

YOUR RIDE IS HERE.



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

Ralign Wells, MTA Administrator

Bernadette Bridges, MTA Chief Safety Officer
Office of Safety, Quality Assurance, and Risk Management (OSQARM)

Leo Fothergill, GIS Project Manger
MTA OSQARM / AECOM

Doy Miller, Chief Safety Engineer
MTA OSQARM / AECOM



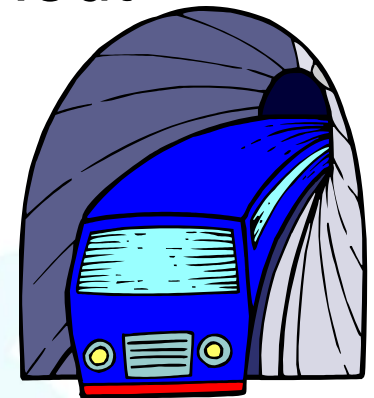
Agenda

- Ø MTA Overview
- Ø GIS at MTA
- Ø Application Need
- Ø Application Demo
- Ø Uses of the Application
- Ø Some Technical Details



Maryland Transit Administration (MTA)

- Ø Tenth Largest Transit Agency in US.
- Ø Over 120 Million Passenger Trips Annually.
- Ø 6 Operational Modes.
- Ø 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**

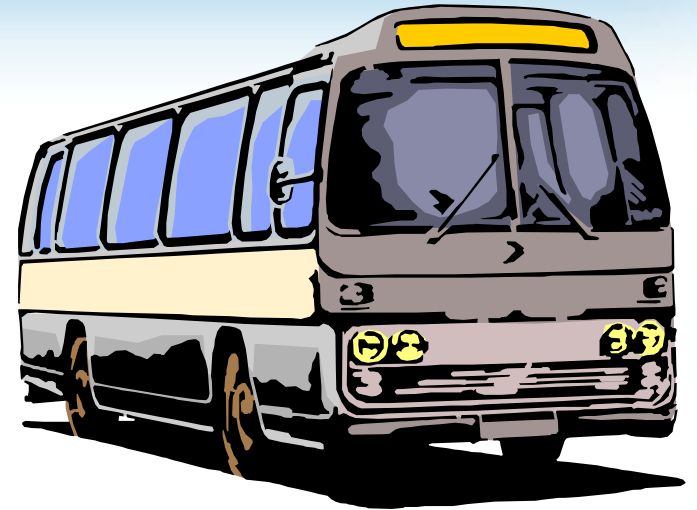
- ∅ **Provides Service for People with Disabilities Unable to Use Fixed Route Services.**

