Digital Intersection Safety: An Evolution in Progress

Continuous Safety Monitoring - Unlocking Inflection Points on the Road Towards Zero Deaths

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Context

Traffic crashes are on the rise despite increased Vision Zero effort

Inflection points are needed

The digitalization of intersections offers a platform for evolutionary innovations that can yield the required inflection points on the vision zero journey alongside a host of other mobility and traffic benefits.

Analog Problems

Although the ITS industry has been chipping away at these 'analog problems', the inertial impact of these problems on road safety management paradigms continues to be felt strongly.

Blind

Intersections have little awareness or no awareness of the users within the intersection.

Isolated

Intersections and their components do not communicate with users or central management.

Dumb

Intersections have little or no processing capabilities and do not have the ability to perform inference, decision-making, learning, and optimization.

Rigid

Intersections operate according to pre-programmed schedules.

Discrete

Only infrequent, manually implemented changes are possible based on limited manual data and analysis.

Digital Promise

The digitalization of intersections sets the foundation for inflection points across traffic operations and especially in road safety.

Isolated → **Connected**

Intersections, their components, and road users are IP addressable with low-latency, secure connectiosn.

Rigid → **Adaptive**

Intersections operation can change autonomously and instantly.

Blind → **Aware**

Sensors and computer vision allow live intersection object list creation, documenting the current and historical positions of all road users along with stochastic nforward path predictions.

Dumb → **Intelligent**

“Supercomputers” (processors) in cabinets, intersection components, vehicles and VRUs enable inference, decision-making, learning, and optimization.

Discrete → **Continuous**

Information flow, analysis, monitoring, interventions, and capability enhancements can happen on an ongoing basis.

Digital Measurement

The snapshot diagnostic study that transformed 100 cities

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Miovision's Safety Studies Process - Full Intersection

Gather Video

Video is captured on location for 3 days or longer by agency or contractor with Scout or 360.

Risk Identification

Miovision produces a risk diagnostic report by measuring near-misses with AI.

Action Plan

A road safety plan is developed by the agency or consultant, or, optionally, by Miovision experts.

Implement Changes

The recommended changes are approved and implemented to the network by the agency.

Monitoring

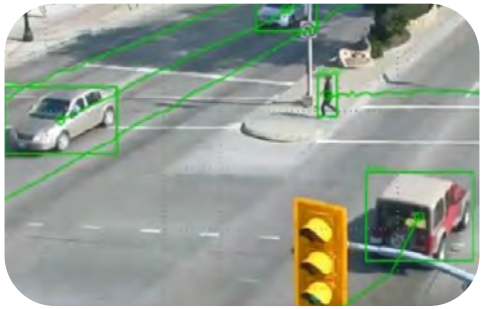
Optional: Another report can be run afterwards to measure the risk reduction achieved

How It Works

There are 6 components to Miovision Safety Studies for every pair of potentially interacting movements

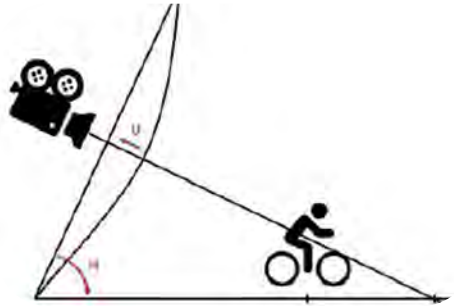
Detection

Road users are detected and classified in every frame using AI



Tracking

The tracking systems links together the detected users in adjacent frames to create green tracks

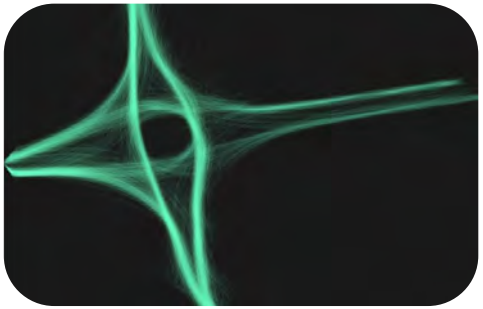


Mapping

Spatial mapping is completed to translate the locations of the road user to their location in the intersection

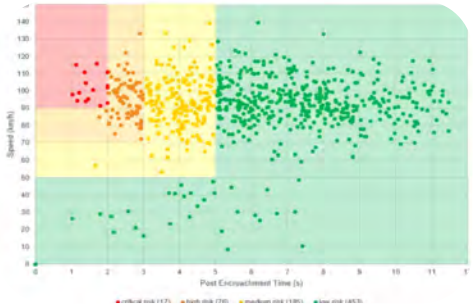
How It Works (cont)

There are 6 components to Miovision Safety Studies for every pair of potentially interacting movements



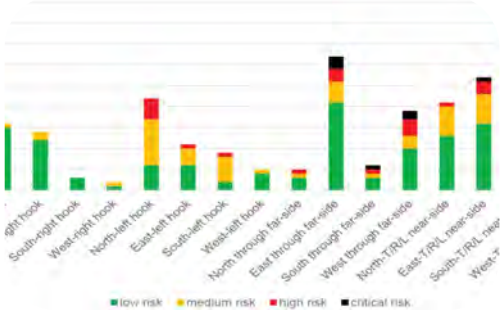
Trajectory

Trajectories are developed and intersecting trajectories are filtered by near - miss criteria



Near Miss

Near miss interactions and risk models are used to develop scatterplots for each encounter coloured by severity



Report

We then output the results for every possible conflict configuration at an intersection

Impacts

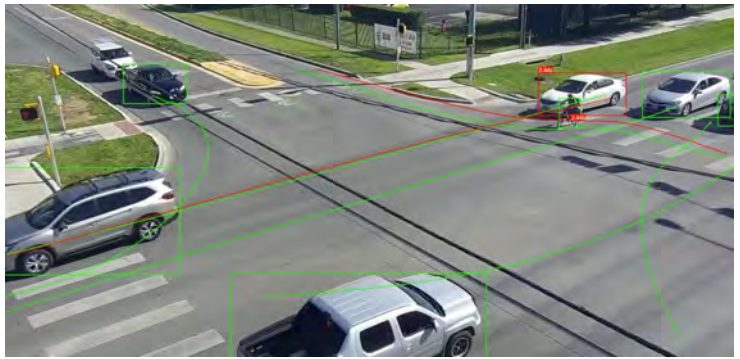
Making a real impact on your network safety

94% Validated accuracy of Miovision Safety Studies risk indicators for predicting injury collisions*

80% Typical risk reduction achieved when responding to diagnostics

36X Faster measurement of safety improvement compared to crash data

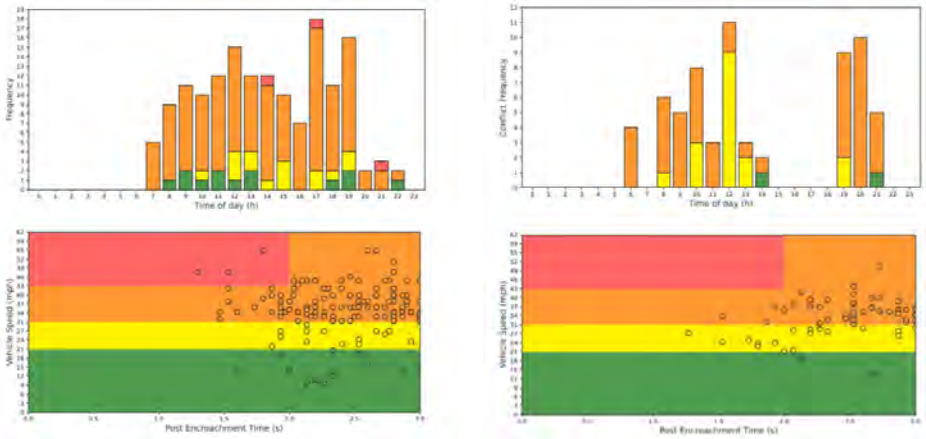
100+ Cities deployed



*Anarkooli, Persaud, Milligan, et. Al (2021). Transportation Research Record.

Austin Results

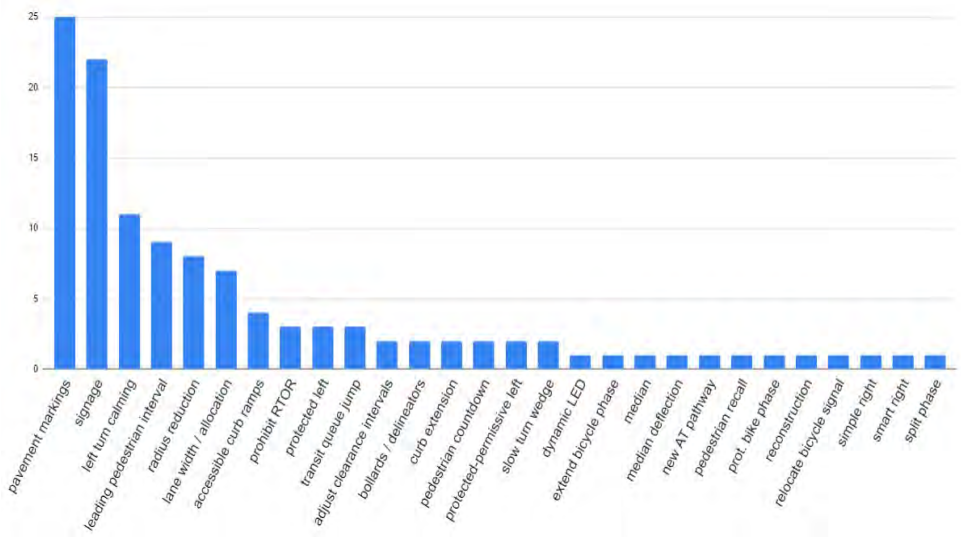
Austin has performed several before - after studies using short - term digital measurement with mobile cameras to diagnose safety issues, select countermeasures, and track risk reduction.



Before (L) vs After (R) Conflicts at Lamar and Morrow, Austin TX
63% risk reduction - all modes combined
80% risk reduction - vulnerable road users

Canada 50 Results

50 Before - after studies in Canada with interventions guided by precise, short - term near - miss measurement attained an average risk reduction of 85%.



119 Interventions at 50 intersections focused on pavement markings, signage, left turn calming, LPIs, radius reduction, and lane width reallocation.

Inflection Point 1

Digital measurement with portable video studies has enabled precise and predictive snapshot diagnostics, informed countermeasure selection, and impressive risk reduction results. However, temporary camera deployment is cumbersome and this approach is blind to risk trends outside of the short study period.

Digital Monitoring

How a new continuous safety monitoring tool unlocks inflection points on the road to vision zero

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What does Flower Mound Have Today

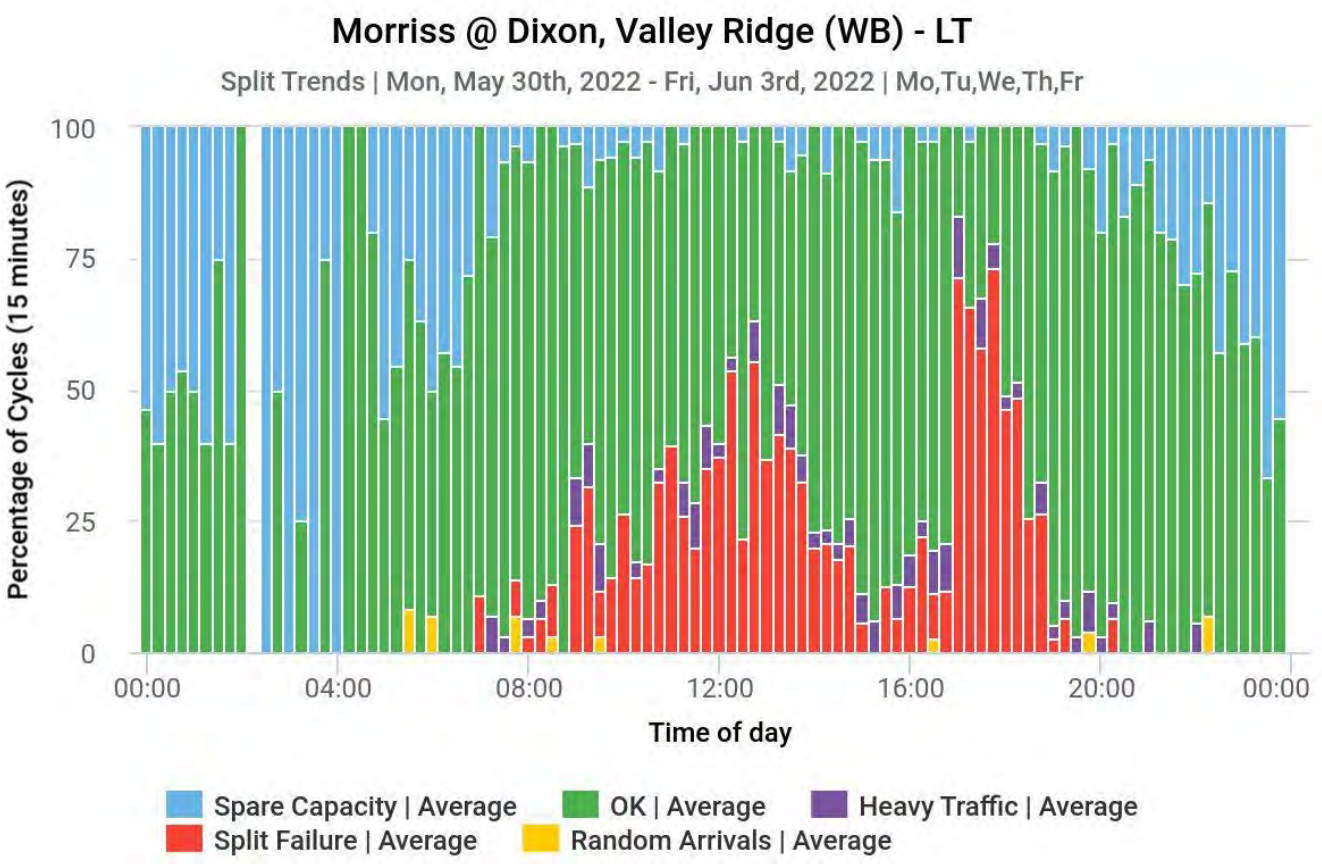
Like hundreds of cities, Flower Mound has been digitizing its intersections by placing 360 cameras above intersections, and connected edge compute devices in the cabinet running a range of applications.

