EAST END DISTRICT

SAFETY ACTION PLAN

EAST END DISTRICT, HOUSTON, TX | JULY 2025

Acknowledgements

The East End District Safety Action Plan was developed under the guidance of a project team. Additional input and feedback were provided through the plan development process by local and regional organizations, including the East End District Technical Advisory Group. Thank you to all these individuals for their instrumental involvement with the development of the East End District Safety Action Plan. Many thanks also to the individuals, groups, agencies, and participating members of the public that provided information, comments, suggestions, and/or their valuable time to the planning process and development of this Plan.

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East End District Safety Action Plan Project Team

Jack C. Hanagriff, Road and Rail Safety Manager, East End District

Trinity Parker, Project Manager, East End District

Cynthia Lee, Program Aide, Texas A&M University School of Public Health

Hannah Barrett, Researcher & Program Manager, Traffic Injury Research Foundation

Executive Summary

The East End District Safety Action Plan has been created to support the City of Houston's road safety efforts to better inform and guide resources marked for improvements within the East End District. In 2022, the District was awarded a Safe Streets and Roads for All (SS4A) Planning Grant from the US Department of Transportation (USDOT) to study these transportation safety and mobility concerns together.

The goal of the East End District Safety Action Plan is to utilize low-cost, high-impact strategies to improve safety within the District in addition to strengthening partnerships with agencies, organizations, and community groups to promote a culture of road safety. Based on available data, studies, and recommendations the Safety Action Plan suggests prioritizing the following:

- Eliminate fatal and serious injury crashes using the Safe System Approach.
- Create a safe, accessible, and equitable street network for all users.
- Improve connectivity and safety for pedestrians, cyclists, drivers, and transit users.
- Enhance data collection, analysis, and sharing to inform safety efforts.
- Strengthen community and agency collaboration on safety strategies.
- Target vulnerable populations, including children, seniors, non-drivers, and low-income residents.
- Improve safety at railroad crossings and reduce congestion caused by blocked crossings.

The creation of this Safety Action Plan qualifies the District and its partner agencies for the Federal Highway Administration's Demonstration and Implementation grants as part of the SS4A Program. This was awarded to the District in 2024 and the District will utilize these funds to implement projects outlined within this Action Plan.

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Introduction

The East End District (hereafter referred to as “the District”) is a Special District incorporated in the State of Texas. The District is a vibrant, bilingual (English/Spanish) community with a diverse and growing population of over 80,000 people, ranging from larger multi-generational households to young professionals living solo. Many residents are affected by economic hardships, and all are at risk of being killed or seriously injured on high-risk roads. Most of the communities in the District are part of Houston’s High Injury Network with two neighborhoods classified under the Houston Complete Communities Program as lacking effective access to essential services, public health programs, safety education, and other general city accommodations. With 3,500 (primarily small) business properties, this historically underserved community is also currently experiencing a building boom that includes more apartments and townhomes being built, plans for the city’s main bus terminal, and other construction affecting infrastructure and how people navigate the streets.

The District’s neighborhoods are connected by a network of primary roadways that are dissected by a system of rail corridors servicing three Class 1 and one short line railroads in proximity to four major freeways. Community stability is routinely impacted by freeway congestion, railroad operations, high crash volume, and surges of displaced traffic. Pedestrians, cyclists, and drivers face increased risks because they must find a way around long, stopped trains blocking key streets for hours or days. Residents also face frustrated drivers “cutting through” neighborhoods while attempting to find alternate routes, often at dangerous speeds. Congestion due to rail and road traffic has caused delays in medical care and even deaths as first responders are blocked with no way of avoiding delays in advance.

To address these safety, mobility, and accessibility concerns the District, along with partner agencies, have created a Safety Action Plan. The East End District Safety Action Plan is a road map to substantially reduce fatal and serious injury crashes on roads within the District through supporting the City of Houston’s road safety efforts. In 2022, the District was awarded a Safe Streets and Roads for All Planning Grant from the US Department of Transportation (USDOT) to study these transportation safety and mobility concerns together. The East End District Safety Action Plan focuses on:

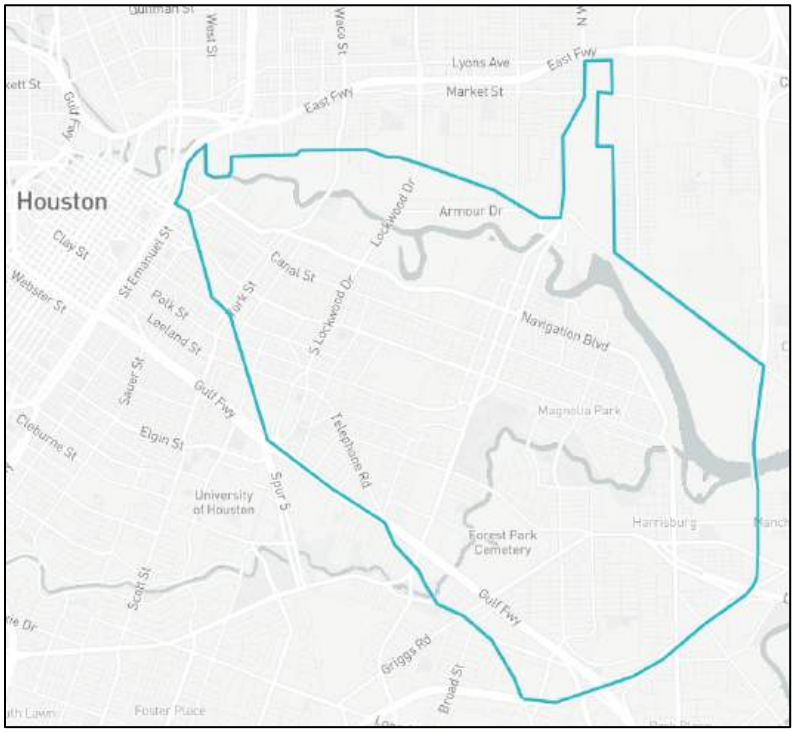
- Creating a cohesive road safety vision
- Creating a safe, accessible, equitable street network
- Making connecting to transit safe
- Making driving safe
- Addressing safety concerns in the District, especially for vulnerable road users, children, seniors, and people who do not drive
- Improving road safety data collection
- Improving road safety for all road users at railway crossings

The East End District Safety Action Plan will be used in alignment with the City of Houston Action Plan, which aims to create a safe, equitable, accessible street network, make walking and biking safe, make connecting to transit safe, and make driving safe using a strategy grounded in a holistic and strategic approach, leadership, collaboration, accessibility and accessible outcomes, comprehensive data analysis, transparency, and accountability.

Planning area

The District is 16 square miles, bounded by Clinton Drive on the north, Loop 610 on the east, Telephone Road to I-45 on the south, and the Houston Belt and Terminal Railroad to U.S. 59 on the west.

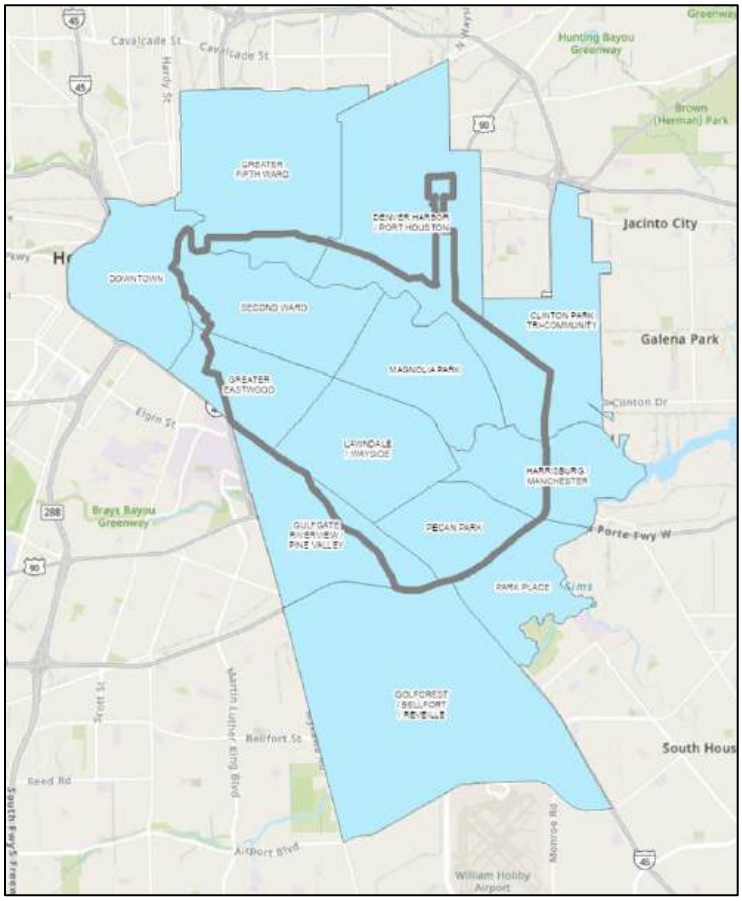
Figure 1: East End District Boundary



There are nine super neighborhoods[1] that lie wholly or partially within the District as shown in Figure 2. Lawndale/Wayside, Magnolia Park, and Second Ward are completely within the District boundaries. About half or more of Harrisburg/Manchester and Greater Eastwood lie within the District while small portions of Greater Fifth Ward, Denver Harbor, and Gulfgate cross the District boundaries.

[1] Super neighborhoods were created by the City of Houston to encourage residents of neighboring communities to work together to identify, prioritize and address the needs and concerns of the broader community.

Figure 2: District Super Neighborhoods



What is a Safety Action Plan?

A Safety Action Plan is a community-specific framework for applying the Safe System Approach. The East End District Safety Action Plan is guided by partner agencies.

Safety Action Plans establish a vision and goals for transportation safety, identify high-crash, high-risk intersections and streets through data analysis and community input, and then develop projects and strategies to address roadway safety issues. To assist with implementation of projects and strategies, SS4A is a Federal funding program that supports implementation of countermeasures that address road safety challenges on public roads. A Safety Action Plan can help establish project and program eligibility for SS4A. To pursue federal SS4A funding, a local agency must have a Safety Action Plan in place that addresses the eight key components of safety action planning (see Appendix A). Access to these funds can assist the District in funding engineering-related solutions that make their roads safer for all road users.

Vision & Goals

Vision

Apply the Safe System Approach (Appendix B) to eliminate fatal and serious injury crashes and to reduce crash risk in the District to promote a safe, livable, and connected community for all road users in the coming years.

Goals & Objectives

Utilize low-cost, high-impact strategies to improve safety within the District.

- Identify locations across the District for transportation improvements, utilizing safety and mobility data.

Strengthen partnerships with agencies, organizations, and community groups to promote a culture of road safety.

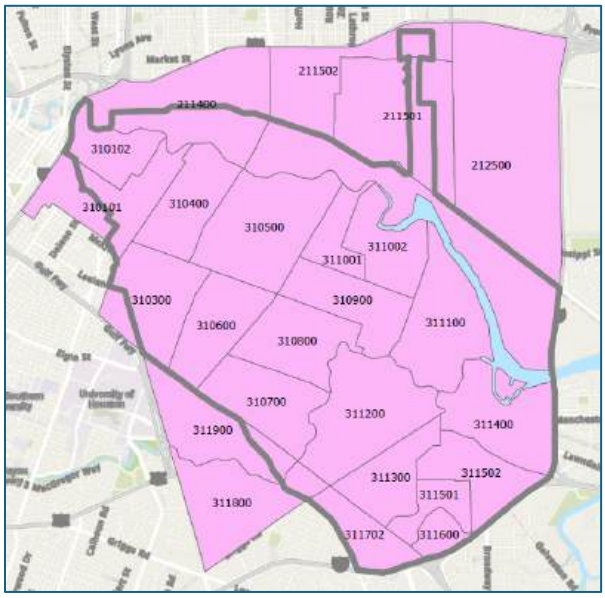
- Coordinate with the City of Houston to work on shared road safety goals.
- Coordinate with local and state agencies on a regular basis to share information and ideas specific to applying the Safe System Approach.
- Collaborate with community groups across the District to gain input on planned engineering projects and targeted educational and enforcement strategies to promote roadway safety.

Community Profile

This section will provide an overview of the housing, demographics, and economic conditions of the District. Understanding the community's social and economic landscape helps identify disparities, address specific needs, and promote inclusive development. Additionally, examining the existing transportation network provides insight into current challenges and opportunities, particularly regarding accessibility, connectivity, and safety. This foundation is needed for conducting a comprehensive safety analysis and proposing targeted strategies to enhance mobility and reduce risks.

The District covers multiple Census Tracts (as demonstrated in figure 3). As such, information was obtained from the U.S. Census Bureau and then scaled accordingly.

Figure 3: Census Tracts within the East End District



Based on census data, the population of the District is 87,388 (51% male; average age 34.9 years). Over half (62%) of the District's population is under the age of 18 years and there is a child dependency ratio[2] of 36.2. Many (68%) of the District's population over the age of 5 years speaks a language other than English. Of this population, the primary language is Spanish with 67% of the population over age five speaking Spanish at home. Of these Spanish speakers, 31% speak English less than "very well".

