

UPDATES AND ENHANCEMENTS TO THE LOSPLAN USER INTERFACE AND COMPUTATIONAL PROCEDURES

PROBLEM STATEMENT

The Florida Department of Transportation's (FDOT) Systems Planning Office produces and maintains the Quality/Level of Service (Q/LOS) Handbook. This handbook contains state-of-the-art level of service analysis methodologies for planning and preliminary engineering applications. These methodologies are predominantly adaptations from the operations level methodologies contained in the Highway Capacity Manual (HCM) and other professionally accepted methodologies for non-automobile modes, such as the Transit Capacity and Quality of Service Manual.

In support of the Handbook, FDOT has developed and maintained software that implements the computational methodologies. For the 2002 edition of the Handbook, major new versions of the software were developed. Collectively, FDOT planning level of service software is grouped under the name LOSPLAN, with the three primary component programs being ARTPLAN, FREEPLAN, and HIGHPLAN, each of which implements the HCM analysis procedures for their respective facilities (arterials, freeways, and highways).

The initial versions of the LOSPLAN programs were developed as part of a previous FDOT project. These new versions of software were a major departure from the previous spreadsheet-based implementations. As such, the focus of the previous project was to establish the functional requirements of the software and develop preliminary versions of the user interfaces and calculations code. The focus of this project was to update the enhance the preliminary versions of the software such that they would be suitable for statewide deployment and use, in support of the level of service program for the Systems Planning Office. An additional aspect of the project was the development of a preliminary version of a corridor planning (CORPLAN) software program, which was intended to provide a method for comparing results of multiple facilities within a corridor.

OBJECTIVES

With initial program design and development performed under a previous contract, this project was focused on improvements and enhancements to the LOSPLAN component programs, ARTPLAN, FREEPLAN, and HIGHPLAN, as well as the development of a new corridor planning analysis program. Specifically, the following tasks were addressed under this contract:

- refine the user interfaces of the existing LOSPLAN programs
- refine and test the computational methodologies of the existing LOSPLAN programs

- extend the computational capabilities of the existing LOSPLAN programs,
- develop a new LOSPLAN component program that would interact with, and integrate, the analysis capabilities of the existing LOSPLAN programs into a corridor analysis program

FINDINGS AND CONCLUSIONS

The objectives were accomplished and the resulting software programs in the LOSPLAN suite now have significantly increased reliability, computational efficiency, and user-friendliness relative to their initial versions. Additionally, several computational features and utilities were developed to increase the capabilities and efficiency of these programs. A preliminary version of CORPLAN was also developed that facilitates the comparison and analysis of results from multiple facilities (either arterial, freeway, or highway) within a corridor.

Specific accomplishments include the following:

- revisions, refinements, and debugging of the user interfaces and calculations
- revisions and updating of the electronic help resources
- refinements of the program code structures to reduce computer resource consumption
- development of a batch processing utility
- integration of a remote automation capability
- demonstration of the potential for database interfacing with the LOSPLAN program
- revision of the XML input routine
- development of dynamic link library (DLL) implementations of the calculations code
- development of a preliminary versions of CORPLAN

BENEFITS

The combination of the results of this project and Task 1 of BC354-38 have resulted in software that meets the necessary requirements for usability, functionality, robustness, and computational completeness and accuracy to support the mission of the level of service program of the Systems Planning Office.

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