App

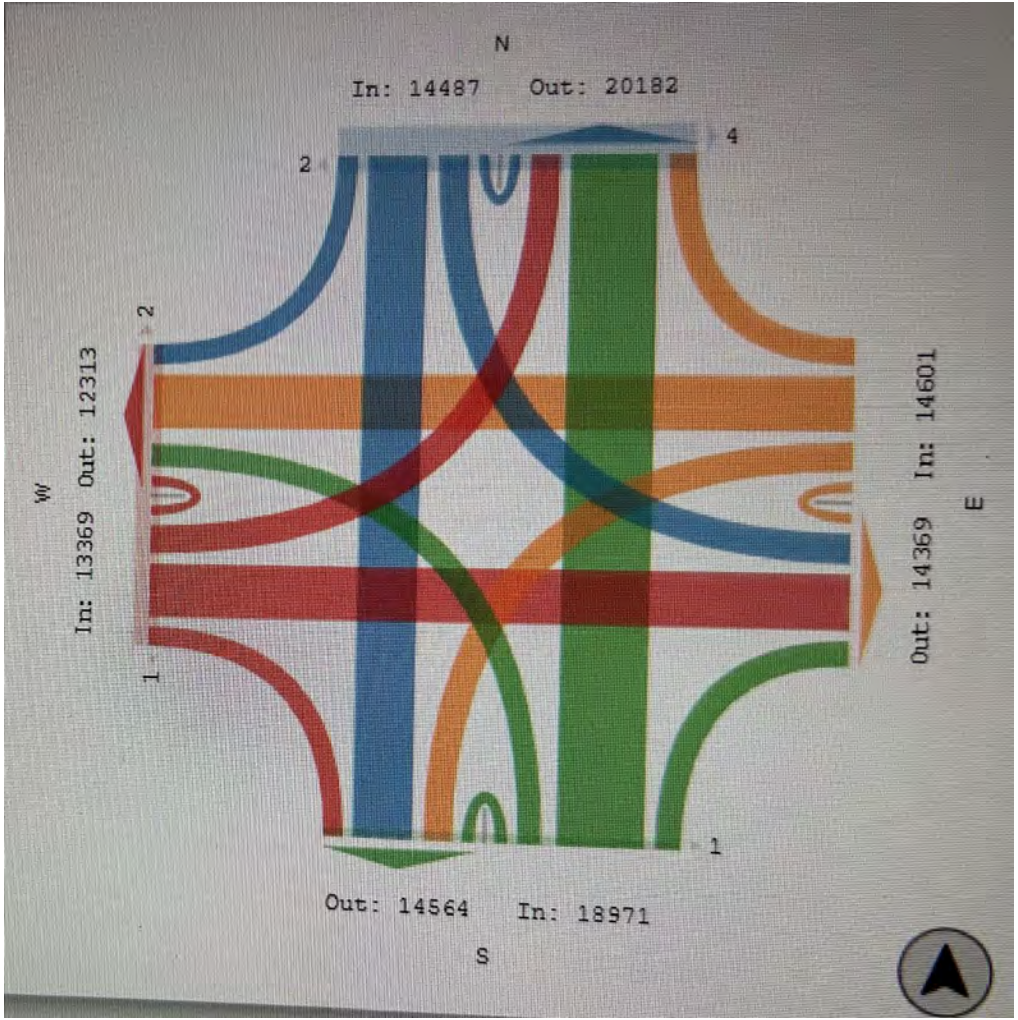
App

App

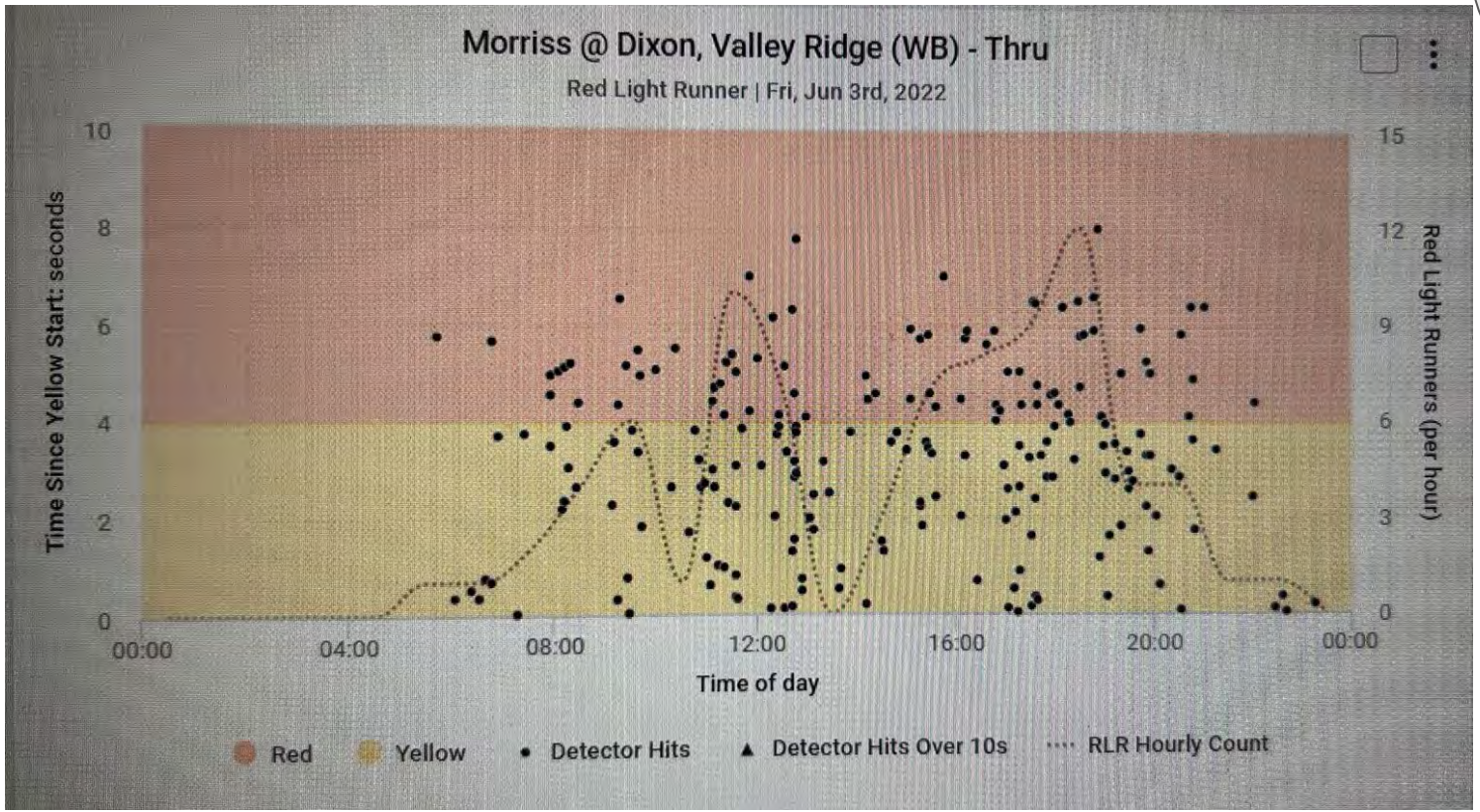
App:
Performance



App:
Mobility
Reports
(TMCs)



App:
Red Light
Running



What does this data show about safety?

- Split failures could result in frustrated drivers and risk actions
- Turning data can reveal potential conflict points, risk exposure, and cross-product
- Red-light running data can reveal potential for right angle crashes

What does this data not show?

- Continuous monitoring of near-misses, the best leading indicators of safety

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Why is this gap important?

- Vision Zero requires a long-term downward trend in risk
- Cities have little feedback on the effectiveness of VZ actions
- This hinders the ability to ability to make course corrections
- Overall, the lagging indicators suggest that progress is not good

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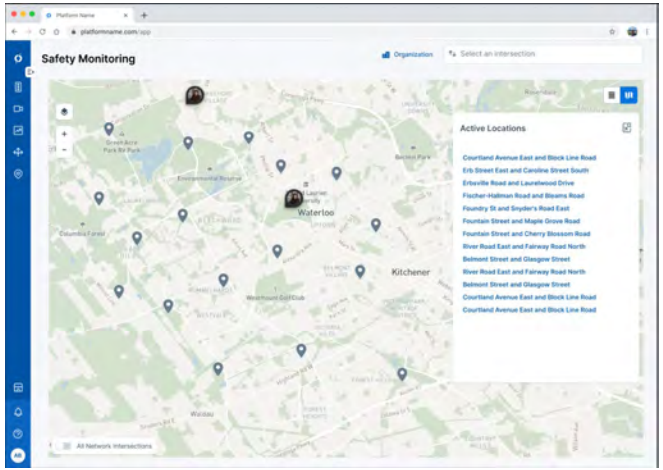
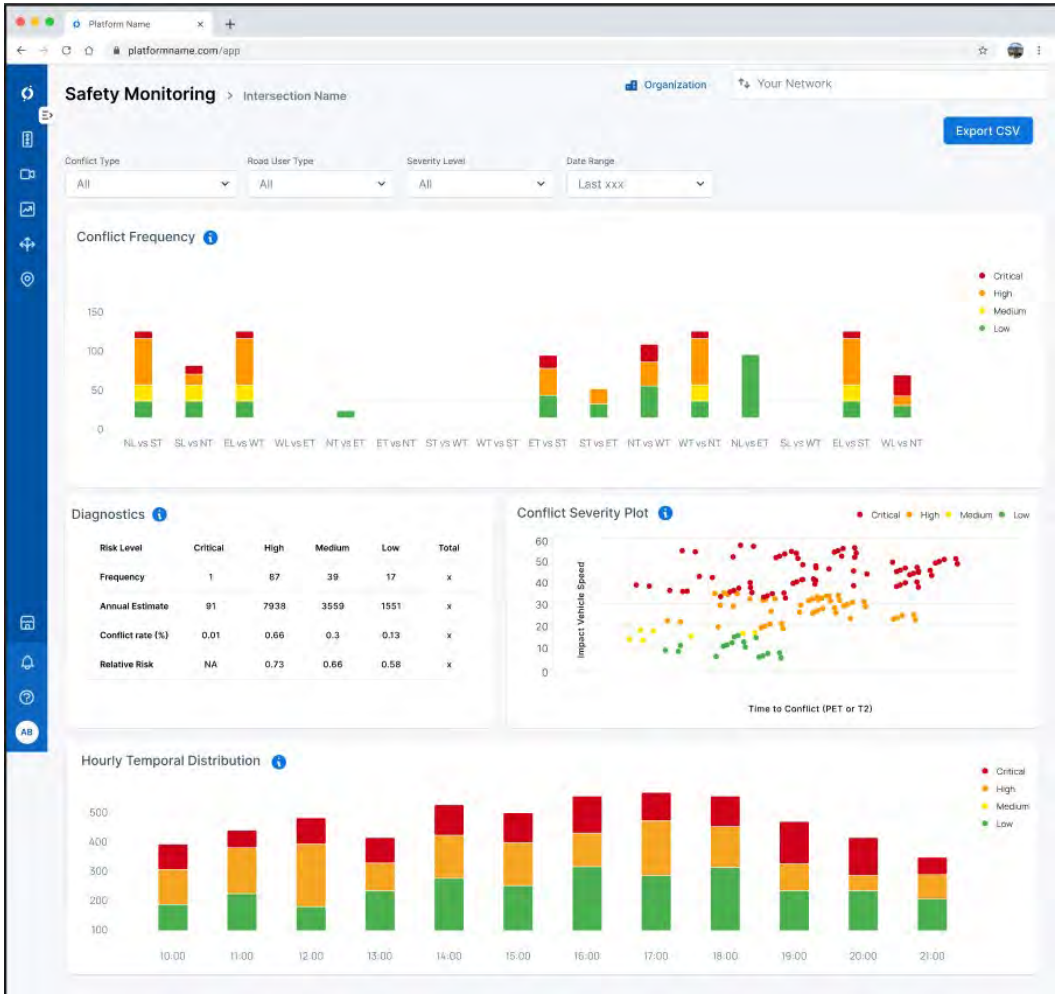
CSM App

Over the air update





The inflection premise of continuous monitoring

- Continuous monitoring enables informed and optimized continuous improvement over days, months, and years
  - Leading predictive indicators of safety for all movements updated every 15 minutes 24-7-365
  - Track improvement or deterioration over any time range
    - Guide intervention selection
    - Monitor impact of intervention
    - Adjust interventions to emerging conditions

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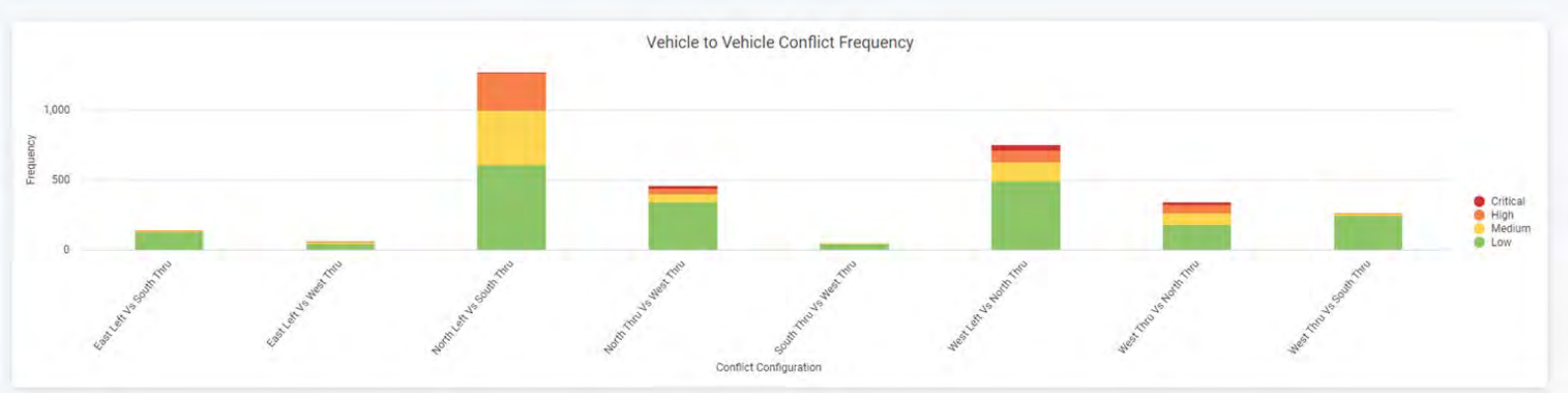
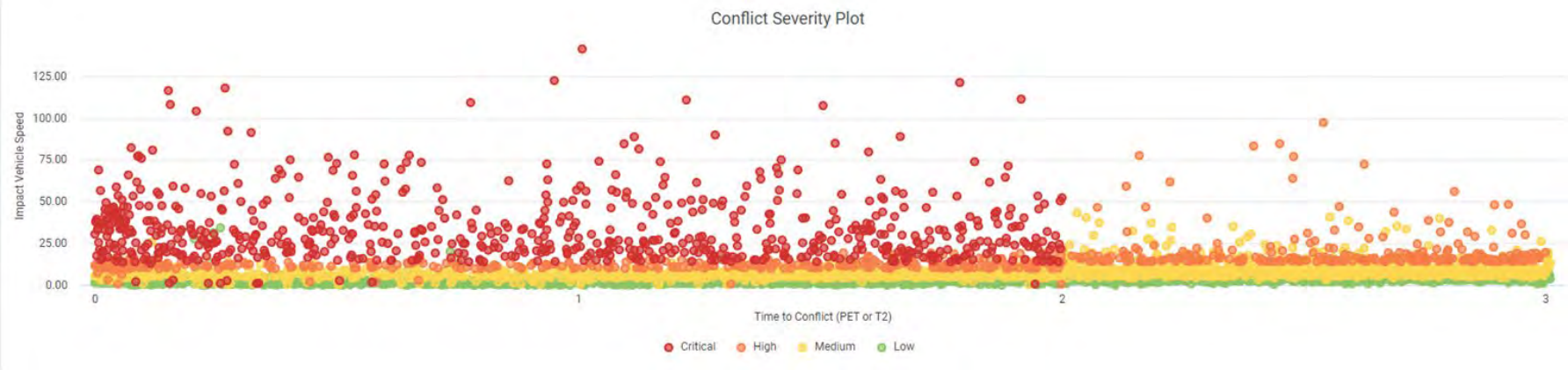
Configuration: Highlight Precise Safety Issues

- **Near-miss summary:** frequency (bar height), Severity (color), Configuration Breakdown (e.g. NBL vs SBT), Modal Breakdown (Veh, Bike, Ped)



Scatterplot: Match Intervention to Root Cause

- **Severity Scatterplot** : Visualize Speeds and Temporal Separation of a Group of Conflicts in a Data Cloud to inform high level intervention family: speed management or user separation



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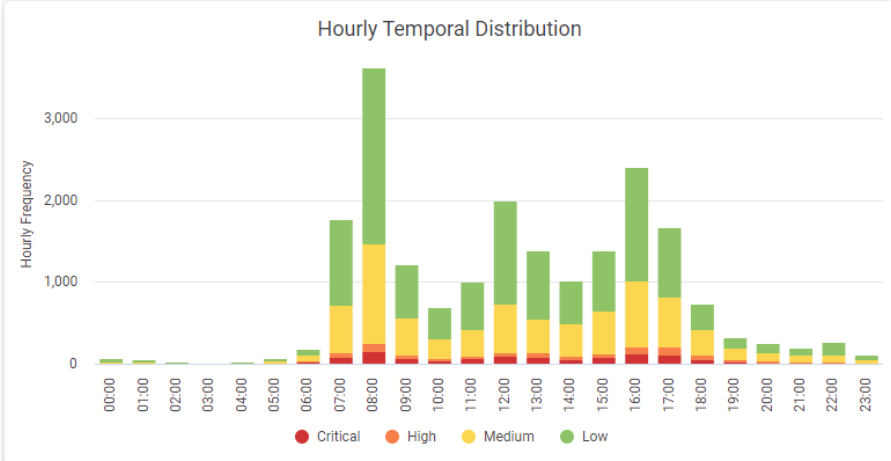
Link operations and safety by time of day

- **Temporal Distribution** : Visualize temporal distribution of conflict frequency and severity to optimized strategies by time of day and to understand root cause of safety issues.



