Mapping SRTS: An Ohio Collaboration Success Story from Toledo, Columbus, and Akron School Districts

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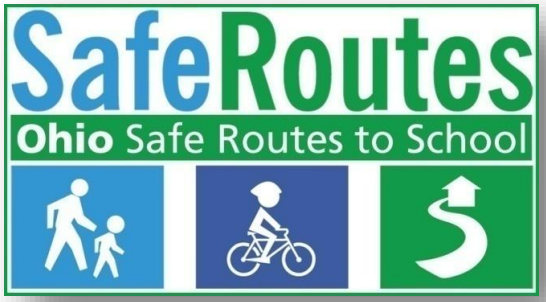
What is Safe Routes to Schools (SRTS)?

- **International movement to promote active transportation**
- **Highway Transportation Bill since 2004**
- **Focuses on barriers/improvements to walking and biking**
  - Within 2 miles of any school (Grades K-8th Students)
- **Funds for Infrastructure and Non-Infrastructure Projects through MAP-21 under the Transportation Alternatives Program (TAP) and Surface Transportation Program (STP).**
- **Includes five components (5 E's)**
  - Education, Encouragement, Enforcement, Engineering, and Evaluation



Why Does it Matter?

Parents driving

Parents driving their children to school account for up to 25% of morning rush hour traffic.

Typical Dropoff

A Brief History: SRTS in Ohio – Making a Difference

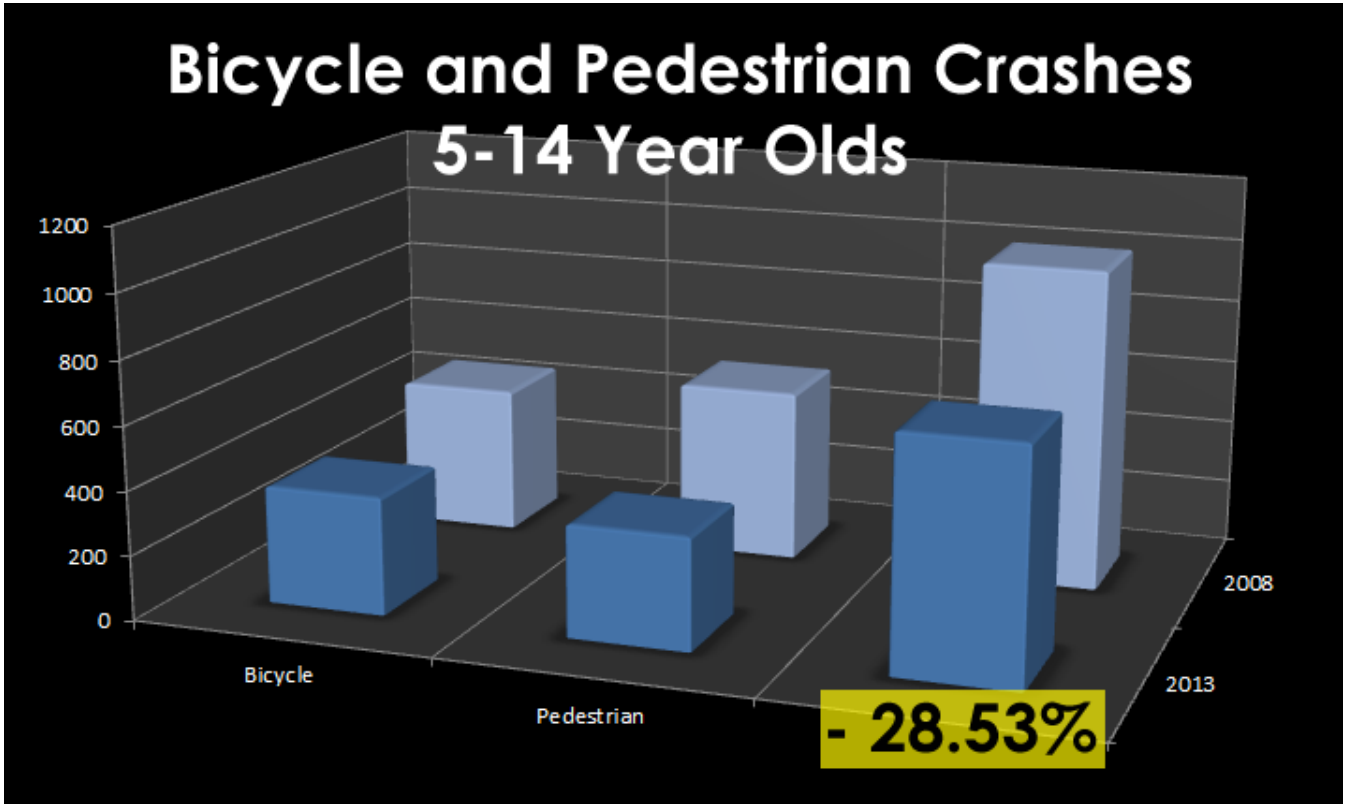
Making a Difference: Ohio By The Numbers

- SRTS Projects implemented in 78 of 88 Counties
- $60 Million Awarded since 2005
- Over 200 infrastructure projects
- Over 300 non-infrastructure projects

Since 2005, Ohio Safe Routes to School has awarded **$60** million to communities in **78** counties for safety projects all over the state.

