Measuring Multimodal Network Connectivity Pilots

Opening Date:
July 5, 2018

Applications Due:
August 2, 2018

Federal Highway Administration
Office of Human Environment

Measuring Multimodal Network Connectivity Point of Contact

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Summary of Important Dates

Activity	Date
1. Call for pilots	July 5, 2018
2. Completed applications due to FHWA	August 2, 2018
3. FHWA announces selected pilot projects	August 15, 2018
4. FHWA allocates funds to States for selected pilots.	August 20, 2018
5. States obligate funds	September 22, 2018
6. Pilot project final reports due	September 30, 2019
7. Peer exchange webinar(s)	Fall 2019

Background

Connectivity is one of several concepts commonly used in transportation performance measurement to describe the ease with which people can travel across the transportation system. At its simplest level, network connectivity addresses the question, "Can I get where I want to go easily and safely?" Multimodal network connectivity adds the dimension of travel choices to the picture: "Can I get where I want to go easily and safely in whatever way I choose—for example, walking, bicycling, using transit, or driving?" When there is a connected multimodal network, people can travel by whatever mode they choose and the transportation system also works for those that do not drive or that don't have access to a motor vehicle.

The FHWA strategic plans include advancing the use of analytical tools, multimodal connectivity measures, and other resources that increase the Agency's capacity to deliver an equitable Federal-aid Highway and Federal Lands Highway program. This is consistent with the U.S. Department of Transportation Strategic Plan for FY 2018 - 2022 which includes a strategy to build partnerships with stakeholders to facilitate the

financing, development and implementation of multimodal transportation projects that improve connectivity, accessibility, safety, and convenience for all users.

There are five core components of multimodal network connectivity, as listed below, with a focus on pedestrians and bicyclists. While these components are all related, the distinctions among them provide a framework for selecting connectivity measures that address specific questions.

- Network completeness – how much of the transportation network is available to bicyclists and pedestrians?
- Network density – how dense are the available links and nodes of the bicycle and pedestrian network?
- Route directness – how far out of their way do users have to travel to find a facility they can or want to use?
- Access to destinations – what destinations can be reached using the transportation network?
- Network quality – how does the network support users of varying levels of experience, ages and abilities, and comfort with bicycling or walking?

Purpose

This project will assist State departments of transportation (DOTs), metropolitan planning organizations (MPOs), and regional transportation planning organizations (RTPOs) in operationalizing multimodal network connectivity measures into a performance-based planning and/or a project development approach. The pilots should utilize the recently released *FHWA Guidebook for Measuring Multimodal Network Connectivity* to assess and refine these methodologies and demonstrate practical implementation. Resulting case study reports should document real-world best practice approaches that peer stakeholders could utilizing in implementing their own connectivity measures.

Beyond the case study reports, pilot organization may be requested to engage other key stakeholders in peer exchanges, meetings, or conferences to share their experiences implementing multimodal network connectivity approaches.

Each pilot project will, at a minimum:

1. Identify the performance-based planning or project development context
2. Define the multimodal connectivity analysis method
3. Assemble applicable data
4. Compute performance metrics
5. Package the results for use in decision making

Examples of relevant pilot project activities may include, but are not limited to multimodal connectivity analysis related to:

- Long-range transportation plans
- Transportation improvement programs
- Bicycle and pedestrian plans
- Corridor analysis
- National Environmental Policy Act review

Submitting a proposal is not a guarantee of funding. Pilots will be selected based on the criteria in the relevant sections below.

Kickoff Call

After selection, the recipient will participate in a conference call with FHWA to discuss the pilot project work plan and timeline. FHWA Division Offices will be invited to participate in the kickoff and will be included in any project planning. Recipients will keep the FHWA up to date on the status of the pilot throughout the project.

