

Association of Transportation Safety Information Professionals

Application for Best Practices Recognition 2004

Part One: Project Summary

Project Title: [DHSMV Data Warehouse – Crash Records](#)

Project Description (three sentences or less):

This project successfully created the Florida Crash Records Data Warehouse. The Crash Records Data Warehouse provides a cost-effective migration and linkage of current and future iterations of crash records data with driver license records, motor vehicle records, citation records and other highway safety data. Integration of these records allows for immediate access to multiple inter-related data and variables; providing a timely and comprehensive analysis on highway safety initiatives and issues affecting the motoring public.

Nominating Person Contact Information:

Name: [Millie Seay](#)

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Project Manager Contact Information: (if different from above)

Name:

Title:

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Address with City, State, ZIP:

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Lead Agency for Project: [Florida Department of Highway Safety and Motor Vehicles](#)

Participating/Cooperating Agencies (if any): (Additional members of project team and their contact information may be provided as desired.)

[Funded through Federal Grant provided by Florida Department of Transportation](#)

Which National Agenda goals apply? (May be numbered 1-6 corresponding to the order given in the original document as well as to the rephrasing of the goals provided on the Best Practices web page). [Meets all goals 1-6](#)

Which steps in the management process does the project support? (Refer to the steps listed on the Best Practices web page. To avoid confusion with the numbered goals, use the wording provided and not the numbers. For example, say “Identify Problems” instead of just “2”)

[Identify Problems, Monitor Program Operations, and Evaluate Effectiveness](#)

Reference the priority in your traffic records strategic plan to which this project applies:

[Florida Department of Transportation Website – www.dot.state.fl.us/safety/sms/download.htm, Florida Safety Management System \(SMS\) Workplan – pg. 3 Traffic Records – improve the quality of and access to various traffic crash related information](#)

- I. [Improve the Accuracy and Timeliness of Traffic Crash Data](#)
- II. [Improve Traffic Crash Data Quality](#)
- III. [Develop Linkages and Access to Other Databases](#)
- IV. [Promote the Use of Traffic Records for Program Planning](#)

Project Cost: planned \$: [250K](#) actual \$: [250K](#)

Extent of Project Implementation: (Sample Response: As of December 2003, the project created software that has been installed in 10 of the 15 cities in this pilot project. Five of those cities have provided performance information used in the “benefits” sections of this application.)

[Seventeen years worth of crash records for the entire state of Florida have been loaded into the warehouse and are now available to all warehouse users \(25\) in DHSMV and FDLE for ad-hoc queries and reporting.](#)

Summary of Project Benefits: What was improved, who benefited, and how?

Benefits may be measurable or anecdotal, direct or indirect. If you can demonstrate the benefits of a traffic records project all the way to the bottom line (saving lives, reducing injuries and damage due to motor vehicle crashes), please do so!

It may be easiest to fill out the benefits section under Project Detail first, and then write a one- to three-sentence summary of that material here.

[It is now much easier to correlate crash data against driver records and motor vehicle records as all data is now accessible in one query.](#)

[Requests for information can be turned around more quickly as more users can formulate their own queries more easily against more data.](#)

The ability to easily compare crash data against driver history and vehicle data will help to identify problem areas more readily than before. Thus candidates for targeted programs can be identified more easily and targeted more specifically (see our example in the attachment “6+ Point Driver Analysis”). We expect this will help produce better results, sooner!

Part Two: Project Detail

Guidance to completing this section—you may delete this italicized guidance section from your final document before returning it.

In responding to each of the items below, use a narrative style and include the amount of detail you feel is appropriate for each item. This will vary from one application to another.

Keep the total length of this application to 10 pages or less without reducing font size or margins. Ten pages is NOT the ideal length. It is to accommodate the rare application with unusual features.

Many of these items are related to items you listed or summarized in Part One. Make sure they are compatible!

Make this section of your application easy for reviewers to read by using devices like subtitles, bold highlighting, indentation, bullets, etc. as appropriate. Don't be stingy with white space. Put it between paragraphs and between bullets, for example.

Project Description: (your opportunity to write more than the three sentences permitted in Part One)

In 2002, DHSMV had elected to develop and deploy a data warehouse consolidating data from Division of Motor Vehicles, Division of Driver Licenses and Highway Patrol Computer Aided Dispatch. This new database would allow users to perform ad-hoc queries against all records in a particular data structure (something they weren't permitted to do during business hours on the source operational system), and to compare some or all records between different data structures in their business area or between structures in different business areas (something they couldn't do at all in an automated fashion). For example, they may want to look at driving records for all registered owners of red cars in Miami. Now they could do that.

In addition to a consolidated platform for all this data, a much simpler graphical user interface was selected, built and deployed which allowed end-users to develop their own queries with simple mouse clicks and minor data value entry. They did not need to be proficient in SQL. Now end-users could formulate their own ad-hoc queries to answer management, law enforcement, and legislative information requests without having to rely on limited internal IT resources. They could now do this quickly and regularly. Response time decreased from days to minutes. (See <http://casey.hsmv.state.fl.us/inranet/ddl/AAMVA/warehouse.PDF>)

The Office of Management Research and Development is responsible for state-wide Crash Reporting in Florida. Crash reports are collected manually and electronically from all jurisdictions throughout Florida and are fed to a mainframe file. Historically an annual extract had been loaded into SQL Server to produce the annual Crash Facts book. The group had been able to respond to a limited number of ad-hoc and standard information requests by writing new queries against the data. Running the same query across multiple years required multiple runs and merging. Tying in data from Division of Motor Vehicles and Division of Driver Licenses required effort from other departments and then manual intervention to bring the data together.

