

Development of the Miami-Dade County
**Integrated Transportation
Management System (ITMS)**

EXECUTIVE SUMMARY

MIAMI-DADE



Executive Summary

Background

The Miami-Dade Metropolitan Planning Organization (MPO) has developed the Miami-Dade County Integrated Transportation Management System (ITMS). This project follows the development of the Miami-Dade County Mobility Management Process/Congestion Management System (MMP/CMS) prepared by DPA for the MPO. A great deal of emphasis has been placed on coordination of the ITMS with various Miami-Dade County and Florida Department of Transportation (FDOT) departments.

Objective

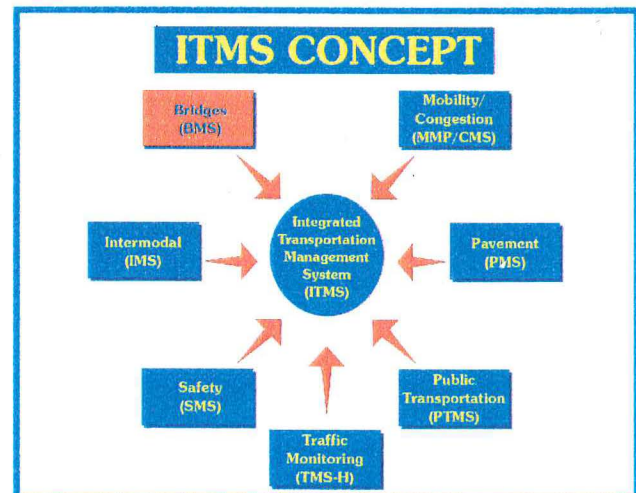
Develop a transportation information/analysis system for Miami-Dade County that functionally integrates the implementation of six of the seven management systems initially required by the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) regulations.

The six ISTEA management systems are Mobility Management Process/Congestion Management System (MMP/CMS), Intermodal Management System (IMS), Pavement Management System (PMS), Public Transportation Management System (PTMS), Safety Management System (SMS) and Traffic Monitoring System for Highways (TMS/H).

In achieving this objective the system would:

- provide an automated centralized platform for sharing and analyzing data,
- function as a decision support tool providing the decision makers and officials improved access to transportation information within the Miami-Dade County area, and
- emphasize the development of the ITMS system using available data.

Underlying Concept



ITMS Structure

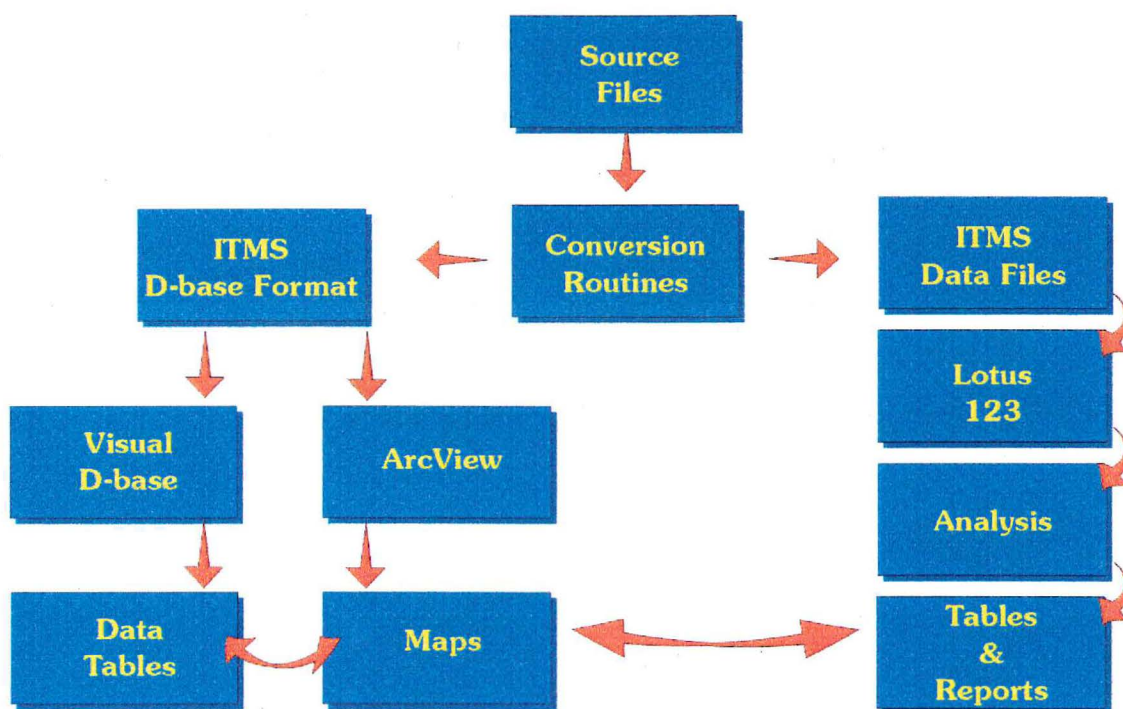
The extensive information and comprehensive analysis in the ITMS has been organized into modules - one for each of the six management

