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Implementation Assistance Application for Advanced Travel Analysis Tools for Integrated Travel Demand Modeling (C10/C04/C05/C16)

Read the Product Page

Background

The SHRP2 Capacity *Advanced Travel Analysis Tools* provide approaches for developing integrated travel analysis models that include traveler decision inputs to better align the outcomes with real-world conditions. Transportation models that have been used for the past 50 years deal with average conditions and treat travel as a series of sequential decisions. As such, they have difficulty addressing a number of areas including the following:

- Feedback between supply, demand and land use.
- Variable road pricing, ramp metering, reversible lanes, variable speed limits, and other dynamic transportation management strategies.
- Policies affecting travel scheduling such as parking pricing, transit pricing and flexible work schedules, reversible lanes, HOV lanes, and HOT lanes.
- Trip chains and joint trip making within a household.

The products in this bundle are designed to improve the state of practice in travel supply and demand modeling. The Partnership to Develop an Integrated, Advanced Travel Demand Model and a Fine-Grained, Time-Sensitive Network (C10) introduces an integrated dynamic travel model methodology for linking advanced activity-based demand models (ABM) with fine-grained time sensitive networks using dynamic traffic and transit assignment (DTA). Improving our Understanding of How Highway Congestion and Price Affect Travel Demand (C04) is a set of mathematical descriptions of highway user responses to congestion, travel time reliability, and pricing. It can be used to make existing planning models more sensitive to these aspects of transportation. Understanding the Contribution of Operations, Technology and Design to Meeting Highway Capacity Needs (C05) provides analytical link, corridor and network tools to assess the impacts of operational improvement strategies on highway capacity. The C16 policy assessment tool (Effect of Smart Growth Policies on Travel Demand) is a stand-alone desktop program that can quickly assess the impacts of integrated transportation and land-development scenarios on systems-level usage and operational conditions.

An Implementation Planning Workshop was held in February, 2014. Participants collaboratively identified goals for the implementation of *Advanced Travel Analysis Tools*. The implementation goals reflect IPW participants' vision for success at the organizational, procedural, and project levels over the course of three to five years:

- State DOTs, MPOs, and other public transportation agencies use advanced travel analysis models to help inform many levels of agency decision-making.
- Agencies can make effective use of modeling systems at lower cost, due to improved usability.

- Use of advanced travel analysis models is more widespread among agencies.
- Advanced travel analysis models are developed for the "long run," with agencies taking ownership.
- Modeling staff have an increased knowledge of advanced travel analysis models, including how to calibrate, validate, and run the models.

Applications that describe a technical approach that responds to these goal areas will receive stronger consideration for funding. In evaluating applications, FHWA and AASHTO will also consider:

- Whether the proposal makes appropriate use of the applicable SHRP2 products and methods.
- Whether the agency can complete the proposed work with available resources.
- The level of agency commitment to the use of advanced travel analysis methods.
- The extent to which the proposed work will broaden the user community for advanced travel modeling.

Leadership Endorsement

Each application submitted from an organization or agency must have the endorsement of the Chief Executive Officer or designee. The letter of endorsement is submitted **as an attachment to the application**. Guidance for creating an endorsement letter appears in the application below.

Priority Ranking

When multiple applications are submitted from an organization or agency, each application must have a designated priority ranking. Please rank all applications in one grouping including all product submissions from your agency. For purposes of ranking do not separate your organization's applications into categories for individual products, or levels of incentives such as Lead Adopter or User Incentive.

For example, if your agency submits four applications; two applications for R06C, one for C03/C11, and one for R10, your agency must rank each application in priority order from 1 to 4, with 1 as the highest priority and 4 as the lowest priority. For your convenience, you will find a box later in this application to designate the priority ranking. FHWA and AASHTO will take into consideration the agency's rankings when reviewing and evaluating the applications for implementation assistance. Your priority ranking should be expressed as "X of Y," as in "1 of 4."

Available Implementation Assistance

Proof of Concept Pilots for a Partnership to Develop an Integrated, Advanced Travel Demand Model and a Fine-Grained, Time-Sensitive Network (C10)

Type of Assistance: Proof of Concept pilots to demonstrate the integration of activity-based demand models with a dynamic supply model, such as DTA.

Objectives:
- Demonstrate ABM / DTA integration, using dynamic traffic assignment for a large area and time-dependent routing to address a problem that is difficult to address with static methods.
- Document how use of advanced tools can fit into the planning process.
- Advance the state of practice, as evidenced by

  1. Integration of methods from C04 or C05, or
  2. Application to a problem that cannot be addressed via static methods, or
  3. Delivered product addresses outstanding issues with C10: run time, convergence, calibration, validation, or
  4. Use of tools, such as data hubs, to improve model integration.

