



Vision Zero Transportation Safety Action Plan

Adopted June 26, 2023

Dedication

This Vision Zero Transportation Safety Action Plan is dedicated to the victims of street crashes in Des Moines, especially the families, friends, and colleagues who have been killed or seriously injured on our streets.



Figure 1. Balloons let loose into the wind during Ema Cardenas' memorial. The 14-year-old East High School student was hit and killed on E University Avenue on April 28, 2022. Source: Omar Waheed / The Des Moines Register



Figure 2. A roadside memorial on the side of Interstate 80 honors Susan Farrell and Carlos Puente-Morales, Des Moines police officers killed in a car crash at this location on March 26, 2016. Source: Kelsey Kremer / The Des Moines Register

Table of Contents

Vision Zero Transportation Safety in Des Moines	1
The Road to Safety in Des Moines	5
What We Heard from the Des Moines Community	11
Where and Why Crashes Happen on Des Moines Streets?.....	21
Let's Take Action.....	35
Implementing Projects that Make Streets Safer	47
Measures of Vision Zero Success in Des Moines	55
Next Steps for Vision Zero in Des Moines	57

Cover Image: Aerial photo of recent safety improvements on Ingersoll Ave in Des Moines. Source: City of Des Moines

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List of Abbreviations

AADT	Annual Average Daily Traffic
BRC	Budget Review Committee
CIP	Capital Improvement Program
DSM	Des Moines Airport Code and City Abbreviation
EJ	Environmental Justice
FHWA	Federal Highway Administration
HIN	High Injury Network
HSIP	Highway Safety Improvement Program
ICAT	Iowa Crash Analysis Tool
KABCO	Injury Severity Scale per ICAT K: Fatal A: Suspected Serious Injury B: Suspected Minor Injury C: Possible/Unknown Injury O: Property Damage Only
KSI	Killed or Serious Injury (K and A on KABCO scale)
MoveDSM	City of Des Moines Transportation Master Plan
NEPA	National Environmental Policy Act
PlanDSM	City of Des Moines Comprehensive Plan
PCSi	Proven Safety Countermeasures initiative
RRFB	Rectangular Rapid Flashing Beacon
RSA	Road Safety Audit
SRTS	Safe Routes to School
SS4A	Safe Streets and Roads for All
STBG	Surface Transportation Block Grant
SUDAS	Iowa Statewide Urban Design and Specifications
USDOT	United States Department of Transportation

Organization or Department Abbreviations

AARP	American Association of Retired Persons	GIS	Geographic Information Systems Division
BRC	City's Budget Review Committee	HR	Human Resources
CMO	City Manager's Office	IowaDOT	Iowa Department of Transportation
COM	Communications Office	LEGAL	City Legal Department
DART	Des Moines Area Regional Transit Authority	NBS	Neighborhood Services Department
DEV	Development Services Department	PolkHealth	Polk County Health Department
DMAMPO	Des Moines Area Metropolitan Planning Organization	P&R	Parks & Recreation Department
DMFD	Fire Department	PW	Public Works
DMPD	Police Department	TNC	Transportation Network Company
DMPS	Des Moines Public Schools	TSC	Transportation Safety Committee
ENG	Engineering Department/Design	T&T	Traffic & Transportation Division
EQUITY	Equity Office	VZAG	Vision Zero Advisory Group
FIN	Finance Department		

Action Plan Acknowledgements

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Des Moines Street Collective

Des Moines Area Regional Transit Authority (DART)

Des Moines Transportation Safety Committee

Des Moines Area Metropolitan Planning Organization
(DMAMPO)

Iowa Department of Transportation (IowaDOT)

Des Moines City Manager's Office

Lutheran Services in Iowa

Des Moines Engineering Department

Nationwide Insurance

Des Moines Police Department (DMPD)

Polk County Health Department

Des Moines Fire Department (DMFD)

United Way of Central Iowa

Des Moines Public Schools (DMPS)

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Toole Design Group

Confluence

Thank you!

We would also like to thank the many people in Des Moines that set aside time to attend Vision Zero events and provide valuable perspectives on street safety throughout the development of this Action Plan.

