TMACOG
ITS Architecture Update
Kick-off Meeting

February 4. 2016

Agenda

- Overview
  - Intelligent Transportation Systems
  - ITS Architectures
- Purpose & Limits
- Development Tasks
- Review of Current Architecture- Stakeholders
- Schedule
- Q&A

ITS Architecture Overview

Intelligent Transportation Systems

- Definition
    - "The application of data processing and data communications to surface transportation, to increase safety and efficiency."

- Includes Systems within
    - Traffic Management
    - Transit Management
    - Emergency Management
    - Traveler Information
    - Maintenance Management
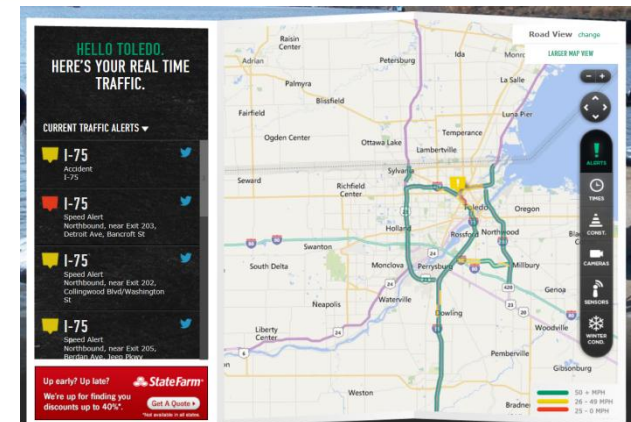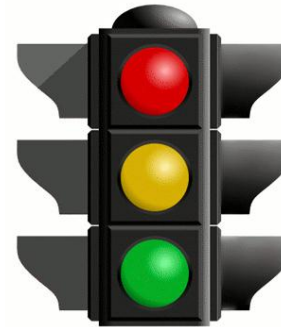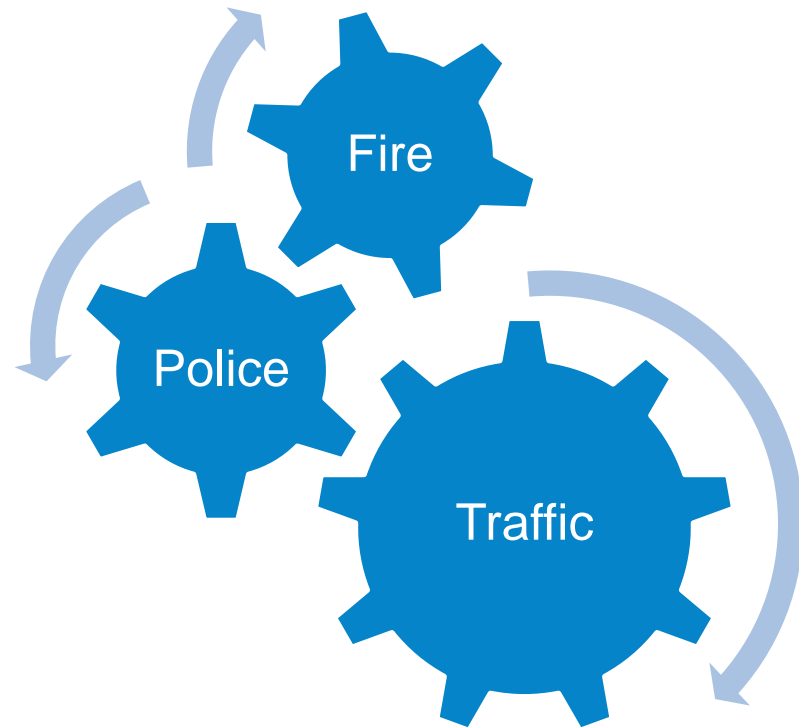
History of ITS Architecture

– Broad FHWA funding for regional ITS in early 1990s

– Many systems deployed but <u>data collected was proprietary and systems could not talk to each other</u>

