APPLICATION

by the

EASTGATE REGIONAL COUNCIL OF GOVERNMENTS

to the

FHWA MEASURING MULTIMODAL NETWORK CONNECTIVITY PILOT

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COUNCIL OF GOVERNMENTS

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Description of the Proposed Effort

Introduction

The Eastgate Regional Council of Governments (Eastgate) is applying to the Federal Highway Administration's Measuring Multimodal Network Connectivity Pilot program to receive $40,000 in funding and project support for an analysis of multimodal connectivity and development of multimodal performance metrics. The completed pilot project would support the development of a 2020 Multimodal Plan for the region and be used to amend the project prioritization process to include a multimodal component.

Eastgate is the Metropolitan Planning Organization (MPO) for the Youngstown-Warren Urbanized Area which is composed of Mahoning and Trumbull Counties in northeast Ohio. Eastgate's region contains a diverse mix of urban, suburban and rural communities which require context sensitive planning because each community has unique needs.

The urban areas depend on a functioning multimodal network to access transit, job centers and community facilities. In the City of Youngstown, 9.5 percent of workers over 16 do not use a car to commute to work[1]. Developing a multimodal plan is critical for these older urban core communities that are dependent on multimodal options and dealing with aging infrastructure of existing multimodal facilities.

The suburban areas are struggling in a different way. They strive to make their car centric communities more walkable, bikeable and liveable. In a 2018 survey of the suburban community of Boardman Township, 79 percent of residents supported a vision to develop a complete transportation network for the township and 80 percent supported the addition of sidewalk and multiuse trails to their main commercial corridor[2]. Currently, 94.8 percent of Boardman residents commute to work by car[1].

The rural communities also see the value in multimodal connectivity, but struggle to make connections outside of their boundaries. Of Eastgate's rural communities, 54 percent have sidewalks, but 89 percent of those communities function as self-contained islands without connections to neighboring communities[3].

Eastgate has made strides towards assessing multimodal connectivity during the planning process, but a standardized assessment has not been adopted and reportable metrics have not been established. Existing data and prior work includes a bicycle suitability map, digitized sidewalks, digitized crosswalks, digitized ADA ramps, an assessment of isolated neighborhoods in the bicycle network, an assessment of isolated neighborhoods in the sidewalk network, and the creation of bikesheds for trailheads.

With funding and guidance through the Measuring Multimodal Network Connectivity Pilot program, Eastgate's efforts towards addressing multimodal connectivity can easily be enhanced and refined to exemplify best practices.

Proposed road diet in downtown Youngstown

[1] U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates
[2] 2018 Online Survey, Boardman Township Department of Zoning and Development
[3] Eastgate GIS Walkability Assessment, 2017

Goal

Eastgate's goal for the Measuring Multimodal Network Connectivity Pilot program is to determine the state of multimodal network connectivity in the Eastgate region, identify key connections needed to enhance multimodal connectivity to economic and community destinations, identify how well MTP projects address needed improvements, and develop multimodal performance metrics.

A Measuring Multimodal Network Connectivity Report will be the result of this pilot program, but the information in the report will be incorporated into other regional planning documents. Notably, the pilot closing date of September 2019 will align with and support the development of Eastgate's Multimodal Plan, scheduled for completion in 2020. The Multimodal Plan will identify specific recommendations for enhancing multimodal connectivity in the region.

Planned bike lane in Youngstown

Project results and performance metrics will also be used in development of Eastgate's Metropolitan Transportation Plan, Eastgate's Transportation Improvement Program, Eastgate's Transit Development Plan, and local community plans. Project results will also be incorporated into the project prioritization process, giving priority to projects that will address identified gaps in the multi-modal network.

