



TxDOT

Statewide ITS Standards

IHEEP

September 30, 2009

By: Charlie Farnham



Topics

- ITS Development (ATMS Software)
- ITS Networks & Connectivity
- Documentation
- Center to Center
- WEB Presence
- ITS Hardware Items



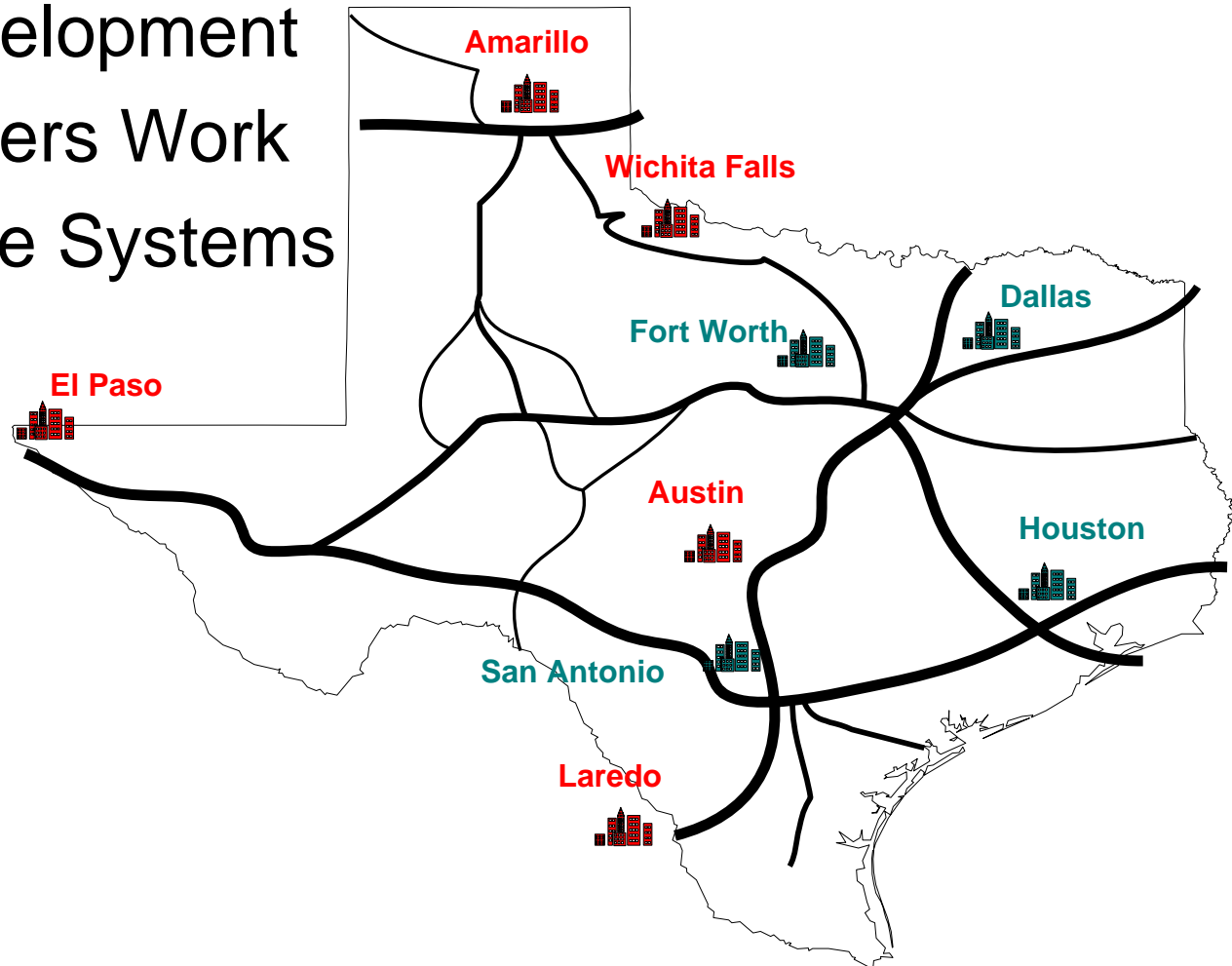
ITS Development

- Start of ITS in Texas
- Standard Software Architecture
- Standard Statewide Software
- Lonestar™ Map View, DMS & CCTV
- Software Interface to Hardware
- Development Tools



