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Texas Public Safety Broadband Program

The View From Texas:

FirstNet Planning & Early Builders

Texas Public Safety Broadband Program

- SMLA signed in August 2014
- Includes 5 Key Learning Conditions:
  1. Core Transition
  2. Data Analytics
  3. Special Events
  4. Extended Mode
  5. Training

Texas Public Safety Broadband Program

- Spectrum for Harris County build-out
- Retain site at College Station/Disaster City
- Deployable eNodeB

Mobile eNodeB:

- Special Events
  - Band Class 14 deployed with WIFI nodes to bypass congestion and leverage existing devices
- Disasters
- Capacity augmentation

Texas Public Safety Broadband Program

- Raising Awareness in Harris County and all across the state
- Providing Educational & Outreach Support
- Building the Vision & Roadmap of the future

Public Safety LTE
Harris County BigNET

Shing Lin
Director of Enterprise Public Safety Technology Services
Harris County ITC

Agenda

- What we've learned
- Key Concepts
- Move Forward Strategy
  - Program Phases
  - Phase Details
- Q&A

Lessons Learned (so far)

- Planning is critical
  - Business Model
  - Funding & Operating costs
  - Deployment
  - Location, Location, Location
- It's a business
- Education and Outreach

Key Concepts:

Mobile vs. Portable

Key Concepts:

Inbound vs. Outbound

Build Out Status

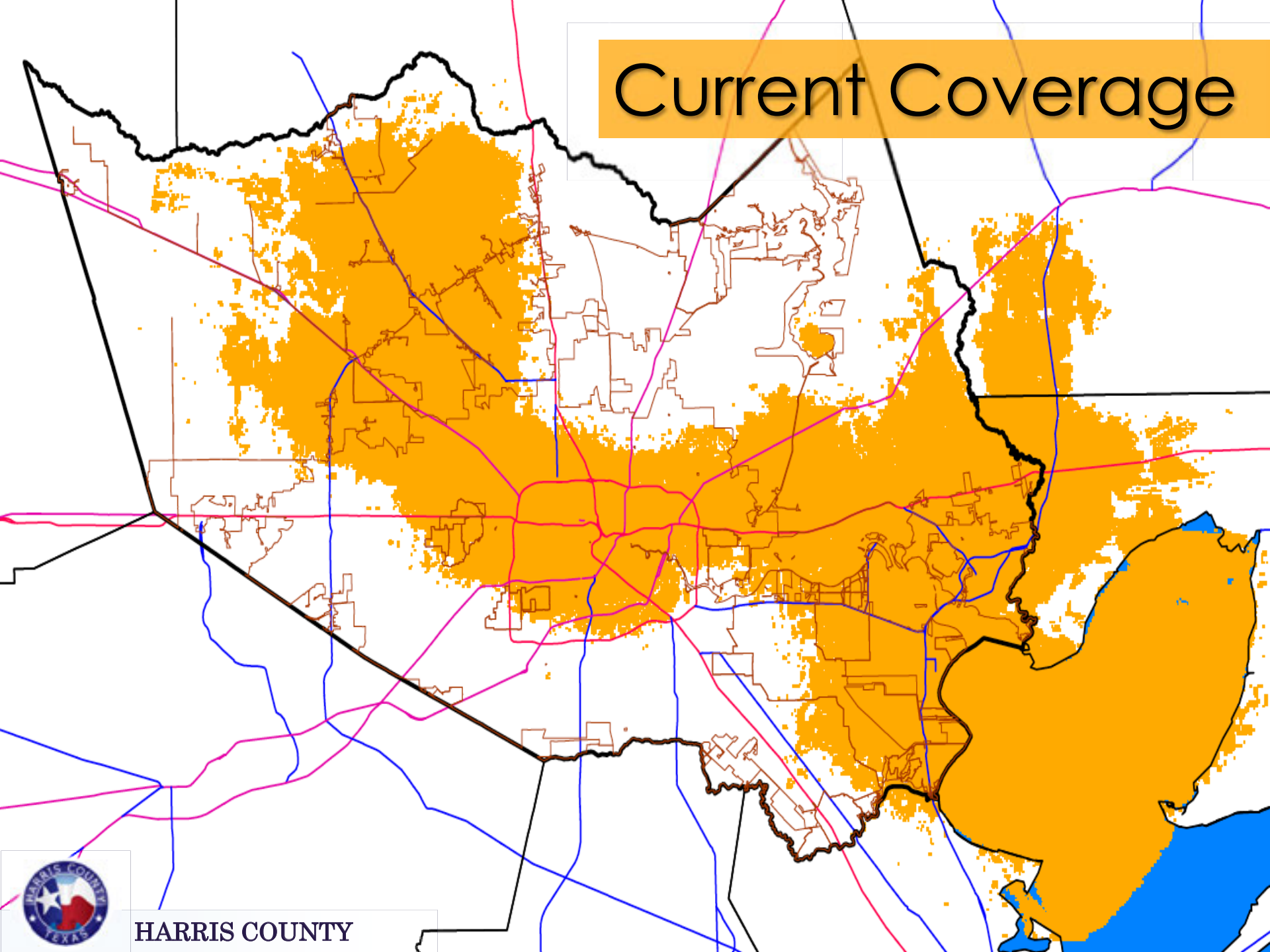
Current Status

13 Sites in Harris County service area
1 Site in Brazos County (Extended range test site)
1 Mobile Unit

Build Out Strategy

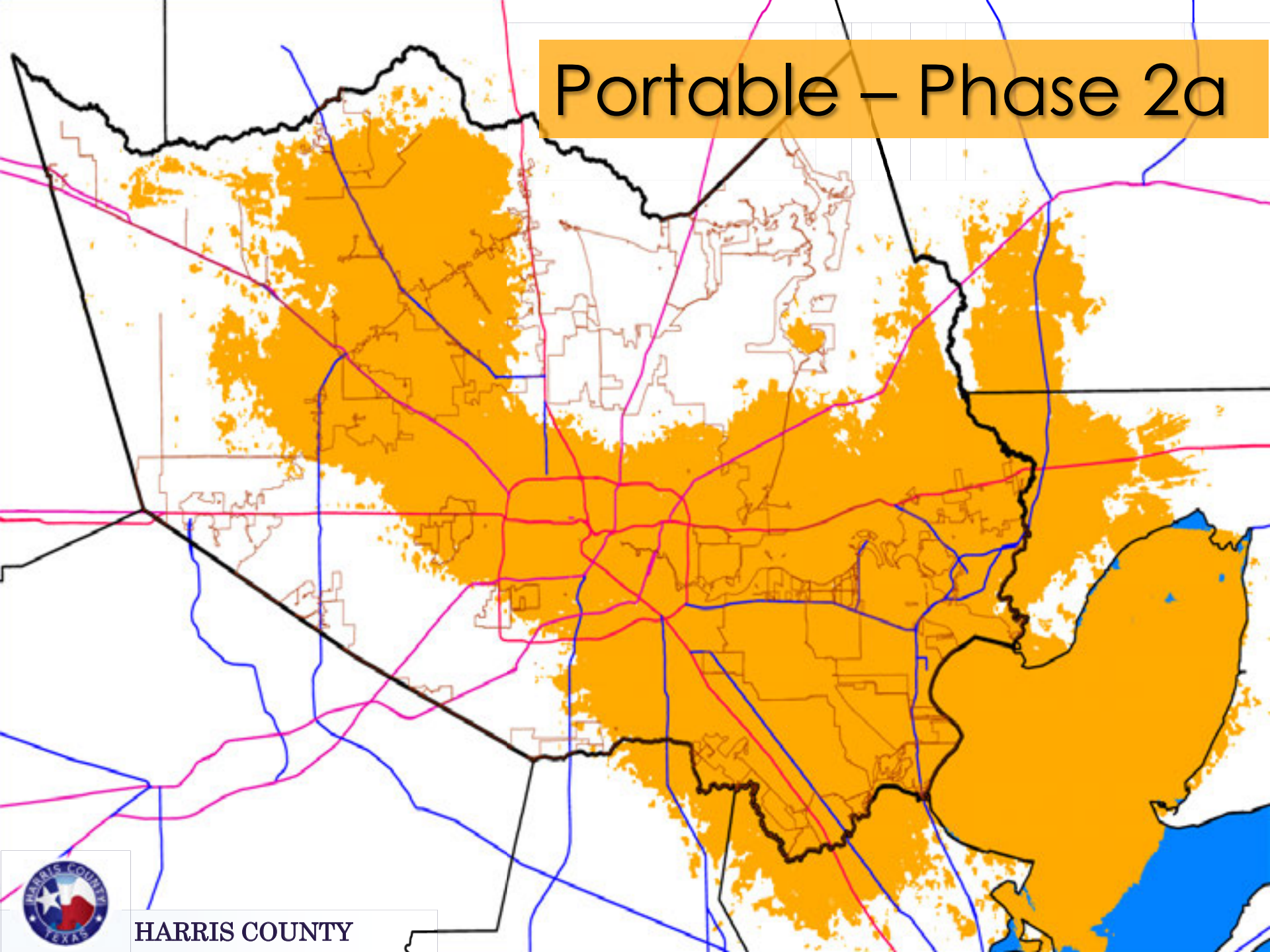
Mobile Coverage First (33 sites – min level of support)
Portable Coverage to follow (+60 sites)
- Investigate Voice

