Maryland Transit Administration (MTA)
Bus Accident Mapping and Analysis Application
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Agenda

- MTA Overview
- GIS at MTA
- Application Need
- Application Demo
- Uses of the Application
- Some Technical Details
Maryland Transit Administration (MTA)

- Tenth Largest Transit Agency in US.
- Over 120 Million Passenger Trips Annually.
- 6 Operational Modes.
- Mission – With dignity and respect, the MTA provides and supports accessible transit networks that are customer focused, safe, appealing, reliable, and efficient throughout Maryland.
MTA Operating Modes

MTA Modes in Mapping App

- **Bus**
  - Local Bus Service to Baltimore & Surrounding Counties.

- **Mobility**
  - Provides Service for People with Disabilities Unable to Use Fixed Route Services.

- **Commuter Bus**
  - Long Distance Commuter Service to DC and Baltimore from Outer Suburbs.

Other MTA Modes

- Metro
- Light Rail
- MARC – Commuter Rail
GIS at MTA Safety

- **Future Emergency Management App**
- **Demo Training Tracking App**
- **Demo Stormwater Management App**
- **Other Future Apps?**
- **EPA Supplemental Environmental Project**
- **Environmental Compliance App**
- **Leverage Existing System to Meet Business Need**
- **Bus Accident Mapping & Analysis App**

**GIS @ MTA**
MTA did not have accurate data showing where bus accidents were happening.
The Solution?

- The Bus Mapping and Analysis Application.
Bus Accident Mapping and Analysis Application

- Over four years of Accident Data in Application

- Data updated monthly
  - Data Transferred from Accident Reporting System (ARS).
  - Geocoding.
  - Quality Control.
  - Data Pushed to User Application.

- 97% of Accidents are Currently Mapped
  - Up from 75% when project began.
Bus Accident Mapping and Analysis Application

- Allows Users to Query Bus Accidents
  - Date
  - Accident Type (Preventability)
  - Bus Division/Mode

![MTA Bus Accident Search](Image)
### MTA Bus Accident Search

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**Search Information**
- **Start Date:** 1/1/2010
- **End Date:** 12/31/2010
- **Accident Type:** All
- **Division(s):** South, Eastern, York, North
- **Total Accidents:** 133
- **Total Intersections:** 33

**Legend**
- Light Rail Stop
- Metro/Barclay Stop
- Commuter Stop
Bus Accident Mapping and Analysis Application

- Identifying Accident ‘Hot Spots’
- Summaries show type of accident and Bus Division.
Bus Accident Mapping and Analysis Application

- Identifying Accident ‘Hot Spots’
  - Overview displays detailed data for individual accidents.
Bus Accident Mapping and Analysis Application
Bus Accident Mapping and Analysis Application

- Dynamic link to Google Street View and Bing Maps Birds Eye View.
Effective Use of GIS Application & Data

- Identified the four Bus Yards as ‘Top Four’ Preventable Accident Locations.

- Bus Transportation took action based upon data.

- Results
  - Yard Accidents Reduced over 50%.
  - Repair Cost Savings over $10,000.

(Source: Bus Maintenance)
Current & Potential/Future Uses

- Working with Local Jurisdictions and State Highway Agency to Address Problem Intersections.
- Powerful Communication Tool.
- Training Bus Operators.
- Planning Bus Routes Based on Application Data.
System Architecture

**GeoDatabase Replication**

- MTA Workstation Direct access to Geodatabase
- Secure push to CGIS production Database Server
- Data feeds Spatial Tier of Servers
- Web Application Tier consumes Spatial Services
- MTA accesses Production Application

**MTA**

- MTA secure access

**CGIS**

- Extract Secure Send

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MTA-WKST

MTA-DB-1
Software/Development

- ArcGIS Server v. 9.3 (currently)
  - Future Upgrade to AGS 10.x

- Built off of ESRI sample flex viewer 1.3
  - Refaced user interface.
  - Future Upgrade to ArcGIS Viewer for Flex 2.x
The application is using four AGS services to display accident data:

- **Intersection geoprocessing task**: Gets data used to generate the intersection graphics.
- **Accident summary geoprocessing task**: Gets data for the accident summary window.
- **Accident query task**: Gets data on the individual accidents in the overview tab.
- **Charting geoprocessing task**: Gets data for the chart.
Integration with MD iMap

- Application uses Maryland Integrated Map (MD iMap) statewide base map & imagery services.

- Consistent with Governor’s vision of inter-agency use of GIS.
Awards
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