∅ **Commuter Bus**

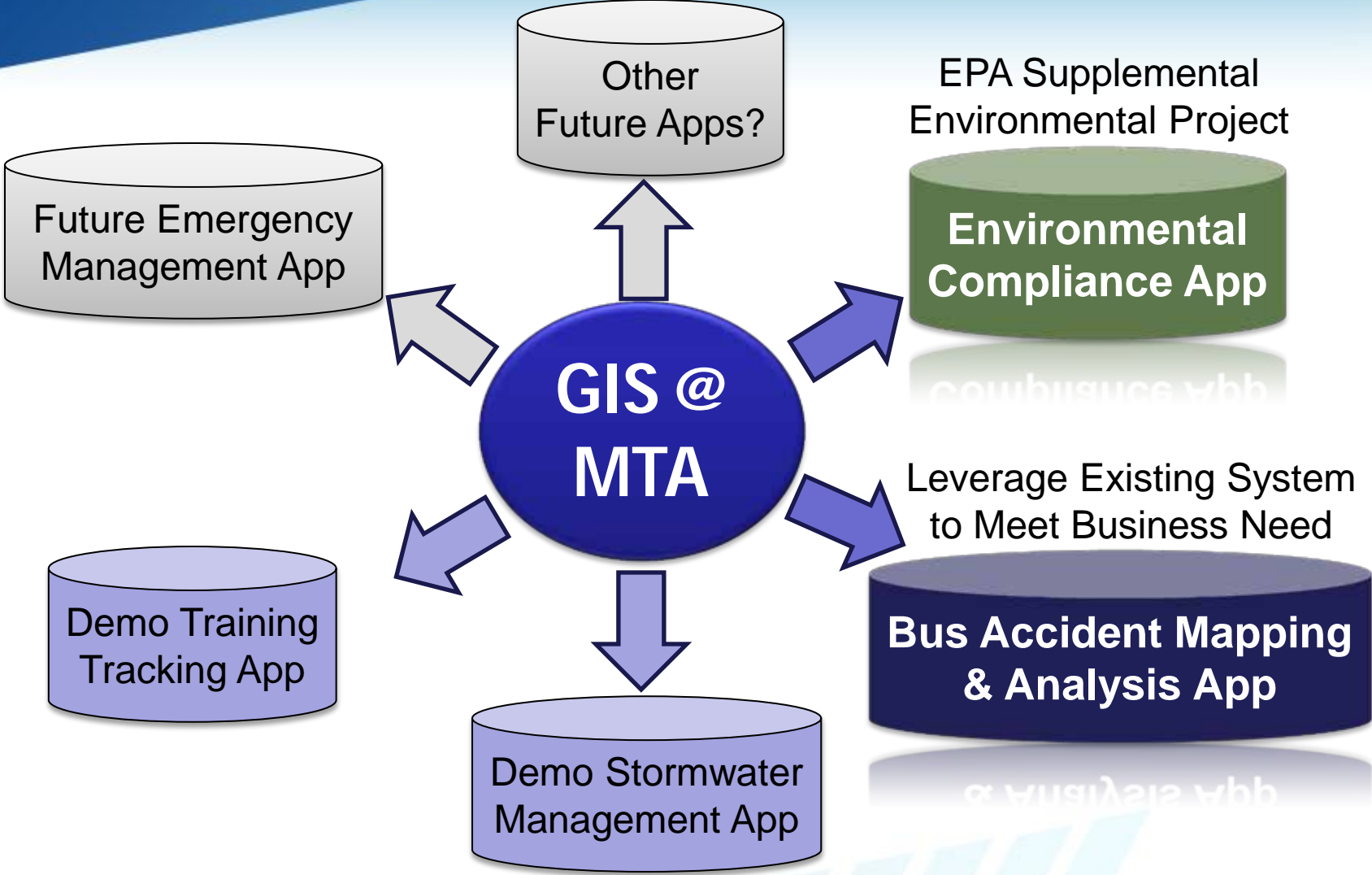
- ∅ **Long Distance Commuter Service to DC and Baltimore from Outer Suburbs.**

