Transportation Data Potpourri in Frisco Part 2

TexITE Joint Dallas-Fort Worth Section Meeting
May 11, 2018

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City of Frisco

Overview

- Signal Performance Measures
- Signal Data Sharing
- Waze Traffic Data
- Closest To Dispatching
- Autonomous Vehicles
- What's Next For Frisco?

We are hiring!

- Opening for traffic engineer to help with signal timing and operations, data sharing, ITS design and implementation, and traffic safety
- click here for job opening information

Traffic Signal Data Sharing

- SPaT (Signal Phase and Timing) Data
- Shared by two methods
  - DSRC radio – directly from controller to vehicle
  - Third party – gather data from controller or signal system and send to vehicle or app by cellular connection

5G

4G LTE

Traffic Signal Data Uses

- Safety
  - Red Light Running
  - Collision Avoidance
- Efficiency
  - Engine Management
  - Energy recapture
- Driver Information
  - Can reduce stress with knowledge

Frisco's Current Traffic Signal Data Sharing

- Agreement with Traffic Technology Services (TTS)
- TTS partnered with Audi of America
  - Audi Traffic Light Information Service launched December 2016 in Las Vegas
  - Service launched in Frisco June 2017
- TTS working with other OEMs

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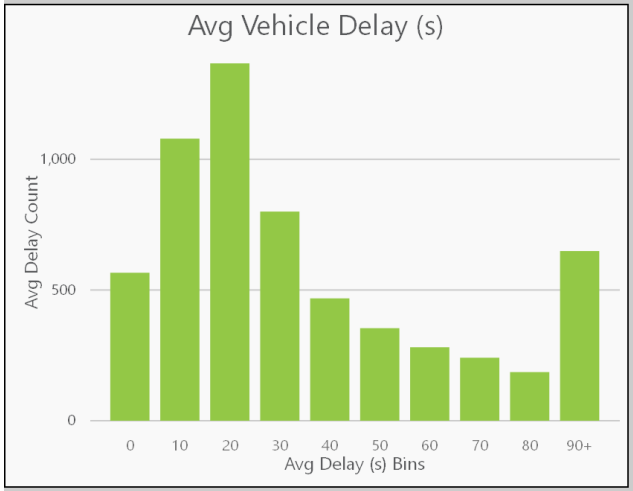
Traffic Signal Data Sharing

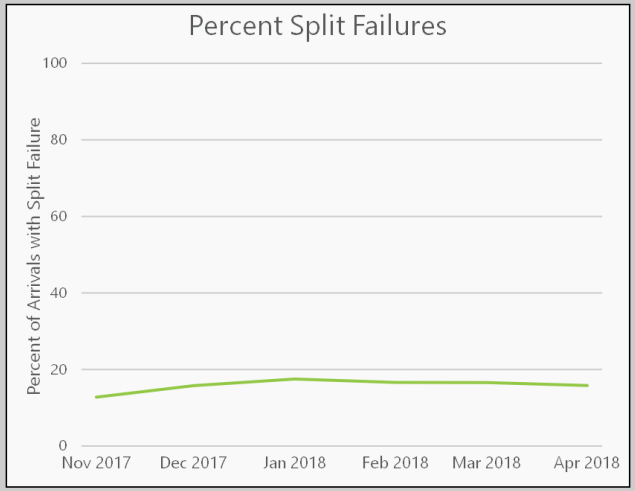
Status of Other TTS Users

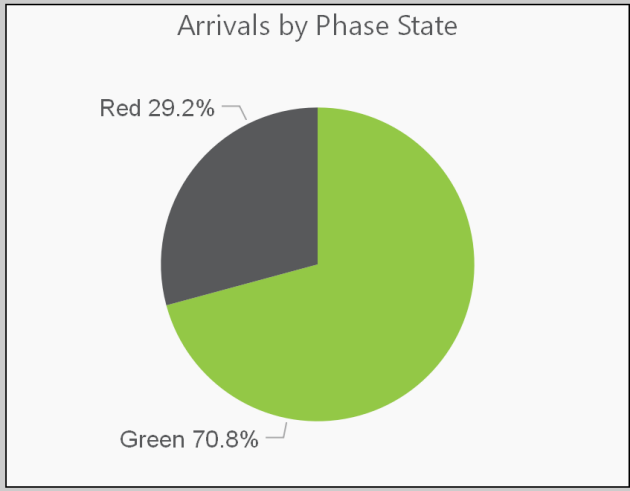
- Texas
  - Grapevine, Flower Mound, Arlington, and Grand Prairie are onboarding
  - Sugarland is up and running
- Other Cities with live data to Audi vehicles
  - Las Vegas Metro, Portland Metro, Palo Alto, CA, Arcadia, CA, and Washington, DC