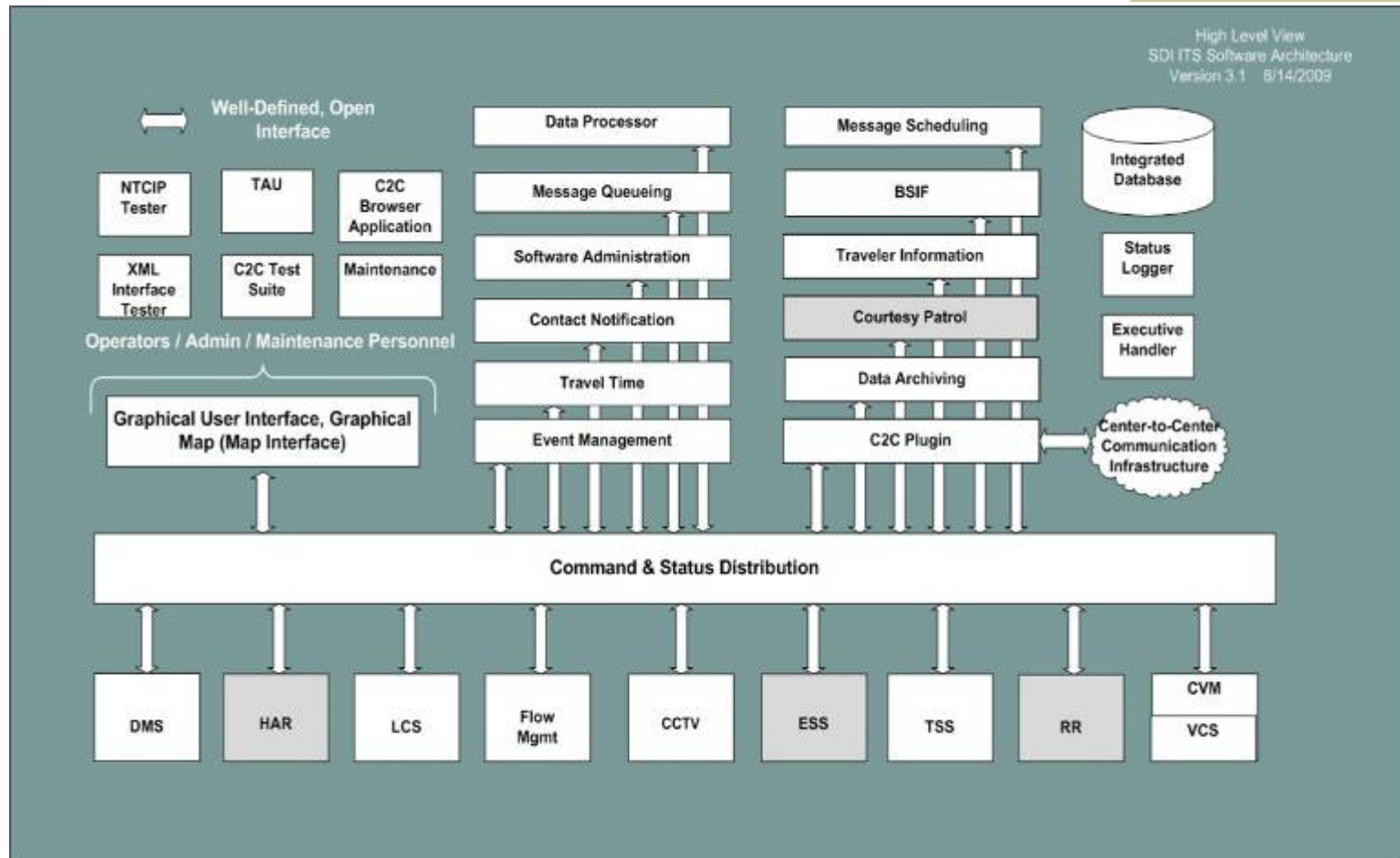
The Start of ITS in Texas

- Unique Development
- Built on Others Work
- 1st Statewide Systems





Standard Software Architecture

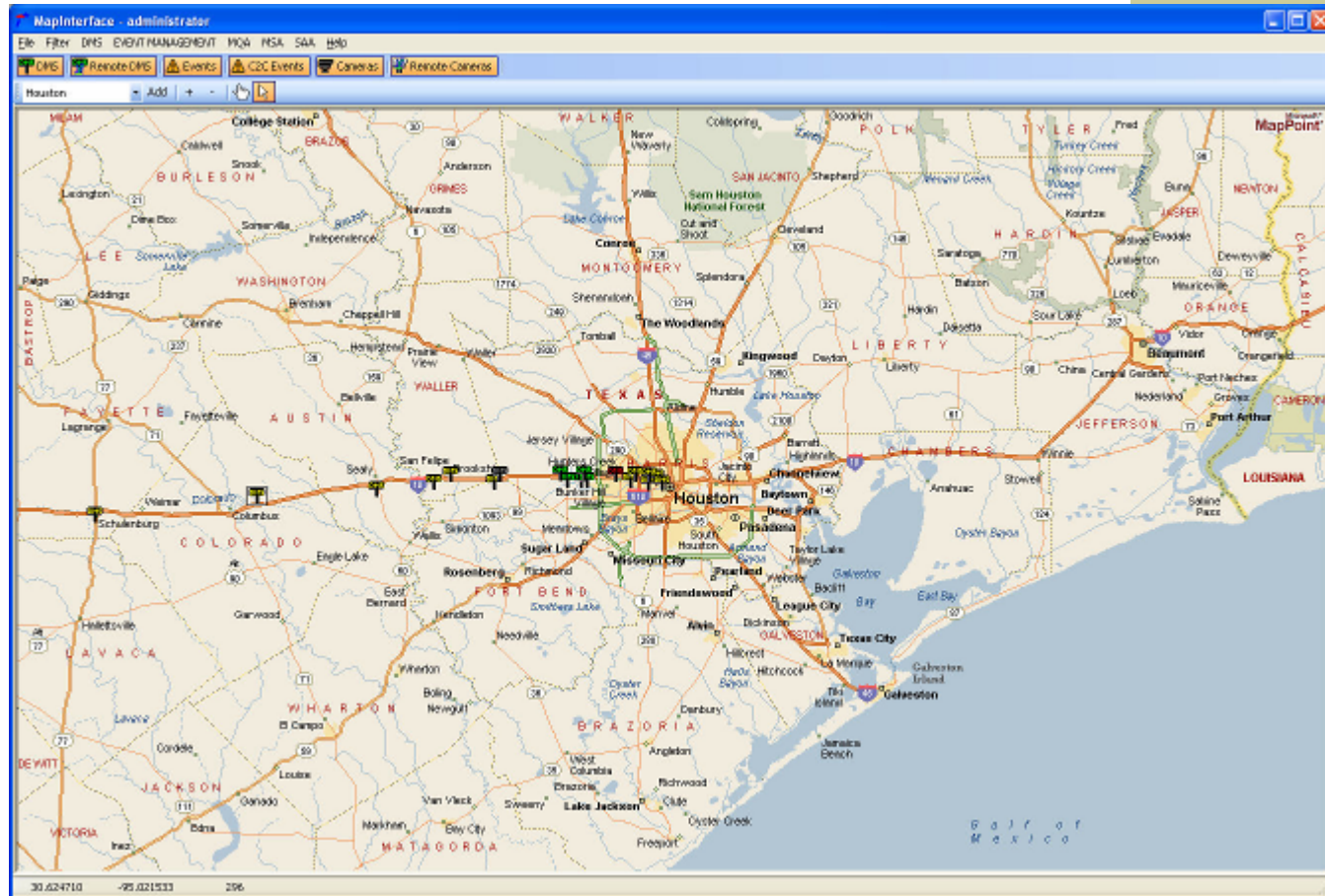


Standard Statewide Software



Lonestar
Intelligent Transportation System

Lonestar™ Map View





DMS Message Queue

- Scheduling
- Priorities

Send Message and List Queue

Available DMS
 DMS Groups

- Local
 - 10.EB.SH-36.Sealy
 - 10.EB.SH-77.Shulenburg
 - 10.Katy.EB.Antoine
 - 10.Katy.EB.Dairy Ashford
 - 10.Katy.EB.FM 1463
 - 10.Katy.EB.Kirkwood
 - 10.Katy.EB.Peach Ridge
 - 10.Katy.EB.SH 6
 - 10.Katy.EB.Studemont
 - 10.Katy.EB.Washington
 - 10.Katy.WB.Blalock
 - 10.Katy.WB.Dairy Ashford
 - 10.Katy.WB.FM 1463
 - 10.Katy.WB.FM 1489
 - 10.Katy.WB.Park Ten
 - 10.Katy.WB.Patterson
 - 10.Katy.WB.Silber
 - 10.Katy.WB.Washington
 - 10.WB.FM 102
 - 10.WB.US-183.Luling

1 Sign(s) selected.
 Selected DMS only

Sign Info
Sign Name: 10.Katy.EB.Dairy Ashford Rows: 3 Columns: 18

New Message
Messages/Libraries
PSA
On: 2.7
Off: 0.7
On: 2.7

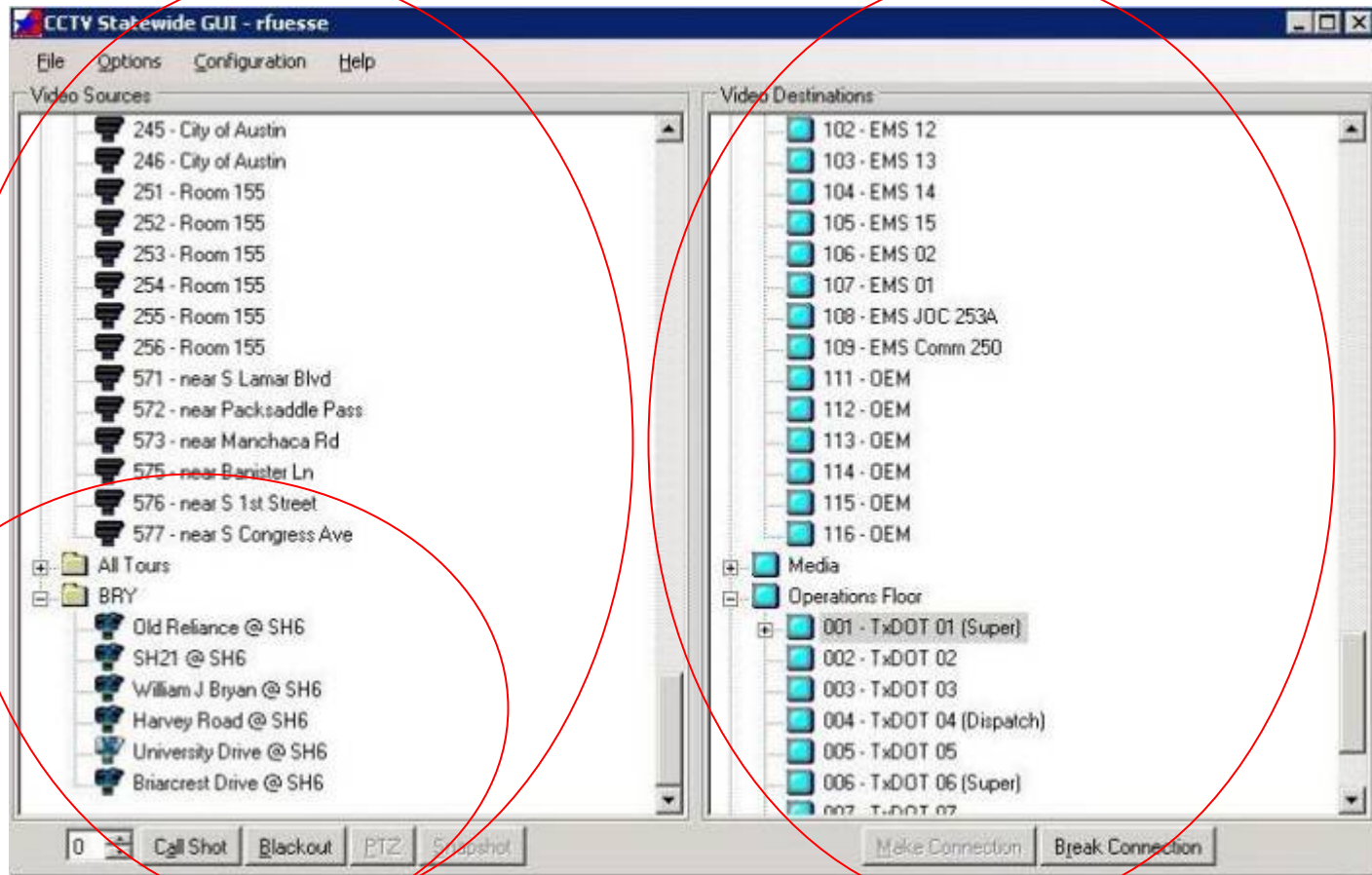
Beacons Display Infinite 01:00 Display time
 Exercise Msg Search

Current Message
10 EAST AFTER KIRKWOOD LEFT LANES CLOSED On: 2.7
DUE TO OVERTURN EXPECT DELAYS USE/SEEK ALT ROUTE Off: 0.7
On: 2.7
 Beacons Display time (hh:mm) Inf
 Non-Neutral

10.Katy.EB.Dairy Ashford
Clear Queue Resend Number of messages: 2
State: Completed
Message: 10 EAST AFTER KIRKWOOD LEFT LANES CLOSED Expire Date/Time: infinite duration Priority: Incident Alt:90
DUE TO OVERTURN EXPECT DELAYS USE/SEEK ALT ROUTE Change Priority Remove Modify
Message: CLICK IT OR TICKET Expire Date/Time: infinite duration Priority: PSA:10
FINES UP TO \$500 Change Priority Remove Modify