Making a Difference: Ohio By The Numbers

- **Age 5-14 Year Olds Bicycle and Pedestrian Crashes down in Ohio 28.53% since 2008**



Planning Safe Routes to Schools for Children

- **School Travel Plan**
  - Planning Document
  - Addresses all 5 E's
  - Team-based Approach
  - Required to Access Further SRTS Funding
- **Typical Plan**
  - Up to four schools
- **Large District Plan**
  - More than 15 schools

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

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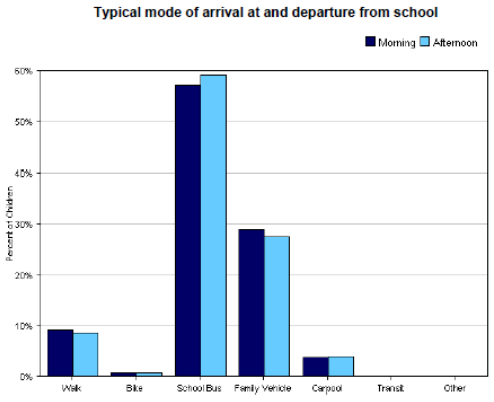
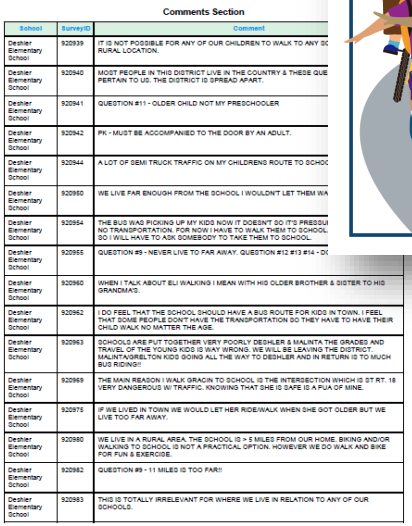
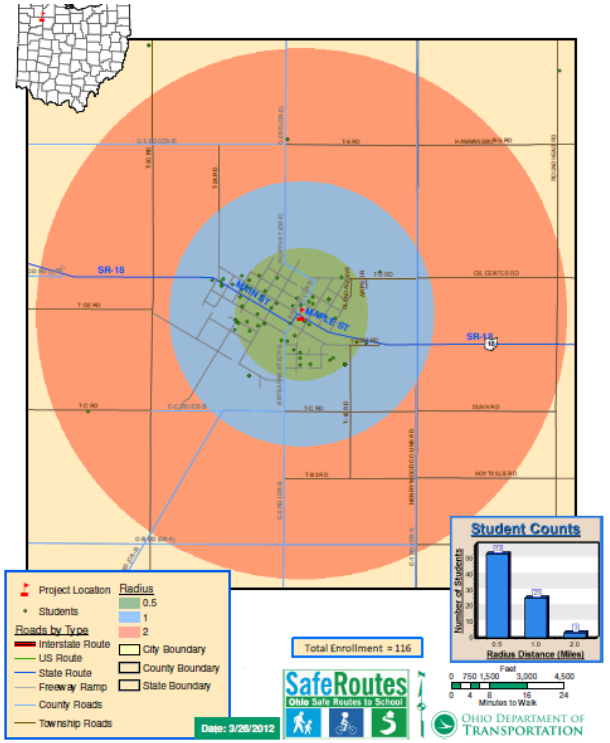
Developing a School Travel Plan

- **3 Key Items**
  - Where are the kids coming from?
  - What travel mode are they using?
  - And why?