systems. Even though the information resides in separate modules, it is integrated and is available across the modules for analysis and evaluation. This seamless assembly of data inputs and outputs is a primary aspect of the ITMS as an integrated information management system.

The basic elements of the ITMS are a relational database, a data input/update component, an analysis component, a visual and graphical presentation component, and a report generation component.

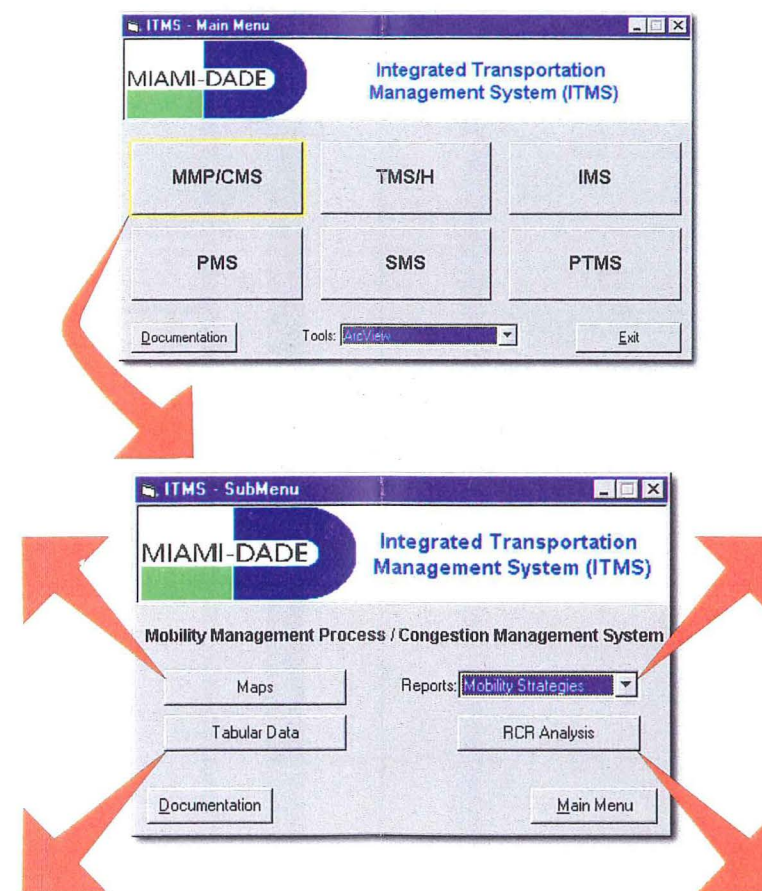
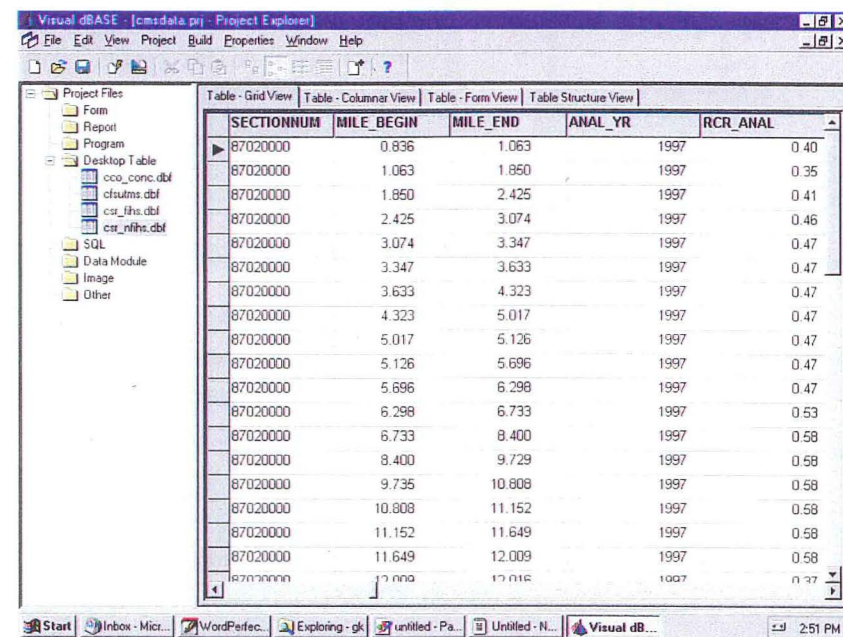
A typical ITMS module for individual management

