



23<sup>rd</sup> SAME Infrastructure Forum

# Improving Roadway Safety Through Innovative Technology

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# North Texas Tollway Authority

- Political subdivision of Texas
- 1,194 lane miles in North Texas across five roads, two bridges and a tunnel
- 14 million customers per year



# Traffic & Incident Management



**Roadside Safety Services**



**Traffic Engineering**



**Safety Operations Center**



**State Troopers**



**Safety & Emergency Management**



**Insurance**



**Traffic Incident Management**

A photograph of a citation form from the Texas Department of Public Safety. The form includes a header with the department name and logo, a date field (March 7, 2008), and various fields for driver information, vehicle details, and violation information. The violation listed is "SPEEDING 35 PERCENT ABOVE POSTED SPEED LIMIT IN". There is a "VIOLATIONS" section and a "WARNINGS" section at the bottom.

**Citations**

# Roadway Capacity Reductions

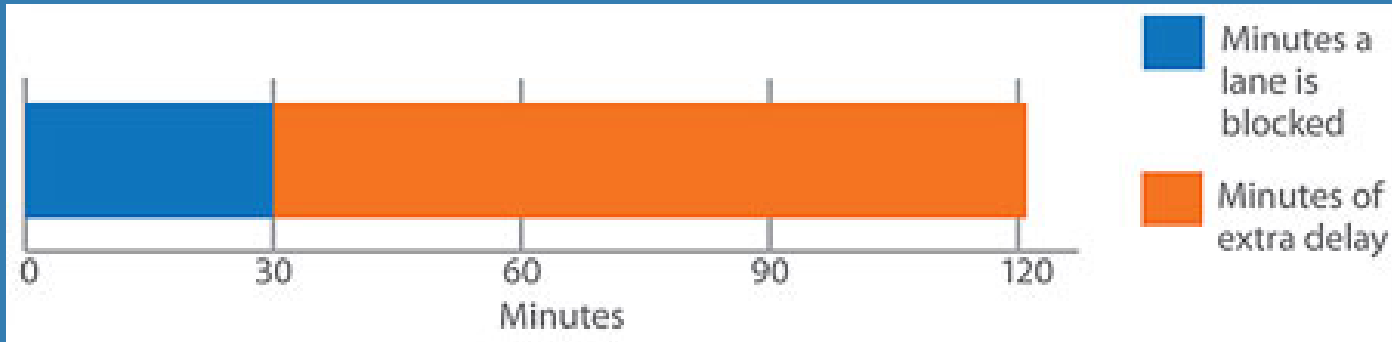
On a three-lane roadway closing,  
one lane reduces the capacity to 49%

Number of Lanes	If Shoulder Blocked	Lanes Blocked		
		1	2	3
3	83%	49%	17%	0%

Studies indicate that the likelihood of a secondary incident increases 2.8% for each minute that a lane is blocked

**Lanes  
Blocked =  
Delay**

**1 Minute = 4 Minutes**



Source:  
U.S Department of Transportation  
Federal Highway Administration  
Traffic Incident Management Outreach Toolkit

