City of Houston's Intelligent Transportation System and TIGER 2014 Project

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History

- What are Intelligent Transportation Systems (ITS)?
- Federal transition to a focus on operations
- Tradition of design, build, maintain and operate
- New focus on transportation safety, management and operations

The Problem

- Significant number of devices deployed throughout the country
- Primarily on freeways and the occasional arterial
- Prime examples are freeway dynamic message signs with messages such as this:

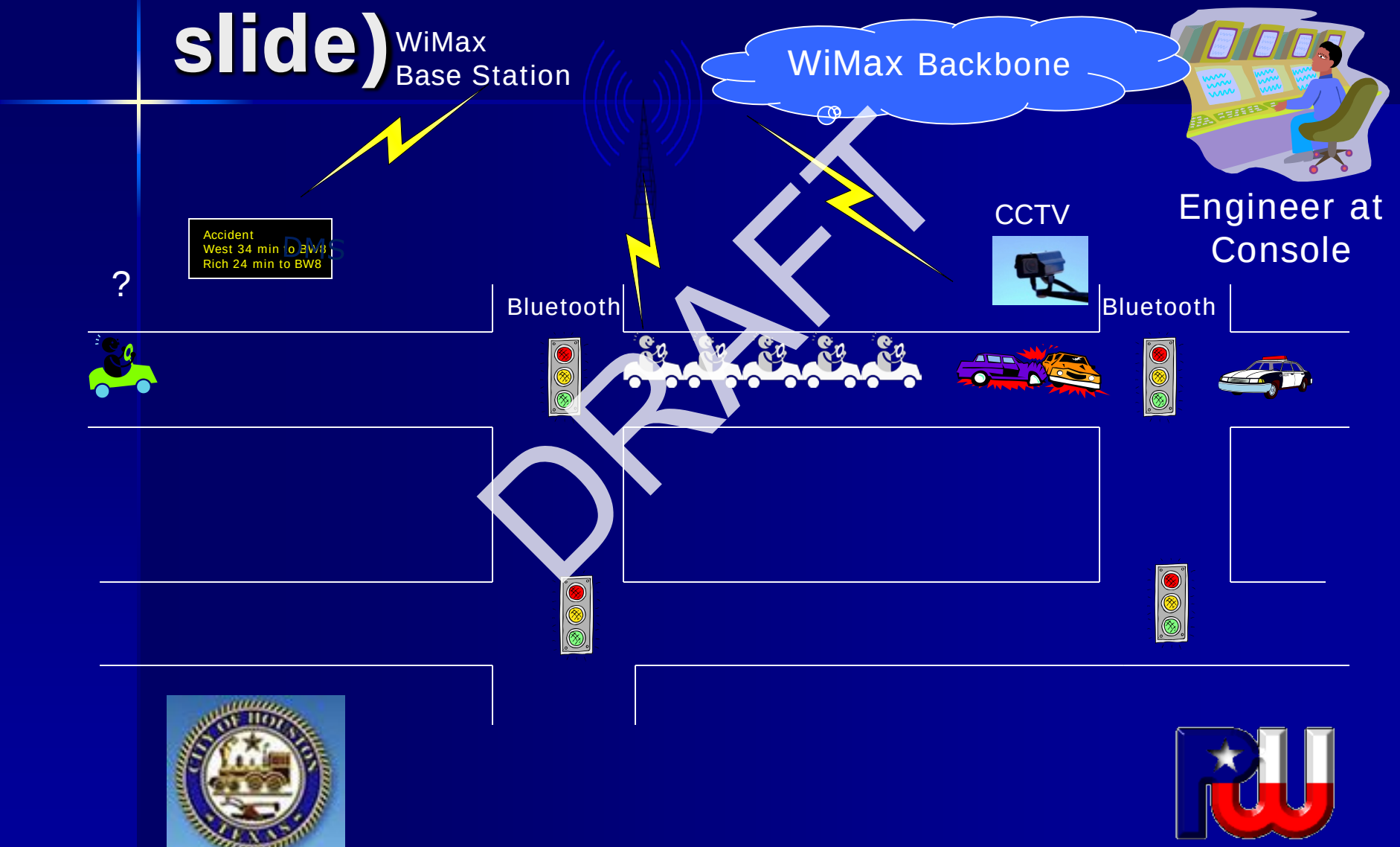
- At the same time, this is what drivers see in front of them

What are their options?