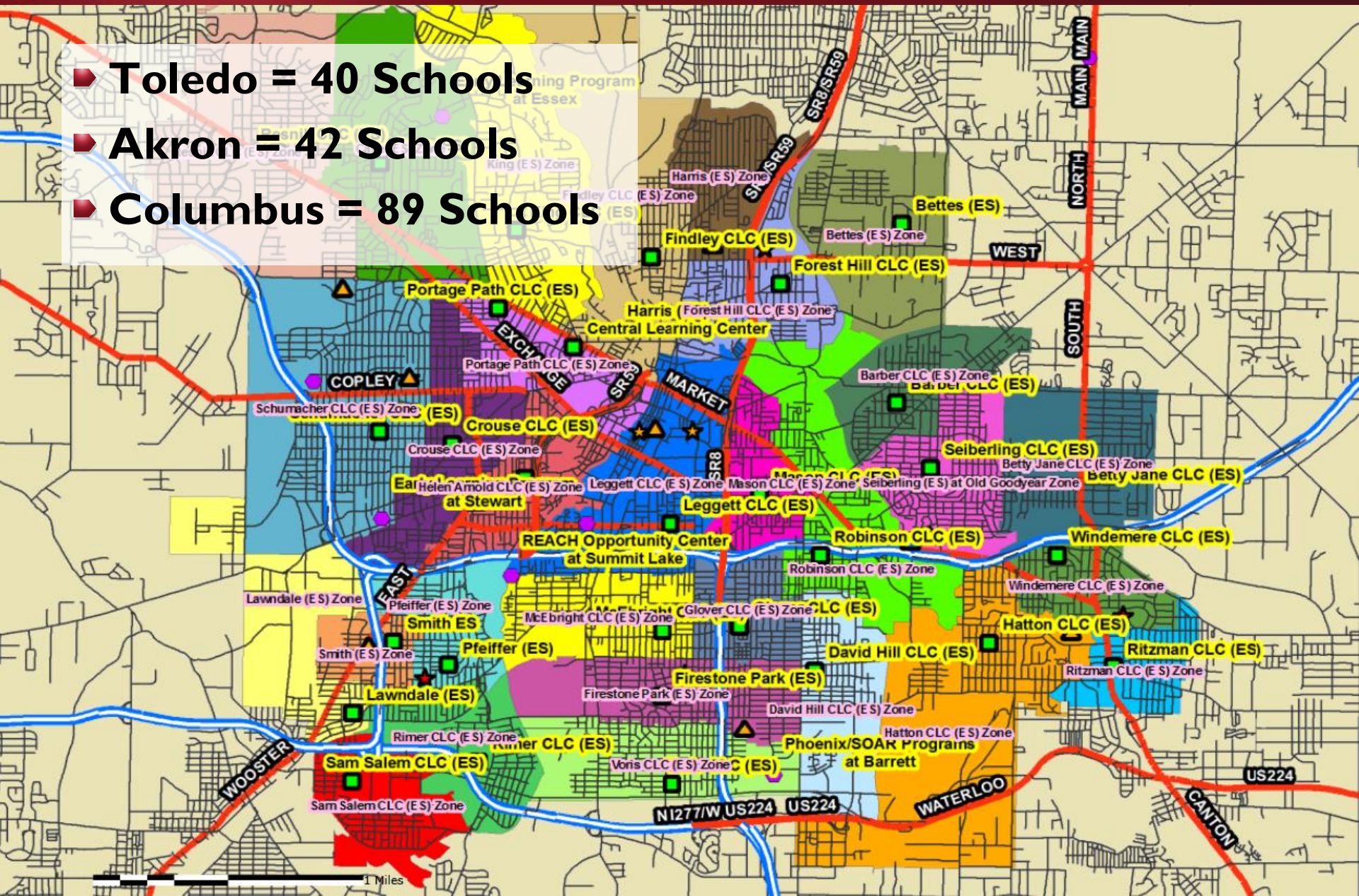






Toledo, Akron, and Columbus School Districts

- Toledo = 40 Schools
- Akron = 42 Schools
- Columbus = 89 Schools



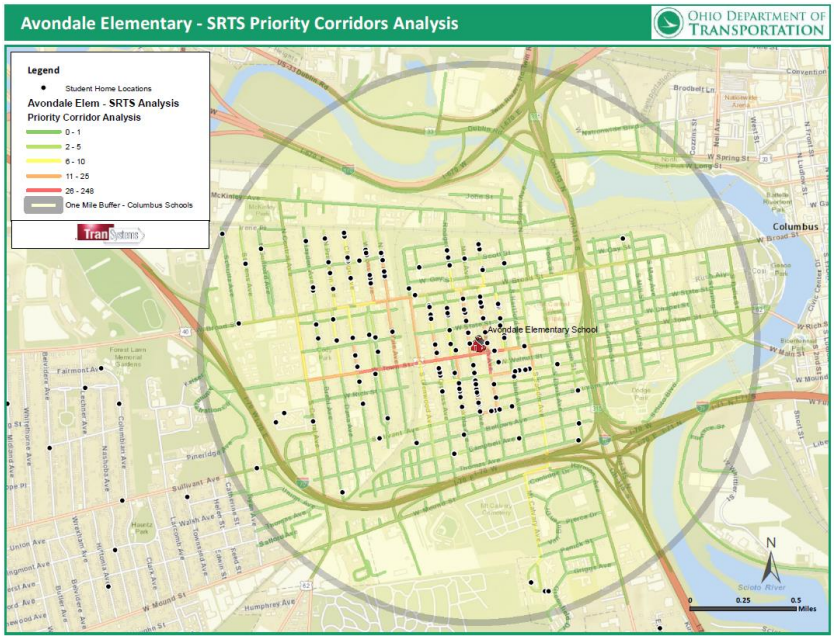
To Identify the Project Needs…Data is Needed

