| Request for Research Funding for FY 2021-2022 | | | |
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| **Requesting Office** | Forecasting and Trends Office | **Priority** | 2 of 4 |
| **Proposed Title** | Evaluating the Adoption and Impacts of Telecommuting for Incorporation into the Modeling Process | | |
| **Justification** | The rapid increase in the use of information and communication technologies (ICT) such as smartphones and other devices that connect to the Internet affords individuals increased opportunities to work, study, and communicate with others without making trips across space. From telecommuting, online shopping, e-banking to distance learning, services and technologies that build on ICTs have substantially expanded the spatial-temporal territories that an individual can possibly traverse in one day. Physical presence at specific locations during specific times is no longer necessary. As a result, virtual mobility holds the promise to help reduce travel, mitigate congestion, reduce vehicle emissions and improve air quality. It also provides great potential in mitigating equity gaps associated with transportation accessibility for work or education opportunities. There are also benefits from the employer side in terms of savings in office space rentals and maintenance costs.<br><br>Despite the promising benefits of telecommuting, it had not been deployed in large scales till recently, most likely attributed to institutional constraints, cultural barriers, and security concerns, etc. This project aims to 1) explore how employees' and employers' attitudes, perceptions and preferences toward telecommuting may have changed due to the pandemic, and 2) provide insights into predicting future behavior in terms of telecommuting adoption and the potential impacts on other daily activity-travel participation. The key objectives include:<br><br>• Identify the key determinants of telecommuting adoption behavior, such as the nature of work activity, individual characteristics, household types, attitudes, and geographic locations;<br>• Evaluate the perceptions, attitudes, and institutional barriers of employees and employers relevant to telecommuting, especially the potentials and challenges through the experiences in the pandemic;<br>• Investigate how telecommuting arrangement would affect other activity-travel participation and intra-household interactions, reflected in various model components including trip generation, destination choice, mode choice, and time-of-day choice models;<br>• Recommend modeling framework and procedures to address telecommuting in travel demand models, including the FLSWM and regional models.<br><br>To address the above research objective, this project will conduct a survey focusing on individuals' telecommuting behavior and the interactions with other activity-travel participation. Employers' attitudes toward telecommuting policies will also be collected through the survey. These data would provide the information from both sides for more accurate and realistic estimation of telecommuting adoption in the long run. Elasticity analysis will also be conducted to evaluate the potential impacts of telecommuting on travel demand. | | |
| **Impact** | In order to provide accurate estimates of telecommuting choice and its impacts on travel behavior, it is critical to recognize how various underlying factors and parameters contribute to the propensity toward this alternate work arrangement. With a focus on the potential behavior in the future, this study provides an approach to incorporate telecommuting into the modeling process. This allows planners and policy-makers to be more proactive to the potential changes in attitudes, perceptions and preferences caused by the pandemic, and be better equipped to estimate and address the implications on travel demand. | | |
| **Affected Offices** | | | |
| **Existing Work** | Many studies have investigated the adoption behavior of telecommuting and the potential impacts, but there is no uniform findings due to the complexity in the various forms of telecommuting (full-day, part-day, and overwork in after hours, etc.) and the potential impacts in various aspects (induced travel due to relaxed spatial-temporal constraints, intra-household interactions, etc.). In addition, the recent pandemic has likely brought new perspectives into remote working that was not captured by previous studies. More importantly, telecommuting has not been mainstreamed into the travel demand modeling process yet. | | |

| Keywords Used In Existing Work Search | Telecommuting, virtual mobility, working from home | | |
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| Related Contracts | n/a | | |
| Funding Request | $250,000 | **Anticipated Duration** | 18 months |
| Project Manager | Thomas Hill<br>State Modeling Manager<br>(850) 414 - 4924<br>Thomas.Hill@dot.state.fl.us<br><br>Vladimir Majano<br>Forecasting and Trends Office<br>(850) 414-4823<br>Vladimir.Majano@dot.state.fl.us | **Contracting Method** | direct contract with university |
| Urgency | 1= highest, most immediate need | Remote work has grown rapidly in the past decade, this trend will only accelerate, given that Millennials and Gen Zs are more likely to engage in virtual mobility and consider flexibility in hours and location among their top priorities. The recent pandemic also brought this alternative work arrangement back into the spotlight. This work will provide timely insights to help the agencies address the latest trend in telecommuting in the travel demand models. | |
| Implementability | 1=greatest likelihood of and proximity to implementing results | This project will provide new insights in telecommuting behavior and recommend modeling framework and procedures to incorporate telecommuting into the planning process. | |

**Project Benefits (Succinct, complete explanation)**

Telecommuting, as a traffic demand management tool, has been of interest to transportation planners and policy makers. It holds the promise to help reduce travel, mitigate congestion, reduce vehicle emissions and improve air quality. Despite the promising benefits of telecommuting, it had not been deployed in large scales till the recent pandemic event. This study evaluates the various underlying factors and parameters contribute to the propensity toward telecommuting and provides an approach to address telecommuting adoption and it's impacts on travel demand in the modeling process, which help planners and policy-makers to better estimate and plan for the potential implications of telecommuting on transportation demand.

| Project Benefits<br><br>(Select all that apply and explain) | Quantifiable Benefits (units, dollars, etc…if applicable) | Methodology or Data Sources Used to Determine Quantifiable Benefits. If not applicable, please give justification of project benefits |
|---|---|---|
| o   Materials Enhancement | | |
| o   Materials Savings | | |
| o   Time Savings | | |
| o   Lives Saved/Injuries Prevented | | |
| o   Other (Explain) | | The framework and approach to incorporate telecommuting into the modeling process, and better estimate of the potential implications on travel demand. |

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