Welcome & Introductions

- Name
- Organization
- Your Role & Responsibility
History of Key Efforts for SSO

- All Roads Base Map (ARBM)
- Safety Office Web Portal
- Embedded Applications
  - CRASH
  - ARCA
- SSOOGis
Timeline of Key Efforts prior to last FY

2007-2009
- Initial Creation of All Roads
  Base Map & Routes using TeleAtlas

2009-2010
- Created SSO Safety Web Portal & Redeveloped CRASH application & TeleAtlas to NavTeq

2010-2011
- Implemented ARCA with IMS Mapping, Enhanced CRASH & ARCA ARBM QA Process

2011-2012
- Expanded CRASH and ARCA features
  Upgraded ARBM and transferred crashes

2012-2013
- Creation of SSOGis for CRASH & ARCA, CLS update

2013-2014
- 2007-2011 Crash Layers using ARBM, SSOGis: Crash Query Tool
Why These Tools Are Important
All Roads Base Map

What Is It?
✓ Leveraged off NavTeq and updated annually
✓ Comprehensive collection of all Florida roads in a LRS
✓ State owned segments appended with RCI characteristics
✓ AADTs applied

Why Is It Important?
✓ Foundation for locating crashes, displaying high crash data and SSO projects
✓ Provides ability to spatially represent crashes on correct side of road
✓ Used during high-crash analysis (off-system)
✓ Foundation for Geo-databases used for query tools
SSO Web Portal

What Is It?
✓ Central communication portal for Crash related Safety Information
✓ Launch point for CRASH, ARCA and SSOGIS applications
✓ Hub to other Safety related websites

Why Is It Important?
✓ SSO team can add new announcements, links, publications without a webmaster
✓ District Safety Analysts need only go to one location
✓ Allows FDOT and public to answer crash specific questions themselves
CRASH Application

What Is It?
✓ A web-based application developed for the selection and evaluation of highway safety improvement projects
✓ Performs benefit-cost analysis
✓ Performs before-and-after analysis

Why Is It Important?
✓ Serves as a central storage location for safety improvement projects
✓ Calculates crash reduction factors (CRFs) for use in future project evaluation
✓ Generates standard reports for annual HSIP reporting
ARCA Application

What Is It?

✓ A web-based application to list the high-crash segments, intersections and HRRR

✓ Allows users to map the selected high-crash segment(s) and intersections(s)

Why Is It Important?

✓ Provides the high-crash roadway data in a searchable format

✓ Allows authorized users (District Safety Engineers) to provide remedies, estimated remedy costs and impediments
SSOGis

What Is It?
✓ Mapping Tool for Safety Office containing
  ✓ Crash Layers
  ✓ High-Crash segment/intersection layers
  ✓ Safety Project layers
  ✓ Safety Focus Layers
✓ Crash Query Tool

Why Is It Important?
✓ Allows for visualization of Safety Project locations
✓ Allows for visualization of high-crash segments & intersections
✓ Allows for visualization of SSO verified crashes
✓ Provides Crash search capability
Crash Layers (by year from 2007-2011)

What Are They?
- All SSO verified and located crashes by year in a geospatial layer
- Crashes aligned to the current ARBM

Why Is It Important?
- Aligns to all crash related reports that use the verified crash data (E.g. HSIP Reports, High Crash Segments & Intersections, crashes associated with Safety Project segments)
- Allows for visual presentation & extraction of crashes using SSOGis
How It All Relates Together

FDOT Core Data

- Crash Reports
- RCI
- CAR
- CLS
- NavTeq

SSO Roadway & Crash Data

- ARBM Roadway Layer
- ARBM Roadway GeoDB
- ARBM Intersection GeoDB
- Yearly Crash Layers

SSO Web Portal

- CRASH
- ARCA
- SSOGis Crash Query
- SSOGis Location Query
Accomplishments for FY 2014-2015

