

Winter Weather Solution

Technical Solution developed by
Emma Rengifo and Jacob Pearson

10/10/2025

North Texas Tollway Authority

- Political subdivision of Texas
- Only build what the region asks us to build
- Customer driven
- Not funded by taxes



NTTA System



**360
Tollway**



**Addison
Airport Toll
Tunnel**



**Chisholm Trail
Parkway**



**Dallas North
Tollway**



**Lewisville Lake
Toll Bridge**



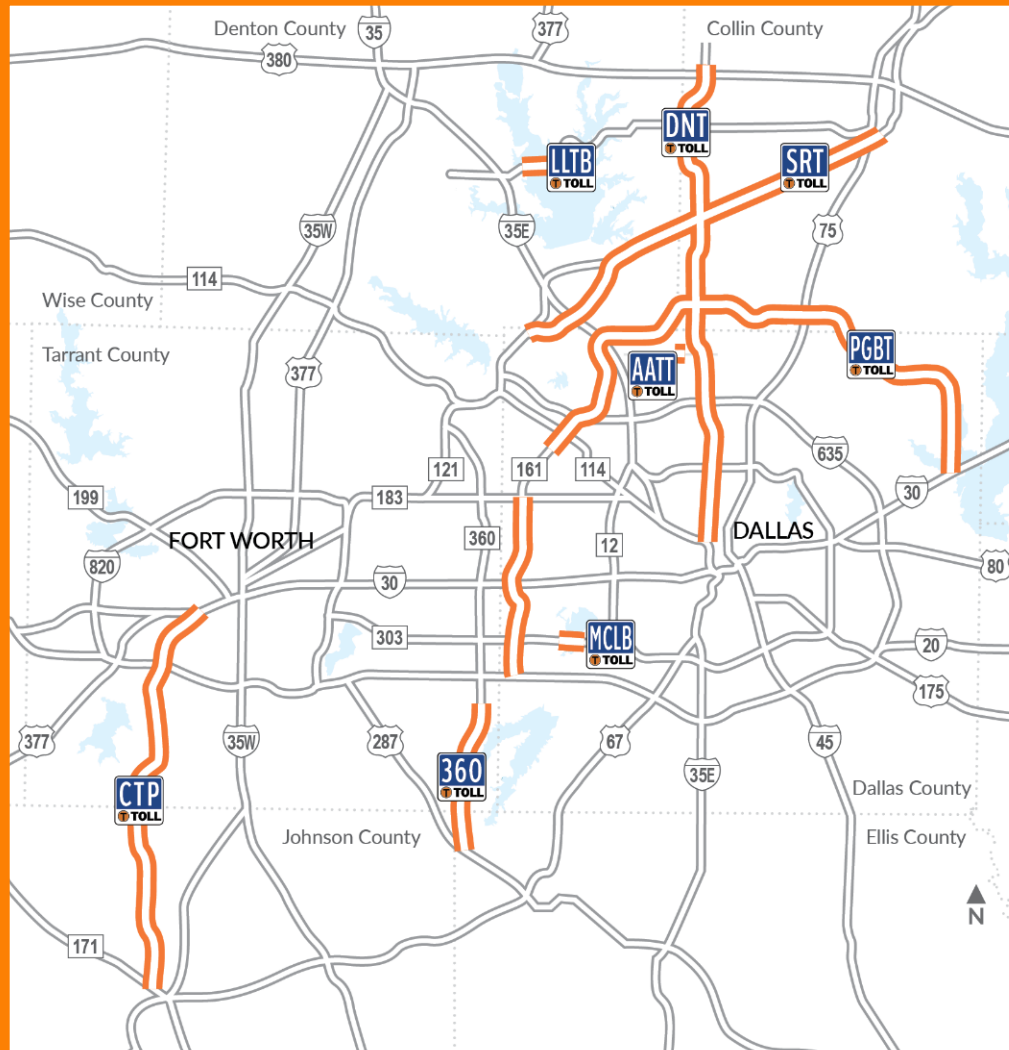
**Mountain Creek
Lake Bridge**



**President
George Bush
Turnpike**



**Sam Rayburn
Tollway**



Project Overview - Maintenance

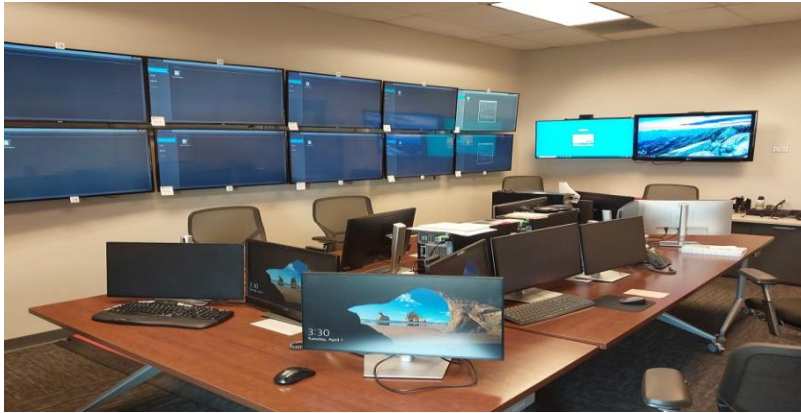
The Maintenance Department Oversees:

- 1,000+ LM of high-speed facilities, 365 LM elevated
- 97 Pre-set routes
- 24/7 operations, 12-hour shifts
- 100+ equipment, 14 stockpiles
- Nearly 300 personnel



Project Overview - MEOC

Inside the Maintenance Emergency Operations Center (MEOC)



Project Overview – GIS Collaboration

The Challenge:

Liaisons needed a centralized, map-based system to manage calls, and track equipment in real time.

The Solution:

A GIS-integrated application that allows:

- ☐ Real-time spatial tracking of incidents and resources
- ☐ Streamlined coordination across teams
- ☐ Improved reporting and decision-making

The Result:

Faster response, better situational awareness, accurate post-event reporting, and more efficient operations during critical weather events.

Application Overview

Snow & Ice Event App