Typical Module Structure



The ITMS program package is based on the geographic information system (GIS) software ArcView, and the database software Visual dBase. The computational analysis and reports use the Lotus 1-2-3 spreadsheet software. The graphical user interfaces (GUIs) and the data conversion/update processes have been developed using Visual Basic programming.

systems includes a sub component to convert all the input data into the appropriate formats. The data analysis sub component allows calculation of selected performance measures and analysis parameters, and preparation of standard pre-selected reports. The GIS sub component provides the visual analysis and preparation of standard pre-selected maps.



Lotus 1-2-3 Release 5 - [CMOBILITY.WK4] File Edit View Style Tools Range Window Help						
Miami-Dade County Integrated Transportation Management System (ITMS) Mobility Management Process/Congestion Management System (MMP/CMS) Mobility Strategies and Generalized Effectiveness Table Source: Miami-Dade MMP/CMS						
Item #	Mobility Strategy	Percent Improvement in v/c Ratio (%)	Applicability To			
			Spot	Corridor	Activity Center	Area wide
I	Transportation Demand Management					
1	Trip Reduction Ordinances (TRO)	0.80		X	X	X
2	Employer Transportation Coordinator	1.00	X		X	
3	Shuttle Services	1.00	X	X	X	
4	Ridesharing	-	-	-	-	-
	a. Carpool	5.00	X		X	X
	b. Vanpool	5.00	X		X	X
	c. Buspool	1.00	X		X	X
5	Marketing Information Program	0.05		X	X	X
6	Preferential Parking	NA	X	X	X	X
7	Emergency Ride Home Program	1.00	X		X	
8	Employer Subsidized Transit Use	1.00	X		X	
9	Employee Transportation Allowance	0.80	X		X	X

RCR Analysis

Select Input and Output Files: Concurrency

Input Variables:

