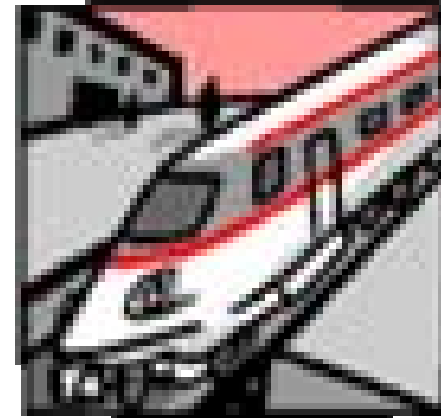


Welcome



- **MORPC**
 - **Kerstin Carr**
- **HNTB**
 - **Katie Ott**
- **Consensus Systems Technologies**
 - **Bruce Eisenhart**
 - **Patrick Chan**



Meeting Objectives

- **Introduce concepts of ITS architectures to stakeholders**
- **Review draft Central Ohio Regional ITS Architecture Outputs**
 - **Gather comments from stakeholders**
- **Develop a CONSENSUS architecture**
 - **Expression of YOUR plan for ITS in the region.**

- **MORPC – ITS Architecture Update**
 - **2nd update of the Central Ohio Regional ITS Architecture**
- **Prepare Market Package Diagrams**
- **Review draft ITS Architecture**
- **Create website**
- **Provide guidance for documentation**



Agenda



- **8:30 AM – Welcome, Introductions**
- **8:45 AM – Regional ITS Architecture Overview**
- **9:30 AM – Review and Update Stakeholders & Inventory**
- **10:00 AM – Break**
- **10:15 AM – Review and Update Customized ITS Services**
- **11:30 AM – Review ITS Architecture Website**
- **11:45 AM – Lunch**
- **12:45 AM – Review and Update Customized ITS Services**
- **2:30 PM – Break**
- **2:45 PM – Review and Update Customized ITS Services**
- **4:30 PM – Review of Projects, Agreements and Operational Concepts**
- **4:50 PM – Discuss Use and Maintenance Plan**
- **5:00 PM - Adjourn**



ITS Architecture Overview



What is ITS?

- **Intelligent Transportation System**

Could be:

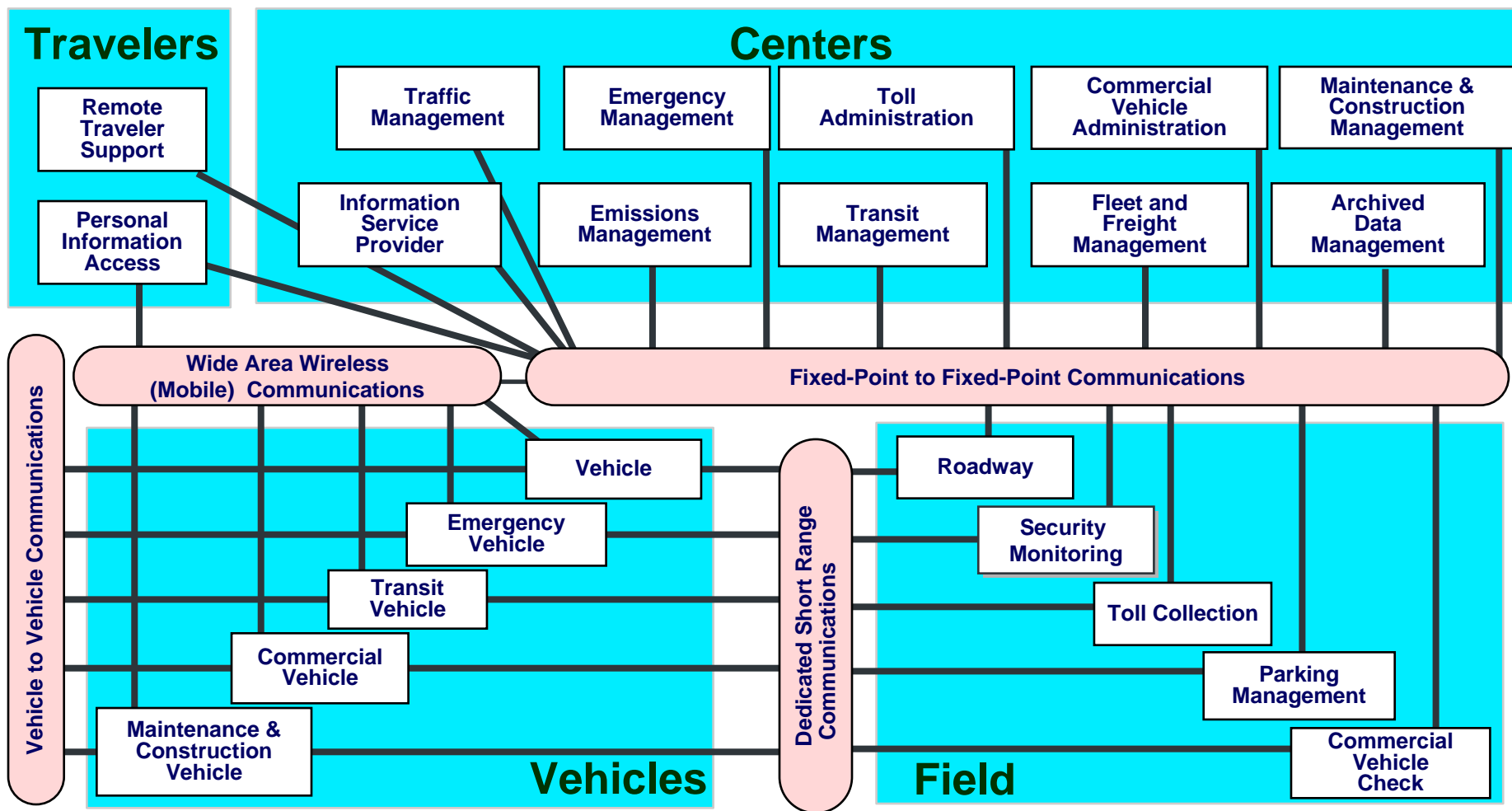
- **Integrated Transportation System**
- **One Definition:**
 - **“The application of *data processing* and *data communications* to surface transportation, to increase *safety* and *efficiency*.”**