Number of Awards: 3-4

Funding Level: Up to $700,000, with period of performance of 24 months

Lead Adopter Incentives for Improving our Understanding of How Highway Congestion and Price Affect Travel Demand (C04), and Understanding the Contribution of Operations, Technology, and Design to Meeting Highway Capacity Needs (C05)

Type of Assistance: Lead Adopter Incentive to demonstrate the integration of the concepts from C04 or C05 into an existing dynamic modeling framework

Objectives:
- Demonstrate integration of the concepts from C04 or C05 into an existing dynamic modeling framework.
- Leverage new data sources that provide information on travel time reliability (SHRP2 Reliability Projects).

Number of Awards: Up to 2 awards total

Funding Level: Up to $150,000, with period of performance of 18 months

User Incentives for the Effect of Smart Growth Policies on Travel Demand (C16)

Type of Assistance: User Incentives to demonstrate specific applications of the C16 planning and policy assessment tool.

Objectives:
- Demonstrate tool effectiveness across a variety of application examples, including land use, impacts on underserved populations, climate change, pricing, safety, public health (non-motorized trip making) and transit.
- Demonstrate tool effectiveness for evaluating planning scenarios across a variety of application areas, as described above.
- Document how outputs correlate with local studies and travel demand models.
- Document how results were used to inform the agency's decision-making process.
- Verify the reasonableness and usability of performance metrics with other source of independent estimates, such as a travel demand model or observed data.
- Validate model results using retrospective studies with before and after data.
- Develop procedures for translating national and local data sources for customizing model inputs.

Number of Awards: 5-7

Funding Level: Up to $50,000, with period of performance of 12 months

Who can apply

Applications will be accepted from State departments of transportation (DOTs) and metropolitan planning organizations (MPOs).

Requirements

1. Application of at least one of the products to a significant problem that calls for the use of advanced modeling methods.
2. Commitment to publish data and methodology, in enough detail to enable reproduction of the results.
3. Commitment of State DOT and/or MPO leadership to test, and (if the test is successful) to adopt these methods.
4. Participation in product evaluation activities including a qualitative, organizational, and/or before/after assessment conducted by an independent consultant for FHWA.
5. Willingness to share knowledge with other organizations interested in implementing advanced travel analysis tools.
6. Willingness to participate in regional or national knowledge-sharing events to promote the product.

Application Form

Follow these steps to apply for implementation assistance:

1. Review all background information
2. Download the form you wish to submit with this application:
    - Proof of Concept Pilots for a Partnership to Develop an Integrated, Advanced Travel Demand Model and a Fine-Grained, Time-Sensitive Network (C10)
    - Improving our Understanding of How Highway Congestion and Price Affect Travel Demand (C04)
    - Lead Adopter Incentive for Understanding the Contribution of Operations, Technology, and Design to Meeting Highway Capacity Needs (C05)
    - User Incentives for the Effect of Smart Growth Policies on Travel Demand (C16)
3. Please submit separate applications if applying for assistance for multiple products within this bundle.
4. Iterate, revise, and secure approvals before uploading the final application and Leadership Endorsement Letter to this site.
5. Once you have completed the form and secured the required Leadership Endorsement Letter, return to this page and complete the contact information fields below
6. Upload the completed application form and Leadership Endorsement Letter
7. Click submit; you will receive an email confirmation that includes the uploaded endorsement letter and application form, be sure to only hit the submit button one time

SHRP2 Implementation Assistance Program
Round 4 Application Form - *Application period closes June 27, 2014*.

Advanced Travel Analysis Tools for Integrated Travel Demand Modeling Bundle Partnership to Develop an Integrated, Advanced Travel Demand Model and a Fine-Grained, Time-Sensitive Network (C10)

FHWA Product Lead Name: Brian Gardner, Brian.Gardner@dot.gov, 202-366-4061

This SHRP2 Solution is part of Round 4 of the Implementation Assistance Program. For more information about this product or about applying for implementation assistance, visit the Implementation Assistance Program page (http://www.fhwa.dot.gov/GoSHRP2/ImplementationAssistance) or this product's application page (where this form originated) on the GoSHRP2 website.