Output from Audi

Key Performance Indicators







40.74
Vehicle Avg Delay (s)

666.60
Max Vehicle Avg Delay (s)

29.80
Median Vehicle Avg Del...

16
Avg Split Failure Percent

18
Max Split Failure Percent

Green
5154
Total Arrivals

Red
2126
Total Arrivals

Intersection	Date	Day Group
All	All	All

Output from Audi

- Preston and Gaylord – Monday through Friday, 4pm to 6pm, March and April 2018

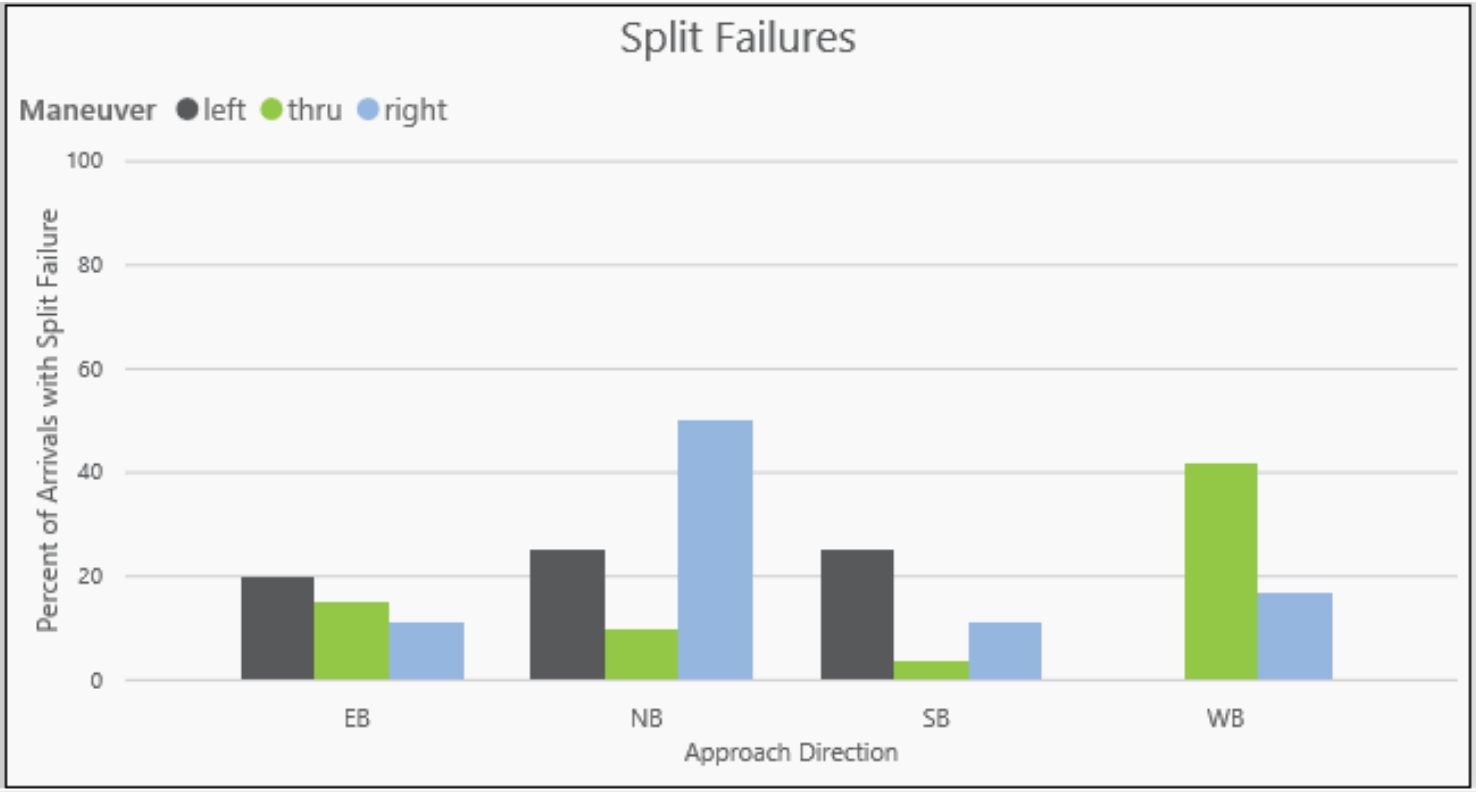
253
Arrivals

51.24
Avg Vehicle Delay (s)

12,964.40
Total Vehicle Delay (s)