# Safety Operations Center

## Dispatch:

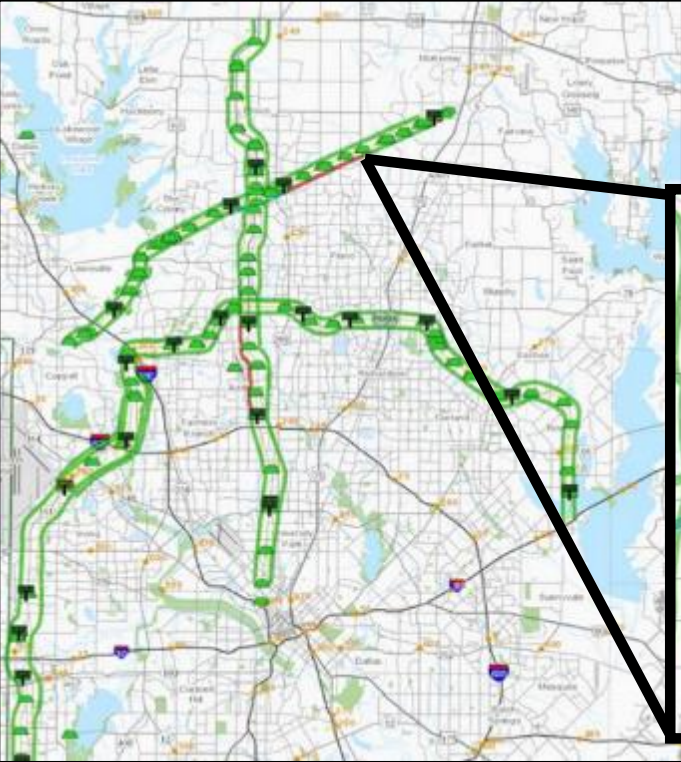
- NTTA Resources
- Contractors
- DPS Troopers