The median household income in the District is $55,077, compared to $76,292 within the state of Texas, and $80,610 nationally. The employment rate within the District is 64%. Of those working, most (92%) commute compared to those working from home (8%). The majority (71%) use a personal vehicle (i.e., car, truck, or van) and drive alone to work, 12% carpool, and 3% utilize public transportation. The average commute time is 27.6 minutes. Just 2% of commuters walk to work.

The District is home to 36,287 housing units, most (86%) of which are occupied. Just under half (47%) are renter occupied, opposed to owner occupied (40%). The average monthly housing cost is $962,

[2] The child dependency ratio is the number of children aged 0–14 per 100 people aged 15–64. It's a measure of how many young people are not working compared to the number of people who are working.

compared to the national average of $2,120. Over half (56%) of the housing units are detached, one-unit homes.

Table 1: Level of education within the District

Education	% of population over 25 years	National average for the population over 25 years
High school graduate (includes equivalency)	29%	89.8%
Some college, no degree	15%	61.3%
Associate's degree	6%	41.1%
Bachelor's degree	13%	35%

Transportation Profile

Understanding the transportation network is key to providing context for the strategies proposed to enhance road safety. By understanding the transportation network, factors have been identified that influence mobility and safety, ensuring that proposed improvements are well-informed and aligned with the realities of the District's transportation system. This comprehensive approach aims to foster a safer, more accessible network for all users.

Transportation network

The District contains 330 miles of road, the majority (198 miles or 60%) of which are classified as local roads. Table 2 demonstrates the road classifications within the District.

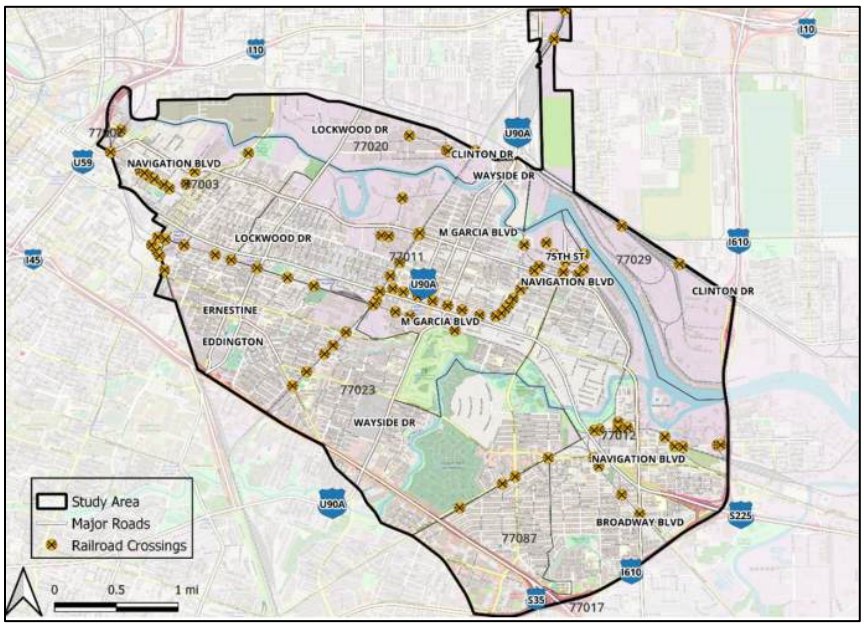
Table 2: East End District road classification

Road Classification	Length (miles)	% of total roads
Access	44.90	13.6%
Freeway	11.19	3.4%
Frontage	9.98	3.0%
High Occupancy Vehicle (HOV)	3.04	0.9%
Local	198.30	60.3%
Major	49.43	15.0%
Private	0.44	0.1%
Ramp	12.05	3.7%

Railroads

The District is the center of railroad commerce with trackage accommodating four railroad companies, as demonstrated in Figure 4.

Figure 4: Railroad crossings in the District



The District faces significant challenges due to railroad operations, impacting daily life and safety in the community. Key issues include:

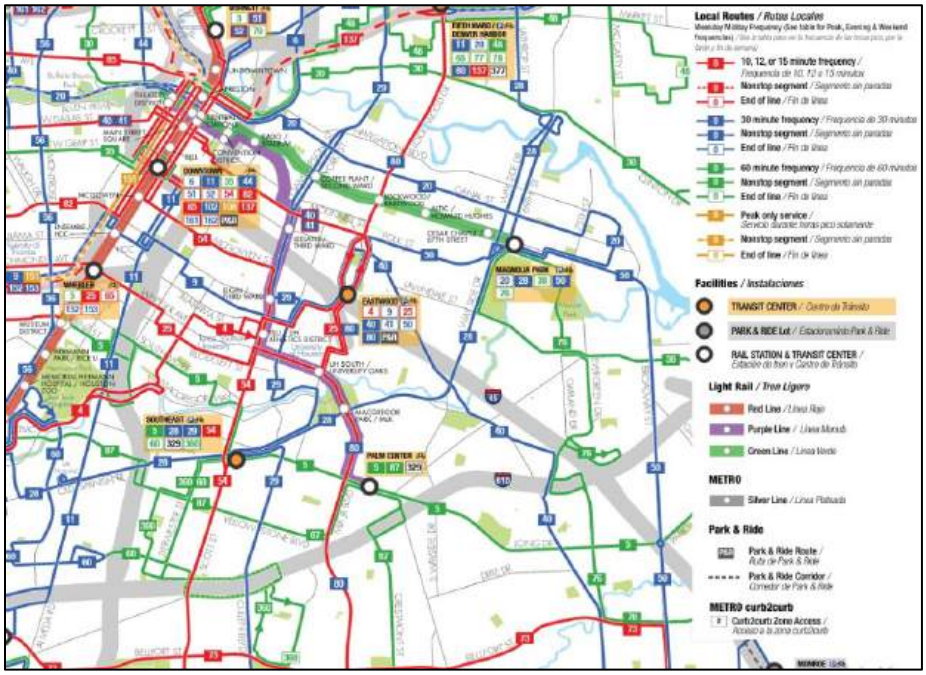
- *Traffic disruptions and safety concerns*. Long freight trains, some extending over 1.5 miles, frequently block road crossings in the District. These blockages delay school buses, emergency vehicles, and residents, creating hazardous situations and impeding access to essential services.
- *Pedestrian safety risks*. The District has witnessed tragic crashes involving pedestrians at rail crossings. Trains frequently block crossings for extended periods, sometimes for hours. This can lead to pedestrians climbing between or under railcars to get across, increasing the risk of serious injury or death. Students and workers in the area often take shortcuts across tracks due to a lack of alternative crossings, making them vulnerable to fast-moving trains.
- *Infrastructure challenges*. The existing rail infrastructure in the District is outdated, leading to frequent disruptions and safety hazards. Despite numerous attempts at small-scale fixes, comprehensive solutions have yet to be implemented. There is a pressing need for ambitious projects to fully separate major rail lines from street crossings, such as constructing overpasses or underpasses, to enhance safety and mobility.

Data collected from October 2024 to February 2025 examined the number of days where trains were stopped, and blocking intersections, for more than sixty minutes. Within this five-month period (150 days), there were just 39 days *without* trains blocking traffic for more than 60 minutes. The average length of a train block ranges month to month, with a high of 104.5 minutes in December 2024, and a low of 78.3 minutes in February 2025. Within these five months, a total of 184 individual trains stopped for more than 60 minutes, blocking traffic and pedestrians.

Commuting & transit

Most commuters (71%) use a personal vehicle (i.e., car, truck, or van) and drive alone to work, 12% carpool, 3% utilize public transportation, and 2% walk. The average commute time is 27.6 minutes. Despite an expansive public transportation system, very few workers within the District utilize it frequently. The Metropolitan Transit Authority of Harris County (METRO) operates an extensive public bus system throughout Houston, including the District. METRO offers more than 80 local bus routes, with thousands of shelters and stops across the city. In the District, major bus routes traverse streets such as Navigation, Canal, Lawndale, Polk, and Clinton, intersecting with routes along Hirsch, Lockwood, Telephone Road, and Wayside. Additionally, the Eastwood and Magnolia Transit Centers serve this area, enhancing connectivity.

Figure 5: METRO availability within the District



Active Transportation Users

Between 2020 and 2024, 103 pedestrian crashes occurred within the District, 82% of these resulted in injury, while 13% were fatal. Pedestrian density is mapped (see Figure 6 below) to visualize the number of pedestrians within a specific area of the District. Orange points indicate an average of 26-50 pedestrians per hour, while green points indicate 6-25 pedestrians per hour. As displayed within the figure, the majority of District roads see a high volume of pedestrians daily.

Figure 6: Pedestrian density within the District

Community accessibility considerations

As per the USDOT Equitable Transportation Community Explorer, 87% of the census tracts located in the District are disadvantaged.[3]

[3] The selection included: Texas – Harris County – Houston, City of. The LASSO selection button was used to select the census tracts located in the District.

Community engagement

Technical Advisory Group

A Technical Advisory Group (TAG) was formed in 2024, and a kick-off meeting took place on May 14th, 2024. The purpose of the TAG is to ensure the goals of the Safety Action Plan are meeting community expectations. Members were selected due to their personal knowledge and experience within the neighborhoods, which will help in the success of the Safety Action Plan. Members were invited to express their road safety concerns within the District at TAG meetings, which are summarized below:

- Rail blockages and movement in and out of the District.
- Navigating people safely in and out of the District, specifically concerns regarding through traffic and their use of private driveways to bypass train blockages.
- Options for commercial vehicles (i.e., school buses, 18-wheelers, etc.) at rail crossings as they are unable to reverse the vehicle.
- Speeding and street racing.
- Increased signage (i.e., stop signs).
- School safety, specifically in the Houston Independent School District, where crossing guards have been eliminated and the walk to school radius has increased to three miles.

TAG members represented the following organizations:

- Air Alliance Houston
- East End Chamber of Commerce
- Federal Highway Administration
- Federal Motor Carriers Houston POC
- Greater Houston Trucking Assoc.
- Harris County Public Health
- Houston Council District H
- Houston Council District I
- Houston Health
- Houston Public Works
- HPD Eastside
- HPD Traffic Enforcement Division
- Houston Fire Department District #8 and #20
- Manchester Civic Club
- METRO
- Segundo Coffee Lab
- Smith Addition Civic Club
- Super Neighborhood #63 (Second Ward)
- Super Neighborhood #64 (Greater Eastwood)
- Super Neighborhood #82 (Magnolia Park)
- TIRZ 23
- Valero
- Wulfe Management Services Inc.

Action2Zero Road Safety Assessment

Community engagement was achieved using the Action2Zero web-based community safety assessment and educational tools. Action2Zero was created by the Traffic Injury Research Foundation (TIRF) with funding from Desjardins, a private insurance company with an interest in road safety. It was designed to help communities develop and implement a strategic road safety plan. The community assessment in East End Houston was made possible with funding from the FIA Foundation.

The objective of the Action2Zero Road Safety Assessment is to support the work of local governments and their road safety partners. It shares current knowledge about evidence-based interventions, contains tools to guide the development of comprehensive community road safety plans, and describes ways to

engage community partners who can support initiatives. The assessment tool utilizes a 5-star road safety community rating system across several domains. Completed by a cross-section of road safety stakeholders, the tool helps communities assess priorities, capacity and needed resources to implement road safety initiatives. Users are guided through a series of questions organized according to three priority areas:

- knowledge about evidence-based practices;
- action that is planned, underway, or completed in the community; and,
- commitment among partners to improve road safety.

The Road Safety Assessment was fielded in the East End District twice, with initial data collection occurring July 11-20th, 2022 and a second data collection occurring July-October 2024. A total of 45 respondents completed the assessment in 2022, and 75 completed the assessment in 2024. Many respondents provided data for both collections. The Action2Zero tool was utilized prior to the execution of the SS4A FY22 agreement in order to get a head start on understanding community needs, but the donation of time by TIRF and FIA Foundation was not included as part of the "in-kind" component since it occurred prior to the agreement execution.

Data from the assessment highlight areas of concern which have shifted from 2022 to 2024. Concerns shifted in 2024 to behavioral issues (i.e., speeding, distracted driving, enforcement) compared to administrative and leadership concerns in 2022. While all top five concerns in 2022 improved in scoring in 2024, there remains room for improvement and examination into the concern on dangerous behaviors, as demonstrated in the table below.

Table 3: Shifting concerns based on Action2Zero data

2022		2024	
Commitment to road safety	1.6	Speeding	2.3
Speeding	1.7	Enforcement of road behaviors	2.6
Road safety legislation	1.7	Lead agency	2.6
Road safety data and target setting	2.0	Vision	2.7
Enforcement of road behaviors	2.0	Safe roads	2.8
		Distracted driving	2.8
		Safe system approach	2.8
		Awareness and education	2.8

Given the concerns of assessment participants, the East End District will continue their efforts to improve road safety within the District.

In line with the City of Houston Safety Action Plan's goal of reporting safe system efforts and effectiveness with a public-facing annual report card, the assessment tool can serve as a public opinion portion, showing progress over time. A third, and final, dissemination of the Action2Zero tool will take place in 2026 to further evaluate progress made within the district.

Additional Action2Zero results are available in Appendix C.