11
Percent Split Failure

34.33
Avg Speed (mph)



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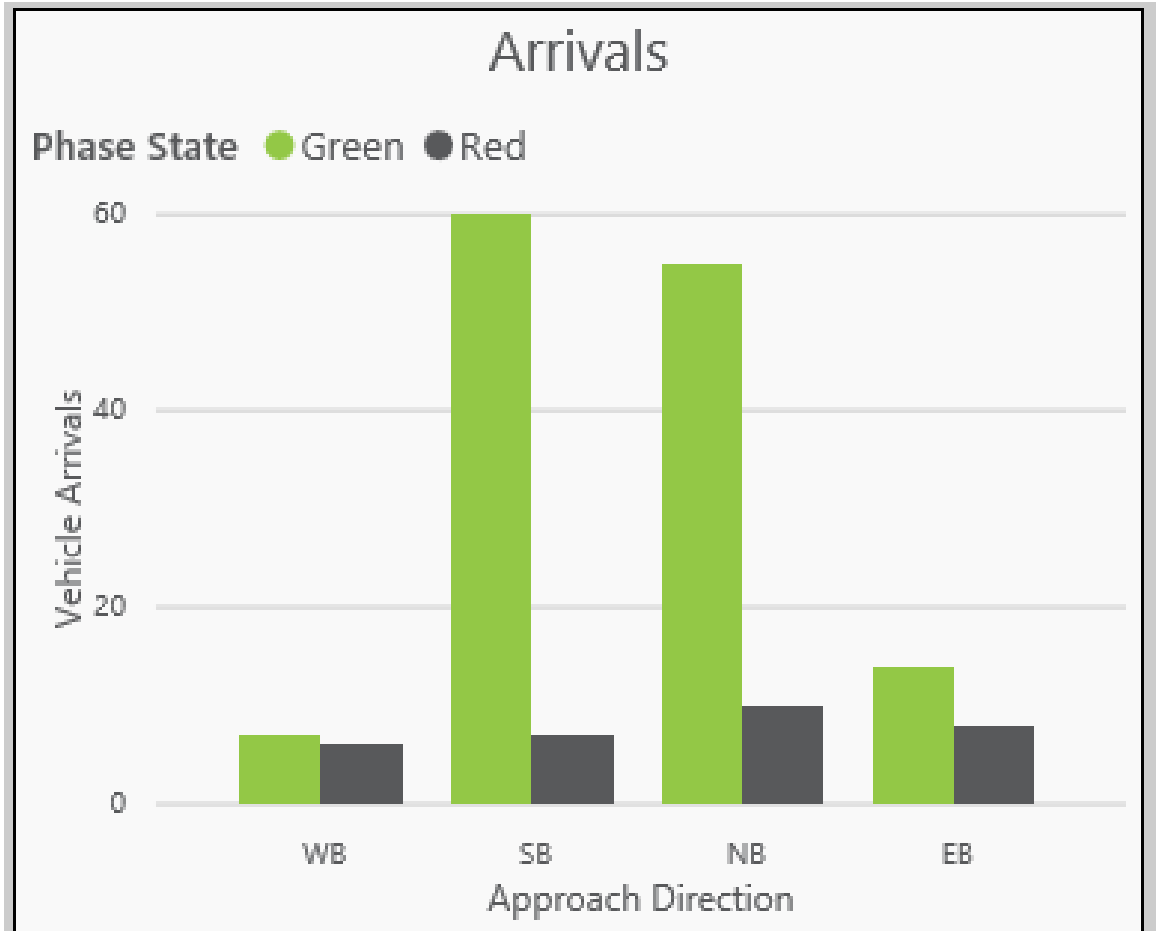

Waze/511 DFW Data Sharing

- Joined Waze Connected Citizens Program
  - Allows for two-way data exchange between Agency and Waze
  - Many other cities in DFW joined as well as TxDOT
- NCTCOG Grant – Round 1
  - Implemented two-way data exchange
  - Purchase ESRI GeoEvent Server

What are we sending/receiving?

