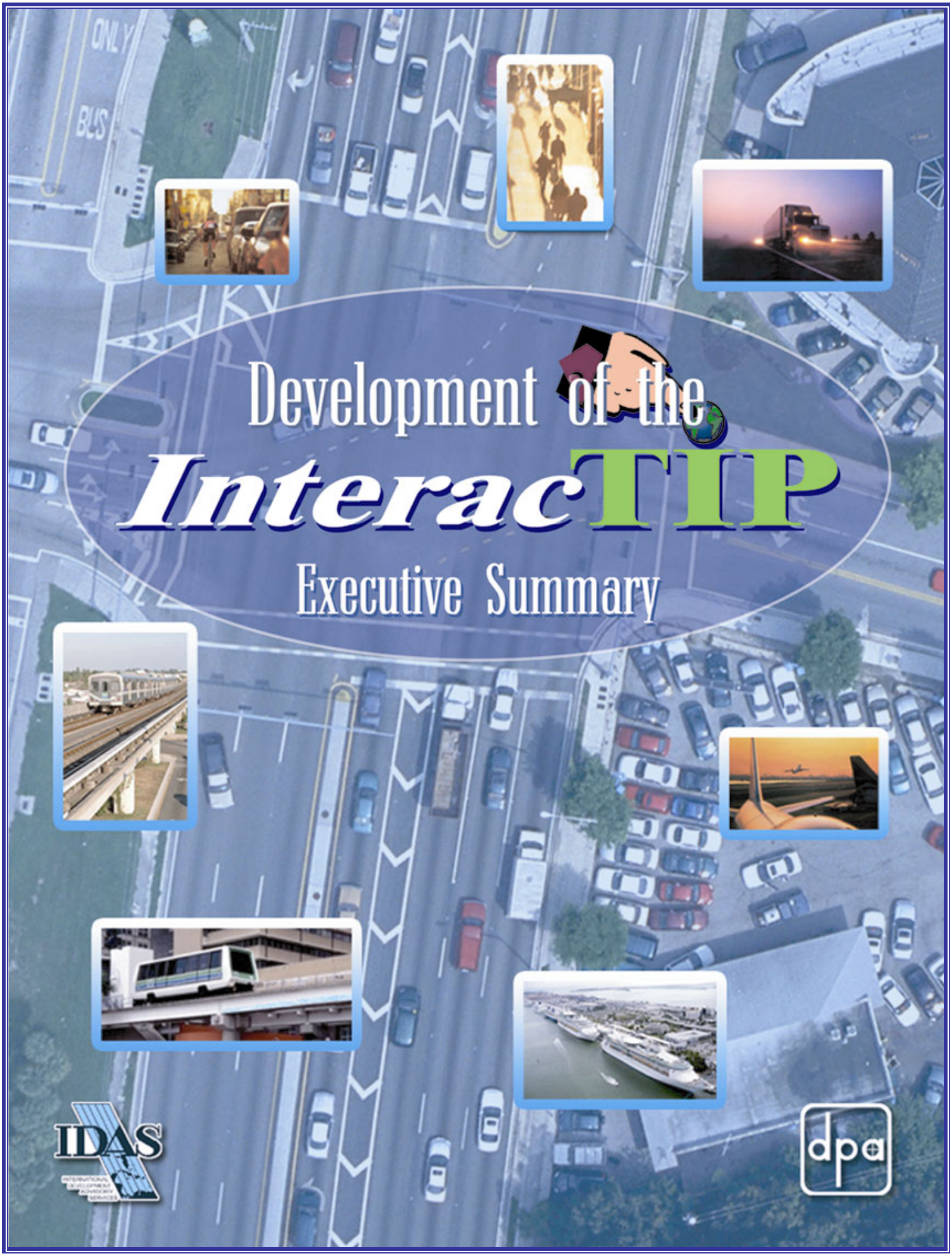

Development of the InteracTIP

Executive Summary

IDAS

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INTRODUCTION

Every year, the Miami-Dade Metropolitan Planning Organization (MPO) compiles a document known as the Transportation Improvement Program (TIP). The document presents a comprehensive listing of transportation projects undertaken by various public agencies (and the private sector). The subject report represents the end of a cooperative process whereby independent transportation agencies at various levels suggest a series of improvements to be accomplished over the next five years.