Send Clear Terminate Close

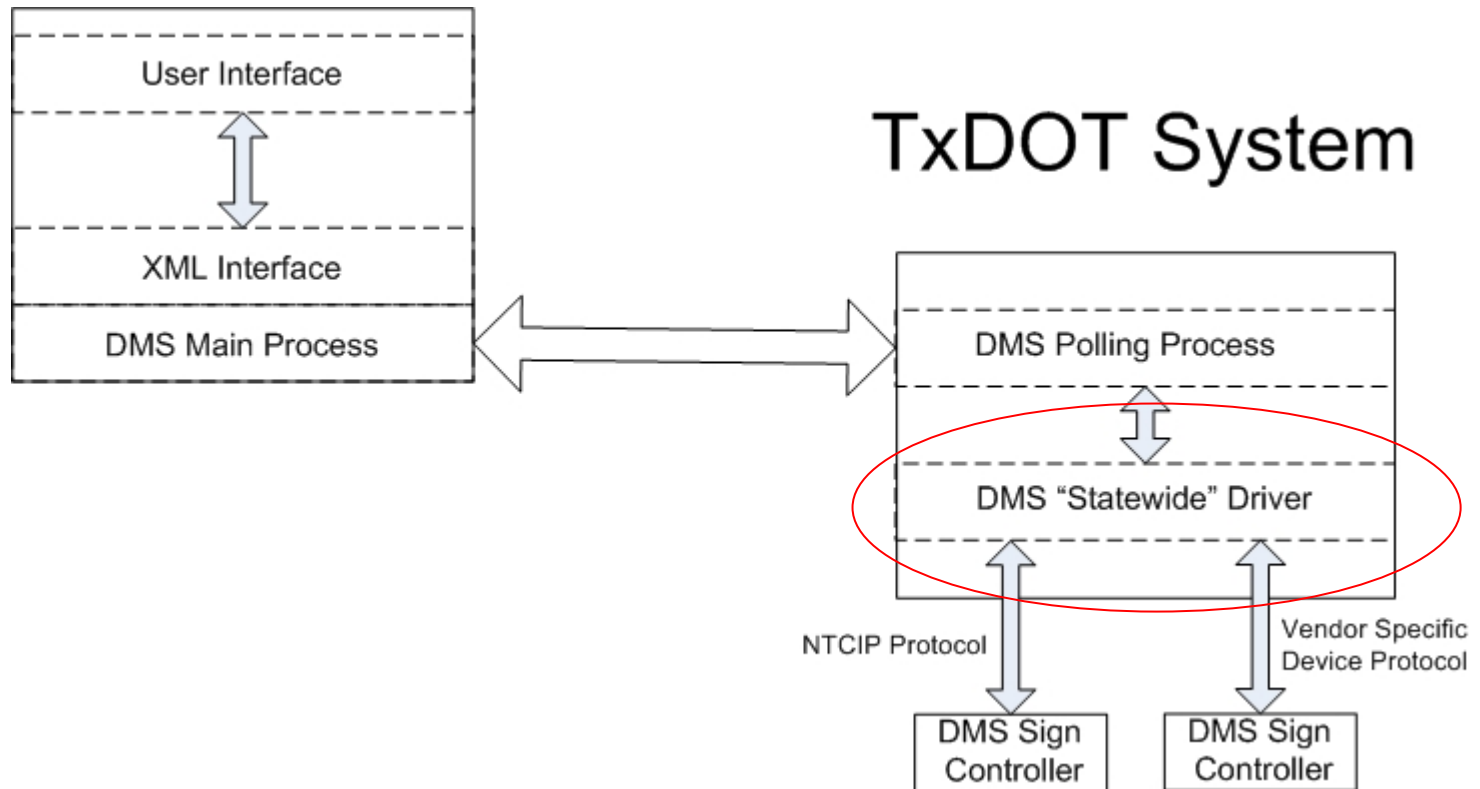
CCTV Switching





Vendor Specific Protocols

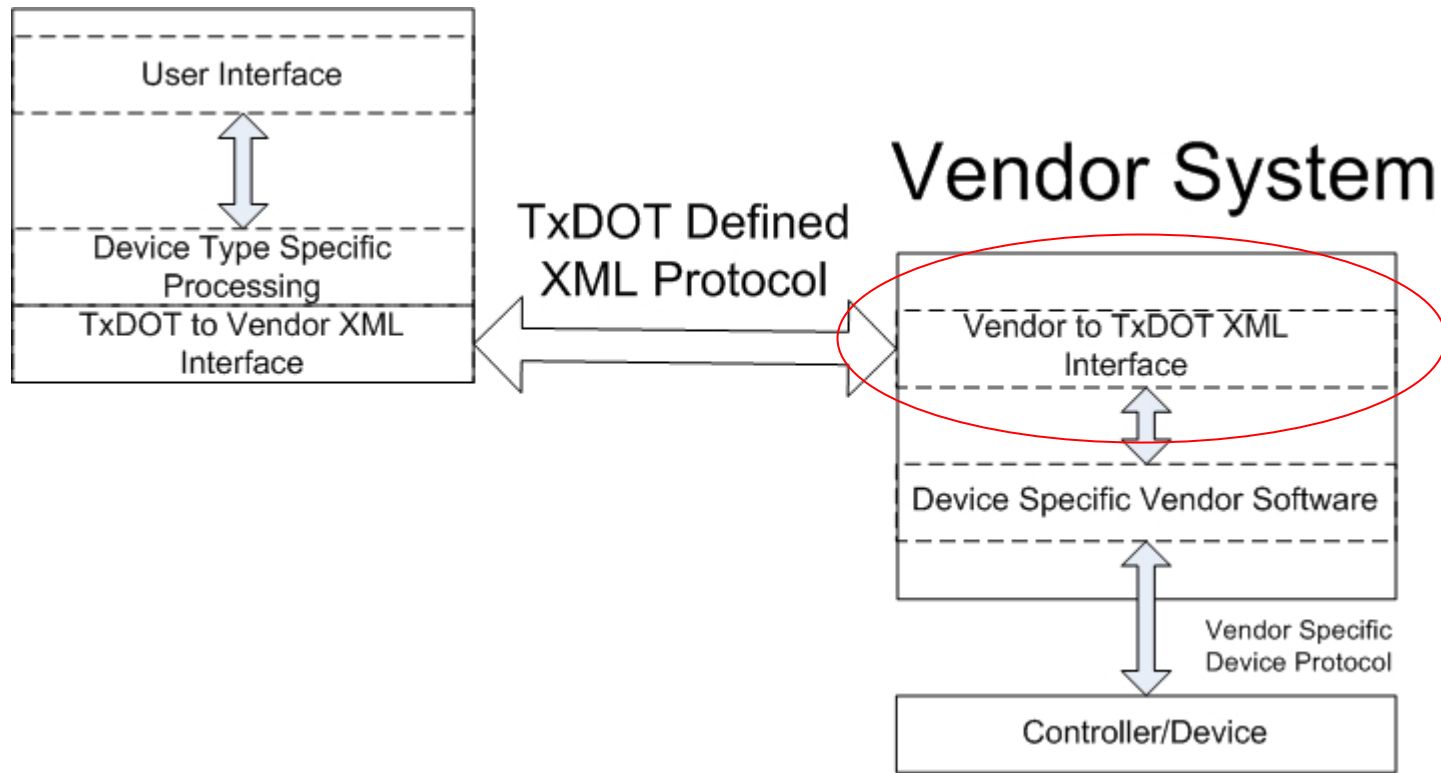
- Dynamic Message Sign Subsystem





Standard form XML Interface

- Traffic Sensor Subsystem (example)





Development Tools

■ TxDOT Web Site – Engineering Software

The screenshot shows a Windows Internet Explorer browser window with the title "Engineering Software - Windows Internet Explorer". The address bar displays the URL "http://www.txdot.gov/business/contractors_consultants/engineering_software.htm". The page content is organized into a table with two rows, each describing a software tool and its system requirements. A red oval highlights the entire content area of the browser window.

TxDOT NTCIP Tester(TNT) The TxDOT NTCIP Tester (TNT) is a tool used to test Dynamic Message Signs against the NTCIP standard.	Processor: Pentium 4 or Higher Memory: 256mb Free Disk Space: 75mb Operating System: Windows XP Version: 4.0.0 Date: 8/27/2006 Size: 61mb
TSS Tools Transportation Sensor Subsystem (TSS) software development toolkit containing the Protocol Document, XML Schemas, and XML Tester Application with Schema Panels needed to develop TSS compatible software.	Processor: Pentium 133 Mhz Memory: 512mb Free Disk Space: 5mb Operating System: Version: 1.06 Date: 12/22/2007 Size: 2.2mb

ITS Networks & Connectivity

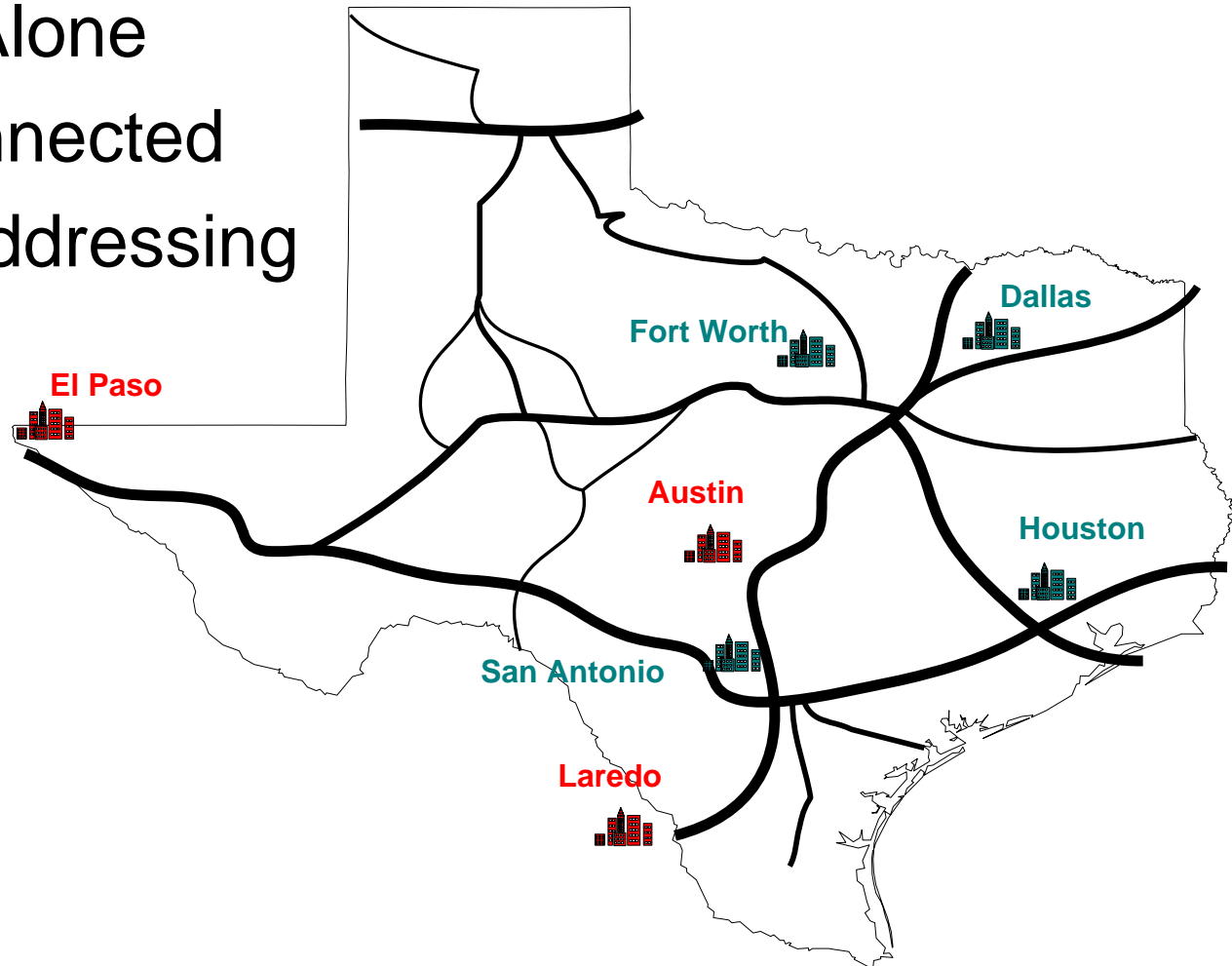


- ITS Networks
- Standard ITS Networks
- Inter-District Connections
- Serial over TxDOT Network