Current Coverage



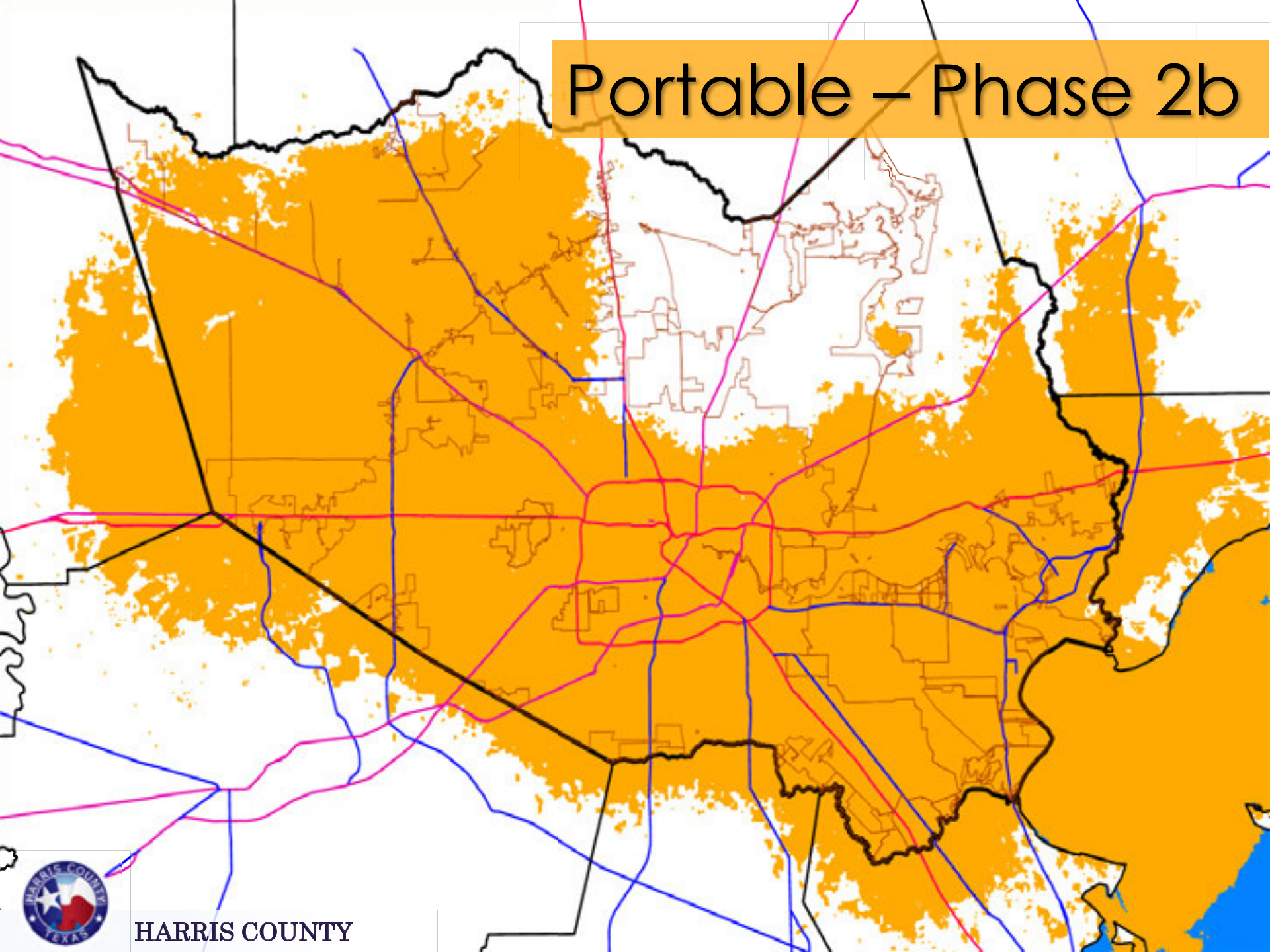
HARRIS COUNTY

Portable – Phase 2a



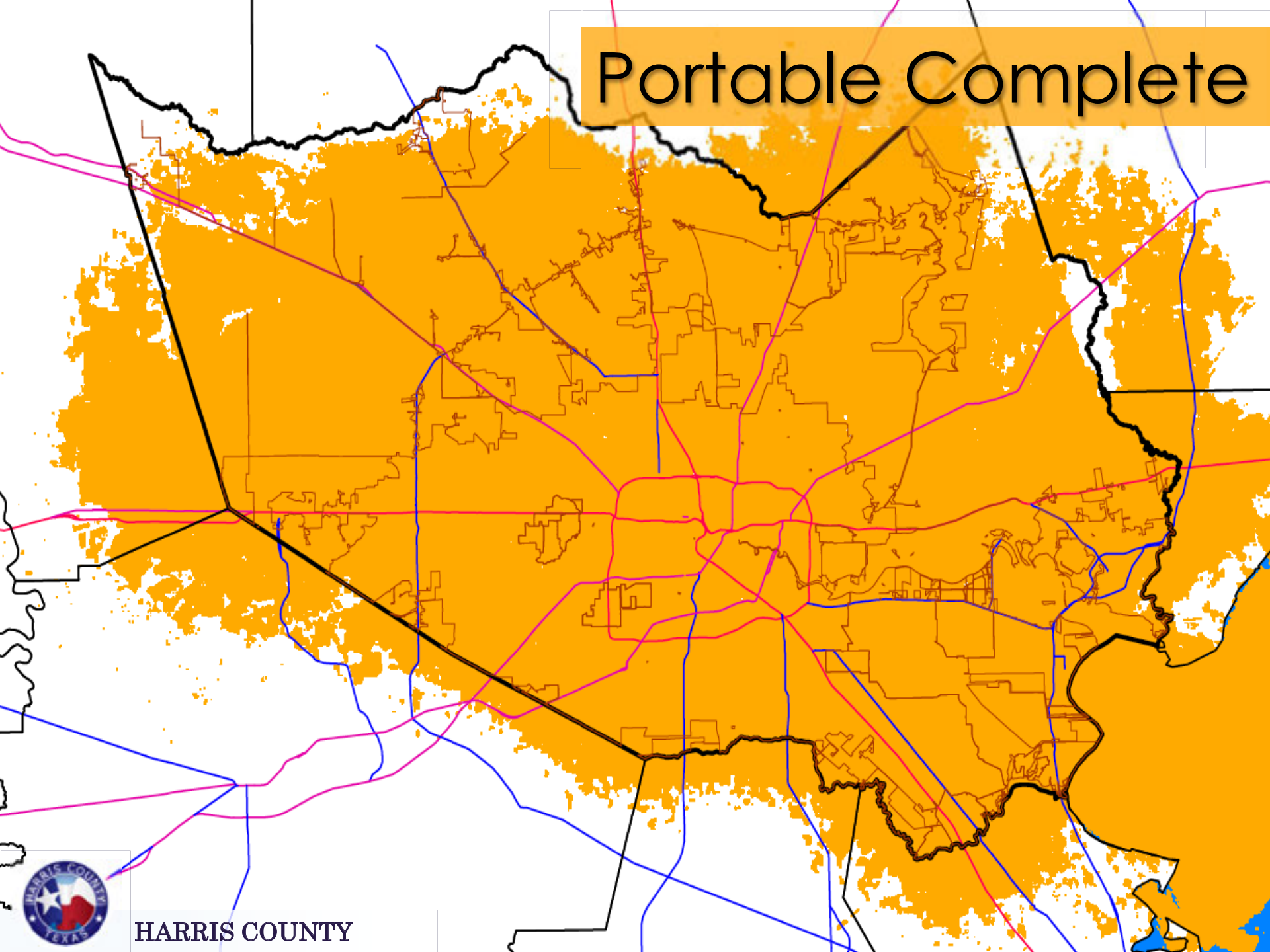
HARRIS COUNTY

Portable – Phase 2b



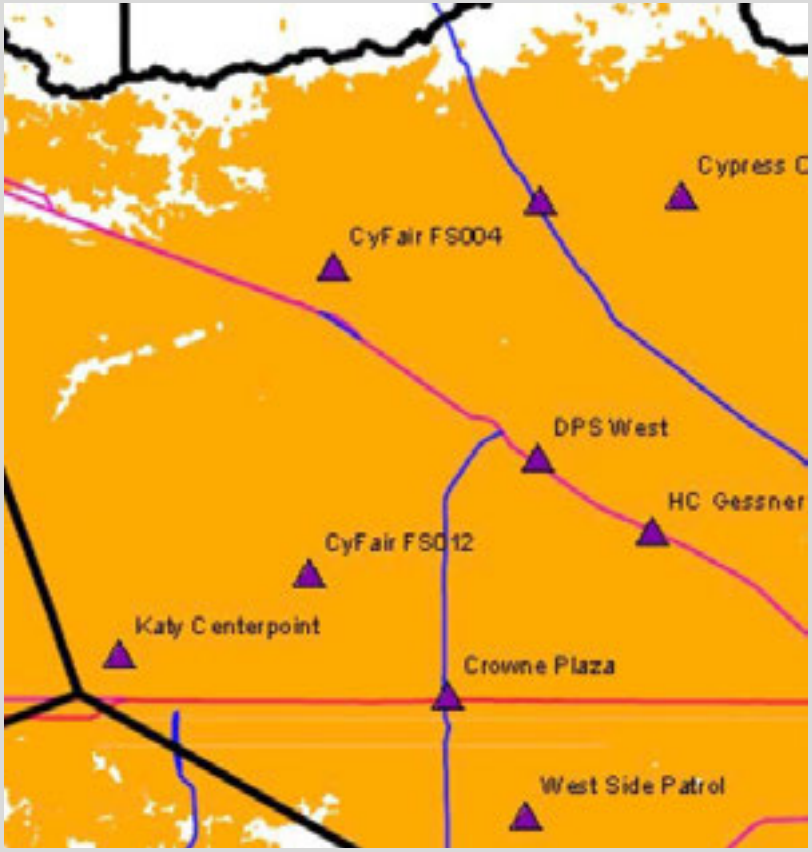