- We send vehicle major and minor crashes, motorist assists, debris reports, and emergency closures reported by police dispatch
- Share planned road closures through web portal
- Post Waze data on Computer Aided Dispatch Maps

Dispatch Example

An example where it helped us today was a MVA. One caller gave one location, a second caller gave a different location, and a WAZER marked it while they were passing by. The WAZER had the correct, exact location of the accident.

A WAZER may not necessarily call, since they are driving and don't want to be on the phone, but wants to let all other WAZERS know about the situation. Once they hit the button on the WAZE map, it marks it using Lat/long information. All they have to do is push the button. They don't have to type anything. I believe the new update they just had has added voice commands, so they now don't even have to push a button, they can just speak.

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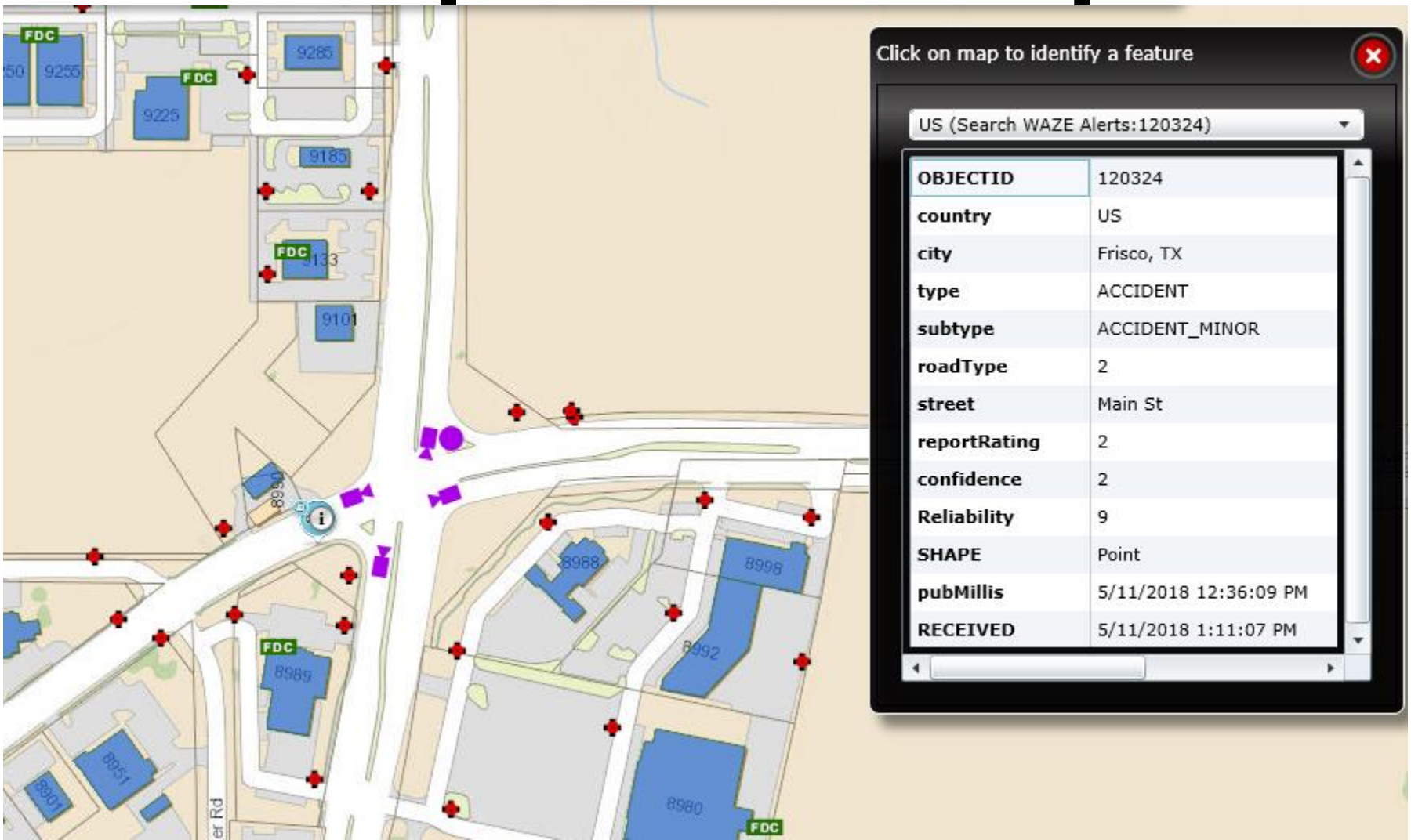
Dispatch Example



