



State of Texas
ITS Architectures and Deployment Plans

Tyler Region

Executive Summary

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PROJECT APPROACH

The Federal Highway Administration (FHWA) issued a final rule to implement Section 5206(e) of the Transportation Equity Act for the 21st Century (TEA-21) in January of 2001. This final rule requires that Intelligent Transportation System (ITS) projects funded through the Highway Trust Fund conform to the National ITS Architecture and applicable standards. FHWA has further established a deadline of April 2005 for regions to have an ITS architecture in place.

To meet these requirements and ensure future federal funding eligibility for ITS, the Texas Department of Transportation (TxDOT) initiated the development of regional ITS architectures and deployment plans throughout the State of Texas. There are several metropolitan regions in the state that already have ITS architectures in place or under development. The focus of the TxDOT Regional ITS Architecture and Deployment Plan program is to develop architectures in those areas outside of the Austin, Houston, Dallas, Fort Worth, and San Antonio Regions. TxDOT expanded upon the ITS architecture requirements outlined in the FHWA Final Rule, and included an ITS deployment plan as part of the regional efforts. The Tyler Regional ITS Architecture provides a framework for ITS systems, services, integration, and interoperability, and the Regional ITS Deployment Plan identifies specific projects and timeframes for ITS implementation to support the vision developed by stakeholders in the architecture.

TxDOT's process for developing the regional ITS architectures and deployment plans followed a consensus-based approach to meeting the requirements in the FHWA Final Rule and supporting guidelines. This process was further tailored to meet the specific multi-agency needs of these regional plans, and was structured around stakeholder input and involvement. The addition of an ITS Deployment Plan provides for a tangible road map for regional ITS deployment and integration. **Figure 1** shows the development process for each of the regional ITS architectures and deployment plans.

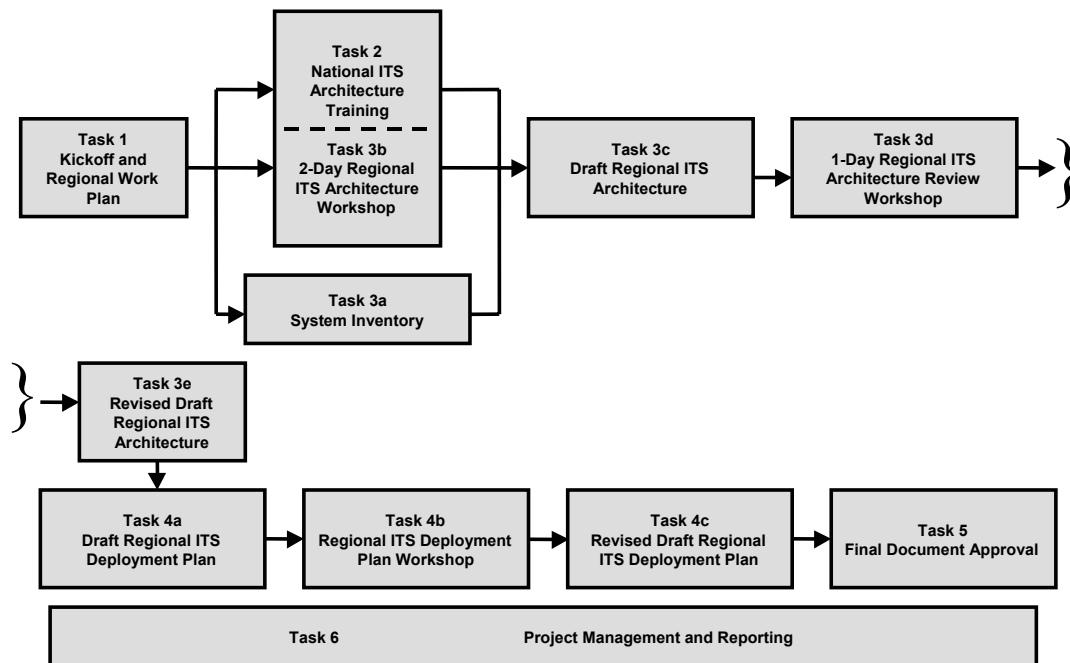


Figure 1 – Tyler Regional ITS Architecture and Deployment Plan Development Process



OVERVIEW OF THE TYLER REGION

The Tyler Region is located in the north eastern part of Texas. The ITS stakeholders defined the regional boundaries to correspond to the eight county TxDOT Tyler District, which includes the Cities of Tyler, Longview, Canton, Athens, Palestine, Gladewater, and Henderson. Interstate 20, which crosses through the Tyler Region, is a major east west corridor connecting Texas to the eastern United States.

The Tyler Region is composed of a number of urban and rural communities, with the City of Tyler and City of Longview serving as the major population centers in the Region. Primary interstate and state routes that traverse the Region include I-20, US 69, US 80, US 259, US 271, SH 31, SH 64, SH 110, SH 155, and Loop 323. These corridors are key links for inter- and intra-state movement of people and goods. I-20 is one of the most heavily traveled truck routes in Texas. The effective operation of this highway is critical to the movement of goods and people.

Agencies in the Tyler Region have already deployed several ITS technologies and are in the process of additional deployments. Current ITS elements in the Region include:

- Dynamic message signs (DMS) for motorist information along I-20;
- Closed-circuit television (CCTV) cameras at selected interchanges;
- High water detection devices in flood prone areas;
- Highway advisory radio (HAR); and
- Video image vehicle detection systems (VIVDS).