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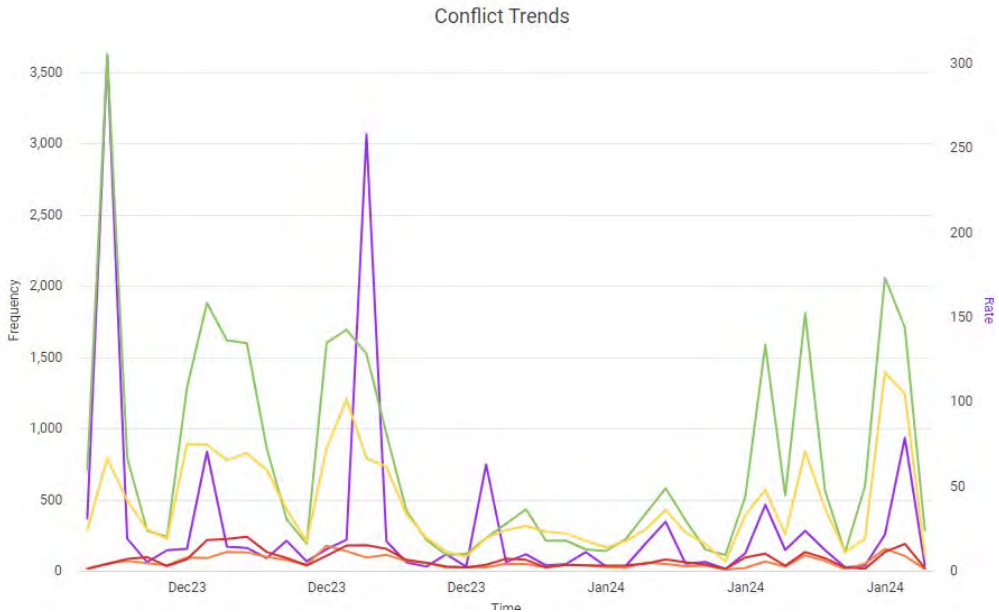
Identify trends, inflections, and spikes

- **Trends** : Visualize trends in daily conflict rates and frequency by severity level over short or long periods to identify progress, deterioration, emerging or recurring problems, and optimize solutions to operating conditions.



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Extract hard data to build business cases

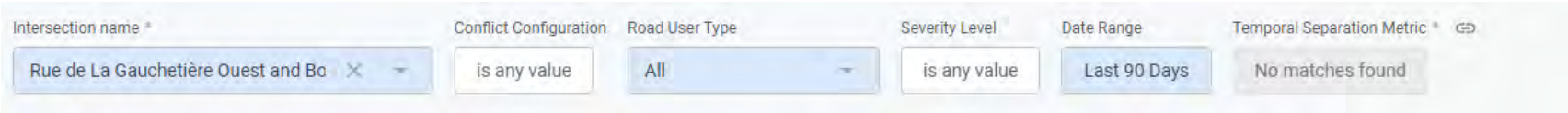
- **Diagnostic Table** : Summary numerical data on conflict frequency, severity, annual extrapolations, rate, and benchmark comparisons. Used to quantify inferences made from charts and support reporting, business case development, etc.

Diagnostics

Risk Level	Critical	High	Medium	Low
Frequency	3,545	2,636	20,013	33,356
Annual Estimate	42,540	31,632	240,156	400,272
Conflict Rate (%)	50.64	51.69	20013.00	641.46
Relative Risk	4.22	25.84	2,859	11.45

Drill down on what matters

- **Interactive Filtering** : Adjust all other tables and graphs according to
  - Conflict Configuration: (e.g. all right hooks)
  - User type (e.g. only ped, only bike, only veh, ped & bike)
  - Severity (e.g. only critical risk, critical + high risk, etc)
  - Time period (today, yesterday, last week, last 30 or 90 days, year to date, or custom date range)



Inflection Point 2

Digital monitoring with permanent video, edge compute, and over the air app deployment allows a shift in the road safety management paradigm to a continuous measurement continuous improvement approach. The latest trends and the impact of iterative interventions are in the dashboard to inform planning and operations on a daily basis during the long drive towards zero.

Digital Mitigation

Our concept for White Alert, a system to detect and mitigate collision risk in real time that won the USDOT Intersection Safety Challenge

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Concept Overview

White Alert: A Digital Multi - Channel Vision for Scalable Intersection Safety

The White Alert system will provide real-time warnings and traffic control interventions to prevent imminent crashes at intersections by using innovations in sensor fusion, path prediction, risk evaluation, and a multi-channel mitigation layer comprising adaptive control, V2X, mobile phones, digital signs, digital signals, and digital crosswalks.

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California Crash

Warning: Video of Serious Pedestrian Crash

Preventing the California Crash

- **Demand Conflict:** Traffic Control
- **Likely Conflict:** Level 1 White Alert (steady white + audio + haptic)
- **Imminent Crash:** Level 2 White Alert (rapid flash + audio + haptic)

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White Alert Foundational Principles

The White Alert System is designed around four foundational principles to maximize its reach and impact.

Safe Systems

Kinetic energy and biomechanics approach to risk measurement

Resilience

Multi-channel sensing and sensor fusion.

Inclusiveness

Multi-channel warning and bias-free perception models.

Scalability

Open digital standards, interoperable designs, and cost effectiveness.

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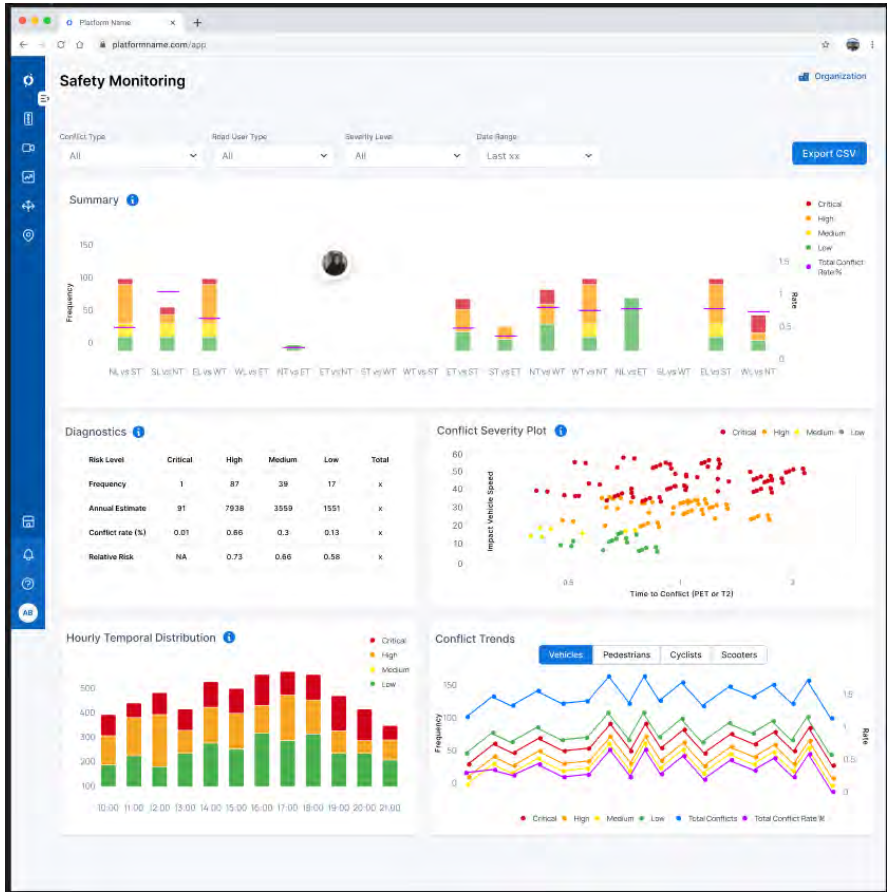
White Alert Context

- Progression of safety innovation:

  Snapshot Studies
  Continuous Monitoring
  Continuous Mitigation

- USDOT Intersection Safety Challenge
- Digital Intersection
- Collaboration Ecosystem



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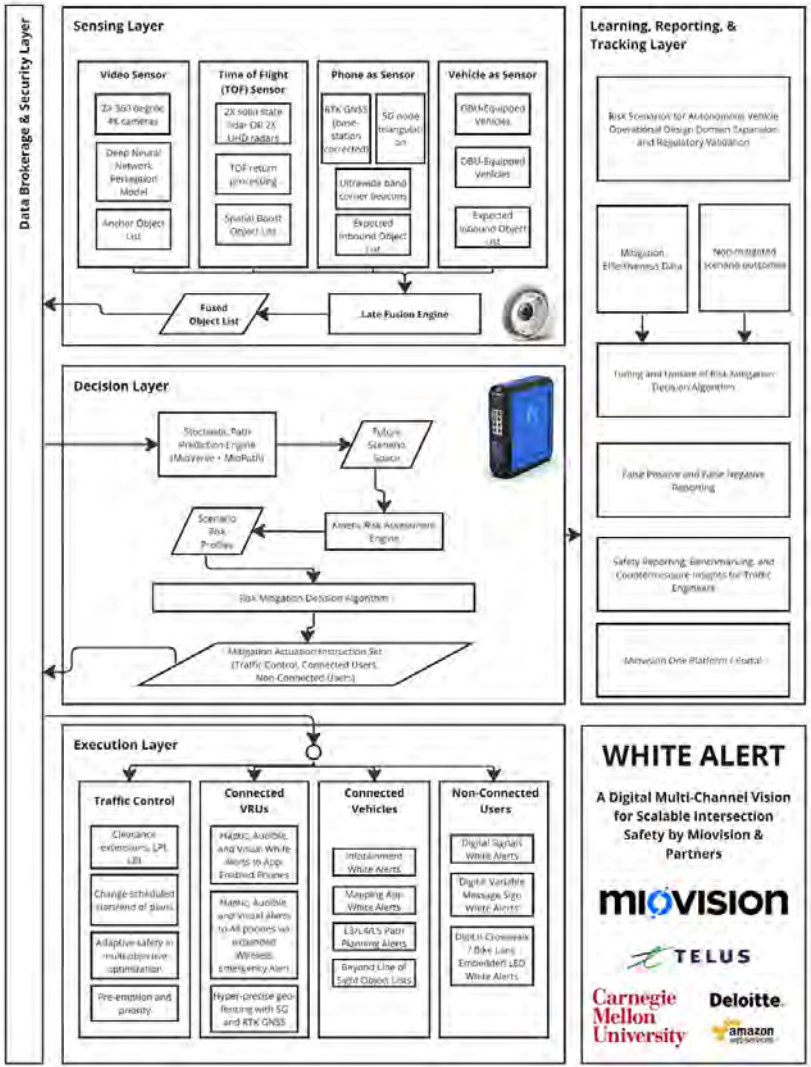
White Alert Layers

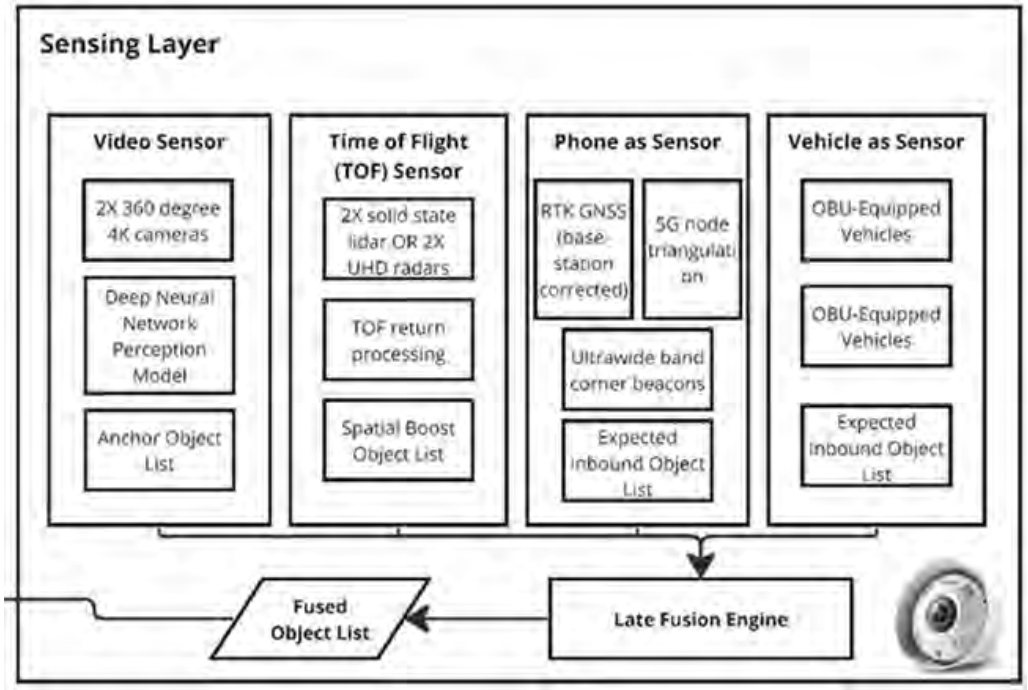
- Sensing
- Decision
- Execution
- Data Brokerage and Security
- Learning, Reporting, and Tracking



Sensing Layer

Four Channels

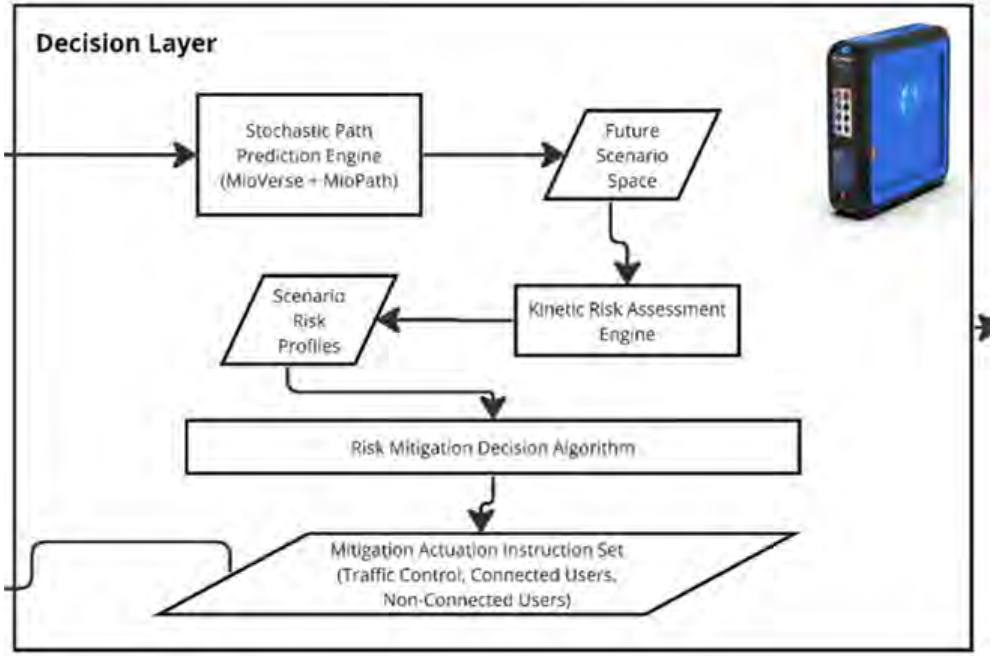
- From above:
  - Video
  - Lidar / Radar
- From users:
  - V2X BSMs
  - Emerging phone location technologies
- Resilient Sensor Fusion