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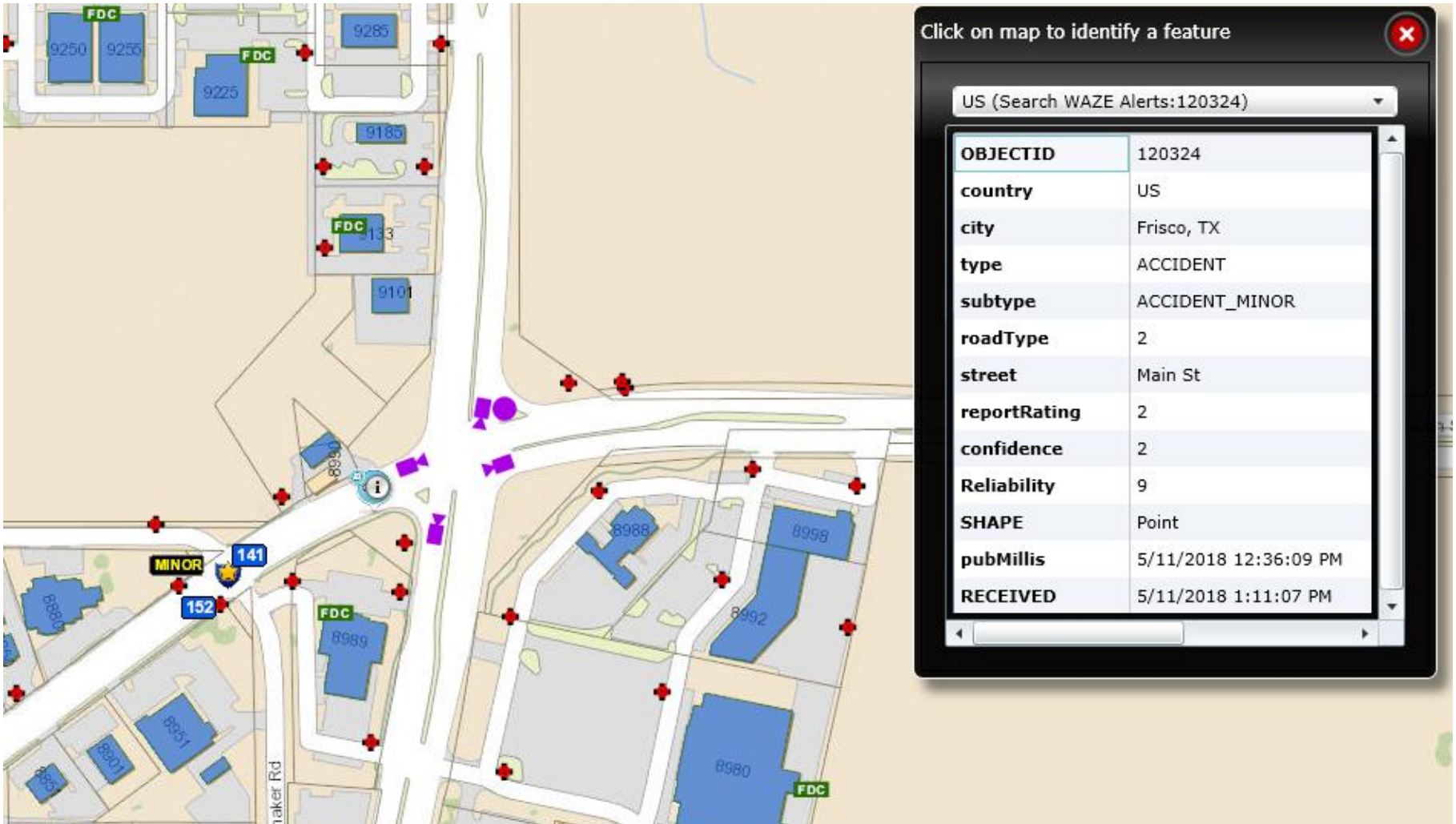
Dispatch Example



