices from consultants and process appropriate payments in a timely manner.
- g. AMPO agrees to maintain billing accounts and financial records during and for three years after the completion of this MOA and to produce same to the MPO Partners upon request.
- h. AMPO agrees to abide by all federal contracting standards related to the use of money and resources from the United States Federal Government.

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- i. AMPO will provide a draft Request for Proposals to the MPO Partners for review and approval prior to issuance.
- j. AMPO will provide a complete draft consultant contract to the MPO Partners for review and approval prior to execution.

4. Cost Share by the MPO Partners

- a. Subject to annual budget decisions and the approval of their respective governing bodies, each of the MPO Partners intends to provide \$27,500 (twenty-seven thousand five hundred dollars) in Year 1, \$35,000 (thirty-five thousand dollars) in Year 2, and \$35,000 (thirty-five thousand dollars) in Year 3.
- b. The parties intend that AMPO shall receive compensation for its duties as generally described herein with respect to the Model Software Project and in an amount that will be determined, which will not exceed 10 percent (10%) of the funding amount of total project costs. AMPO compensation shall be apportioned from the funding described in 4a.
- c. The parties intend for AMPO to invoice each MPO once annually for the funding described in 4a. The MPO Partners will review and advise AMPO on contracted deliverables for approval of payments throughout the life of the project. AMPO shall submit the first invoice upon execution of this MOA. AMPO will invoice each of the MPO Partners annually on January 1, 2014 and January 1, 2015, for the second and third year's funding. AMPO will not enter into a contract with a selected vendor until payment is received from each partner.
- d. The MPO Partners agree that the cost of all work related to the Model Software Project shall be shared equally.
- e. The MPO Partners agree that AMPO shall not be responsible for fronting funds for billings of consultants retained for the Model Software Project.

5. General Provisions

- a. All obligations of the parties hereto under this MOA are subject to the appropriation of resources by their respective governing bodies.
- b. Nothing in this MOA shall be construed as empowering any party hereto to exercise any function properly residing with any other party hereto.
- c. To the extent allowed by law, each party shall indemnify, defend, and hold harmless the other parties and their officers, officials, governing board members, employees and agents from and against any and all liability, loss, damage, expense, cost, including without limitation, cost and fees of litigation (including reasonable attorneys' fees), of every nature to the extent such liability, loss, damage, expense, or costs arise out of, or are in any way connected to, any actions of indemnifying party's officers, agents, contractors, and employees related to this Agreement, except for the sole negligence or willful misconduct of the party seeking indemnification. This indemnity shall survive the termination of this Agreement.

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6. Term

- a. This MOA shall become effective as of the date first written above and shall continue in full force and effect until December 31, 2015. Each of the MPO Partners acknowledges that AMPO's performance hereunder is expressly conditioned upon the continued cooperation of all MPO Partners.
- b. This MOA may be terminated by any party at any time by providing written notice to all other parties upon thirty (30) days written notice to all other parties hereto.
- c. All notices or other communications to the MPO Partners and AMPO shall be deemed given when made in writing and delivered, mailed, emailed or faxed to such party at their respective addresses as follows:

To MTC: Attention: David Ory
Metropolitan Transportation Commission
101 Eighth Street
Oakland, CA 94607-4700
E-mail: DOry@mtc.ca.gov
Phone: 510-817-5755

To SANDAG: Attention: Clint Daniels
San Diego Association of Governments
401 B Street, Suite 800
San Diego, CA 92101
E-mail: Clint.Daniels@sandag.org
Phone: 619-699-6946

To ARC: Attention: Guy Rousseau
Atlanta Regional Commission
40 Courtland Street, NE
Atlanta, GA 30303-2538
E-mail: GRousseau@atlantaregional.com
Phone: 404-463-3274

To AMPO: Rich Denbow
Association of Metropolitan Planning Organizations
444 North Capitol Street, NW, Suite 345
Washington, DC 20001
E-mail: RDenbow@ampo.org
Phone: 202-624-3680

In witness whereof, the parties have hereto executed this MOA as of the date first above written.