Point of Contact:

The SHRP2 Implementation Assistance Program is designed to foster peer learning, and as a result, applicants are encouraged to share their experience implementing SHRP2 products with others. By submitting this application, your organization grants permission to FHWA to publish and distribute the name and business email address of a **staff member from the applying organization** who is familiar with the project. Please provide:

POC Name: Provide your response here.

POC Business Email Address: Provide your response here.

Questions:

1. Describe your organization's interest in and goals for adopting these products and methods. (What do you hope to gain? How do you define success?)

   Provide your response here.

2. What specific question (local issue of interest) do you plan to address with this tool?

   Provide your response here.

3. Describe your approach to using the product or products:
   a. What ABM or dynamic network modeling tools will be used?
   b. How will time-dependent highway or transit routing be considered?
   c. To what extent will dynamic network modeling tools be used in a large area?

   Provide your response here.

4. Describe the data that you will need for this implementation, and where it will come from.

Provide your response here.

5. What is your agency's past experience with activity-based modeling, dynamic traffic assignment and traffic simulation?

   Provide your response here.

6. What partnerships, if any, are planned with other agencies, and what expertise will they bring?

   Provide your response here.

7. Briefly describe your work plan (tasks, deliverables and approximate dates, no more than 1 page total) for your use of the implementation assistance. What is your expected level of agency staff, consultant and university involvement?

   Provide your response here.

8. To what extent will you be attempting to advance the state-of-practice, for example
   a. Integration of methods from C04 or C05
   b. Integration of methods from other SHRP2 capacity and reliability products
   c. Innovative use of new data sources, such as data hubs and data from ITS

   Provide your response here.

9. Describe challenges / risks you expect to encounter in implementation, and how you plan to address them.

   Provide your response here.

10. What cost / labor match, if any, is being provided?

    Provide your response here.

11. What is your plan for adopting the advanced tools in this bundle on a sustainable basis, post SHRP2?

    Provide your response here.

12. What actions will you be taking to broaden the user community of those using advanced methods?
    a. Is another agency that is interested in eventually using advanced modeling methods able to closely follow your efforts?
    b. To what extent are you planning outreach, for example, at regional professional meetings?

    Provide your response here.

13. Will you have technical reviewer(s) who are outside the immediate project team?

Provide your response here.

Selection Criteria:

    a. Choose an option:

    b. Extra credit will be given for:
- Multi-agency collaboration (e.g., an MPO partnered with a State or local agency with a specific issue or need for the tool).
- For applications that also make effective use of the concepts in the SHRP2 Reliability Data and Analysis Tools Bundle.

As a reminder:

1. Review all background information located on this product's application page.
2. Once you have completed this form and secured the required Leadership Endorsement Letter, return to application page and complete the contact information fields.
3. Upload this form and the Leadership Endorsement Letter to the page. **Be sure you are attaching the form to the correct application page.**
4. Click "Submit;" you will receive an email confirmation that includes the uploaded endorsement letter and application form.
5. Application period will close June 27, 2014.

For more information or to find this product's application page, visit the Implementation Assistance Program page (http://www.fhwa.dot.gov/GoSHRP2/ImplementationAssistance) on the GoSHRP2 website.

SHRP2 Implementation Assistance Program
Round 4 Application Form - *Application period closes June 27, 2014.*

Advanced Travel Analysis Tools for Integrated Travel Demand Modeling Bundle Improving Our Understanding of How Highway Congestion and Price Affect Travel Demand (C04)

FHWA Product Lead Name: Brian Gardner, Brian.Gardner@dot.gov, 202-366-4061

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POC Name: Provide your response here.

POC Business Email Address: Provide your response here.

Questions:

1. Describe your organization's interest in and goals for adopting these products and methods. (What do you hope to gain? How do you define success?)

   Provide your response here.

2. What specific question (local issue of interest) do you plan to address with this tool?

   Provide your response here.

3. Describe your approach to using the product or products.
   a. What existing dynamic transportation modeling tools will be used?

   Provide your response here.

4. Describe the data that you will need for this implementation, and where it will come from.

Provide your response here.

5. What is your agency's past experience with analysis of congestion, reliability, and pricing?

   Provide your response here.

6. What partnerships, if any, are planned with other agencies, and what expertise will they bring?

   Provide your response here.

7. Briefly describe your work plan (tasks, deliverables, and approximate dates, no more than 1 page total) for your use of the implementation assistance. What is your expected level of agency staff, consultant and university involvement?

   Provide your response here.

8. To what extent, if any, will methods from other SHRP2 Capacity and Reliability products be integrated into this work plan?

   Provide your response here.