ITS Networks

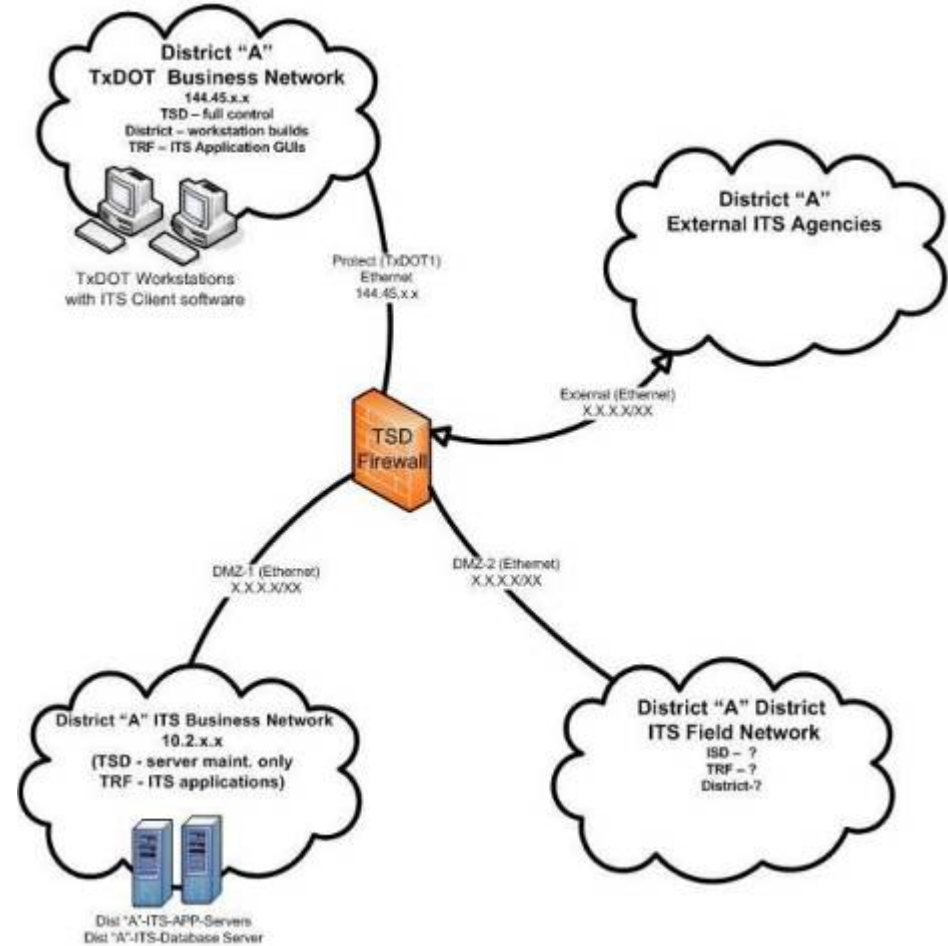
- ITS Stand Alone
- TxDOT Connected
- Standard Addressing