Effort to be Funded

Through this program Eastgate will develop performance metrics, update and expand upon existing GIS data, conduct a GIS analysis to evaluate the state of the multimodal network using best practices found in the FHWA Guidebook for Measuring Multimodal Connectivity, author a Measuring Multimodal Network Connectivity Report, and incorporate multimodal performance measures into the project prioritization process. A summary of the work to be accomplished is as follows:

1. Identify the Planning Context

Eastgate will hold internal and stakeholder meetings to define the purpose of the multimodal analysis, the decisions it will support, and the planning or project development processes it will inform. Eastgate identifies proposed outcomes for this project in this document, but will review and confirm with stakeholders, and adjust goals if applicable, before proceeding. Eastgate's currently proposes to evaluate the following items:

Network Completeness – Sidewalks

Eastgate will use the existing 2017 assessment of sidewalk connectivity to calculate a percent complete for the urbanized area. The data will require minimal updates. Performance metrics for sidewalk network completeness will be established.

Network Completeness – Bicycle

Eastgate will use an existing 2018 bicycle suitability assessment to define and calculate performance metrics for the region. Eastgate will calculate the percentage of functionally classed roads that are suitable for novice or intermediate cyclists and will establish performance metrics for bicycle network completeness.

Network Quality - Sidewalks

Eastgate will expand its 2017 assessment of sidewalk connectivity to include sidewalk condition. The previous assessment used existing sidewalk centerlines and was based only the presence or absence of sidewalks. Feedback from the urban communities indicated that a condition-based assessment is needed to evaluate whether a functional network exists. Many existing sidewalks in the urban areas are falling into disrepair, have overgrown vegetation, are substandard width, or have obstructions located in the sidewalk right of way. This assessment will be used to identify where sidewalk improvements are needed in the urbanized area and assist communities in completing required ADA transition plans. The resulting map will be used to prioritize projects.

Network Quality - Bicycle

Eastgate will evaluate bicycle level of service models to identify a reliable method for future bicycle network quality assessments. Eastgate currently has a bicycle suitability map based primarily on cyclist feedback, but a consistent assessment methodology is needed.

Pedestrian and Bicycle Access to Activity Centers

Eastgate wants to ensure that critical destinations are accessible by walking or biking. Using the network quality data outlined above, Eastgate will identify low stress walksheds and bikesheds for community destinations including employment centers, transit stops, schools, healthcare, and shopping centers. Activity centers with lack of access will be identified and prioritized.

2. Define Analysis Methods

The following methodology is proposed for each assessment:

Network Completeness – Pedestrian

Existing GIS sidewalk data will be edited to facilitate a network completeness evaluation. Currently, Eastgate maintains a sidewalk centerline layer, a sidewalk gap layer, and a road centerline layer with an attribute indicating if sidewalks are present on zero, one, or two sides of the street. The road centerline layer is dated 2012, so the sidewalk attribute will first be moved to a current road centerline layer. New sidewalks since the 2017 update will also be incorporated.

Eastgate will recode the data to indicate whether each road segment has “complete” or “incomplete” sidewalks. Each segment with sidewalks only on one side will be evaluated on an individual basis to determine its status. Depending on the context, sidewalks on one side of the street may be sufficient or deficient.

The road layer will be used to calculate the percent of the sidewalk network within the urban boundary that is complete and incomplete. Eastgate will use this number to set appropriate performance measures. The map of incomplete segments will be used for project prioritization.

Network Completeness – Bicycle

Existing bicycle suitability data will be used calculate the percentage of functionally classed roads that are suitable for novice or intermediate cyclists. The bicycle suitability attribute for the road centerline layer was initially calculated in 2012 from a bicycle level of service model, modified using cyclist and community input, and updated in 2018.

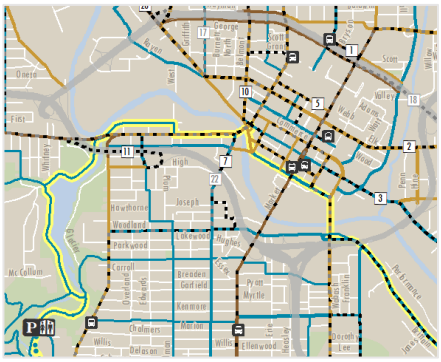
The suitability attribute will be moved to the most current road centerline layer before analysis. Once updated, the percent of roads with a rating of novice or intermediate will be calculated. This number will be used in the development of performance metrics. The map of incomplete segments will be used for project prioritization.

