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FUTURE DIRECTIONS FOR MULTIMODAL AREAWIDE LEVEL OF SERVICE HANDBOOK RESEARCH AND DEVELOPMENT

PROBLEM STATEMENT

In 1999, Florida Statutes were amended to allow local governments to establish multimodal transportation districts (MMTDs) to promote development that favors pedestrian, bicycle, and transit modes over the automobile mode, to develop professionally accepted techniques for measuring Level of Service (LOS) for automobiles, bicycles, pedestrians, transit, and trucks, and to assist local governments in implementing multimodal LOS analysis. The Florida Department of Transportation (FDOT) developed a series of tools to assess the LOS of each of the modes (automobile, truck, transit, pedestrian, and bicycle) and established criteria and processes for the designation of MMTDs and areawide multimodal LOS measures. Guidelines for the development of MMTDs, which can be used to promote a mixture of land uses, interconnected transportation networks, high density land uses, and pedestrian and transit friendly urban form design, have been incorporated into the *Multimodal Transportation Districts and Areawide Quality of Service Handbook* (FDOT 2003a). While the goals of the MMTD are outlined in the *MMTD Handbook*, additional analysis and tool development is necessary to enhance the ability of local governments to use the tools included in it.

OBJECTIVES

The purpose of this research is to analyze the techniques and make recommendations for new tools for multimodal analysis in the following four areas: (1) the analysis of pedestrian connectivity; (2) the organization of activity centers along the corridor, and the relationship between the MMTD and other land uses and activity centers nearby; (3) the nexus between land use and transportation analysis; and (4) the need for simplified analysis tools.

FINDINGS AND CONCLUSIONS

The research team found the *Handbook's* suggested methodology of blocks per square mile to be an acceptable standard to evaluate network connectivity. Researchers also determined that link-node analysis was the most appropriate method to further quantify network connectivity. These two methods were selected because of (1) ease of use, (2) clarity of measurement, and (3) the simplicity with which they can be used by both geographic information systems (GIS) users and non-GIS users. The research team also found that connectivity between trip attractors and trip producers is not a function of the street network alone. Impedance factors should be applied when measuring bicycle/pedestrian connectivity.

With regard to the other objectives, researchers concluded or achieved the following: first, researchers determined that activity centers should lie at the center of any MMTD to ensure that all residents of the district have access to more than one mode to reach the nearest activity center. Second, they used GIS to develop analytic tools that will show how impedance factors and a centrally-located activity center could be established. Finally, with regard to simplified analysis, many methodologies are included in the *Handbook* (2003a). However, for users of the *MMTD Handbook* (2003a) who do not employ GIS, this project identifies additional methodologies and data sources.

BENEFITS

This project extends the analysis of existing multimodal analysis tools beyond those currently outlined in the *MMTD Handbook*. The research team identified and developed new GIS programs to identify and analyze potential locations for MMTDs and accessibility between diverse land uses. In this project, researchers developed an operational GIS program that takes into account bicycle/pedestrian level of service when examining connectivity between trip attractors and producers. Application of this "Accessibility Analyst" will help local planners across the state to evaluate the potential for improvements in bicycle and pedestrian level of service in their respective jurisdictions. The methodologies for defining mixed use and high density activity centers will help local planners to understand the land use patterns in their community. Local planners can use these methodologies to evaluate the multimodal potential of their community. Both of the methodologies addressed in this study will assist local governments in making decisions about the development of MMTDs and about infrastructure investments for all modes of transportation in deficient areas. For non-GIS users, additional analytic tools are developed that do not require GIS capability.

The applicability of these methods, however, may be limited to local governments that continue to use ArcView 3.x *and* ArcGIS 8.x. The research team was unable to develop some of the tools in the more current ArcGIS because the network analyst functions are not yet well developed.

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