ENTERPRISE GIS
STRATEGIC PLAN
IMPLEMENTATION

SASHTO
NEW ORLEANS, LOUISIANA

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT
A COMPLETE ENTERPRISE GIS
COMPONENTS OF AN ENTERPRISE GIS

- **GEOMETRIC FEATURES**
  (ROADS, RAILS, WATER, LAND, etc.)
- **ATTRIBUTE DATA**
  (SURFACE TYPE & WIDTH, LANES, SHOULDERS, etc.)
- **HIGHWAY ASSETS**
  (SIGNS, SIGNALS, etc.)
- **COMPUTERS, SERVERS, & HANDHELD UNITS**
- **GIS SOFTWARE & BUSINESS SYSTEMS SOFTWARE**
- **INTRANET AND INTERNET APPLICATIONS**
- **PEOPLE**
  (EMPLOYEES AND THE GENERAL PUBLIC)
An Enterprise Approach

Integrated Business Systems

Construction Management
Road Inventory
Pavement Management
SAP
Safety
Traffic
Maintenance Management

GIS/LRS

Internet/Intranet Portals
GOALS OF AN ENTERPRISE GIS

• REDUCE/ELIMINATE DUPLICATION OF WORK

• IMPROVE ACCURACY OF AGENCY DATA

• IMPROVE EFFICIENCY OF REPORTING

• IMPROVE COMMUNICATION/COOPERATION WITH LOCAL GOVERNMENT ENTITIES
GIS STRATEGIC PLAN

- Contracted PMG Software Consultants, Inc.
- Conducted Interviews
- Provided Top Priority Recommendations
GIS FUTURE?

Mission

- Identify future GIS capabilities and our customer needs
- Identify ways to get even more out of our GIS capabilities

Vision

*We work as one team in partnership with our customers to deliver awesome results for the agency and the state!*
GIS STRATEGIC PLAN

We Are Doing Many Things Right Throughout The Agency!

- Executive Management Support
- GIS and LRS Foundation
- Solid GIS Software Base
- GIS Literacy
PRIORITY RECOMMENDATIONS

Create GIS Enterprise Implementation Team

Fully Implement Enterprise LRS

Define and Integrate Participating Business Systems

Define and Create Enterprise Applications

Implement Statewide Clearinghouse
IMPLEMENTATION OF THE ENTERPRISE GIS FORM THE “GIS ENTERPRISE IMPLEMENTATION TEAM” TO REVIEW THE FIRST PRIORITY RECOMMENDATIONS IN ‘THE STRATEGIC PLAN’
Create GIS Enterprise Implementation Team

• Exec Sponsor: Kirt Clement
• IT Sponsor: Tom Sands
• Team Chair: Jason Chapman, Planning
• Jim Mitchell, IT GIS
• Doug Albert, IT GIS
• Kurt Johnson, IT GIS
• Dan Magri, Safety
• Darryl Mack, Planning
• Vince Latino, Operations
• Leslie Mix, Operations
• CJ Marchand, IT Applic.
THE “GIS ENTERPRISE IMPLEMENTATION TEAM” MET TO REVIEW AND DISCUSS THE FIRST PRIORITY RECOMMENDATIONS IN ‘THE STRATEGIC PLAN’ FROM PMG. THEY FORMED TEAMS FOR EACH RECOMMENDATION.
- ACTION PLANS -

Fully Implement Enterprise LRS

- CONDUCT AN ENTERPRISE WIDE INFORMATION SYSTEMS ARCHITECTURE ANALYSIS
- EVALUATE SERVERS AND NETWORK COMPONENTS
- EVALUATE CONNECTIVITY TO FIELD OFFICES
- MAKE ANY RECOMMENDED IMPROVEMENTS
- ACTION PLANS -

Fully Implement Enterprise LRS

- COLLECT AND MAINTAIN STATE AND NON-STATE ROADWAY GEOMETRY AND ATTRIBUTE DATA
  - CONTINUE TO COLLECT GPS AND VIDEO DATA FOR STATE MAINTAINED ROADWAYS
  - INITIATE COLLECTION OF GPS AND VIDEO FOR ALL NON-STATE MAINTAINED PUBLIC ROADWAYS
  - DOTD INVENTORY STAFF COLLECT GPS AND ATTRIBUTE DATA FOR CONSTRUCTION AS PROJECTS ARE COMPLETED
- ACTION PLANS -

Fully Implement Enterprise LRS

- SELECT AN LRS MANAGEMENT SOFTWARE (ESRI ROADS & HIGHWAYS)
- IMPLEMENT ESRI PRODUCTION MAPPING
- IMPLEMENT ESRI ROADS & HIGHWAYS
- ACTION PLAN STATUS -