The MPO has long contemplated the development of an Interactive Transportation Improvement Program (InteracTIP). The concept behind this project is to automate the development of the TIP document every year while at the same time: improving consistency; reformatting the book into a more user-friendly document; developing the ability to create special reports answering questions from the general public as well as public officials; facilitating the analysis of the data contained in the report; and, last but not least, providing easy access to information by the public in a meaningful and easy-to-use format via the Internet.

The MPO asked a consultant team to tackle the development of this tool, however, the help of the Miami-Dade e-Government Department was also secured in order to facilitate the effort and ensure consistency with other applications residing at the Miami-Dade Web Portal. Finally, the cooperation of the agencies participating in the TIP process was also obtained. The development of the InteracTIP has been a team effort resulting in the completion of a very powerful and user-friendly tool that will be very helpful to the MPO and the public in general.

INTERACTIP CONCEPT

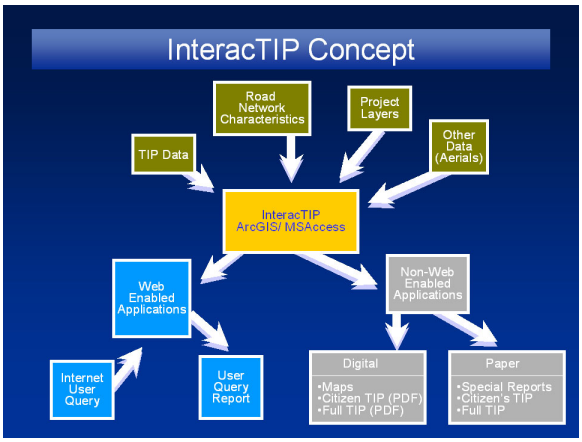
The concept of the InteracTIP was developed after careful consideration of the needs of the Miami-Dade MPO. These needs included:

- Facilitating the production of the TIP document every year
- Making the TIP documents more user-friendly

- Simplifying the process of extracting meaningful information from the documents
- Making the information available to the public over the Internet

The project represents a significant improvement over the previous documents in terms of amount of information, user-friendliness, and ease of use. Some of the needs were self-imposed by the MPO. Other needs, such as the user-friendliness aspect, were requested by the Federal Highway Administration (FHWA). The overall objective is to ensure that the TIP information is both easily accessible and easy to understand by the general public. Information availability is critical to ensure that the public is able to participate effectively in the transportation planning process.

The overall concept of the InteracTIP was based upon the existing TIP process and software available to the various parties involved. In essence, data in various forms is input into a centralized geo-database that resides at the MPO. The database then drives two sets of applications: one that operates locally (non-web enabled) at the MPO; the second is a web-enabled, interactive application on the Internet.



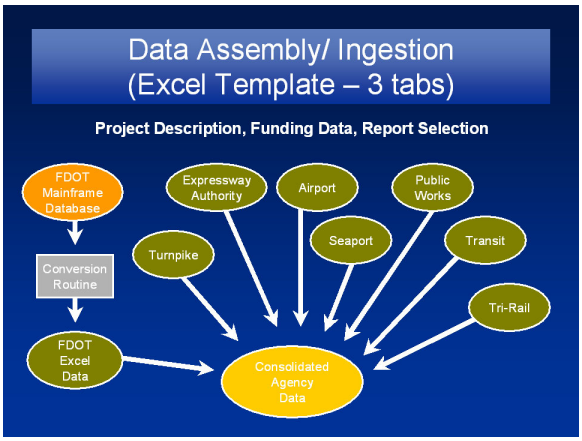
The non-web enabled application is used by MPO staff to prepare hard (paper) copies of two TIP documents (the Standard Version, and the Citizen's Version). The geo-database includes a number of pre-established queries that answer the most typical questions posed by the public and public officials. Furthermore, the open architecture and off-the-shelf software used for the InteracTIP, allow an infinite number of queries to be executed. Output and/or the result of such queries can be formatted into both tabular and geographic (map) forms.