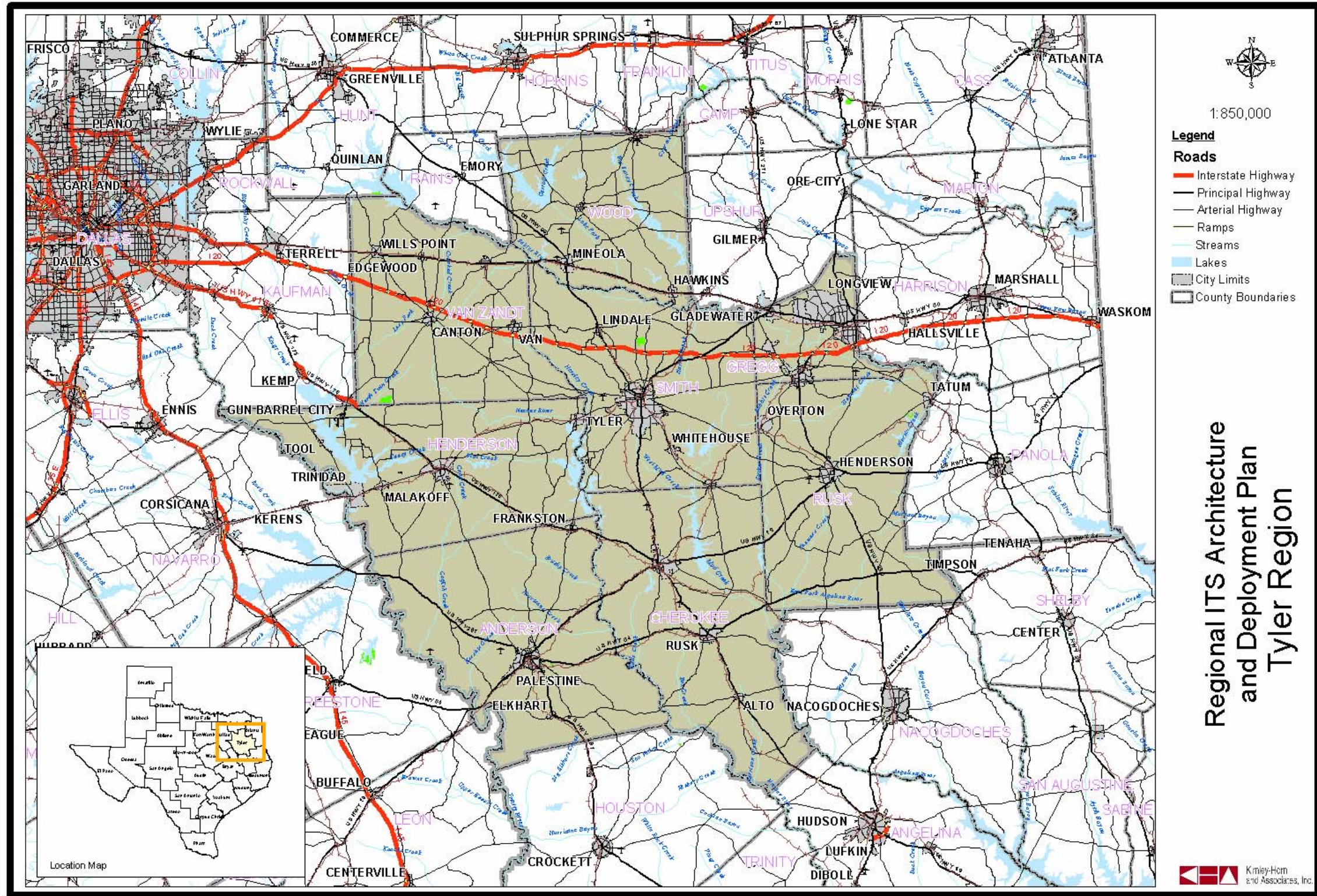


Figure 2 – Tyler Region



TYLER REGION STAKEHOLDERS

Involving a range of perspectives in the development of a regional ITS architecture and deployment plan, and obtaining consensus on the vision and recommendations are key components to the process. Stakeholders from throughout the Tyler Region participated in the development of the Regional ITS Architecture and Deployment Plan, including representatives from TxDOT, cities, counties, transit agencies, police and fire. These stakeholders provided input and review at key steps in the development process, including a project kick-off meeting, architecture development and review workshops, a deployment plan workshop, and review of the final project documentation.

Tyler Region stakeholders included:

- City of Gladewater;
- City of Lindale;
- City of Longview;
- City of Rusk;
- City of Tyler;
- East Texas Council of Governments;
- Gregg County;
- Rusk County;
- Smith County;
- TxDOT Traffic Operations Division;
- TxDOT Tyler District; and
- Wood County.

TYLER REGIONAL ITS ARCHITECTURE

The process for developing the Regional ITS Architecture for Tyler included several key steps:

- Preparing an inventory of planned and existing systems in the Region;
- Identifying needs in the Region that could be addressed by ITS deployment or integration;
- Customizing and prioritizing market packages to address the specific needs and services identified by stakeholders;
- Developing interconnects and interfaces for system elements to map out data flows and agency links;
- Preparing an operational concept to illustrate how the systems, components and agencies will be integrated and function as a result of the architecture framework;
- Identifying high-level functional requirements;
- Identifying standards that could be applicable to the Tyler Region; and
- Outlining potential agreements that would be needed to facilitate information or resource sharing as a result of ITS implementation.

Inventory and Needs in the Region

The Tyler Regional ITS Architecture began with a project kick-off meeting in July of 2002. At that meeting, stakeholders provided information about existing ITS elements deployed in the Region, as well as those planned for the Region. A diverse range of needs were identified by Regional stakeholders. The highest priority needs focused on improving traveler information (particularly for closures of major routes), incident management, and enhancing coordination and communication among local and state agencies within the Region as well as with neighboring TxDOT Districts. The inventory of planned and existing ITS infrastructure provided the basis for the architecture development. Needs that could be addressed by ITS technologies guided the selection of market packages, data flows, and integration requirements.

The needs identified by the Tyler Region stakeholders were categorized into functional areas, and are shown in **Table 1**.