– In 1996, National ITS Architecture established

– In 2001, FHWA issued Rule 940 requiring that ITS architectures be developed for 'regionally significant' ITS projects to be eligible for federal funding
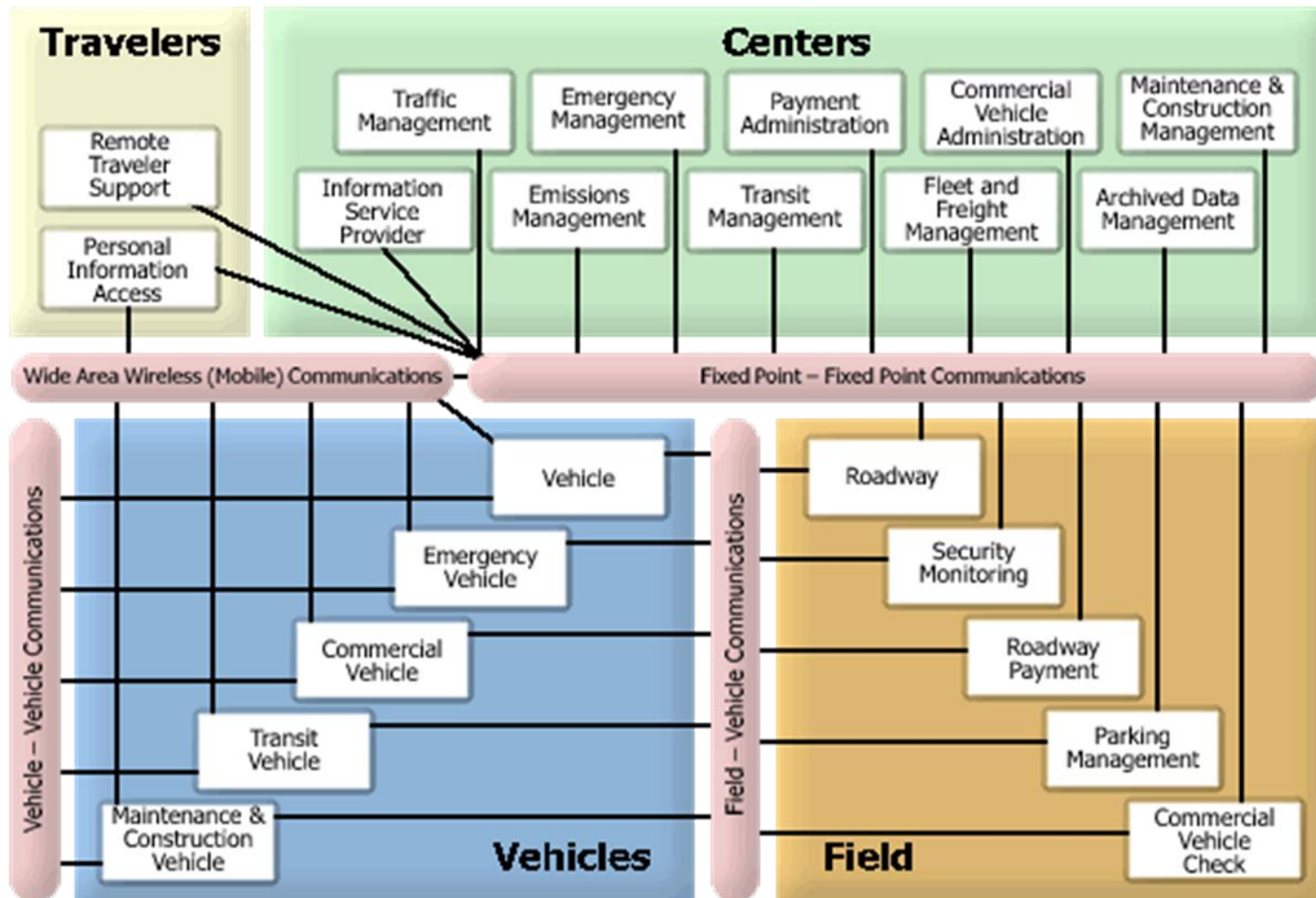
The National ITS Architecture

– National ITS Architecture was developed so that every region would have the same 'language'