Decision Layer

Three Engines

- Path Prediction
  - Stochastic
  - Massive Training Data
- Risk Assessment
  - Kinetic Energy
- Mitigation Decision
  - 3 levels, 4 channels



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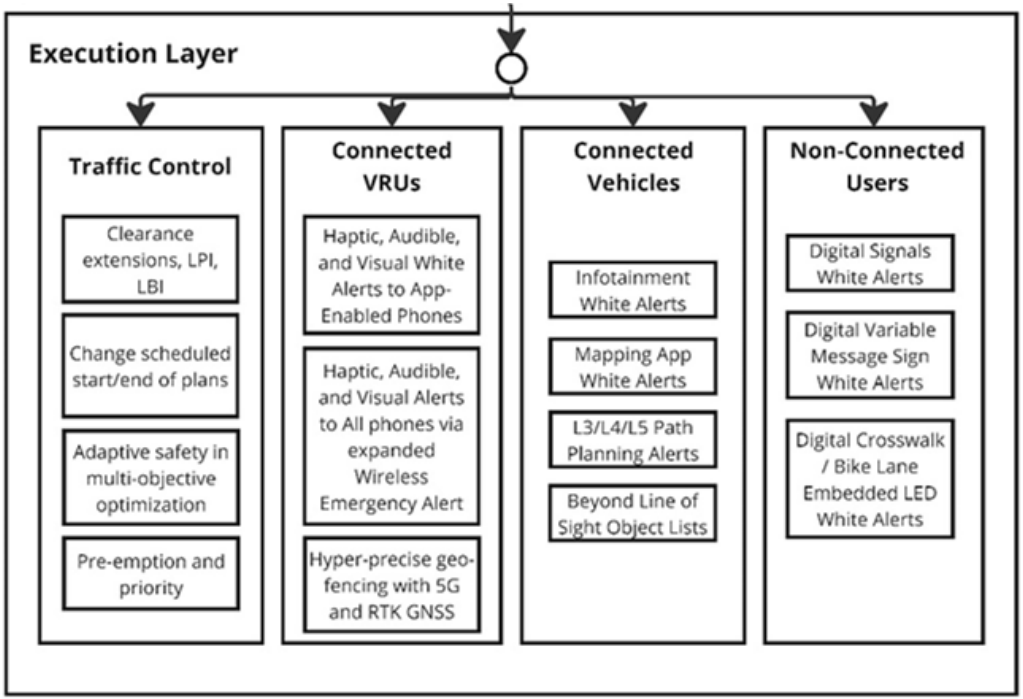
Execution Layer

Four Channels

- Traffic Control
- Connected VRUs
  - Via phones
  - Hyper-precise geofencing
- Connected vehicles
  - V2X
- Non-connected users
  - Digital signals, VMS & crosswalks



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Supporting Layers

Data Brokerage and Security

- Access
- Standards
- Security
- Privacy
- Interoperability

Learning, Reporting, and Tracking

- AV ODD Scenario Data
- System performance and effectiveness
- Human factors models
- Diagnosis for traffic engineers for non-automated countermeasure planning

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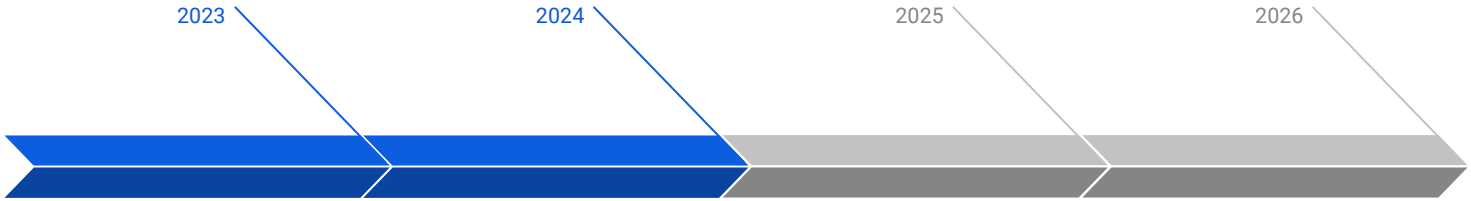
White Alert Timeline



Concept

Develop Concept
Submit paper to USDOT
Gather Partners
Identify Test Track
TRL 1 → TRL 3

Prototype

Build Layer Components
Test Track Demos
Concept Refinement
USDOT Phase 1B Demo (Dec)
TRL 4 → TRL 6

Validate

Refine Layer Technologies
Test in Operational Environment
TRL 7→ TRL 8

Share & Scale

Publish Open Standards
Deploy to All Jurisdictions
Leverage Learning Layer
TRL 9

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Inflection Point 3

Digital mitigation through the White Alert concept will allow intersections to predict imminent collisions and adapt the traffic control or send a warning to help prevent them.

Three Digital Inflection Points

Our evolving journey in digital intersection safety

Analog Intersections

Digital Measurement

Computer Vision unlocks proactive and precise snapshot diagnostics under a kinetic energy paradigm.

Digital Monitoring

Intersection edge computing unlocks a continuous monitoring / continuous improvement road safety management approach.

Digital Mitigation

V2X, IoT, 5G, and AI unlock automated interventions to mitigate risk in real-time through road user warnings and adaptive control.

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Using Advanced Techniques To Datamine Pedestrian Crash Data

Minh Le, TTI

Regional Safety Advisory Committee
January 2024

Pedestrian Fatalities in United States, 2008-2020

Center for Transportation Safety

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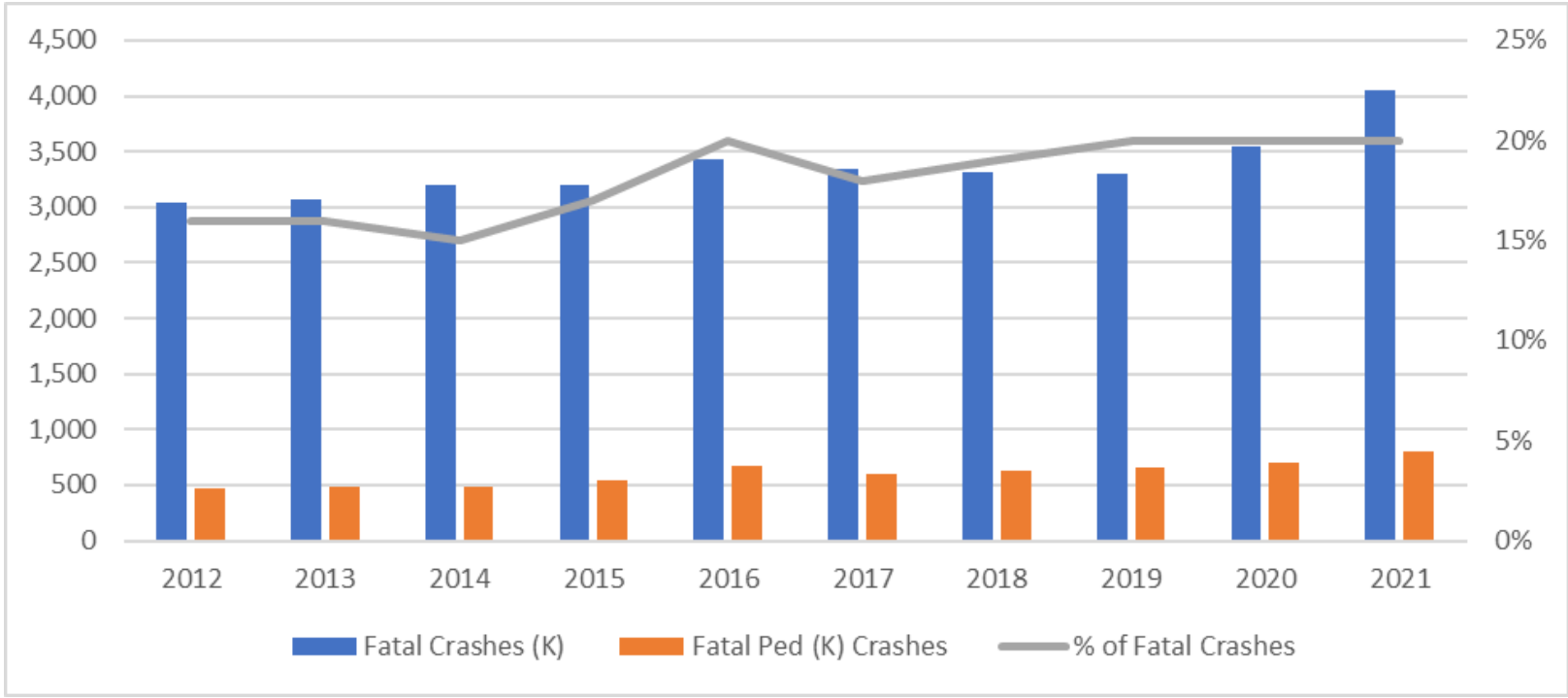
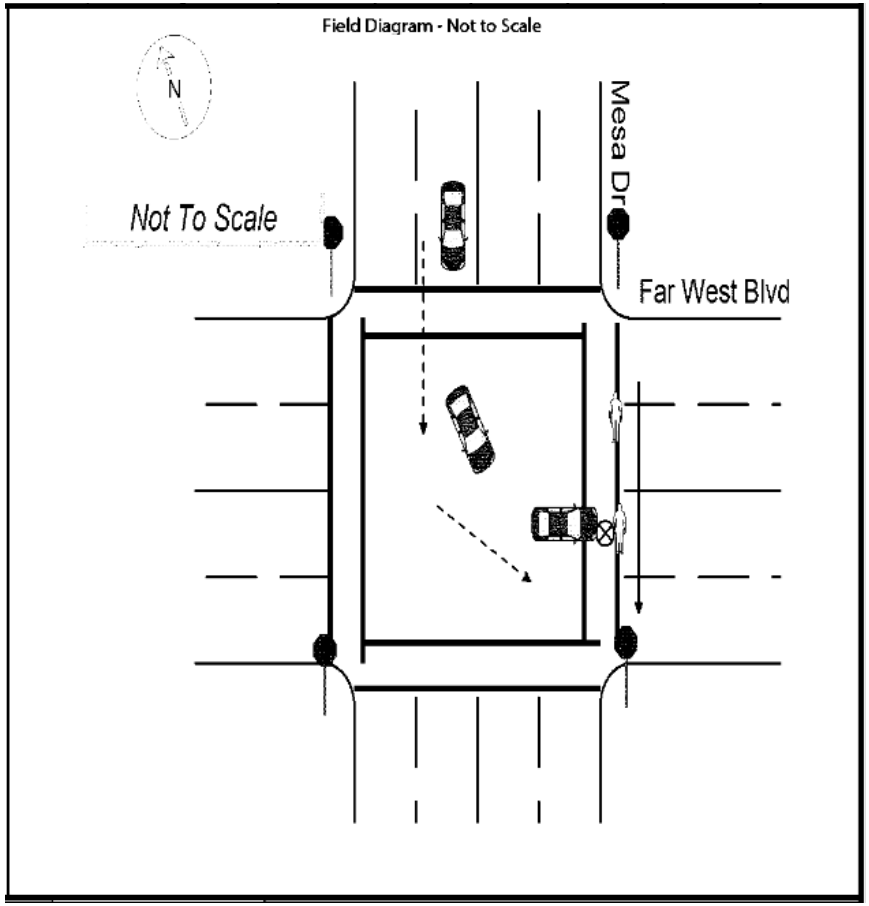
Texas Fatal Crashes vs. Fatal Pedestrian Crashes



Problem

- **Crash data lack details for VRU crashes-** critical for developing appropriate countermeasures
- Often, this **information** can be **inferred from the crash**
  - Narratives
  - Diagrams



Goal: Gain deeper insights into VRU crashes & develop robust crash database

Objectives:

- develop a crash database for alternative travel modes, starting with pedestrians
- database will include ‘unstructured’ data information (e.g. crash typing & intentionality)
- integrate with weather & sun glare data

FHWA's Pedestrian & Bicycle Crash Analysis Tool v.3

(81 crash types)

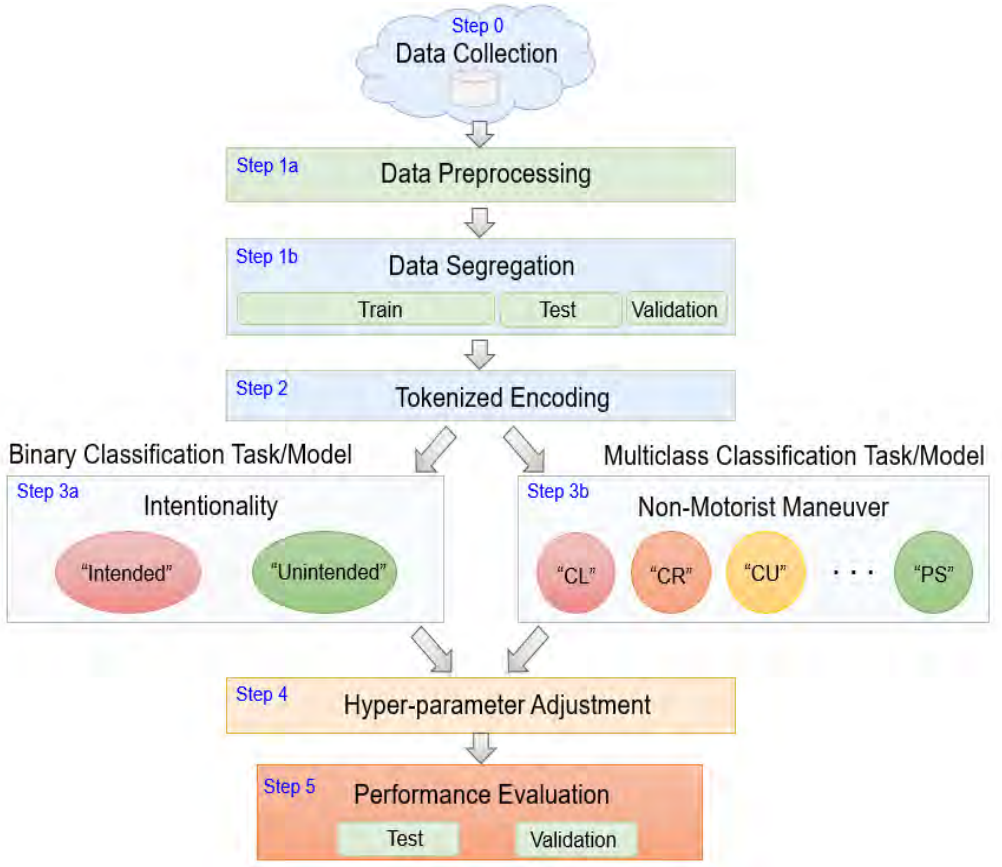
Requires manual review of crash narratives & diagrams.

Non-Motorist Maneuver / *Motorist Maneuver*	CR: Crossing Path from Motorist's Right	CL: Crossing Path from Motorist's Left	CU: Crossing Path, Unknown Direction	PS: Parallel Path Same Direction	PO: Parallel Path Opposite Direction	PU: Parallel Path Unknown Direction	MU: Moving in Unknown Path/ Direction	ST: Stationary	OU: Other/ Unusual	UN: Unknown	FC: Non-motorist Fall or Crash
S: Going Straight	S-CR	S-CL	S-CU	S-PS	S-PO	S-PU	S-MU	S-ST	S-OU	S-UN	
R: Turning Right	R-CR	R-CL	R-CU	R-PS	R-PO	R-PU	R-MU	R-ST	R-OU	R-UN	
L: Turning Left	L-CR	L-CL	L-CU	L-PS	L-PO	L-PU	L-MU	L-ST	L-OU	L-UN	
P: Parked	P-CR	P-CL	P-CU	P-PS	P-PO	P-PU	P-MU	n/a	P-OU	P-UN	
E: Entering Traffic Lane	E-CR	E-CL	E-CU	E-PS	E-PO	E-PU	E-MU	E-ST	E-OU	E-UN	n/a[2]
B: Backing	B-CR	B-CL	B-CU	B-PS	B-PO	B-PU	B-MU	B-ST	B-OU	B-UN	
O: Other Maneuver	O-CR	O-CL	O-CU	O-PS	O-PO	O-PU	O-MU	O-ST	O-OU	O-UN	
U: Unknown Maneuver	U-CR	U-CL	U-CU	U-PS	U-PO	U-PU	U-MU	U-ST	U-OU	U-UN	
N: Non-Collision	Not Applicable – No Crash type returned										N-FC

Pedestrian Crash Classification based on Mining Crash Narratives

Applied crash typing framework to 2 classifications:

- **Binary**
  - Intended or Unintended Peds
- **Multiclass**
  - Pedestrian Maneuvers e.g. crossing, parallel, moving, stationary, etc.