Table 1 – Tyler Region: Summary of ITS Needs

Tyler Region
Summary of ITS Needs
Tyler Regional ITS Architecture and Deployment Plan Kick-Off Meeting
July 16, 2002

Institutional Issues/Needs

- Need agreements to use data from other agencies
- Need agreements on control of equipment
- Need agreements on protocol

Traffic Management Needs

- Need emergency vehicle pre-emption along arterials
- Need pan tilt zoom control on interchange cameras and feeds to city
- Need a joint TMC for Tyler and Longview
- Need red-light-running enforcement

Traveler Information Needs

- Need information on traffic flow and incidents
- Need additional DMS
- Need to provide more information (emergency and tourist)
- Need to move toward 511 implementation to increase information dissemination (especially for First Monday)
- Need special events traffic management

Data Needs (Collecting, Sharing)

- Need to have traffic flow data shared with dispatch to aid movement of emergency vehicles
- Need to integrate data sources
- Need system to share video
- Need weather conditions
- Need construction updates
- Need ice detection

Public Transportation Management Needs

- Need AVL on buses

Electronic Payment Needs

- Need smart pay for public transportation

Commercial Vehicle Operations Needs

None Identified

Table 1 – Tyler: Summary of ITS Needs (continued)

<p>Emergency Management Needs</p> <ul style="list-style-type: none">▪ Need emergency vehicle signal pre-emption
<p>Advanced Vehicle Safety Systems Needs</p> <p>None Identified</p>
<p>Information Management Needs (Data Archiving)</p> <p>None identified – data needs covered in other categories</p>
<p>Maintenance and Construction Management Needs</p> <ul style="list-style-type: none">▪ Need improved sharing of information relative to construction

Market Packages

A 2-Day ITS Architecture Workshop was held in the Tyler in October 2002. At this workshop, stakeholders were provided with architecture training, including background information about the National ITS Architecture, the purpose and benefits of a regional ITS architecture, as well as the process that would be used to develop the Tyler Regional ITS Architecture.

The next step in developing the Tyler Regional ITS Architecture was to identify the services that would be needed to address the stakeholder needs. In the National ITS Architecture, services are referred to as market packages. Market packages may include several stakeholders and elements that work together to provide a service in the Region. Examples of market packages from the National ITS Architecture include Network Surveillance, Traffic Information Dissemination, and Transit Vehicle Tracking. There are currently a total of 75 market packages identified in the National ITS Architecture.

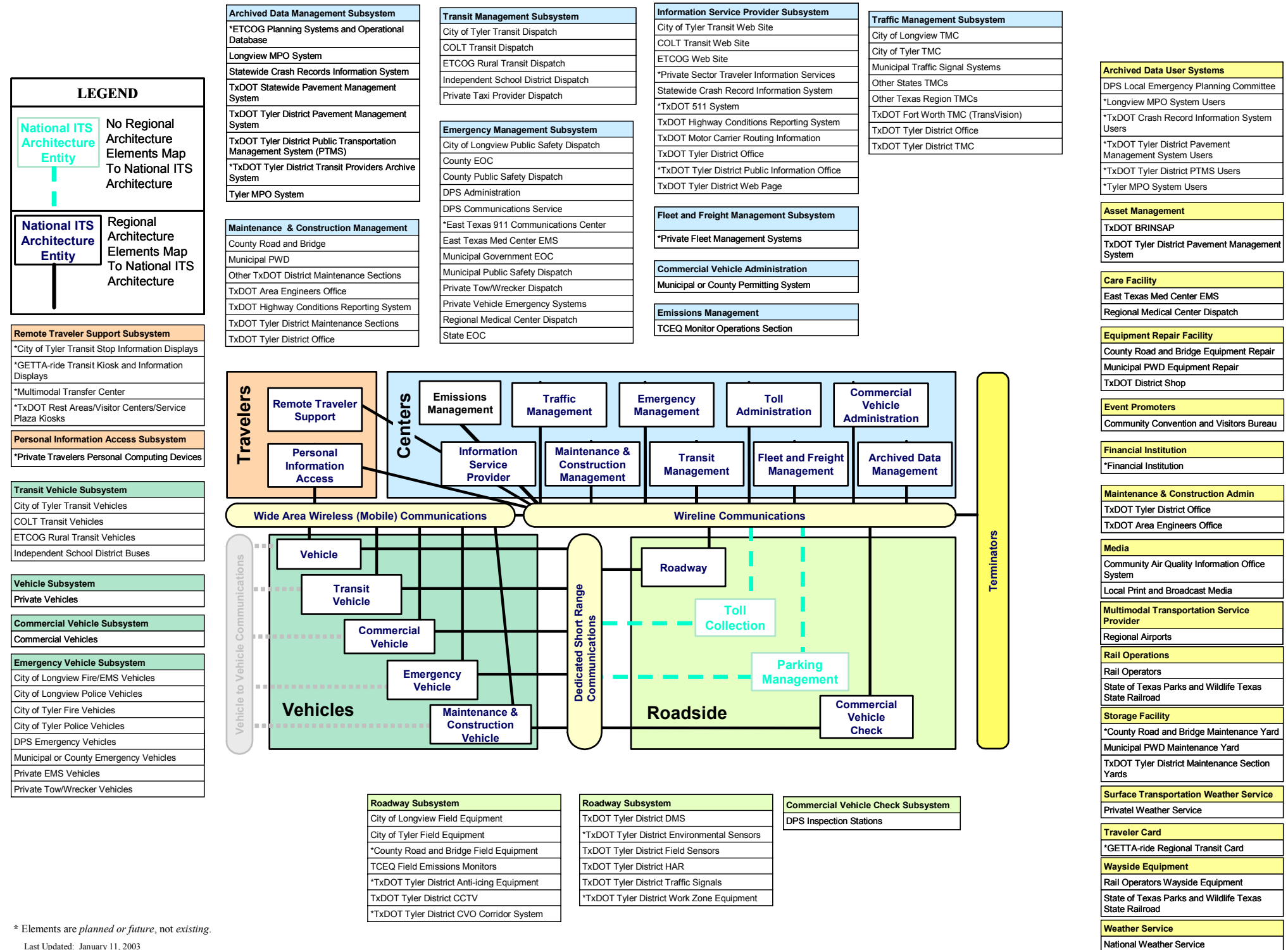
At the 2-Day ITS Architecture Workshop, stakeholders selected the market packages that corresponded to the desired services and functions identified for the Region, and then customized these market packages. They included services and functions such as Network Surveillance, Surface Street Control, Freeway Control, and Road Weather Data Collection, as well as market packages to address coordination needs, including an Incident Management System and Regional Traffic Control and Coordination. Because market packages are groups of services and functions, they can be deployed incrementally and over time.