Fully Implement Enterprise LRS

- ENTERPRISE ARCHITECTURE ANALYSIS COMPLETE

- CONTRACT TO COLLECT STATE MAINTAINED ROADWAYS VIDEO, GPS, AND PAVEMENT CONDITIONS ON A TWO YEAR CYCLE

- CONTRACT TO COLLECT NON-STATE MAINTAINED PUBLIC ROADWAYS VIDEO & GPS ON A ONE-TIME THREE YEAR COLLECTION
- ACTION PLAN STATUS -

Fully Implement Enterprise LRS

- DOTD INVENTORY STAFF COLLECT GPS & ATTRIBUTE DATA FOR COMPLETED CONSTRUCTION AS PROJECTS ARE ACCEPTED

- CONTRACT TO ADJUST EXISTING GIS ROADWAY FEATURE:
  - ADJUST ROADWAY FEATURE TO IMAGERY DETERMINED TO BE ACCURATE WITHIN 6 INCHES
  - ADD ROADWAYS MISSING FROM EXISTING ROADWAY FEATURE
  - RESTRUCTURE THE SCHEMA OF THE ROADWAY FEATURE FOR ROUTING, GEO-CODING, AND MAPPING AGENCY DATA
SINGLE LINE STATE HIGHWAY CONTROL SECTIONS
MULTI-LINE PUBLIC ROAD LRS
MULTI-LAYER GIS SYSTEM

- Imagery
- State System
  - Control Section
  - Lanes
  - AADT
- All Roads
- Boundaries
  - City
  - Urban Area
- Assets
  - Intersection
  - Speed Signs
- ACTION PLAN STATUS -

Fully Implement Enterprise LRS

- INSTALL AND BEGIN MAINTENANCE OF GIS FEATURES AND DATA USING GIS SPATIAL DATABASE for the ENTERPRISE

- INSTALL AND IMPLEMENT PRODUCTION MAPPING SOFTWARE AND PROGRAMMING

- ESTABLISH A CONTRACT TO IMPLEMENT AND TRANSITION EXISTING GIS FEATURES AND DATABASE ATTRIBUTES INTO THE ESRI ROADS AND HIGHWAYS SOFTWARE
- MAINTENANCE PLANS -

Fully Implement Enterprise LRS

- CONTRACT TO COLLECT STATE MAINTAINED ROADWAYS VIDEO, GPS, AND PAVEMENT CONDITIONS ON A TWO YEAR CYCLE

- DOTD INVENTORY STAFF COLLECT GPS & ATTRIBUTE DATA FOR COMPLETED CONSTRUCTION AS PROJECTS ARE ACCEPTED

- IMPLEMENT ESRI ARCGIS ONLINE FOR LOCAL MUNICIPALITIES AND PARISHES TO PROVIDE UPDATES FOR ROADWAYS AND CITY LIMITS

- CONTRACT TO CONDUCT COOPERATIVE EFFORTS WITH LOCAL MUNICIPALITIES AND PARISHES TO MAINTAIN ROADWAY DATA IN ACCORDANCE WITH THE IMPLEMENTATION OF ENTERPRISE GIS
- ACTION PLANS -

Define and Integrate Participating Business Systems

- Conduct a user survey to identify concerns and/or applications users might be interested in using to complete daily tasks.

- Identify business systems inside the agency which should be connected to a roadway.

- Identify business system owners.
Define and Integrate Participating Business Systems

- ENSURE REAL-TIME CONNECTIVITY OF BUSINESS SYSTEMS

- CONDUCT A BUSINESS SYSTEMS ANALYSIS WORKSHOP TO EDUCATE OWNERS IN THE USE OF THE LRS_ID

- CREATE THE LRS_ID, LRS_BEGIN_MILE, AND LRS_END_MILE FIELDS IN EACH BUSINESS SYSTEM TABLE. POPULATE THE LRS_ID FIELD.
Define and Integrate Participating Business Systems

- Establish a policy requiring business owners to enter the three LRS field data to accommodate the transfer from using control sections to using the LRS_ID as the unique identifier.

- Communicate, educate and enforce this policy concerning LRS field usage.
Define and Integrate Participating Business Systems

- CONDUCTED USER SURVEY
- IDENTIFIED BUSINESS TABLES AND OWNERS
- Placed LRS_ID field in all business tables and populated it for the state maintained system
- ACTION PLANS -

Define and Create Enterprise Applications

- SURVEY USERS TO GET AN IDEA OF APPLICATIONS THEY MIGHT NEED OR USE EVERYDAY

- CONDUCT FOCUS GROUPS AS NECESSARY
- ACTION PLANS -

Define and Create Enterprise Applications

- DEVELOP A LIST AND HIERARCHY OF APPLICATIONS REQUESTED

- PLAN, DESIGN, CREATE, AND PUBLICIZE APPLICATIONS BEGINNING WITH THE ONES INTENDED FOR INTERNAL USE FIRST.
- Action Plans -

Implement Statewide Clearinghouse

- LA ACT 409 of 2012 REQUIRES DOTD TO DEVELOP AND MAINTAIN A STATEWIDE GEOSPATIAL DATABASE FOR TOPOGRAPHIC MAPPING WITH ASSISTANCE FROM OTHER AGENCIES. INCLUDED IS A RESPONSIBILITY TO PLAN AND MANAGE DATA COLLECTIONS FOR THE ENTIRE STATE.

