

**Request for Research Funding for FY 2020-2021**

<b>Requesting Office</b>	Public Transit Office	<b>Priority</b>	1
<b>Proposed Title</b>	Assessment of the Mobility Energy Productivity (MEP) Metric for Public Transit Applications in Florida		
<b>Justification</b>	<p>As regions and cities across the country continue to revitalize their communities, effective public transportation systems are becoming more critical in providing people with alternatives to driving single-occupancy vehicles. Public transportation systems offer solutions to recurring problems like traffic congestion, environmental issues, social exclusion, economic disparities, and a number of other community challenges. They provide access to jobs, health care, shopping, and leisure activities that encourage a healthy living. Therefore, regional and local transit services strengthens the economy, reduces carbon footprint, protects the environment, and promotes community development.</p> <p>Focusing on integrated transit and land-use development is a promising strategy for advancing environmental sustainability, economic development, and inclusive development. If done well, integrated spatial development, particularly the linkage of transit investments and urban development can create positive and meaningful outcomes. A high-quality and efficient transit system that links urban centers and suburban communities creates an environment that improves livability and quality of life. As our population continues to grow and age, there needs to be a conscious decision on how to plan for future public transportation systems that are efficient and environmentally sensible.</p> <p>In Florida, relatively new transit modes and transportation alternatives, such as microtransit, express buses on managed lanes, as well as the purchase and use of more efficient electric vehicles present new opportunities. Therefore, a sophisticated methodology, that can not only consider improving mobility and access, but also help reduce carbon emissions, needs to be in place. This study explores the use of the mobility energy productivity (MEP) metric as a modeling tool for providing solutions for improving or using different transit modes and energy options to addressing current and future challenges in a cost-effective manner. The MEP metric can potentially assist with the planning of a more efficient transit system that can help improve mobility, accessibility, and environment issues.</p> <p>The expected activities to be accomplished through this project are:</p> <ol style="list-style-type: none"> <li>1. General literature review to gain an understanding on the basic methodology and expected results from using the mobility energy productivity (MEP) metric.</li> <li>2. Examine and assess the MEP metric model for potential transit applications in Florida. The FIU research team will thoroughly test the available MEP metric tool.</li> <li>3. Run the model and evaluate the results. For this task, data from the South Florida SERPM model, parcel data, Census data, and GTFS data will be used. A sensitivity analysis will be included to assess different transit scenarios and to test the capability of the model.</li> <li>4. Present the findings of this research project and propose recommendations for the next steps.</li> </ol> <p>This project will focus on public transportation and it will help identify potential uses, challenges, and opportunities for using the MEP model in the Florida context.</p>		
<b>Impact</b>	<p>This project will assess the MEP metric tool to examine the potential transit applications in Florida. It will provide insights on the elements used by the model, maturity of software development, system capabilities, data needs, easiness of use, and potential applications.</p> <p>Findings from this research will help identify the possibility of implementation of the MEP metric model, as a tool for planning, assessing, and improving public transit in Florida.</p>		
<b>Affected Offices</b>	Planning Office		
<b>Existing Work</b>	<p>The Transportation Research International Documentation (TRID, <a href="https://trid.trb.org/Results">https://trid.trb.org/Results</a>) and the Research in Progress (RIP, <a href="https://rip.trb.org/">https://rip.trb.org/</a>) online databases were reviewed thoroughly. With the exception of the TRR paper “Novel and Practical Method to Quantify the Quality of Mobility: Mobility Energy Productivity Metric”, there were no other documents or projects that deal with the assessment of the mobility energy productivity (MEP) metric, as presented here. Nevertheless, the National Renewable Energy Laboratory (NREL), the developers on the MPE metric, have published related reports on the MPE metric. Lastly, as discussed with NREL, other States maybe considering similar projects towards the implementation of the Mobility Energy Productivity Metric.</p>		