What is an ITS Architecture?

- **Is:**
 - **Identifies the ITS stakeholders in a region and their elements**
 - **Identifies the information or control to be exchanged between stakeholder elements**
 - Making policy decisions by including or not including specific information flows between stakeholder elements
 - **Selects standards for information exchange**
- **Isn't:**
 - **Doesn't select specific technologies or design**
 - **How projects are selected or funded**

National ITS Architecture - Framework & Template

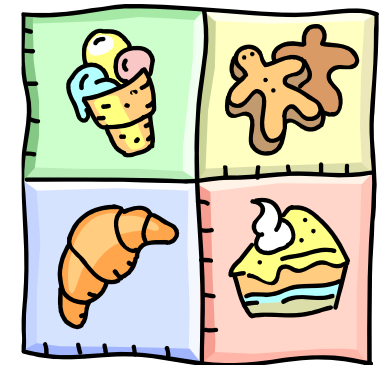


What is a Regional ITS Architecture?

- **A plan for deployment of ITS in the Region**
- **Focus on integration of ITS in the Region**

How 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 the pieces you need
 - Put together based on local needs
 - Extensions, where necessary



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 Central Ohio Regional ITS Architecture will provide the framework and plan for the evolution of your systems over the next 10 years.**

Benefits of a Regional ITS Architecture

- **Transportation planning tool**
 - Get a handle on where we are going with our Intelligent Transportation System
- **Regional information sharing opportunities**
 - Get early insight into what ITS information others have that can help you do your job better (or you can provide to others)
- **Opportunities to leverage funding across multiple jurisdictions and agencies**

Benefits of Regional ITS Arch (Cont.)

- **AND -- 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 Systems**
 - **Defines requirements for ITS projects**
 - **Defines requirements for ITS agreements**
- **This workshop continues the process of updating the Central Ohio Regional ITS Architecture**

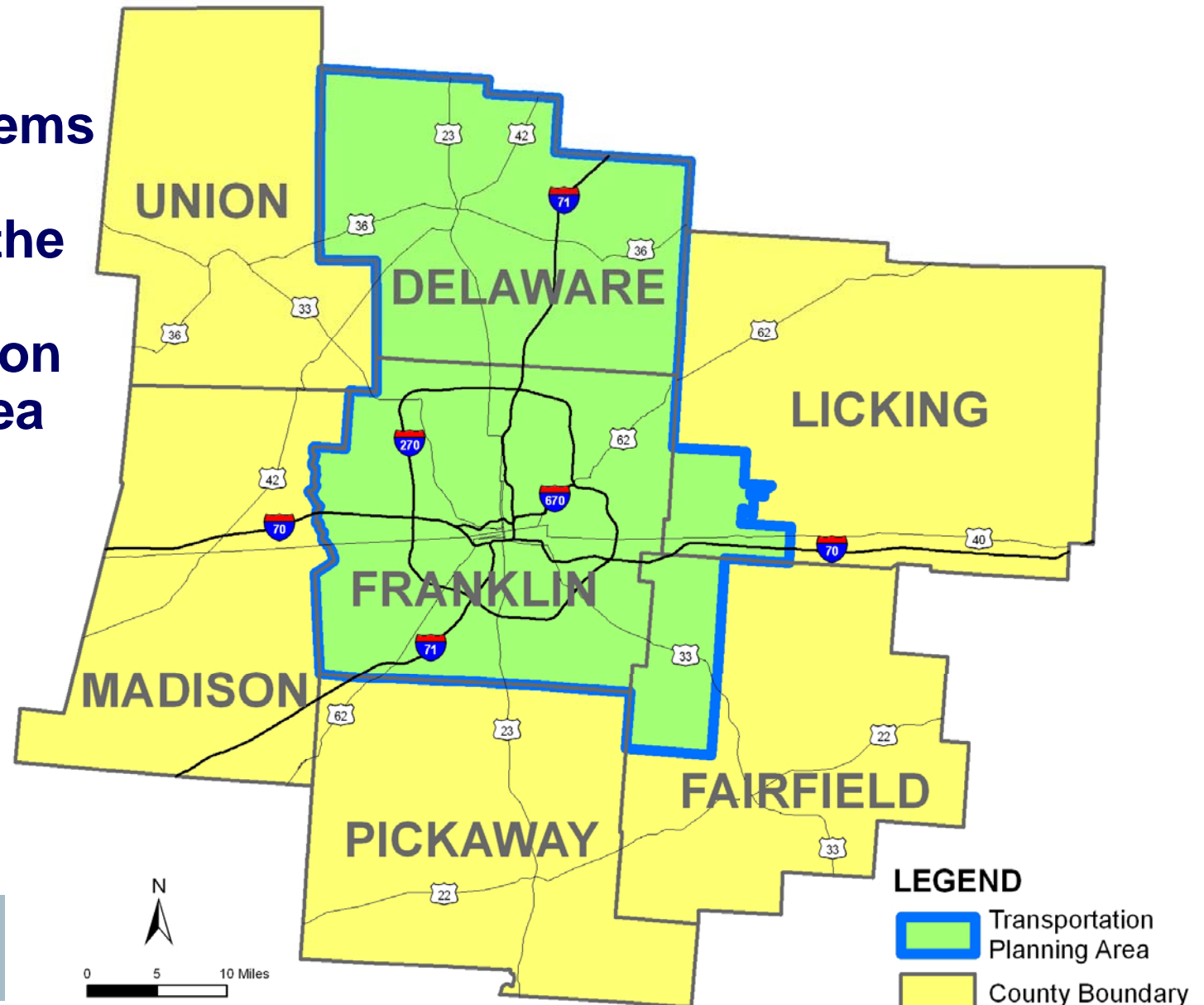
- 1. Description of the region (Scope)**
- 2. Identification of participating agencies and their systems (Inventory)**
- 3. Operational concept**
- 4. Agreements required for implementation**
- 5. System functional requirements**
- 6. Interface requirements**
- 7. Identification of ITS standards**
-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