Vision Zero Resolution from Des Moines City Council

★ Roll Call Number

23-0955

Agenda Item Number

62-I A

Date June 26, 2023

**RESOLUTION APPROVING AND ADOPTING
THE VISION ZERO TRANSPORTATION SAFETY ACTION PLAN
AND A COMMITMENT TO A GOAL TO ELIMINATE TRAFFIC DEATHS AND
SERIOUS INJURIES BY 2040 ON STREETS WITHIN THE CITY OF DES MOINES**

WHEREAS, on April 25, 2016, by Roll Call No. 16-0717, the City Council adopted PlanDSM: Creating Our Tomorrow Comprehensive Plan, which includes a goal that in the year 2040, Des Moines will have a complete transportation system providing safe and efficient infrastructure for walking, bicycling, mass transit, and automobiles; and

WHEREAS, on November 19, 2018, by Roll Call No. 18-1934, the City Council adopted MoveDSM: Transportation Master Plan, which establishes a multi-modal vision for transportation in Des Moines over the next 25 years and supports the goals outlined in PlanDSM for a safe transportation network; and

WHEREAS, the City updated the Complete Streets Policy with the adoption of MoveDSM on November 19, 2018, by Roll Call No. 18-1932 and established on November 20, 2017, by Roll Call No. 17-2003, a Traffic Calming Program for Des Moines' Neighborhoods, which was updated on March 27, 2023, by Roll Call No. 23-0410, that support transportation safety efforts; and

WHEREAS, on March 21, 2022, by Roll Call No. 22-0393, the City Council authorized a professional services agreement with Toole Design Group, LLC to develop a Vision Zero Transportation Safety Plan; and

WHEREAS, the Vision Zero Transportation Safety Action Plan has been developed with the goal of eliminating traffic deaths and serious injuries by 2040 on streets within the City of Des Moines and will be reviewed and revised annually based on progress made towards the goal of zero traffic deaths and serious injuries by 2040; and

WHEREAS, the City Transportation Safety Committee has recommended approval.



Roll Call Number

23-0955

Agenda Item Number

62-IADate June 26, 2023

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Des Moines, Iowa:

1. That the Vision Zero Transportation Safety Action Plan, as on file in the office of the City Clerk, is hereby approved and adopted;
2. That it hereby commits to a goal to eliminate traffic deaths and serious injuries by 2040 on streets within the City of Des Moines.

(Council Letter Number 23-308 attached)Moved by Mendelbaum to adopt. Second by Voss

Refer to the City Manager for recommendation on composition of an advisory group, ensuring that minutes are published and a quarterly report is provided.

FORM APPROVED: s/Kathleen VanderpoolKathleen Vanderpool
Deputy City AttorneySLN_{pw}

COUNCIL ACTION	YEAS	NAYS	PASS	ABSENT
COWNIE	✓			
BOESEN	✓			
GATTO	✓			
MANDELBAUM	✓			
SHEUMAKER				✓
VOSS	✓			
WESTERGAARD	✓			
TOTAL	6			1

MOTION CARRIED

APPROVED

Mayor

CERTIFICATE

I, Laura Baumgartner, City Clerk of said City hereby certify that at a meeting of the City Council of said City of Des Moines, held on the above date, among other proceedings the above was adopted.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal the day and year first above written.

City Clerk



**Vision Zero is a goal
to eliminate deaths
and serious injuries
altogether
on all streets
in Des Moines
by 2040.**

Vision Zero Transportation Safety in Des Moines

Each year, on average 18 people are killed and 96 people are seriously injured in crashes on streets in Des Moines.¹ This loss of life and these life-altering injuries is unacceptable. The Des Moines Vision Zero Transportation Safety Action Plan (Action Plan) lays out the steps to eliminate deaths and serious injuries on all our streets in Des Moines by 2040. For the purposes of this Action Plan, transportation safety includes all street surface transportation of all road users and crashes on all streets in Des Moines. People who move around Des Moines should be safe, no matter how they choose to get around or where they are traveling. From 2017 through 2021, 502 of the 28,046 reported crashes in Des Moines resulted in 569 people being killed or seriously injured.² For many people, being involved in a crash could change their life—physically, mentally, and emotionally. For those people who sadly do not survive, their community has lost a loved one forever.