Other MTA Modes

- ∅ Metro
- ∅ Light Rail
- ∅ MARC – Commuter Rail



GIS at MTA Safety



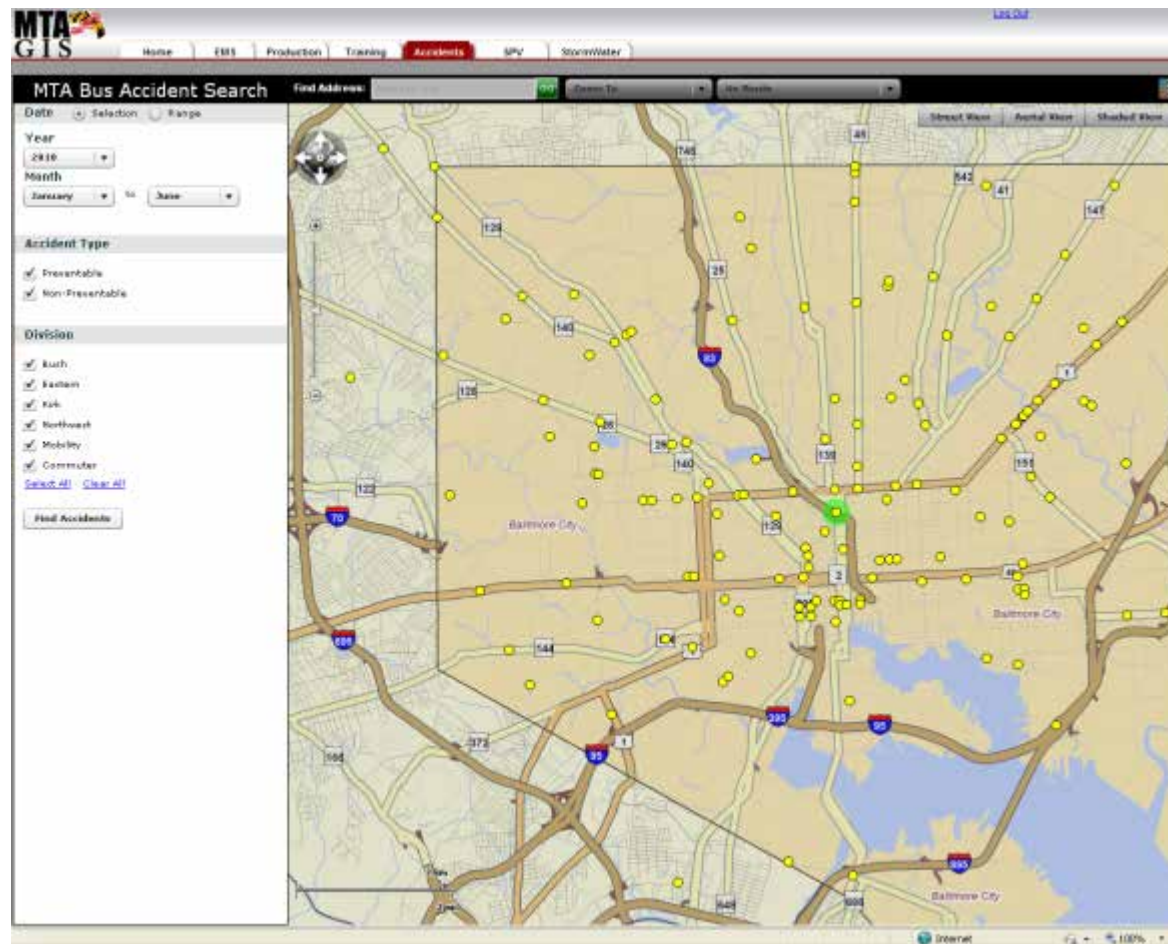
The Problem

ØMTA did not have accurate data showing where bus accidents were happening.



The Solution?

ØThe Bus Mapping and Analysis Application.



Bus Accident Mapping and Analysis Application

Ø Almost five years of Accident Data in Application

Ø January 2007 – Present (November 2011).

Ø Data updated monthly

Ø Data Transferred from Accident Reporting System (ARS).

Ø Geocoding.

Ø Quality Control.

Ø Data Pushed to User Application.

Ø 97% of Accidents are Currently Mapped

Ø 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 Find Address

Date Selection Range

Year
2010

Month
January to December

Accident Type

Preventable
 Non-Preventable

Division

Bush
 Eastern
 Kirk
 Northwest
 Mobility
 Commuter

[Select All](#) [Clear All](#)

Find Accidents

Bus Accident Mapping & Analysis Application

MTA GIS Home EMS Production Training **Accidents** SPV StormWater Log Out

MTA Bus Accident Search

Find Address: Go

Count	Intersection
30	Baltimore St. & Light St.
25	Baltimore St & Gay St
18	33rd St & Greenmount
16	Fayette St & St Paul St
14	Liberty Heights & Reistertown Rd
13	North Ave & Pennsylvania Ave
12	Baltimore St & Charles St
11	Bus Shop Lane
11	Charles St & Saratoga St
10	Washington Blvd & Elk St
10	Greenmount & North
10	Fayette St & Eutaw St
10	Cold Spring Ln & York Rd
9	Fayette St & Charles St
9	Saratoga St & Eutaw St
9	Baltimore St & Howard St
9	Liberty Rd & Tioga
9	Washington Blvd & Monroe St
9	Back River Neck Rd & Old Eastern
9	Lombard St & Greene St
8	Liberty Heights Rd & Garrison Blvd
7	Fayette St & Guilford Ave
7	York Rd & Pennsylvania Ave
7	Lombard St & Haven St
7	Druid Hill Ave & North Ave

Search Information

Start Date: 1/1/2010
 End Date: 12/31/2010
 Accident Type: All
 Division(s): Bus, Eastern, Kirk, North
 Total Accidents: 1732
 Total Intersections: 933