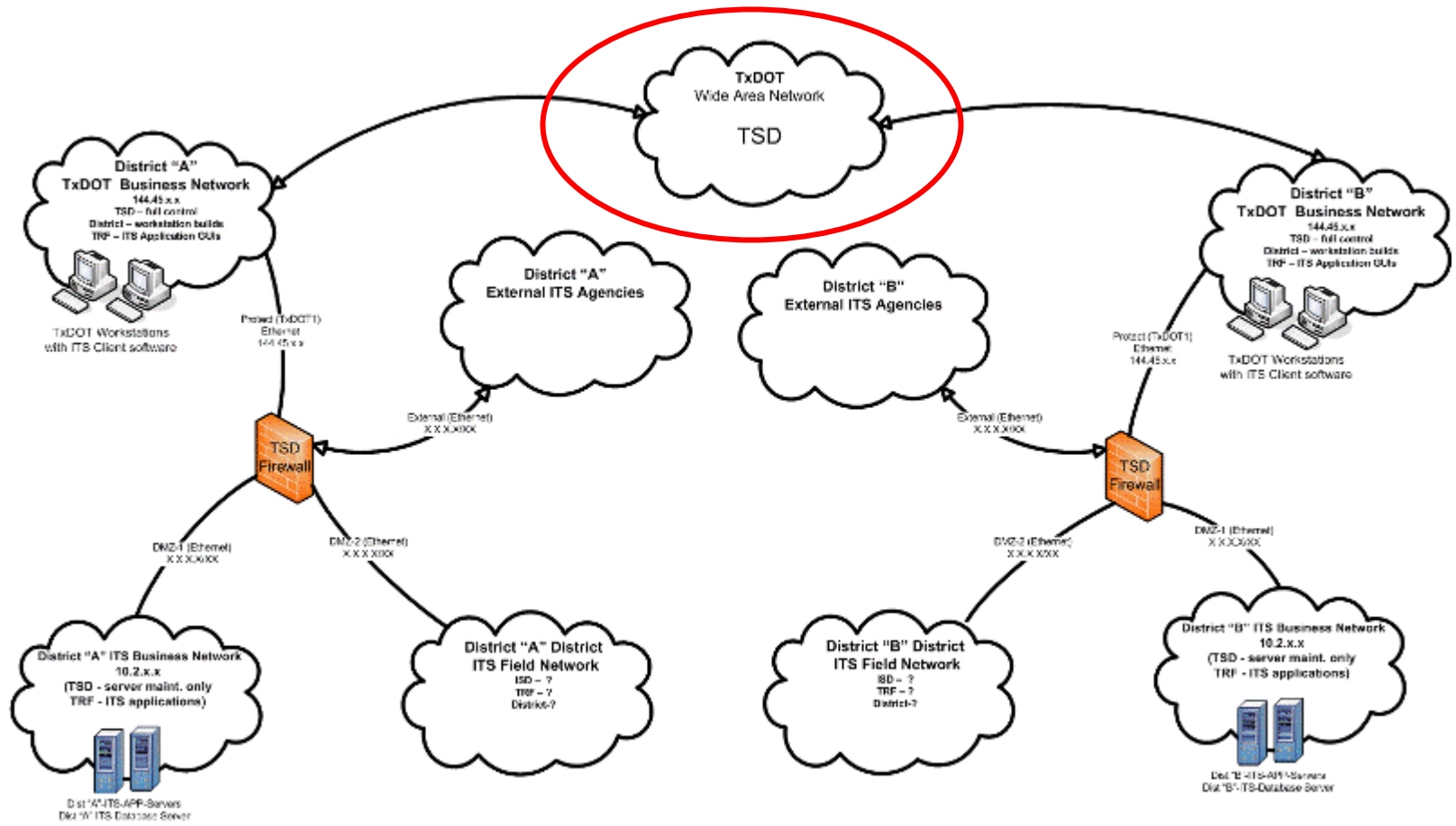
Standard ITS Networks

- TxDOT Business
- ITS Business
- ITS Field
- ITS Partner



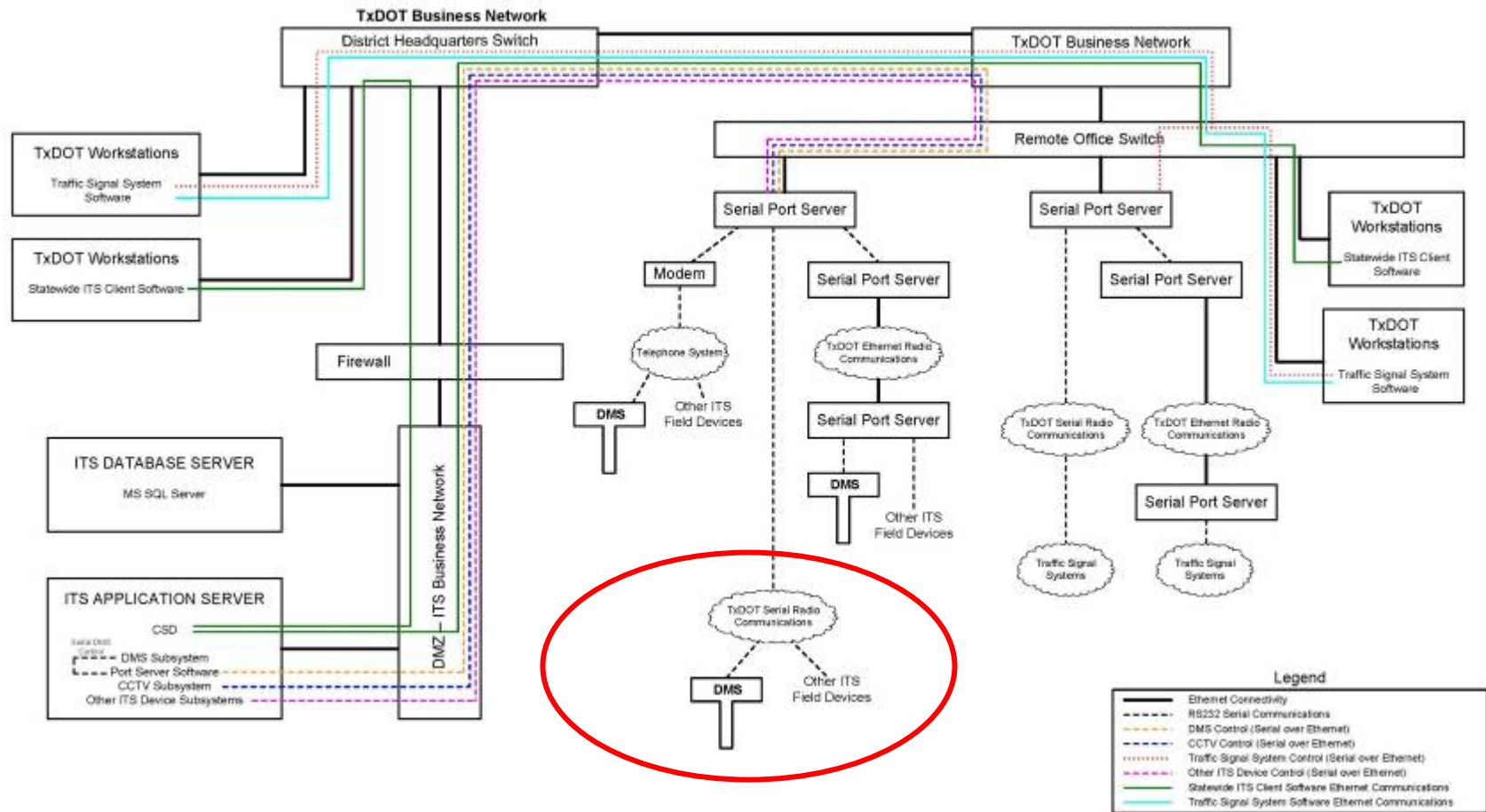


Inter-District Connections





Serial over TxDOT Network



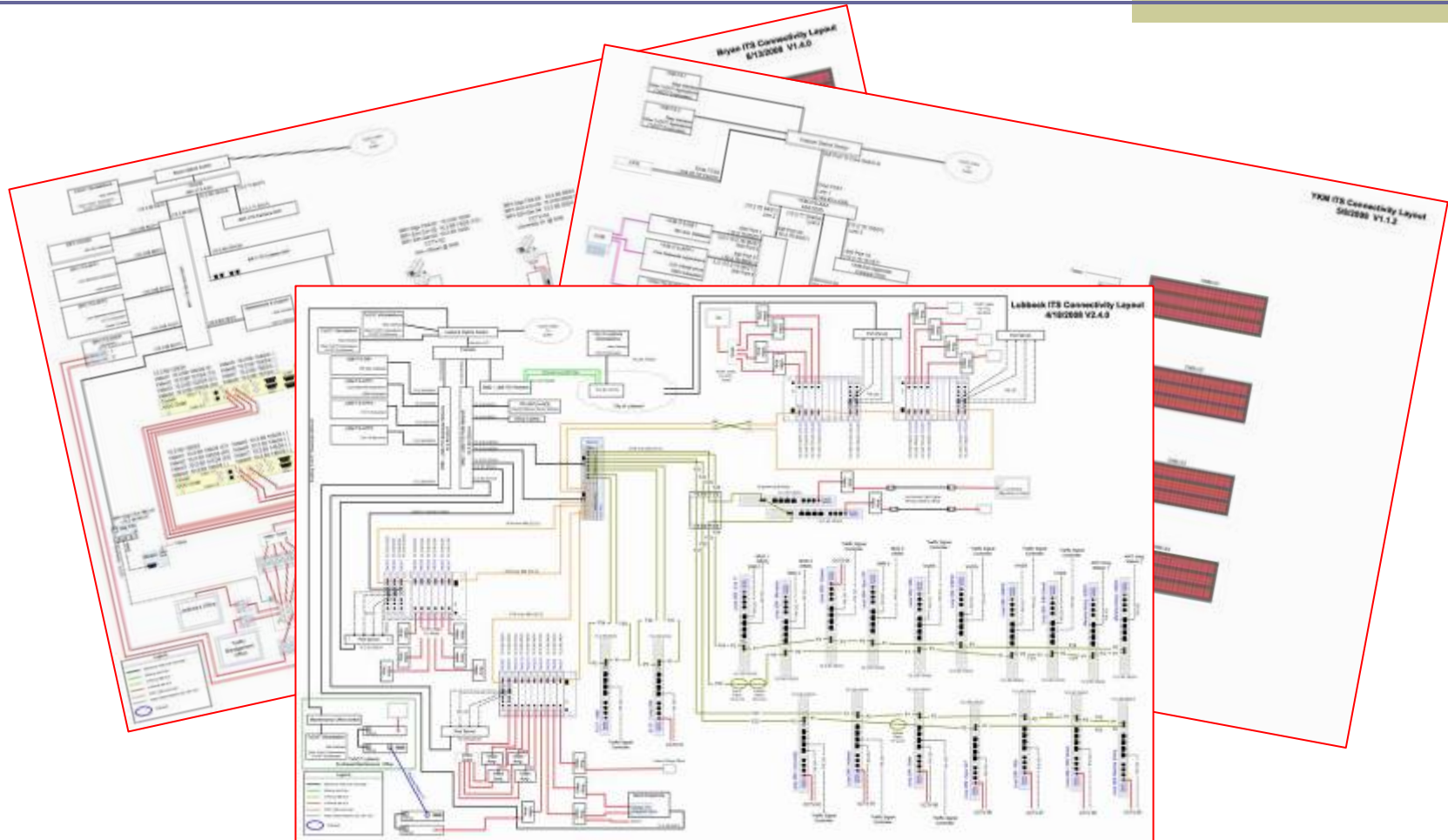


Documentation

- ITS Connectivity Diagrams
- Rack Layout Diagrams
- Configuration Information