Peak to Daily Ratio (e.g., 7.00): 7 FSUTMS Base Year: 1990

Annual Growth Rate (e.g., 1.00): 1 State Roads Base Year: 1995

RCR Threshold (e.g., 0.90): .9 Analysis Year (e.g., 1997): 1997

Concurrency

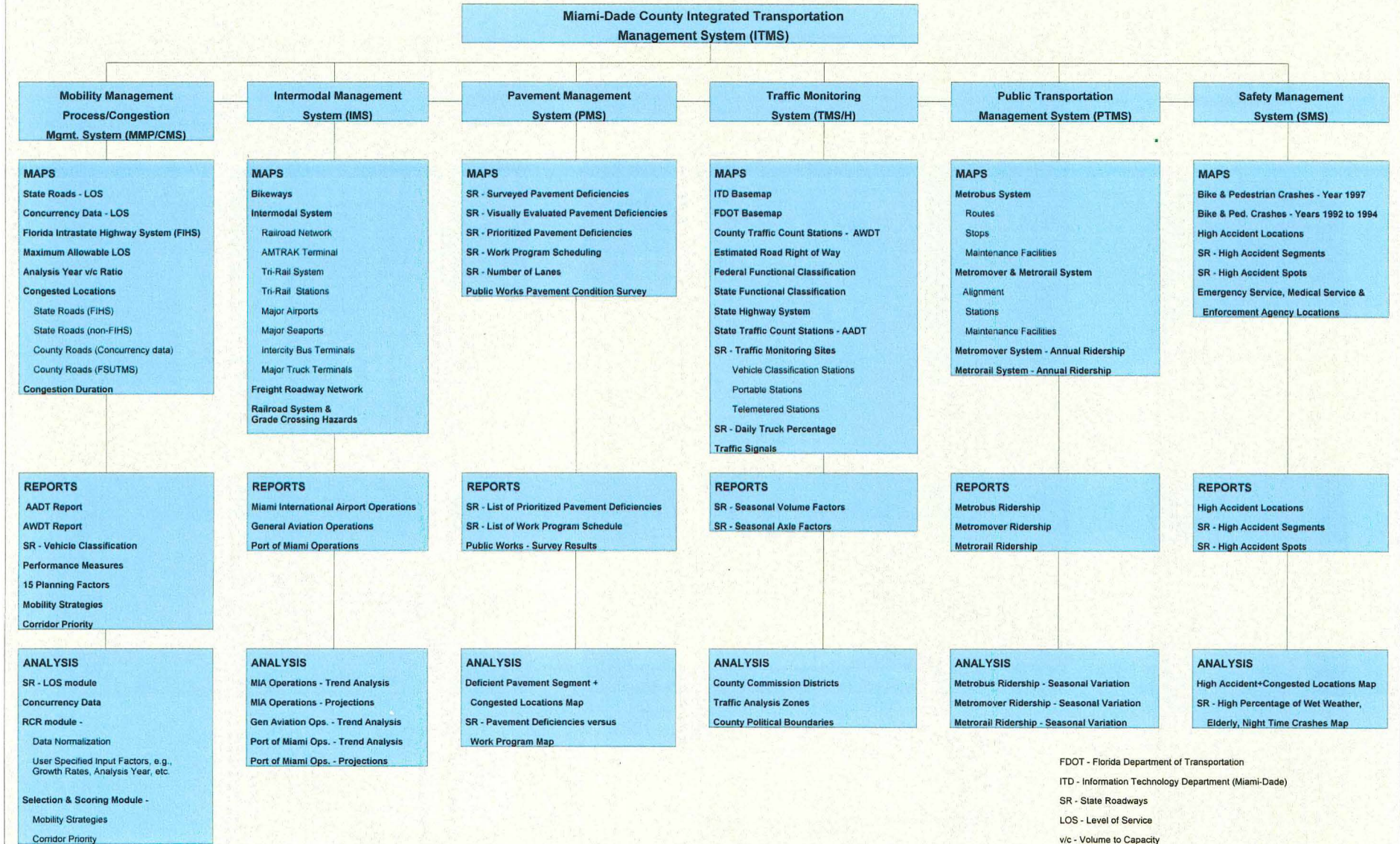
Concurrency Database: Browse

Concurrency Stations - State: Browse

RCR Output - County Stations: Browse

Run All Processes Systemwide Parameters Menu

ITMS Functions at a Glance



FDOT - Florida Department of Transportation
 ITD - Information Technology Department (Miami-Dade)
 SR - State Roadways
 LOS - Level of Service
 v/c - Volume to Capacity
 FSUTMS - Florida Standard Urban Transportation Model Structure
 AADT - Annual Average Daily Traffic
 AWDT - Average Weekday Daily Traffic
 RCR - Relative Congestion Ratio

Source: David Plummer & Associates

Working in ITMS

A user-friendly program environment has been developed to guide a user through the components and modules of the ITMS program package. Upon starting the ITMS program, a sequence of GUIs display the available options and allow the users to select their desired option.

The exhibit titled *Working in ITMS* illustrates typical navigational steps and functional elements of the ITMS program. The chart titled *ITMS Functions at a Glance* maps out the comprehensive information that has been analyzed, and made available, in the ITMS program.

Benefits

The following is a list of the main benefits of the ITMS:

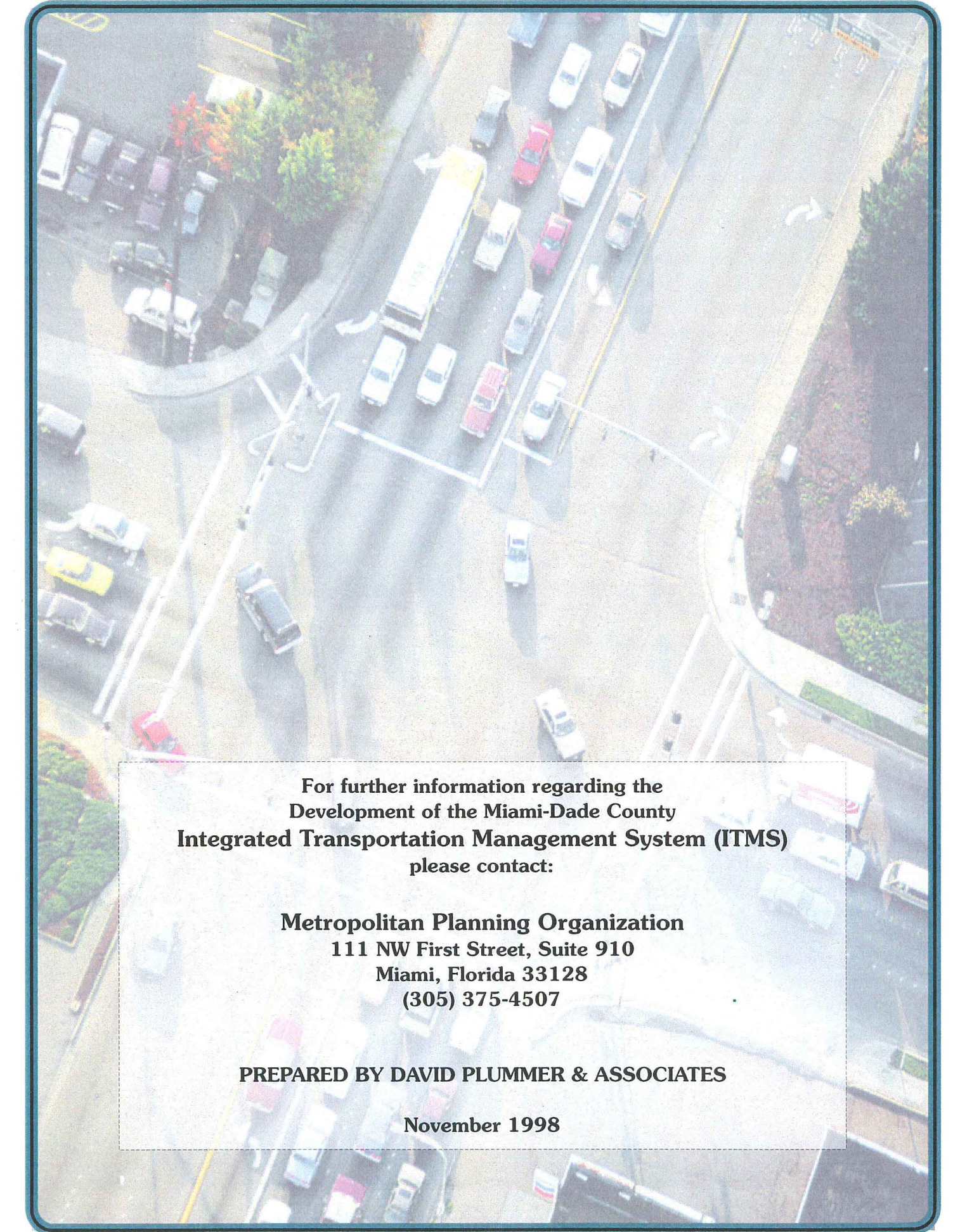
- ▶ Improve the planning process and project selection through better utilization of available information.
- ▶ Improve the decision making process using advanced decision support and analysis capabilities.
- ▶ Increase effectiveness of planning through improved access to integrated and seamless multimodal and multi-disciplinary information.
- ▶ Build synergy between governmental agencies by creating a system for improved data exchange and information sharing.
- ▶ Increase productivity and more effective resource allocation through better coordination of efforts avoiding duplication.

- ▶ Provide a robust information system that can be expanded to integrate other analysis tools and applications.
- ▶ Improve the efficiency of the transportation system in Miami-Dade County.
- ▶ Increase satisfaction of the traveling public.

Future Needs

The following is an initial listing of system enhancement recommendations for future phases:

- ▶ Develop Transportation Improvement Program (TIP) application.
- ▶ Update the ITMS system to incorporate FDOT's improved roadway network, when available.
- ▶ Automate maintenance of historic data.
- ▶ Develop an internal agency program for annual data updates.
- ▶ Integrate traditional transportation analysis tools, such as, Highway Capacity Software.
- ▶ Integrate FDOT's transportation modeling and GIS applications.
- ▶ Develop Internet applications.
- ▶ Develop applications to interact with other areas of transportation, e.g., bridge management, construction management, socio-economic data, land use, utilities, etc.
- ▶ Expand/enhance the means of accessibility to the system by other departments and agencies.
- ▶ Complete the population of all databases over time.



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