Network Quality - Pedestrian

Eastgate will update its 2017 sidewalk centerline layer to include quality. Quality may include pavement condition, accessibility, barriers, or crosswalk availability. The previous assessment was based only the presence or absence of sidewalks. Feedback from the urban communities indicated that a condition-based assessment is needed to evaluate whether a functional network exists. Many existing sidewalks in the urban areas are falling into disrepair, have overgrown vegetation, are substandard width, or have obstructions located in the sidewalk right of way. This assessment will be used to identify where improvements are needed in the urbanized area. The resulting map will be used to prioritize projects.

Network Quality - Bicycle

Eastgate will evaluate bicycle level of service models using existing roadway data including but not limited to traffic counts, lane widths, shoulder widths, pavement condition and speed. The existing road layer containing these attributes is dated 2012 and will be updated to the most current road layer. Model results will be compared to an existing cyclist created 2018 bicycle suitability assessment to determine which model is the best fit for the Eastgate region to be used to future level of service updates.



Eastgate bicycle suitability map

Pedestrian and Bicycle Access to Activity Centers

Eastgate will use identified job hubs, stakeholder input, and Streetlight data to identify activity centers such as employment centers, transit stops, schools, healthcare, and shopping centers. For each activity center Eastgate will conduct a network analysis to identify low stress walksheds and bikesheds. The network will use the quality ratings outlined above to define low stress travelsheds. The resulting map will be used to prioritize projects.

3. Define Data Needed

Eastgate has established bicycle and pedestrian data from which to build upon, which reduces the amount of time needed to prepare the data for analysis. The data needed will be determined once the analysis techniques are finalized, but it is anticipated that most data is readily available or easily accessible.

Eastgate currently has and plans to utilize the following data: sidewalk centerlines, major sidewalk gaps, job hubs, road centerlines with an attribute indicating if sidewalks are present on zero, one, or two sides of the street, truncated dome locations, painted crosswalk locations, pavement condition, a bicycle suitability road layer, traffic counts, and a road layer with lane widths, shoulder widths, and speed data. Additional data to be gathered or created includes: current road layers for Mahoning and Trumbull Counties, transit stops, schools, healthcare, and shopping centers.

4. Create and Analyze Data

Eastgate will conduct the GIS analysis once the project goals, analysis methods, and data has been finalized. The analysis will be conducted as described in the analysis methods section.

5. Package Results

After the data has been analyzed, Eastgate will author a 508-compliant Multimodal Network Connectivity Report according to FHWA guidelines. The information will also be distributed as one-page summary sheets, incorporated into the Metropolitan Transportation Plan, and be available on Eastgate's website.

6. Adopt Performance Metrics

Eastgate will review the results of the Measuring Multimodal Network Connectivity Pilot program with staff and stakeholders. Performance metrics for pedestrian network completeness and bicycle network completeness will be established.

7. Share Experiences

Eastgate will partner with FHWA in meetings and webinars to assist other transportation agencies in implementing their own connectivity measures.

Dedicated Funding and Resources

Available Funding

Eastgate's FY 2019 work program anticipated making progress toward the planned FY 2020 Multimodal Plan. The Multimodal Network Connectivity Pilot program will align with and support that goal, with minimal adjustment to Eastgate's work program. Eastgate can provide $10,000 local funds this work program as a 20 percent match to the requested $40,000 FHWA funds.

Staff Qualifications

The team selected for this project represent expertise in bicycle, pedestrian, GIS, transit, economic development, and policy which are all required to conduct a multimodal network connectivity analysis and develop and incorporate performance measures. Staff members dedicated to this project include:

Bethaney Krzys, Safety Program Manager
Bethaney will conduct a majority of the work for the pilot program. She has served as Eastgate's active transportation coordinator for nine years and is a certified GIS Professional.

Justin Mondok, Environmental Planner
Justin has been involved with active transportation planning for six years and holds a certificate in GIS. He will collaborate on the development of analysis methods and performance metrics.

Mirta-Reyes Chapman, Transit Program Manager
Mirta has been involved with transit planning for 29 years. She will provide guidance on transit connectivity priorities and appropriate assessment methodology.