Central Ohio Regional ITS Architecture Scope

Geographic

- Covers systems and roads throughout the MORPC Transportation Planning Area



Central Ohio Regional ITS Architecture Scope

- **Time Frame**
 - **Existing Today → 10 years in the future?**
- **Scope of Services**
 - **Traffic**
 - **Maintenance**
 - **Transit**
 - **Emergency**
 - **Archived Data Management**
 - **Traveler Information**
 - **Commercial Vehicles Operations (regional only)**
 - **Planning**

What is a Stakeholder?

- **Technical Definition:**
 - An entity (e.g. agency, company, generic traveler) who uses their ITS element(s) to send or receive ITS information to/from other stakeholders either directly or with their equipment. (Stakeholder Representatives are the people who represent the stakeholders' interests.)
- **Institutional Definition:**
 - Someone who builds, operates or maintains ITS equipment.

What is an ITS Inventory?

- **A list of ITS elements and the elements that interface with them**
- **And an ITS element is:**
 - “The name used by stakeholders to describe high level parts of an ITS system.”**

Regional ITS Inventory

- Review current and planned elements
- Types of elements:
 - Centers - Traffic, Emergency, Transit
 - Field Devices - Traffic, Maintenance
 - Traveler Interfaces - Web sites
 - Data Systems - Planning, Archives
 - Vehicles - Transit, Emergency, Maintenance

Regional ITS Inventory

- **Review**
 - **Name**
 - **Stakeholder**
 - **Description**
 - **Status (existing or planned)**
 - **Function (allows us to map elements to the most appropriate entities of the National ITS Architecture)**
- **Generic Elements**
 - **Results in a more manageable architecture.**
 - **Allows for a consistent interface between systems.**



Lets go to the inventory...



Transportation Needs

- **What are Needs?**
 - **Regional necessities that address particular transportation issues**
 - **Some are ITS related, meaning the need can be satisfied with the incorporation of ITS in the transportation system**
 - **Some are not ITS related**
- **Needs are both qualitative and quantitative**
 - **Qualitative Needs – Identifies a general requirement**
 - **E.g. Improve incident response and remediation**
 - **Quantitative Needs – Identifies a specific requirement by which one can measure numerically if it has been met.**
 - **E.g. Install 12 CCTV Cameras on state highways**



Why identify Needs for MORPC?

- **ITS Systems can be used to satisfy Transportation Needs**
- **Identification of ITS related needs will help make a connection between transportation planning and the ITS projects that are developed.**
- **Aids member agencies in developing financial strategies to deal with unmet needs**
 - **Identify possible future funding sources**
 - **Multi-year financing plan to leverage funding now**

Discussion of ITS Services- Market Packages Overview/ Prioritization

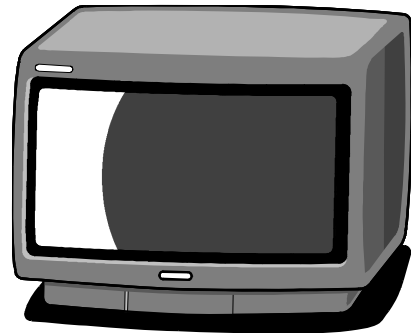


ITS Services Cover

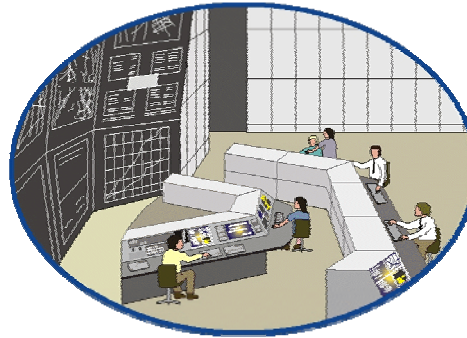
- Traffic Management
- Traveler Information
- Transit Management
- Emergency Management
- Commercial Vehicle Operations
- Maintenance and Construction
- Archived Data Management