INTERACTIP COMPONENTS

The major components of the InteracTIP system are described in more detail in the following sections. These components are: the geo-database, the non-web applications and the web-enabled application.

Geo-Database

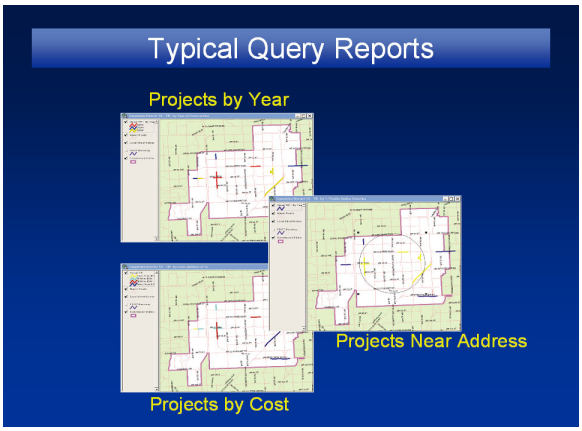
The geo-database is the heart of the InteracTIP. This database includes a series of pieces of information about proposed transportation projects: general (text format) project description and miscellaneous details; funding information (source, timing); and geographic location information that allows mapping of the improvements. Additionally, the user is allowed to specify the sections of the Standard (printed) TIP where the project is to be listed. Furthermore, other graphic information (pictures, drawings, graphics, etc.) can be associated with specific projects to further facilitate and enhance the project descriptions as needed. The geo-database ties together the geographic and non-geographic information about each project while providing the structure necessary to easily prepare reports and extract information using queries.



Standard Query Reports and Maps

There are several reports and maps that are prepared by the MPO every year based on the information in the new TIP. These reports represent information of general interest and/or information typically requested by agencies, elected officials and/or members of the public. These standard queries, provided by the MPO, are accessible through the InteracTIP main menu.

Additional information can be extracted from the database through the use of queries.



In essence, projects can be listed and catalogued based on any number of variables. The only requirement is that the information is contained in the database.

The queries can take the form of tabular listings showing the desired pieces of information. Typical tabular formats may be a list of projects with one, two or more columns displaying the extracted variables such as length, cost, agency, etc. Alternatively, projects meeting specific criteria, such as being within a certain range of values (e.g. projects with cost between $1 and $2 million) can also be extracted. Furthermore, the projects an be sorted and/or grouped by any variable desired by the user.

Map-type queries work in a similar fashion. Projects can be extracted or selected based on any specific variable and displayed in map form using color coding to portray additional information about the projects. Map queries can also show projects against other geographic information such as Commission District Boundaries.

Non-Web Applications

The non-web applications reside locally at a computer in the MPO office. These applications allow the MPO staff to perform several specific tasks as well as access to the information as a general resource for their day-to-day operations. There are two primary applications: the Standard TIP and the Citizen's Version TIP.

This application generates hard (paper) copies versions of these documents. The application creates all the needed sections and subsections of the reports based on the projects selected for each section. Only a few different page formats (forms) are used in order to provide a relatively uniform appearance among all sections while accommodating specific needs for each section.

In addition to the hard copy of the reports, electronic (pdf) versions of the report are also generated. The electronic version is used for downloading directly from the MPO web page for anyone who may be interested in the document.