9. Describe challenges / risks you expect to encounter in implementation, and how you plan to address them.

   Provide your response here.

10. What cost / labor match, if any, is being provided?

    Provide your response here.

11. What is your plan for adopting the advanced tools in this bundle on a sustainable basis, post SHRP2?

    Provide your response here.

12. What actions will you be taking to broaden the community of those using advanced methods?
    a. Is another agency that is interested in eventually using advanced modeling methods able to closely follow your efforts?
    b. To what extent are you planning outreach, for example, at regional professional meetings?
    c. Will you have technical reviewer(s) who are outside the immediate project team?

Provide your response here.

Selection Criteria:

Extra credit will be given for:
- Multi-agency collaboration (e.g., an MPO partnered with a State or local agency with a specific issue or need for the tool).
- Innovative use of new data sources that are commonly available across the Nation.

As a reminder:

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SHRP2 Implementation Assistance Program
Round 4 Application Form - *Application period closes June 27, 2014.*

Advanced Travel Analysis Tools for Integrated Travel Demand Modeling Bundle Understanding the Contribution of Operations, Technology, and Design to Meeting Highway Capacity Needs (C05)

FHWA Product Lead Name: Brian Gardner, Brian.Gardner@dot.gov, 202-366-4061

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POC Business Email Address: Provide your response here.

Questions:

1. Describe your organization's interest in and goals for adopting these products and methods? (What do you hope to gain? How do you define success?)

    Provide your response here.

2. What specific question (local issue of interest) do you plan to address with this tool?

    Provide your response here.

3. Describe your approach to using the product or products.
    a. What existing dynamic transportation modeling tools will be used?

    Provide your response here.

4. Describe the data that you will need for this implementation, and where it will come from.

Provide your response here.

5. What is your agency's past experience with analysis of congestion, reliability, and pricing?

    Provide your response here.

6. What partnerships, if any, are planned with other agencies, and what expertise will they bring?

    Provide your response here.

7. Briefly describe your work plan (tasks, deliverables, and approximate dates, no more than 1 page total) for your use of the implementation assistance. What is your expected level of agency staff, consultant and university involvement?

    Provide your response here.

8. To what extent, if any, will methods from other SHRP2 Capacity and Reliability products be integrated into this work plan?

    Provide your response here.

9. Describe challenges / risks you expect to encounter in implementation, and how you plan to address them.

    Provide your response here.

10. What cost / labor match, if any, is being provided?

    Provide your response here.

11. What is your plan for adopting the advanced tools in this bundle on a sustainable basis, post SHRP2?

    Provide your response here.

12. What actions will you be taking to broaden the community of those using advanced methods?
    a. Is another agency that is interested in eventually using advanced modeling methods able to closely follow your efforts?
    b. To what extent are you planning outreach, for example, at regional professional meetings?
    c. Will you have technical reviewer(s) who are outside the immediate project team?

Provide your response here.

Selection Criteria:

Extra credit will be given for:
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- Innovative use of new data sources that are commonly available across the Nation.

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SHRP2 Implementation Assistance Program

Round 4 Application Form - *Application period closes June 27, 2014.*

Advanced Travel Analysis Tools for Integrated Travel Demand Modeling Bundle Planning and Policy Assessment Tool (C16)

FHWA Product Lead Name: Brian Gardner, Brian.Gardner@dot.gov, 202-366-4061

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POC Name: Provide your response here.

POC Business Email Address: Provide your response here.

Questions:

1. Describe your organization's interest and goals for adopting an integrated transportation and land-use policy assessment tool. (What do you hope to gain? How do you define success?)

   Provide your response here.

2. What specific question (local issue of interest) do you plan to address with this tool?

   Provide your response here.

3. Briefly describe the organization's past efforts to evaluate and analyze transportation land-use and policy scenarios.

   Provide your response here.

4. Describe your agency's experience using travel demand model and / or comparable methods, and how the planning and policy assessment tool will augment existing tools or methods.

   Provide your response here.

5. Describe how this tool will inform or otherwise influence the planning and decision process. What types of decisions will be influenced by use of this tool?

   Provide your response here.

6. Summarize the activities and resources needed to support the implementation of the planning and policy assessment tool.

   Provide your response here.

7. Describe any challenges you expect to encounter in implementing the planning and policy assessment tool.

   Provide your response here.

Selection Criteria:

Choose an option:

Extra credit will be given for:
- Multi-agency collaboration (e.g., an MPO partnered with a State or local agency with a specific issue or need for the tool).

As a reminder:

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