Road Safety & Mobility website

A new section titled Road Safety & Mobility was added to the District's official website. This section describes the road and rail safety efforts within the District, provides links to relevant resources, and includes meeting presentations and minutes for the Pedestrian Safety Group, Rail Safety Task Force, and the Safety Sync-Up.

The website was created to inform community members of the road safety efforts being completed within the District. The website can be accessed here: https://www.eastenddistrict.com/road-safety-and-mobility/

As of March 2025, the Road Safety & Mobility section of the District's website has received 1,271 views from 493 active users.

Existing Conditions

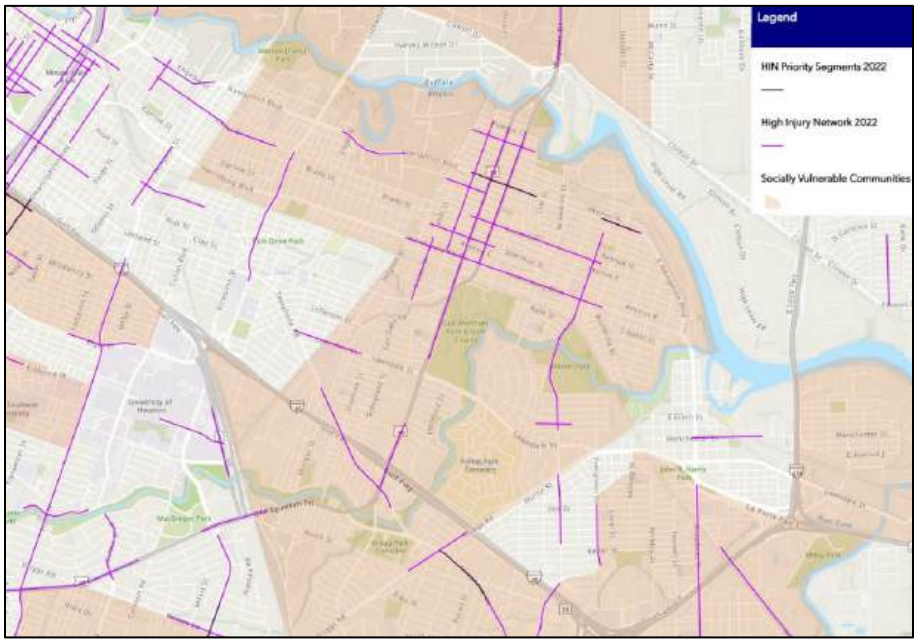
Gap Analysis

In 2024 the District contracted a researcher to complete a gap analysis as a means of an assessment of past studies relevant to the development of the Safety Action Plan. The gap analysis assessed how well past studies covered issues relevant to the Safety Action Plan (phase 1) and assessed gaps between past study recommendations and related outcomes (phase 2). Over fifty studies with content relevant to the safety action plan were identified. Phase one of the gap analysis revealed there were a limited number of studies regarding transportation vulnerable areas east of Lockwood. Phase two created an overview of 240 study recommendations for road safety improvement. Data from phase two of the gap analysis will be utilized in determining priority locations for implementation. Additional information regarding the Gap Analysis is available in Appendix D.

High Injury Network

Over half (60%) of traffic deaths and serious injuries occur on 6% of Houston's streets, dubbed the Houston High Injury Network (HIN). Socially vulnerable communities contain 33% of Houston's streets, yet 52% of the HIN streets. These streets have been identified as high priority within the city's road safety improvement plan. The HIN streets within the District are shown in the figure below, the highlighted portions represent socially vulnerable communities.

Figure 7: High Injury Network streets in the District

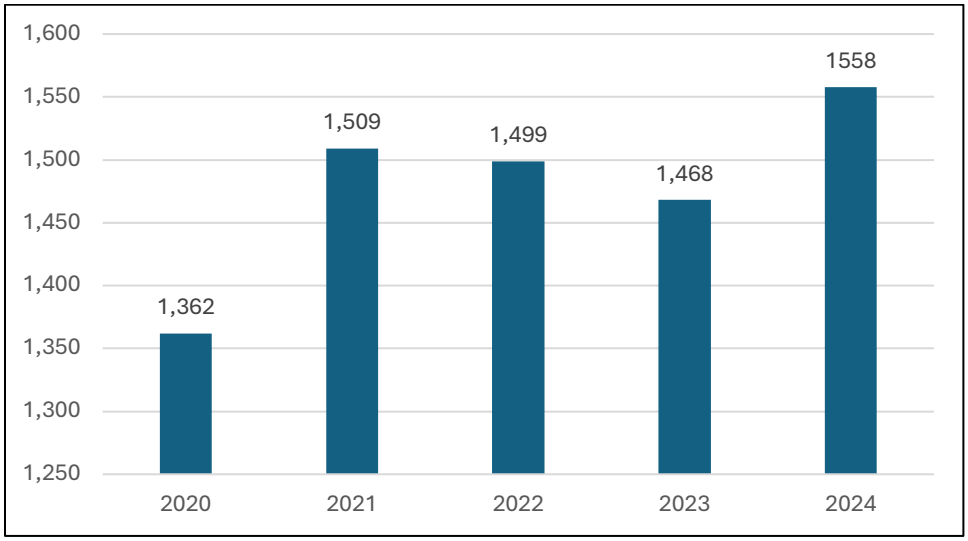


Crash data

Crash data collected from Texas Peace Officer's Crash Reports and made available by TxDOT revealed 7,396 crashes occurred in the District from 2020 to 2024, involving 15,071 units and 18,850 persons. Of these, 38 (0.5%) were fatal and 655 (8.9%) were suspected of causing an injury. Over one third (37.4%) of the crashes occurred at an intersection. One third of crashes occurred on highways (i.e., Interstate Highway 610, Interstate Highway 45, and U.S. Highway No. 90), which run through the District. On local roads, 5% (n=372) of crashes occurred on Harrisburg Blvd and 4.5% occurred on Navigation Blvd

(n=335). Of the crashes occurring on Harrisburg Blvd., 60% (n=222) occurred at an intersection. On Navigation Blvd., 54% (n=181) occurred at an intersection.

Figure 8: Total crashes in the District, 2020-2024



Of the 38 fatal crashes between 2020-2024, 26% occurred at an intersection, and two-thirds (61%) occurred on local roads. One-quarter (26%) occurred at an intersection and 13% involved a commercial vehicle.

usRAP data

The United States Road Assessment Program (usRAP) is a tool for analyzing the safety of a roadway and generating data-driven solutions for correcting hazards. Existing or newly collected video of a road network is coded in 100-meter segments, and software, known as ViDA, outputs star ratings on a familiar one-to-five-star scale (for each star increase, the socioeconomic cost of crashes is halved on that road section). usRAP uses video data and predictive risk models to focus on, and correct, hazardous locations and was used to examine nearly 300 miles of roads in the District. In addition to the star-rating, a Safer Roads Investment Plan is provided which lists countermeasures and their impact on road safety over a twenty-year period. The Investment Plan provides the identified location for the countermeasure, the estimate cost of the countermeasure, the potential Fatality and Serious Injuries (FSI) savings as well as the cost per FSI saved and the program benefit-cost ratio.

Star Ratings

Star Ratings are an objective measure of the likelihood of a road crash occurring and the severity of the outcome. The focus is on identifying and recording the road attributes which influence the most common and severe types of crash, based on scientific evidence-based research. Star Ratings represent the risk of a fatal injury to an individual road user. For example, for vehicle occupants, Star Ratings equate to the number of deaths and serious injuries per vehicle kilometer travelled on a road. Scores are based on method of transportation, where motorized road user scores are based on head on, run-off road and intersection crashes; pedestrian scores are based on walking along and across the road crashes; and bicyclist scores are based on riding along the road and intersections crashes.

Figure 9: usRAP star rating legend

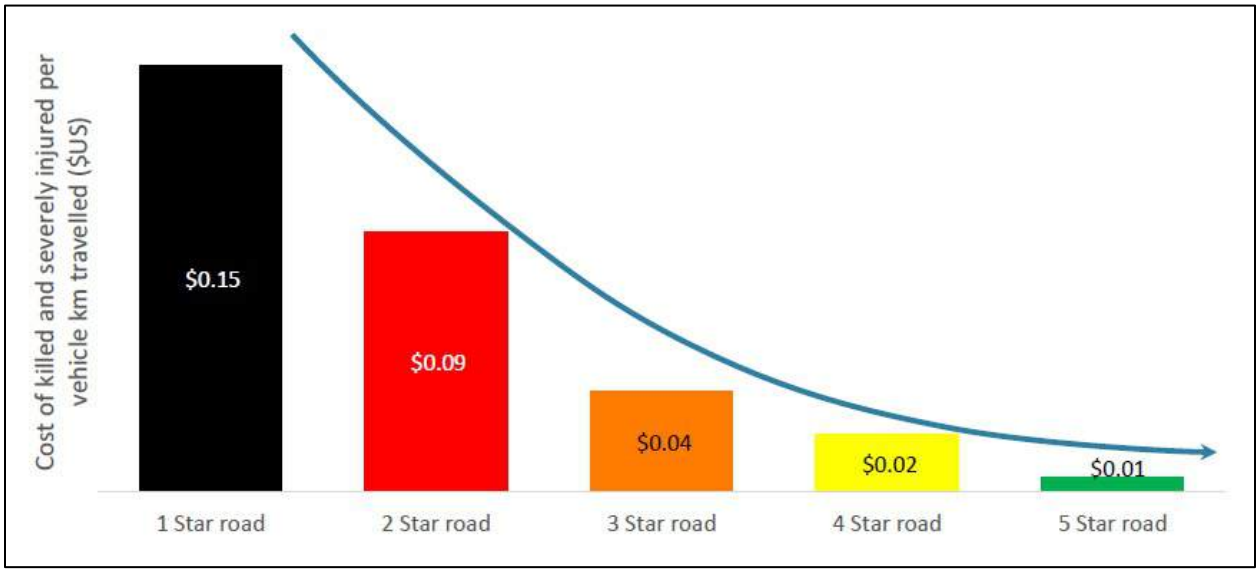
Star Rating	Star Rating Score				
	Vehicle occupants and motorcyclists	Bicyclists	Pedestrians		
			Total	Along	Crossing
5	0 to < 2.5	0 to < 5	0 to < 5	0 to < 0.2	0 to < 4.8
4	2.5 to < 5	5 to < 10	5 to < 15	0.2 to < 1	4.8 to < 14
3	5 to < 12.5	10 to < 30	15 to < 40	1 to < 7.5	14 to < 32.5
2	12.5 to < 22.5	30 to < 60	40 to < 90	7.5 to < 15	32.5 to < 75
1	22.5 +	60+	90 +	15 +	75 +

Source: https://www.usrap.org/

The significance of the Star Ratings is important, as there is a direct relationship between the ratings and the cost of FSIs. For every incremental increase in Star Ratings, the cost of FSI is typically halved, as demonstrated in Figure 10. The figure shows there is a clear relationship between the Star Ratings and fatal and serious injury crash costs per vehicle mile travelled (VMT):

- crash costs on 2-star roads are 40% lower than on 1-star roads
- crash costs on 3-star roads are 61% lower than on 2-star roads
- crash costs on 4-star roads are 44% lower than on 3-star roads

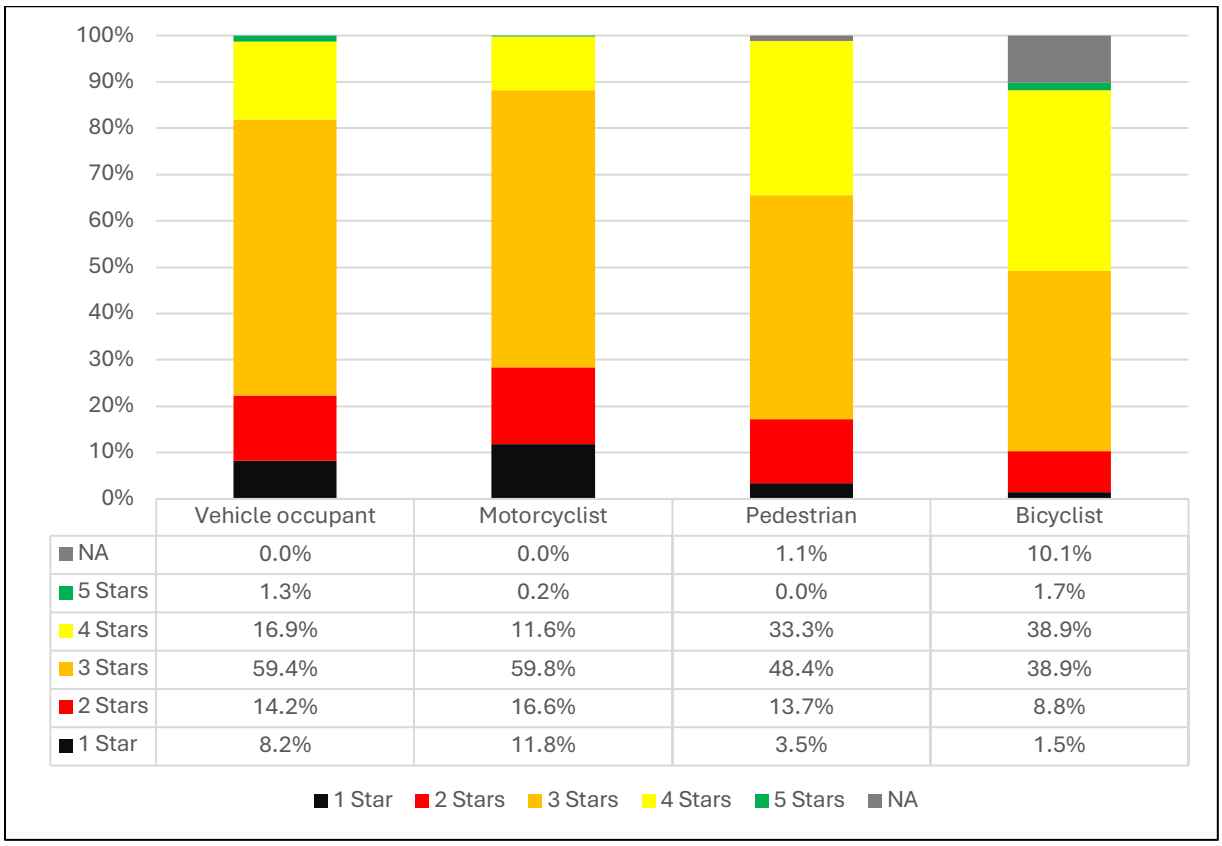
Figure 10: Relationship between Star Ratings and the cost of fatalities and serious injuries



Source: https://www.usrap.org/

Within the District, over half of the roads are rated at 3-stars for both vehicle occupants and motorcyclists. Just under half of the roads are rated 3-stars for pedestrians and cyclists which is in line with crash data and community feedback on the usability of District roads for active transportation users. Fewer than two percent of all roads in the District are 5-star roads. However, there are also very few 1-star roads, accounting for under 12% for all road users. While there are clear improvements to be made, the District is comprised of primarily 3-star roads, as demonstrated in Figures 11 to 13 below.

