INDOT’s use of GIS to leverage Traffic Data for Project Forecasting

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Agenda

- Asset Management Tool
- Traffic Count Database System
- Traffic Forecast Application
- How GIS will be used in forecasting
Asset Management Tool

- **ESRI Roads and Highways Solution**
  - Add-on to ArcGIS
  - Linear Referenced Road Network
  - Point Assets
  - Polygon Assets
ESRI Roads and Highways Solution
Asset Management Tool

- **Traffic Assets**
  - Points – Traffic Count Sites
  - Lines – Traffic Sections

- **Goals**
  - Complete Coverage
  - 1:1 Relationship between Sites and Sections

- **Challenges**
  - Gaps
  - Multiple Sites in a Section
  - Sections without a Site
  - Sites without a Section
Traffic Count Database System

- Provided by MS2
- Publically accessible
- Warehouse for all traffic data
  - Detailed data
  - Volume, Class, Speed, Weight
  - Keyed on Location ID
Traffic Count Database System

**Access detailed data**
Take a closer look. Get it?

**Isolate Directions or Lanes**
What Does Positive Travel Direction Mean?

POS = Positive Inventory Direction

Travel direction in which measures are increasing. Generally, Northbound and Eastbound are “Positive” with some notable exceptions.
Positive Travel Direction

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And what about “Travel Over?”
Traffic Count Database System

- **Integration with Roads & Highways**
  - Location managed in TCDS
  - TCDS queries R&H to determine Route and Measure
  - TCDS queries R&H to populate database
  - Data sent to R&H to update asset in R&H
TCDS Integration with R&H

TCDS
- Traffic Count Data
- Manage Site Location

R&H
- Mirror Site Location
- Manage Traffic Sections
- Source for Authoritative Attributes
TCDS Integration

Traffic Count Database System (TCDS)

Section 1

<table>
<thead>
<tr>
<th>Location ID</th>
<th>Type</th>
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<tbody>
<tr>
<td>991691</td>
<td>SPOT</td>
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Section 2

<table>
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<tr>
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<tbody>
<tr>
<td>9530000370103401</td>
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<td>9530000045000001</td>
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2 route choices available. Please click the colored route on the map, or the LRS ID below to verify your route selection.
Traffic Count Database System

- **Benefits of Integration**
  - Simpler maintenance of Sites in TCDS
  - Wider user base
  - One authoritative source for data
  - Lets machines do what they’re good at leaving people to do what people are good at
Reporting Using GIS

- **Types of Reports**
  - Highway Performance Monitoring System (HPMS)
  - Vehicle Miles Traveled (VMT)
  - Shapefiles

- **How GIS is facilitates reporting**
  - GIS used to assign point data to network
  - Automated creation of HPMS upload files
  - Publication of Shapefile used to develop additional reports
Traffic Forecast Application

- ‘PROJECTOR’ in development
  - Users will submit requests for certified Project Traffic Forecast
  - Both segments and intersections
- Part of ITAP (INDOT Technical Applications Pathway)
- Upgrade from current Forecast Request Application
- Accessible to all with ITAP Access
Projector Application

esri
Roads and Highways Solution

Turning Movement Data

Traffic Count Database System (TCDS)
Projector Application

• Open to all with ITAP access
• Submit Requests
• View Results from any Project (not just yours)
• Access prior results
Traffic Forecast Application

- Integrated with both R&H and SPMS
- SPMS - Scheduling Project Management System
- GIS used to set project limits and identify intersections
- GIS used to parse request into segments based on Traffic Sections
- Traffic Sections used to determine corresponding Count Site
Use of GIS in Forecasting

- ‘Projector’ integrated with both R&H and Scheduling Project Management System (SPMS)
- GIS used to set project limits and identify intersections
- GIS used to parse request into segments based on Traffic Sections
- Traffic Sections used to determine corresponding Count Site
Use of GIS in Forecasting

- Import current data
- Import historic data
- GIS used to look up Travel Demand Model results
- Future extension will use GIS to look up Traffic Forecasting Tool results
miovision data

Intersection Volumes

Video
12:00PM - 12:30PM

US 31 & Paul Hand Rd
Tue Feb 21, 2017 12PM-12PM (+1)
TDD Study Id: 385407

Peak Hour Factor
Scope     Time

Count     PHF