## Detection:

- Stranded Vehicles
- Debris
- Wrong-Way Driver



# Travel Time Sensors



# Camera Configuration

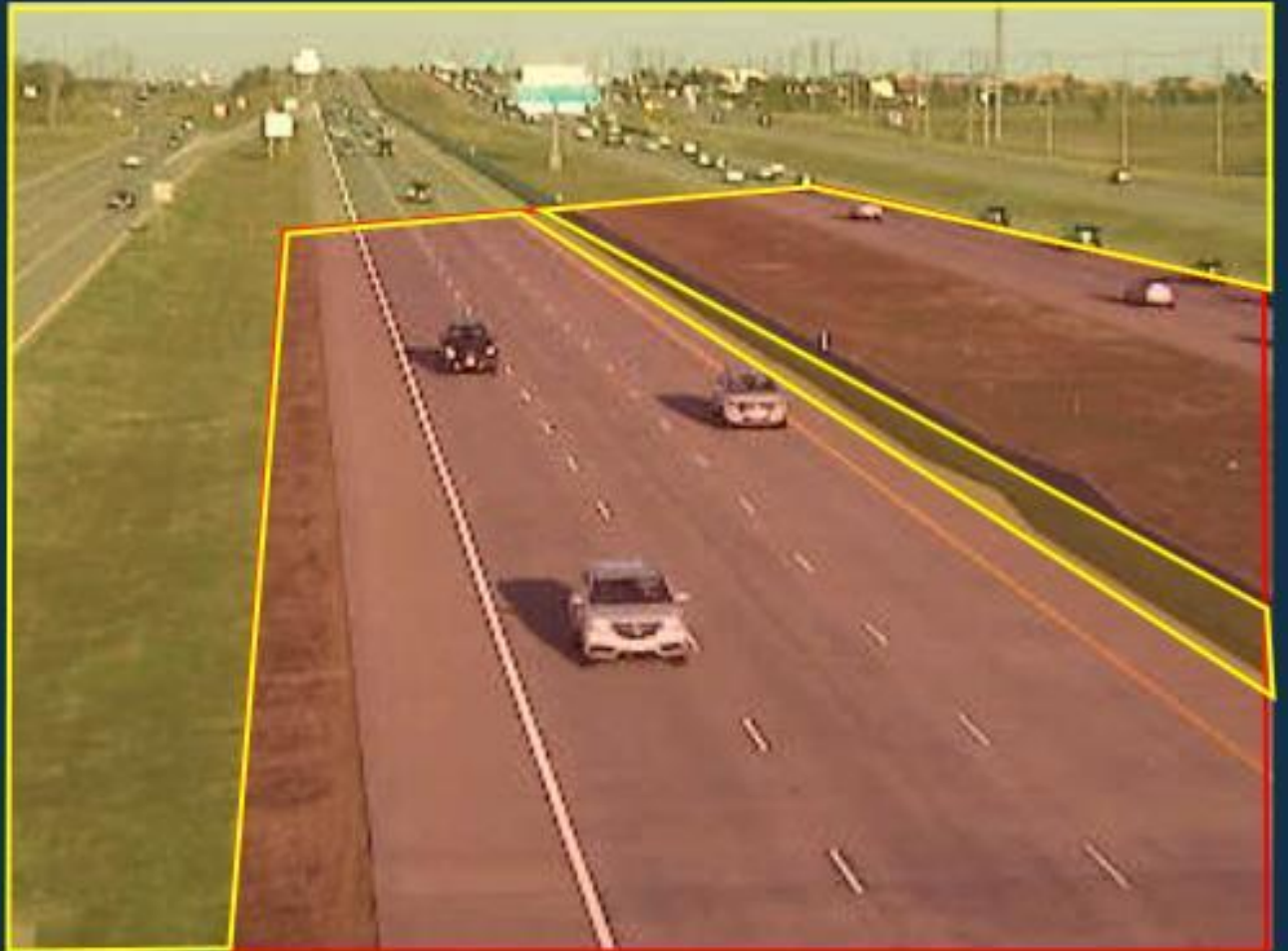


One pan-tilt-zoom camera for assessment and verification

Four fixed cameras for incident detection



# Camera – Content Analysis View



# Camera Alerts



# Alerted By The Public - Waze





In 2023 there were