TIGER Project Concept

- Give commuter options
- Provide integrated traffic management system
- Operators and Engineers will:
  - Monitor traffic
  - Detect incidents
  - Make system changes based on real-time observations
  - Disseminate traffic information to Media and Public

How It Will Work (see alternate graphic on next slide)



What Has PWE Done So Far?

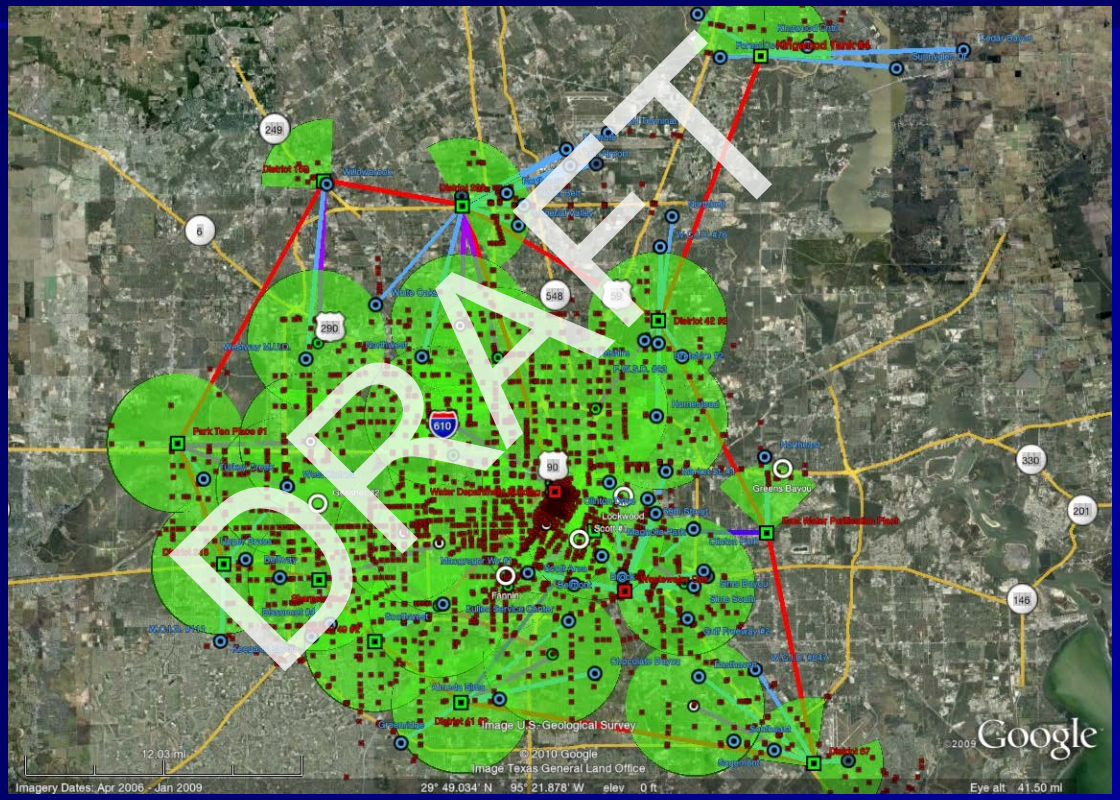
Communications Network

- Added 150+ miles of fiber optic cable across 450 traffic signals
- Added WiMax radios to 1,450 traffic signals
- Added Ethernet Over Copper to 300+ traffic signals
    - Primarily within the Central Business District
    - Upgrades are still underway