Figure 11: usRAP star ratings for the District



	Vehicle occupant	Motorcyclist	Pedestrian	Bicyclist
NA	0.0%	0.0%	1.1%	10.1%
5 Stars	1.3%	0.2%	0.0%	1.7%
4 Stars	16.9%	11.6%	33.3%	38.9%
3 Stars	59.4%	59.8%	48.4%	38.9%
2 Stars	14.2%	16.6%	13.7%	8.8%
1 Star	8.2%	11.8%	3.5%	1.5%

To illustrate, as a pedestrian in the East End, 33.3% of roads are rated 4 stars, 48.4% are rated 3 stars, and 13.7% are rated 2 stars.

Figure 12: usRAP star rating map for vehicles

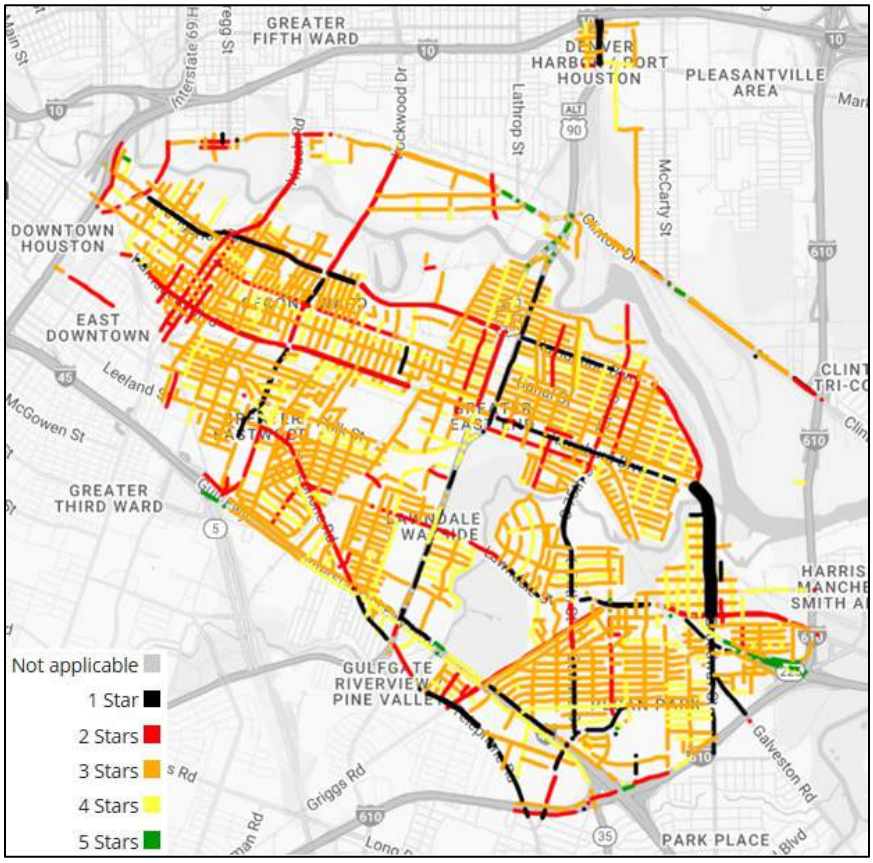
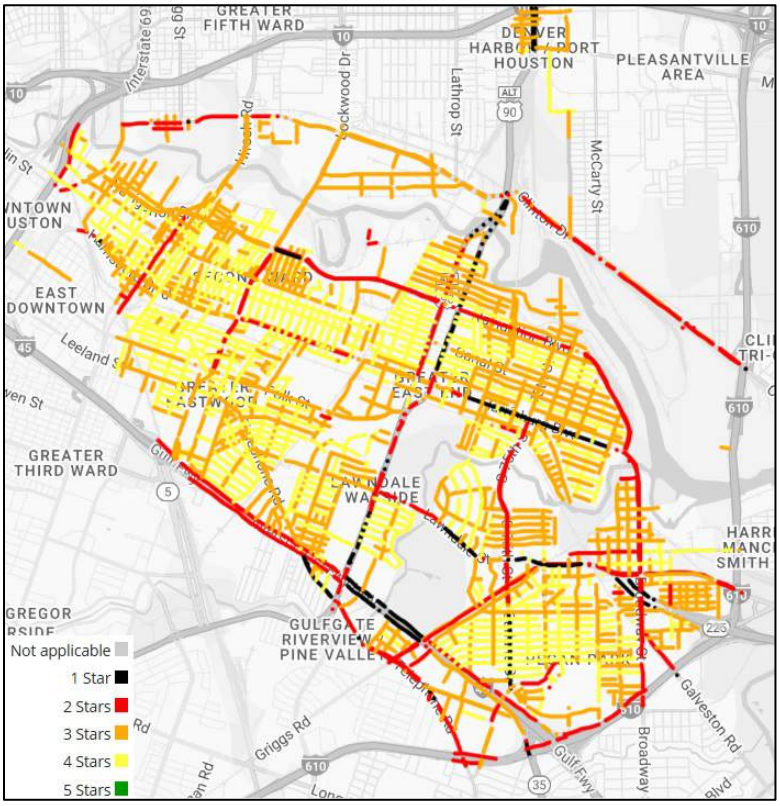


Figure 13: usRAP star rating map for pedestrians



Road attributes

Based on the road analysis, usRAP data determined the following:

- 23% of roads where pedestrians are present and traffic flows at 25mph or more have no footpath
    - Of the 294m where pedestrians are present and traffic flows at 25mph or more, 68.7% have no footpath
- 87% of roads where bicyclists are present and traffic flows at 25mph or more have no bicycle facilities
    - Of the 267.5m of roads where bicyclists are present and traffic flows at 25mph or more, 232.1m have no bicycle facilities
- 50% of roads carrying traffic at 50mph or more are undivided single carriageways
    - Of the 16.5m of roads carrying traffic at 50mph or more, 5.2m are undivided single carriageways
- 79% of curves where traffic flows at 50mph or more have hazardous roadsides
    - Of the 1.5m of curves where traffic flows at 50mph or more, 1.2m have hazardous roadsides
- 78% of intersections where traffic flows at 40mph or more have no roundabout, protected turn lane or interchange
    - Of the 660 intersection(s) where traffic flows at 40mph or more, 515 have no roundabout, protected turn lane or interchange

Based on these attributes and Star Ratings, a Safer Roads Investment Plan was created and tailored to the District's road safety needs. The Investment Plan provides the identified location for the countermeasure,

the estimate cost of the countermeasure, the FSI savings as well as the cost per FSI saved and the program benefit-cost ratio.

Based on the Investment plan (demonstrated in Table 4), if all the countermeasures were implemented the cost would be $187,000,000. However, 344 FSIs could be prevented, with a total of $543,000 cost per FSI saved (totaling $186,792,000 in savings).

Table 4: Safer Roads Investment Plan countermeasures

Countermeasure	Length (miles) / Sites	FSIs saved
Bicycle Lane (off-road)	4.8	3.3
Bicycle Lane (on-road)	36.3	3.9
Central median barrier (no duplication)	0.4	0.984
Clear roadside hazards - driver side	46.1	4.43
Clear roadside hazards - passenger side	60.2	7.54
Footpath provision driver side (>3m from road)	3.7	6.27
Footpath provision driver side (adjacent to road)	9.4	19.6
Footpath provision driver side (informal path >1m)	42.0	17.8
Footpath provision passenger side (>3m from road)	0.1	0.242
Footpath provision passenger side (adjacent to road)	3.2	5.47
Footpath provision passenger side (informal path >1m)	51.9	19.2
Improve curve delineation	1.7	0.724
Improve Delineation	83.8	14.4
Parking improvements	79.1	24.1
Pave road surface	0.2	0.609
Pedestrian fencing	6.9	13.6
Protected turn lane (unsignalized 4 leg)	18 sites	2.13
Protected turn provision at existing signalized site (3-leg)	1 site	0.4
Protected turn provision at existing signalized site (4-leg)	5 sites	2.59
Refuge Island	1 site	0.0632
Road surface rehabilitation	0.4	0.0866
Roadside barriers - driver side	4.3	2.39
Roadside barriers - passenger side	5.1	3.04
School zone warning - flashing beacon	4 sites	0.0942
Shoulder rumble strips	2.1	1.25
Shoulder sealing driver side (>1m)	4.1	3.26
Shoulder sealing driver side (<1m)	2.1	0.673
Shoulder sealing passenger side (>1m)	0.6	0.303
Shoulder sealing passenger side (<1m)	0.4	0.107
Side road signalized pedestrian crossing	247 sites	17.4
Side road unsignalized pedestrian crossing	5 sites	0.638
Sight distance (obstruction removal)	0.3	0.264
Signalized intersection (3-leg)	56 sites	32
Signalized intersection (4-leg)	37 sites	42.7
Signalized crossing	15 sites	2.82

Skid Resistance (paved road)	7.1	6.98
Street lighting (intersection)	4 sites	2.62
Street lighting (mid-block)	0.9	2.34
Traffic calming	56.8	53.8
Unsignalized pedestrian marked crossing (i.e., crosswalk)	1,283 sites	23.8
Upgrade pedestrian facility quality	4 sites	0.201

Fatal & Serious Injury Estimates

usRAP also provides jurisdictions with a FSI Estimate, which is based on the road attribute data used to calculate the Star Ratings, flow data for each road user and network-level crash data. It illustrates the distribution of the expected number of fatalities and serious injuries across a road network. The FSI Estimate can be an effective measure for understanding the implications of design decisions and comparing road design solutions and countermeasures. The FSI Estimate is calculated for vehicle occupants, motorcyclists, pedestrians, and bicyclists. The table below shows the number of modelled fatal and serious injuries per year based on current road conditions in the District.

Table 5: FSI Estimate for the District

	Fatalities	Serious injuries	Fatalities & serious injuries
Vehicle occupant	1.7	8.6	10.3
Motorcyclist	0.5	2.6	3.1
Pedestrian	2.8	14.6	17.4
Bicyclist	0.5	2.6	3.1
Total	5.5	28.3	33.8

Engineering Capstone Projects

In 2024, the District entered into an agreement with the Texas A&M Institute for Industrial and Systems Engineers (IISE) to conduct various feasibility studies (i.e., capstone projects) to support a holistic review of traffic conflict for the development of possible treatments to reduce crashes. A total of 14 capstone projects were completed over three semesters in 2024 and 2025. Table 6 provides a list of the completed capstones.