HARRIS COUNTY

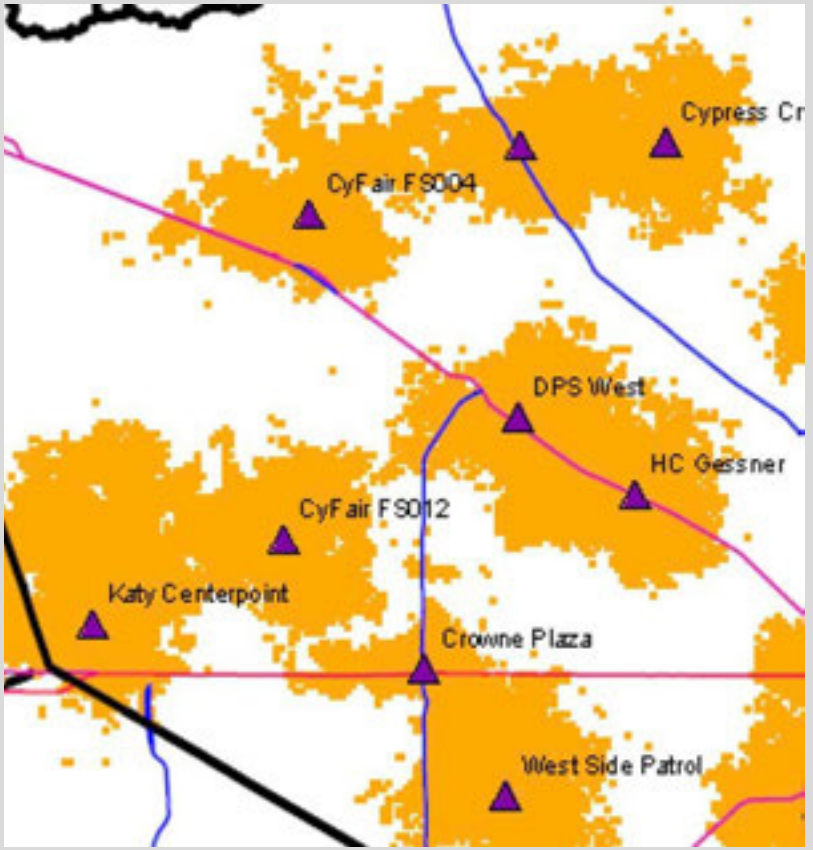
Portable Complete



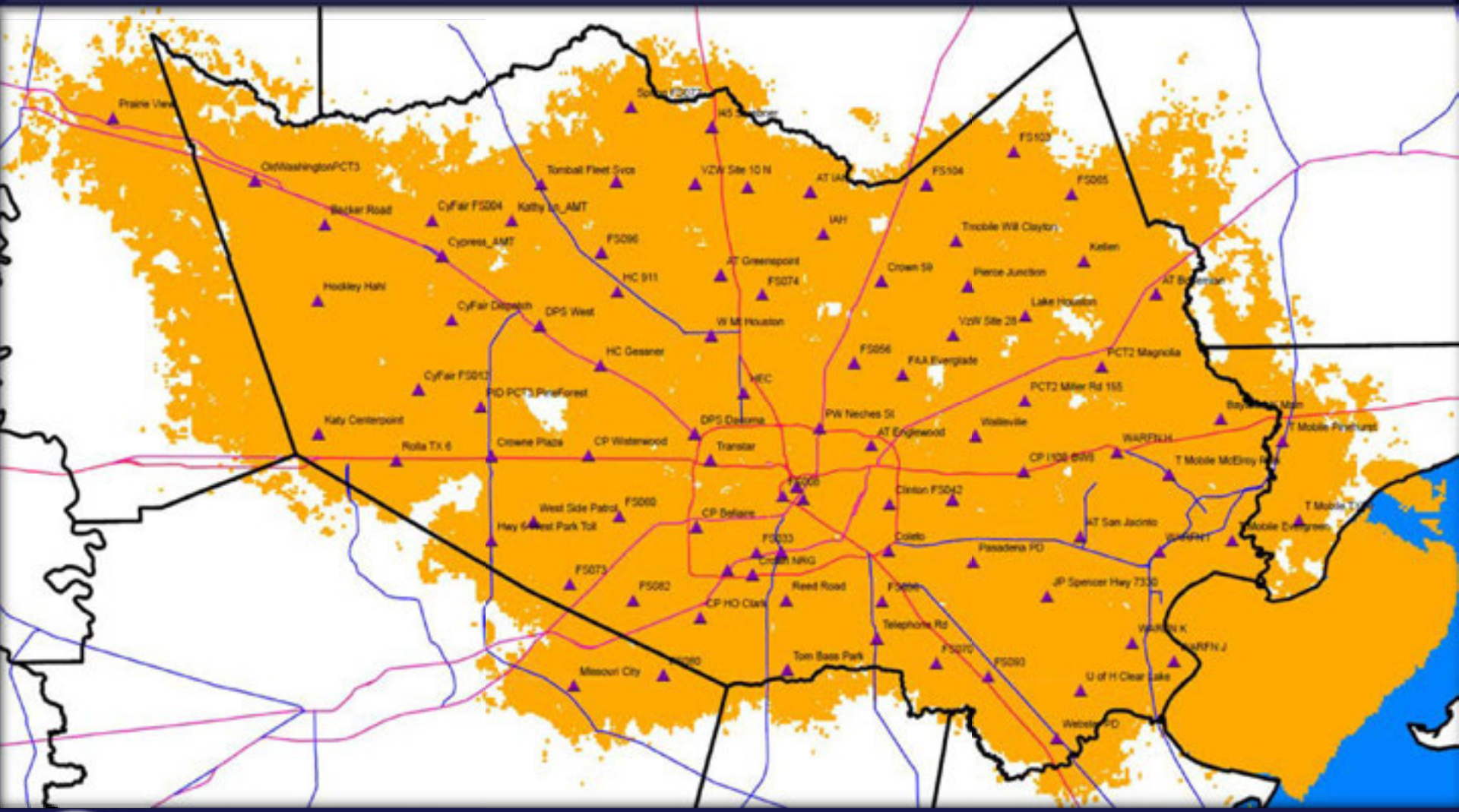
HARRIS COUNTY

Mobile vs. Portable Coverage



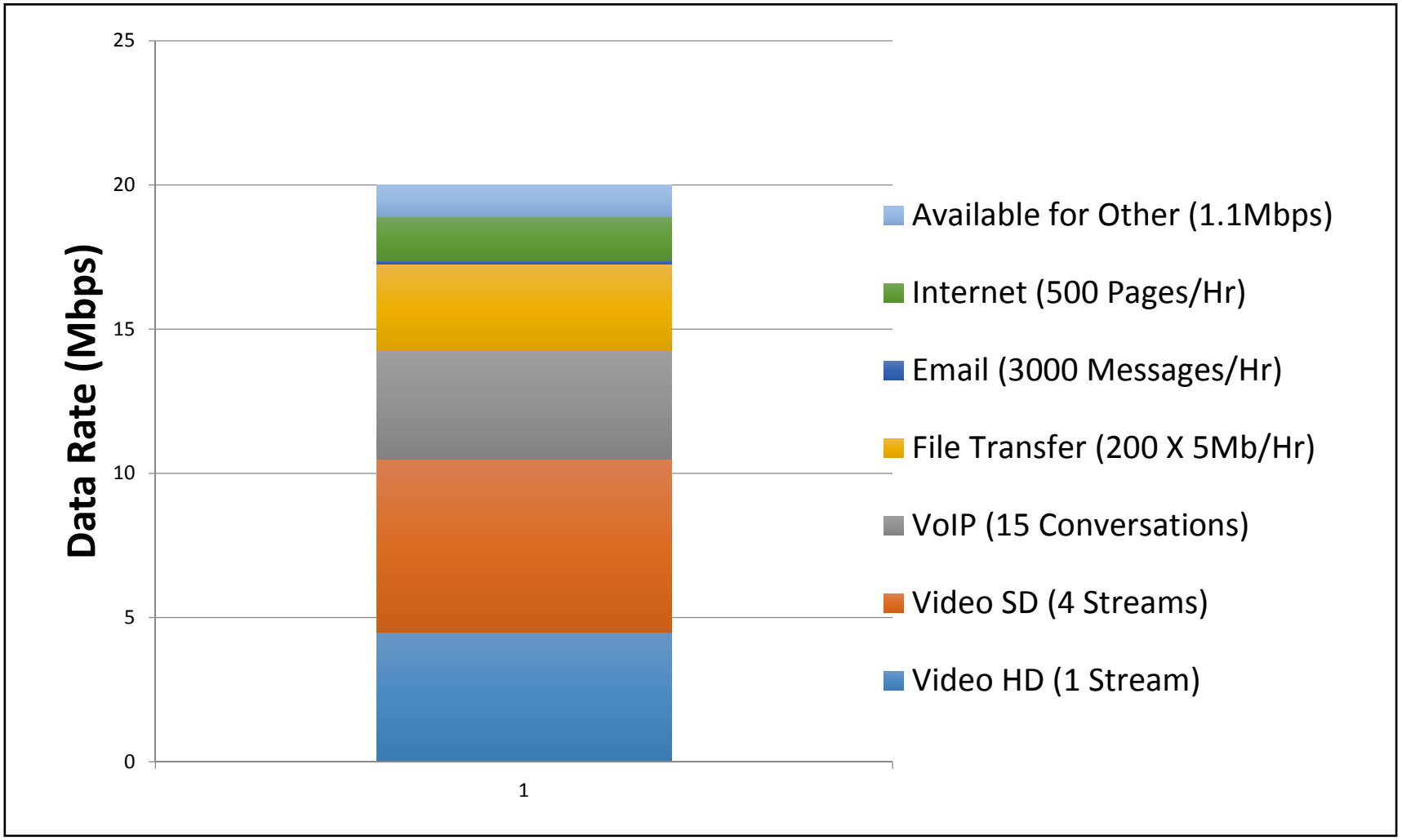


All Phases – Proposed Combined Coverage



HARRIS COUNTY

What Can be Expected?



From Concept to Reality

Other Considerations:

- Customer support systems
- Supported device plan
- Network Operations Center plans

Where Do We Go From Here?