Extended Communications Network

- Fiber optic communications
- Licensed microwave network

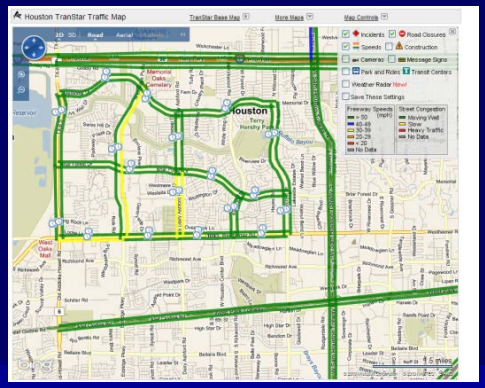
WiMax Communications



Accomplishments to date

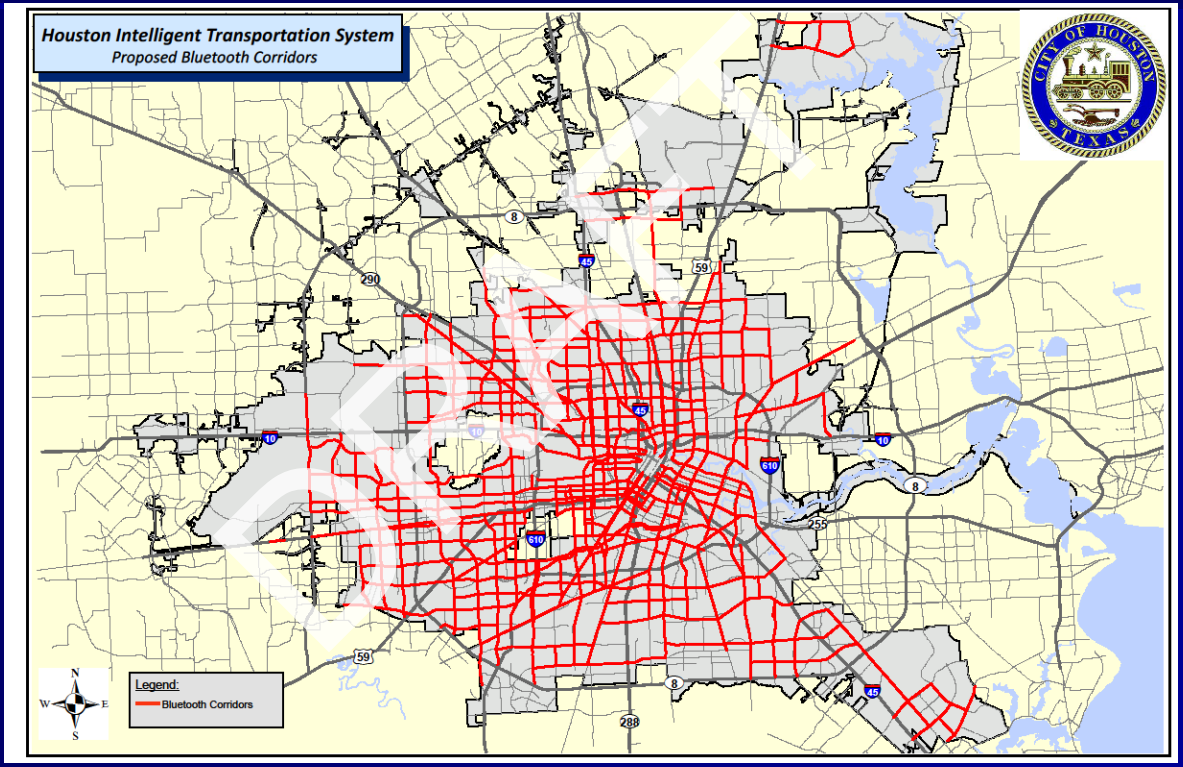
- Upgrade to 2070 advanced traffic signal controllers at nearly 2,000 intersections
- Completing upgrade of signal detection systems at 175 intersections
- Installed 15 midblock count/speed data stations as a pilot project
- Installed 25 pan/tilt/zoom closed-circuit TV (CCTV) cameras as a pilot project

Arterial Travel Times



- Data collected using Bluetooth readers
  - How system works
  - Pilot project started 2009 with 50 readers in West Houston
- Full deployment currently underway for city-wide coverage
  - 602 additional locations
  - 80% of funding provided through CMAQ Grant

Arterial Travel Times



What's Next?

- Replace arterial traffic signal management software
- System and controller software almost 20 years old
  - 8 MS Windows upgrades in same period
- City is currently in process of procuring new software
  - 80% of funding is through CMAQ Grants
  - Contract expected to go to Council in August or September

TIGER Project

- 72 projects awarded in 2014 TIGER call for projects
  - 1 of 2 projects awarded in Texas
    - Other was planning project, not implementation
- Project provides for implementation of field devices throughout City
  - 113 additional pan/tilt/zoom CCTV cameras
  - 144 additional mid-block count/speed data stations
  - 91 arterial dynamic message signs
  - 489 additional intersection detection upgrades

ITS Project Investment

- Completed Investment — $20 Million
(Intersection Upgrades, Communications, Pilots)