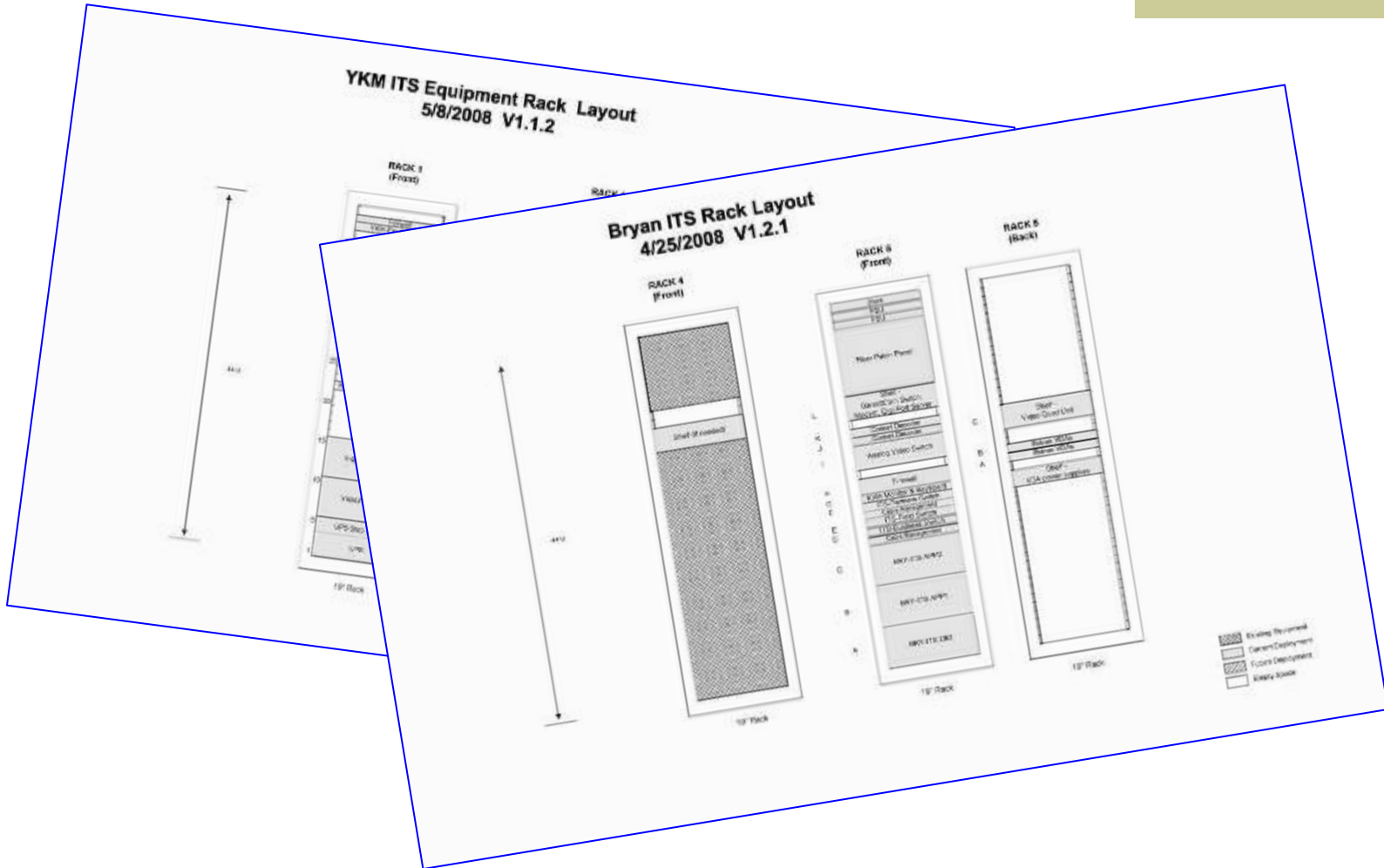


ITS Connectivity Diagrams





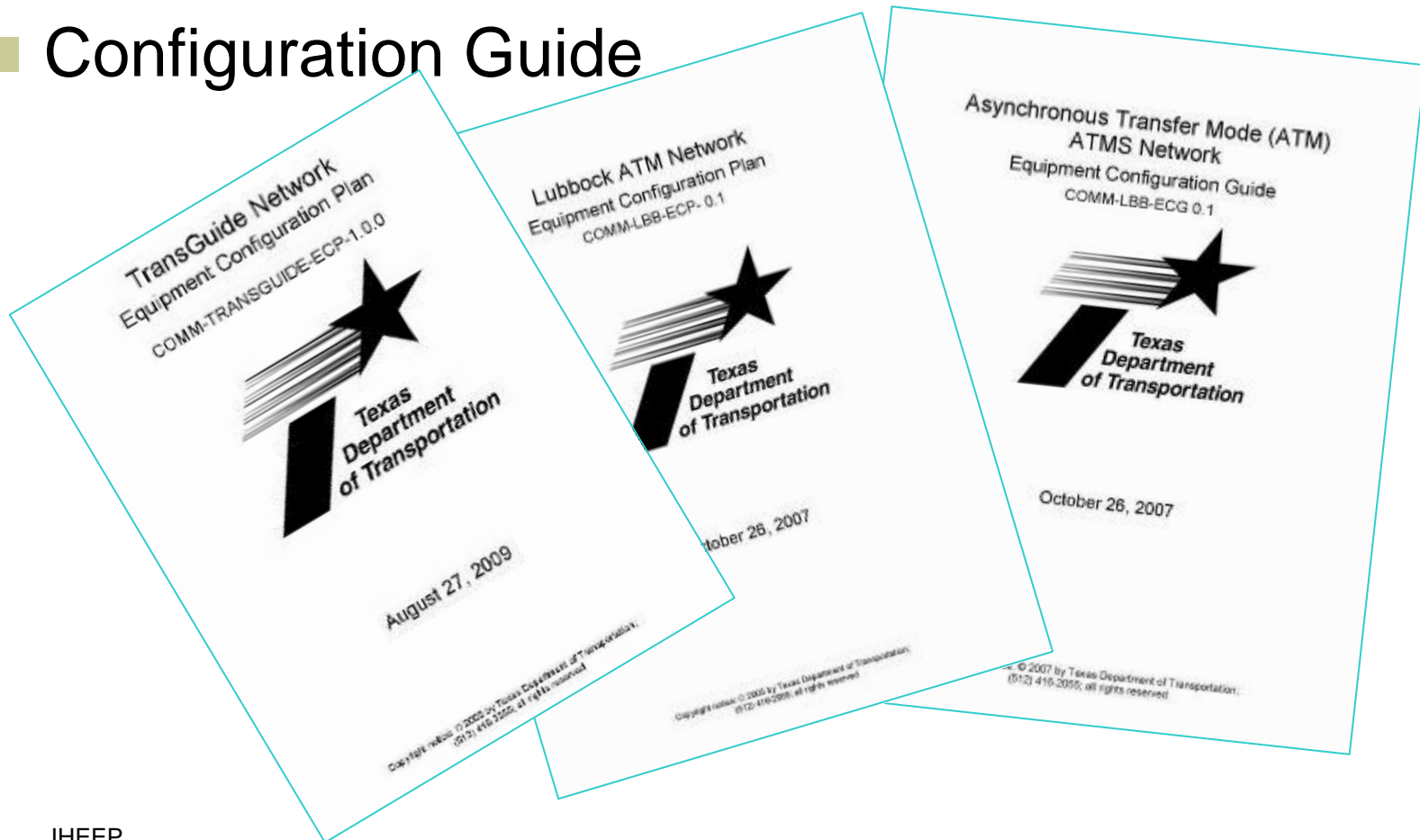
Rack Layout Diagrams





Configuration Information

- Configuration Plan
- Configuration Guide



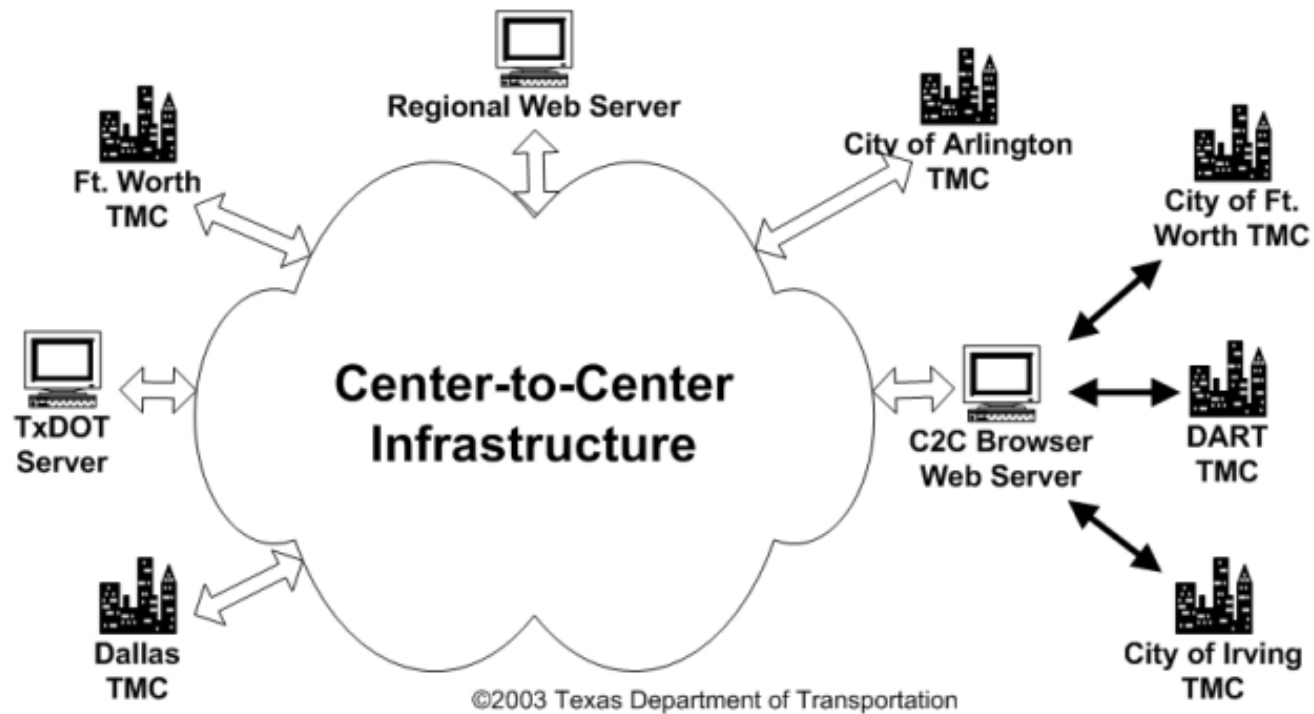


Center to Center

- Center to Center Concept
- Standard C2C Configuration
- Media Connection (Non-C2C)