Legend

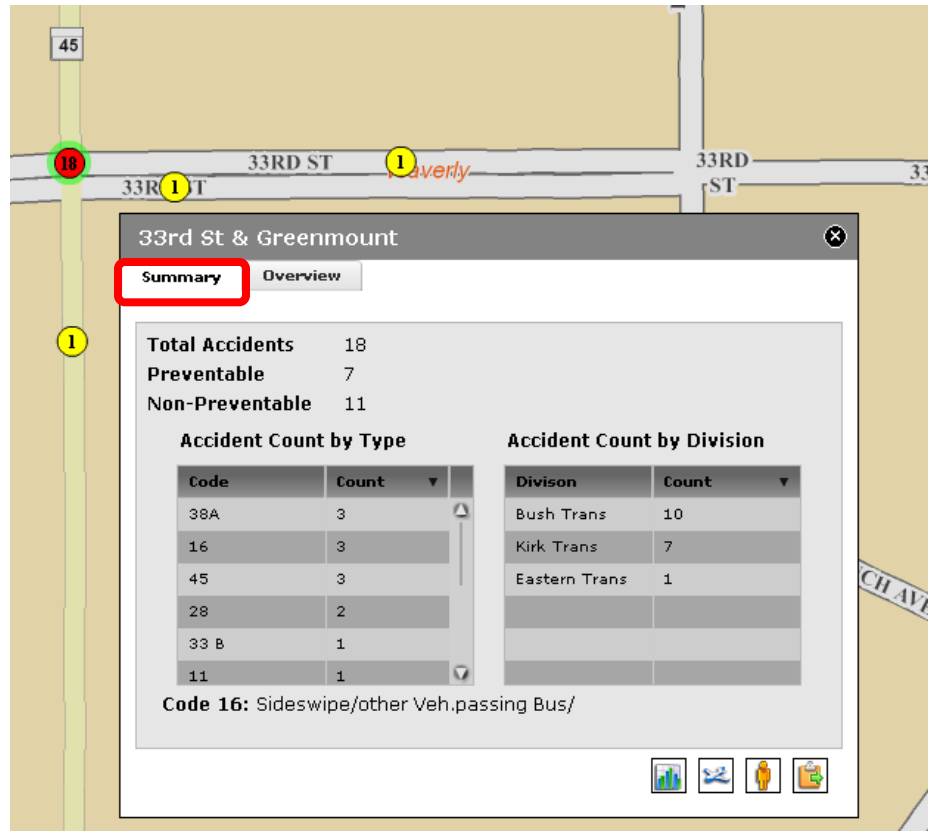
- < 5
- 5-10
- > 10
- Light Rail Stops
- Metro/Marc Stops
- Commuter Stops

10

Bus Accident Mapping and Analysis Application

Ø Identifying Accident 'Hot Spots'

Ø Summaries show type of accident and Bus Division.



Bus Accident Mapping and Analysis Application

Ø Identifying Accident 'Hot Spots'

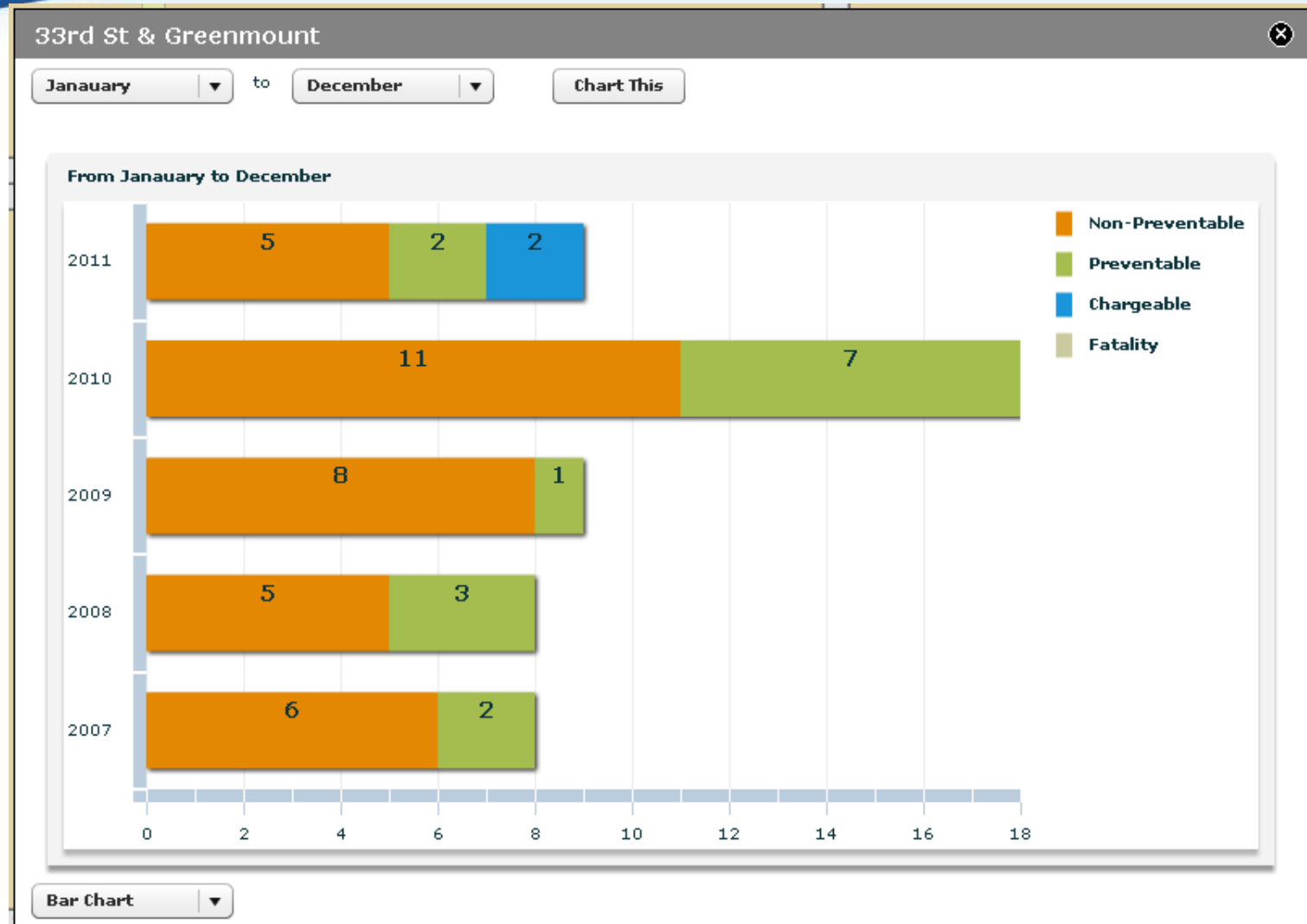
Ø Overview displays detailed data for individual accidents.