Traffic Information Dissemination



**Television
Station**



TMC

Dynamic Message Signs

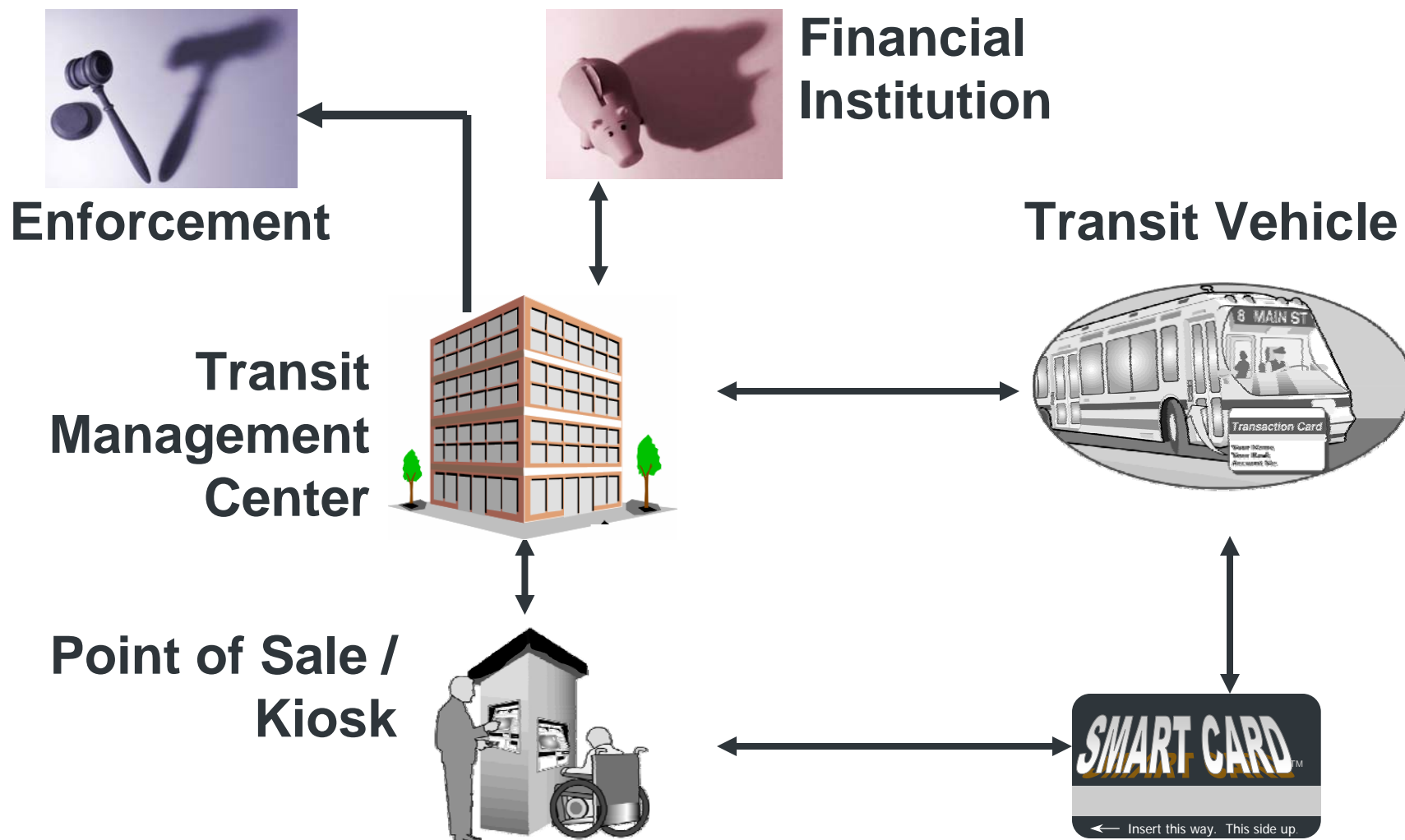


Motorist

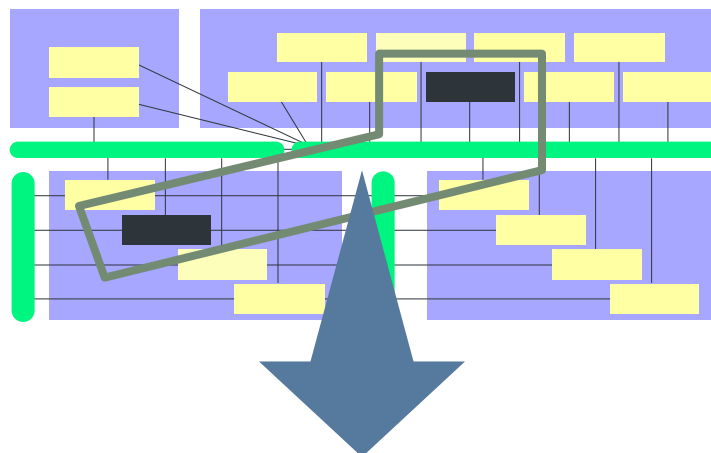
Web Site



Automated Transit Fare Payment



Market Packages



Architecture

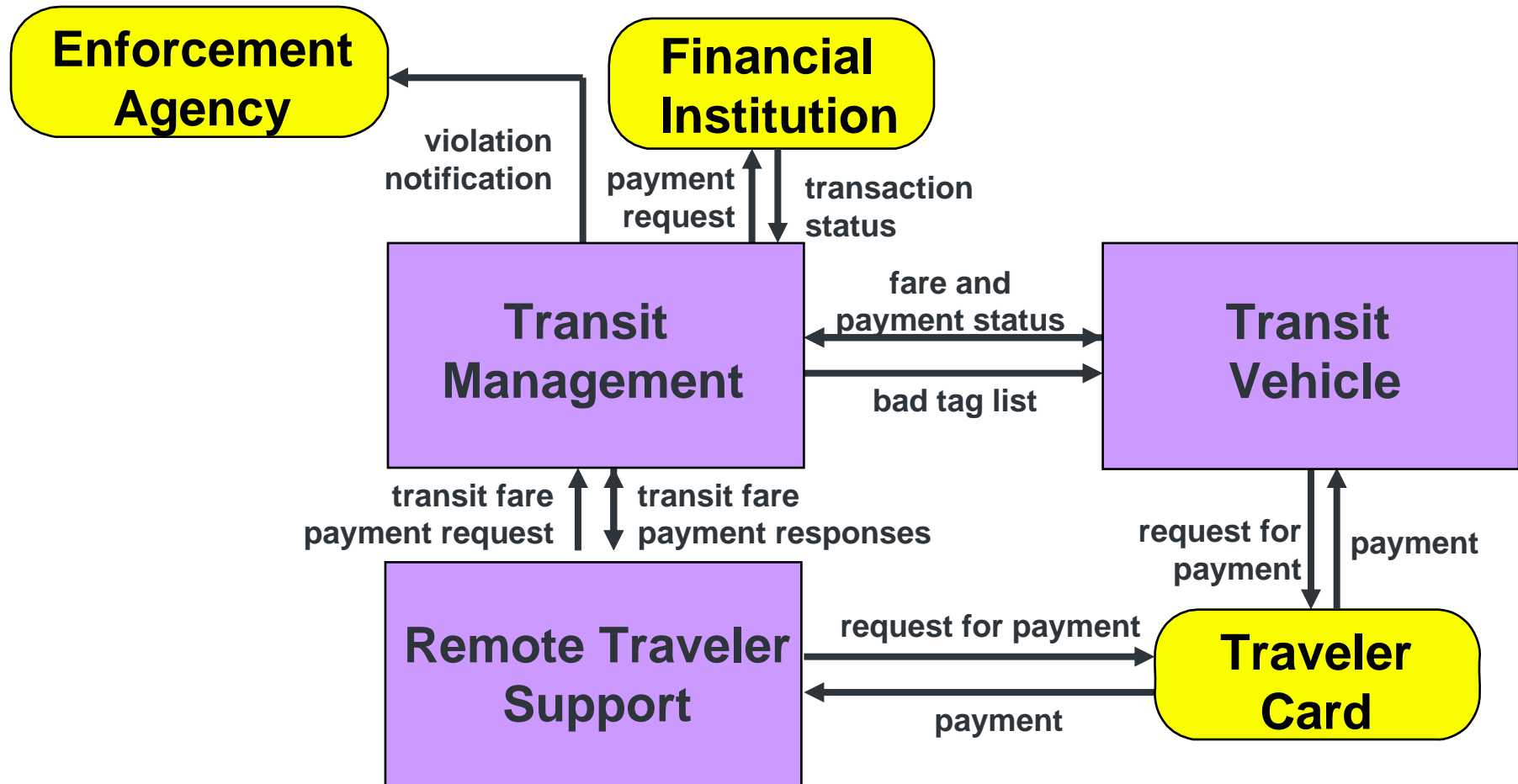
Framework spanning all of ITS