Table 6: Texas A&M IISE capstone projects

Title	Description	Semester completed
Star Rating for Schools	Evaluated the use of evidence-based processes to measure, manage and communicate roadway risk along primary routes to schools found within the High Injury Network.	Spring 2024
Traffic Conflict Toolkit	Measured needs using a safe system approach to determine if recommended changes could affect near misses before and after treatments.	Spring 2024
Safe Road Study (Smart Intersection)	Analyzed the volume of crashes occurring at intersections around the Harrisburg Plaza and Coffee Plant areas and used technology to identify and evaluate the data collected.	Spring 2024
Safe People Study	Supported new community/clinic programs intended to increase physical activity and wellness	Spring 2024

	which may also increase exposure to traffic around these health centers. By assessing transportation safety needs based on routes providers and patients take to access health care or programs.	
Alternate Route Study (Phase 2)	Used simulated traffic flow projects to expand on efforts from a previous Capstone to develop a Railroad Crossing By-Pass set of solutions to alert and guide motorists around Blocked Crossings	Spring 2024
Wayside Corridor Traffic Conflict Study	Analyzed past and current road engineering changes and assessed usage to identify conflict and recommend treatments.	Fall 2024
Gulfgate Mobility Study	Analyzed current road infrastructure, assessed usage, identified business impacts, assessed conflict and recommended treatments.	Fall 2024
Lawndale/Magnolia Park Walk Audit	Developed a formal process for conducting a neighborhood walk audit, used the Traffic Conflict methodology to support a real-world audit, and evaluated mobile tools for assessing road conditions.	Fall 2024
Targeted Accessibility Assessment	Cataloged and prioritized key businesses that support lifelines within the East End District. Supported the development of a Business Preparedness and Recovery Guidance Document.	Fall 2024
Transportation System Analysis	Conducted gap analysis to determine what additional plans or studies need to address traffic safety concerns that have not been addressed with current East End District projects.	Spring 2025
Pedestrian Vehicle Treatments	Measured driving and walking perspectives during daylight and nighttime operations and developed functional requirements for the deployment of crosswalk and lighting treatments.	Spring 2025
Traffic Conflict Wayside Phase 2	Reduced the number of traffic crashes in the outdoor shopping center by focusing on safety for both motorists and pedestrians.	Spring 2025
Gulfgate Mobility Phase 2	Reduced the number of traffic crashes in the outdoor shopping center by focusing on safety for both motorists and pedestrians.	Spring 2025
Business Resilience	Developed customized resilience metrics for District (availability of food, communications, staff), modeled scenarios to determine priority vulnerabilities (supplies, power, access) then set up automated system (call in) to report status.	Spring 2025

Priority Projects & Locations

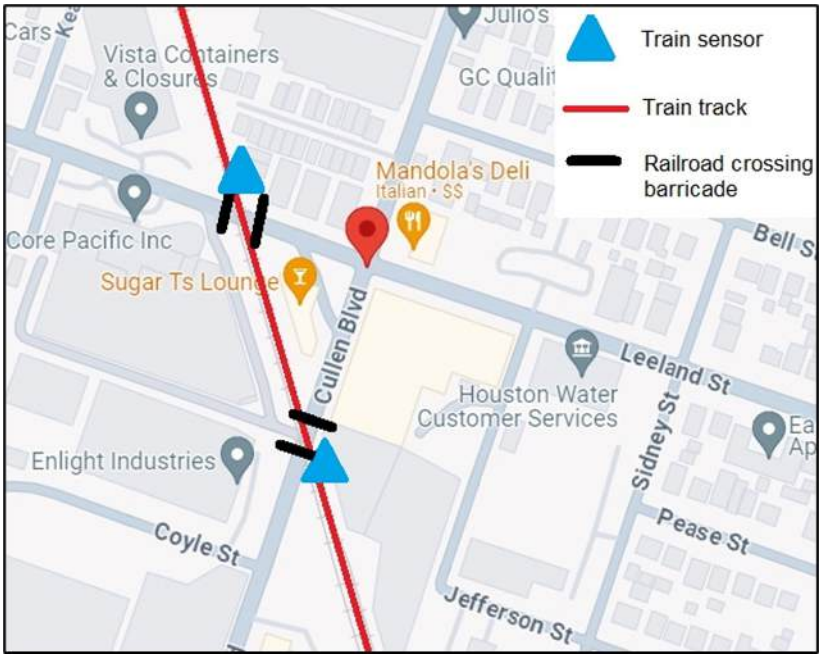
The priority locations are the product of quantitative data analysis, in addition to the qualitative input received from partner agencies and community members. This section delineates each location, as well as key information needed to address the safety, mobility, and accessibility concerns. The intent of this section is to empower the District and its planning partners to pursue funding opportunities to improve safety, connectivity, and accessibility for all members of the District community, especially active road users, such as pedestrians, cyclists, children and senior citizens, and others, including transportation disadvantaged communities.

Railroad crossings

While over 100 railroad crossings exist within the District, three have been selected for increased investigation based on data from Capstone studies, crash data, and train data.

Leeland Street & Cullen Boulevard intersections

Figure 14: Leeland and Cullen intersection

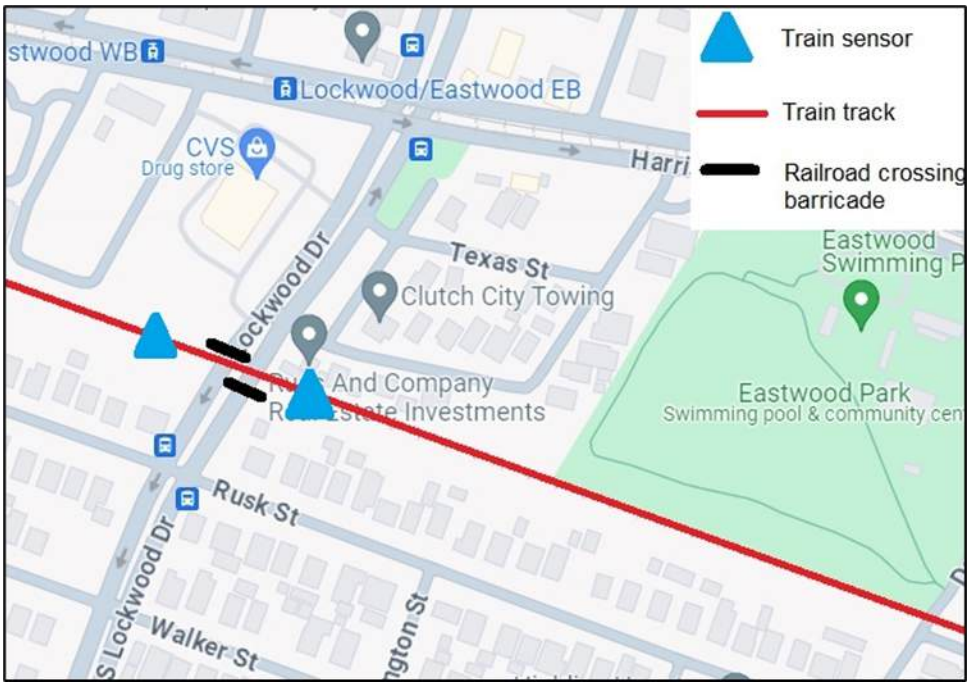


At the intersection of Leeland Street and Cullen Boulevard the railroad crosses both intersections diagonally blocking both streets simultaneously. The intersection experiences over 26 trains passing through daily, with an average longevity of 8.23 minutes. Between 2020-2024, eleven crashes have occurred at this intersection as per Texas Department of Transportation (TxDOT), Crash Records Information System (CRIS), and the usRAP system scored this intersection as a 3/5.

When the train arrives at the intersection the railway barriers are activated to avoid motorists from impacting the train. From there, the motorists must make a decision as there is no existing signage to guide motorists around the train.

Lockwood Drive intersection

Figure 15: Lockwood intersection



On Lockwood Drive, the railroad runs east to west cutting the east end region in half. For this specific intersection, the daily average number of trains passing through the intersection is approximately 7 with an average duration of 16.18 minutes. Between 2020-2024, six crashes have occurred at this crossing as per CRIS and the usRAP system scored this intersection as a 1/5. Without any notification or guidance, motorists are left to face traffic congestion if a train blocks Lockwood Drive.

Interventions

1. *Train sensors*

   There are multiple train sensors installed around Lockwood Drive, Leeland Street and Cullen Boulevard railroad crossings. However, these sensors are currently part of a City of Houston Pilot Project and may not be utilized to their full potential. Each sensor can accurately calculate the length of a train, the time a train takes to cross an intersection, and the moment a train becomes stationary. The City of Houston is however, coordinating with Houston TranStar to convey this information to motorists in real time using dynamic signs and mapping services. In essence, if it appears a train will block the crossing for a long period (static), drivers will be redirected accordingly. If the train is briefly passing through the crossing (continuous), then the signals will not activate.

   While these two railroad crossings are highlighted for the purpose of this Safety Action Plan, they are not the only incidences of problematic railroad crossings. The sensors are installed at most railroad crossings, meaning they are available for use. There are over thirty railroad crossings throughout the District, not only causing delays and congestion, but also causing drivers to speed to beat the train.

2. *Alternate routes*

   To safely reduce the commute time for motorists at Leeland Street, Cullen Boulevard and Lockwood Drive, one method is to assign alternate routes when a train blockage occurs. This is done through preliminary analysis to utilize pre-existing infrastructure (i.e., underpasses, overpasses, etc.) and to find alternative routes with travel time less than the maximum average blockage time at the intersection. To adequately alert drivers of alternate routes, motorists need to be alerted via signage of the train blockage as well as possible detours. For example, dynamic signs and flashing beacons could be used ahead of the area to alert incoming motorists of the potential blockage. Once the motorists are alerted of the train's presence, appropriate signage could be placed to guide the motorists throughout the entire route. A successful implementation of this objective could guide motorists around the residential areas while decreasing crash risk and traffic congestion.

3. *Community Groups*

   The District will continue to work with community organizations via the Rail Safety Task Force to amend current laws and address specific railroad practices in order to eliminate block crossings and lessen the risks to the public. This will be supported using models such as the Chicago Regional Environmental and Transportation Efficiency Project (CREATE) and Houston Area Rail Transformation Program (HART).

Evaluation

The effectiveness of the above road safety countermeasures will be determined via:

- continued analysis of average train stoppage time, aiming to decrease the average
- resident opinion via the Rail Safety Task Force

Pedestrian-Vehicle Conflict

Between 2020 and 2024, 103 pedestrian crashes occurred within the District, 82% of these resulted in injury, while 13% were fatal. A recent (2024) study of the District noted the District has an average walkability score of 42%. The District currently hosts a Pedestrian Safety Group who identifies needs and addresses pedestrian safety concerns. This group will continue to meet and guide the District in prioritizing safety needs for pedestrians.

Interventions

1. *Signalized pedestrian crossing*

   usRAP identified 247 sites in need of signalized pedestrian crossing, which includes a range of countermeasures such as line markings, crosswalks, lighting, signs, and signal displays. Given there are a large number of sites in need of signalized pedestrian crossing, determining which locations to prioritize is necessary. An analysis of pedestrian crash data (2020-2024) revealed 47% of pedestrian crashes and 61.5% of fatal pedestrian crashes occurred on just four District roads: Harrisburg Boulevard, Navigation Boulevard, Wayside Drive, and Lockwood Drive.

   - **Harrisburg Boulevard.** This street spans approximately 6 miles, beginning near the intersection of Texas Avenue and Dowling Street in the East Downtown area and extends southeastward to the

vicinity of Lawndale Street in the Magnolia Park neighborhood. Thirty-one sites were identified on Harrisburg Boulevard for signalized pedestrian crossing.

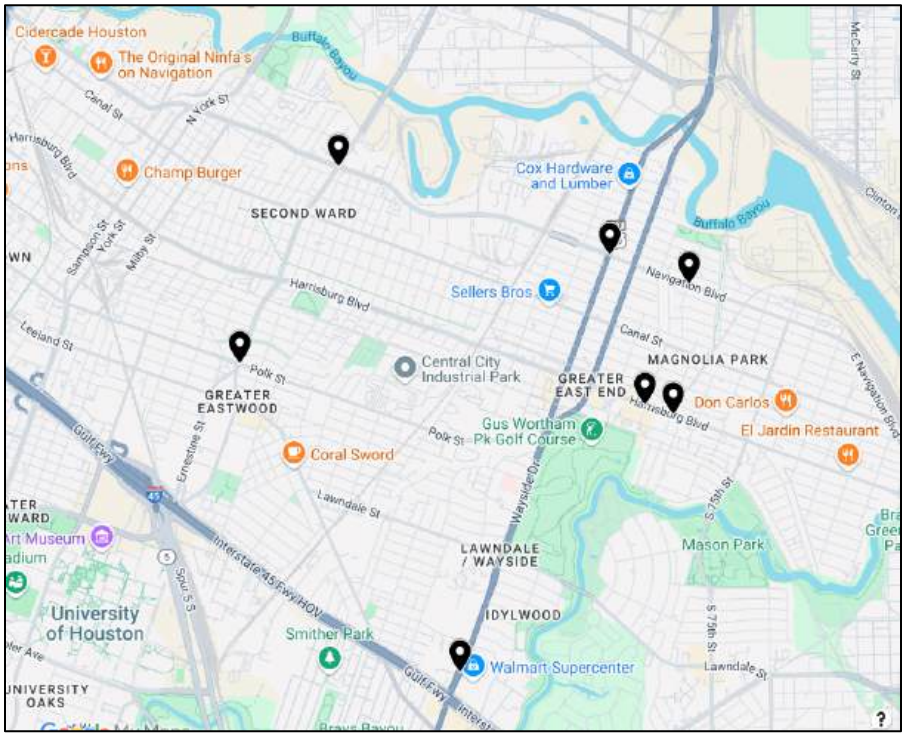
- **Navigation Boulevard.** This is a 5-mile thoroughfare that connects Downtown Houston to the Port of Houston, running through the city's East End. Along this route, a notable feature is the Navigation Esplanade, a three-block pedestrian zone between North Saint Charles Street and Delano Street. Thirty-seven sites were identified on Navigation Boulevard for signalized pedestrian crossing.
- **Wayside Drive.** Wayside is a major north-south arterial road that extends approximately 12 miles. It begins at U.S. Highway 90 Alt. in the south and continues north. Four sites were identified on Wayside Drive for signalized pedestrian crossing.
- **Lockwood Drive.** Lockwood Drive is a significant north-south arterial road that extends approximately 10 miles. It begins at the intersection with Clinton Drive in the north and continues southward, crossing major thoroughfares such as Interstate 10 and Harrisburg Boulevard. Twenty sites were identified on Lockwood Drive for signalized pedestrian crossing.