The screenshot displays a map interface with a pop-up window titled "33rd St & Greenmount". The window has two tabs: "Summary" and "Overview", with "Overview" selected and highlighted by a red box. The "Overview" tab contains the following information:

- Date:** A list of dates from 03/22/2010 to 11/09/2010. The date 09/12/2010 is highlighted in green.
- Location:** Greenmount Ave & 33rd St
- Accident Type:** Non-Preventable
- Accident Date and Time:** 9/12/2010 6:38:00 PM
- Report Number:** 713
- Code:** 16
- Code Description:** SIDESWIPE/OTHER VEH.PASSING BUS/
- Department Description:** Kirk Trans
- Route:** 8-SB
- Direction:** South
- Route Description:** HIGHLANDS CORPORATE PARK TO UNIVERSITY OF MARYLAND TRANSIT CENTER
- Incident Description:** Traffic
- Weather:** Clear
- Additional Information:** The bus was stopped at the bus stop, a car was leaving the gas station struck the left side bus and kept going.

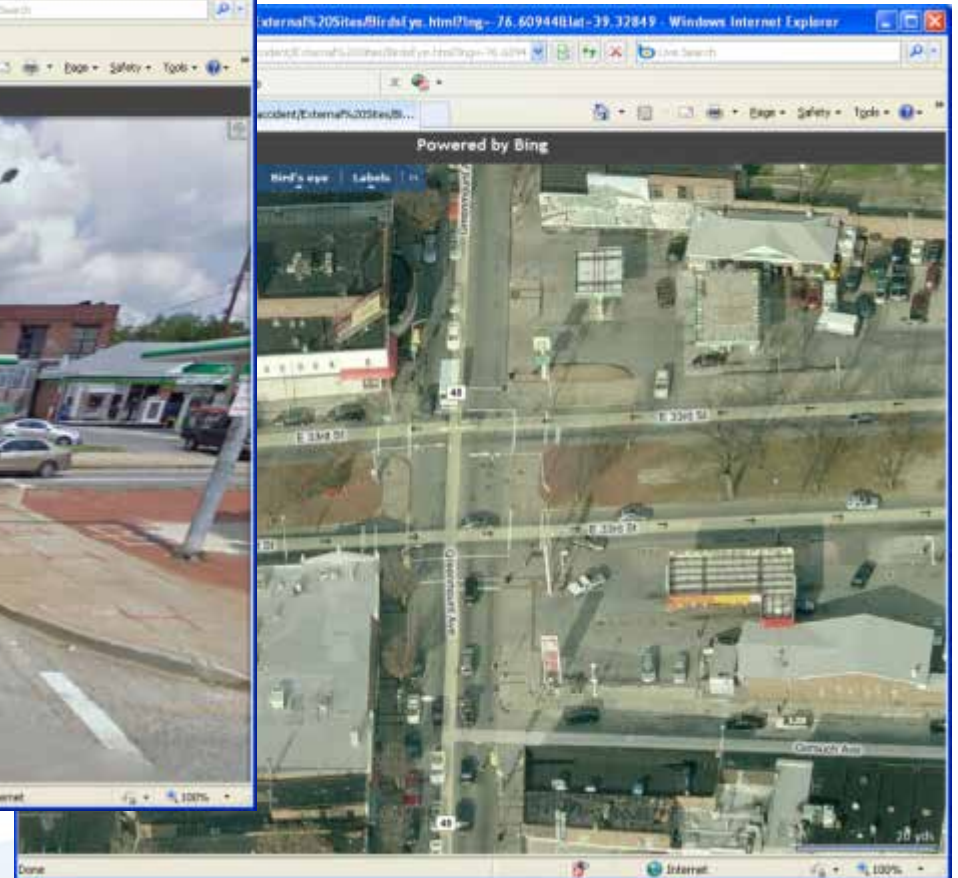
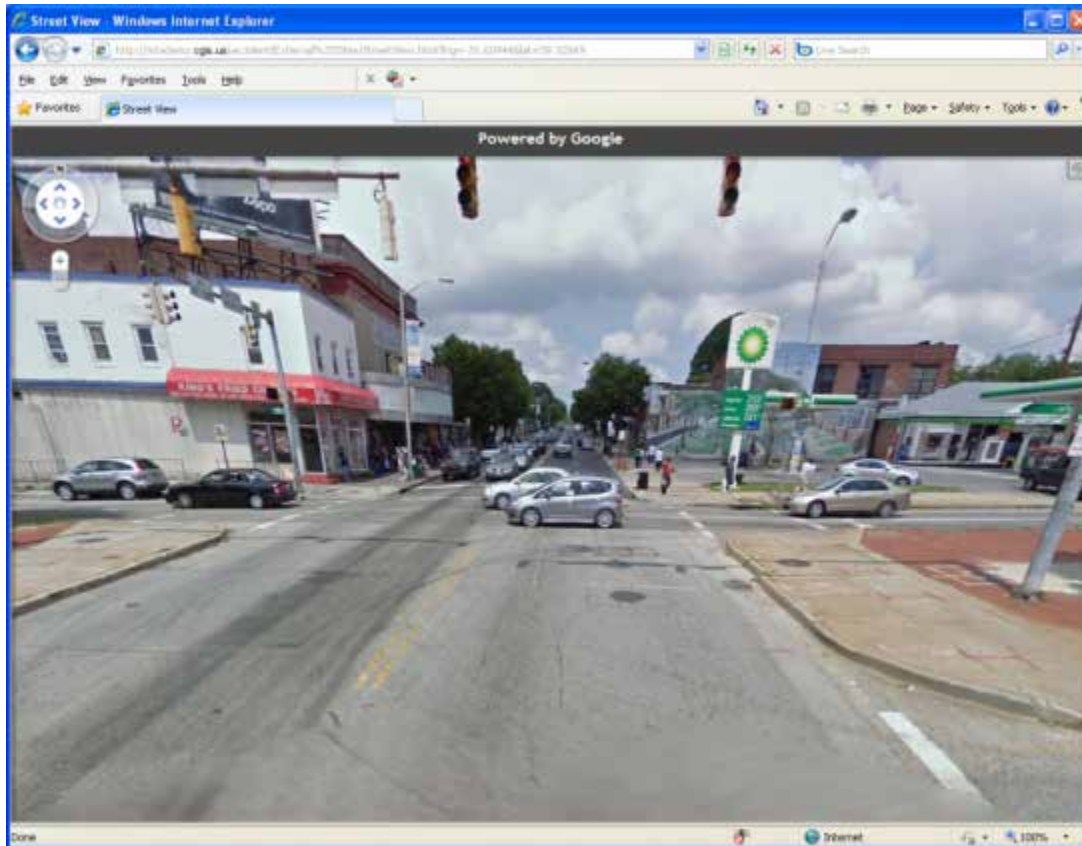
At the bottom of the window, there is a toolbar with four icons: a bar chart, a globe, a person, and a document, all of which are highlighted by a red box.

Bus Accident Mapping and Analysis Application



Bus Accident Mapping and Analysis Application

Ø Dynamic link to Google Street View and Bing Maps Birds Eye View.