Natural Language Processing (NLP)

- “NLP refers to the branch of computer science—and more specifically, the branch of artificial intelligence or AI—concerned with giving computers the ability to understand text and spoken words in much the same way human beings can.” – IBM

- Used open-source language models for classifying pedestrian maneuver types: BERT and RoBERTa

Pedestrian Intentionality

Intended

Unintended

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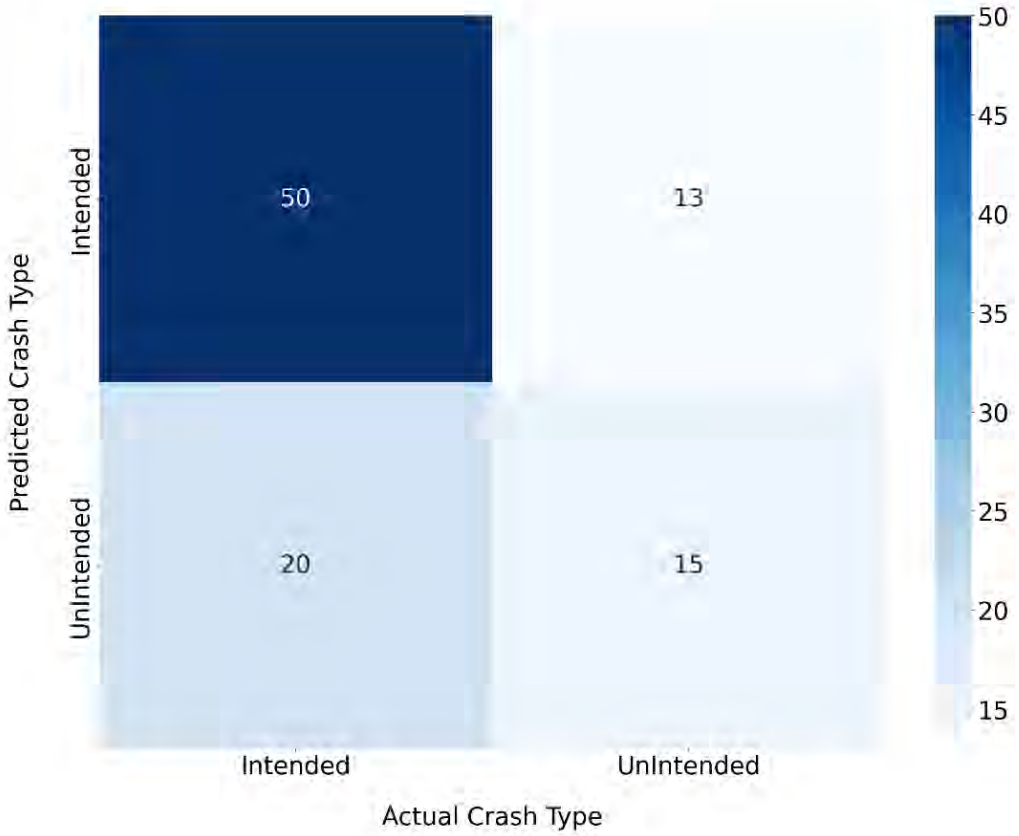
Binary Classification (1000 training)

- Accuracy was 70.9%, with average F1-measure 62.7%
- Given results, researchers applied the RoBERTa Large XLM model to the full dataset



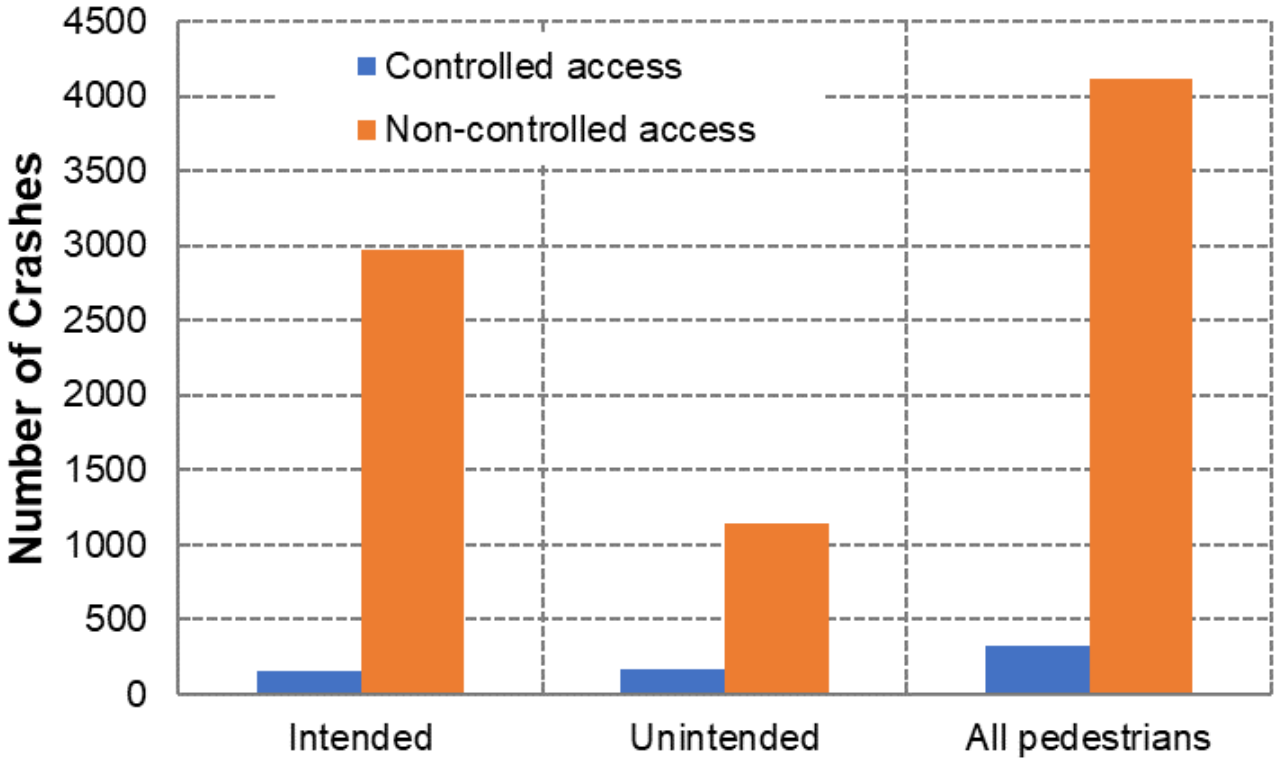
Binary Results (4442)

Overall

- 70% intended
- 30% unintended

- **324 on Controlled Access (Fwy.)**
  - 49% intended
  - 51% unintended
- **4188 on Non-Controlled Access**
  - 72% intended
  - 28% unintended

Overcounting pedestrian crashes?



Multiclass Classification Framework (1000 training)

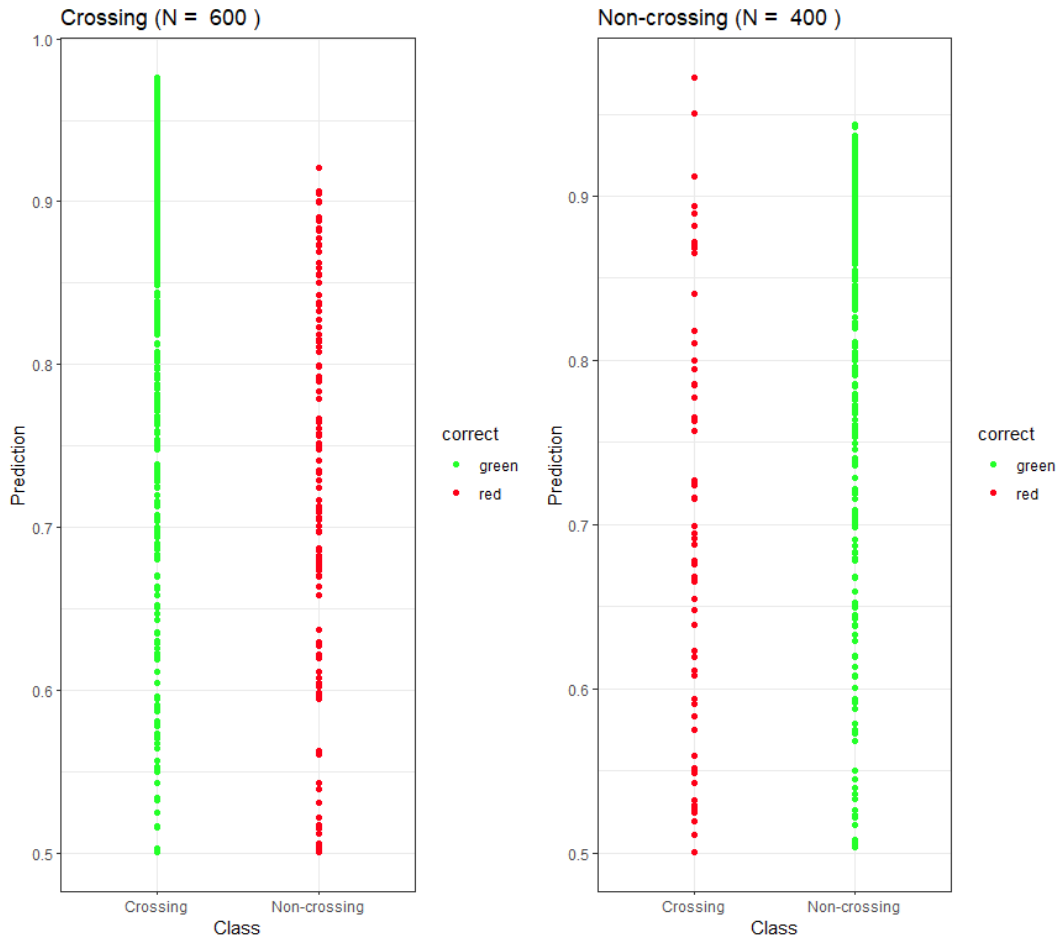
1. **Grouped ped maneuvers due to data imbalance**
   a. 8 classes (Accuracy=34%, F1=25%)
   b. 4 classes (Accuracy=65.2%, F1=50.9%)
   c. 2 classes (Accuracy=72.5%, F1=72.1%)

2. **Multistep, Multiclass Classification Approach**
   a. Model 2 classes: Crossing vs Non-Crossing
   b. Apply computer vision techniques & Support Vector Machine (SVM) models to crash diagrams
   c. Determine Acceptable Probability Threshold: p>90%

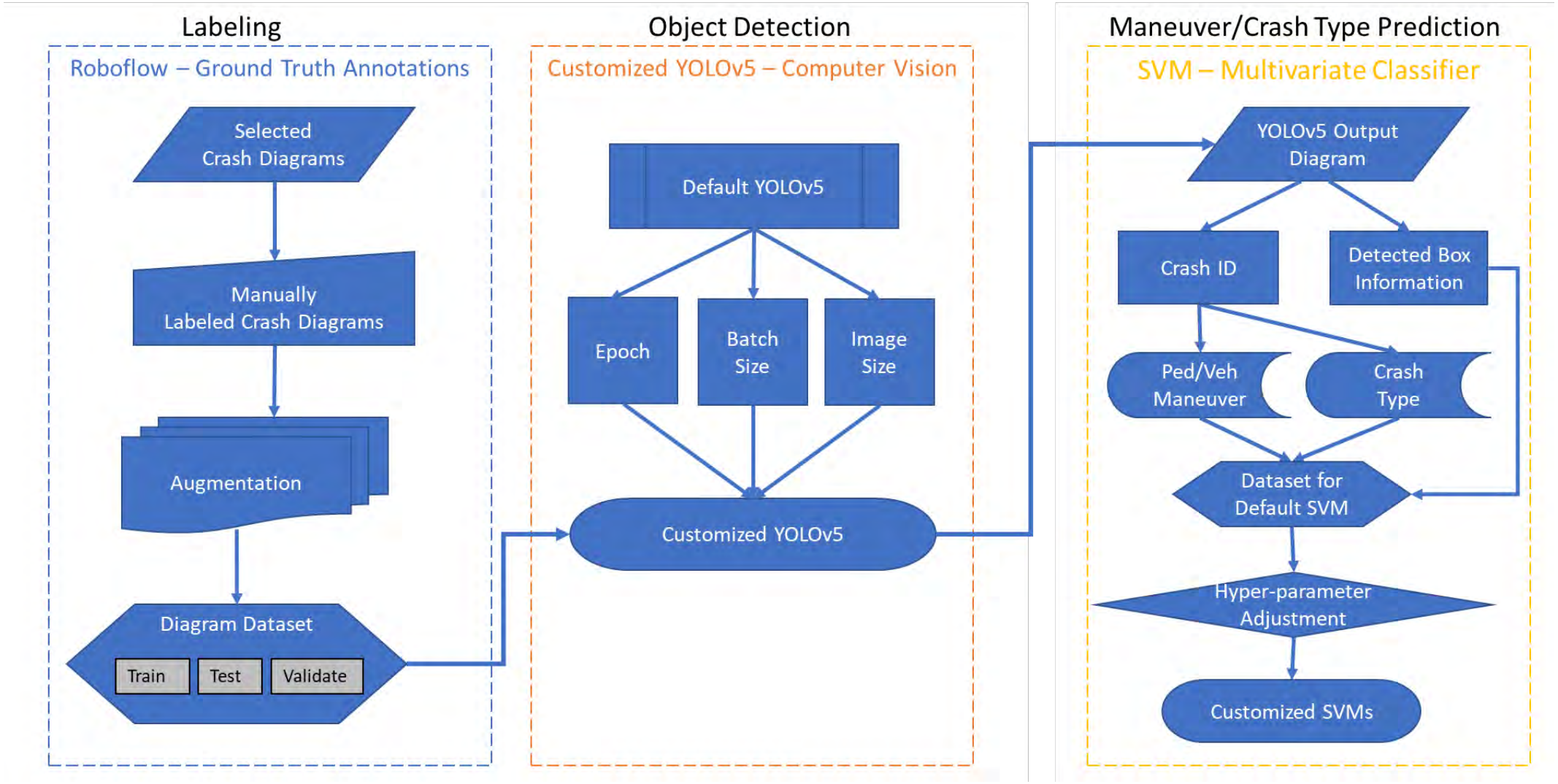
Multistep, Multiclass Classification Approach (1000 training)

Crossing Class
→ 218 of 600 (36%) were classified as Crossing with p > 90%
(3 outliers)

Non-Crossing Class
→ 109 of 400 (27%) were classified as Non-Crossing with p > 90%
(3 outliers)



Pedestrian Crash Diagram Mining



Multistep, Multiclass Classification Approach Results (1000 training)

p-value	Radial SVM Model	Subclasses	No. of Records	C	Accuracy
< 0.9	Crossing	CL, CR, CU	382	128	0.498
	Non-crossing	OT, PO, PS, PU, ST	291	4096	0.370
≥ 0.9	Crossing	CL, CR, CU	218	512	0.589
	Non-crossing	OT, PO, PS, PU, ST	109	1024	0.569
All	Crossing	CL, CR, CU	600	4096	0.484
	Non-crossing	OT, PO, PS, PU, ST	400	4096	0.370