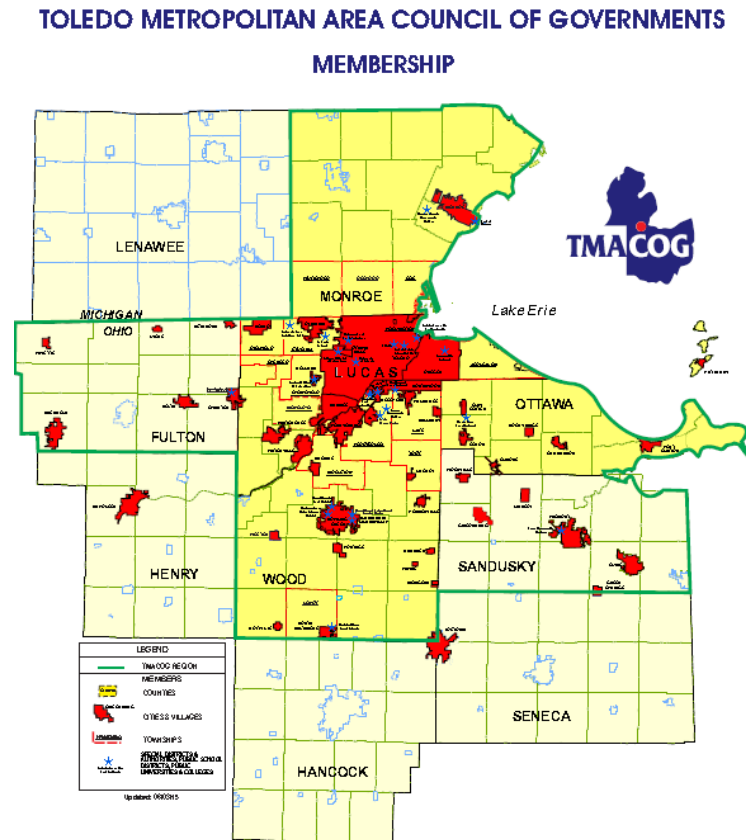– Process is based on a typical planning process

National ITS Architecture – Framework and Template

What is a Regional ITS Architecture?

– A regional framework for ensuring institutional agreement and technical integration for the implementation of ITS projects in a particular region

TOLEDO METROPOLITAN AREA COUNCIL OF GOVERNMENTS MEMBERSHIP

What is an ITS Architecture?

– Does Provide:

  – A blueprint on how ITS systems will work together to satisfy surface transportation needs.

  – Identifies the ITS stakeholders in a region and their elements

  – Identifies the information to be exchanged between stakeholder elements

  – Selects standards for information exchange

– Doesn't Define:

  – Select specific technologies or design

  – Determine how projects are selected or funded

How the National ITS Architecture relates to Regional ITS Architecture

– National ITS Architecture (the cookie cutter)
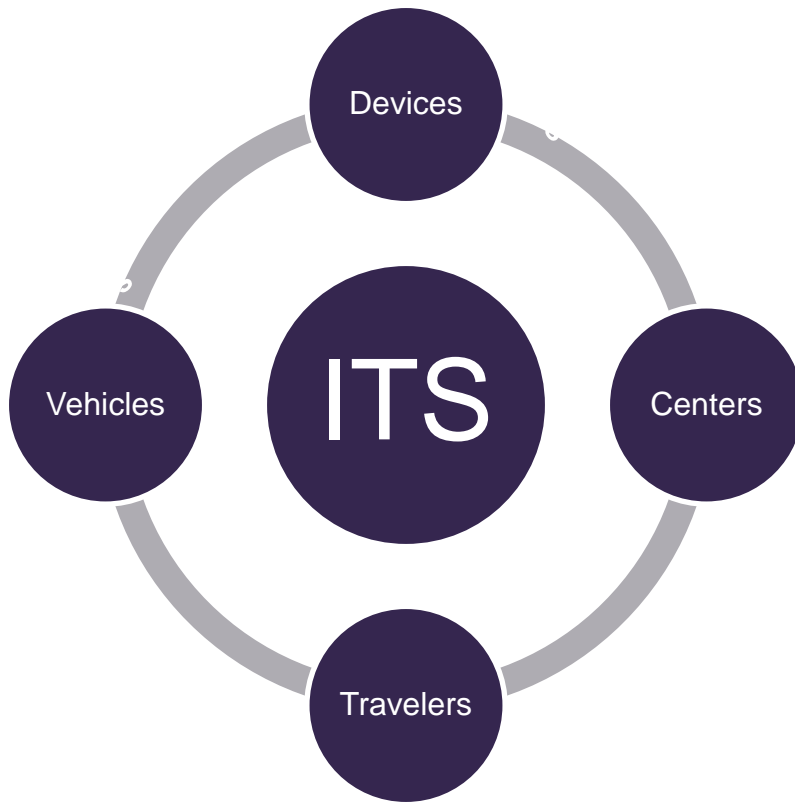 ● A framework or template
  ● A menu of possibilities