The City of Des Moines is taking steps to achieve Vision Zero, including the adoption of this Action Plan. The idea of Vision Zero in Des Moines did not start with this Action Plan and achieving it will not happen overnight. Committing to Vision Zero is important because it signals a clear intention toward necessary change. Achieving Vision Zero will require a sustained commitment to leadership, collaboration, and accountability for City departments, partners, and the broader Des Moines community. This Action Plan provides a roadmap and a collaborative process to meet the goal of zero transportation deaths and serious injuries in Des Moines by 2040.

The target year of 2040 was selected based on the present levels of funding and City staff resources that will be devoted to this effort. It accounts for the lead time necessary to fill any additional staff positions and obtain additional funding sources to move forward with the Action Plan. The target year accounts for the time it takes to program, design, fundraise, and implement capital improvement projects and safety countermeasures. Finally, it considers the funding challenges of maintaining infrastructure and sustaining programs so that the objectives of the Action Plan will be realized.

What is Vision Zero?

Vision Zero is a transportation safety goal that was developed in Sweden in the late 1990s focused on a shared responsibility to eliminate transportation deaths and serious injuries.³ A common principle of Vision Zero and the Safe System Approach is that deaths and serious injuries as a consequence of using the transportation system are unacceptable and preventable, as shown in Figure 3. Vision Zero has proven to be successful globally and in the United States. Places like Sweden, the Netherlands, Norway, Australia, New Zealand, Hoboken, NJ, Jersey City, NJ, and Madison, WI have seen drastic declines in

Fundamental Principles of Vision Zero

These principles are core to successful Vision Zero efforts:

1. Traffic deaths and severe injuries are acknowledged to be preventable.
2. Human life and health are prioritized within all aspects of the transportation system.
3. Human error is inevitable, and transportation systems should be forgiving.
4. Safety work should focus on system-level changes above influencing individual behavior.
5. Mitigation of speed is recognized and prioritized as the fundamental factor in crash severity.

(Source: Vision Zero Network)

Figure 3. Principles of Vision Zero. Source: Vision Zero Network

¹ Based on all reported crashes from 2017 through 2021 per Iowa Crash Analysis Tool (ICAT) crash data <https://icat.iowadot.gov/>

² Based on all reported crashes from 2017 through 2021 per Iowa Crash Analysis Tool (ICAT) crash data <https://icat.iowadot.gov/>

³ <https://visionzeronetwork.org/about/what-is-vision-zero/>

deaths and serious injuries on streets since adoption of Vision Zero and implementation of the Safe System Approach.⁴

Cities, counties, regions, and states across the U.S. have adopted Vision Zero as a goal and developed action plans to chart a path toward eliminating transportation deaths and serious injuries. Each agency has adapted their approach to their unique circumstances and contexts. Des Moines is on that same path.

⁴ <https://highways.dot.gov/safety/zero-deaths/safe-system-approach-presentation-0>

How Are Vision Zero and the Safe System Approach Different?

Vision Zero can be achieved by applying the Safe System Approach and creating a positive transportation safety culture. Vision Zero is a fundamental change from traditional street safety to using the Safe System Approach. It recognizes that humans make mistakes and streets should be designed to minimize the impacts of those mistakes. The second major departure from traditional safety efforts is that Vision Zero is a collaborative effort and recognizes that all elements of the transportation system—safe roads, safe road users, safe speeds, safe vehicles, and post-crash care—must be safe to achieve Vision Zero. The following six principles as shown in Figure 4 and described below form the foundation of the Safe System Approach:

- **Death and Serious Injury Is Unacceptable** – While no crashes are desirable, the Safe System Approach focuses on eliminating crashes that cause deaths or serious injuries.
- **Humans Make Mistakes** – The transportation system can be designed to accommodate inevitable human mistakes.
- **Humans Are Vulnerable** – Human bodies have physical limits for tolerating a crash and the transportation system must be human-centric and consider these vulnerabilities.
- **Safety Is Proactive** – Instead of waiting for a crash to happen, proactive tools should be used to mitigate risks in the transportation system.
- **Responsibility Is Shared** – All stakeholders (transportation system users and managers, vehicle manufacturers, etc.) must ensure that crashes don't lead to fatalities or serious injuries.
- **Redundancy Is Crucial** – Reducing risks requires that all parts of the transportation system are strengthened so that if one part fails the other parts still protect people.