- Student and school locations
- Attendance zones
- Buffer zones
- Crash data
- Shortest Shared Path road segment frequency to identify unique priority corridors for STP

GIS IS KEY TO OBTAINING ALL THIS INFORMATION

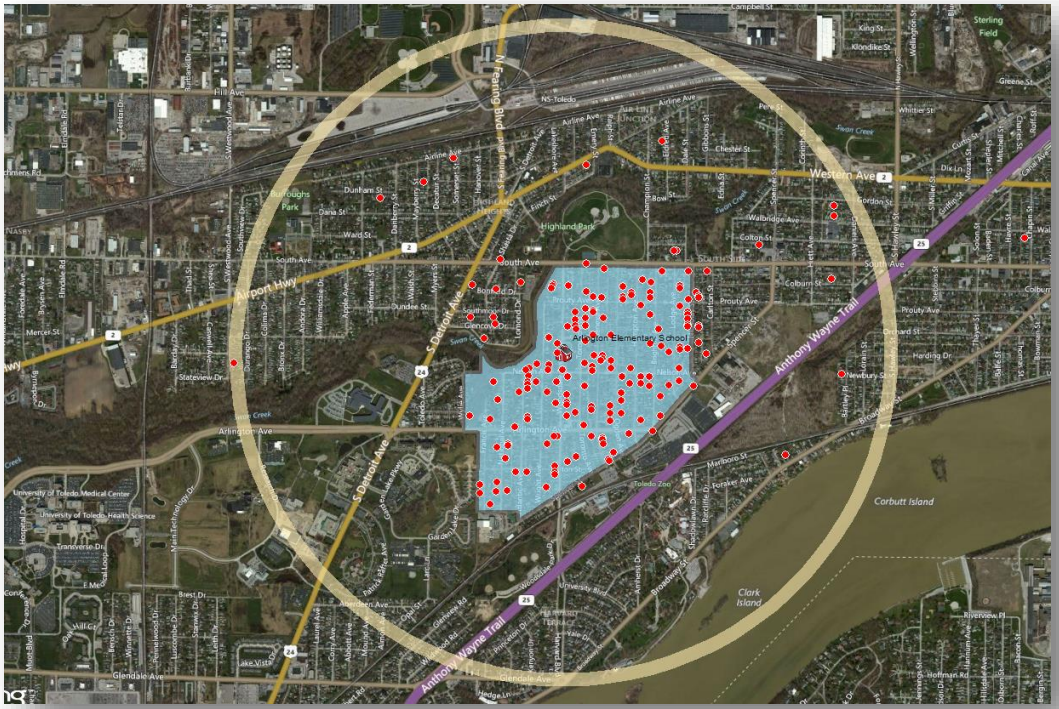
GIS Technology Integration Overview

- Esri ArcGIS Desktop software utilized
- Network Analyst extension
- Custom ModelBuilder and ArcToolbox applications developed to identify potential priority corridors
- Custom maps developed for each school