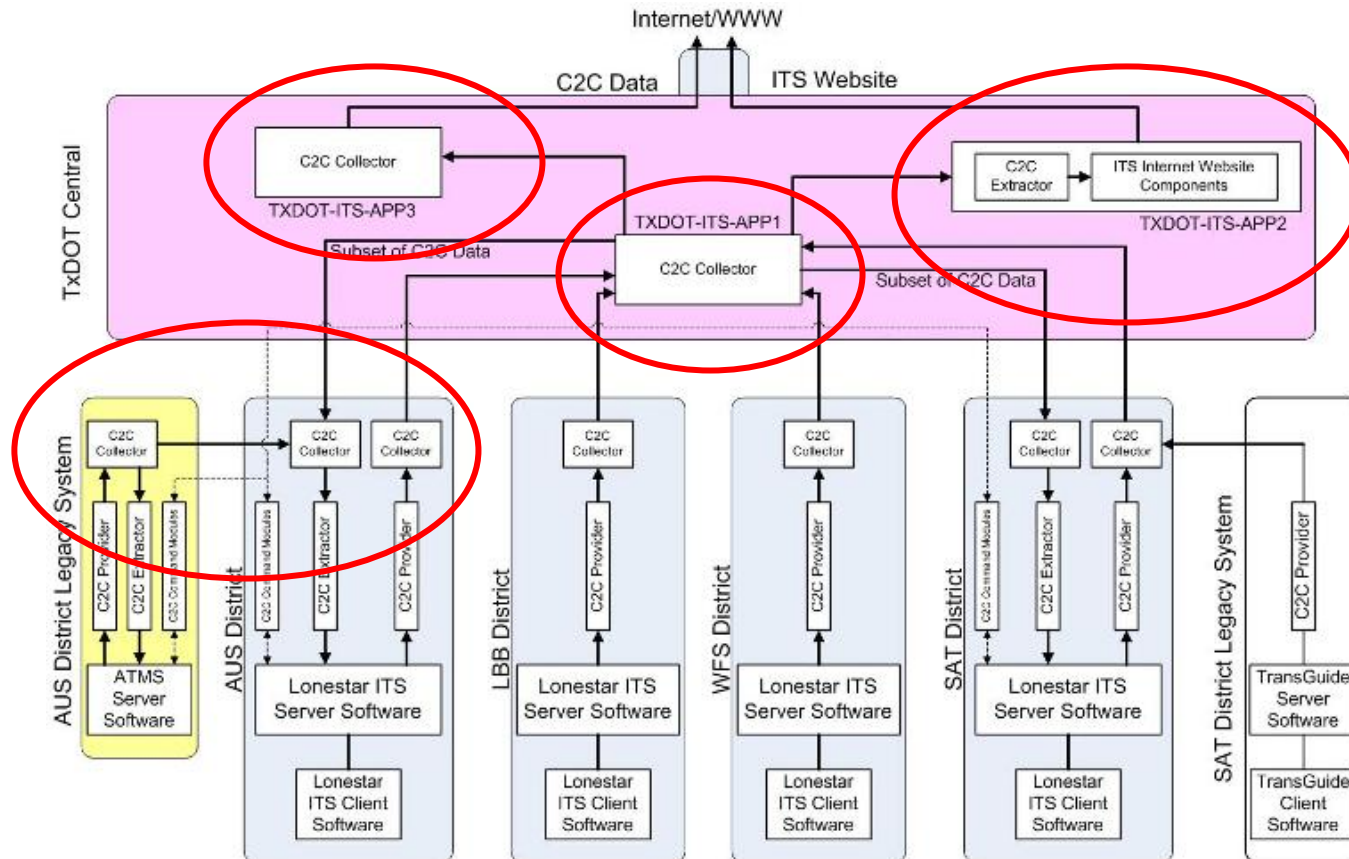


Center to Center Concept





Standard C2C Configuration

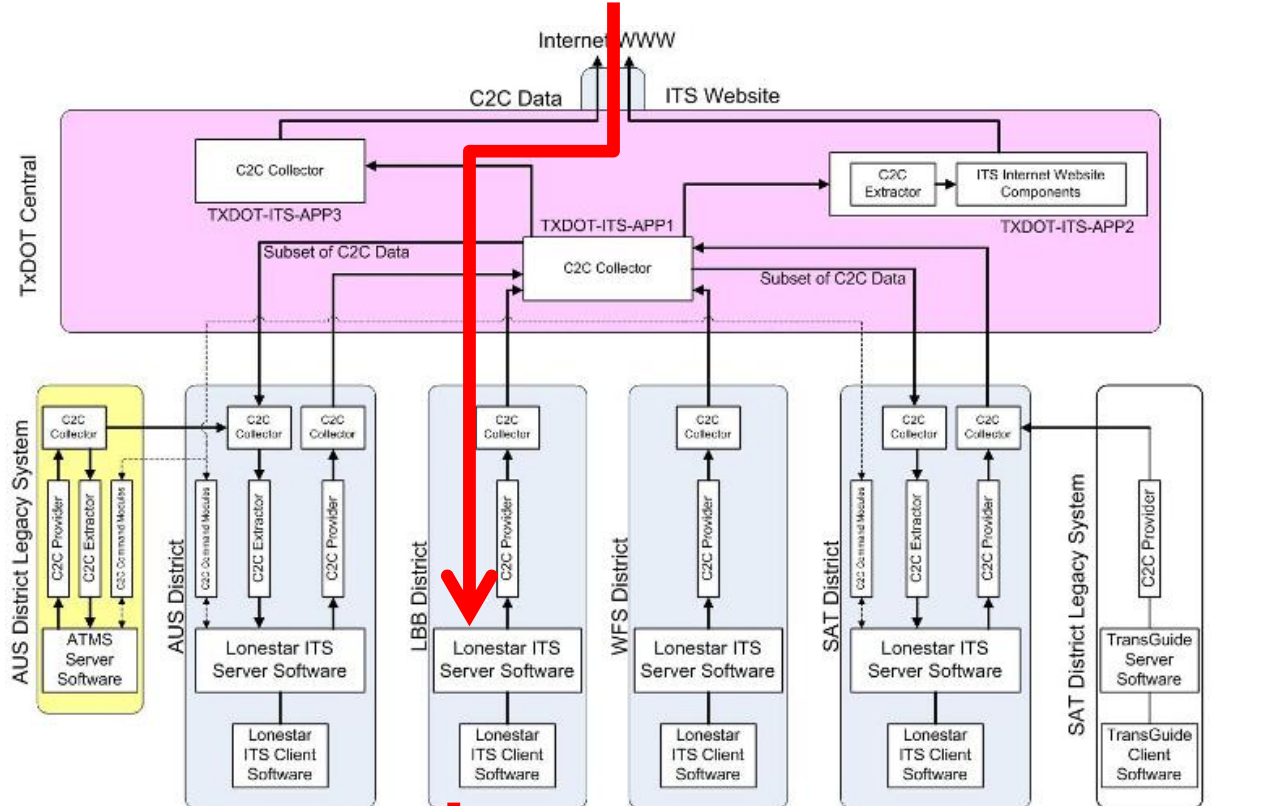


Taken from version 1.2.0, 4/3/2008
Statewide C2C Implementation Layout



Media Connections

Lonestar Client at Media



Taken from version 1.2.0, 4/3/2009
Statewide C2C Implementation Layout

Video To Media



WEB Presence

- Current ITS WEB Sites
- Statewide WEB Map
- Statewide WEB Cameras
- Statewide WEB DMS



WEB Site Dallas/Fort Worth

Dallas / Fort Worth Traffic

Maps Traffic Data ITS Courtesy Patrol Links Contact Us

2D 3D Road Aerial Bird's eye

Fort Worth

- Only video snapshots are currently available from FW.
- Cameras

Dallas

- Incidents
- Lane Closures
- Speeds
- Cameras
- Message Signs

Speed Legend

- > 40 mph
- 20-40 mph
- < 20 mph
- Data Unavailable

More...

- Light Rail Routes
- Light Rail Stations
- Airports

[Web Site Survey](#) [Mobile Version](#) [Get DFW Traffic Data](#)

Image acquired 5 minutes 53 seconds ago. Click icon to enlarge image.

Texas Department of Transportation

Traffic Conditions as of Tue, Sep 29, 5:56 pm

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WEB Site Amarillo



The screenshot shows a web browser window displaying the Texas Department of Transportation's website. The browser title is "TxDOT's Amarillo District ITS - Windows Internet Explorer". The address bar shows the URL "http://amats.dot.state.tx.us/AMA-ITS/default.htm". The website header includes the Texas Department of Transportation logo and the "PEGASIS" logo, which stands for "Panhandle Electronic Guidance and Safety Information System". Navigation links for "Home", "About PEGASIS", "Contact Us", "News and Information", and "Camera Tours" are visible. The main content area features a map of the Amarillo region with various road labels and markers. An inset image shows a close-up of a road sign for "IH40 & Soncy" with a timestamp of "September 29, 2009 5:48:48 PM". The footer contains a "Disclaimer and Content Usage" link and copyright information for the Texas Department of Transportation, dated 2007.

IHEEP
September 30, 2009



WEB Site Laredo

TEXAS DEPARTMENT

Home | About STRATIS | Contact Us

STRATIS Cameras

Laredo ITS Camera
21-135 at Killam Road
September 29, 2009 05:53:13 PM
SH358 AT CHACON CREEK

Map labels: Eido Miguel Alemán, La Comita, Santa Cruz, Eido La Cruz, Del Mar, Baylto, Nye, Trancas, El Franco, Laredo, Nuevo Raylto, Fracc Las Lomas, Reforma Urbana, Praga, Fracc los Virreyes, Arturo, Inca, Vista Hermosa, Rio Grande, W Calton Rd, Blair St, Scott St, Movilmercy Ave, E Lyon St, Spur 400, Mier St, E Del Mar Blvd, Joacamin Rd, N Barbiet Ave, E Del Mar Blvd, Loop 20, Loop 347, Casa Blanca Lake, Killam.

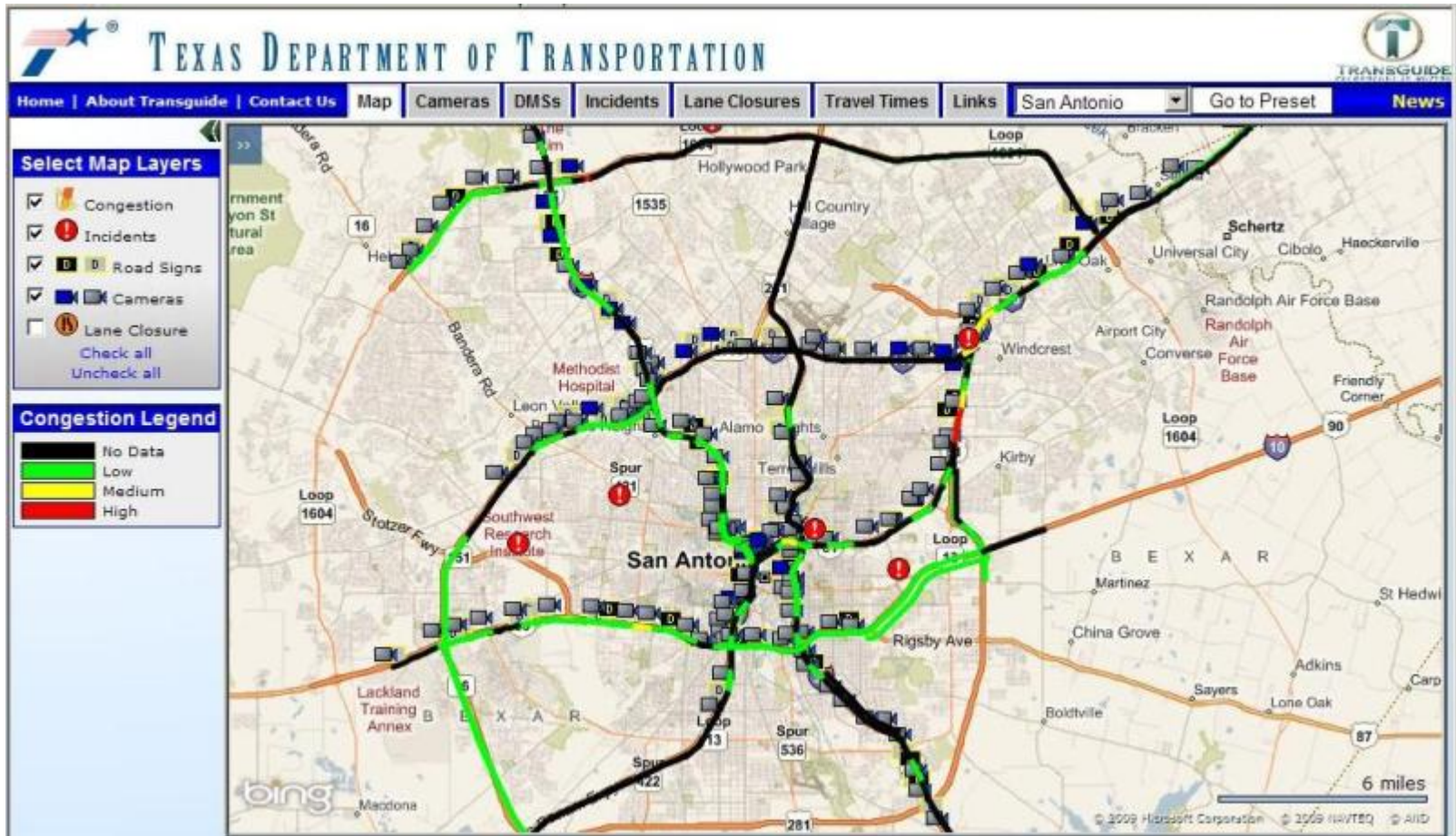
Map controls: Road, Aerial, Hybrid, Bing logo, 3 miles scale bar.