Figure 4. Achieving Vision Zero requires all the principles and elements of the Safe System Approach. Source: FHWA

The Federal Highway Administration (FHWA) states that “Vision Zero is a shared goal of zero transportation deaths and serious injuries and the Safe System Approach is how we get there.”⁵ It refocuses our transportation system to prioritize safety as a key priority. Vision Zero and the Safe System Approach recognize that humans make mistakes and therefore the street system should be designed to ensure that mistakes do not result in death or serious injury.⁶ Vision Zero and the Safe System Approach constitute a paradigm shift that requires creating a positive transportation safety culture, increasing collaboration across the community, and ensuring safety improvements are being made equitably and where need and impact are greatest. Many agencies have also incorporated equity as a key aspect of their Vision Zero efforts to ensure that street safety is also prioritized in underserved communities.

⁵ https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/FHWA_SafeSystem_Brochure_V9_508_200717.pdf

⁶ <https://www.transportation.gov/sites/dot.gov/files/2022-08/SS4A-NOFO-FY22-Amendment-1.pdf>

The Safe System Approach Framework as Our Lens

The Safe System Approach Framework is a proven lens to ensure every transportation decision considers how to eliminate deaths and serious injury on streets.⁷ The City of Des Moines, and agencies working within Des Moines, will now use the Safe System Approach Framework as the lens to make policy, practice, program, and especially project decisions. It will ensure that safety is a top priority in all street decisions in the city to reach the goal of Vision Zero by 2040 together. The Safe System Approach Framework is the way in which we ensure that if a crash occurs, it cannot result in death or serious injury. Below is guidance on how to apply the Safe System Approach Framework in Des Moines based on national guidance and as shown in Figure 5 below:

- **Separating Users in Space** – Streets should provide enough physical space or barrier protection between modes of travel to prevent a crash from resulting in fatal or serious injury and to protect vulnerable road users most at risk to injury in crashes.
- **Separating Users in Time** – In locations where people must use the same space, such as an intersection, separate users in time (e.g., a left turn phase or a bike phase at an intersection) to reduce potential conflicts.
- **Increasing Attentiveness and Awareness** – Ensure people using the street have every opportunity to see other people and increased awareness at higher risk or conflict locations. This can include installing curb bump outs at intersections, rectangular rapid flashing beacons (RRFB) at pedestrian crossings, lighting along a street, rumble strips on the edge or centerline, or purchasing vehicles with smaller blind spots.
- **Reducing Speeds** – Speed is a determining factor in whether a person survives a crash or not. Survivability decreases as speeds rise. Reducing speeds includes preventing speeding and lowering speed limits to a safe speed for all road users. This is especially true for vulnerable road users. For example, a pedestrian's risk of death if struck by a car moving at 40 mph is 50 percent.⁸
- **Reducing Impact Forces** – Reducing crash forces is key to all road users surviving a crash. Smaller vehicles have inherently less impact forces and reducing curb radii at intersections can also help mitigate the crash forces of all vehicles.



Figure 5. The Safe System Approach Framework to be used as a lens in Des Moines. Source: Toole Design Group

⁷ <https://www.ite.org/pub/?id=C8B1C6F9-DCB5-C4F3-4332-4BBE1F58BA0D>

⁸ <https://aaafoundation.org/impact-speed-pedestrians-risk-severe-injury-death/>

The Road to Safety in Des Moines

The PlanDSM Comprehensive Plan (PlanDSM) for the City of Des Moines, adopted in 2016, provides goals and objectives that guide land use, transportation, and infrastructure development in Des Moines through the year 2040 and beyond.⁹ The PlanDSM vision states that Des Moines will have “a complete transportation system providing safe and efficient infrastructure for walking, bicycling, mass transit, and automobiles.” Two street safety-oriented goals included in PlanDSM include:

- Provide opportunities for healthy lifestyles through walking as a primary mode of transportation.
- Enhance the bicycle network by expanding bicycle facilities that are safe, comfortable, and easily accessible.