Of the 75 market packages in the National ITS Architecture, stakeholders identified 35 as being applicable to the Tyler Region. These market packages were then customized for the Tyler Region.

Interconnects, Interfaces, and Standards

Stakeholders also began the process of mapping existing and planned ITS elements in Tyler to the subsystems in the National ITS Architecture. These elements included agencies, systems, and essentially all of the ITS components in the Region. Subsystems are the highest level building blocks of the physical architecture, and the National ITS Architecture groups them into four major classes: Centers, Roadside, Vehicles, and Travelers. This mapping resulted in an interconnect diagram for the Tyler Region, which is shown in **Figure 3**. This architecture diagram, also referred to as the “sausage diagram” shows the relationship of existing, planned, and future systems in the Tyler.

The market packages in the National ITS Architecture were customized to reflect the unique systems, subsystems, and terminators in the Tyler Region. Each market package was shown graphically, with the market package name, Tyler specific element, and with the unique agency and system identifiers within the subsystems and terminators.



The diagram illustrates the interconnectivity of various subsystems. At the top, 'Travelers' (Remote Traveler Support, Personal Information Access) and 'Centers' (Emissions Management, Traffic Management, Emergency Management, Toll Administration, Commercial Vehicle Administration, Information Service Provider, Maintenance & Construction Management, Transit Management, Fleet and Freight Management, Archived Data Management) are connected to 'Vehicles' (Vehicle, Transit Vehicle, Commercial Vehicle, Emergency Vehicle, Maintenance & Construction Vehicle) and 'Roadside' (Roadway, Toll Collection, Parking Management, Commercial Vehicle Check). Communications are categorized into 'Wide Area Wireless (Mobile) Communications', 'Wireline Communications', and 'Dedicated Short Range Communications'. A vertical 'Terminators' bar is on the right.

Roadway Subsystem City of Longview Field Equipment City of Tyler Field Equipment *County Road and Bridge Field Equipment TCEQ Field Emissions Monitors *TxDOT Tyler District Anti-icing Equipment TxDOT Tyler District CCTV *TxDOT Tyler District CVO Corridor System	Roadway Subsystem TxDOT Tyler District DMS *TxDOT Tyler District Environmental Sensors TxDOT Tyler District Field Sensors TxDOT Tyler District HAR TxDOT Tyler District Traffic Signals *TxDOT Tyler District Work Zone Equipment	Commercial Vehicle Check Subsystem DPS Inspection Stations
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* Elements are *planned or future*, not existing.
 Last Updated: January 11, 2003

Figure 3 – Tyler Regional System Interconnect Diagram

Figure 4 is an example of an ATMS market package for Surface Street Control that has been customized for the Tyler Region. This market package shows the two subsystems, Traffic Management and Roadway, and the associated entities (City of Tyler TMC and City of Tyler Field Equipment). Data flows between the subsystems indicate what information is being shared. All of the Tyler Region market package diagrams are included in the Tyler Regional ITS Architecture report.

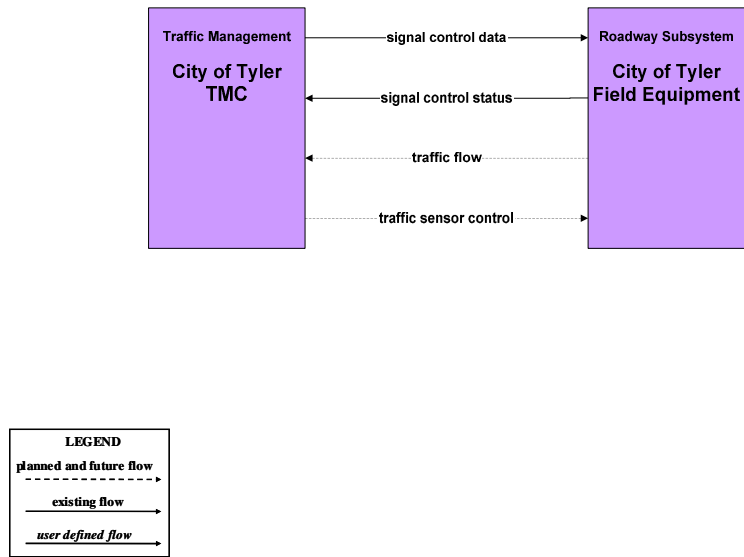


Figure 4 – Custom Market Package for Tyler Surface Street Control

More detailed interfaces were developed which identified the connectivity between the systems and elements. Each element identified in the ITS architecture for the Tyler Region was mapped to the other elements with which it must interface. These interfaces were further defined by architecture data flows between individual elements that specify the information to be exchanged. The data flows include requests for information, alerts and messages, status requests, confirmations, and other information requirements.

While it is important to identify the various systems and stakeholders as part of a regional ITS architecture, a primary purpose of the architecture is to identify the connectivity between transportation systems in the Tyler Region. There are 111 different elements identified as part of the Tyler Regional ITS Architecture. These elements include local and state traffic operations centers, transit vehicles, dispatch systems, emergency management agencies, media outlets, and others – essentially, all of the existing and planned physical components that contribute to the Regional intelligent transportation system. Interfaces have been identified for each element in the Tyler Regional ITS Architecture, and each element has been mapped to those other elements with which it must interface.

An example of one of the system interfaces is included as **Figure 5** on the following page. This graphic shows the TxDOT Tyler District Traffic Signals and the existing and planned interfaces with other elements throughout the Region. These interfaces are shown as existing, planned, or future. Interfaces defined as “planned” have funding identified, while “future” interfaces are desired by stakeholders but funding has not yet been identified.