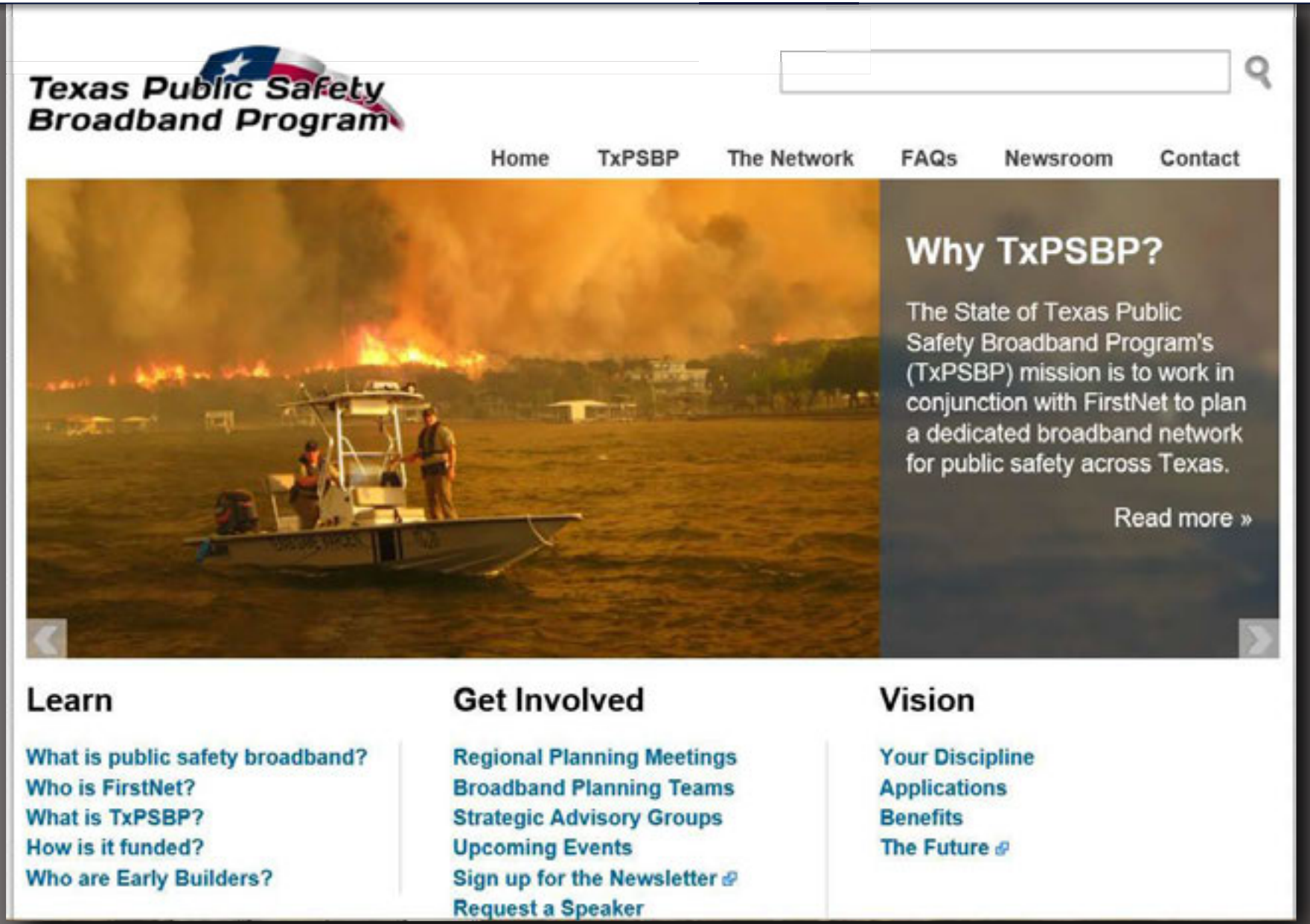
2014	Awareness
2015	Planning & Design
2016	Evaluation

Where Do We Go From Here?