Market Packages

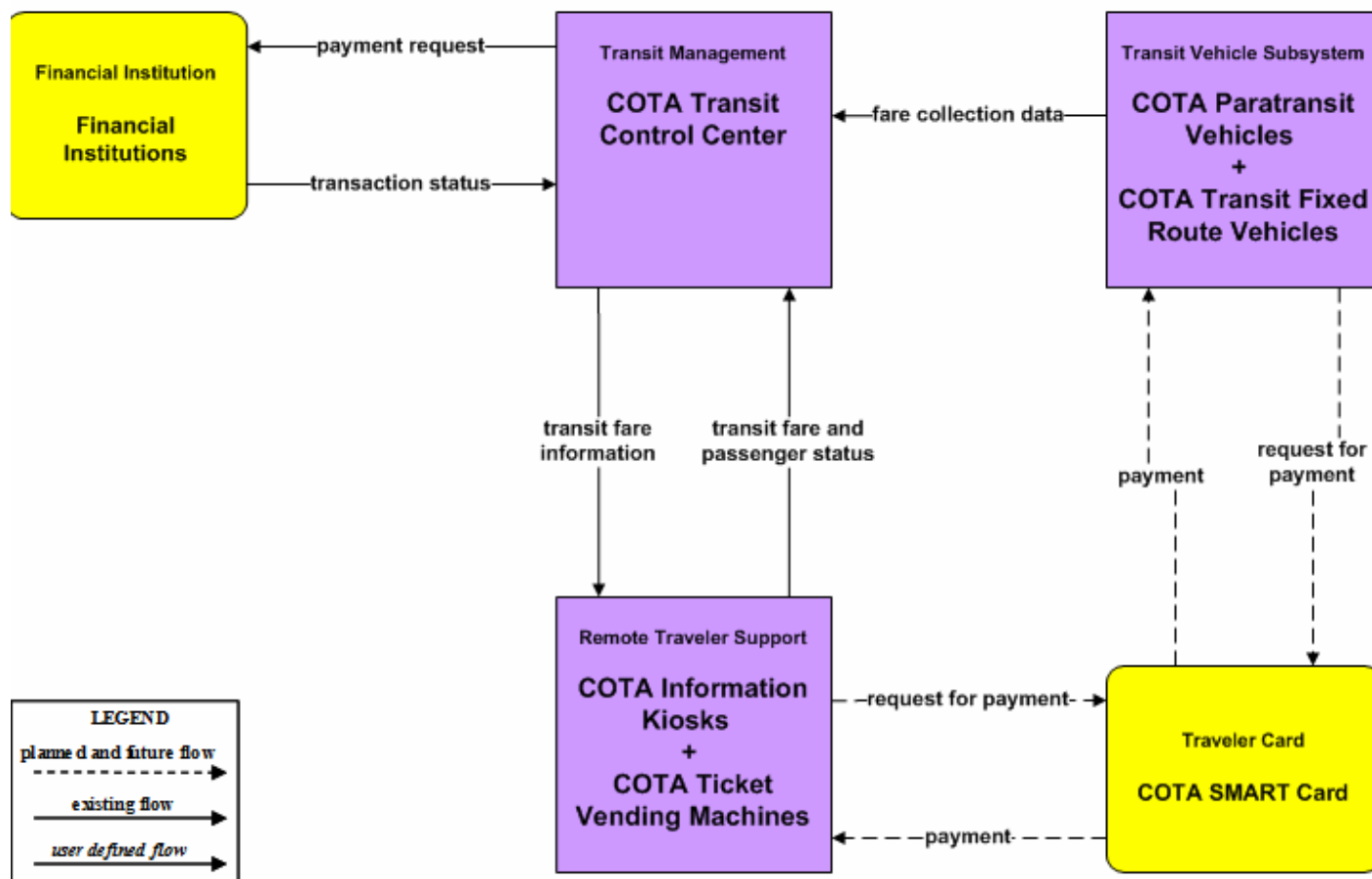
Pieces of the architecture that provide a particular transportation service.

APTS4 - Automated Fare Payment Market Package



APTS4 - Automated Fare Payment Market Package - COTA

APTS04 - Transit Passenger and Fare Management COTA

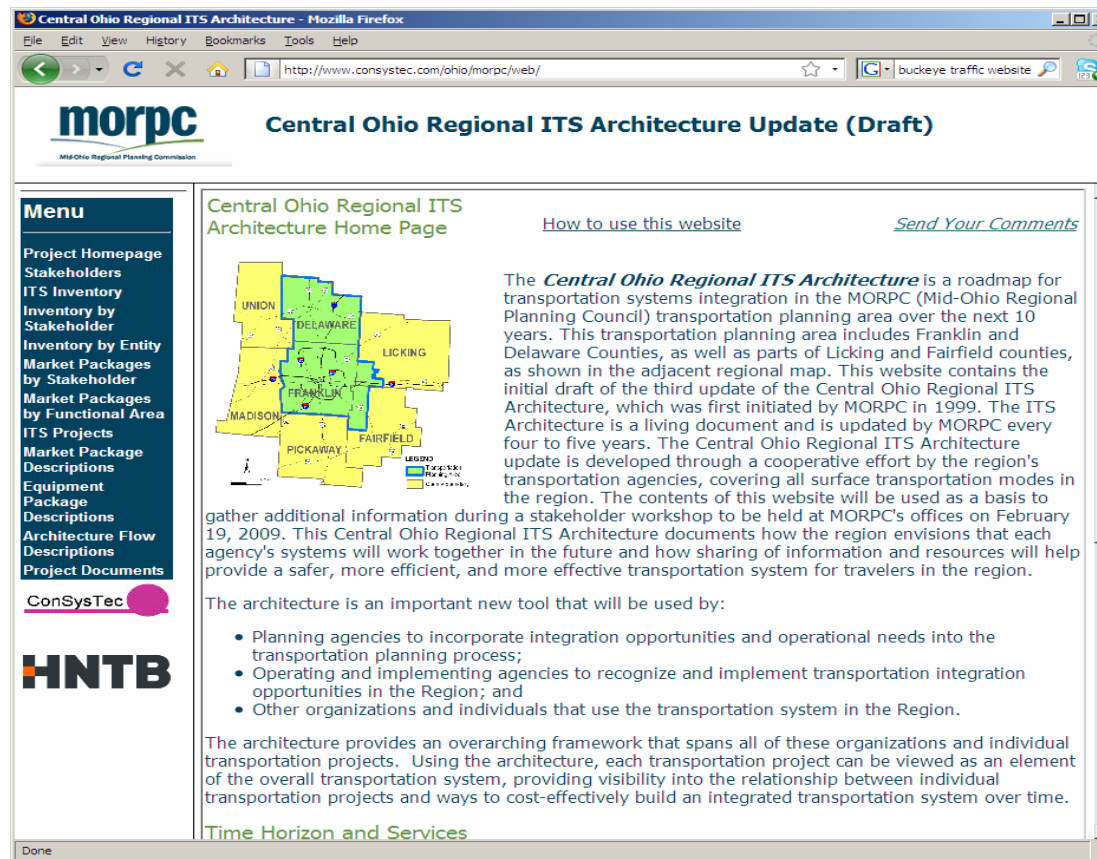


Review Customized Market Packages

- **Customize Market Packages**
 - **Add / Delete Subsystems, Terminators, Architecture Flows**
 - **Moderators Assist by:**
 - **Asking questions**
 - **Capturing results**
- **Review selected diagrams based on**
 - **Questions we have;**
 - **Regional projects or initiatives; and**
 - **Stakeholders present**