Effective Use of GIS Application & Data

Ø Identified the four Bus Yards as 'Top Four' Preventable Accident Locations.

Ø Bus Transportation took action based upon data.

Bus Transportation views the high rate of accidents on our property to be unacceptable and we instituted the following actions to combat the matter during our roundtable meeting of August 3, 2010:

- The minimum penalty for exceeding the 5 mph speed limit on MTA property is 3 days suspension
- The minimum penalty for striking another MTA vehicle is 5 days suspension and possible discharge.

Ø Results

Ø ***Yard Accidents Reduced over 60%.***

Ø ***Repair Cost Savings over \$20,000.***

(Source: Bus Maintenance)

Current & Potential/Future Uses

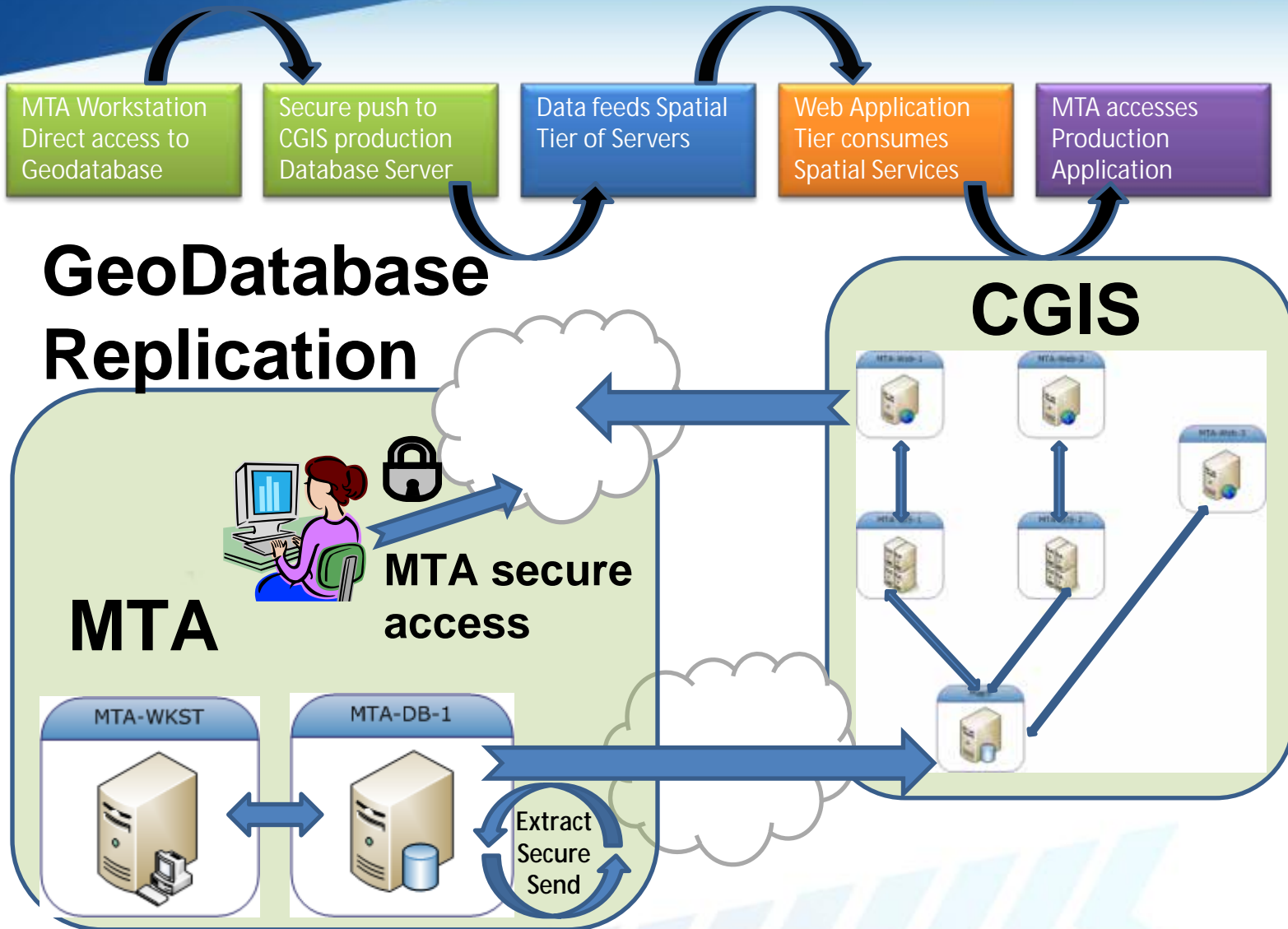
Ø Working with Local Jurisdictions and State Highway Agency to Address Problem Intersections.