- THIS ACT PLACES DOTD IN THE LIKELY POSITION TO BE HEAVILY INVOLVED IN A STATEWIDE CLEARINGHOUSE FOR GEOSPATIAL DATA TO BE USED THROUGHOUT THE STATE AS ONE BASE MAP.
- Action Plans -

Implement Statewide Clearinghouse

- WHEN THE REPORT BY PMG WAS SUBMITTED, A PLAN WAS IN PLACE TO WORK OUT AGREEMENTS WITH ANOTHER STATE AGENCY TO FORM THIS CLEARINGHOUSE.

- SINCE THIS TIME A MAJOR CHANGE HAS OCCURRED INVOLVING A CONSOLIDATION OF MOST INFORMATION TECHNOLOGY PERSONNEL INTO A NEW OFFICE OF INFORMATION TECHNOLOGY (OIT).
- Action Plans -

Implement Statewide Clearinghouse

- At this time, DOTD is moving forward with plans to provide transportation related topographic mapping layers to a statewide clearinghouse.

- At some time in the future, the responsibility of the clearinghouse will be determined. We will gladly participate however we can to further enterprise GIS statewide throughout all government agencies.
Timeline

2012

Create Enterprise GIS Steering Committee
Established by end of 2012; then ongoing

2013

Define and Integrate Participating Business Systems
1-3 years, then ongoing

2014

Define and Create Enterprise Applications
2 years to define; TBD to create

2015

Fully Implement Enterprise LRS
3-6 years

2016

Implement Statewide Clearinghouse
Implementation TBD

2017

Beyond
A PRESENTATION SIMILAR TO THIS WAS PRESENTED TO DOTD EXECUTIVE STAFF.

WE RECEIVED APPROVAL TO PROCEED

AT THIS TIME WE ARE MOVING FORWARD WITH THREE ACTIVE CONTRACTS DELIVERING NECESSARY DATA TO PROVIDE AN ACCURATE LRS OF THE PUBLIC ROADS OF LOUISIANA
For a Successful Enterprise System

- Dependent on real-time connectivity of all business systems including systems maintained outside of DOTD
- Dependent of Funding estimated at least $15M
- Dependent on Adequate Resources
  - Hardware, Software, Personnel, and Training
LRS & DATA TRANSITION

- DEVELOPMENT OF LRS PREPARING FOR TRANSITION TO ROADS AND HIGHWAYS

- DEVELOPMENT OF ATTRIBUTE TABLES TO TRANSITION DATA TO THE PROPER FORMAT FOR ROADS AND HIGHWAYS
CURRENTLY DOTD HAS THREE CONTRACTS IN PLACE WHICH ARE SUPPLYING CRITICAL DATA FOR A COMPLETE PUBLIC ROAD LRS FOR LOUISIANA.

TWO CONTRACTS ARE COLLECTING GPS, IMAGERY, AND ASSET DATA.

THE THIRD CONTRACT IS SUPPLYING A ROAD FEATURE WITH ATTRIBUTES AS SHOWN HERE. THE FEATURE IS ADJUSTED TO IMAGERY ACCURATE TO 6”.
CURRENTLY DOTD HAS A CONTRACT BEGINNING WHICH WILL IMPLEMENT ESRI ROADS AND HIGHWAYS.

IN PREPARATION, DOTD HAS BEGUN THE PROCESS OF TRANSITIONING OLD AND NEW DATA INTO A FORMAT WHICH WILL FUNCTION BETTER WITH THE ROADS AND HIGHWAYS PRODUCT.

THIS IS AN EXAMPLE OF THE DATA WE ARE RECEIVING FROM THE OTHER TWO CONTRACTS IN PLACE.
ENTERPRISE GIS

- INVOLVES THE WHOLE ORGANIZATION
- REQUIRES TEAMWORK
- REQUIRES COOPERATION
- REQUIRES ORGANIZATION
- REQUIRES PATIENCE

G.E.T.I.T. DONE!!!

GEOSPATIAL ENTERPRISE TRANSPORTATION IMPLEMENTATION TEAM