Architecture flows between the subsystems and terminators define the specific information (data) that is exchanged between subsystems and terminators. Each architecture flow has one or more data flows that specify what information is exchanged and the direction of the exchange.

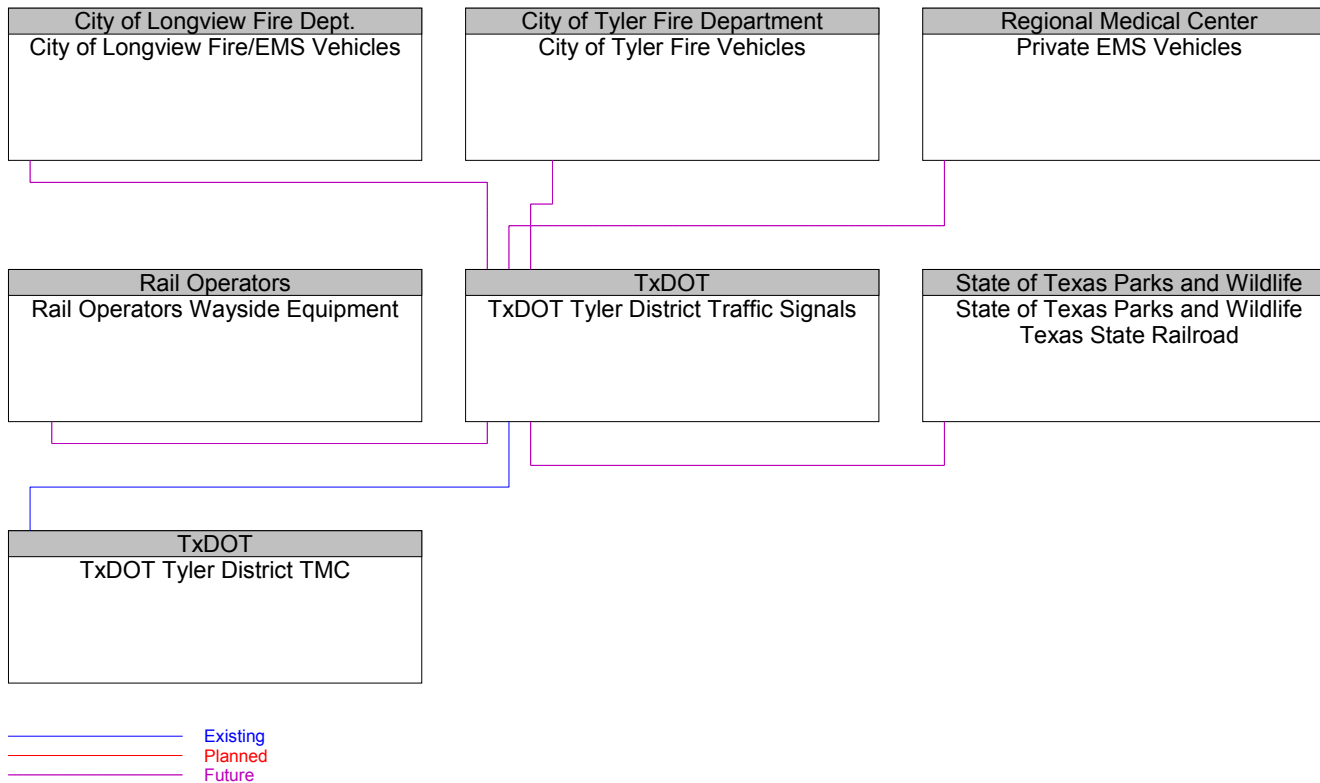


Figure 5 – TxDOT Tyler Traffic Signals Interfaces

An example of the architecture flows between two elements is shown in **Figure 6**. In this interface, the flows between the City of Tyler TMC and the City’s Field Equipment show information that must go from the TMC to the field equipment, as well as information that the TMC needs from devices. Similar to the interfaces, architecture flows also are defined as existing, planned, or future. All of the architecture flows between elements have been included on the project website.

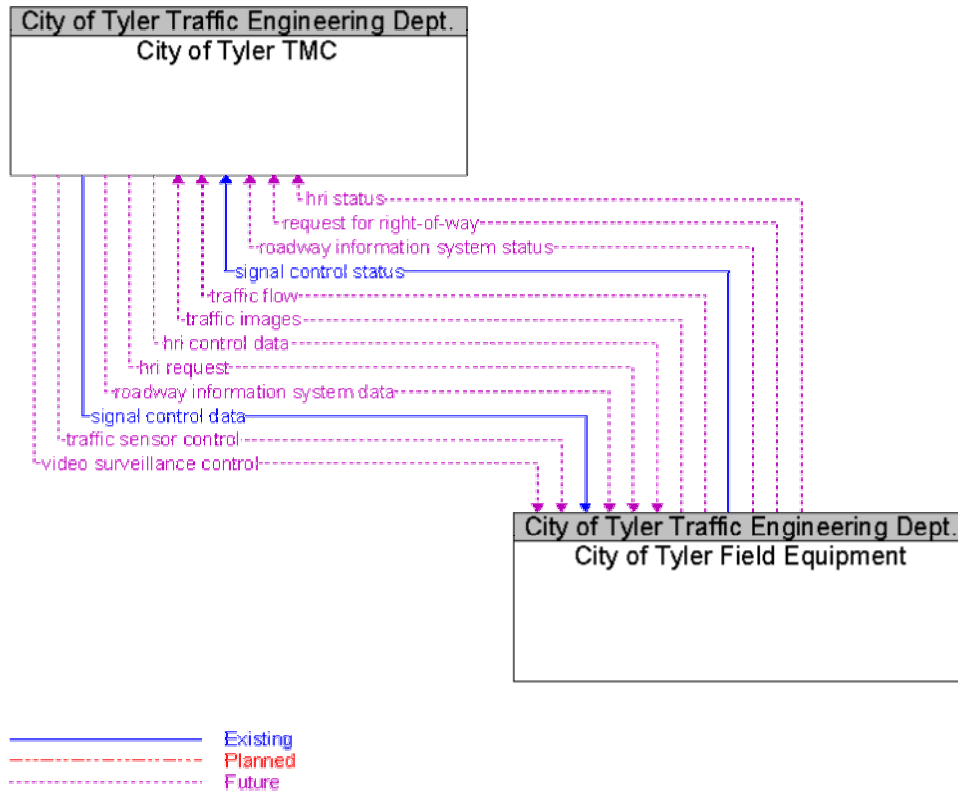


Figure 6 – Tyler TMC to Field Equipment Architecture Flows

With the required interfaces and interconnections identified, standards that could potentially be applied to the Tyler Region were identified. Standards are an important tool that will allow efficient implementation of the elements in the Tyler Regional ITS Architecture over time. They facilitate deployment of interoperable systems at local, regional, and national levels without impeding innovation as technology advances, vendors change, and as new approaches evolve.