Ø Powerful Communication Tool.

Ø Planning Bus Routes Based on Application Data.

Ø Adding Light Rail / Metro Incidents to Application.

System Architecture



Software/Development

- Ø ArcGIS Server v. 9.3 (currently)

 - Ø Planned Future Upgrade to AGS 10.x

- Ø Built off of ESRI sample flex viewer 1.3

 - Ø Refaced user interface.

 - Ø Future Upgrade to ArcGIS Viewer for Flex 2.x

Software/Development

Ø The application is using four AGS services to display accident data

Ø Intersection geoprocessing task

Ø Gets data used to generate the intersection graphics.

Ø Accident

Ø Gets data

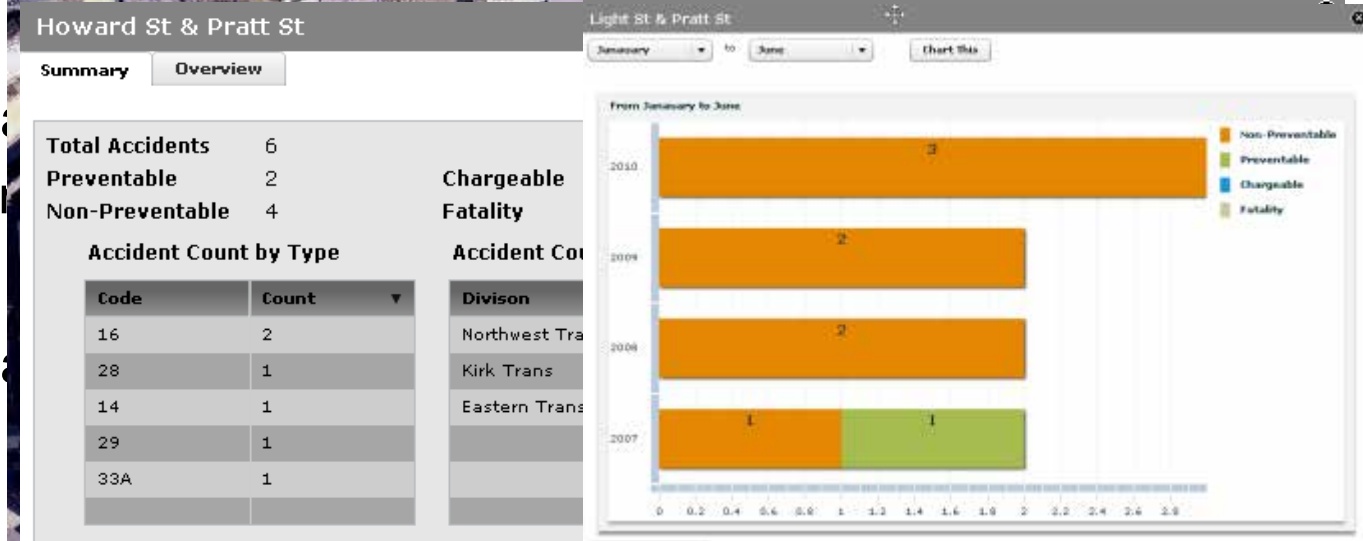


Ø Shows

Ø Accident

Ø Gets data

accident



Ø Charting

Ø Gets data

Integration with MD iMap

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



Ø Consistent with Governor's vision of inter-agency use of GIS.

MARYLAND MD iMap

IMAP HOME ONLINE MAPS SERVICES ADMINISTRATION PARTNERS DEVELOPERS HELP

Welcome to the Maryland iMap Portal

One Maryland-One Map

This is the gateway to all things MD iMap. Here you can discover what MD iMap is, how to access its resources, how to get your data into MD iMap, how to get MD iMap map services into your application and the standards, policies and procedures that govern its use.

Office of the GOVERNOR

Service Alerts

There are no service alerts at this time.

Awards



*AMERICAN
PUBLIC
TRANSPORTATION
ASSOCIATION*



Maryland Transit Administration (MTA)

Project Contacts:

MTA – Leo Fothergill

Lfothergill@mta.maryland.gov

MTA – Doy Miller

Dmiller6@mta.maryland.gov

Towson CGIS – Ken Juengling

Kjuengling@towson.edu