GIS-based solution for real-time tracking and reporting during inclement weather events.

- Enables full visibility into:
 - Event status
 - Vehicle operations
 - Material usage
 - Field communications



Technology Stack

- Front-End: ArcGIS Experience Builder
- Data Collection: 5 Surveys via ArcGIS Survey123
- Reporting: ArcGIS Insights (PDF summaries post-event)
- Data Analytics: ArcGIS Velocity

Demo: Create A Call

The image is a screenshot of a web application interface for managing snow and ice events. The top navigation bar is dark blue with white text and icons for 'Change Condition', 'Select Event', 'Manage Event Log', 'View Shift Schedule', and a help icon. The main content area is divided into several sections. On the left, there's an 'Event Call List' showing a table of calls with columns for date, time, shift, and condition. Below this is a 'Create A Call' button. In the center, a large modal window with a blue header 'SNOW AND ICE EVENTS' is overlaid on a background image of a highway interchange. To the right of the modal, there's a 'Create A New Event' section with a 'Select an Event Below' dropdown. Below the dropdown, there's a list of events with columns for date, time, number of calls, and vehicles. A mouse cursor is hovering over the event for 2/18/25. On the far right, there's a 'Down Vehicles' section with a large number '11' and a 'View' button. The bottom of the screen shows a map of Gainesville, FL, and a 'Fleet Shop' section with a table of vehicles.