Operational Concept and Scenarios

An operational concept for the Tyler Region was developed as part of the architecture process to illustrate how systems, components, and agencies will be integrated and function as a result of the framework provided by the Regional ITS Architecture. For the Tyler Region, two concepts were illustrated. The first was a multi-vehicle crash on I-20 within the city limits of Longview. The operational concept shows that through ITS deployment, agency information sharing, and regional connectivity, agencies are able to work together and benefit from the technologies and

systems in place to proactively manage the Region's transportation system and coordinate emergency operations during the detour required by the temporary closure of I-20 during the cleanup of the crash. The second concept illustrates a sequence of events initiated by a long term lane closure on Loop 323 for construction, and how TxDOT, emergency services, public safety, and other key agencies can put pre-determined strategies into effect as well as utilize technology and communications infrastructure to minimize traffic impacts.

Agreements

Interfaces and data flows among public and private entities in the Tyler Region will require agreements among agencies that establish parameters for sharing agency information to support traffic and incident management, provide traveler information, and perform other functions identified in the Regional ITS Architecture. Recommended projects will result in systems and interfaces that will require inter-agency agreements, both public and private, to facilitate the exchange of information.

Currently, there are few formal agreements in place in the Tyler Region. Stakeholders indicated that while there is a high degree of cooperation among agencies, there hasn't been a need for formal agreements to facilitate multi-jurisdictional resource sharing, cooperation or mutual aid. With the implementation of ITS technologies, integration of systems from one or more agencies, and the anticipated level of information exchange identified in the architecture, it is likely that more formal agreements will be needed.

The following is a list of potential agreements for the Tyler Region based on the interfaces identified in the Regional ITS Architecture and recommended ITS projects in the Deployment Plan:

- Data sharing and usage agreements among public and private media and information service providers;
- Shared video monitoring agreements between TxDOT and emergency services agencies;
- Mutual aid agreements among public sector agencies, primarily fire, police, emergency services and TxDOT; and
- Joint operations and shared control agreements between TxDOT and the City of Tyler and City of Longview.

It is important to note that as ITS services and systems are implemented in the Region, part of the planning and review process for those projects should include a review of potential agreements that would be needed for implementation or operations.

ITS Architecture Documentation

The Regional ITS Architecture for the Tyler Region is documented in a final report. Stakeholders were brought together to review the Regional ITS Architecture and provide feedback. The final report was not prepared until after completion of the Tyler Regional ITS Deployment Plan, to allow for modifications based on information and input received for the ITS Deployment Plan recommendations.

A website with all of the Regional ITS Architecture was also maintained. The website allowed stakeholders to review the architecture and provide comments directly to the project team through the website. At the time this report was published, the Tyler Regional ITS Architecture website

was being hosted at www.consystem.com. The site can be accessed by selecting the link to Texas, and then the link to Tyler. TxDOT plans to permanently host the site in the future at www.dot.state.tx.us/trf/its.

TYLER REGIONAL ITS DEPLOYMENT PLAN

Although development of an ITS Deployment Plan was not required by the FHWA Final Rule for the architecture, the Final Rule does request a sequence of projects required for implementation. Capitalizing on the momentum and interagency dialogue established during the development of the Tyler Regional ITS Architecture, TxDOT chose to expand on the project sequence requirement to develop a formal ITS Deployment Plan for the Region.

The Tyler Regional ITS Architecture provided the framework and prioritized the key functions and services desired by stakeholders in the Region. The ITS Deployment Plan builds on the architecture by prioritizing market packages, outlining specific ITS project recommendations and strategies for the Region, and identifying deployment timeframes so that the recommended projects and strategies can be implemented over time. Agency responsibilities for implementing and operating the systems also are a key component of the ITS Deployment Plan.

Prioritized Market Packages

Market packages for the Tyler Region previously identified as part of the architecture were categorized into high, medium, and low priorities by stakeholders. The market package prioritization was a key factor in developing recommendations for ITS deployment and integration in the Tyler Region. These priorities identified the key needs and services that are desired in the Tyler Region, as well as the interfaces that need to be established to provide integrated functionality and establish communication between elements.

It is important to note that the high, medium and low priorities were not directly related to anticipated deployment timeframes (such as five, ten or twenty year deployment horizon). For example, a market package can be a high priority, but because of funding or prerequisite project requirements, it might not be feasible for deployment for several years. Maturity and availability of technology was another factor for prioritizing the market packages. Because market packages often represent groups of technologies or services to deliver a particular functionality, certain components of the market package could be identified as a high priority or existing capability, while other components would have a lower priority. Other considerations included whether or not the market package was better suited for deployment and operations by the private sector rather than public agencies in the Region.

Table 2 shows the prioritization of the selected market packages for the Tyler Region. The majority of these market packages fall into the high priority category. This category also includes market packages (or portions of market packages) that are already deployed in the Tyler Region, such as network surveillance, surface street control, and traffic information dissemination.