Central Ohio Regional ITS Architecture Website

- Draft architecture details can be viewed at <http://www.consystec.com/ohio/morpc/web/>



The screenshot shows a web browser window displaying the Central Ohio Regional ITS Architecture website. The page title is "Central Ohio Regional ITS Architecture Update (Draft)". The website features a navigation menu on the left with links such as "Project Homepage", "Stakeholders", "ITS Inventory", "Inventory by Stakeholder", "Inventory by Entity", "Market Packages by Stakeholder", "Market Packages by Functional Area", "ITS Projects", "Market Package Descriptions", "Equipment Package Descriptions", "Architecture Flow Descriptions", and "Project Documents". The main content area includes a map of the Central Ohio region, a section titled "Central Ohio Regional ITS Architecture Home Page", and a detailed description of the architecture. The description states that the architecture is a roadmap for transportation systems integration in the MORPC (Mid-Ohio Regional Planning Council) transportation planning area over the next 10 years. It mentions that the architecture is a living document and is updated by MORPC every four to five years. The architecture is developed through a cooperative effort by the region's transportation agencies, covering all surface transportation modes in the region. The contents of this website will be used as a basis to gather additional information during a stakeholder workshop to be held at MORPC's offices on February 19, 2009. This Central Ohio Regional ITS Architecture documents how the region envisions that each agency's systems will work together in the future and how sharing of information and resources will help provide a safer, more efficient, and more effective transportation system for travelers in the region. The architecture is an important new tool that will be used by:

- Planning agencies to incorporate integration opportunities and operational needs into the transportation planning process;
- Operating and implementing agencies to recognize and implement transportation integration opportunities in the Region; and
- Other organizations and individuals that use the transportation system in the Region.

The architecture provides an overarching framework that spans all of these organizations and individual transportation projects. Using the architecture, each transportation project can be viewed as an element of the overall transportation system, providing visibility into the relationship between individual transportation projects and ways to cost-effectively build an integrated transportation system over time.

[Time Horizon and Services](#)

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**

Operational Concept

- **Defines roles and responsibilities of stakeholders**
- **Organized by ITS Area**
 - **Traffic Signal Control**
 - **Highway Management**
 - **Incident Management**
 - **Emergency Management**
 - **Transit Management**
 - **Maintenance Management**
 - **Traveler Information**
 - **Archived Data**



Agreements

- **Many types of agreements possible**
 - **Handshake**
 - **Memorandum of Understanding (MOU)**
 - **Interagency**
 - **Intergovernmental**
 - **Operational**
 - **Funding**
 - **Master Agreements**
- **Agreements for data sharing, maintenance, etc.**
- **Any Existing Agreements??**



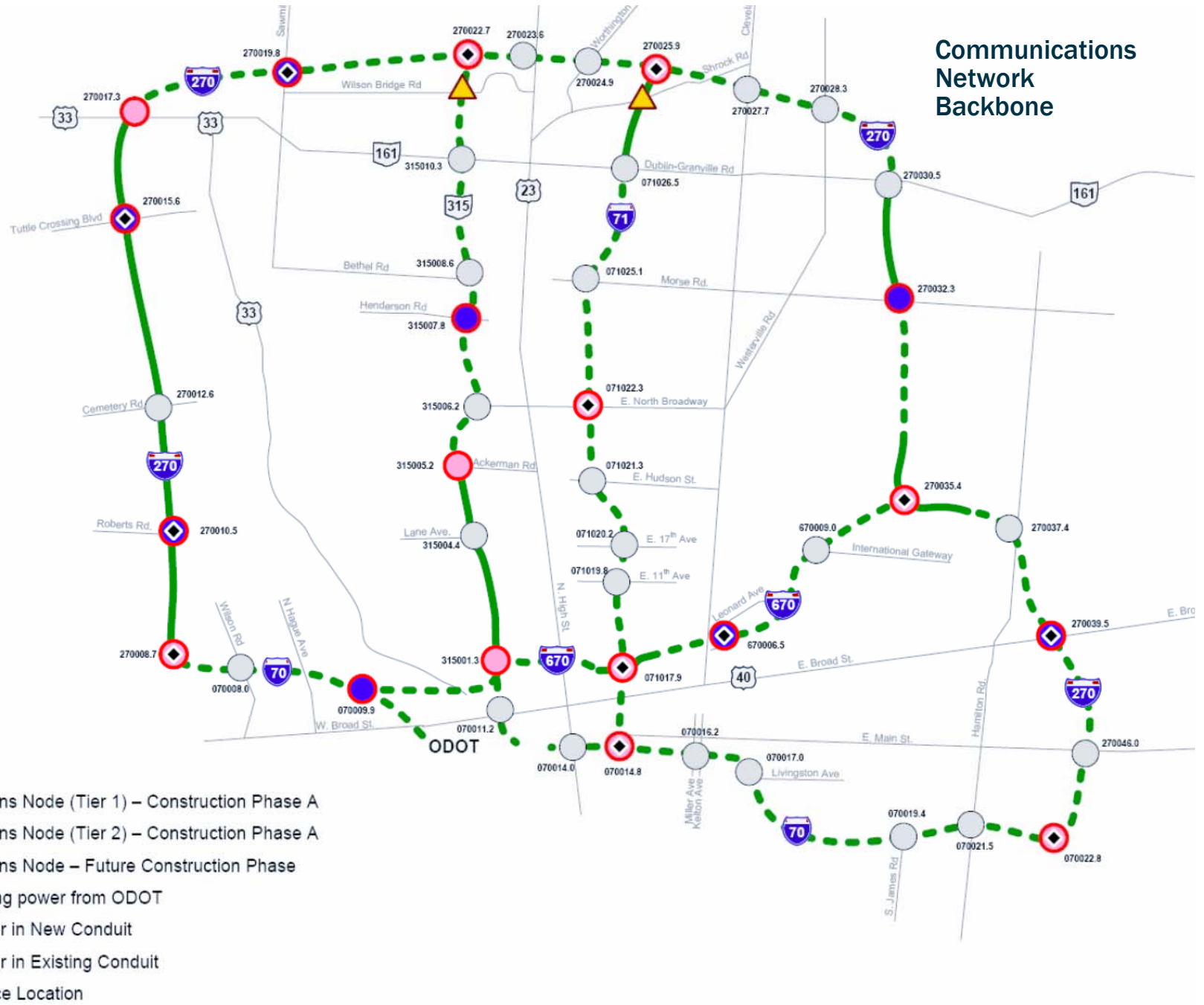
Review Prioritization of Market Packages

