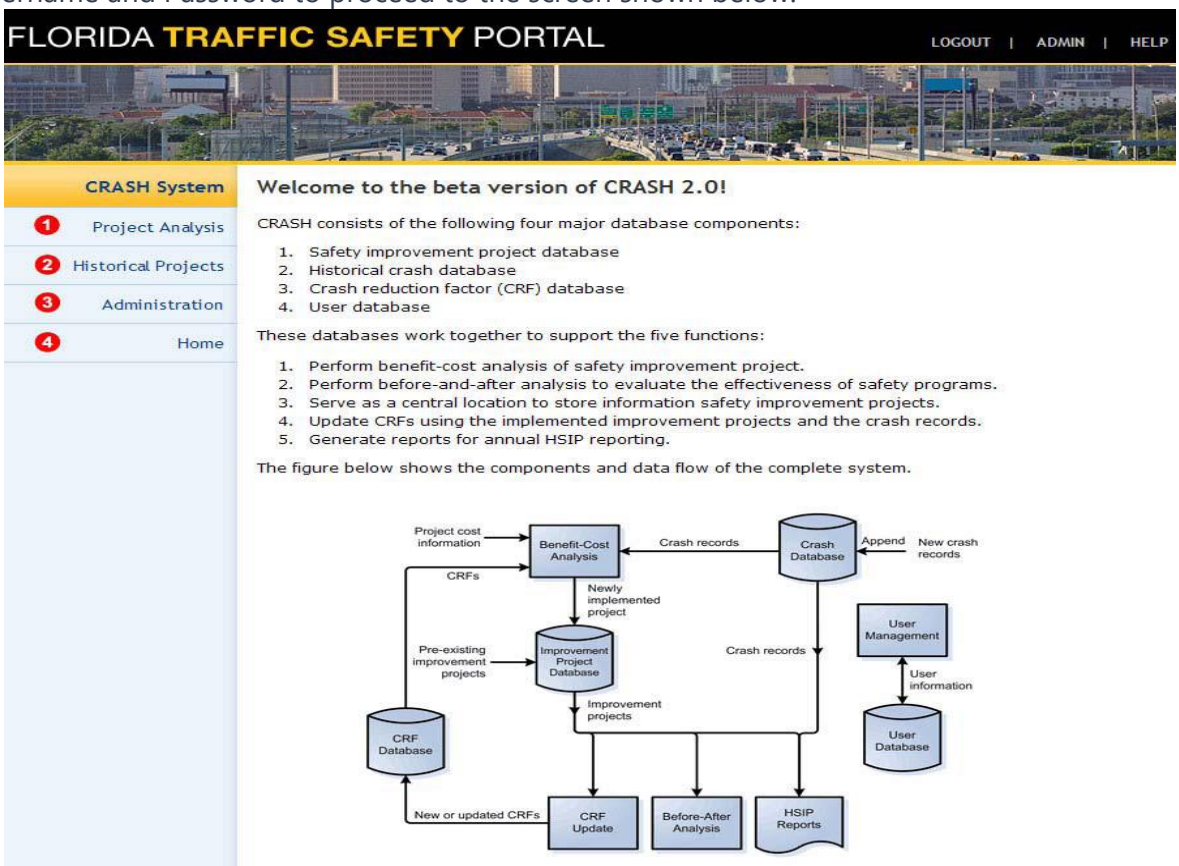
Florida Department of Transportation
State Safety Office (SSO): Crash Reduction Analysis System Hub (CRASH)
Enterprise 24x7 Inc. Project Summary

Overview

While the Florida Department of Transportation (FDOT) maintains a comprehensive crash database for the state roadway system, it did not have a central database for safety improvement projects. Consequently, historical data for safety improvement projects were maintained separately at various district offices in various formats, limiting accessibility for the transportation analyst and impeding the development of Crash Reduction Factors (CRFs). A web-based application, called the Crash Reduction Analysis System Hub (CRASH), was developed to systematically maintain a statewide safety improvement project database which facilitates the continual process of updating CRFs. The system, (http://www2.dot.state.fl.us/TrafficSafetyWebPortal/CrashLogin.aspx), allows the following tasks to be performed in an automated manner:

- Recording and maintaining improvement projects,
- Updating CRFs based on the latest available improvement project and crash data, and
- Applying calculated CRFs in the benefit-cost analyses of specific projects.

In addition, the system provides multiple functions for data retrieval and exportation for different analysis and reporting purposes. To enter the CRASH database, the user must first select CRASH from the menu located on the left side of the screen. The user will then be directed to the CRASH Login screen, here he or she needs to input a Username and Password to proceed to the screen shown below.