The four roads total 33 miles and 92 sites for signalized pedestrian crossing. To further determine priority locations, crash data were compared to gap analysis, usRAP and Capstone study recommendations. All locations listed are located on Houston's High Injury Network, which means work within these locations will coincide with the City of Houston Action Plan (s. 4.1 & 4.5), which aims to redesign ten locations on the HIN every two years. Based on the examined data, the locations in Table 7 and Figure 16 should be prioritized for signalized pedestrian crossings.

Table 7: Priority locations for signalized pedestrian crossings

Location	Identification supported by:			
	Pedestrian crash data	usRAP	Capstone	Gap analysis
Harrisburg & 71st Street intersection	x	x		x
Harrisburg & 72nd Street intersection	x	x		x
Navigation & 71st Street intersection	x	x		x
Navigation & Wayside intersection	x	x	x	x
Navigation & Lockwood intersection		x		
Lockwood & Polk Street intersection	x	x		
Wayside & Walmart supercenter			x	x

Figure 16: Priority locations for signalized pedestrian crossings



2. *Signage & infrastructure*
   Solutions for improved pedestrian safety vary in terms of effectiveness and cost. Multiple studies conducted within the District identified high priority locations requiring interventions to improve pedestrian safety. Suggested interventions include improved lighting for visibility, crossing barriers to protect pedestrians, and speed regulation measures, such as speed bumps.

Table 8: Pedestrian safety interventions

Intervention	Location	Average cost
Streetlights	76th Street & Canal Street intersection	$3,000 LED
	5616 Lawndale Street	
	Wayside & Polk Street intersection	
Pedestrian crossing barrier	71st Street	$300 (10 cones to create barrier) $560 (crossing barrier)
	Eastwood & Engelke intersection	
	Eastwood & Lovejoy intersection	
	Kellogg & Bowie intersection	
	Avenue H and 71st Street intersection	
	Wayside Drive at Walmart entrance	
	7037 Capitol Street	$5,000/unit

Speed regulation (i.e., speed bumps)	Eastwood & Engelke intersection	
	Eastwood & Lovejoy intersection	
	Kellogg & Bowie intersection	
	Avenue H and 71st Street intersection	

3. *Walk audits*
   Walk audits are a process where a group of people physically walk through a designated area, observing and documenting its features to assess its walkability, identifying potential safety concerns, and highlighting areas that could be improved for pedestrians of all abilities (i.e., sidewalk conditions, crosswalks, lighting, and traffic flow). A Standard Operating Procedure (SOP) to conduct a walk audit are available in Appendix E.

Evaluation

The effectiveness of the above road safety countermeasures will be determined via:

- continued analysis of pedestrian crash data
- resident opinion via the Pedestrian Safety Group
- number of new traffic signs installed
- increased scoring on the Action2Zero tool within the Active Transportation Users category

Community Education

Community education plays a crucial role in road safety by raising awareness, changing behaviors, and fostering a culture of responsibility among road users. Based on Action2Zero data, gaps in road safety knowledge and resources must be addressed, notably the lack of formal resource allocation and no sustainable funding mechanisms. Many respondents replied *I don't know* when asked questions about the availability of road safety educational materials. While multiple topics could be considered, there are 3 that will be the primary focus at this time in addition to a specialized employee tasked with providing road safety education within the District.

Interventions

1. *Cycling*
   - Place temporary educational signage along newly implemented bikeways to inform users and adjacent residents of the new street configuration; consider sending door hangers or flyers to adjacent properties to ensure all residents understand how the facility works, any pertinent regulatory information (e.g. city ordinance preventing parking in bike lanes), and where to place trash bins.
   - Recruit partners to develop a context and neighborhood sensitive Bicycle Safety Program curriculum for local schools to teach children and parents to ride safely.
   - Create an *Adopt-A-Bikeway* program to encourage citizen groups/businesses to take ownership of clearing debris and/or maintaining and introducing landscaping along bikeways for a set

number of days a year. In return, the District could establish an incentive list to encourage participation.

2. *Pedestrian*
    - Create a public awareness campaign that promotes the importance of visibility, especially at night.
    - Partner with schools to promote pedestrian education for young children, as they are among the most vulnerable road users. Teaching them safe pedestrian habits early helps build lifelong awareness and reduces the risk of injuries.
    - Increase messaging for pedestrians on the importance of using marked crossings to reduce crashes. This can be done through signage, median campaigns, and community partnerships.
3. *General*
    - Increase promotion of road rules and safety initiatives through community communications, events, and campaigns.
    - Increase community partners' and stakeholders' consistent understanding of the Safe System Approach.
    - Promote access to existing reputable road safety education from outside partners and government agencies.
4. *Community Traffic Safety Coordinator*
    - When funding permits, the District will employ a Community Traffic Safety Coordinator. This employee will coordinate with local media to publicize road safety initiatives within the district, work with District schools to provide education on priority road safety issues, and ensure public awareness and education are in alignment with regional and state road safety messages and campaigns.

Evaluation

The effectiveness of the above community education efforts will be determined via

- conducting pre- and post-campaign surveys to assess changes in knowledge, attitudes, and behaviors (i.e., Action2Zero)
- monitoring pedestrian behavior at key locations before and after the program to see if more people are using crosswalks and obeying traffic signals
- comparing pre- and post-pedestrian and cyclists crash data
- utilizing engagement metrics for social media and online engagement
- measuring attendance at any in-person education efforts in addition to counting the number of materials given away (i.e., flyers, posters, etc.)
- providing a brief (i.e., 3-5 questions) exit survey upon completion of in-person education efforts

Technological Community Engagement

If funding permits, the District will develop a web-based Community Dashboard, collecting near real-time traffic data, combined with monthly crash occurrences and traffic enforcement efforts. This will create a system to measure and inform on daily risk conditions. The community dashboard will provide

safety awareness information, real-time monitoring of high-risk intersections, traffic flow, and the ability for citizens to use “pin drop” capabilities to better articulate areas of concern in neighborhoods throughout the District. The dashboard will accommodate both English and Spanish language users.

The purpose of the community dashboard is to educate road users within the District on safety awareness and traffic conditions, while also allowing them to easily report areas of concern for review by District leadership. This road safety effort aligns with the city of Houston’s Action Plan (s. 1.1) as the city aims to create a public-facing dashboard with an annual report card on road safety within the city.

Evaluation

The effectiveness of the above community dashboard will be determined via:

- number of reported concerns addressed
- community feedback via online and paper surveys
- site visits and engagement data

Community Engagement

The District will conduct a third Action2Zero assessment in 2026. This project will take place over the span of two months to ensure a high response rate.

Evaluation

The third use of the Action2Zero tool will include data analysis comparing results to 2022 and 2024 data. Areas signifying growth will be highlighted as successes whereas any decreased ratings will highlight the need for increased interventions and solutions, helping the District address public priorities. Additionally, the number of participants/organizations contributing to the completion of Action2Zero will be compared to previous use of the tool.

Data Collection & Sharing

Road safety data and target setting were measured through the Action2Zero assessment tool, scoring two out of five stars. Data and target setting are measured through the community’s implementation and use of road safety surveys, the availability of data and data resources related to road safety and crashes, and the setting of road safety targets. Within the District, data are not frequently used to identify road safety priorities and address the needs of road users, and data are not sharable nor linked to other data sources (see Appendix F for full list of data sources for traffic safety).

Given this gap, the objective of the District’s Traffic Safety Data Plan (TSDP) is to provide stakeholders with guidance for identifying traffic safety concerns and monitoring these issues over time. Unlike many communities, the District benefits from having access to many data sources. However, these data are not located within the same place or tool, making it difficult to fully use these pieces of evidence to inform traffic safety policy and action. Collectively, based on the documented and emerging traffic safety issues, the District TSDP should focus on data specifically related to:

- Pedestrian / pedalcyclist access / safety
- Behaviors: Speed, Lack of restraint, Impaired, Distraction

- Older driver
- Younger driver
- Intersection safety
- Railroad crossing related issues
- Improper use of the roadway by all users (e.g., not following traffic signals or striping)
- Impact of blocked railroad crossings on school children and first responders as well as traffic patterns
- Crashes during all days and times: daytime and nighttime; weekdays and weekends are all concerns

The data plan should also provide a method for layering data sources as well as making data more accessible to stakeholders. To make the data more accessible to stakeholders and gain insights in addition to the metrics, it is recommended that the metrics and selected data sources (e.g., school and railroad crossing locations) be incorporated into an interactive web-based tool. A viable option is to use Microsoft PowerBI or similar application.

Based on this recommendation, the District will hire a Risk Management Consultant who will assist in the conversion and visualization of all data pertaining to crime, mobility, safety, and security.

Evaluation

The effectiveness of improved data collection and sharing will be evaluated through increased accessibility of data as well as an increased score on the 2026 Action2Zero community assessment.

Policies & Strategies

Policies establish guiding principles for decision-making. The following subsections outline the recommended policies or internal guidelines for the District and its planning partners to improve safety performance throughout the planning area. Currently, the District businesses and residents align to the Texas Code of Ordinance; Chapter 545 Operation and Movement of Vehicles (https://statutes.capitol.texas.gov/Docs/SDocs/Transportationcode.pdf). While thorough, this policy is written broadly so as to apply for any jurisdiction within Texas. The District, given its unique needs, would benefit from policies and guidelines tailored to the road safety situation specific to its road users.

Intersection Control Evaluation

- **Current policy:** None.
- **Recommended policy**: Adopt an Intersection Control Evaluation (ICE) policy to evaluate all intersection projects. Create a memorandum of understanding with partner agencies to implement the recommendations of the ICE evaluation process.
- **Rationale:** An ICE policy is highly effective in improving traffic flow, safety, and cost-efficiency in urban transportation planning. It provides a data-driven approach to selecting the best type of intersection control, such as stop signs, traffic signals, roundabouts, or innovative designs, based on safety, mobility, environmental, and economic factors. ICE helps cities invest in the most efficient intersection type based on long-term cost-benefit analysis. The process prioritizes creating Safe Roads.

Complete Streets

- **Current policy:** None.
- **Recommended policy**: Develop and adopt a resolution on a Complete Streets Policy for the District roadways.
- **Rationale:** A Complete Streets policy is effective in making a city's transportation network safer and more accessible for all users, including pedestrians, cyclists, public transit riders, and drivers. Complete Streets supports Safe Road Users, Safe Speeds, and Safe Roads. Having a Complete Streets resolution in place may increase the District's eligibility for other federal grant opportunities. This policy can be highly cost-effective when properly implemented, delivering long-term economic, health, and environmental benefits that outweigh initial investment costs.

Safety Performance Dashboard

- **Recommended strategy:** Create a safety performance dashboard to monitor progress for all transportation projects on the District road safety website.
- **Rationale:** Consistent and ongoing performance tracking keeps the conversation going and helps keep all stakeholders informed and involved as Responsibility is Shared.

Pedestrian Access Route Audit

- **Recommended strategy:** Create a user-friendly Pedestrian Access Route (PAR) audit tool to enable the public and District to collect uniform, useful sidewalk condition data.
- **Rationale:** A PAR strategy ensures that city sidewalks, crosswalks, and pedestrian pathways are safe, accessible, and continuous for all users, including individuals with disabilities, seniors, and children. This effort is in alignment with the City of Houston's Action Plan (s. 2.8) and supports Safer People.

Post-Crash Care Coordination

- **Recommended strategy:** Review and evaluate current crash response protocol and post-crash care procedures for potential improvements to increase speed and effectiveness of post-crash care and accuracy of reporting and data analysis. Pursue additional collaborative training opportunities between all emergency service providers within the District.
- **Rationale:** Ensuring that all partners are responding to the emergency situations that result from crashes is a vital aspect of Post-Crash Care.

Implementation

This section describes the steps the District and its partner agencies can take to implement the recommended projects, policies, and strategies within the Safety Action Plan, and to evaluate the success of the Safety Action Plan over time. Improving roadway safety across the District will take a coordinated effort from various partners over time.

Funding

The District was awarded a Safe Streets and Roads for All Planning Grant in FY2022 to complete a Safety Action Plan and to develop conceptual designs for the Priority Locations that emerged from the Safety Action Plan. The creation of the East End District Safety Action Plan qualifies the District and its partner agencies for the Federal Highway Administration's competitive Demonstration and Implementation grants as part of the Safe Streets and Roads for All Program. This was awarded to the District in 2024 and the District will utilize these funds to implement projects outlined within this Action Plan.

Monitoring Progress

Performance measurement is a key component of a successful Safety Action Plan. The approach of this Plan seeks to eliminate fatal and serious injury crashes in the Planning Area in the coming years. This section outlines both outcome-based and implementation-based metrics for performance measurement. These metrics can assist the District and its partner agencies in evaluating and monitoring the success of the East End District Safety Action Plan in achieving the vision and goals within the plan.