- **High Priority market packages should translate into High Priority projects (short term)**
- **The priority projects throughout the region should be directly related to the Market Package prioritization**
- **Priority may vary by stakeholder group**
- **Lets go to the Services/Market Package Prioritizations...**

Projects List

- **For each project, the following information is considered:**
 - Project Type
 - MORPC TIP ID
 - Agency
 - ODOT – PID
 - Project Description
 - Design Year
 - Construction Year
 - Program Year
 - Total Costs
 - Funding Source (s)
 - Market Package Diagrams
- **Are there any “missing” projects, or incorrect market package prioritization?**

Communications Network Backbone



Future Signal Projects

Phase	Fiber	Signals	CCTV	Agencies
A	86	-	-	-
B	-	350	20	4
C	10	235	12	4
D	25	365	15	4

- **Does your agency have a relationship with the Columbus Computerized Traffic Signal System?**
- **Would you like to have a relationship with the Columbus Computerized Traffic Signal System?**
- **What works well? What could work better?**
- **What do you see as future demands/expectations on signal systems?**
 - 5 years – 10 years – 15 years?
- **How will your agency interface with the Columbus Computerized Traffic Signal System in the future?**

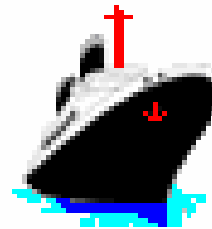


Why Changes Occur

- **Projects**
 - **Additions/Deletions** – new projects or dropped projects
 - **Status** – change in status (planned/existing)
 - **Definition** – change in details, scope, e.g., information flows, standards
 - **Priorities** – change in goals, budgets
 - **Agreements** – institutional change

Why Changes Occur

- **Regional**
 - **Goals – changes in regional needs**
 - **Stakeholders – New stakeholders**
 - **Other architectures – changes to interfaces with adjoining regions**
 - **National ITS Architecture – changes to the National ITS Architecture**



Maintenance Models

- **Two models**
 - **Periodic Basis**
 - **Fixed time periods**
 - **Event Driven**
 - **As changes occur**



Maintenance Models

- **Recommendation:**
 - **Establish a procedure for Stakeholders to initiate minor changes to the Architecture if necessary**
 - **E.g., Need funding for a new, priority project**
 - **Send periodic reminders (e.g., annual) to all stakeholders asking if any part of the Architecture involving the stakeholder needs updating**

Responsible Agency

- **Allocates resources to maintain architecture**
- **Maintains “official” records**
- **Assigns a Maintenance Manager**
 - Works for (assigned by) the responsible agency
- **Can also act as a contracting agency if needed**
- **Responsible Agency – *MORPC***

Maintenance Manager

- **Receives the Change Request forms and requests for documentation from Stakeholders**
- **Notifies stakeholders of updates**
- **Maintains the “official” records, including Change Request Database**
- **Updates the status of Change Request Forms**



Stakeholders

- **Each Stakeholder is responsible for updating their projects and ITS elements in the architecture**
- **Each Stakeholder will designate an Authorized Representative who may make policy decisions for that agency**
 - **The Authorized Representative must endorse all changes to the architecture that directly affects his/her agency.**



Maintenance Working Group

- **Collecting and compiling proposed changes and updates to the architecture from stakeholder agencies.**
- **Evaluating each proposed change from a technical standpoint, and reaching a consensus on the proposed change**
 - **This may require contacting additional stakeholders if one or more of their systems are affected.**
- **Approving changes to the architecture.**



Process Summary

- **Submit a Change Request**
- **Define the Proposed Change**
- **Assess the impact**
- **Approving the Change**
- **Implementing the Change**





Next Steps

- Your input from this workshop will be turned into an updated Central Ohio Regional ITS Architecture
 - Link to project website at www.consystec.com
- Please take the time to review your portion of the architecture and provide comments
- Outputs from the website will be used to create the final architecture document.

Thanks you for your input today!