Demo: Edit Call

Snow and Ice Event

[Change Condition](#)
[Select Event](#)
[Manage Event Log](#)
[View Shift Schedule](#)
[?](#)

Event Call List

2/18/25, 12:00 PM -
Current Shift: Shift 1
Current Condition: Yellow

Create A Call

Sort Date

- Caller: Gibron Ledbetter
Call Type: CALL - Employee Call [Edit Call](#)
- Caller: Greg
Call Type: For Information [Edit Call](#)
- Caller: Test
Call Type: MAT - Material Request [Edit Call](#)

Down Vehicles

2


Fleet Shop: Plano
Status: Long Term Down
Vehicle Number: 15101
Stockpile: DNT/PGBT
Truck Size: Small Truck [View](#)

Fleet Shop: Frisco
Status: Long Term Down
Vehicle Number: 9318
Stockpile: SRT/DNT
Truck Size: Big Truck [View](#)

Event Table					
Start Date	End Date	Number of Calls	Material	Number of Vehicles	
2/18/25, 12:00 PM		3		321	

Last update: a few seconds ago
Total: 1 | Selection: 1
Last update: a few seconds ago
Total: 2 | Selection: 0
Last update: a few seconds ago

Demo: Shift Schedule, Event Log, Condition



Snow and Ice Event

Change Condition

Select Event

Manage Event Log

View Shift Schedule

?

Event Call List

2/18/25, 12:00 PM -
Current Shift: Shift 1
Current Condition: Yellow

Create A Call

Sort Date

Caller: Gibron Ledbetter
Call Type: CALL - Employee Call

Edit Call

Caller: Greg
Call Type: For Information

Edit Call

Caller: Test
Call Type: MAT - Material Request

Edit Call

Map

Map showing the Dallas area with various locations marked. A red line indicates a route through the city. A search bar is visible in the top right corner of the map area.

Selected features: 0

Event Table

Start Date	End Date	Number of Calls	Material	Number of Vehicles
2/18/25, 12:00 PM		3		321

Down Vehicles

2

Search

Fleet Shop: Plano
Status: Long Term Down
Vehicle Number: 15101
Stockpile: DNT/PGBT
Truck Size: Small Truck

View

Fleet Shop: Frisco
Status: Long Term Down
Vehicle Number: 9318
Stockpile: SRT/DNT
Truck Size: Big Truck

View

Last update: a few seconds ago

Total: 1 | Selection: 1

Last update: a few seconds ago

Total: 2 | Selection: 1

Last update: a few seconds ago

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Demo: View Vehicles

The screenshot displays the Snow and Ice Event Management System interface. At the top, there are tabs for "Change Location", "Select Event", "Manage Event Log", "View Shift Schedule", and "?". The main header reads "Snow and Ice Event".

Event Call List:

- 2/18/25, 12:00 PM - Current Shift: Shift 1, Current Condition: Yellow
- Create A Call button
- Sort Date icon
- Caller: Gibron Ledbetter, Call Type: CALL - Employee Call, Edit Call button
- Caller: Greg, Call Type: For Information, Edit Call button
- Caller: Test, Call Type: MAT - Material Request, Edit Call button

Map: A map of North Texas showing various cities and roads. Red icons representing vehicles are clustered around Dallas and Fort Worth. Blue lines indicate specific routes or areas of interest.


Down Vehicles:

Fleet Shop	Status	Vehicle Number	Stockpile	Truck Size	Action
Plano	Long Term Down	15101	DNT/PGBT	Small Truck	View
Frisco	Long Term Down	9318	SRT/DNT	Big Truck	View

Table:

Start Date	End Date	Number of Calls	Material	Number of Vehicles
2/18/25, 12:00 PM		3		321

Demo: Fleet


 Snow and Ice Event

[Change Condition](#) [Select Event](#) [Manage Event Log](#) [View Shift Schedule](#) [?](#)