– Regional ITS Architecture (the cookies)
  ● Specific instances, associated with local stakeholders and projects
  ● Current inventory + future projects
  ● Only use the pieces you need
  ● Put together based on local needs
  ● Extensions, where necessary

Architecture Elements:
Subsystems thru Communications

Diagram showing "ITS" at center, surrounded by four circles: Devices, Centers, Travelers, Vehicles.

– Field Devices
  - Cameras
  - Electronic Signs
  - Speed Sensors

– Centers
  - Traffic Mgmt Center
  - 911 Dispatch

– Vehicles
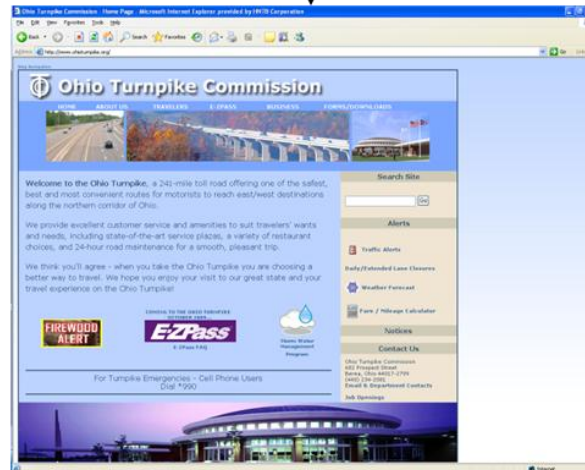 - GPS and AVL tracking

– Travelers

Traffic Information Dissemination

TMC
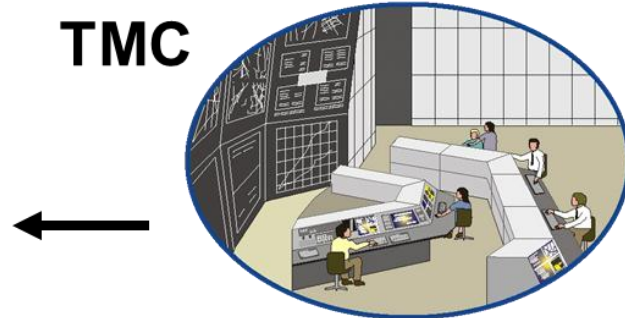
Dynamic Message Signs

Web Site

Motorist

Incident Management

TMC Personnel

Info Provider

Maintenance Dispatch

TMC

911 Center

Other TMC

Other 911 Center
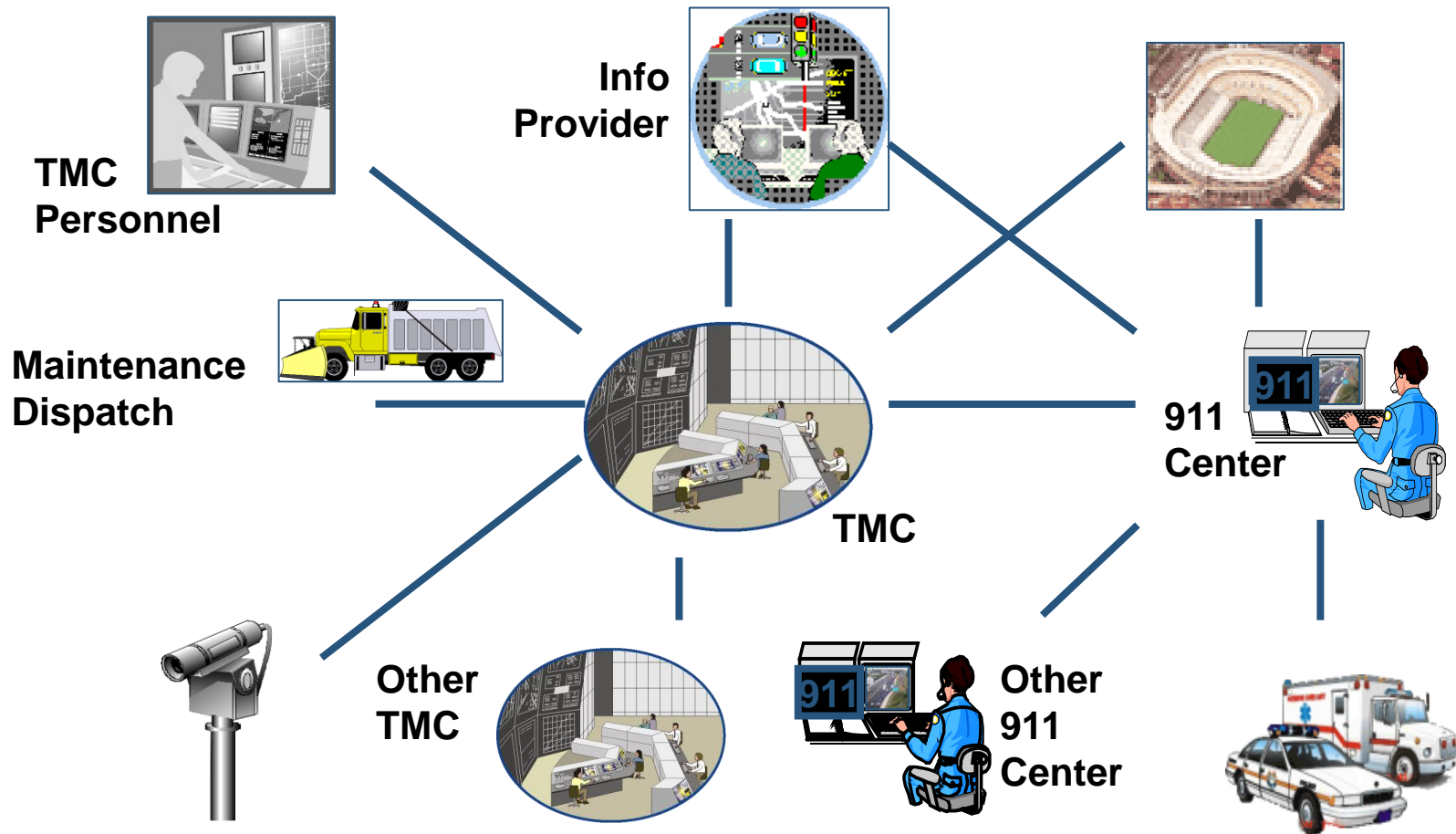
Look Beyond Current Set of Projects

– How will your systems evolve?

– What new or enhanced services will you provide?

– What systems will you connect to and what information will you share?

– What agreements need to be in place to make it happen?

– The TMACOG Regional ITS Architecture will provide the framework and plan for the evolution of your systems over the next 10 to 20 years.

Why Develop an ITS Architecture?

Benefits of a Regional ITS Architecture

– Transportation planning tool

 ● Understand where we are going with our Intelligent Transportation System

– Find opportunities to work together across multiple jurisdictions and agencies

More Benefits

– Regional information sharing opportunities

- The problem: patchwork deployments that make sharing information difficult

- Regional ITS Architecture: Get early insight into what ITS information others have that can help you do your job better (or you can provide to others)

- Identify open ITS standards: reduce long term risk/cost

Still more Benefits

– Institutional Agreement:

- The problem: Time consuming when information crosses institutional boundaries
- Regional ITS Architecture: Establish consensus based foundation for agreements – to get the process started

And finally….