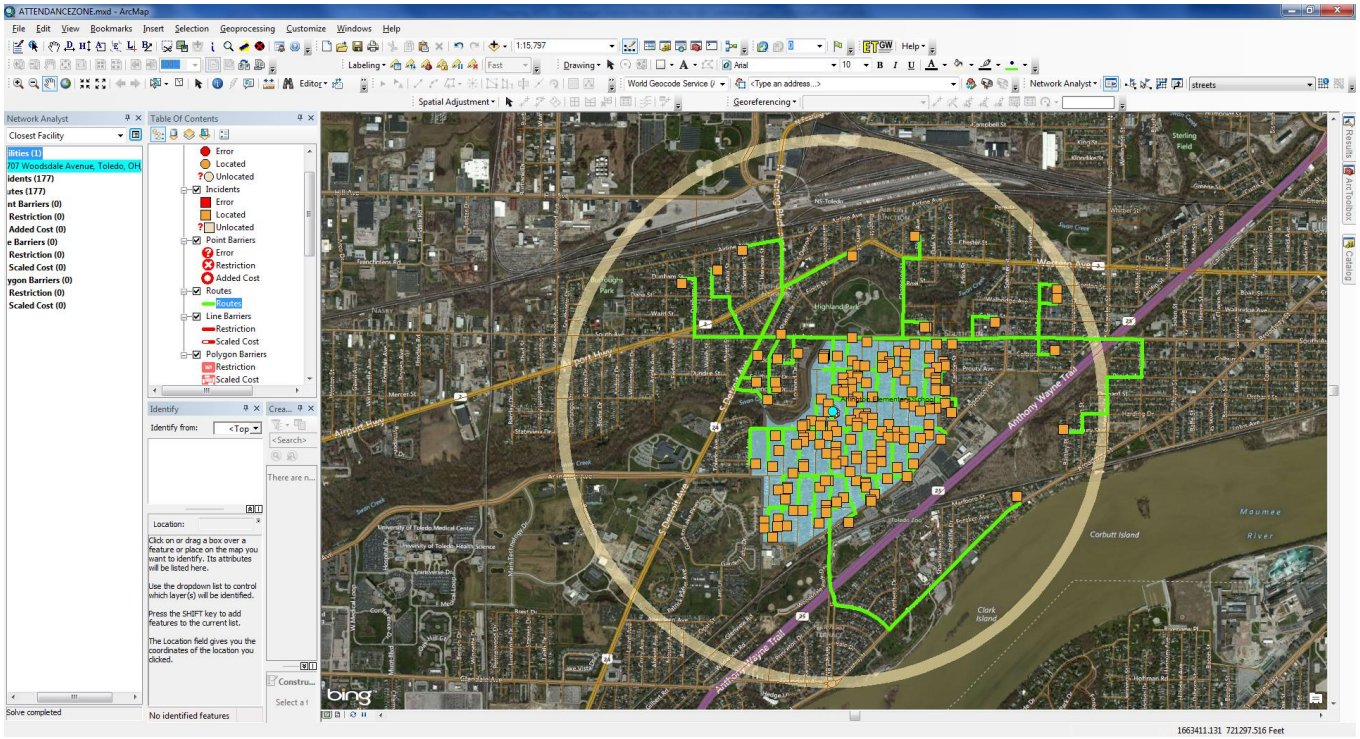
GIS Sample Processing Steps: Basemap Setup

- Geocode student locations
- Generate Buffer
- Develop Attendance Zone Boundaries



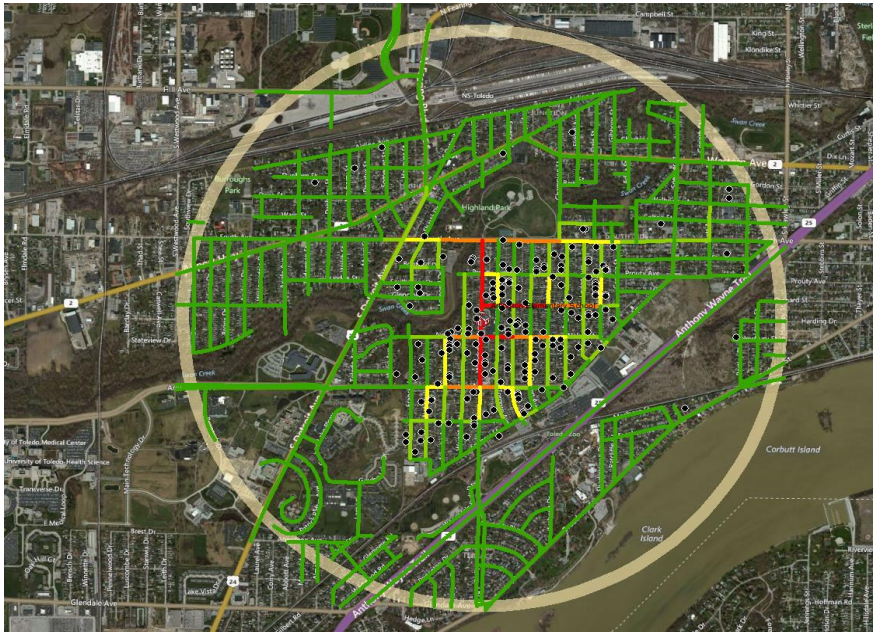
GIS Sample Processing Steps: Network Analyst