Event Call List

2/18/25, 12:00 PM -
Current Shift: Shift 1
Current Condition: Yellow

Create A Call

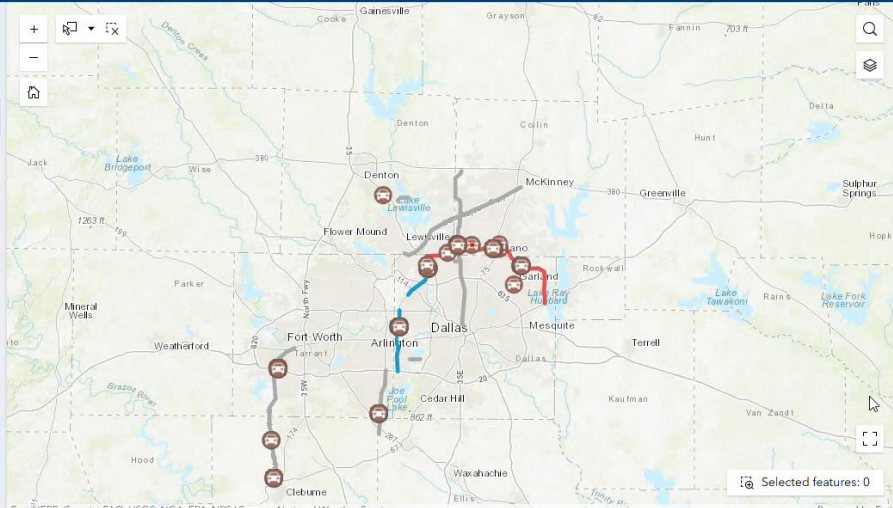
Sort Date 

Caller: Gibron Ledbetter
Call Type: CALL - Employee Call [Edit Call](#)

Caller: Greg
Call Type: For Information [Edit Call](#)

Caller: Test
Call Type: MAT - Material Request [Edit Call](#)

Caller: Test
Call Type: INC - Incident/Accident [Edit Call](#)



Selected features: 0

Event Table

Start Date	End Date	Number of Calls	Material	Number of Vehicles
2/18/25, 12:00 PM		4		321

Total: 1 | Selection: 1

Down Vehicles

2

Search

Fleet Shop: Plano
Status: Long Term Down
Vehicle Number: 15101
Stockpile: DNT/PGBT
Truck Size: Small Truck

[View](#)

Fleet Shop: Frisco
Status: Long Term Down
Vehicle Number: 9318
Stockpile: SRT/DNT
Truck Size: Big Truck

[View](#)


Total: 2 | Selection: 1

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Demo: Stockpile

 Snow and Ice Event (Stockpile)






Select Event View Shift Schedule ?

Event Call List

11/11/25, 12:00 PM -



Select an Event Below

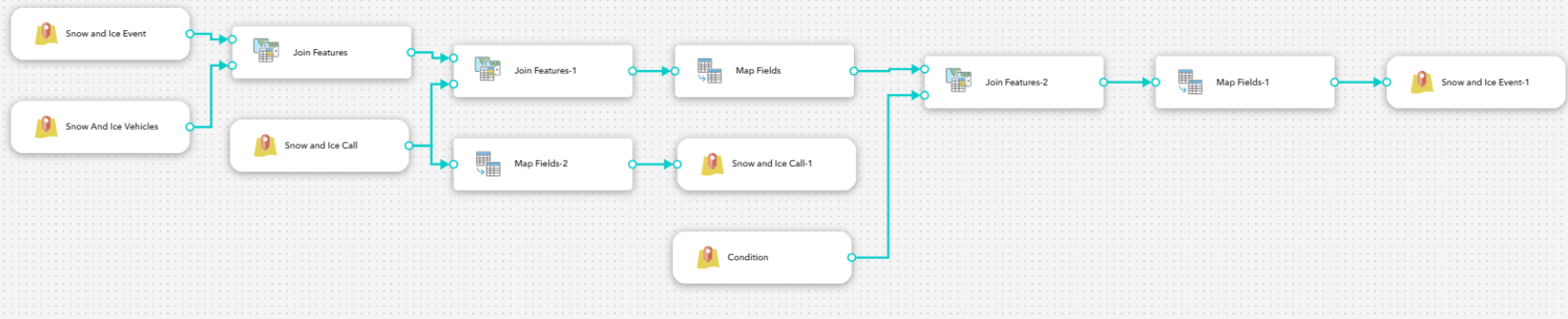
	11/11/25, 12:00 PM - Number of Calls: 9 Vehicles: 0
	9/16/25, 12:00 PM -9/17/25, 12:00 PM Number of Calls: 98 Vehicles: 324
	4/4/25, 12:00 PM - Number of Calls: 0 Vehicles: 2
	2/18/25, 12:00 PM - Number of Calls: 3 Vehicles: 321
	1/8/25, 12:00 PM -1/11/25, 4:00 PM Number of Calls: 93 Vehicles: 513