Association of Metropolitan Planning Metropolitan Transportation Commission Organizations

BY: _____	BY: _____
NAME: <u>DeLania Hardy</u>	NAME: <u>Steve Heminger</u>
TITLE: <u>Executive Director</u>	TITLE: <u>Executive Director</u>

San Diego Association of Governments

Atlanta Regional Commission

BY: _____	BY: _____
NAME: <u>Gary Gallegos</u>	NAME: <u>Douglas R. Hooker</u>
TITLE: <u>Executive Director</u>	TITLE: <u>Executive Director</u>

**ATTACHMENT 1
DELIVERABLES
FOR
CONSOLIDATED CT-RAMP DEVELOPMENT AND ENHANCEMENT**

- Memo outlining the common and unique components of each Coordinated Travel – Regional Activity-Based Modeling Platform (CT-RAMP) implementation.
- Unified Modeling Language Diagrams including Object Diagrams, Activity Diagrams, and Use Cases necessary to convey the new software architecture and engineering design.
- Recommendations to partner MPOs for data or business process enhancements necessary to consolidate CT-RAMP implementations.
- Recommend and implement a testing framework and continuous integration platform for the new software.
- Project backlog identifying all tasks necessary to develop a consolidated CT-RAMP software package.
- Framework for releasing new version of CT-RAMP compatible with the model system integration needs of each partner MPO.
- Fully functional integrated CT-RAMP implementation that meets the goals and objectives laid out by the partner MPOs.
- Complete Application Programming Interface documentation of integrated CT-RAMP implementation.
- Integrated CT-RAMP End User Guide

Appendix 2 – Task Orders

Task Order 1 Scope of Work

a. Review the Existing CT-RAMP Implementations at Each MPO Partner

Review the current and, where necessary, in-progress CT-RAMP implementation at each MPO Partner and identify common and unique components. This task's primary purpose is to allow the consultant to familiarize themselves with the existing code structure.

Deliverable:

- Memorandum outlining the common and unique components of each CT-RAMP implementation.

b. Develop Software Architectural Framework of a Consolidated Travel Model Platform

After reviewing the existing and in-progress CT-RAMP implementations, the consultant shall devise a detailed plan outlining the proposed structure for an integrated implementation. The detailed plan shall include recommendations to the MPO Partners for business process improvements (e.g., revised data schemas, common land use inputs, etc.) necessary for successful integration.

The State of Ohio is embarking on an integrated CT-RAMP implementation. AMPO and the MPO Partners expect the selected consultant to work with the State of Ohio to move towards a single software structure, if advantageous to the MPO Partners.

Deliverables:

- UML Diagrams including Object Diagrams, Activity Diagrams, and Use Cases necessary to convey the software architecture and engineering design.
- Recommendations to MPO Partners for data or business process enhancements necessary to consolidate CT-RAMP implementations.

c. Define a Comprehensive Software Testing Framework and Continuous Integration Platform

Quick and efficient bug detection is critical to the success of this project. SANDAG has established a comprehensive testing framework and continuous integration server. The consultant shall analyze the existing SANDAG framework and recommend a comprehensive testing plan for bug detection and software reliability.

Deliverables:

- Presentation recommending a testing framework.
- Implemented test driven development framework.

d. Develop a Project Backlog for Agile Development

The software development will be conducted in sprints using Agile development methods. In order to effectively manage the sprints, the consultant shall develop a comprehensive project backlog of development tasks. This backlog will serve as the foundation for choosing

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tasks to be completed in each sprint. The project backlog and sprint planning shall be housed in the SANDAG JIRA Issue Tracker with Greenhopper plug-in.

Deliverable:

- Project backlog identifying all tasks necessary to develop a consolidated CT-RAMP software package.

e. *Establish Release Plan / Management Framework and Application Version Management*

Due to the number of participants involved in this project, a definitive release plan needs to be established to have defined integration points with other modeling software used at each MPO Partner. Testing the software at the end of every iteration for compatibility with other modeling tools like PECAS and UrbanSim could consume the entire development cycle. The release plan framework will define a structured application release schedule and version management defining testing points with other modeling software. Ideally, major releases will occur once or twice a year at defined points.

Deliverable:

- Framework for releasing new software version compatible with the model system integration needs of each MPO Partner.

Task Order 2 Scope of Work

f. *Engineer a Common Code Base for the Partner MPOs*

Based on the previous steps, the consultants shall develop an integrated implementation that can be used by each MPO Partner based on the goals and objectives described above. The consultant shall use agile and test-driven development techniques to develop the integrated software. Test-driven development requires extensive use of unit tests (usually written before the implementation code). The MPO Partners recommend two-week sprints, but final scheduling will be determined in coordination with the consultant. Each sprint shall result in working software that can be used by each MPO Partners with minimal hassle.

Deliverable:

- Fully functional integrated model implementation that meets the goals and objectives laid out in this RFP.

g. *Provide API Documentation*

The consultant shall maintain API documentation on an on-going basis throughout the project. The consultant shall use the standard documenting framework used by the chosen implementation technology (e.g., Java=JavaDoc, Python=pydoc, etc.)

Deliverable:

- Complete API documentation of integrated implementation.

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h. User Guide

The consultant shall provide an online user guide outlining model configuration, model setup, data access, and general usage.