**50,265** calls for service



**17 minutes**  
average total call time



**10,164**  
Road debris cleared

**35,238**

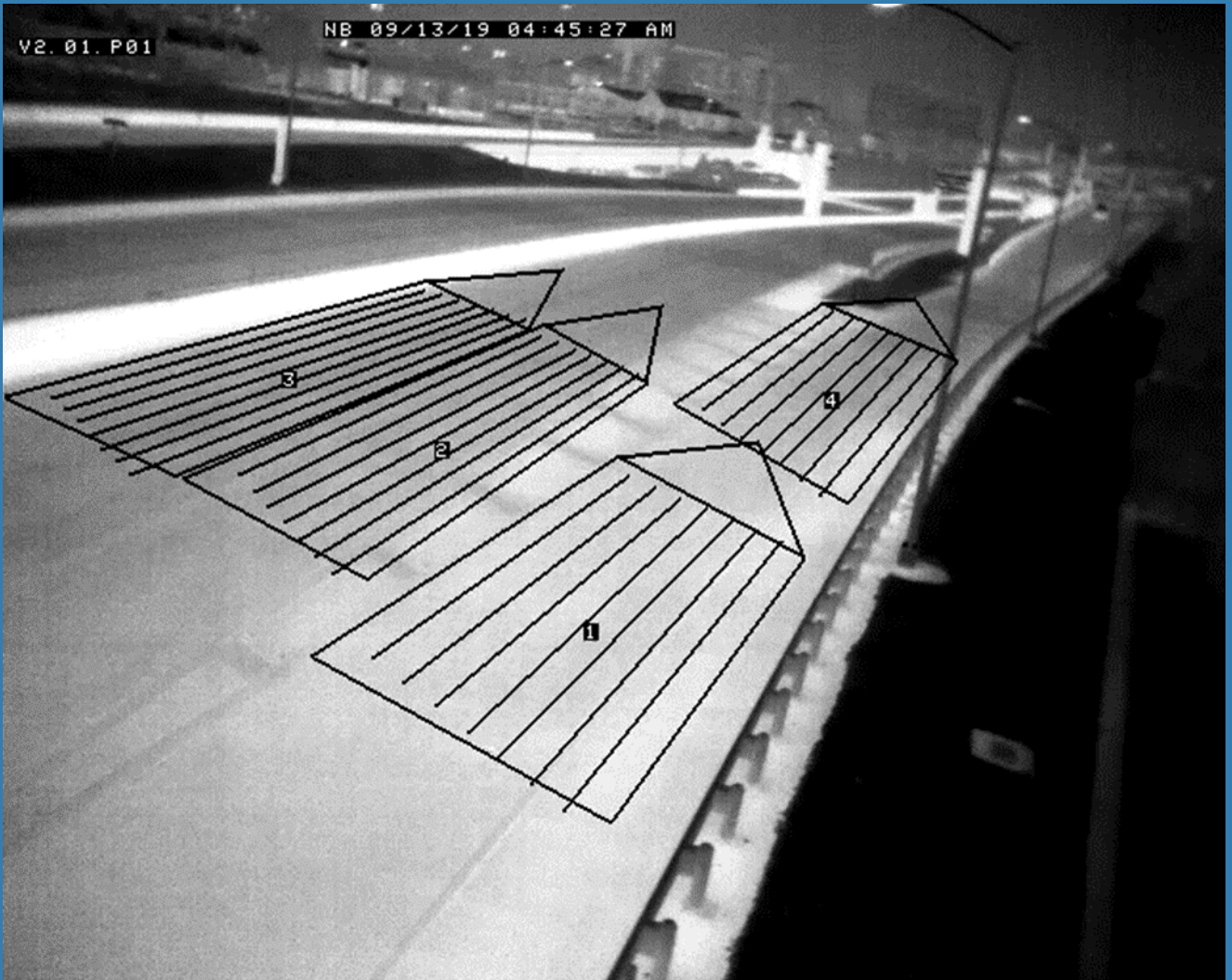
Motorist assists



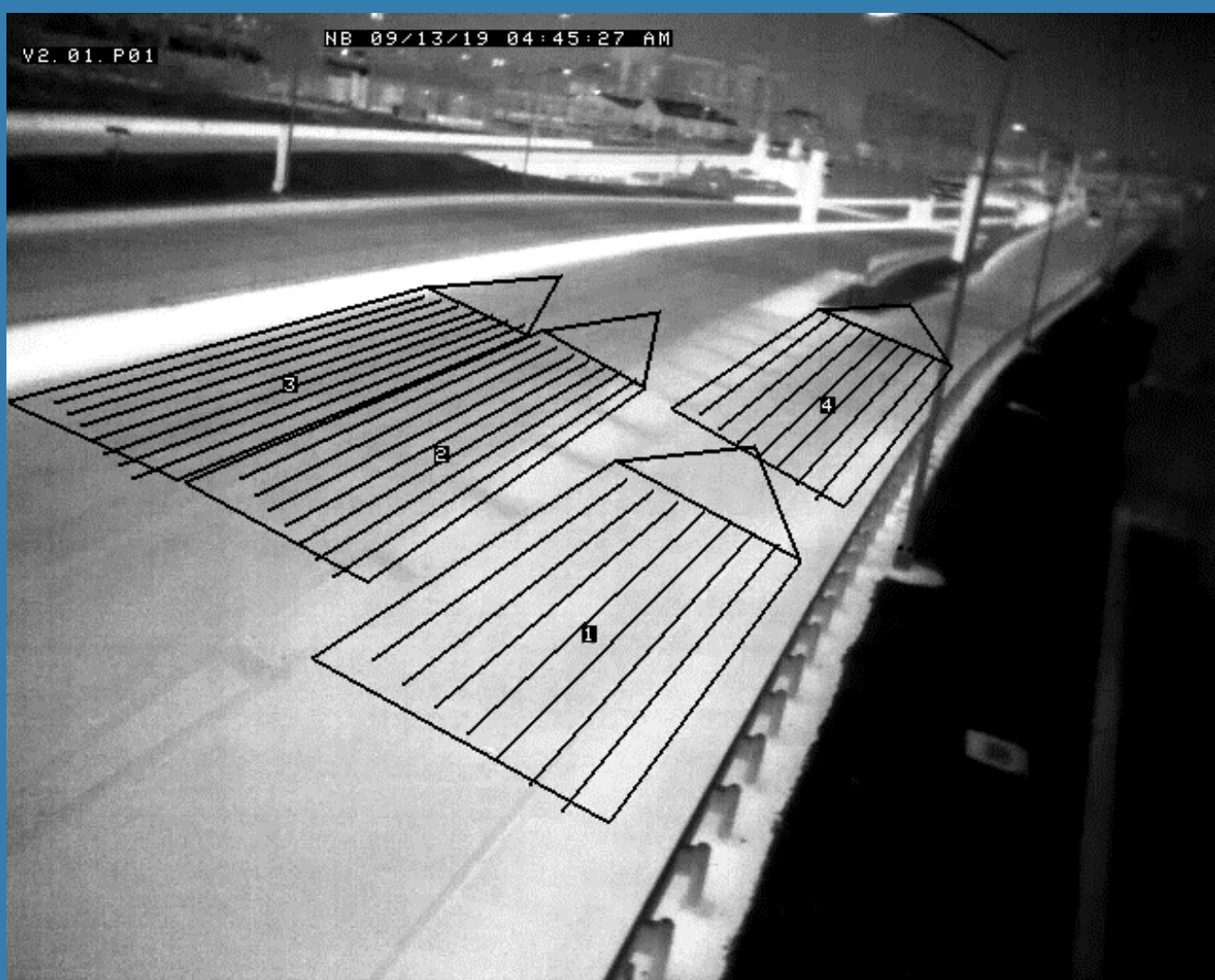
# Thermal Cameras



# Thermal Cameras



# Thermal Cameras



# WWD Toll Gantry Detection






# SOC – Wrong Way Driver Alert

WWD ALERT - 3:42:09 PM

**WWD Detection**  
MOCKINGBIRD\_EXIT RAMP  