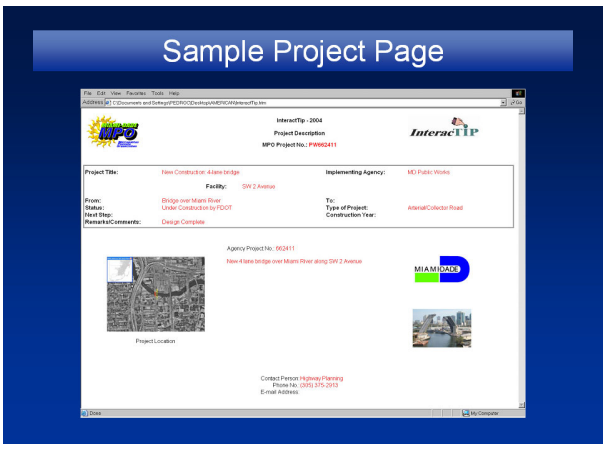
Web-Enabled Application

The web-enabled application that is part of the InteracTIP was developed in very close coordination and with the assistance of the e-Government Department of Miami-Dade County. The application was designed to bring meaningful TIP information to Internet users at their convinence. The application is driven by the same data in the geo-database described above. Assistance from e-Government proved to be very effective in using the same general structure, look and feel of several similar applications that reside in the Miami-Dade Web Portal. All these applications, including the InteracTIP, reside under the section entitled "My Neighborhood". The InteracTIP information can be accessed by selecting "Transportation Improvements" in the menu of options under "My Neighborhood". This menu option name is both consistent with the name of other options and is readily understandable to the user. The Transportation Improvements option in "My Neighborhood" allows the users to get a map and/or a list of transportation projects near a specific location in the county. The application also provides access to an attractively designed "Project Page" for each project.

Interactive Maps and Lists

The Transportation Improvement option in "My Neighborhood" is similar in functionality to other options, yet a few refinements were added to make it even more versatile. Upon entering the Transportation Improvements page, all mapable projects are shown on a county-wide map. The projects are color-coded by type. The user can zoon into a specific area or obtain project-specific information by selecting any of the projects shown on the map. The user can also extract projects near a specific location or by type. Additionally, the Internet user can request a listing of projects that are not mapable. Location-specific maps can be generated by entering an address, an intersection or by selecting

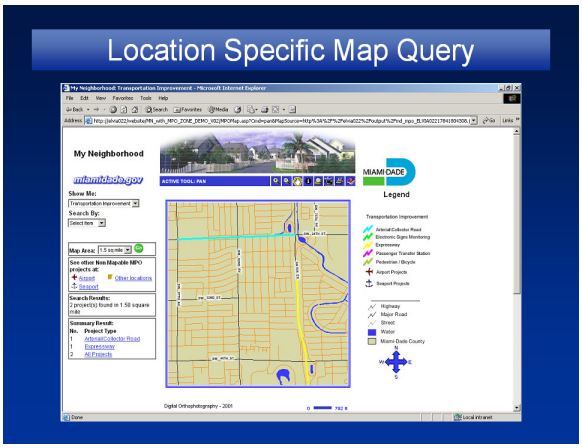
one of several dozen landmarks available from a list. Any of the tables or maps can also be generated in a printer-friendly format.