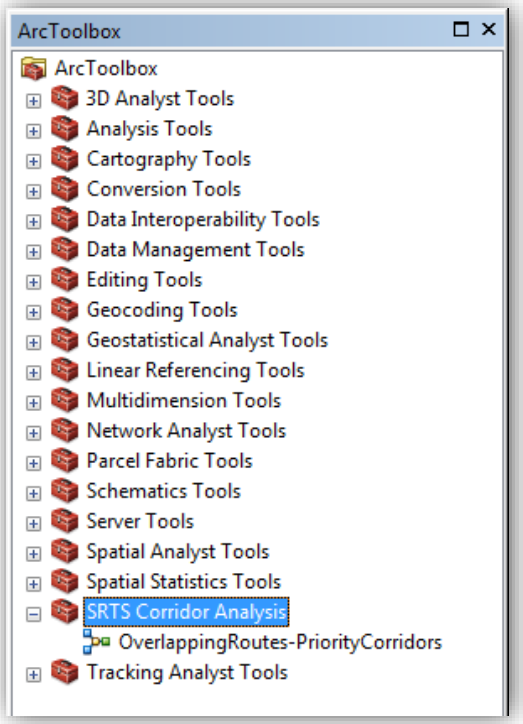
- Utilize Network Dataset
- Closest Facility Analysis – Student Home to School Shortest Path Identification – export as new layer



GIS Processing Steps: ModelBuilder Integration

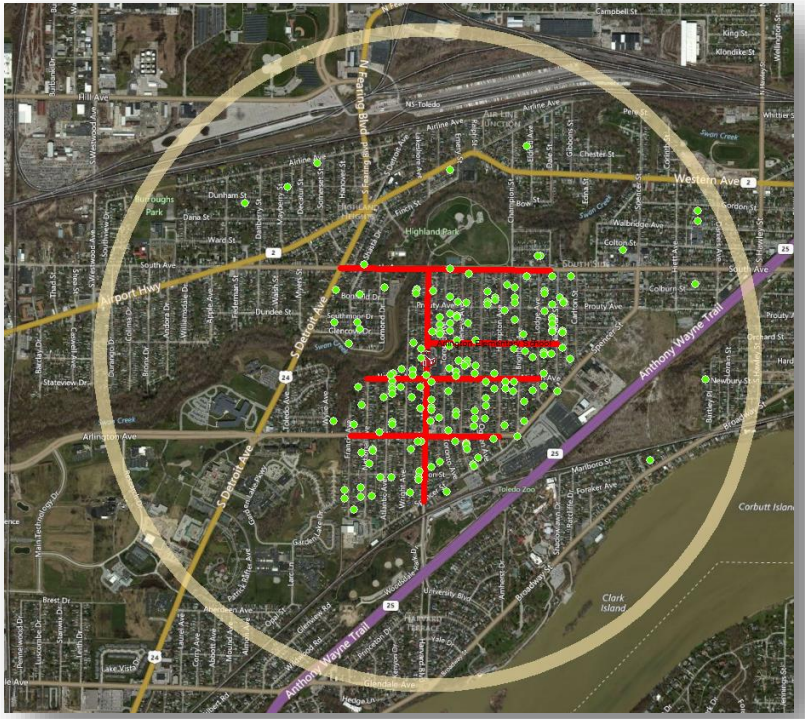
- Utilize Custom Model built within ModelBuilder
- Model creates a "heat ramp" of shared road segments based on shortest path analysis output within NA





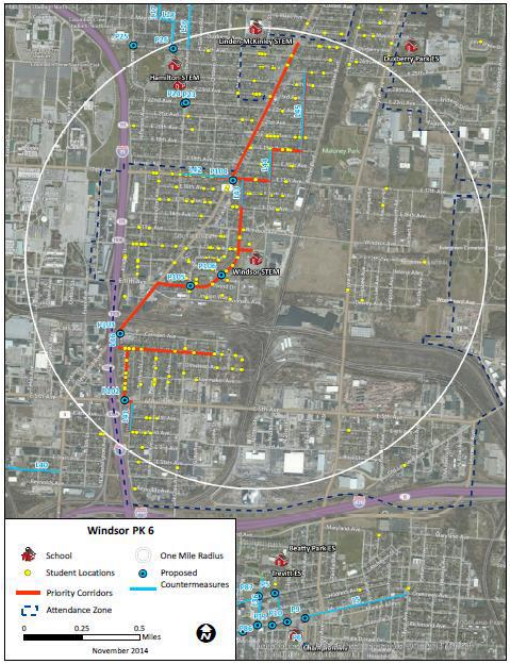
GIS Processing Steps: Finalize Priority Corridors

- **Draft Priority Corridors mapped and vetted through stakeholder review and comments for concurrence.**
- **Priority Corridors used to determine specific countermeasures**