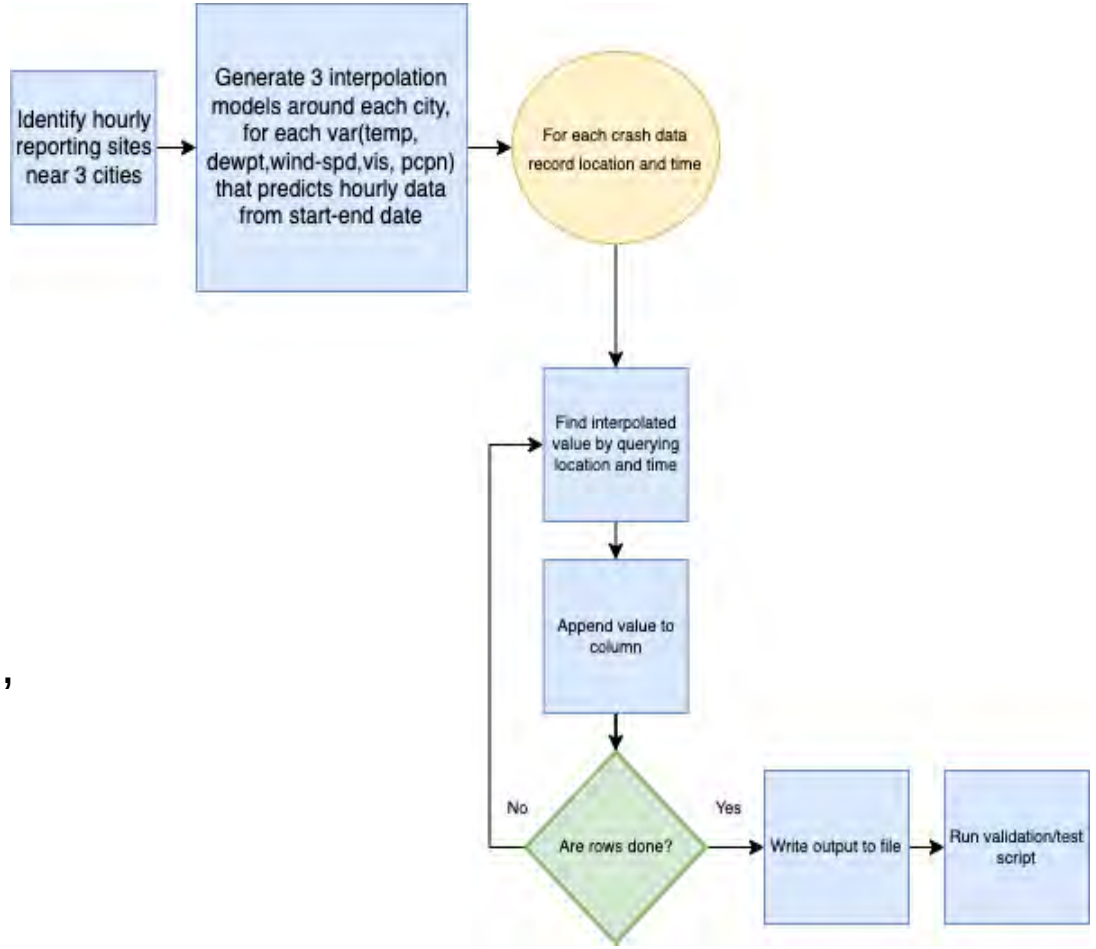
– Results demonstrate the framework's potential for a multistep, multiclass classification

Appending Weather Data

SRCC SOUTHERN REGIONAL CLIMATE CENTER

Developed API to add:

- Temperature (degF)
- Dew Point Temperature (degF)
- Visibility (miles)
- Wind Speed (mph)
- Rain/No Rain (boolean)
- Cloud Coverage (BKN/Broken, SCT/Scattered, OBS/Obscured, OVC/Overcast, CLR/Clear)
- Precipitation/Rain (inches)
- Sun Glare Flag

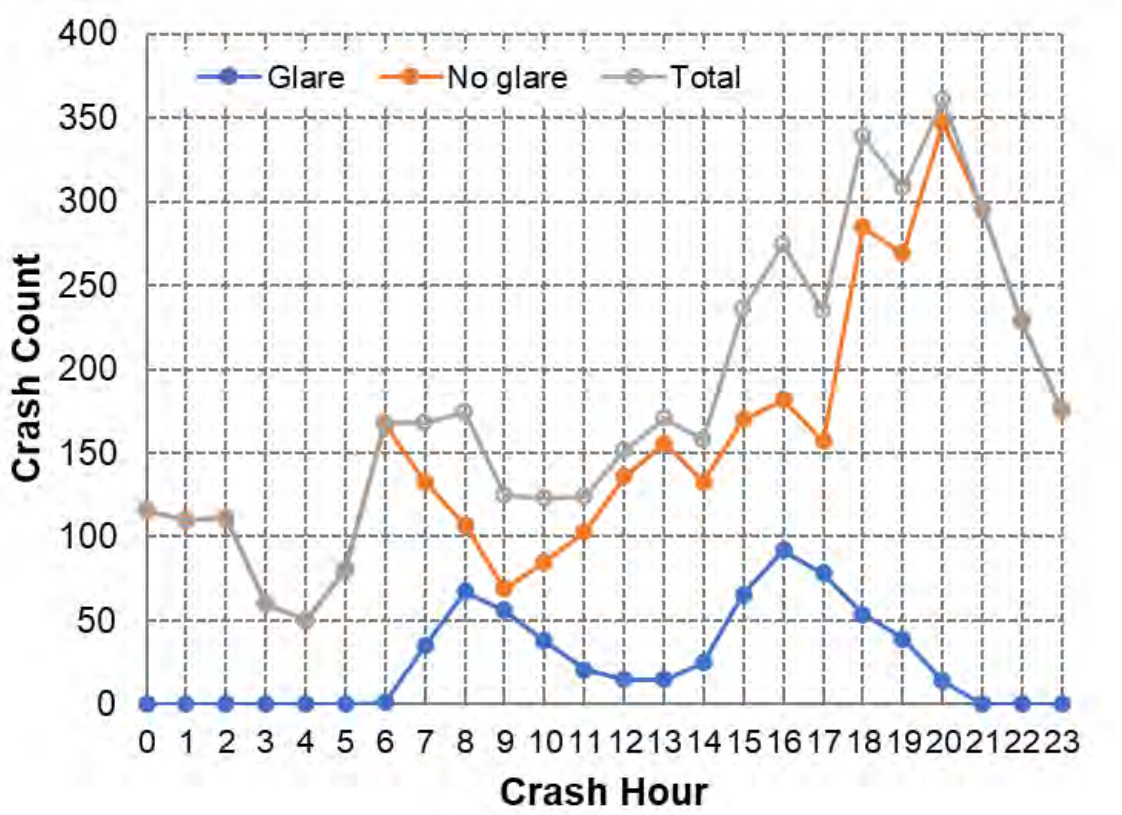


Pedestrian Crashes with Possible Sun Glare Issues

Number of Keywords or Flags in CRIS	Crash Count		
	All Crashes	Sun Glare Flag = 1	Sun Glare Flag = 0
0	4377	565	3812
1	15	10	5
2	29	24	5
3	16	12	4
4	4	4	0
5	1	1	0
Total	4442	616	3826

- 65 (1.5%) CRIS; 616 (13.9%) SRCC; 630 (14.2%) combined
- Possible explanations for Discrepancy:
  - Some may have been sun glare-related but the glare issue did not get identified or recorded in the crash investigation and documentation process
  - Some may not have been affected by sun glare even though they occurred in conditions when sun glare could have been a contributing factor (time of day, sun position, vehicle direction of travel, etc.)

Crash Distribution by Hour



Pedestrian Crash Severity Prediction

- **Intended Ped Crashes**
  - Controlled Access (66)
    - Predict K Crashes
  - Non-Controlled Access (637)
    - Predict KA Crashes
- Consider: speed limit, geometry, ADTs; crash type, visibility, truck AADT, glare, demographics, etc.

	Controlled Access		Non-controlled Access	
Severity	**Freq.**	**Percent**	**Freq.**	**Percent**
K	46	69.7	128	20.13
A	14	21.21	189	29.72
B	2	3.03	173	27.2
C	1	1.52	130	20.44
O	3	4.55	16	2.52
Total	66	100	637	100

Pedestrian Crash Severity Prediction

- $g(\boldsymbol{x}) = ln\left[\frac{P(Y_{it}=1|\boldsymbol{x})}{1-P(Y_{it}=1|\boldsymbol{x})}\right] = \beta_0 + \beta_1 x_{1,it} + \cdots + \beta_K x_{K,it}$

- $P(Y_{it} = 1|\boldsymbol{x}) = \frac{e^{g(x)}}{1+e^{g(x)}} = \frac{e^{\beta_0+\beta_1 x_{1,it}+\cdots+\beta_K x_{K,it}}}{1+e^{\beta_0+\beta_1 x_{1,it}+\cdots+\beta_K x_{K,it}}}$

$P(Y_{it})$ = probability of high-severity crash occurrence on segment *i* in time *t*, given a crash has occurred.

$g(\boldsymbol{x})$ = logit (log-odds).

$\boldsymbol{x}$ = vector of predictor variables.

x_i = predictor variable representing a site condition.

β_i = regression coefficient.

K Ped Crashes on Controlled Access (66)

- **Probability of fatality increases with**
  - Higher truck AADT
  - S-CL; motorist going straight, pedestrian crossing from left (driver less likely to expect pedestrian crossing from left than from right)
  - Male pedestrian; different risk-taking behavior for men than women

Variable	Estimate	Standard Error	Wald Chi-Square	Probability > Wald Chi-Square
Intercept	-1.5026	0.8800	2.9155	0.0877
Truck AADT	0.000092	0.000052	3.1833	0.0744
Maneuver type S_CL	1.5613	0.8641	3.2646	0.0708
Pedestrian gender male	1.9756	0.6401	2.8233	0.0929

K or A Ped Crashes on Non-Controlled Access (637)

- **Probability of fatality or incapacitating injury increases with**
  - pedestrian's age
  - S-CL or S-CR; motorist going straight, pedestrian crossing from motorist's left or right (S-CL coefficient value is greater)
  - visibility - drivers may choose higher speeds with greater visibility
  - increasing outside shoulder width
- **Probability decreases if sun glare is present – drivers may choose higher speeds in absence of sun glare**

Variable	Estimate	Standard Error	Wald Chi-Square	Probability > Wald Chi-Square
Intercept	-2.7803	0.5680	23.9587	< 0.0001
Outside shoulder width	0.0570	0.0179	10.1716	0.0014
Maneuver type S_CL	1.1076	0.2327	22.6477	< 0.0001
Maneuver type S_CR	0.7369	0.2328	10.0243	0.0015
Visibility	0.1673	0.0541	9.5617	0.0020
Sun glare presence	-0.5595	0.2815	3.9502	0.0469
Pedestrian age	0.0152	0.00483	9.9352	0.0016

Texas A&M Transportation Institute Team

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Research Engineer

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Associate Research Scientist (formerly)

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Trinity Metro
Fighting Against Human Trafficking

Jessica Powers

Trinity Metro Chief Safety Officer

What is Human Trafficking?

Human trafficking is the exploitation of persons for sexual services or forced labor through the use of force, fraud, or coercion.

1. Though sex and labor trafficking are the most common types of trafficking in Texas, other forms include domestic servitude, forced marriage, forced criminality, child soldiers, and organ harvesting.
2. This crime affects all demographic categories (e.g., gender, age, race, income level, education level) around the globe and can be facilitated through online and in–person means.

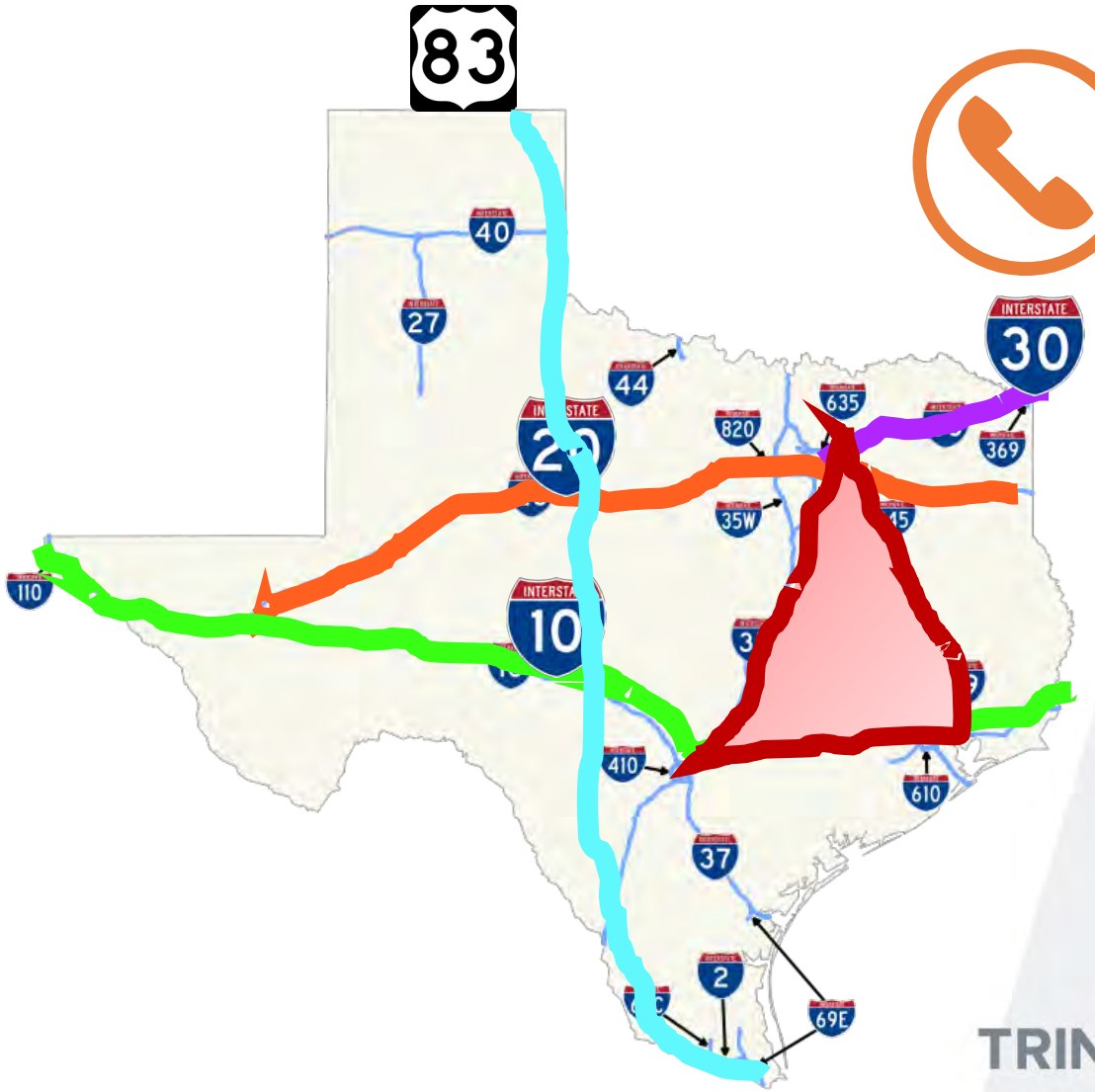
TRINITY METRO®

Modern-day slavery is global

- There are approximately 27.6 million victims of trafficking worldwide.
- Human trafficking is the fastest-growing criminal enterprise, generating $150 billion/yr.