Last update: a few seconds ago

Total: 1 | Selection: 0

Last update: a few seconds ago

Velocity



Key Takeaways & Next Steps

- **First Event of the Season:**
ESRI service outage → temporarily transitioned to Microsoft Forms
 - Form results later **appended** to the main dataset

Snow And Ice Call

Hi Leary, Emma, when you submit this form, the owner will see your name and email address
eleary@ntta.org

📞 Caller
Enter value here

📞 Call Type
—

📅 Date Received
Enter a date

📞 Employee Call Reason
—

📍 Location Type
—

📍 Tollway Address
—

📍 Intersection
—

INC-002175 PIR: Hosted Feature Services responding with http status code 504

Summary & Timeline:

- On 8th January 2025 at 8:00 PM UTC, some ArcGIS Online users experienced 504 error messages like 'Your request has timed out' or 'Failed to load' when accessing any Hosted Feature Services in maps and/or apps.

Resolution:

- Esri teams confirmed an automated response triggered by a sudden surge of requests did not respond adequately to avoid system latency and manual intervention was required to distribute the load more effectively.

- Esri teams took action to restore operations on 8th January 2025 at 9:30 PM UTC. Manual scaling and adjustment to the infrastructure were necessary to meet the load requirements. This included adjustments to the networking, caching, and compute portions of the ArcGIS Online infrastructure.