Table 2 – Summary of Prioritized Market Packages for the Tyler Region

High Priority	Medium Priority	Low Priority
<ul style="list-style-type: none"> ▪ Network Surveillance ▪ Surface Street Control ▪ Traffic Information Dissemination ▪ Regional Traffic Control ▪ Incident Management System ▪ Road Weather Data Collection ▪ Weather Information Processing and Distribution ▪ Work Zone Management ▪ Transit Vehicle Tracking ▪ Transit Fixed-Route Operations ▪ Demand Response Transit Operations ▪ Transit Security ▪ Transit Traveler Information ▪ Broadcast Traveler Information Systems ▪ Weigh-in-Motion ▪ HAZMAT Management ▪ Emergency Response ▪ Emergency Routing ▪ ITS Data Mart 	<ul style="list-style-type: none"> ▪ Probe Surveillance ▪ Emissions Monitoring and Management ▪ Standard Railroad Grade Crossing ▪ Railroad Operations Coordination ▪ Roadway Automated Treatment ▪ Work Zone Safety Monitoring ▪ Transit Passenger and Fare Management 	<ul style="list-style-type: none"> ▪ Maintenance and Construction Vehicle Tracking ▪ Maintenance and Construction Vehicle Maintenance ▪ Roadway Maintenance and Construction ▪ Maintenance and Construction Activity Coordination ▪ ISP Based Route Guidance ▪ Fleet Administration ▪ CV Administrative Processes ▪ On-Board CVO Safety ▪ CVO Fleet Maintenance

Each of the prioritized market packages was assessed from the perspective of deployment status (which components, if any, were already existing in the Region), as well as any planned or additional new needs to bring the market package to the desired level of functionality in the Tyler Region. Each market package analysis included:

- A brief definition of the market package (modified from the National ITS Architecture definitions);
- Any infrastructure from that market package that is already existing in the Tyler Region;
- Agencies currently operating or maintaining systems that apply to that market package;
- Planned projects that will address some or all of the services that are contained in the market package; and
- Any additional needs to bring the market package to the desired level of deployment or functionality.

ITS Project Recommendations for the Tyler Region

Using the needs, market package priorities, and any planned projects identified by the stakeholders during the architecture process, a list of recommended ITS projects for the Tyler Region was developed. These projects were refined and additions and deletions were made by the Regional stakeholders at the ITS Deployment Plan Workshop in January of 2003.

Recommended ITS projects for the Tyler Region were categorized into short, medium, and long term timeframes for programming in the 5, 10, and 20 year horizons. This was done based on current status if the project had previously been identified and planned by the Region, market package priority, and dependency on other project completions. The majority of the short term (or 5-year) recommendations serve as “foundation” projects to implement basic functionality, infrastructure and interfaces, with the intent of continuing to build out those foundation projects over the 10 and 20 year timeframes. Most projects for the Tyler Region are infrastructure based; however, there are some recommendations, such as enhanced coordination with local media, emergency response plans, and others that focus more on planning or institutional practices rather than deploying specific technologies.

Each recommended project for the Tyler Region was included in a short-, medium-, or long-term table. These tables provided the name of the project, primary operating/implementing agency, a planning level estimate of probable cost, an indication of whether or not funding had been identified for that specific project, and an estimated project duration. Following each table, detailed descriptions of each project were developed, which also included associated market packages and any pre-requisite project requirements.

Table 3 summarizes the ITS projects recommended for the Tyler Region. This summary is divided into the major program areas, and subdivided by timeframe. As can be seen from this summary, the majority of the project recommendations focus on the Travel and Traffic Management category, which would implement freeway and arterial management, traveler information, and inter-agency coordination elements.

Table 3 – Recommended ITS Projects for the Tyler Region

Project Time Frame	Project Name	Funding Identified (Funding Agency if Applicable)
<i>Travel and Traffic Management</i>		
Short Term Projects 5-year Horizon	TxDOT ATMS Implementation	Yes (TxDOT)
	TxDOT Freeway Management System Implementation Phase 1	Partial (TxDOT)
	TxDOT Center-to-Center Communication (Statewide)	Yes (TxDOT)
	TxDOT Closed Loop Signal System Expansion Phase 1	No
	TxDOT Travel Information Kiosks at Rest Areas	No
	City of Tyler TMC Expansion	No
	City of Tyler TMC/TxDOT Tyler District TMC Fiber Connection	No
	City of Tyler Closed Loop Signal System Expansion Phase 1	No
	City of Tyler VIVDS Expansion Phase 1	No
	City of Longview TMC Expansion	Yes (City of Longview)
	City of Longview Closed Loop Signal System Expansion Phase 1	No
	City of Longview VIVDS Expansion Phase 1	No
	Media Liaison and Coordination	N/A
	Tyler Regional Telecommunications Master Plan	No
Mid Term Projects 10-year Horizon	TxDOT US 69 Instrumentation	No
	TxDOT Closed Loop Signal System Expansion Phase 2	No
	City of Tyler Closed Loop Signal System Expansion Phase 2	No
	City of Tyler VIVDS Expansion Phase 2	No
	City of Tyler CCTV Implementation	No
	City of Longview Closed Loop Signal System Expansion Phase 2	No
	City of Longview VIVDS Expansion Phase 2	No
	Canton Parking and Event Management System	No
	TxDOT Highway/Rail Intersection Warnings	No
	City of Tyler Highway/Rail Intersection Warnings	No
	Regional 511 Advanced Traveler Information System Server	No

Table 3 – Recommended ITS Projects for the Tyler Region (continued)