Dispatch Example

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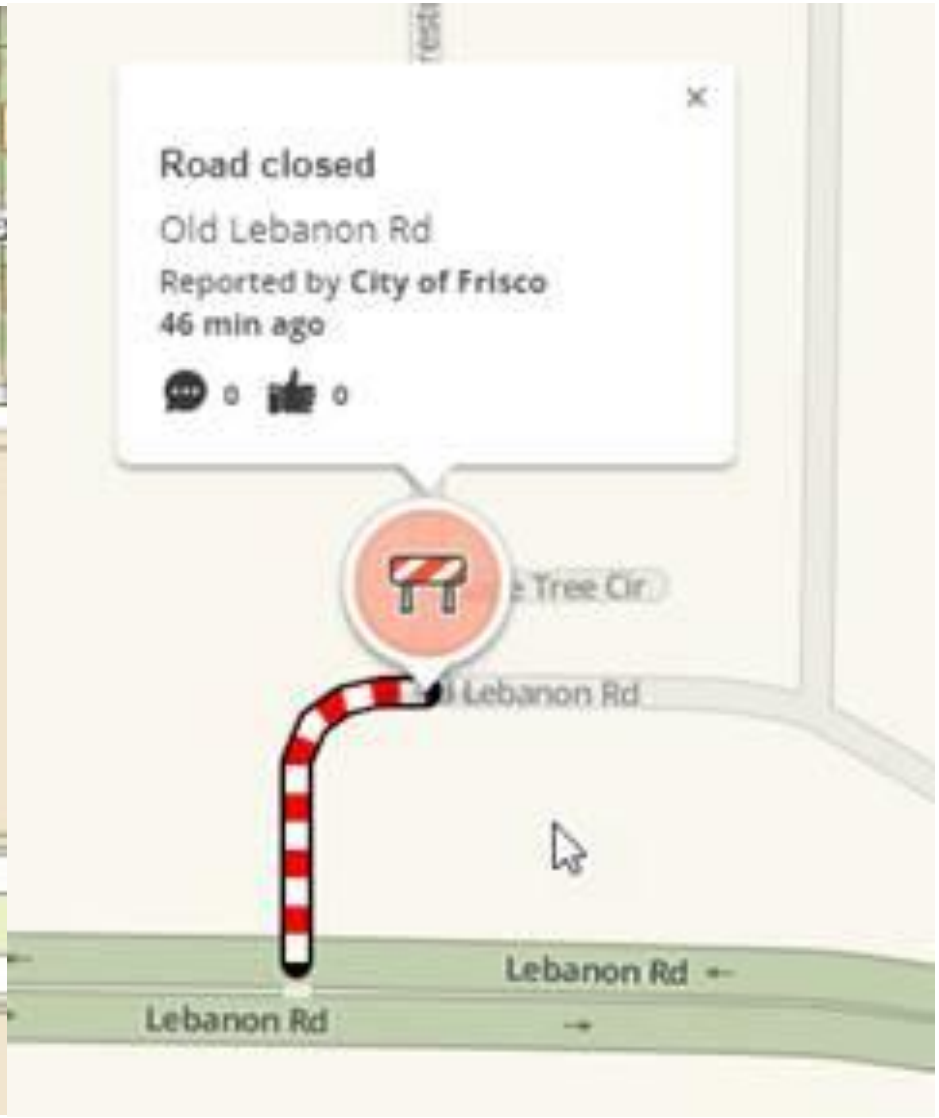
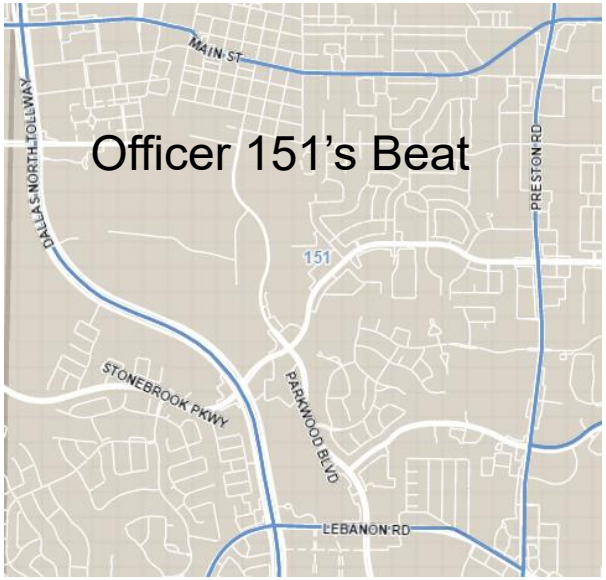


12676
12652
12628
121
144
MINOR
Buckeye Dr
Glademeadow Dr
12580
12530
12490
12577
12545
12513
Minor Accident
Buckeye Dr
MINOR
Reported by City of Frisco
18 min ago
0
0
Capri Dr
Patto
Sedali
Sexto
Deep