- Upgraded All Roads Base Map
- Updated 2011-2012 crash layers
- Created 2013 Crash Layer & High Crash Analysis Layers
- Created Streets Geo-database
- Initial design of Intersection Geo-Database
- Finalized SSOGis Crash Query Tool
- Created SSOGis Location Query Tool v1
- Addition of Safety Focus Layers to SSOGis
Upgraded All Roads Base Map – 2013Q1

Why Is It Important?
- Florida road network is constantly evolving
- This LRS is the foundation for other SSO crash tools and Geo-databases
- Crashes cannot be located or analyzed effectively
- Over 97K new arcs
- Over 47K lines that needed to be redrawn

How Will It Be Used?
- Linear Reference System used for analysis and display of crashes
- Base for the Geo-databases used for crash and location searches
- Base for Safety Focus maps
Updated 2011-2012 crash layers

What was done?
✓ Updated these two years to include the new DHSMV Crash Report fields and codes since they were available for them
✓ Standardizes the crashes on the current ARBM for consistency

How Will It Be Used?
✓ Used during presentation of crashes in SSOGis from the following
  ➢ CRASH projects
  ➢ ARCA High Crash segments & Intersections
  ➢ SSOGis Crash Query Tool
✓ Will immediately provide a three(3) year analysis base of crashes with the same fields/codes when added to the 2013 crashes
Created 2013 Crash Layer & High Crash Analysis Layers

What was done?

- Created the 2013 crash layer using the new DHSMV Crash Report fields and codes
- Located the crashes on the current ARBM for consistency
- Used CAR High-crash Analysis process to identify on-system high-crash segments & intersections
- Created alternate analysis process to determine off-system high crash segments

How Will It Be Used?

- Used during presentation of crashes in SSOGIS from the following
  - CRASH projects
  - ARCA High Crash segments & Intersections
  - SSOGIS Crash Query Tool
- Immediately provided a three(3) year analysis base of crashes with the same fields/codes
2013 High Crash Analysis Layers
Created Streets Geo-database

What was done?

✓ Created a comprehensive spatially enabled database that includes
  ✓ 100% of Florida road segments with Roadway IDs
  ✓ Left/Right lane designation
  ✓ Road names & Aliases
  ✓ RCI data on state roads
  ✓ AADTs

How Will It Be Used?

✓ Foundation for SSOGis Location Searches
✓ Associates ‘street’ specific attributes to crashes once crashes are linked to ARBM
✓ Critical for identifying the Intersection Geo-Database
ARBM Streets Geo-Database

Overview of the data flow
ARBM Streets Geo-Database

Overview of the tables produced:
Initial Design of Intersection Geo-Database

Why Is This Important?

✓ Will include 100% of Florida intersections
✓ Will include intersection characteristics
✓ Will include intersection type (simple, complex, roundabout, median, etc)
✓ Will identify intersections as signalized / non-signalized

How Will It Be Used?

✓ Foundation for SSOGis Location Searches
✓ Used to standardize high-crash intersection identification
✓ Future Intersection specific analysis and reports
Intersection Geo-Database Initial Examples

Complex Intersection
- good

Complex Intersection
- NavTeq data issues
Intersection Geo-Database Examples – cont.

T- Intersection

Roundabout
Finalized SSOGis Crash Query Tool (based on original Crash Report)

What Was Done?

☑ Created a public search tool for crash data
☑ Based on FDOT GIS Framework
☑ Allows user to query on over 20 crash characteristics,
☑ Expanded to include Safety Focus characteristics
☑ Allows user to export crashes selected in query

How Will It Be Used?

☑ Allow DOT users to see crashes based on specific crash criteria
☑ Allow Public to see crashes based on specific crash criteria
☑ Can overlay Safety Focus layers
☑ Reduce public records requests
SSOGis Crash Query Tool

Search Criteria
**Created SSOGis Location Query Tool v1**

**What Was Done?**
- Created a public search tool for crashes based on location
- Based on FDOT GIS Framework
- Allows user to query on basic location information

**How Will It Be Used?**
- Allow DOT users to see crashes based on selected location criteria
- Allow Public to see crashes based on selected location criteria
- Can overlay Safety Focus layers
- Reduce public records requests
- Initial release with additional search criteria coming with Intersection Geo-Database
SSOGis Location Query Tool

This is the initial release containing
- Geometry
- DOT District
- DOT County
- Roadway ID
- Milepost Range
Addition of Safety Focus Layers to SSO GIs

What Was Done?