Web Site El Paso

The screenshot displays the TransVista website interface. At the top left is the TransVista logo with the tagline "DATA DRIVEN VISUALIZATION". Below it is a navigation bar with links for Home, About TransVista, Contact Us, and Site Map. The main content area is titled "TransVista Cameras" and features a map of El Paso with various camera locations marked. A sidebar on the left provides filters for cameras (All, IH-10, Mesa, US-54, LP375, Montana, Streets) and DMS (Message, No Message, Incidents, Highway Advisory, Closures, TTI & CIIR). The right side of the page shows a live camera feed titled "US-54 Hondo Pass" with a timestamp of 4:49 PM. Below the main feed are two smaller feeds labeled "Looking North" and "Looking South". A "TRANSPORTATION" section is visible on the far right. The browser status bar at the bottom indicates "Done, but with errors on page." and "Internet" with a 100% zoom level.

Statewide WEB Map





Statewide WEB Cameras

TEXAS DEPARTMENT OF TRANSPORTATION

Home | About Transguide | Contact Us | Map | Cameras | DMSs | Incidents | Lane Closures | Travel Times | Links | San Antonio | Go to Region | News

Roadways	IH 10 West
* OTEST	
IH 10 East	
IH 10 West	
IH 35 North	
IH 35 South	
IH 37 North	
IH 37 South	
LP 1604 East	
LP 1604 West	
LP 410 East	
LP 410 North	
LP 410 South	Coming Soon
LP 410 West	
US 281 North	
US 281 South	
US 90 East	
US 90 West	
	Coming Soon

Zoom: 100% 125% 150% 175% 200%

CCTV-0010W-562.027_TransGuide SATX: undefined

IH 10W AT MEDICAL VIEWING EAST



Nearby Roadway Speeds

IH 10: 63 MPH

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Statewide WEB DMS

 **TEXAS DEPARTMENT OF TRANSPORTATION** 

Home | About Transguide | Contact Us | Map | Cameras | **DMSs** | Incidents | Lane Closures | Travel Times | Links | San Antonio | Go to Region | News

Roadways	IH 10 East
IH 10 East	CMS2-0010E-564.441_TransGuide SATX
IH 10 West	No Message Currently Displayed
IH 35 North	
IH 35 South	
IH 37 North	
IH 37 South	
LP 1604 East	CMS3-0010E-561.689_TransGuide SATX
LP 1604 West	CONGESTION USE LP-410 RAMP CAUTION
LP 410 East	
LP 410 North	
LP 410 West	
US 281 North	CMS2-0010E-567.495_TransGuide SATX
US 281 South	No Message Currently Displayed
US 90 East	
US 90 West	
	CMS2-0010E-570.199_TransGuide SATX
	No Message Currently Displayed
	CMS3-0010E-562.589_TransGuide SATX
	CONGESTION USE



ITS Hardware Items

- Hardware Testing
- Standard Purchase Items
- Standard Specifications



Hardware Testing

- ATM Switches
- Wireless Products
- ATM Video CODECS
- Other Devices
 - IP CODECS
 - Field Ethernet Switches
 - CCTV Cameras

Statewide Communications Support
Wireless Product Inspection and Evaluation
Procedure
SCS-WPIEP-1.0.1



April 26, 2006

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Standard Purchase Items

- Skyline DMS
- VBrick CODECS
- Teleste CODECS
- Signal Blankets

BLANKET MASTER PO

TEXAS Department of Transportation
Form 22 - Date: Jul 30, 2002

Change Notice

Agency To Invoice:
TEXAS DEPARTMENT OF TRANSPORTATION
125 E 11TH ST
AUSTIN TX 78701-3483
PEN, INV, CRES, DOT, STATE, TX, US
BUYER: 806 - YVONNE M. DOVELO

P.O. No: B44290410117000
P.O. Number: B44290701291000
P.O. Date: 08/30/2004
Catalog Purchase

VENDOR ID: 10815074261-000

Line Item	Item Description	Quantity	Unit	Unit Cost	Extended Cost
1	TELESTE 80-20-0800 COMMUNICATIONS EQUIPMENT... ITEM SHALL ALSO INCLUDE AN ADDITIONAL 3-YEAR DIRECT ORIGINAL MANUFACTURER SUPPORT AGREEMENT FOR THE MPEG-2 OR ATM VIDEO DECODER UNIT. SUPPORT AGREEMENT SHALL COVER ACCESS POINT NORMAL WORKING HOURS BY TELEPHONE AND E-MAIL TO THE MANUFACTURER'S TECHNICAL ASSISTANCE CENTER FOR 3-YEAR ACCEPTANCE OF THE MPEG-2 OR VIDEO DECODER UNIT. TECHNICAL ASSISTANCE CENTER WILL PROVIDE AN ADDITIONAL CHARGE, ORIGINAL MANUFACTURER'S SUPPORTER SPECIAL ENGAGEMENTS AS WELL AS PROBLEMS/ISSUES FROM SUPPORT. SUCH AGREEMENT WILL PROVIDE FOR REPAIR FACTORY EQUIPMENT REPAIR, WITH TOLL FREE AND FOR FAILED REPAIR SUPPORT AGREEMENT MUST BE TYPED TO THE END USER OF THE EQUIPMENT.	200	EA	\$1,200.00	\$240,000.00

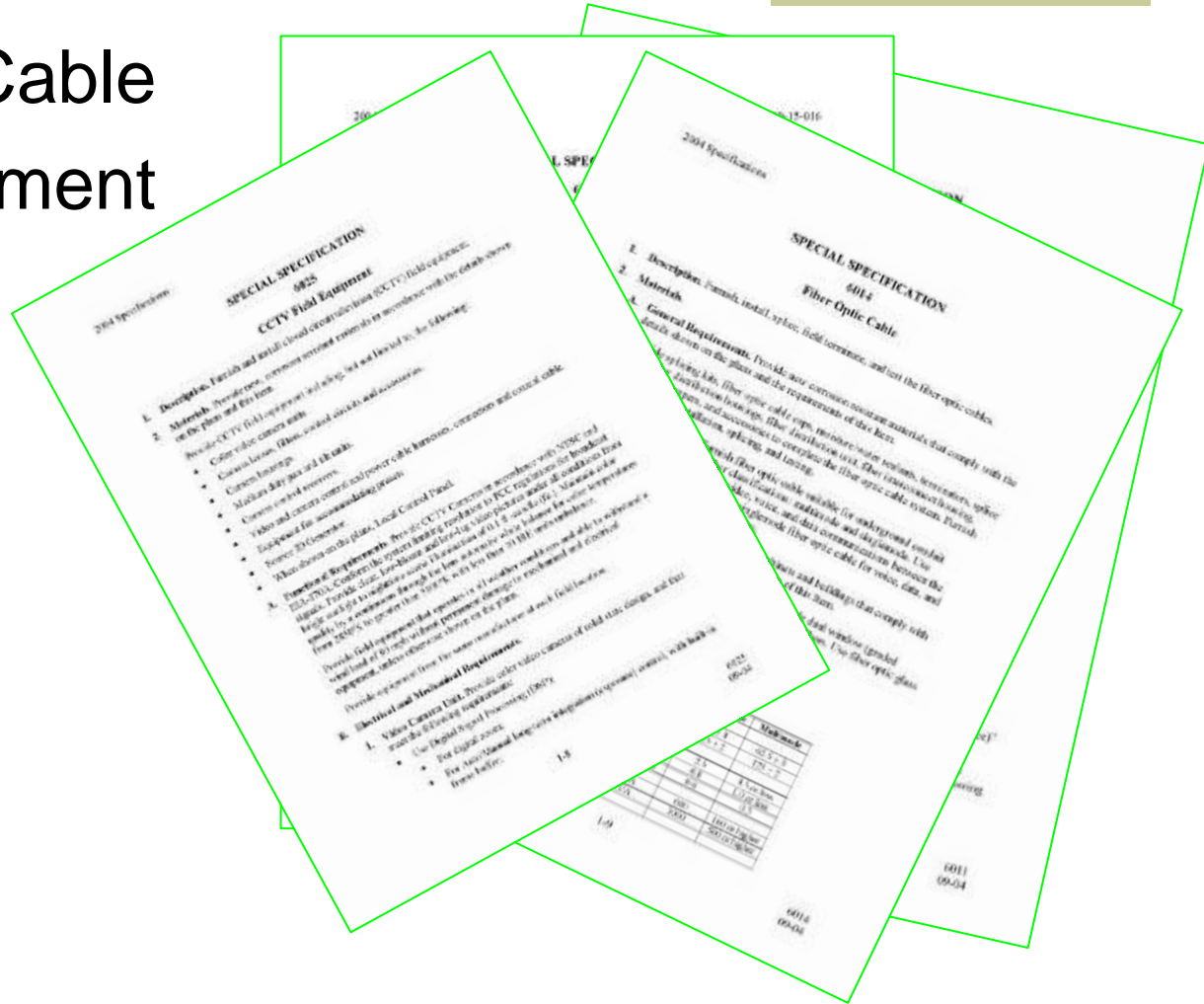
Issuing Employee Signature _____
Issuing Employee Title _____

CONTINUED



Standard Specifications

- Fiber Optic Cable
- CCTV Equipment
- DMS – Fiber
- RVSD
- Testing





Questions

Who?

What?

When?

Where?

How?

Why?