Deliverable:

- User Guide.

Task Order 3: On-going Maintenance and Support

The consultant shall provide a rate schedule for three years from the start of the contract that will cover on-going maintenance needs of the consolidated implementation. The MPO Partners may also use this rate schedule to task model enhancements described above.

Appendix 3 – Disadvantaged Business Enterprise Participation

Atlanta Regional Commission Title VI and DBE Requirements For Prime Contractors and Sub-grant Recipients

TITLE VI

ARC, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000D to 2000D4, and Title 49, Code of Federal Regulations, Department of Transportation Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally assisted programs of the Department of Transportation, issued pursuant to such Act, hereby notifies all Respondents that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises shall be afforded full opportunity to submit proposals in response to this invitation and shall not be discriminated against on the grounds of race, color, sex, handicap, or national origin in consideration for an award.

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION

Overall DBE Goal: As part of its DBE Plan, ARC has an established overall goal of 15.1 percent.

Program Intent. ARC has established a Disadvantaged Business Enterprise (DBE) program in accordance with regulations of the U.S. Department of Transportation (DOT), 49 CFR Part 26 ("Part 26" or "DBE Regulations"). ARC has received federal financial assistance from the Department of Transportation for this contract opportunity, and as a condition of receiving this assistance, ARC has signed an assurance that it will comply with Part 26.

It is the policy of ARC to ensure that DBEs, as defined in Part 26, have an equal opportunity to participate in its DOT-assisted contracting opportunities. It is also ARC's policy:

- (a) To ensure nondiscrimination in the award and administration of DOT-assisted contracts in the Department's highway, transit, and airport financial assistance programs;
- (b) To create a level playing field on which DBEs can compete fairly for DOT-assisted contracts;
- (c) To ensure that the Department's DBE program is narrowly tailored in accordance with applicable law;
- (d) To ensure that only firms that fully meet this part's eligibility standards are permitted to participate as DBEs;
- (e) To help remove barriers to the participation of DBEs in DOT-assisted contracts; and

Appendix 3

(f) To assist the development of firms that can compete successfully in the marketplace outside the DBE program.

Definitions. Disadvantaged Business Enterprise (DBE) as used in this Contract shall have the same meaning as defined in 49 CFR Part 26. A DBE is a firm in which one or more individuals who are women or eligible minorities own and control at least 51% of the firm.

Compliance. All Bidders/Proposers, potential contractors, or subcontractors for this Contract are hereby notified that failure to carry out the policy and the DBE obligations, as set forth above, shall constitute a breach of Contract which may result in termination of the Contract or such other remedy as deemed appropriate by ARC.

Prompt Payment Requirement. In the event of contract award, the prime contractor agrees to pay each subcontractor under the prime contract for satisfactory performance of its contract no later than 30 days from the receipt of each payment the prime contract receives from ARC. The prime contractor agrees further to return retainage payments to each subcontractor within 10 days after the subcontractors work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of ARC. This clause applies to both DBE and non-DBE subcontracts.

Any contractor found not to be in compliance with this clause will be considered in breach of contract and any further payments will be withheld until corrective action is taken. If contractor does not take corrective action, contractor may be subject to contract termination.

Substitution. The Bidder shall make a good faith effort to replace a DBE Subcontractor that is unable to perform successfully with another DBE Subcontractor. Substitution must be coordinated and approved by ARC.

Documentation. The Bidder/Proposer shall establish and maintain records and submit regular reports, as required, which will identify and assess progress in achieving DBE subcontract levels and other DBE affirmative action efforts.

Additional information on ARC's Disadvantaged Business Enterprise Program can be obtained from Christopher Burke, Contract & Grants Officer, Financial Services Division, Atlanta Regional Commission, 40 Courtland Street, Atlanta, GA 30303, 404-463-3162, cburke@atlantaregional.com.

Appendix 3

DBE UTILIZATION PLAN (Complete this form for each DBE firm participating in this proposal. *If no DBE firms are participating or the overall goal is not met, please attach evidence of good faith efforts to meet the goal.*)

Name of bidder/offeror's firm: _____

Address: _____

City: _____ State: _____ Zip: _____

Name of DBE firm: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____

Description of work to be performed by DBE firm:

The bidder/offeror is committed to utilizing the above-named DBE firm for the work described above. The estimated dollar value of this work is \$_____.

Affirmation

The above-named DBE firm affirms that it will perform the portion of the contract for the estimated dollar value as stated above.

By _____
(Signature)

(Title)

If the bidder/offeror does not receive award of the prime contract, any and all representations in this DBE Utilization Plan shall be null and void.