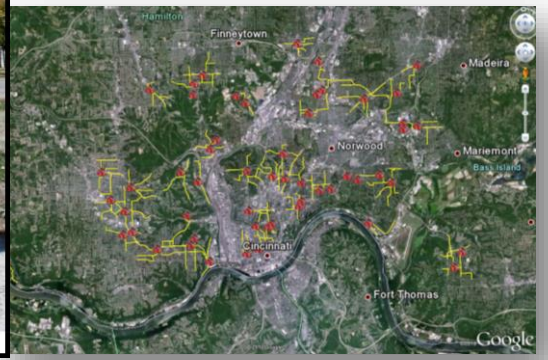


Infrastructure Methodology

- Focused on Priority Corridors output
- Included info from: SRTS Team, Surveys (parents/principals), walk audits, existing city plans/policies, and other data
- DRAFT Countermeasures (conceptual) that will require further analysis, design, and public input prior to implementation
- Verification in ArcGIS




Starr Ave. Sidewalks, Oregon Ohio October, 2008



Non-Infrastructure Methodology

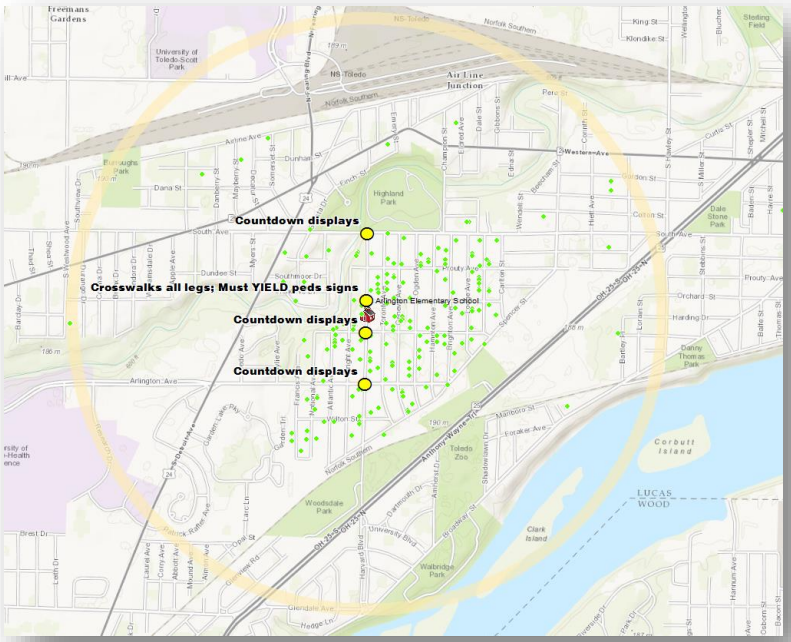
- **Focused on Policies and Programs**
  - City, School District, Local, Parent/Caregiver Support for SRTS
  - Pedestrian and Bicycle Safety Education
  - On-Campus Pedestrian and Bicycle Accommodations
  - Driver Awareness of School Zones/Driver Behavior
  - Volume of Vehicular Traffic Along Student Walking/Biking Routes
  - Student Safety and Comfort at Intersections and Crossings and along the School Route
  - Arrival and Dismissal Procedures
  - Adult Supervision/Personal Security
- **Identified "Partners" through Outreach (Surveys)**