Project Time Frame	Project Name	Funding Identified (Funding Agency if Applicable)
<i>Travel and Traffic Management (continued)</i>		
Long Term Projects 20-year Horizon	TxDOT Instrumentation of US 259 and Other Major Corridors	No
	TxDOT Closed Loop Signal System Expansion Phase 3	No
	City of Tyler Closed Loop Signal System Phase 3	No
	City of Tyler VIVDS Expansion Phase 3	No
	City of Longview TMC/TxDOT Tyler District TMC Connection	No
	City of Longview Closed Loop Signal System Expansion Phase 3	No
	City of Longview VIVDS Expansion Phase 3	No
	ISP Based Route Guidance	No
	Regional Emissions Monitoring	No
	Other Cities ITS Implementation	No
<i>Emergency Management</i>		
Short Term Projects 5-year Horizon	East Texas 911 Center/TxDOT Tyler District TMC Connection	No
	City of Tyler EOC/TxDOT Tyler District TMC Connection	No
	City of Longview EOC/TxDOT Tyler District TMC Connection	No
	City of Longview Public Safety/TxDOT Tyler District TMC Connection	No
	DPS/TxDOT Tyler District TMC Connection	No
	Incident Detour Plans	No
	DPS CAD System	No
	City of Tyler Emergency Vehicle Signal Preemption	No
Mid Term Projects 10-year Horizon	None Identified	No
Long Term Projects 20-year Horizon	City of Longview Emergency Vehicle Traffic Signal Preemption	No
	Mayday Support	No
<i>Maintenance and Construction Management</i>		
Short Term Projects 5-year Horizon	TxDOT Ice Detection and Anti-icing Equipment on Bridges	No
	TxDOT HCRS Enhancement	Yes (TxDOT Statewide)
	TxDOT Flood Detection Stations	No
	TxDOT RWIS Station	Yes
	TxDOT Work Zone Speed Trailers	No
	City of Tyler Flood Detection Stations	No
	City of Longview Flood Detection Stations	No
	Other Cities/Counties Flood Detection Stations	No

Table 3 – Recommended ITS Projects for the Tyler Region (continued)

Project Time Frame	Project Name	Funding Identified (Funding Agency if Applicable)
<i>Maintenance and Construction Management (continued)</i>		
Mid Term Projects 10-year Horizon	Work Zone Safety Monitoring	No
Long Term Projects 20-year Horizon	Maintenance and Construction Vehicle AVL	No
<i>Public Transportation Management</i>		
Short Term Projects 5-year Horizon	City of Tyler Transit Web-based Ride Scheduling and Travel Data	Partial (Tyler Transit)
	City of Tyler Transit AVL	Yes (Tyler Transit)
	City of Tyler Transit Automatic Passenger Counters	Yes (Tyler Transit)
	City of Tyler Transit/ETCOG TOC Communication	No
	Longview Transit Web-based Ride Scheduling and Travel Data	No
	Longview Transit AVL	No
	Real-time Bus Information Travel Kiosks	No
	ETCOG AVL and Mobile Data Terminals	No
	ETCOG TOC with CAD System	No
	ETCOG On-board Transit Security Cameras	No
	ETCOG Transfer Station Security Cameras	No
Mid Term Projects 10-year Horizon	ETCOG Web-based Travel Data and Route Guidance	No
	City of Tyler Transit On-board Security Cameras	No
	City of Tyler Transit Electronic Fare Payment System	No
	Longview Transit On-board Security Cameras	No
	Longview Transit Electronic Fare Payment System	No
Long Term Projects 20-year Horizon	ETCOG Automatic Passenger Counters	No
<i>Commercial Vehicle Operations</i>		
Short Term Projects 5-year Horizon	HAZMAT Incident Notification System	No
Mid Term Projects 10-year Horizon	TxDOT Weigh-in-Motion Site Implementation	No
Long Term Projects 20-year Horizon	None Identified	No

Table 3 – Recommended ITS Projects for the Tyler Region (continued)

Project Time Frame	Project Name	Funding Identified (Funding Agency if Applicable)
Archived Data		
Short Term Projects 5-year Horizon	Longview MPO ITS Data Warehouse	No
	Tyler MPO ITS Data Warehouse	No
Mid Term Projects 10-year Horizon	None Identified	No
Long Term Projects 20-year Horizon	None Identified	No

MAINTAINING THE REGIONAL ITS ARCHITECTURE AND DEPLOYMENT PLAN

With the substantial amount of effort invested by stakeholders in the Tyler Region to develop both the Regional ITS Architecture and the Deployment Plan, developing a plan for maintaining these important tools was a key component of the process.

New market packages are added to the National ITS Architecture every few years, and with the increasing emphasis on homeland security issues, it is envisioned that there will be additional market packages focused on addressing homeland security and emergency management. New federal initiatives, such as Amber Alert and 511, could also generate a new or updated category of market packages within the National ITS Architecture. Tyler stakeholders agreed that it would be beneficial to review any modifications to the National ITS Architecture as well as any USDOT/FHWA guidance on an as-needed basis, and identify any additions or modifications that should be considered for the Tyler Regional ITS Architecture.

At the Comment Resolution Meeting held in Tyler in May 2003, stakeholders agreed that both the Regional ITS Architecture and Deployment Plan would need to be periodically reviewed and potentially updated in order to reflect current deployment status as well as re-evaluate priorities. A two-year timeframe was selected by the stakeholders for this update to correspond with the Transportation Improvement Plan (TIP) updates. The TxDOT Tyler District was identified as the agency that should take the lead in maintaining and updating the Region's ITS Architecture and Deployment Plan, with support from a multijurisdictional committee in the Region. This group would also provide input to the Regional MPOs TIP planning processes.

Stakeholders in the Region placed a stronger emphasis on reviewing the Regional ITS Deployment Plan in order to determine which of the short-term projects have the highest priority for the Region, as well as to update the status of short-term projects. It is recommended that annual reviews be conducted to discuss these changes. Input would be gathered at these meetings by TxDOT and incorporated into the next update of the documents. This review would be particularly beneficial if funding opportunities arise. As part of the review, projects can be removed that are already underway or deployed, and priorities can be assessed again as more ITS infrastructure is put in place.



MEMORANDUM OF UNDERSTANDING

As a final step in the development of the Tyler Regional ITS Architecture and Deployment Plan, a Memorandum of Understanding (MOU) was prepared for the participating stakeholder agencies. The MOU was developed for stakeholders to acknowledge their participation and approval of the plan, and pledge their support in the implementation and operation of ITS in the Tyler Region. Also included in the MOU was a pledge to provide TxDOT with the information necessary to maintain the Regional ITS Architecture and ITS Deployment Plan. All participating stakeholder agencies were asked to sign the final MOU.