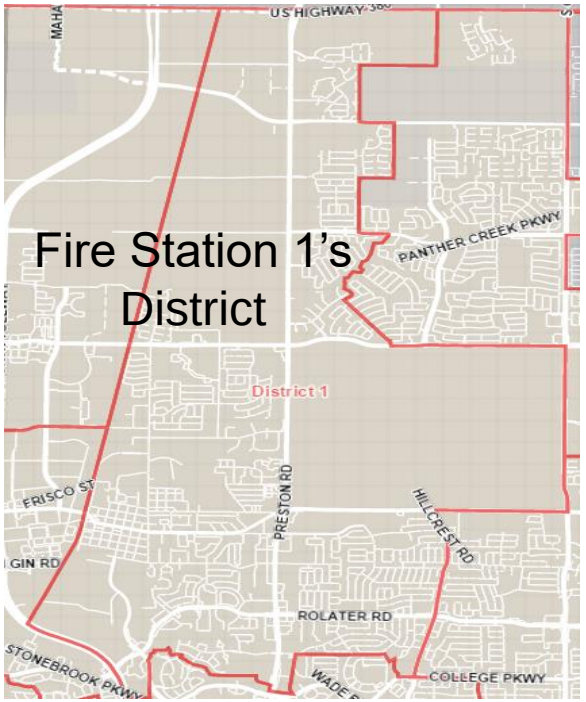
Closest To Dispatching

- Helps Fire/Police reduce response times
  - 20% time reduction for priority 1 calls
- Funded by Regional Freeway Incident Management Program
- Less time – reduce impact on traffic
- Improves safety - public and responders

Traditional dispatching methods

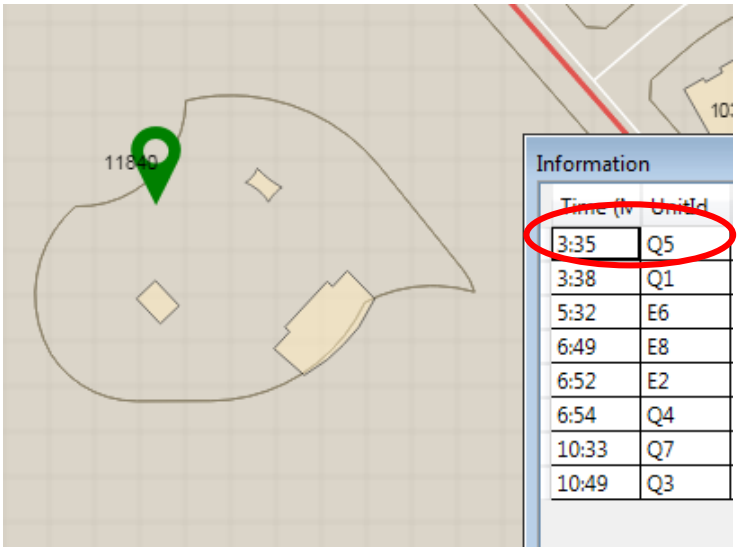


- Historically what police unit or fire apparatus is sent to a call is determined by what district they are assigned to
- These can be large areas and the unit or apparatus can be located anywhere within that district
- They may not even be in their district



Example

- With Closest To Dispatching, the unit or apparatus that is closest to the emergency call, based on GPS data, and has the best response time, responds to the call, no matter what their district assignment.
- In this case the call is in District 1, but Quint 5 (Q5) is actually closer so would be dispatched to the call



Results of CTD on Response Times

- FD Response Time December 2016 - 8:28
  FD Response Time December 2017 - 8:02 (-26 Sec)
  FD Response Time January 2017 - 8:39
  FD Response Time January 2018 - 8:26 (-13 Sec) **

** January 2018 had approximately 25% more calls vs January 2017

Results of CTD on Response Times

- PD Priority 1 response Times December 2016 - 5:19
  PD Priority Response Times December 2017 - 4:40 (-39 Sec)
  PD Priority 1 Response Times January 2017 - 6:17
  PD Priority 1 Response Times January 2018 - 5:17 (- 1 minute)

Autonomous Vehicle

- Formed Frisco TMA
  - Frisco, DCTA, Hall Park, The Star, Frisco Station
  - Find next generation transportation solutions
  - Allow for collaboration
  - Accelerate deployment

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- Six month pilot begins July 2018