The MoveDSM Transportation Master Plan (MoveDSM), adopted in 2018, is an element of PlanDSM.¹⁰ The goal of MoveDSM is “to preserve safety, quality of life, and economic development; and to ensure that Des Moines is best positioned to provide transportation options for all citizens in every stage of life.” MoveDSM notes that “traveling on Des Moines’ streets can be dangerous, and people walking, rolling, and biking are much more likely to be seriously injured or killed getting around the city.” A safety analysis summary from 2012-2016 as part of MoveDSM is shown in Figure 6 and was a precursor to a full safety analysis as part of this Action Plan.

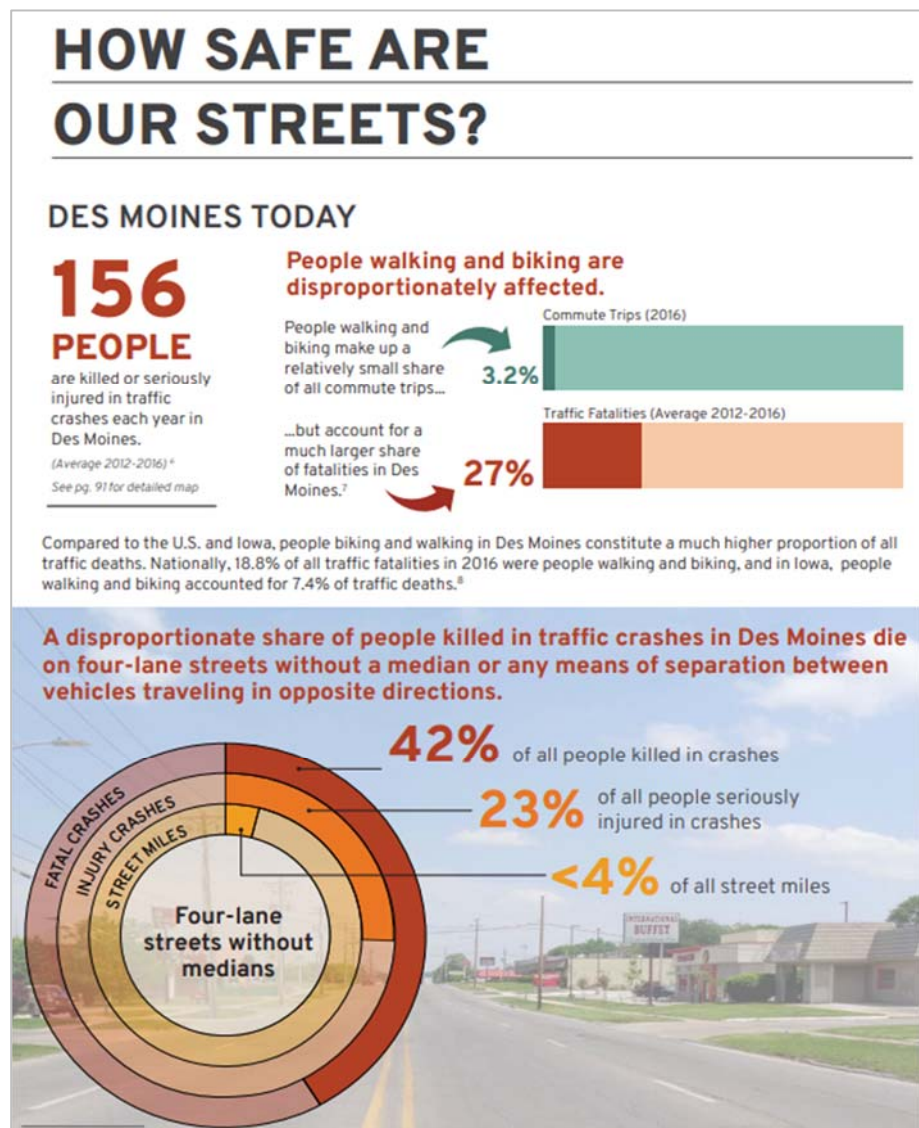


Figure 6. “How Safe are Our Streets?” section of MoveDSM based on 2012-2016 data. Source: City of Des Moines

⁹ <https://plandsm.dsm.city/>

¹⁰ https://cms2.revize.com/revize/desmoines/document_center/Engineering%20and%20Traffic%20Forms%20and%20Documents/Traffic/MoveDSM_Transportation%20Master%20Plan.pdf

The adoption of MoveDSM was a critical step in establishing safety as a goal for transportation in Des Moines. It identified creating a safer transportation network as a strategy. As a change in process, it established a multidisciplinary advisory body for all transportation projects: the Transportation Safety Committee is responsible for reviewing projects to ensure they comply with MoveDSM and the City's Complete Streets Policy.