Outcome Metrics

Measures that the District and its partner agencies can use to evaluate its ongoing success in reducing fatal and serious injury crashes and crash risk include:

- Total number of fatal and serious injury crashes on Planning Area roads
- Number of fatal and serious injury crashes on Planning Area roads by the following categories:
    - Pedestrian-involved crashes
    - Bicycle-involved crashes
    - Train-involved crashes

Fatal and serious injury crashes will be examined annually, with performance evaluated within the context of the latest five-year annual average to normalize for random fluctuations in crashes on a year-over-year basis.

Implementation Metrics

Measures the District and its partner agencies can use to evaluate progress in implementing the East End District Safety Action Plan include:

- Number of projects implemented
- Number of policies implemented

- Number of strategies implemented
- Frequency of progress monitoring through TAG

Updating the Safety Action Plan

The East End District Safety Action Plan relies on crash data from January 1, 2020, to December 31, 2024. The District should review crash data for key findings and performance measures to track progress annually, as part of the regular TAG reporting on the Safety Action Plan. Following the successful implementation of high priority projects, policies, and strategies, the Safety Action Plan should be updated to document progress and refocus on the next phase of priorities. These updates can occur at longer intervals (approximately every five years) to ensure that sufficient safety, mobility, and accessibility data is available to accurately track progress.

The District, through TAG, can assess the Safety Action Plan, consider new trends and technologies, and determine if an update is needed. As new strategies are identified, TAG may update goals and assign champions for specific projects, policies, and strategies.

Appendix A: Eight Key Components of a Safety Action Plan

Leadership commitment and goal setting	**Planning structure**
Publicly committing to the Safe System Approach and developing goals to utilize the Approach.	Establish an advisory committee to develop, implement, and monitor the Safety Action Plan.
Safety analysis	**Engagement & collaboration**
Identify target crash types and prevalent crash risks, confirm systemic and specific safety needs & locate high-risk locations.	Collaborate with the community to raise awareness of traffic safety issues while building support for implementation.
Accessibility considerations	**Policy & process changes**
Ensure vulnerable and underserved communities are considered and included in plan development.	Review plans, policies, and standards to improve how existing processes prioritize safety.
Strategy & project selections	**Progress & transparency**
Develop strategies and projects to address safety problems, including a timeline for implementation.	Measure progress over time and adjust strategies and projects as needed.

Appendix B: Safe System Approach

In January 2022, the USDOT released its National Roadway Safety Strategy, adopting the Safe System Approach as its core strategy to meaningfully reduce roadway deaths. The Safe System Approach focuses on addressing the five elements of Safe Road Users, Safe Vehicles, Safe Speeds, Safe Roads, and Post-Crash Care and incorporates the six principles: death and serious injury are unacceptable, humans make mistakes, humans are vulnerable, responsibility is shared, safety is proactive, and redundancy is crucial. In a Safe System, responsibility is shared amongst all agencies and community members, including road users, transportation system managers, law enforcement, emergency responders, and vehicle manufacturers.

Source: U.S. Department of Transportation https://www.transportation.gov/safe-system-approach

Appendix C: Action2Zero Results

Community road safety programs are essential to build support for provincial and national road safety initiatives. The focus of these initiatives is generally to target major crash and injury factors through such tools as police enforcement, mass media campaigns, vehicle safety policies and major road infrastructure improvement programs. However, at a local level, residents often need support and guidance to increase awareness and make issues personally relevant to the community to motivate action and change. This personalization and localization of programs is vital to maximize reductions in road trauma. Community action and the involvement of citizens can help ensure strategies reflect local priorities and build commitment for change. This helps inspire safer choices and influences traffic safety culture to reduce risks.

About Action2Zero

The web-based tools contained in TIRF's Action2Zero resource were created to empower communities to conduct a comprehensive road safety assessment and track their progress achieving a strategic road safety plan based on Safe System philosophies. The tool utilizes a 5-star road safety community rating in which 5-stars means an activity has been or is being completed in accordance with research and international best practice (see figure below). Users are guided through a series of questions organized according to three priority areas that can be completed separately and help to assess capacity and capability to implement road safety initiatives:

- knowledge about evidence-based practices;
- action that is planned, underway, or completed in the community; and,
- commitment among partners to improve road safety.

Each section is structured with key sub-categories to enable road safety practitioners from different disciplines to answer questions related to their specific expertise.

Action2Zero supports the work of local governments, and their road safety partners by sharing current knowledge about the roles of the various community partners, effective interventions and guiding the development of integrated and comprehensive community road safety plans. It was developed to meet the needs of a wide spectrum of diverse stakeholders. A key component of Action2Zero is the Safety Assessment Tool (SAT), a comprehensive, web-based tool designed to:

- assess the progress a community is making towards achieving 5-star community status;

- identify which measures in the various strategies have been implemented in the community; and,
- identify areas where greater efforts are required to achieve the 5-star community status.

Ultimately the outcome is a clear picture of potential improvements required, and the identification of the expertise and resources required to achieve 5-star status to help communities improve road safety.

Objectives

The objective of the Action2Zero Road Safety Assessment is to support the work of local governments and their road safety partners. It shares current knowledge about evidence-based interventions, contains tools to guide the development of comprehensive community road safety plans, and describes ways to engage community partners who can support initiatives.

Results from the Road Safety Assessment are used to highlight the strengths and challenges among road safety priorities in the District. These results can guide the creation and implementation of action items to address road safety priorities within the community.

2022 Results

The Road Safety Assessment was fielded in East End District Houston, Texas from July 11-20th, 2022. A total of 45 respondents representing eleven diverse organizations completed the online assessment.

Strengths

- Road safety is a priority (3.0/5). Measured through the development and implementation of a Traffic Safety Culture in addition to a community-wide focus on road safety activities.
  - Organizations value human life as a top priority.
  - A Traffic Safety Culture is being developed and reinforced.
- Post-crash responses (3.1/5). Measured through the resources available to crash victims, the collection and management of crash data, the implementation of policies and protocols between emergency medical services (EMS) and fire departments, the availability of First Aid courses to the general public, and an appropriate number of emergency vehicles and response times.
  - Policies and protocols are developed between EMS and fire departments to ensure swift attendance at road collisions involving injuries and fatalities.
  - Data are collected by attending EMS responders regarding injuries sustained in a traffic collision.
  - Response time targets have been set in relation to attendance at the collision scene, and casualty arrival at the nearest hospital.
- Safety around schools (3.3/5). This includes strategies for all modes of transportation (i.e., walking, cycling, public transportation, school buses, cars), vehicle reduction initiatives, engineering, education and enforcement measures, and parental engagement and community measures.
  - Reduced speed zones are implemented around schools.
  - There are school road safety patrols/crossing guards operating during peak hours.

Top Challenges

- Coordination (2.6/5). Coordination can include partnerships among transport, health, enforcement sectors and other road safety stakeholders at national, regional and local levels. This can be achieved using direct funding mechanisms and other implementation tools or by working through professional associations.

    - » Activities are not coordinated vertically or horizontally between national, provincial, regional, and municipal agencies.
    - » Partnerships are not established between agencies, private industry, organizations and the community.
- > Road safety data and target setting (2.0/5). Data and target setting are measured through the community's implementation and use of road safety surveys, the availability of data and data resources related to road safety and crashes, and the setting of road safety targets.
    - » Data are not frequently used to identify road safety priorities and address the needs of road users.
    - » Data, while collected, are not sharable and cannot be linked to other data sources.
    - » Road safety targets have not been set.
- > Safe System approach (2.1/5). This is measured by a common understanding of this approach to guide the development and implementation of a road safety strategy, and the promotion of traffic laws and safety initiatives within the community.
    - » Understanding of the Safe Systems approach is inconsistent among community partners and stakeholders.
    - » Road rules and safety initiatives are sometimes promoted through community communications, events, and campaigns.
- > Behavioral issues (2/5). Behavioral issues are measured through impaired driving (i.e., alcohol and drugs), distracted driving, and speeding.
    - » There is no integrated speed management program developed or implemented.
    - » Railroad (grade) crossings are not safe for all road users.
    - » Distracted driving education and prevention strategies are not developed within the community.
    - » Alternative solutions have not been identified or promoted to address the impaired driving problem.
- > Commitment (1.6/5). Commitment is measured by activities of a Road Safety Committee, engagement with road safety partners and stakeholders, and the use of a Community Road Safety Plan to measure progress.
    - » A Road Safety Committee has not been established.
    - » A Community Road Safety Plan has not been developed.

2024 Results

Growth

Compared to 2022, most areas reflected some level of growth in scoring. This is indicative of the efforts made by the East End District to dedicate resources to improving road safety culture. Specifically, considerable growth was experienced in commitment to road safety, scoring 3.1 in 2024, compared to 1.6 in 2022. While there remains room for improvement, this growth is substantial.

Stagnant

There were four areas in which no growth or regression was captured.

- A single agency or entity to be formally designated to lead road safety efforts in the community remains in the planning stage, scoring 2.6 in both 2022 and 2024.

- Opportunities in the community to support volunteering for projects and working with others also remained in the planning stage.
- Data continues to be unavailable to demonstrate impaired driving is a priority.
- Data collected by attending EMS responders regarding injuries sustained in traffic collisions remains inconsistent.

Decreases

Seven areas saw a decline in scoring compared to 2022. These areas may require closer attention as road safety planning and prioritizing moves forward.

- Fewer people believe impaired driving is a law enforcement priority.
- Regarding safety around schools, fewer people indicated there are reduced speed zones around schools and there are not enough school crossing guards operating during peak hours.
- Few policies and protocols have been developed between EMS and fire departments to ensure swift attendance at road collisions involving injuries and fatalities.
- Response time targets are in the planning stage of being set in relation to attendance at the collision scene and casualty arrival at the nearest hospital.
- There are not enough emergency vehicles in the community.
- Crashes are not systematically investigated in the community to assess key factors that can be identified and targeted with prevention strategies.

Shifting priorities

In comparing the top five strengths from 2022 to 2024, there is a visible shift in priorities. While four of the five assessment areas stayed within the top five, their ranking changed. Impaired driving dropped from top five strengths; however, it did improve in scoring (2.7 in 2022 to 3.0 in 2024).

2022		**2024**	
Safety around schools	3.3	Road safety is a priority	3.7
Post-crash response	3.1	Safety around schools	3.5
Occupant restraint	3.1	Post-crash response	3.3
Road safety is a priority	3.0	Safe vehicles	3.2
Impaired driving	2.7	Occupant restraint	3.2

Shifting concerns

Concerns shifted in 2024 to behavioral issues (i.e., speeding, distracted driving, enforcement) compared to administrative and leadership concerns in 2022. While all top five concerns in 2022 improved in scoring in 2024, there remains room for improvement and examination into the concern on dangerous behaviors.

2022		**2024**	
Commitment	1.6	Speeding	2.3
Speeding	1.7	Enforcement	2.6
Legislation	1.7	Lead agency	2.6
Road safety data and target setting	2.0	Vision	2.7
Enforcement	2.0	Safe roads	2.8
		Distracted driving	2.8

Safe system approach	2.8
Awareness and education	2.8

Appendix D: Gap Analysis

In 2023, the District received a grant from USDOT to develop a Safety Action Plan for all road users using the Safe System Approach. Initial steps included an assessment of past studies with content relevant to the Safety Action Plan, as such a gap analysis approach was used for the assessment of past studies:

- **Gap Analysis 1.** Assessed how well past studies covered issues relevant to the Safety Action Plan.
- **Gap Analysis 2.** Assessed gaps between past study recommendations and related outcomes.

The District initially identified a limited set of past studies, with over 50 items including content relevant to the Safety Action Plan were then identified.

Results

Gap Analysis 1 revealed the following:

1. There are disproportionately fewer studies of transportation vulnerable areas east of Lockwood relative to the higher impact of road safety in those areas.
2. Some past studies which were relevant have outdated data, these would have to be redone to have relevance for current road safety planning in the fast-changing District.
3. There was a lack of analysis of the road safety impact of North Houston Highway Improvement Project.

Gap Analysis 2 took steps toward completing a real-time picture of recommendations versus outcomes:

1. Sharable database of past studies with content relevant to the Safety Action Plan
2. Study prioritization scheme based on scoring each study's geographic relevance, currency, and primacy of road-safety
3. Over 240 study recommendations were coded using a system created from the National Highway Safety Strategy Dashboard, tailored for use by the District.

Next Steps

The process presented here can be used to help program staff managed recommendations from multiple studies to create a coherent and evolving Safety Action Plan for the East End District. However, this effort requires continuously coupling ongoing data collection with operational tracking to maintain an accurate picture of the progress toward safe streets and roads for all. To achieve this, the following next steps are recommended.

- Maintain the sharable database of studies with information relevant to the District's Safety Action Plan:
    - Identify emerging and previously overlooked studies that have recommendations relevant to the District's Safety Action Plan.
    - Add these studies to the reference database, including abstracts and links for the online versions.
    - Share the updated study list with persons needing orientation to the project (university capstone students, community stakeholders, new institutional partners).