Countermeasure Prioritization - Infrastructure

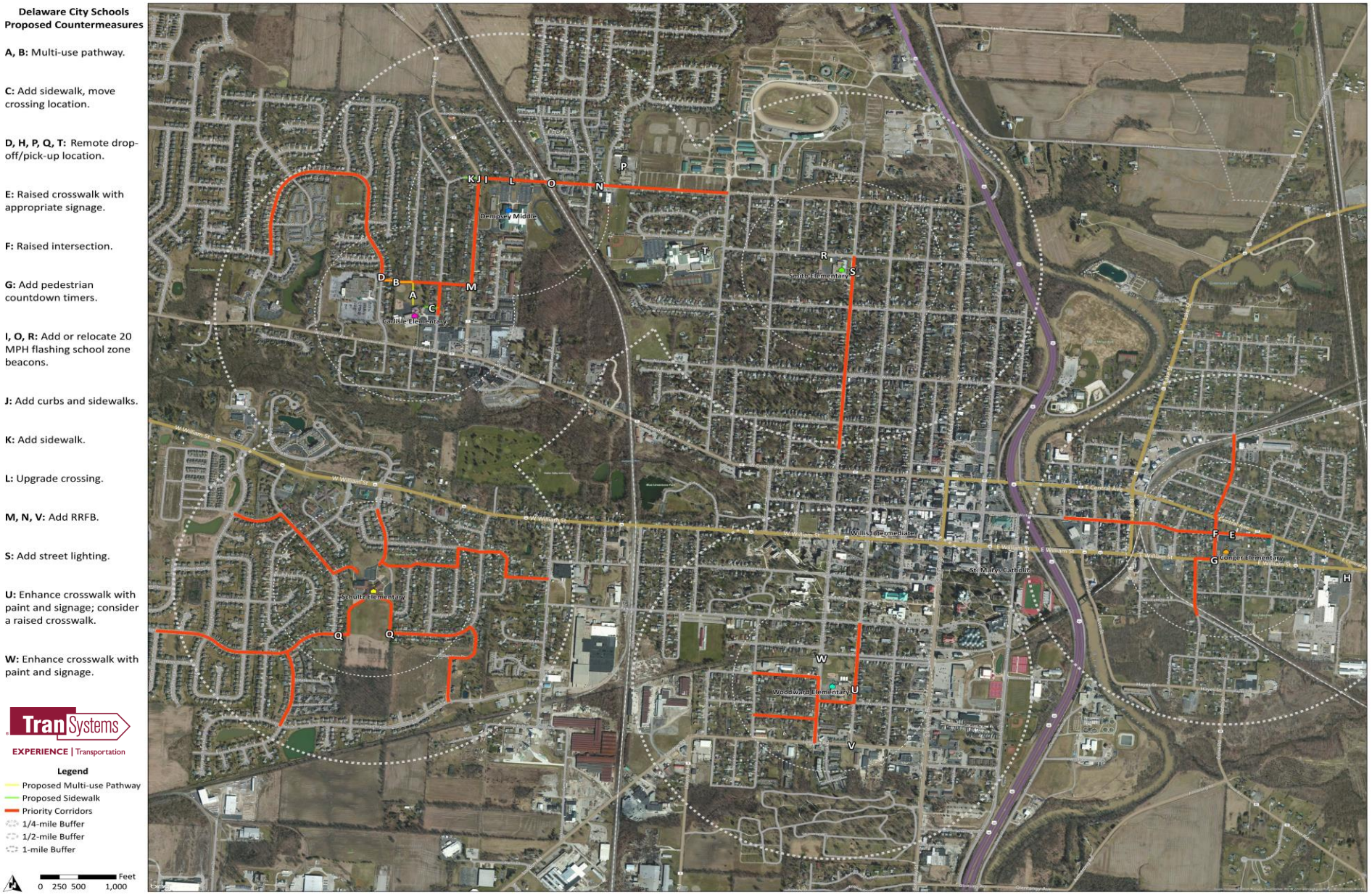
- **Ped/Bike potential, including proximity to a Priority Corridor and proximity to a K-8 School**
- **Ped/Bike deficiency (sidewalk gaps, roadway classification, and crashes)**
- **Feasibility (including estimated costs and ROW requirements)**
- **ODE School Demographics**
- **Support**
  - Local School Participation (Principal Surveys, Walk to School Day, Education)
  - Priorities identified by Steering Committee, Principals, and Study Team

Countermeasure Prioritization – Non-Infrastructure

- **Feasibility (including estimated costs and ROW requirements)**
- **Alignment with the Steering Committee's Vision/Goals for the STP**

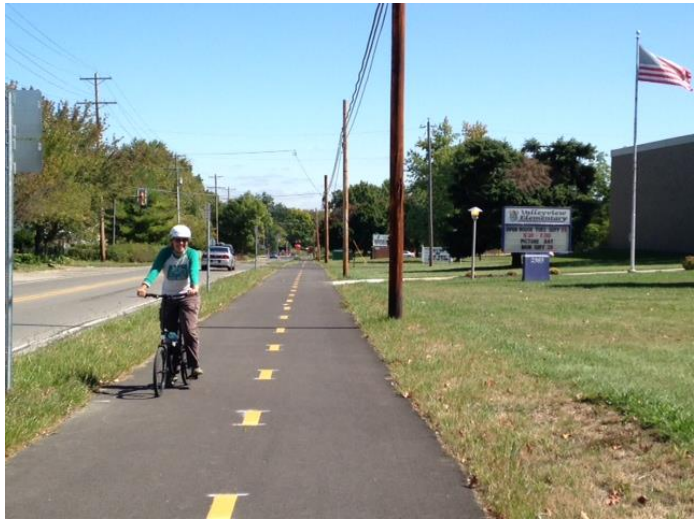


Proposed Countermeasures Map Example



Finalizing the School Travel Plan

- **Next Steps**
  - Incorporate Public Comments
  - Finalize Countermeasures and Mapping
  - Action Plan (Prioritization and Responsible Party)
  - Endorsements
- **Funding Request**



Conclusions

- Successful collaboration comes through clear, constant communication with stakeholders throughout the project
- Esri ArcGIS software and Modelbuilder is a valuable planning and mapping tool to analyze, identify, and map the existing conditions (needs blueprint) for any school
- Network Analyst extension provides powerful visual of student shortest path (Closest Facility)

Questions?

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