Project Pages

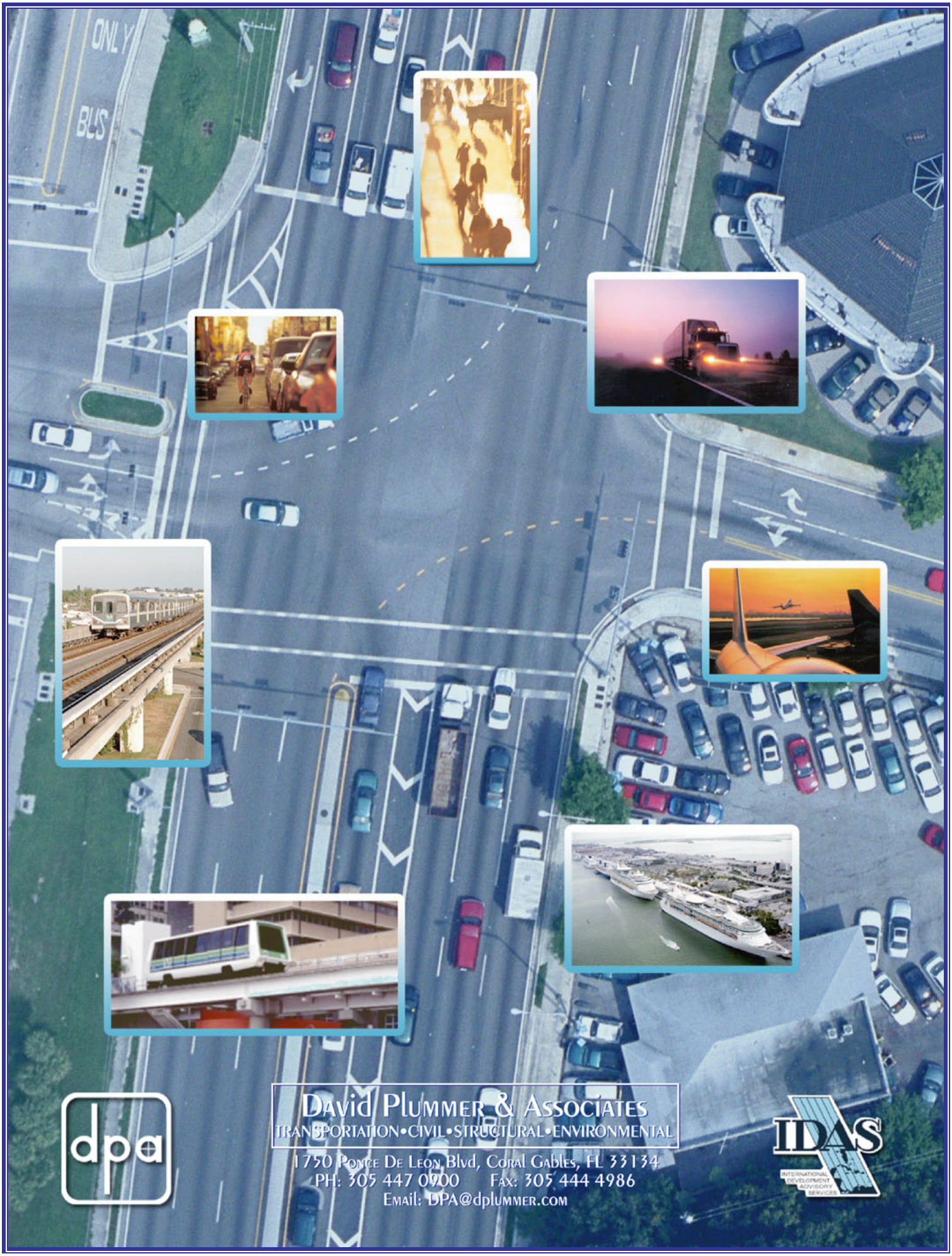
A project page was created for each project in the TIP providing basic project information. The layout, however, is not tabular. Instead, the text information is expanded with a longer, more detailed description and this is supplemented with a project location map on an aerial photo, the logo of the responsible agency and/or two pictures/illustrations of the project.

Access to the project pages is done by clicking on the color line on the map representing the project location or by clicking on the "MPO Project Number" link that is part of every table generated by this application. The project page can be printed using the web browser print function.



TRAINING AND DOCUMENTATION

Training on the InteracTIP was done at three different levels: a) One-on-one training of MPO staff; b) Data-Entry Training; c) Final Demonstration/Training.The documentation of this project is contained in five separate reports targeting different audiences as follows: a) Final Report; b) Executive Summary; c) Training Manual; d) Installation Manual; e) My Neighborhood Data Preparation; Maintenance and Transfer Manual.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