- Use the Glossary of Road Safety terms to help project staff and persons new to the project (university capstone students, community stakeholders, new institutional partners) develop a common language regarding the District's Safe Streets and Roads for All Initiatives.
- Review emerging studies for report recommendations that contain actionable items relevant to the District's Safety Action Plan
    - Review studies added to the study database.
    - Identify emerging actionable items relevant to the District's Safety Action Plan.
    - Code these items within the recommendation spreadsheet
- Use the Study Recommendation spreadsheet to set priorities, monitor, and identify gaps within the District's Safety Action Plan.

Appendix E: Walk Audit Standard Operating Procedure

Below are the recommended procedures and training that were found to best assist all participants in completing the required tasks successfully. This document highlights the roles of the parties involved as well as a recommended timeline to ensure a successful audit is completed.

Inception (1 month from selected date)

- Establish a proposed date to complete the Walk Audit.
- Propose an area that requires the Walk Audit to be completed.
- Review relevant previous data that may overlap with this proposed area. Complete research regarding community comments and concerns about proposed area to ensure this area meets the need for a Walk Audit.
- Communicate with the American Association of Retired Persons (AARP) members to establish proposed training days for volunteers.

Community Awareness and Training (3 weeks from selected date)

- Communicate with AARP, TxDOT, and community support groups to gather support.
    - Tasks for AARP:
        - Establish at least 3 training days for the Haystax application across the next 3 weeks to allow as many volunteers as possible to get training prior to Walk Audit date.
        - Using the PPWT provided and created by Dexter Handy, this training should be as interactive as possible. In addition to this training, it is recommended to:
            - Complete a mock Walk Audit by completing one on screen share.
            - Send a mock Walk Audit for the volunteer to complete at their home base.
- Establish a “Get-out-the-Word" program, to attract as many volunteers as possible.
- Finalize proposed date.

Finalize date (2 weeks from selected date)

Finalize the proposed routes to be completed on the Walk Audit. This can be done in conjunction with the above-mentioned groups.

Assess the number of volunteers needed to complete the audit, and as needed increase the “Get-out-the-Word" effort.

Establish communication with the staging point business to ensure all involved parties are informed of what is occurring and when.

Continue holding trainings on Haystax application.

Material state (1 week from selected date)

- Gather required materials for Audit date. These may include but are not limited to:
    - Safety Vests
    - Canopy
    - Water Bottles/Catering

Review & finalize plan (2 days from selected date)

- Based on current weather forecasts, decide on the Go/No Go decision. This allows at least 48 hours to reach all the volunteers to confirm that they have received the decision.
- Create Volunteer Teams and divide the route into even sections. Teams should be no less than 3 people. Each team should only cover between .5 mi and 1 mi. When possible, 4 teams should be used to cover a single road, each side of the street getting 2 teams. The teams should be working towards each other and meet in the middle. If teams cannot be made up of 3 or more people, roles or teams may be combined as seen fit. Conversely, if there are more than 3 people on a single team, roles can be alternated.
- Organize all required materials into a staging area, ready for transportation to the location of audit.

Walk Audit

- 1 Hour Prior to Start: Essential and necessary personnel on scene to start set-up for base location.
- 30 Minutes Prior to Start: Volunteers begin showing up, sign in and gear distribution.
- 10 Minutes Prior to Start: Safety and route briefings, establish the roles of the team members:
    - Route Leader: Responsible for keeping pace and guiding team through the Walk Audit Process.
    - Recorder: Records all data into the Haystax application while the team is working through the Walk Audit. Takes photos during each individual audit.
    - Safety Manager: Ensures team is safe and vigilant of any dangers that may be seen or unseen while completing the audit.
    - Spotter: Identifies potential issues to record during the audit.
- Start:
    - Teams should carpool to the designated ending position as seen from their routes. Usually this should be halfway up a designated section of roadway. Parking here will allow the teams to do a ‘pre-walk’ of the designated route to gain familiarity and understanding of any unique challenges they may face.
    - Ensure the Team members are familiar with their role.
    - Start Walk Audit route.
- No Later Than 90 Minutes After Start: All teams return to the base location for gear return. Debrief of route and amount completed.

Review & debrief (1 week following the Walk Audit)

- Collect feedback from the volunteers regarding operation of the Walk Audit and the training leading up to the Audit. Feedback should be tailored to gain understanding of these processes, what can be improved in the training, and how the next audit can be modified to be more effective.
- Using the Haystax application create a data report that reviews and establishes the three areas of most concern within the Walk Audit routes. Develop a report that highlights these concerns and

communicates them to the appropriate individuals for consideration for refurbishment and improvement.

Appendix F: Data sources for traffic safety in the District

Crash/roadway data

Uses: (1) Crash characterization, (2) Crash counts, (3) Crash rates, (4) Crash maps

Crash data are the most critical data source. The Texas Department of Transportation (TxDOT) maintains the Texas Crash Records Information System (CRIS) as a complete census. Electronic copies of the data can be requested through the TxDOT website.4 TxDOT CRIS data are comprised of reports submitted by law enforcement. All crashes meeting the following criteria are required to be reported:

- Involved at least one motor vehicle,
- Occurred on a public roadway, and
- Resulted in a death, injury, or at least $1,000 in damages

Data are maintained by TxDOT for the prior ten years. Data are typically released for the prior year in April of the current year. Therefore, approximately in April of 2025, the 2024 crash records will be released, as an example.

The severity of each crash is coded according to the KABCO scale. The KABCO scale is defined as:

- K: Fatal injury
- A: Suspected serious injury
- B: Suspected minor injury
- C: Possible injury
- O: No injury / Property damage only

Each person involved in the crash is assigned an injury severity code. Then, the crash is assigned an overall severity code equal to the severity code of the person with the highest severity rating. For example, for a crash wherein one driver was fatally injured (K) and a second driver sustained a suspected minor injury (B), the crash would be coded as K or a fatal crash. A fatality occurring up to 30 days post-crash will be coded as a fatality.

TxDOT CRIS Variables

The complete TxDOT CRIS public use datafile includes a tremendous number of variables. However, a much smaller subset is used for typical crash analyses. It is also common for crash data analysts to create additional variables based on the typical TxDOT CRIS variables and as defined in the Texas Strategic Highway Safety Plan.

Clinical records

Uses: (1) Specific injury types, (2) Injuries resulting from events not involving a motor vehicle, (3) EMS response times

TxDOT CRIS data are ideal for analyzing crashes involving at least one motor vehicle. However, many injuries happen to pedestrians and bicyclists that do not involve a motor vehicle. The project staff are not aware of a comprehensive source for clinical records that would capture these injury cases and that is readily available. An injury in the District may be treated outside of the District. Project staff have a query into the Texas Department of State Health Services (DSHS) Trauma Registry. Obtaining these data from

DSHS may be difficult due to data privacy concerns given the small size of District and data suppression rules. The DSHS website provides variable dictionaries and descriptions for data collected for the EMS/trauma registry.6

Citation data

Uses: (1) Traffic citation count, (2) Traffic citation rate, (3) Traffic citation location

Citation data can help to understand the frequency of behaviors such as speeding, distraction, lack of restraint, and impairment, that can increase crashes or their severity. Citation data can also be contrasted against crash records by location to identify areas that may benefit from additional enforcement efforts.

The Houston Police Department (HPD) is the primary law enforcement agency over the District. HPD citation data can be obtained directly from staff engaged with the DISTRICT. Data from 2022 through 2024 were obtained for this project. Prior to using these data, it is important to remove any duplicates to prevent inflating counts. For the District, it is recommended to collapse violations code from the citation file into the categories displayed in Table 5. It is also recommended to separate citations associated with a collision versus citations without crash involvement.

EMS/fire data

Uses: (1) EMS / fire runs blocked by trains, (2) response times

In the District, Emergency Medical Services and Fire Services are both provided by the Houston Fire Department (HFD). EMS and fire run records can be obtained from HFD. The relevant HFD Districts for the DISTRICT include District 8, District 20, and District 28. EMS / FIRE response run data can be used to address two issues:

- Response times
- Blocked railroad crossings causing response delays

A separate study is being conducted of EMS and fire response. Consequently, this report focuses on data to assist in the analysis of blocked railroad crossings. The one limitation of the HFD data is it does not have the railroad crossing number that could be used to quickly tie it to the train data discussed below. However, EMS run records include response time that can be used to better understand if response times are an issue and if so, how to improve them.

Railroad crossing data

Uses: (1) Frequency of train delays / blocked railroad crossings, (2) Impact of train delays / blocked railroad crossings on first responders, children's access to school, and traffic safety

There are two key sources of train delay and blocked crossing data: (1) Federal Railroad Administration (FRA) roadway user reports and (2) data from TRAINFO, a private software company that supports the City of Houston by placing sensors at specific railroad crossings.

FRA data are publicly available. Anyone can report an event of a blocked crossing, and anyone can access the data through the FRA website. One limitation of FRA data is that multiple reports can be made for the same event. Therefore, using these data requires removing duplicates first. The District currently downloads the FRA blocked crossing data on a monthly basis. The data cannot be filtered for the District directly from the FRA website. One recommendation is to develop a programmed MS Excel file to make the filtering of the FRA data more efficient or more resistant to error.

The TRAINFO data are proprietary and collected via sensor-based using both video and auditory technologies that is shared to the District as part of this effort. The District has TRAINFO data for a selected 12 railroad crossings. The data are stored within the TRAINFO online application for the prior 12 months. The District monitors the TRAINFO data on a weekly basis, with a focus on delays of at least 1 hour, and produces a monthly summary report.

School crossing location data

Uses: (1) Location of schools, (2) School zone times

Through contacts at the District, the project staff obtained the location of open/close times for the 42 grade schools and Head Start programs in the District. These data can be geo-located to assign latitude and longitude values and mapped along with railroad crossing data to better understand the impact of blocked crossing on school children.

Gap analysis data

Uses: Prior project identification

The gap analysis report, described in a prior section, provided a listing of prior projects and their objectives. This can be used to place a pin on a map to show the concentration of projects by geographic location. The concentration of projects can then be contrasted against the concentration of traffic safety issues by location.

Us census data / American community survey

Uses: (1) Population count, (2) Population description

Population count data at the census tract level can be downloaded from the United States Government website. The data are available by census tract. Census tracts can then be aggregated up to the entire District or super neighborhoods. However, the District does not lie neatly within census tract or super neighborhood boundaries. For this project, if the District crosses a census tract boundary, then the entire tract is included in analyses.

TxDOT roadway inventory data

Annually, TxDOT produces roadway inventory data and makes it publicly available via their website. These data are available as a document or in a format that can easily be incorporated into a map as a geospatial layer. Roadway inventory data is useful because it provides characteristics for each roadway segment that may contribute to crashes or their severity. They also include the vehicle miles of travel (VMT) for each segment.

VMT is the gold standard way for quantifying how much as roadway is used and consequently its crash potential. A common way of estimating crash risk in the past is to compute a crash rate with the number of crashes in the numerator and the amount of VMT in the denominator. Computing the rate in this way allows for being able to compare rates in different areas across the state and over time in an “apples to apples” approach. For a more complete discussion of rates and why they are used in traffic safety activities, see the “Metrics” section below.

INRIX data

Over the last couple of years, there has been tremendous growth in the availability of data from cell phones and connected vehicles for the purpose of supporting traffic safety and mobility. A company named INRIX is one provider of these data. While these data are not readily available to the public, the District may be able to access or purchase these data in the future. The main benefit of INRIX data for the District TSDP is that the data could be used to better understand speed-related behaviors along with traffic flow patterns. INRIX data could be particularly informative for understanding traffic flow changes associated with temporarily blocked railroad crossings. Future efforts should assess the cost, process, and use of these data to support District traffic safety efforts.

usRAP data

Uses: (1) Risk maps for fatal and serious injury crashes, (2) Star ratings of road segments

The U.S. Road Assessment Program (usRAP) is administered by the Road Safety Foundation. The usRAP is a data-driven tool for safety analysis and planning. The overall usRAP approach is focused on reducing fatal and serious injury crashes and produces risk maps, star ratings, and safer roads investment plans. It is primarily based on photo and video data of road segments as opposed to historical crash data. Crash data is used to develop risk maps. The District usRAP was conducted in 2024. The data can be obtained through a ViDA account.

High injury network data

Uses: Identifies high injury ½-mile segments

Houston conducted a high injury network (HIN) analysis using crash records from 2018 to 2022. Corridors with a crash rate of 4+ severe crashes (defined as deaths or serious injury) per ½-mile were included, while most freeway/highway crashes were excluded. Segments are coded as priority if two or more fatalities, five or more severe crashes, and one or more pedestrian severe crashes occurred. The HIN analysis shows that 9 percent of streets in Houston are responsible for 58 percent of traffic deaths and serious injuries. HIN data can be accessed via a City of Houston ArcGIS website.

TxDOT MPO excess crash tool

The Texas A&M Transportation Institute is developing an interactive mapping tool for TxDOT that will allow Metropolitan Planning Organizations to identify roadway segments and intersections within their boundaries with the highest number of excess crashes. The number of excess crashes is calculated by comparing the actual number of crashes on a segment or intersection to the number which is predicted based on the overall experience with roadways and intersections of the same type. The Houston-Galveston Area Council (H-GAC) is included in this tool. The tool provides another potential source to identify corridors in the District with safety issues.