Pilot Project Report

Each recipient will develop a report that documents how they operationalized multimodal network connectivity measures into a performance-based planning or project development approach, utilizing the recently released *FHWA Guidebook for Measuring Multimodal Network Connectivity*. The report should assess and refine these methodologies, demonstrate practical implementation, and document real-world approaches that peer stakeholders could utilize in implementing their own connectivity measures. The report should document any challenges and solutions encountered that could be instructive to other transportation agencies.

Required elements:

1. **Executive summary (2-4 pages)**: Summary of pilot purpose, context, analysis method, data, metrics, results, next steps, and lessons learned.
2. **Introduction**: Brief summary of pilot purpose and the reason(s) for conducting this work.
3. **Background of Prior Work**: Summary of prior work related to multimodal network connectivity.
4. **Identify the Planning or Project Development Context**: Clarify the purpose of the analysis, the decisions it will support, and the planning or project development processes it will inform.
5. **Define the Analysis Method**: Decide which methods and measures are best suited to the purpose of the analysis and can make productive use of available resources.
6. **Assemble the Data:** Define the base network, assemble facility attribute date and gather information on people and places.

7. **Compute Metrics:** Run the analysis to calculate connectivity for selected links, routes, and areas.
8. **Package Results:** Develop overlays, visualizations, and other presentation materials to support the decision making process
9. **Next Steps:** Additional action the agency intends to take or is considering taking regarding the options analyzed.

FHWA will provide feedback on the draft report and the recipient will finalize the report, taking into consideration FHWA feedback to the extent feasible.

The pilot reports must contain scientifically sound analysis, comply with FHWA standards for research reports, and be submitted on-time in both 508-compliant Microsoft Word format and 508-compliant pdf format. For more detail regarding 508-compliance and potential additional requirements to be provided by FHWA at the kickoff meeting, review the report: FHWA's Guidelines for Preparing Technical Reports.

Peer Exchanges and Webinars

The selected pilots will participate in peer exchanges among other transportation agencies designed to provide valuable information sharing opportunities among attendees. At least one representative of the pilot should plan to attend at least two virtual peer exchanges or webinars following the completion of the project.

Eligibility

The funding recipient must be a State DOT, MPO, or RTPO. MPOs and RTPOs must have agreements with their respective State DOT, as funding will be allocated to the State DOT through the normal Federal-aid process.

It is anticipated that 6 to 10 pilots will be selected. It is anticipated that the FHWA share of the pilot projects will be up to $100,000 each, with a matching requirement of at least a 20% non-federal share. In-kind contributions may count as match.

Required Contents for Proposals

The pilot proposal must be no longer than ten pages (including graphics) and must include the following elements:

1. **Description of the Proposed Effort.** This section should include the purpose/goal and a detailed description of the effort to be funded.
2. **Description of Dedicated Staffing/Resources.** Agencies should ensure that adequate funding, staffing and technical resources to successfully

complete the pilot are identified and available. This section should fully describe the resources that will be dedicated to the pilot, and demonstrate how the non-Federal match requirement will be met.

3. **Draft Work Plan.** Applicants should provide a draft work plan to inform the selection process, which should explain how the applicant plans to conduct the work. This would include the phases of work, budget, their sequencing, work products, and timing. If contractor assistance is planned to support the effort, that support and estimated level of effort should be included. The budget should indicate the level of funding requested, the amount of the funding match, and any other sources of funding.

Criteria for Selection

The criteria below will be used for selection.

1. Project clearly addresses and will result in applicable planning or project development products that integrate multimodal network connectivity performance measures.
2. While a range of measures are encouraged, proposal emphasis should be placed on safe access to jobs, training, and/or education opportunities, as well as destinations that drive economic development and revitalization.
3. Proposal demonstrates commitment to process improvements based on pilot.
4. Project results will be of value to similar transportation agencies across the country.
5. Proposal demonstrates willingness to share results and champion multimodal connectivity innovations.
6. Proposal demonstrates adequate funding and staff resources.
7. Selected projects represent geographic and population diversity.
8. Selected projects represent diversity of planning and project development process stages and products.