What we learn in Harris County impacts all of Texas and the Nation

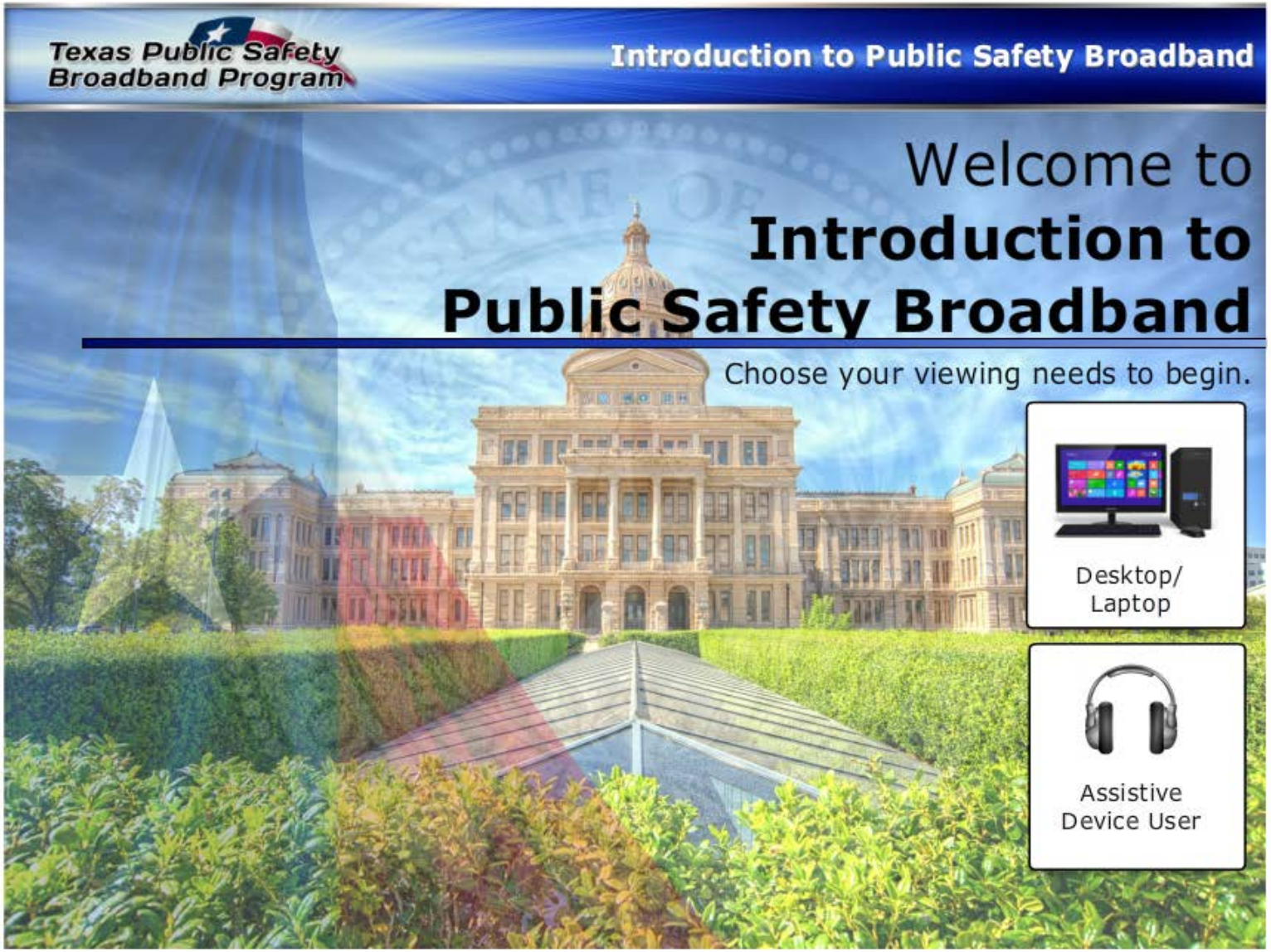
www.TxLTE.com

Texas Public Safety Broadband Program



Menu

- Desktop
  - Welcome and Viewing Needs
  - Navigating the Course
  - Course Overview
  - Wireless Broadband Network
  - Public Safety Current Uses
  - Fact or Myth
  - Public Safety Broadband Net...
  - National Disasters
  - Growth of Consumer Traffic
  - Current Data Communication
  - Commercial Carrier Limitations
  - Differences
  - Similarities
  - Land-Mobile Radio (LMR)
  - Continued LMR Use
  - Applications – Interdisciplina...
  - Applications – Discipline Spe...
  - New Cellular Broadband Net...
  - FirstNet
  - Benefits of FirstNet
  - The Road to the Public Safet...
  - Funding Model
  - Costs
  - Texas Participation
  - Texas Public Safety Broadband
  - State and Local Implementat...
  - Whole Community Impacts
  - Local Input
  - BIG-Net
  - Public Safety Broadband Net...
  - Summary



Menu

- Desktop
  - Welcome and Viewing Needs
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  - Fact or Myth
  - Untitled Slide
  - National Disasters
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Texas Public Safety Broadband Program

Introduction to Public Safety Broadband

Public Safety Broadband Network: Example Scenario

Pitcher Bridge Collapse

At 7:34am an international vessel, The Curie, struck the pylons of the Pitcher bridge. At the time of impact, 12 cars were on the bridge with 17 passengers, and 100 crew members were on the ship with 24 seriously injured.

The number of responding agencies grows as more information is discovered. Interoperable communications is key in saving lives and property.

Select the next button to review the communication efforts during this incident.

2015 Initiatives

Texas Public Safety Broadband Program

Priority Ranking:

Creating an objective tool to rank counties for build out

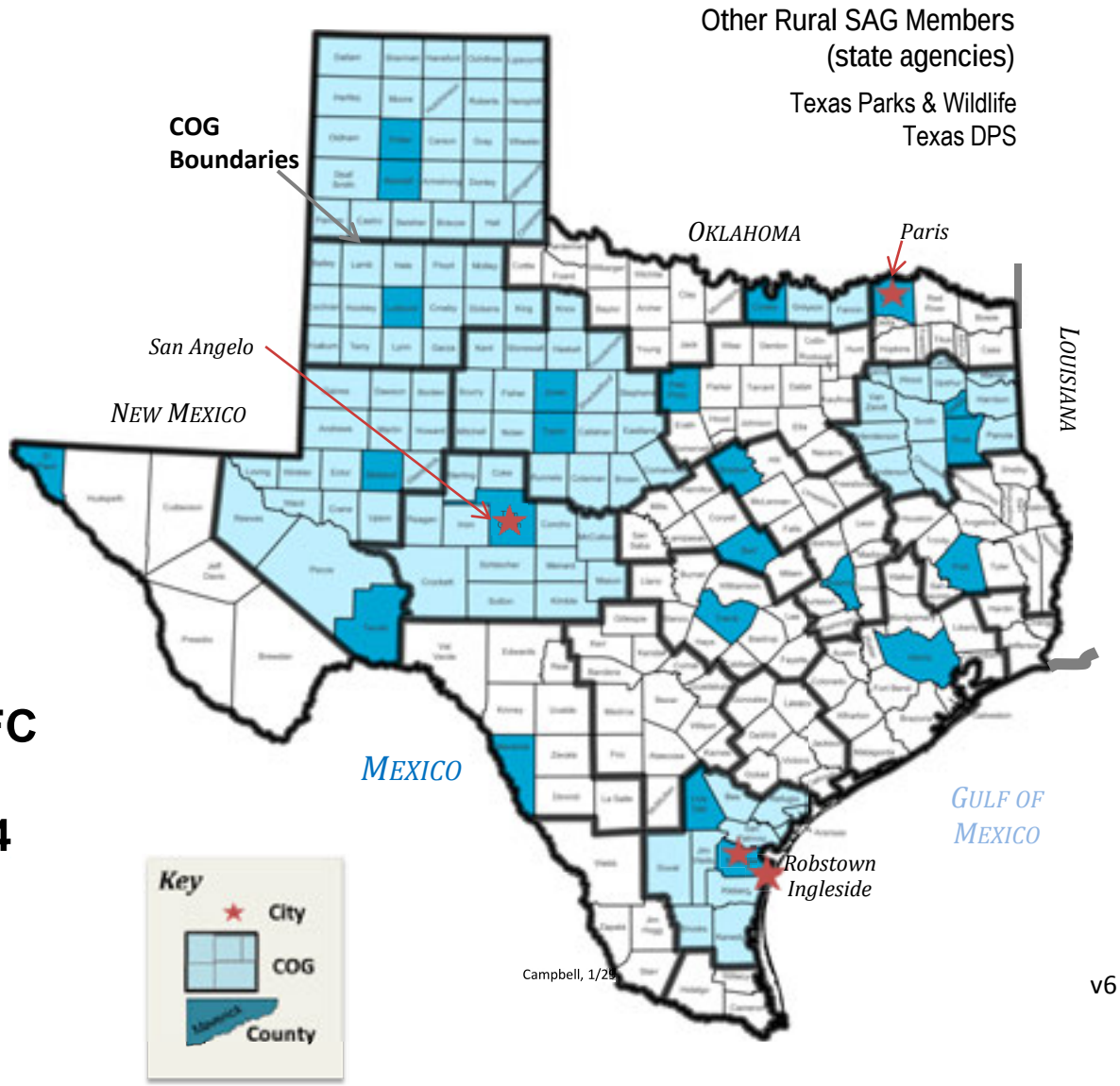
Optimum Network Design

Information Gathering:

Documenting the needs/requests of jurisdictions

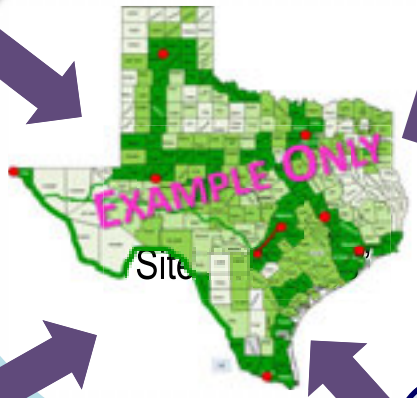
Coverage & Prioritization Tool:

- **City, Tribal, County, State, Emergency Management and Council of Governments (COGs) members**
- **Initiated from SLIGP Governance**
  - **Via recruitment and a statewide solicitation for volunteers**
- **Stood up in August 2014**
- **First deliverables NTIA RFC & FN RFI papers on "rural areas" definitions, 4Q2014**



Coverage & Prioritization Tool:

We realize getting to a Final ("shovel ready") System Design requires highly skilled designers and a highly iterative process across a variety of complex considerations.