North in South Lanes  
2 MPH

**Video Clip**

Zone	Dir	Speed	Truck	Ward
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0



**Near Cameras**  
D1 PTZ MOCKINGBIRD SB  
ITS D1 LOVERS LN SL  
ITS D1 LOVERS LN SS  
ITS D1 S OF NORTHWEST HWY NS

Dismiss Confirm View On Map

# ACTIVATED SIGNS



# ACTIVATED SIGNS



# SOC NOTIFICATION



# SOC NOTIFICATION



**WARNING  
WRONG WAY DRIVER  
REPORTED AHEAD**

**ACTIVATED DMS**



**WRONG WAY DRIVER**



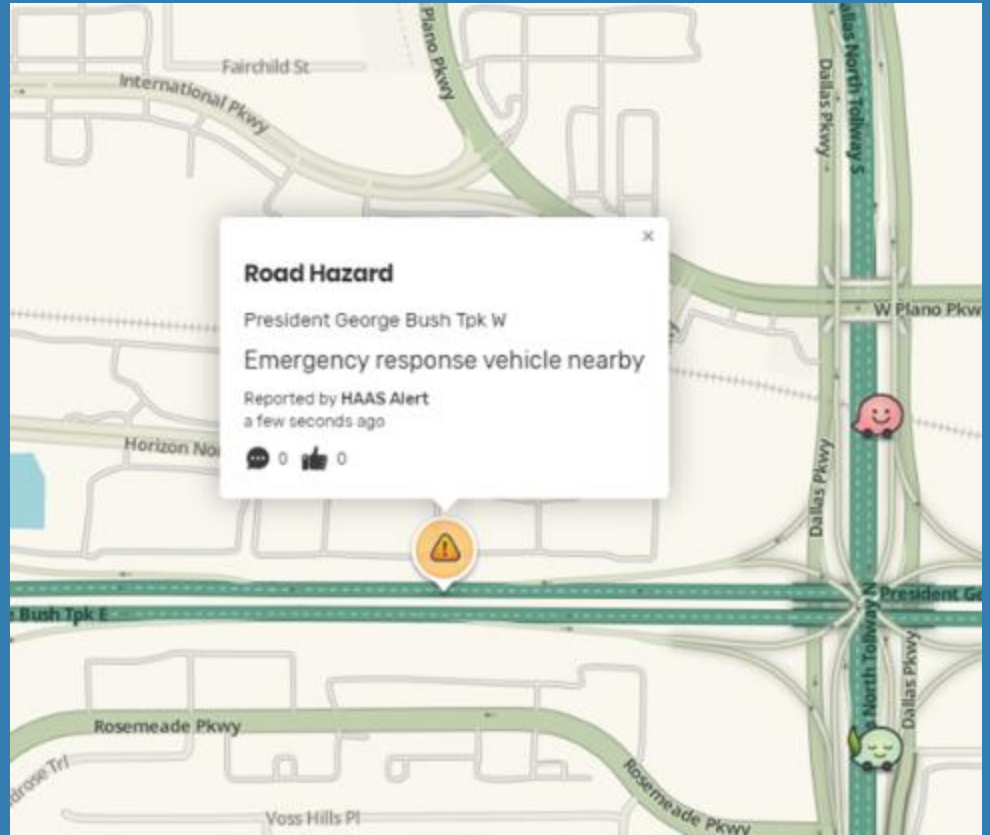
**WRONG WAY DRIVER**



# Dynamic Message Signs



# Alerting the Public



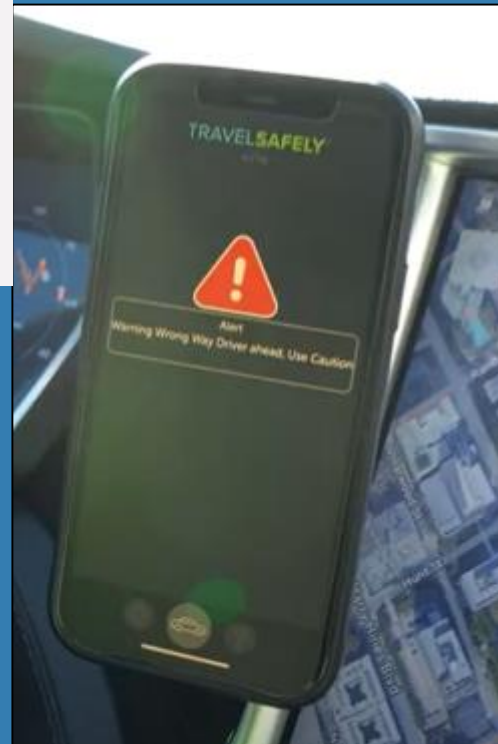
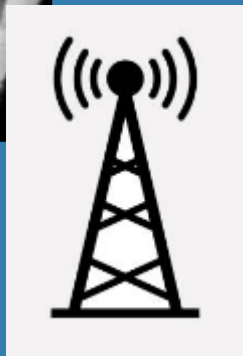
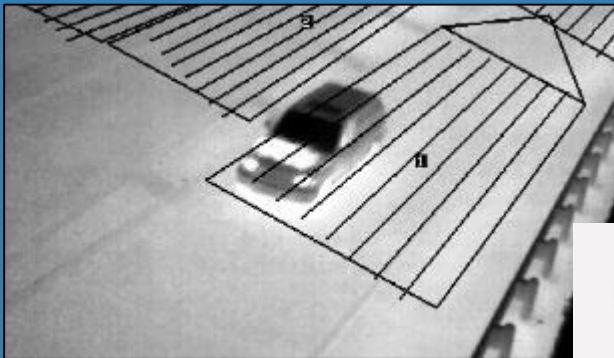
# Queue Warning



# Queue Warning



# Wrong Way Driver App



Thank You  
For Driving  
With **NITTA**

Questions?