– Addresses FHWA Rule/FTA Policy on ITS Architecture and Standards

- Requires development of a Regional ITS Architecture if using Highway Trust Fund money to fund deployment of projects containing ITS elements

- Intended to foster integration of ITS

- Defines requirements for ITS projects

FHWA Rule/FTA Policy

1. Description of the region (Scope)
2. Identification of participating agencies and their systems (Inventory)
3. Operational concept
4. Agreements required for implementation
5. System functional requirements
6. Interface requirements
7. Identification of ITS standards
8. Sequence of projects required for implementation
9. Process for maintaining your ITS Architecture

ITS Projects

– Regional ITS Architecture partially satisfies the systems engineering requirements for FHWA Rule/FTA Policy on ITS Architectures and Standards

– Part 940.11 Requirements:

- **Portion of the regional ITS architecture**
- **Roles and responsibilities**
- **High-level requirements**
- Alternative communications infrastructure
- **Applicable ITS Standards**
- Procurement options
- Operations and Maintenance

In Summary…

- To ensure investments in ITS can be leveraged
  - Primary purpose of ITS is to support daily traffic operations, transit and safety
  - Provide additional services as defined

- To be eligible for FHWA funding

Limits of ITS Architecture

– The development of an ITS architecture does NOT result in project commitments – just possibilities

- There is NO federal mandate to implement projects identified in an ITS architecture

- The ITS architecture IS required to received Federal funds for ITS projects

Project Overview

TMACOG Regional ITS Architecture Update Project

- ## Project Objective
  - Perform complete update of TMACOG Regional ITS Architecture, which was created in 2004-5

- ## Project Tasks
  - ITS Architecture Kickoff Meeting (today)
  - Stakeholder Interviews
    - What ITS systems are currently operated?
    - What are agency needs?
    - What ITS projects are currently planned?
    - What are agency desires?

Project Tasks (cont)

– Development of Draft Update of ITS Architecture

– Stakeholder Workshop
- Stakeholders meet to review draft ITS services and inventory
- Check accuracy of inventory and projects
- Accuracy of interfaces
  - Within agencies
  - Between agencies
- Gather additional information
- Document roles and responsibilities
- Identify memoranda of understanding/agreements
  - Collect agreements already in place
  - Recommend agreements that may be required

Project Tasks (Cont)

- **Complete Update**
  - Create Project Architectures, ITS Architecture Document, and draft website
  - Send to stakeholders for review and comment

- **Finalize Update of ITS Architecture**

- **Review Update with Stakeholders**
  - Stakeholder Webinar to review complete update
  - Brief Transportation Council

- **Provide Training for TMACOG Staff**

Review of Current ITS Architecture

Current Architecture Stakeholders

– County Agencies
  - Lucas County
    - Emergency Management Agency
    - Engineer
    - Road Maintenance and Repair
    - Sanitary Engineer
    - Sheriff

  - Monroe County
    - Public Safety
    - Road Commission

  - Wood County
    - Emergency Management Agency
    - Engineers Office

Current Architecture Stakeholders

- State Agencies
  - Michigan
    - MDOT
    - State Police

  - Ohio
    - ODOT
    - Department of Public Safety
    - State Highway Patrol (OSHP)
    - Turnpike Commission (OTC)

Current Architecture Stakeholders

– Municipal Agencies
  - City of Bowling Green
    - Public Utilities Department
    - Public Works Department
    - Safety Department
  - City of Oregon
  - City of Toledo
    - Division of Facility and Fleet
    - Division of Streets, Bridges and Harbor
    - Division of Transportation
    - Public Services
  - Municipal Govt
    - Engineering Departments
    - Public Safety Agencies
    - Municipal Service Departments

Current Architecture Stakeholders

– Transit Agencies

- Bowling Green State University Shuttle
- Lake Erie Transit
- Toledo Area Regional Transit Authority (TARTA)
- University of Toledo Transit

– Other Stakeholders

- TMACOG
- Greater Toledo Convention and Visitors Bureau
- Independent School Districts
- Toledo - Lucas County Port Authority

Schedule

Project Schedule (tentative dates)

- Stakeholder Interviews- 2/7- 28

- Development of Draft ITS Architecture - 2/28-3/25

- Stakeholder Workshop- 3/30

- Complete Update – 4/22

- Comment Period – 4/25-5/20

- Finalize ITS Architecture – 5/30

- Review Webinar- 6/15

- TMACOG Training- 6/22

Thank you for Attending