Sara Daugherty, Economic Development Program Manager
Sara coordinates the development of the Metropolitan Transportation Plan (MTP) and will assist in the adoption of recommendations and projects. She holds a GIS certificate and is a certified planner (AICP).

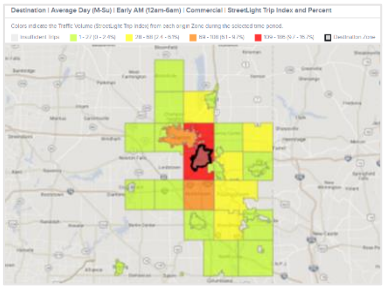
Genna Petrolla, Economic Development Planner
Genna has been involved with economic development in the region for three years and will provide guidance on the location of job hubs and community destinations for use in determining accessibility.

Stephen Zubyk, Transportation Improvement Program Manager
Stephen will collaborate on the development of performance metrics and ensure they are incorporated into the project prioritization process.

Ken Sympson, Transportation Director
Ken will provide project review and will collaborate on the development of performance metrics.

Resources

Eastgate has the required tools to conduct a meaningful multimodal analysis. Eastgate holds licenses for several Esri products including one Advanced ArcGIS license, three Basic ArcGIS licenses, a Network Analyst extension, a Spatial Analyst extension and an ArcGIS Online account. Eastgate also has an account with Streetlight Data through a partnership with the Ohio Department of Transportation. Streetlight provides customized origin-destination data which can be used to define activity centers in the region.



Streetlight origin-destination data

Draft Work Plan

Timing and Budget

Eastgate is requesting **$40,000 (80%)** from the FHWA'a Measuring Multimodal Network Connectivity Pilot program and can provide **$10,000 (20%)** non-federal match from Eastgate's local fund. Eastgate is designated as a MPO and funding can be allocated to the Ohio Department of Transportation through the normal Federal-aid process. Project completion is feasible within the constraints of the pilot program timeline. The target dates for each component of the project is as follows:

Step	Date	Staff	Hours
Identify the Planning Context	Sept – Oct 2018	B. Krzys J. Mondok K. Sympson M. Reyes-Chapman S. Zubyk	20 10 5 5 5
Define the Analysis Methods	Oct 2018	B. Krzys J. Mondok S. Daugherty G. Petrolla M. Reyes-Chapman	20 5 5 5 5
Define Data Needed	Oct 2018	B. Krzys J. Mondok	10 10
Create and Analyze Data	Nov 2018 – Feb 2019	B. Krzys J. Mondok S. Daugherty G. Petrolla M. Reyes-Chapman	300 30 5 5 5
Package Results	April – June 2019	B. Krzys	120
Develop Performance Metrics	July 2019	B. Krzys K. Sympson S. Zubyk J. Mondok	20 5 5 5
Pilot Project Final Report	Sept 30, 2019	B. Krzys K. Sympson	100 10
Peer Exchanges and Webinars	Fall 2019	B. Krzys	40

The total funding requested is as outlined below and based on the anticipated hours expended:

Staff	Hours
Bethaney Krzys	630
Justin Mondok	60
Ken Sympson	20
Mirta Reyes-Chapman	15
Sara Daugherty	10
Genna Petrolla	10
Stephen Zubyk	10
	755

Match (20%)	Funding Requested (80%)
$10,000	$ 40,000

Summary

The funding request of $40,000 from the FHWA Measuring Multimodal Network Connectivity Pilot program combined with the guidance and support of FHWA would be invaluable to the Eastgate region. As a smaller MPO with limited staff, time, and budget, FHWA assistance would expedite the movement towards best practices in multimodal assessment and incorporation of multimodal performance metrics.

The pilot project is aligned with Eastgate's work program and will support the creation of a 2020 Multimodal Plan, will ensure multimodal connectivity is considered in the planning and project prioritization process, and will generate a base conditions profile and suitable assessment techniques from which ongoing evaluations can be generated.

As a geographically and demographically diverse region, peer organizations across the country can relate to the multimodal challenges found within the Eastgate region and learn from our experience in measuring multimodal network connectivity.