TRINITY METRO®

Texas is a breeding ground



#2 Texas ranking for reports to the National Hotline

(Human Trafficking Hotline, 2020)

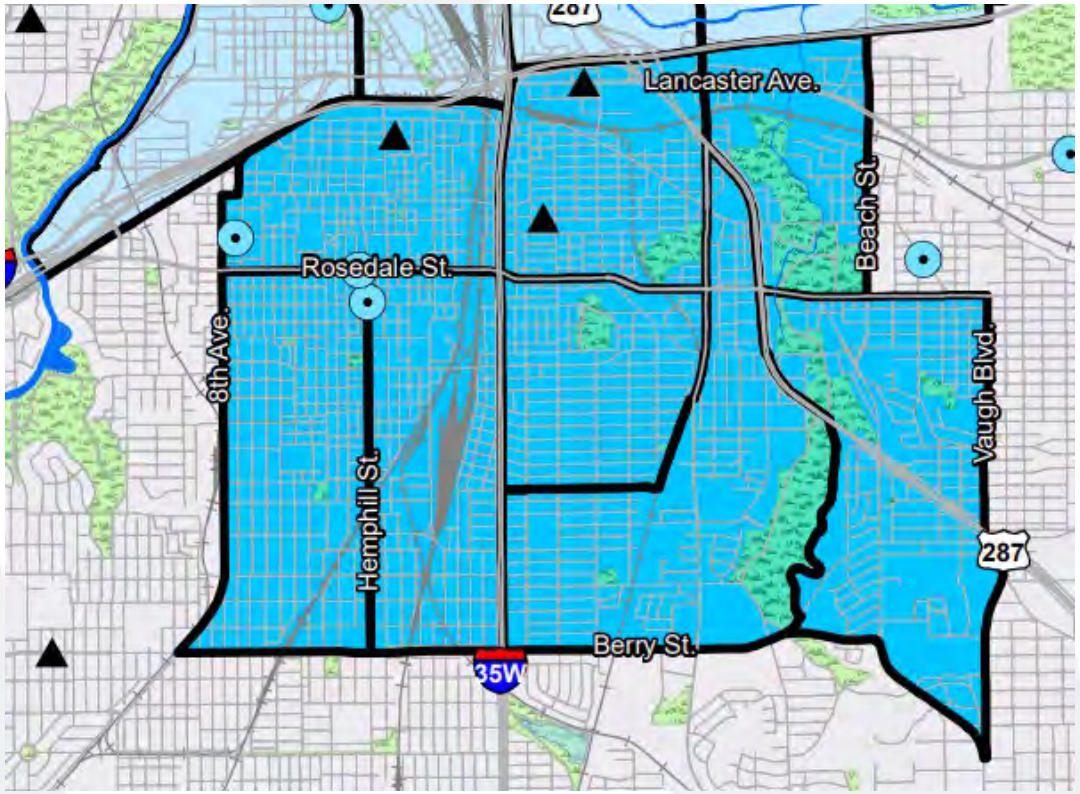
TRINITY METRO®

Where are you vulnerable?

Recruitment often happens where there are vulnerable populations that are at risk for exploitation. Places like:

- Hospitals/Clinics
- Homeless shelters
- Schools
- Bus stops/train stations

Fort Worth's most vulnerable are in our backyard. But trafficking can Happen anywhere.



TRINITY METRO®

How is transit involved?

- Traffickers transport victims through public transportation because of the easy access and lack of detection.
- Traffickers can easily purchase a ticket for a victim and accompany them to the next location.
- 63% of victims reported using multiple forms of public transportation during their exploitation.
- 35% of victims reported their traffickers used public buses as a form of transportation to facilitate exploitation.

TRINITY METRO®

Trinity Metro joined the fight

Trinity Metro embarked on a program to help end trafficking in our area.

- We worked with Unbound Fort Worth to create transit-specific training.
- Trinity Metro staff, TRE, TEXRail, and Bus Operators are trained on what to look for and how to handle potential situations.
- Trinity Metro is a part of the initiative DOT Transportation Leaders Against Human Trafficking (TLAHT) initiative, which is comprised of transportation and travel industry stakeholders working jointly to maximize their collective impact in combating human trafficking.
- Trinity Metro CSO participates in the Human Trafficking Prevention Task Forces.
- Trinity Metro Safety, Security, and Training Leadership participate annually in the Light the Way End Human Trafficking.

TRINITY METRO®

Trinity Metro joined the fight

Policy & Protocol Change	• Changes to policies for Reporting • Reviewing other transit agencies policies and procedures. • CSO is vice-chair on DOT Policy and Partnership Sub-Committee
Training	• Worked with Unbound to create a transit specific training program. • Unbound trained Trinity Metro management team on how to engage with Survivors and to be Trauma informed. • TM began training new and exiting employees 2022 • TM Executive Safety Committee was trained 2022
Public Awareness	• TM works with Unbound and Safe Place to get the community involved in the fight against Human Trafficking. • TM push social media to promote awareness to stop Human Trafficking
Partnerships	• TM is partnered with ACH Child and Family Services and our bus and trains are roving safe places and FWCS is a designated Safe Place hub. • Partnered with Unbound • Active in community outreach • Active in DOT Advisory Committee on Human Trafficking

TRINITY METRO®

Trinity Metro joined the fight

Trinity Metro worked diligently with ACH Child and Family Services to achieve Safe Place status on every bus, train and our hub, Fort Worth Central Station. We are now equipped to identify, protect and assist children and young adults in our community that are in danger of being trafficked

SAFE PLACE

TRINITY METRO®

Trinity Metro joined the fight

Many staff members wore blue on National Human Traffic Awareness day to help promote awareness on social media.

TRINITY METRO®

TRINITY METRO®

Call
911

National Human Trafficking Hotline

888-373-7888

Text 233733

iWatchTexas Reporting System

844-643-2251

iwatchTexas.org

Download app on iPhone

Download app on Android

Be the One in the Fight against Human Trafficking.

TRINITY METRO®

NCTCOG PRESENTATION

Community Schools & Transportation Update

SHAWN CONRAD | RSAC | 1.26.2024

Community Schools and Transportation Program

Safe Routes to School:

Encourage and enable children to safely walk and bicycle to school.

www.nctcog.org/SRTS

School Siting:

Encourage location of schools that enable safe routes, avoid unsafe traffic conditions, and promote efficient development.

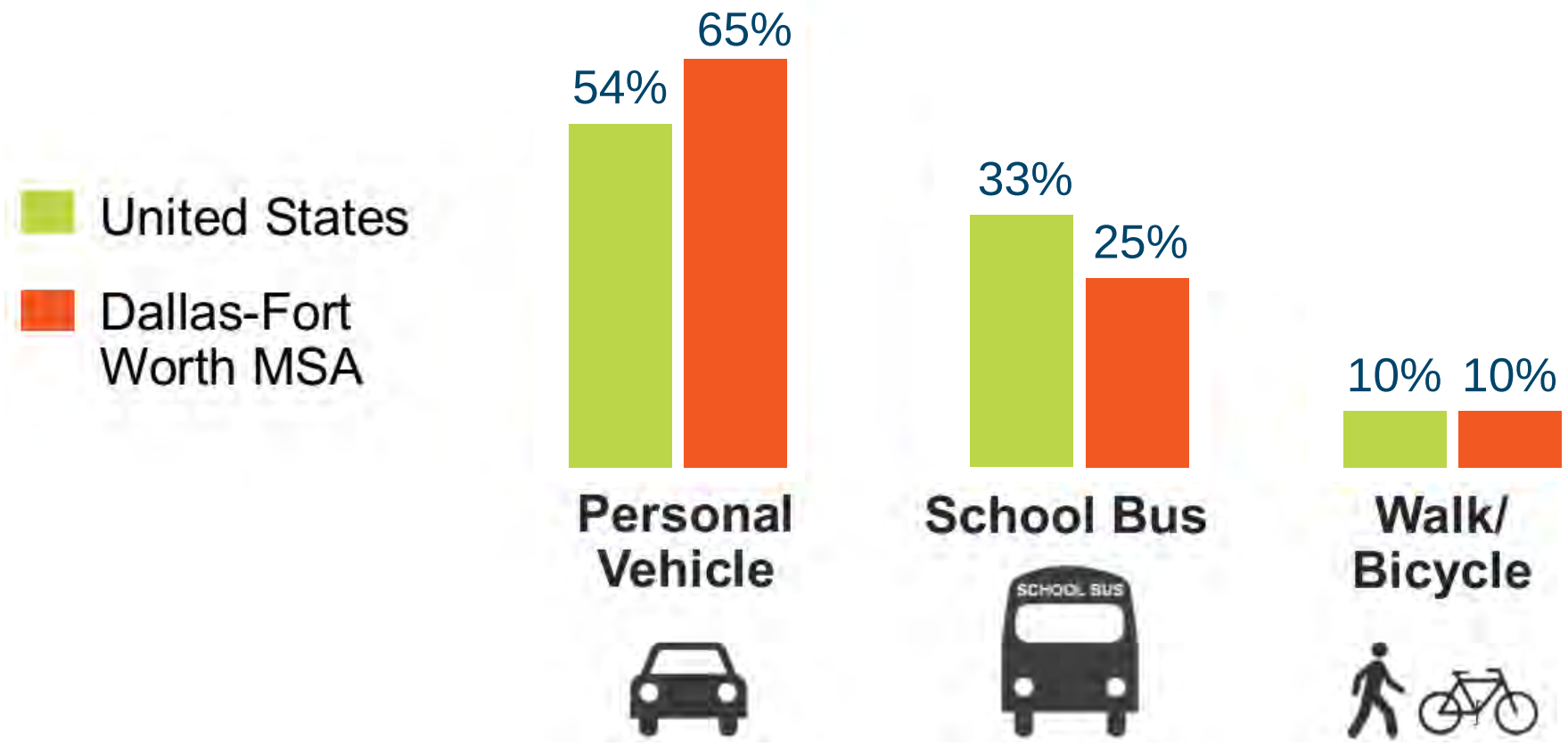
www.nctcog.org/schoolsiting

Activities:

Planning, technical assistance, facilitation/coordination, education, encouragement, special topics studies, tools and resources

Decline in Walking and Biking to School

2017 Mode Share



Source: National Household Travel Survey, 2017, Dallas-Fort Worth MSA (N=2,582). FHWA NHTS Brief: Children's Travel to School, 2019.

Less Walking and Biking to School

↑ Traffic Congestion

↓ Safety

↓ Health

↓ Air Quality

↑ Student Busing in DFW*

*Source: Texas Comptroller, 2014.

SCHOOL CROSSING GUARDS INITIATIVE

Request and Problem

- Request at March 15 BPAC meeting for assistance with methods for determining placement of crossing guards
- Address lack of state/federal guidance on crossing guard placement
- Explore possibility of developing regionally-consistent implementation method
- Goal to improve student & guard safety

What We Have Done

- Surveyed stakeholders
- Reviewing state, federal, other guidance
- Comparing examples of city crossing guard guidance in the region
- Hosted a regional coordination meeting to update and receive feedback
- **Distributed an updated survey**

UPDATED SURVEY

- **Closes March 1, 2024**
- Based on feedback from September 2023 regional meeting
- Seeking input on crossing guard issues and interest in a regionally- consistent process
- **Please share with City or ISD staff with interest in improving child safety through crossing guard placement!**
- https://tinyurl.com/SchoolCrossingGuards

WALK TO SCHOOL DAY PROMOTION 2023

Sonntag Elementary: Walk to School Day
2023 1st Place Photo Contest Winner

Atherton Elementary: Walk to School Day
2023 2nd Place Photo Contest Winner

Sonntag Elementary: Walk to School Day
2023 3rd Place Photo Contest Winner

WALK TO SCHOOL DAY

What Is Walk To School Day?

- Annual event where students at schools and communities around the country and the world walk to school on the same day
- Typically held first Wednesday in October (10/4 in 2023)
- Highlights the importance of pedestrian and bicycle safety
- NCTCOG helps schools participate by providing safety-themed giveaways

Miller Elementary

McCall Elementary (top), High Country Elementary Bicycle Raffle Winners (bottom)

Bicycle And Pedestrian Safety-focused Giveaways

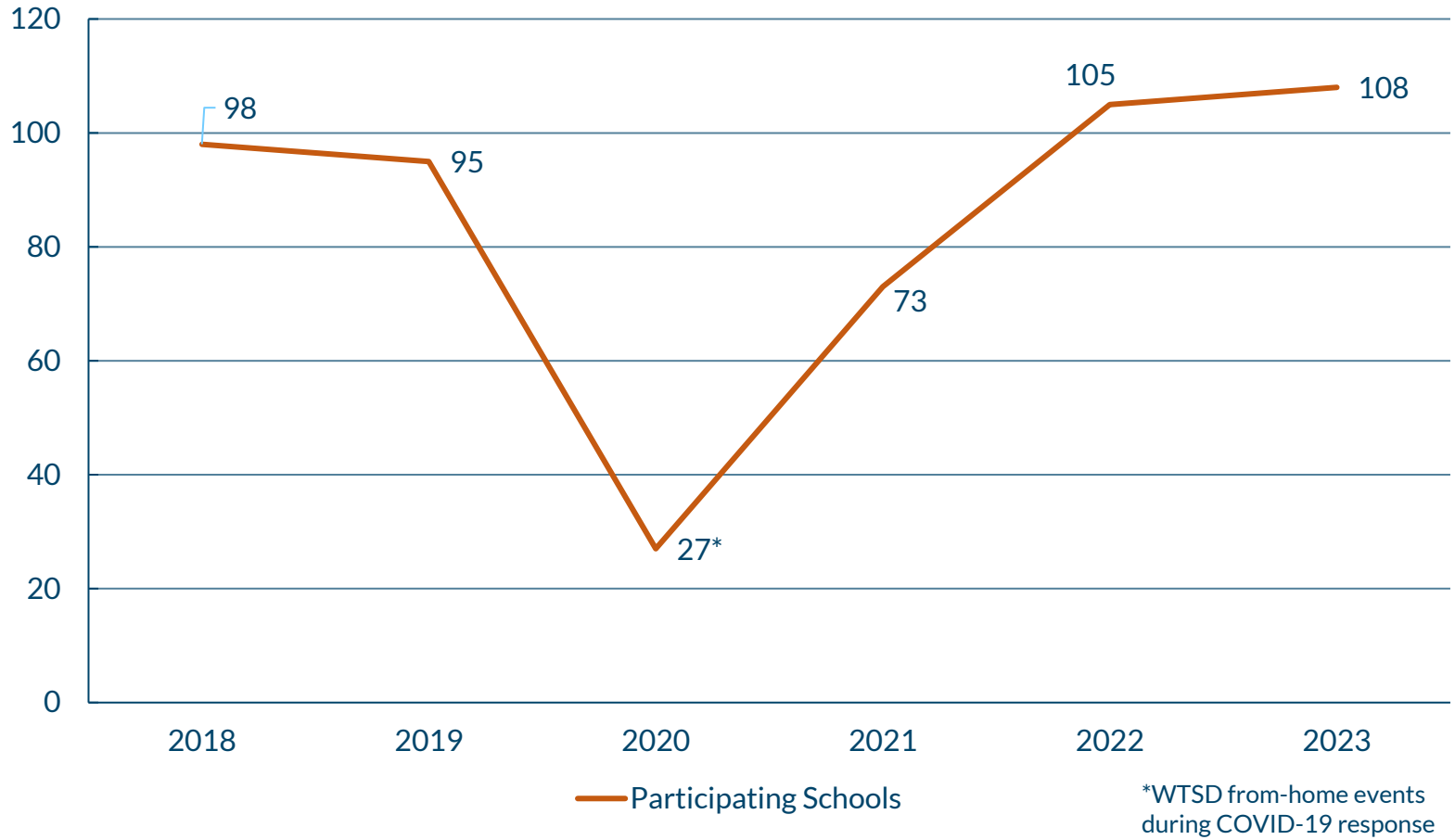
- Giveaway items generate excitement for students and families to participate in Walk to School Day while spreading safety messaging
- Schools participated in a photo contest to highlight the success of their event and the giveaway items
- Bicycle raffle to incentivize students and parents to participate and complete a safety pledge

Walk to School Day By The Numbers – 2023

NCTCOG provided safety-themed giveaways to 24 schools

NCTCOG received 905 signed safety pledges for entry into bike raffle from 15 schools

192 Texas WTSD events registered with walkbiketoschool.org – 56 percent in DFW region



2023 Bike Raffle Winners

- Promise to Street Safety must be signed by parent and student and returned to qualify for raffle
- Four bikes were awarded in 2023
- Winners:
  - Two students at McCall Elementary in Plano
  - Two students at High Country Elementary in Saginaw

North Central Texas Council of Governments

WALK TO SCHOOL DAY

LOOK OUT TEXANS
BIKE WALK DRIVE SAFELY

PROMISE TO STREET SAFETY

I promise to **BE ALERT** for people biking and walking on sidewalks, trails and streets.