Recognizing the potential of having the Crash data stored with all Division of Motor Vehicles and Division of Driver Licenses data in the data warehouse, the Office of Management Research and Development initiated a project to add Crash records to the warehouse.

Now users can easily develop one query and run it just once and in a matter of minutes return results from across seventeen years of history or connect crashes to related records residing throughout hundreds of millions of DL and MV records.

Referring to the National Agenda Goals, tell how your project relates to each one you listed in Part One of this application:

1. Does it involve a leader(s) who promotes the importance of highway safety information systems, used for safety policy and program decision-making? **Yes.** Executive Director, Department of Highway Safety and Motor Vehicles – Fred O. Dickinson / Deputy Executive Director, Department of Highway Safety and Motor Vehicles – David F. Westberry / Director, Office of Management Research and Development – Millie Seay
2. Does it involve the coordination of the collection, management, and use of highway safety information among various organizations responsible for highway transportation policy? **Yes,** Florida Department of Highway Safety and Motor Vehicles, Florida Department of Transportation, county and local law enforcement.
3. Does it represent an example of integrating the planning of highway safety programs with highway safety information systems? **Yes.** Users can compare different types of drivers (by their DL records) against their crash rates to suggest what kind of drivers are more likely to have crashes, Programs can then be put in place to mitigate the apparent higher risk of crashes for these types of drivers.
4. Does it represent an example where managers and users of highway safety information have utilized or were provided the necessary resources to select the appropriate technology to meet their information needs? **Yes.** A new initiative in the agency had been recently launched to provide a consolidation of all Motor Vehicle, Driver Licenses and Highway Patrol incident information into one system. This new warehouse platform not only provided a consolidated platform where Crash data could be added and easily compared against the millions of Motor Vehicle and Driver Licenses records, but also provided a simple to use end-user graphical query tool. This is the first comprehensive cross-agency

- introduction of business intelligence tools combined with data warehousing in the agency.
5. Does it represent examples of highway safety professionals being trained in the analytic methods appropriate for evaluation of highway safety information? **Yes.** Heretofore all reporting/querying of data was performed by a few limited expert technical resources in a stand-alone environment. The new BI/Warehouse platform allows non-technical analysts to do their own analysis directly against the data (and compare to other data never before readily available in the same environment) and allows the technical resources to spend more time learning the business (the analytic methods) rather than spending all their time translating the business analysts requests into code.
 6. Does it involve the promotion and use of technical standards for characteristics of highway safety information systems, critical to the development and management of highway transportation safety programs and policies? **Yes.** Existing standards were maintained in the new system and new standards and code were introduced in the data as the system was loaded (e.g., standard names, standardized Booleans, normalized data structures, etc.)

Referring to the management approach to highway safety, tell how your project supports the management steps you listed in Part One:

Identify problems – repeated patterns can be found in the consolidated data warehouse, (e.g., recurring commercial vehicle incidents for a single carrier, higher than normal crash rate for graduates of a particular driving school, most common time of day for crashes, locations with frequent crashes, etc.)

Monitor Program Operations - metrics needed for a program can easily be obtained from the warehouse as new data arrives. New measures can be added to the warehouse to aid the new program. Standard queries can be established to report the statistics.

Evaluate Effectiveness – Standard queries can be established to collect metrics before new programs were initiated and the same metrics afterwards. Thus one can compare the different metrics to see if improvement. While it may be difficult to always correlate improvement in the numbers due to program implementation, a well defined program should be able to predefine what metrics to use and what improvement would constitute success. Anecdotal evidence and other positive observations can be used to back up by the numbers. Effectiveness can be better measured over time and the warehouse contains 17 years of history and will support many more future years worth of history to measure effectiveness over time and to observe trends.

Describe the major process steps for your project, including any unique aspects that enhanced success:

Data analysis was conducted to normalize and standardize the data structures, data elements and data values required to be loaded for Crash records. Standards and naming conventions already in use in the warehouse for other divisions were adopted to make it easier to understand the data. Three historic formats were standardized into one common set of structures.

A logical data model was produced to help understand the structure of the data in the crash records. From this model, the graphical user interface model for the business intelligence tool was constructed.

Conversion rules and mapping were defined for all crash data structures. Seventeen years of crash records were converted and loaded into the new data structures in the warehouse. Care was taken to minimize changing the original data, to be as true to the source as possible and practical.

Standard queries and reports were defined, developed and deployed for use and to serve as templates and examples.

End-users were trained in the use of the query tool and in the structure of the data in their crash reporting portion of the warehouse along with other data from the Driver Licenses and Motor Vehicles Divisions. Business users and technical specialists were involved in all aspects of the project along with the consultant responsible for building the original warehouse so as to provide consistency and to transfer business knowledge.

Provide the evidence and reasoning used to determine the success of the project:

Previously, we could not easily answer hypothetical questions such as “Are drivers with driving records that have accumulated six or more points on their driving record more likely to have a crash than the general driving public?” Now we can readily answer questions like these. We believe this new ability justifies the project and demonstrates success. (See “6+ Point Driver Analysis” attached).

Why should this project be recognized as a best practice in traffic records?

Incorporates and links critical highway safety data into one system that has very positive implications for domestic security, public safety, policy analysis, and ad-hoc safety reports.