<b>Keywords Used In Existing Work Search</b> (Cannot leave blank)	Public Transportation, Transit, Mobility Energy Productivity (MEP) Metric, Transportation Modeling		
<b>Related Contracts</b> (Give contract numbers)	n/a		
<b>Funding Request</b>	\$275,000	<b>Anticipated Duration</b>	12 months
<b>Project Manager</b>	Gabe Matthews Transit Planning/Commuter Assistance Administrator  Florida Department of Transportation 605 Suwannee Street, MS 26 Tallahassee, FL 32399 Phone: (850)414-4803 Email: <a href="mailto:gabrielle.matthews@dot.state.fl.us">gabrielle.matthews@dot.state.fl.us</a>	<b>Contracting Method</b>	Direct contract with university
<b>Urgency</b>	1= highest , most immediate need	<p>With the growing and aging of our population, traffic congestion is rapidly increasing with negative impacts on our mobility and environment. Therefore, a more efficient transportation system is needed. Transit presents a viable solution to these problems. However, this needs to be planned adequately to provide efficient mobility, accessibility, and help reduce the negative impacts of the automobile.</p> <p>The use of a tool to efficiently evaluate the impacts of using the most appropriate transit modes or the best type of transit vehicles can help the planning and decision-making process to improve mobility and reduce carbon emissions. The sooner a tool like this is made available to the agencies, the faster they can start taking advantage of their benefits; thus, the urgency of this project. This research is the beginning of a process for assessing a tool that can potentially be used throughout Florida.</p>	
<b>Implementability</b>	1=greatest likelihood of and proximity to implementing results	<p>Based on the research and findings of this project, the potential implementation of the MEP model in Florida will be presented. Should the model prove to be appropriate, as expected, the project will address in detail the next steps for the deployment of the model in Florida and the estimated time for implementation.</p> <p>After this exploratory research project, a second phase maybe needed for a full implementation of the MEP metric tool in Florida.</p>	
<b>Project Benefits (Succinct, complete explanation)</b>			
<p>Public transportation provides a tool for reducing congestion problems by increasing the throughput of people and is, environmentally, a better transportation choice. This project proposes to assess the Mobility Energy Productivity (MEP) metric as a modeling tool for planning and evaluating the use of the most appropriate transit modes and transit vehicles for different situations at the regional and local levels. A tool like this has the potential for addressing current and future transportation challenges in a cost-effective and environmental conscientious manner.</p> <p>The different tasks of this project include conducting a literature review, assessing the MEP metric model, running the model using data from South Florida, evaluating the outputs, and conducting a sensitivity analysis to test the capability of the model. This can help the research team fully understand the MEP model and its capabilities and propose recommendations for the next steps.</p> <p>The results from this research project can provide a good understanding of the capabilities of the MEP metric tool and its transit applications to improve mobility and accessibility and help address environment issues.</p>			

<b>Project Benefits</b> <b>(Select all that apply and explain)</b>	<b>Quantifiable Benefits (units, dollars, etc...if applicable)</b>	<b>Methodology or Data Sources Used to Determine Quantifiable Benefits. If not applicable, please give justification of project benefits</b>
○ Materials Enhancement		
○ Materials Savings	Efficient use of the most appropriate transit modes	The MEP metric tool has the potential of assessing the different transit modes and vehicles to be purchased and used. For instance, if the outputs of the model suggest the use of microtransit instead of community buses, this can result in material savings, as smaller and more efficient vehicles will be used.
○ Time Savings	Improvement of transit performance	It is expected that the MEP metric tool can help assess and provide suggestions on the use of the most efficient transit modes that will improve performance. This results in time and cost savings.
○ Lives Saved/Injuries Prevented		
○ Other (Explain)	Support the planning and decision-making process on the use of public transportation services	<p>This project will assess the MEP metric tool and potential implementation in Florida. It will help understand how the tool can help with the planning of a more efficient transit system to improve mobility, accessibility, and environment issues.</p> <p>After implementation, the MEP metric tool can be used by planning and transit agencies throughout the State of Florida.</p>

\*Comments should explain and support urgency, financial benefit, and implementability scores