Date Received	Caller	Call Type	Employee	Location Type	Tollway Address	Intersection	Event Group	Action	Who Dispatched	Dispatch Time	Status	Notes
1/9/2025 8:46 S. Barrios	IS - Barrios	IS - Employee Call	Other				Prevent	Prevent			Active	Spreadsheets (BSE75) with broken handset.
1/9/2025 8:48 Karl	IS - Barrios	IS - Employee Call	Other				Status Report				Closed	Gen Car not working
1/9/2025 2:44 Phelps	QA - Check-in	QA - Check-in									Active	End of shift in clear
1/9/2025 2:44 Phelps	QA - Check-in	QA - Check-in									Closed	2022 back in service
1/9/2025 2:44 Phelps	QA - Check-in	QA - Check-in									Active	10333 is down, it needs to be repaired and it won't regen.
1/9/2025 2:44 Phelps	QA - Check-in	QA - Check-in									Active	5122 going back to fleet for electrical issues
1/9/2025 8:32 SOC	INC - Incident/Accident	Line 1	PUBI WB	PORT@ROSEMEADE PKWY	Spread MDCI	Webbier	1/9/2025 8:34 WB with an incident from SOC				Closed	call from SOC re incident and time starting to release
1/9/2025 9:17 SOC	MAT - Material Request	Entrance Ramp	PUBI SB	PORT@BUS-75	Spread MDCI	Webbier	1/9/2025 9:18				Closed	
1/9/2025 9:24 soc	CTP NB	CTP@EDWARDS RANCH RD	Spread MDCI	RIA							Closed	it's slash and contractor will pour it
1/9/2025 9:27 Ogden	CRA - Crash Assistance	Exit Ramp	DNT NB	DNT@SPRINGS VALLEY RD	Status Report	Incident Response	1/9/2025 9:28				Closed	Black Honda CMA left on the road
1/9/2025 9:48 SOC	INC - Incident/Accident	Exit Ramp	PUBI WB	PORT@BUS-75	Spread MDCI	Webbier	1/9/2025 9:48				Closed	Request to allow WB from Jupiter to 75
1/9/2025 9:55 NTTA	INC - Incident/Accident	Line 1	DNT NB	DNT@PARADE RD	Spread MDCI	DNT-PORT	1/9/2025 9:55				Closed	called by DNT personnel
1/9/2025 10:00	Jeremia Brandt Berner	CALL - Employee Call	Car Trouble	Line 1	SRT SB	SRT@COOT RD	Spread MDCI	1/9/2025 10:00			Closed	employee called that he is slowing too much and doesn't
1/9/2025 10:25 SOC	MAT - Material Request	Exit Ramp	PUBI WB	PORT@BUS-75	Spread MDCI	Webbier	1/9/2025 10:26				Closed	SOC - DPS called requesting material
1/9/2025 10:26 SOC	MAT - Material Request	Entrance Ramp	PUBI WB	PORT@BUS-75	Spread MDCI	Webbier	1/9/2025 10:26				Closed	SOC - DPS called re entrance ramp needing material
1/9/2025 10:41 SOC	MAT - Material Request	All Lanes	PUBI WB	PORT@LUTTER RD	Power	Webbier	1/9/2025 10:42				Closed	Request to allow WB from Jupiter to 75
1/9/2025 10:50 NTTA	INC - Incident/Accident	Line 1	DNT NB	DNT@HEADERS LN	Status Report						Closed	car ran into the wall under the bridge - NTTA staff called it
1/9/2025 10:48 NTTA	MAT - Material Request	All Lanes	PUBI WB	PORT@HILL LANE RD	Spread MDCI	RIA	1/9/2025 10:48				Closed	SOC notified of street road between Bellme and Lura
1/9/2025 11:00 SOC	MAT - Material Request	All Lanes	SRT NB	SRT@ROSEMEADE PKWY / CRAIG RANCH	Spread MDCI	Exchange	1/9/2025 11:00				Closed	SOC - DPS called about the need to treatment on SRT NB
1/9/2025 11:30 SOC	INC - Incident/Accident	Line 1	SRT SB	SRT@ROSEMEADE PKWY	Spread MDCI	SRT-DNT	1/9/2025 11:30				Closed	area for treatment prior to opening to traffic
1/9/2025 0:15 SOC	MAT - Material Request	Exit Ramp	PUBI WB	PORT@HILL LANE RD	Spread MDCI	RIA	1/9/2025 0:15				Closed	request by RSD for attention to the road NB from 625
1/9/2025 0:15 SOC	MAT - Material Request	All Lanes	CTP NB	CTP@BROOKHURST SCHOOL RD	Power	RIA	1/9/2025 0:17				Closed	exit ramp to 675 need material
1/9/2025 0:25 soc	MAT - Material Request	Line 3	PUBI WB	PORT@BROOKHURST SCHOOL RD	Power	Webbier	1/9/2025 0:28				Closed	between 78 and former lanes 1, 2 & 3 are road over
1/9/2025 0:30 SOC		All Lanes	CTP NB	CTP@BROOKHURST SCHOOL RD	Power	RIA	1/9/2025 0:30				Closed	SOC called re NB and SB on CTP around CR0105

Key Takeaways & Next Steps

- **GIS-first mindset:**
Encourage use of map input for spatial analysis of recurring problem areas
- **Training gaps:**
Need standardized training to ensure consistency in call logging
- **Call Survey Revamp:**
Redesign to simplify user input and ensure all critical data is captured
- **Future Enhancements:**
 - Explore **Lidar/iPad-based** stockpile measuring tools
 - Power BI reports or printing capabilities from live dashboard

Emma Rengifo
eleary@ntta.org