I will also **LOOK OUT** for cars in the street. No matter what, it is never worth endangering my safety or the safety of other people to get somewhere.

I **RESPECT** the rights of all people to use our streets safely.

I will **OBEY** all traffic signs and signals for my own safety.

I will **PROTECT** myself by wearing a helmet when I ride my bicycle.

I will **PROTECT** my friends and loved ones by encouraging them to bike, walk and drive safely by following traffic laws and looking out for other people.

I will show my parent or caregiver the 21 Safety Tips at **www.LookOutTexans.org**.

Together, we can keep our streets safe and build respect for each other.

By signing this card, I promise to do my part to look out for, respect and protect my fellow Texans.

Cut here and keep the top!

Circle which bike you'd like to enter to win! (choose one)

20" Bike: *Age 5-10, 45in-54in tall*

Sky Blue with White Tires

Black with Red

24" Bike: *Age 8-13, 49in-59in tall*

Orange

Light Pink

Student Name _____ *Parent or Guardian Signature* _____

Student Age _____ *Student Grade* _____

Student's Teacher _____ *School Name* _____

2023 School Events

Keller-Harvel Elementary

Sonntag Elementary

Miller Elementary

- Most schools held remote walking events
  - Remote walking events entail participants meeting at an off-campus location to walk to school together
- Some schools coupled the remote walking event with an on-campus event to celebrate the participants

WTSD ENGAGEMENT SURVEY

- **Closes March 1, 2024**
- NCTCOG would like feedback from DFW schools to help shape future Walk to School Day events
- **Please share with school / ISD / other contacts with interest in improving or getting involved in WTSD!**
- http://tinyurl.com/WTSD23

SAVE THE DATE

- **Bike & Roll to School Day Promotion**
- May 8, 2024
- Highlights the importance of bicycle and other “rolling” modes of active transportation to school
- NCTCOG will provide implementation toolkits, safety-themed giveaways, and a bicycle raffle
- **More details to come!**

CONTACT US

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Regional Safety Advisory Committee

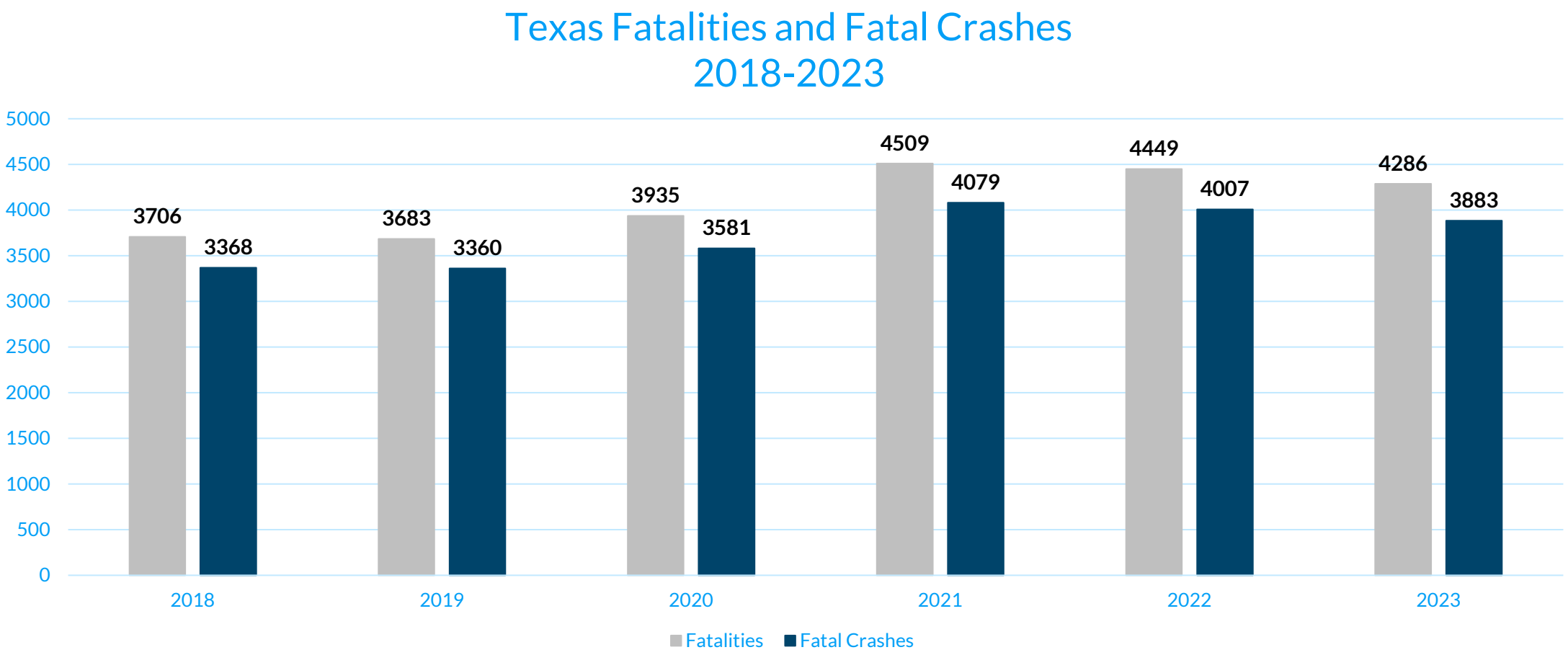
Regional Quarterly Safety Performance Update

Michael Misantonis | Transportation Planner

January 26, 2024

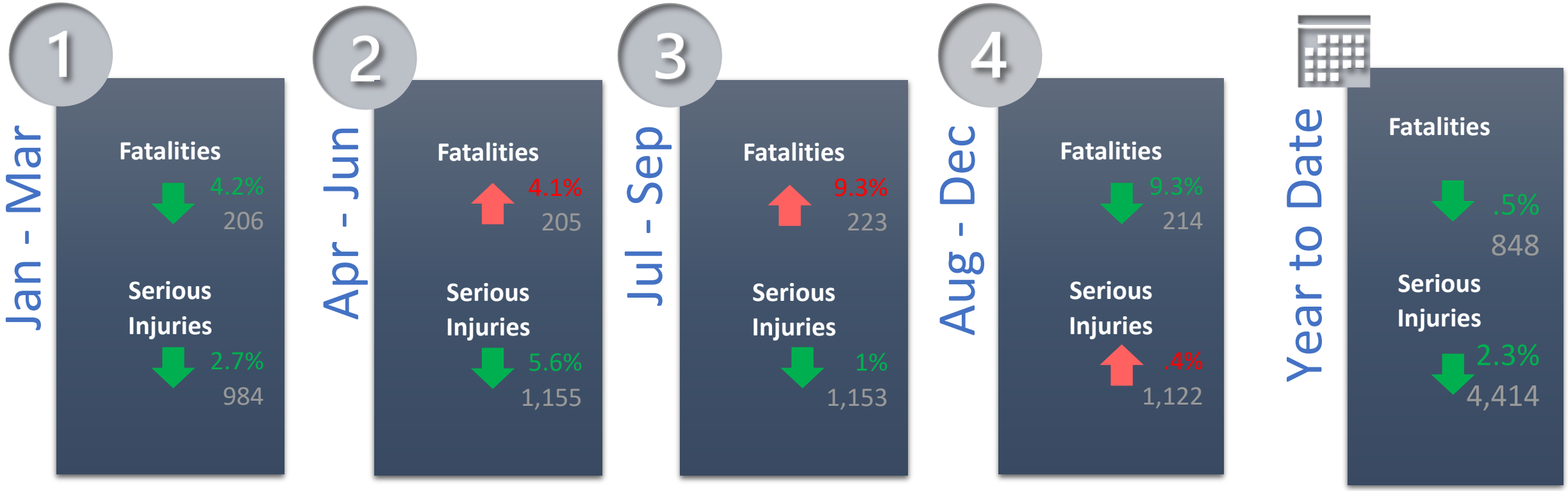
DRIVE AWARE north texas

Texas Fatalities and Fatal Crashes



Data as of January 22, 2024 - TxDOT's Crash Records Information System (C.R.I.S.)

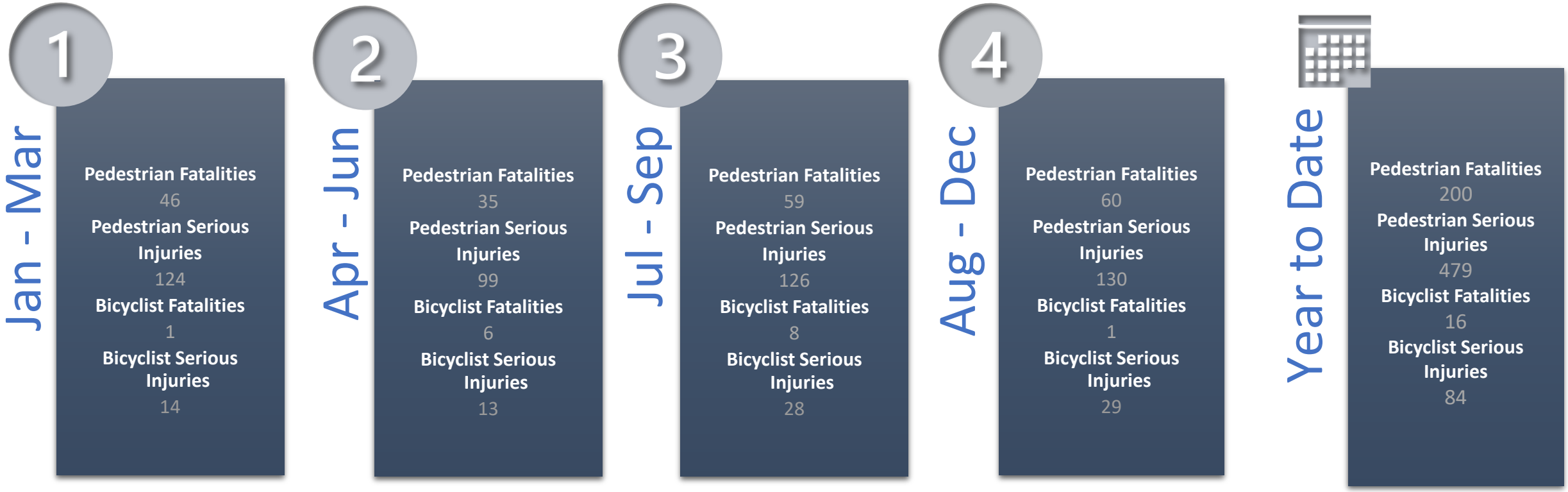
Quarterly Performance: All Fatalities and Serious Injuries Change 2022 - 2023



DRIVE AWARE north texas

Fatalities and serious injury data taken from TxDOT's CRIS MPO Dashboard January 22, 2024.
Percentages represent the change in each injury type from 2022 to 2023.
Totals represent total injuries in each quarter for 2023.

Quarterly Performance: Bicyclist and Pedestrian Fatalities and Serious Injuries 2023



DRIVE AWARE north texas

Fatalities and serious injury data taken from TxDOT's CRIS MPO Dashboard January 22, 2024.
Totals represent total injuries in each quarter for 2023.

Questions and Contacts

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DRIVE AWARE north texas

NCTCOG PRESENTATION

Safe Streets and Roads for All Grant Program

Catherine Richardson
Regional Safety Advisory Committee
1.26.2024

Safe Streets and Roads for All (SS4A) Grant Program

- Created through the Bipartisan Infrastructure Law
- Purpose: prevent deaths and serious injuries on our roadways
  - Focus on comprehensive safety action planning and implementing projects/strategies identified in safety action plans
- $5 billion discretionary grant program
  - $1 billion per year over five years
- Inclusive of all types of roadway safety interventions across the Safe Systems Approach

SS4A Grant Program (FY24)

- Notice of Funding Opportunity is anticipated to be announced **February 2024**
- Political subdivisions of a State **(e.g. cities, counties, transportation agencies)**
- **One application** per agency allowed
- Applicants can apply for **Planning and Demonstration Grants** or **Implementation Grants**

SS4A: Planning and Implementation Grants

- **Planning and Demonstration Grants:** funds to develop, complete, or supplement a comprehensive safety action plan
  - Creation of Action Plan (Action Plan)
  - Sub-plans (Supplemental Action Plan)
  - Pilot program of safety treatments not yet adopted (Demonstration Activity)

- **Implementation Grants:** funds to implement projects and strategies identified in an Action Plan to address a roadway safety problem
  - Can be infrastructure, behavioral, and/or operational activities.

SS4A: Planning and Demonstration Grants (FY22) Awarded in North Central Texas

Project Title	Lead Applicant	Total Federal Funding
City of Arlington TX Safety Action Plan	City of Arlington	$240,000.00
DeSoto, TX 2022 Safe Streets and Roads for All Action Plan Grant	City of DeSoto	$160,000.00
Fort Worth Citywide Safety Action Plan	City of Fort Worth	$419,505.60
	Total:	**$819,505.60**

SS4A: Planning and Demonstration Grants (FY23) Awarded in North Central Texas

Project Title	Lead Applicant	Total Federal Funding
Alvarado Multimodal Transportation Safety Plan	City of Alvarado	$236,000
City of Arlington - ADA Transition Plan	City of Arlington	$385,000
SS4A Action Plan Grant for the City of Balch Springs, TX	City of Balch Springs	$160,000
City of Frisco TX Safety Action Plan	City of Frisco	$280,000
Mansfield Active Transportation and Safety Plan	City of Mansfield	$548,800
City of McKinney Safety Action Plan	City Of McKinney	$240,000
SS4A Action Plan Grant for the City of Mesquite, TX	City of Mesquite	$256,000
Midlothian Mobility Safety Action Plan	City of Midlothian	$107,284
Richardson Comprehensive Safety Action Plan	City of Richardson	$320,000
Saginaw Comprehensive Safety Action Plan	City of Saginaw	$184,000
City of Terrell Road Safety Action Plan	City of Terrell	$168,000
Watauga Safe Streets and Roads for All Action Plan	City of Watauga	$160,000
Weatherford Comprehensive Safety Action Plan	City of Weatherford	$224,000
Advancing Regional Safety in the Dallas-Fort Worth Region	North Central Texas Council of Governments	$4,000,000
	Total:	**$7,269,084.00**

SS4A: Implementation Grant (FY23) Awarded in North Central Texas

Project Title	Lead Applicant	Total Federal Funding
MLK Jr./Cedar Crest Blvd Complete Street & Safety Upgrades	City of Dallas	$21,800,000

SS4A: Award Totals (FY22 and FY23) for North Central Texas

Fiscal Year and Grant Type	Total Federal Funding
FY22 Planning Grants	$819,505.60
FY23 Planning Grants	$7,269,084.00
FY23 Implementation Grants	$21,800,000.00
Total:	**$29,888,589.60**

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REGIONAL SAFETY ADVISORY COMMITTEE

North Central Texas Council of Governments

Friday, January 26, 2024

10:00 am – 12:00 pm

6) UPDATE ITEMS

a) 2024 Safety Performance Targets Update and TxDOT Crash Report (Quarterly Update), Michael Misantonis, NCTCOG

b) CVE Training for Judges and Prosecutors, Michael Misantonis, NCTCOG

c) Friends of the Safety Task Force, Natalie Bettger, NCTCOG

d) Upcoming 2024-25 RSAC Term, Sonya Landrum, NCTCOG

North Central Texas Council of Governments

DRIVE AWARE north texas