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System Components

CRASH was designed as a Microsoft ASP.NET web application that works with an Oracle database. The system, in its initial version, consisted of the following four major database components:

- Safety improvement projects since 1992
- Historical crash records from 1984
- Crash reduction factors and associated statistics
- User management information

The initial screen of the system includes the following four functional components working with the back-end database; to access any of these functional components, click the corresponding button shown in the left-hand column:

Project Analysis: This functional component allows the District user to perform the following functions:

- Start a New Improvement Project: To perform a new benefit-cost analysis for a project.
- Edit Improvement Projects: To make changes to one or more previously saved analysis projects.
- View Improvement Projects: To view one or more previously saved analysis projects.

Historical Projects: This functional component allows the District user to perform the following functions:

- Add a Historical Improvement Project: To enter information for an existing project on which analysis has been performed.
- Edit Historical Improvement Projects: To add post-construction information for projects that have been completed or are under construction.
- View Historical Improvement Projects: To view projects that have been completed or are under construction.
- Generate HSIP Reports: To generate the standard Highway Safety Improvement Program (HSIP) reports.
- Perform Before-and-After Evaluation: To generate before-and-after statistics for selected improvement projects to evaluate their effectiveness.

Administration: This functional component is mainly used by the system administrator or a designated person in the FDOT Central Office to perform the following functions:

- View Crash Reduction Factors: To generate the list of current Florida CRFs and to view detailed summary statistics associated with the calculation of each CRF.
- Update Crash Reduction Factors: To update the crash reduction factors after the new improvement project and data are added (for system administration only).
- Maintain Safety Improvement Types: To add and edit safety improvement project types (for system administration only).
- Assign Safety Improvement Types: To review improvement projects and assign improvement types to projects (for system administration only).
- Append New Crash Records: To append crash records from a new data year (for system administration only).

Home: This link returns the user to the Florida Highway Safety Portal.

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E24X7INC Services

The **Senior Web Applications Developer** (**AD**) developed, maintained, and supported applications for the organization's Internet/Intranet sites. The AD gathered and analyzed the application requirements. The AD programmed all of project scoped components of Web application. The AD documented components and the developed applications. The AD developed automation techniques to enable end-user content publishing; programed, tested and implemented mapped graphic images, forms in HTML, .NET pages. The AD handled client browser support inquiries; maintained links to external sites and accuracy on internal links while ensuring up-to-date information. The AD researched, evaluated and recommended newer Internet tools and complonents for use in assigned development responsibilities. The senior level Web Applications Developer had experience in a variety of the more challenging Web tools and languages and was responsible for coordinating with the three groups involved in the final tasks required to deploy the web CRASH application to Production. The AD worked with RTS & BSSO assigned web developers to implement desired enhancements for CRASH as identified by the project sponsor and responded to issued identified during UAT and post-production issues.

The Expert Business Analyst (**BA**) served as a liaison between the business community and the IT organization to provide technical solutions that met the user stated needs. The BA possessed expertise in the business unit(s) supported, as well as, an understanding of the IT organization's systems and capabilities. The BA analyzed the client's internal Crash analysis operations to understand their strengths and weaknesses to determine opportunities to automate processes and functions. The BA assisted in the business process redesign and documentation as needed to move to the new technology. The BA translated high level business requirements into functional specifications for the IT organization and managed approved changes to such specifications. The BA negotiated design agreements and commitments by facilitating communication between business unit(s) and IT from initial requirements to final implementation. The BA possessed an understanding of technological trends and used this knowledge to bring solutions to business units to enhance and streamline their internal processes. The solution was aligned with business and IT strategies of the Agency and comply with the organization's architectural standards. The BA was involved in the full life cycle of the application development, testing and implementation.

The **Project Manager (PM)** was responsible for overall coordination, status reporting and stability of the complex and cross-functional project-oriented work efforts. The PM managed multiple FDOT-SSO projects simultaneously, including CRASH. The PM established and implemented project management processes and methodologies for the FDOT-SSO to ensure the projects were delivered on time, within budget, adhered to high quality standards and met customer expectations. The PM was responsible for tracking key project milestones and adjusting project plans and/or resources to meet the needs of customers. The PM partnered with senior management of the FDOT-SSO to identify and prioritize opportunities for utilizing IT to achieve the

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goals of the section. The PM possessed extensive knowledge and expertise in the use of Project Management methodologies and tools and understood human resources policies and practices as well as change management techniques. The PM was a liaison between the Technical team, the client and the company. This individual created a Statement of Work and a Project Plan for each project, defined project deliverables, identified project risks, reviewed monthly billings versus worked hours, verified time-sheet versus assigned tasks, created and updated spread-sheet with billings to date, remaining amount, and remaining hours. The PM ensured the project operated within the budget and communicated with the client and the team regarding delays, risks and issues as quickly as possible.

Technologies Leveraged

- .NET
- Java
- MS Office
- Oracle Database
- Source Safe
- MS Project
- C#
- SQL/PLSQL
- SharePoint

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