✓ Created Bicycle 2007-2011 cluster analysis Layer using ARBM and Crash layers
✓ Created Pedestrian 2007-2011 cluster analysis Layer using ARBM and Crash layers

How Will It Be Used?

✓ Allow DOT users to see cluster analysis for Bicycle focus area overlaid with other SSO Layers
  ✓ Crashes
  ✓ ARBM
  ✓ High-crash Segments
  ✓ High-crash Intersections
Safety Focus Area Cluster Layers

Bicycle (2007-2011)

Pedestrian (2007-2011)
Planned Scope for FY 2015-2016

- Publish updated Crash Layers & ARBM
- Finalize Intersection Geo-database
- Evolve SSOGis Crash Query Tool for new Crash Report & Codes
- Incorporate new DOT GIS Framework
- Create 2014 Crash Layer
- All Roads Base Map updated to 2015Q2+ version of NavTeq
Timeline for efforts for FY 2015-16

- Publish 2011-2013 Crash Layers & ARBM
  - Underway
- Intersection GeoDB & Upgraded Crash Query Tool (post 2010)
  - 2015Q3
- CRASH Application Upgrade
  - 2015Q4
- Create 2014 Crash Layer
  - 2016Q1
- Incorporate new DOT GIS Framework
- ARBM Updated to 2015Q2+
  - 2016Q2
Currently underway

- Publishing the updated All Roads Base Map
- Publishing the 2013 Crashes associated with the ARBM
- Publishing the updates 2011-2012 Crash Layers with the ARBM and new fields & codes
Finalize the Geo-spatial database of all Florida Intersections

- Needs to be QA’d by SSO prior to publication
- Created repeatable process to identify and classify intersections
- Critical for Location based searches
- Streamlines the analysis for high-crash intersections
- Critical for consistent identification of Florida intersections
Updated SSOGis Crash Query Tool

- Currently in development
- Needs SSO UAT
- Includes new DHSMV Crash Report Fields and Codes
- Will work with updated Crash Layers (2011+)
- Must be promoted as part of a larger migration effort (ARBM, Crash Layers)
CRASH Application Upgrades

- Requires modifications to leverage new crash report fields and codes
- Update Admin Tools to allow new crash data to be loaded
- Add ability to see Crash Report
- Reduce/Limit CRFs
  - This will require coordination with Joe and Ben
Upgrade SSOGis Incorporate to new DOT GIS Framework

- SSOGis is dependent on the FDOT GIS Framework
  - FDOT currently rewriting framework in HTML5
  - Silverlight no longer supported by Chrome
- Timing of this will depend on successful completion of the FDOT GIS Framework upgrade
Create 2014 Crash Layer and High-Crash Layers

- Timing of this will depend on successful closure of the DHSMV crash data and verification from SSO
  - Build 2014 crash layer
  - Build on-system High-crash segment layer
  - Build on-system High-crash Intersection Layer
  - Work with SSO on off-system high-crash segments and intersections
    - Can leverage Street & Intersection Geo-databases
All Roads Base Map updated to 2015Q2+ version of NavTeq

- Upgrade the current ARBM to the newest version of NavTeq available at task start
  - Apply RCI Characteristics
  - Add Roadway IDs
  - Apply AADTs
- Perform QAQC & Finalize
- Upgrade ARBM Streets Geo-Database
- Upgrade ARBM Intersection Geo-Database
Challenges

• Crash data provided by DHSMV, so consistency & timings not assured
• IT Infrastructure evolving quickly
  o NavTeq updates are quarterly
  o Oracle 11g DB upgrade underway
  o Server Upgrades underway
  o FDOT GIS Framework is being redeveloped in HTML5
• Agency development and web page standards evolve
Questions ?