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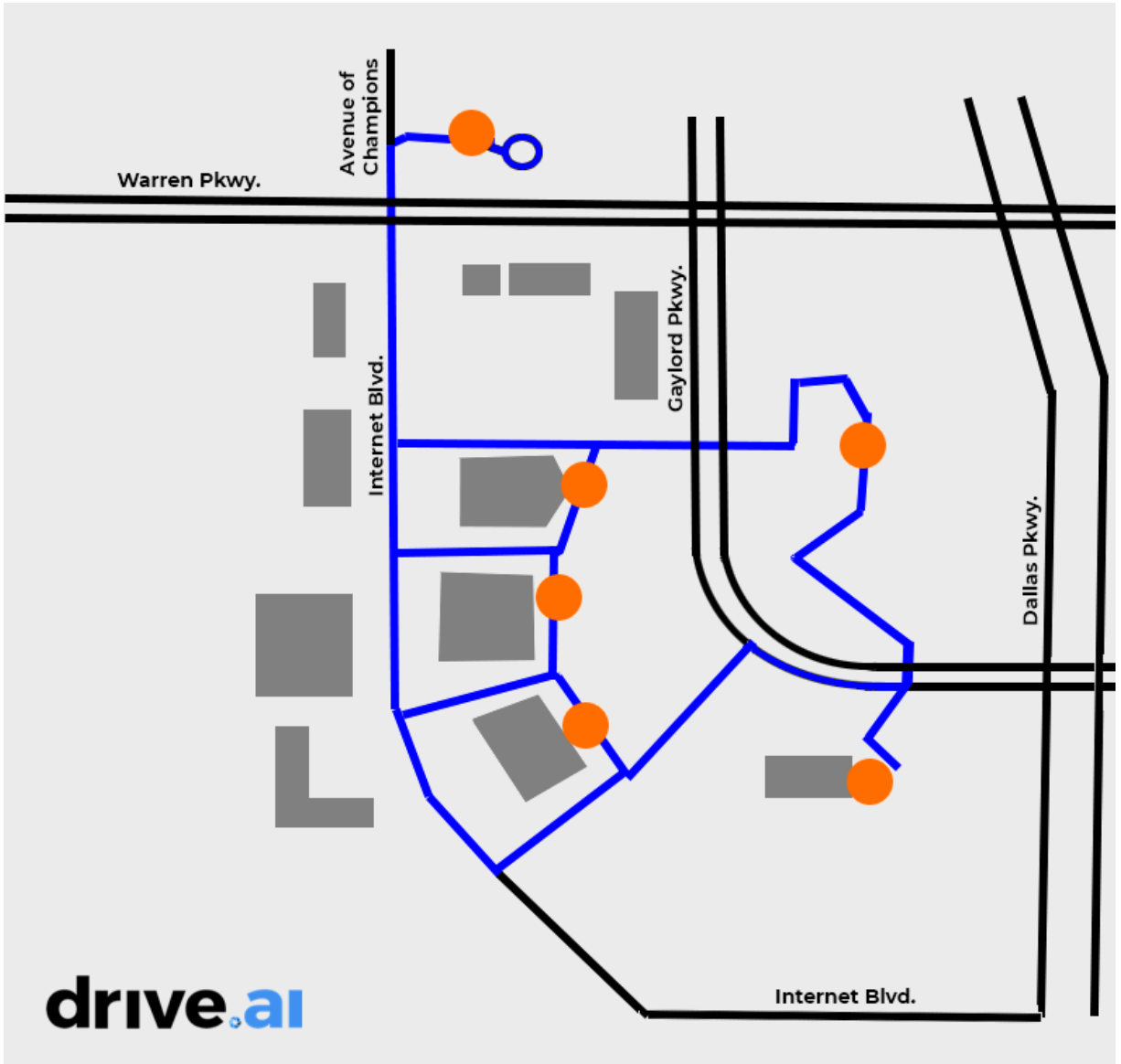

- Click for video

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Learn from Deployment

- Will people use it?
- Educate public?
- How well does it work?
- Can it improve safety?
- Site development/zoning issues
- On demand, fixed route, other
- Can it reduce traffic or will it make more?
- Future deployments?

What's Next?

- Complete adaptive traffic signal control pilot
- Complete implementation of automated signal performance measures
- Waze – identify camera feed based on crash location, create a dashboard summarizing reports from feed
- Install DSRC units to test with AV pilot
- Further development and use of Audi data
- Study of AV deployment acceptance

Other Information

- Contact me if you want to tour our operations center
- Follow Tom Bamonte on Twitter, NCTCOG Senior Program Manager, Automated Vehicles
  - ThomasBamonte@TomBamonte

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Questions

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