- Projects Underway — $6 Million
(Software and Arterial Travel Time Deployment)

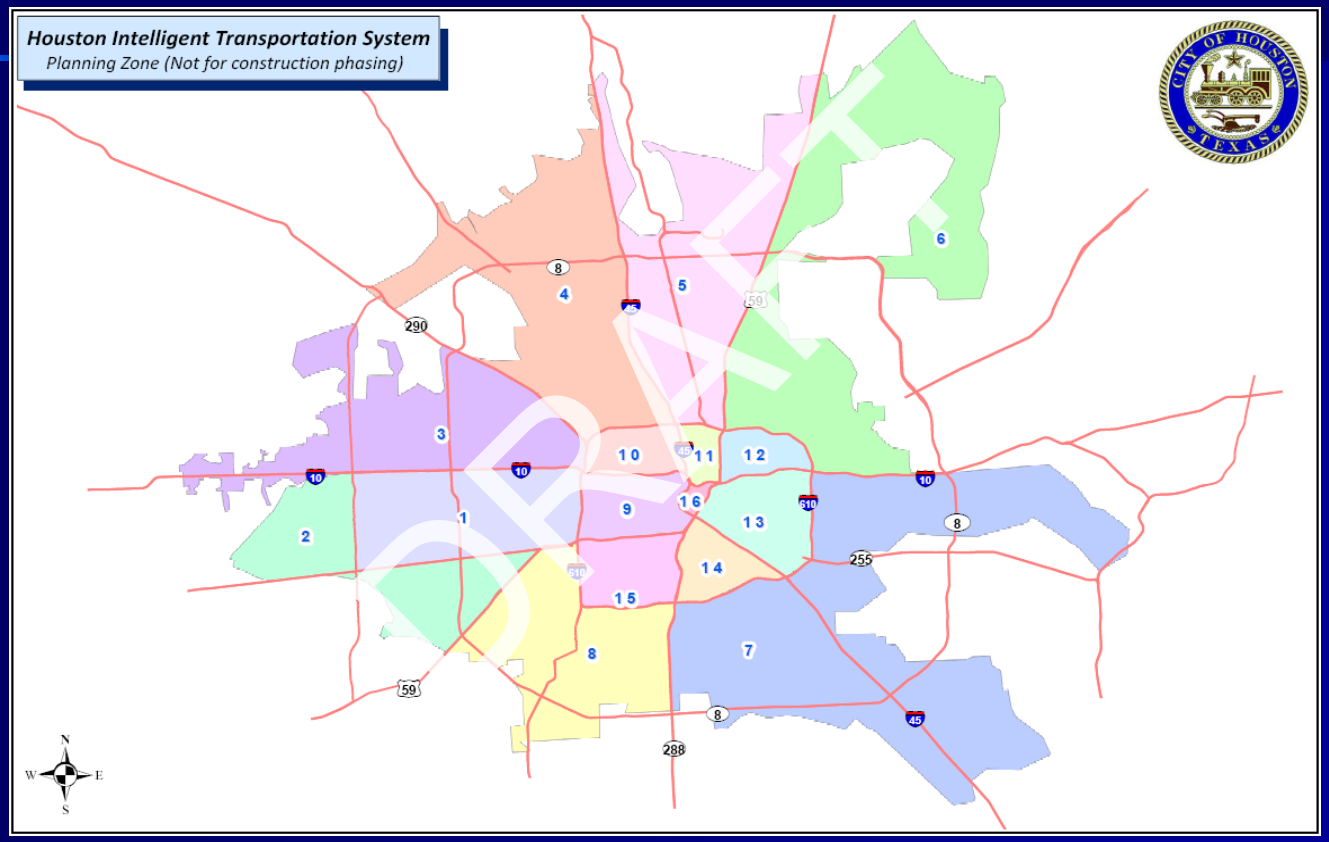
- TIGER Project — $24 Million
  - Federal Investment - $10 Million
  - Local Investment - $14 Million

- Total Investment (since 2009) — **$50 Million**

TIGER Project Schedule

- Federal dollars must be obligated by September 2016
  - RCA for agreement with FHWA in August/September 2015
- TIGER funds must be expended by September 2021
  - Expect RFP to be released in early Fall 2015
  - Design/build RFP process
  - Construction slated for FY16, 17 & 18

TIGER Deployment Plan



Questions?