System Design Considerations

- Hardening
- Capacity
- Deployment Phasing
- Proximity to Backhaul, Fiber
- Hub, Aggregation Locations
- LTE equipment location
- Type of Coverage Solution

Optimizing for Topography & Terrain

Economics, Cost, Existing Infra.

- Overall Cost to Deploy
- Business Case, Revenue

Existing Wireless

- Existing LMR/P25
- Commercial LTE

2015 Focus Here

Customer Requirements

Public Safety Need

- Public Safety Risk
- Critical Infrastructure Protection
- Borders & Ports Protection
- Disaster Risk Areas
- Population Density factors

FirstNet FEDERAL USER Requirements

Readiness, Eagerness

- Level of Enthusiasm
- Site Readiness
- LTE App Readiness
- B14 Device readiness
- Incremental Funding
- Amount of advanced planning

Coverage & Prioritization Tool:

CAT WEIGHT	Weighting Matrix, Public Safety NEED BY COUNTY		Subfactor WEIGHT	Sub - Subfactor WEIGHT	CALCULATED Attribute Weight
10%	**County Population Density**				
	Dense Urban	More than 2500 persons/square mile	16%		1.6%
	Urban	More than 1000, less than 2500 persons/square mile	16%		1.6%
	Suburban	More than 300 less than 1000 persons/square mile	16%		1.6%
	Rural Suburban	More than 160 less than 300 persons/square mile	16%		1.6%
	Rural	More than 7 less than 160 persons/square mile	20%		2.0%
	Frontier	Less than 7 persons/square mile	16%		1.6%
			100%		
30%	**Borders & Ports**				
	International Border	Mexican border (all but Risk Area)l, - linear mi, add coastline	20%		6.0%
	Ports of Entry (Land)	Number of border crossing (count by county)	20%		6.0%
	Ports of Entry (Sea Ports)	Number of ports	30%		9.0%
	Border Risk Areas	High vol, LE add'l, high activity	30%		9.0%
			100%		
30%	**Critical Infrastructure**				
	Military Infrastructure	bases, facilities, MOVED MILITARY AIR TO AVIATION	5%		1.5%
	SPACE Infrastructure	space centers, surveillance and launch facilities	5%		1.5%
	Water Infrastructure	Dams, bridges, levees, wells, pipelines, sewage treatment plants	10%		3.0%
	Critical Government Infrastruture (non-PS)	Courthouses, other government facilities	5%		1.5%
	Energy Infrastructure - ALL		15%		
	Energy Infrastructure			16%	0.7%
	Producing Oil Wells	Producing Oil Wells by County		17%	0.8%
	Energy Producing Areas	Wind farms, solar plants, oil/natural gas fields, coal mines		16%	0.7%
	Natural Gas Pipelines & Infrastructure			17%	0.8%
	Oil Pipelines, Refineries			17%	0.8%
	Nuclear Power Plants	Somervell County (Comanche Peak) Matagorda County (South Texas)		17%	0.8%
				100%	
	PS Infrastructure		35%		
	PSAPs and PS Facilities	police & fire stations		15%	1.6%
	PS Aircraft Operations			15%	1.6%
	PS Ground Transportation Hubs			14%	1.5%
	PS Network Infrastruture	microwave, fiber, remote sites, aggr pts		14%	1.5%
	Evacuation Centers			14%	1.5%
	PS training facilities			14%	1.5%
	Prisons, Jails & Detention Centers			14%	1.5%
				100%	

	Critical Ground Transportation Routes		15%		
	Critical Highways	Miles of highway		20%	0.9%
	Railroad Right of Way	Miles of railroad right of way		20%	0.9%
	DOD Convoy Routes	Miles of convoy route		20%	0.9%
	Trucking Routes	Miles of trunking routes		20%	0.9%
	Evacuation Routes	Miles of evacuation routes		20%	0.9%
				100%	
	Non-Public Safety Aviation		10%		
	Commercial Aviation Infrastructure	Top 25 Airports, No. Enplanements Per Year (FAA)		25%	0.8%
	C130 capable, Military Air Bases			25%	0.8%
	Air Freight			25%	0.8%
100%	Aviation Communications Infrastructure			25%	0.8%
				100%	100%
10%	**Natural Risk Areas**				
	Ocean Coastlines	Miles of coastline	13%		1.3%
	Intercoastal Waterway Coastline	Miles of coastline	13%		1.3%
	Major Rivers	Miles of River not in flood plain	12%		1.2%
	Tornado Risk Areas	Square Miles by County	12%		1.2%
	Flood Plains	Square Miles by County	12%		1.2%
	Wildfire Risk Area	Square Miles by County	13%		1.3%
	Earthquake Risk Area	Square Miles by County	12%		1.2%
	Hurricane Risk Area	Square Miles by County	13%		1.3%
			100%		
20%	**Public Safety Risk Areas**				
	Crime Rate	Crime Rate by County	12%		2.4%
	Recreation Areas	ALL parks, campgrounds, caves, natural attractions	11%		2.2%
	Population Changes due to Seasonal Shifts & Tourism	San Padre Island	11%		2.2%
	Special Medical Response	(i.e., Ebola containment, Major Trauma Centers,)	11%		2.2%
	Nuclear Weapons or Storage Facilities (CBRN)		11%		2.2%
	HAZMAT Volatile Chemical Storage Facilities	fertilizer plants	11%		2.2%
	Large College Campuses		11%		2.2%
	Cattle, Beef, Livestock areas		11%		2.2%
	Large Regular Public Events		11%		2.2%
100%	*checksum*	**TOTAL**	100.0%		100.0%

V12.3 Current Rural SAG Consensus

How to Stay Informed

@FirstNetGov #FirstNet

First Responder Network Authority

www.firstnet.gov

How to Stay Informed

www.TxLTE.com

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