Specifically, the following street safety actions in MoveDSM served as a precursor to this Action Plan and adoption of Vision Zero in Des Moines:

- Update the yielding policy so that pedestrians have the right of way when approaching an intersection.
- Where possible, add wide shoulders so that people walking, rolling, and bicycling have a place to travel.
- Reduce speed limits on rural streets to 40 mph.
- Implement signage and pavement markings, shoulder widening to narrow lane widths, surface treatments, and enforcement.

This Action Plan will be formally adopted by the City and will serve as a work plan of PlanDSM and MoveDSM. The Vision Zero is a change in the way Des Moines funds, prioritizes, and designs street projects and programs. This is a high-level shift in procedure. To be effective, the adoption of Vision Zero will happen in every department and among City partners. The Action Plan is a result of framework put in place by PlanDSM and MoveDSM. It shares the responsibility for improving street safety across all City departments, partner agencies, community groups, and the public to ensure everyone is working together to improve street safety and reach Vision Zero.



Figure 7. PlanDSM (top), the City's Comprehensive Master Plan, includes specific implementation plans like MoveDSM (bottom), GuideDSM, LiveDSM, and InvestDSM.

Vision Zero as the Path Forward in Des Moines

Vision Zero is an intentional shift to prioritize safety in every street-related decision to prevent deaths and serious injuries of all users. The Vision Zero Resolution is also being considered by City Council; it commits the City of Des Moines to the goal of eliminating transportation deaths and serious injuries in Des Moines by 2040.

Without dedicated Vision Zero staffing and funding for the duration of this Action Plan timeline, the results will fall short of the Action Plan's safety goal. Funding and staffing should be dedicated to implement the full set of actions and projects on the timelines proposed in this Action Plan. All City departments and agency partners must ensure Vision Zero and the Safe System Approach will be considered in every transportation decision in Des Moines. Safety projects installed through the Vision Zero program will be enhancements to streets in Des Moines and may require additional construction and/or maintenance costs.

The Action Plan establishes zero transportation-related deaths and serious injuries as a top priority for the City. This goal will be reflected in the City's operations, plans, policies, programs, and projects moving forward. In addition to saving lives, the Action Plan will help ensure that moving around Des Moines, regardless of mode or ability, is more accessible, equitable, and enjoyable for all users.

Implementing this Action Plan must ensure that streets are safe and usable for everyone. This will require collaboration, partnership, and focus from everyone in the Des Moines community. Throughout implementation, prioritizing equity and continuing ongoing community engagement that creates a positive transportation safety culture will also be imperative. These have been integrated into the five focus areas identified through this planning process listed below and detailed in *Focus Areas* section of the Action Plan:

- **City Policies, Programs, Processes, and Partnerships**
- **Safe Streets for Everyone**
- **Safe Speeds**
- **A Culture of Safe Street Behaviors**
- **Data and Transparency**

Action Plan Development at a Glance

The Action Plan was developed through a collaborative process with the Des Moines community. The Action Plan development began in June 2022 with a Vision Zero presentation and discussion with the City Council and the Transportation Safety Committee. Development of the Action Plan was informed by community engagement in three distinct phases to ensure it emerged from issues, concerns, needs, and ideas unique to Des Moines:

- **Investigation (June 2022 through October 2022)** – This phase engaged and listened to the community to understand key street safety issues, where people felt safe or not on streets in Des Moines, and ideas the community had for Vision Zero.
- **Consensus Building (November 2022 through May 2023)** – This phase incorporated ideas from the community for preventing transportation deaths and serious injuries. The Vision Zero Working Group helped develop and review an initial set of actions and recommendations for a target year to reach Vision Zero. A first draft of the Action Plan was reviewed by City staff, the Transportation Safety Committee (TSC), and the Vision Zero Working Group in February 2023. A second draft was shared with the public, presented to City Council, the TSC, and Vision Zero Working Group for additional review and updates from April 2023 to May 2023. Two community listening workshops (one virtual, one in-person) were held, and an interactive engagement website was launched at the end of this phase to allow the Des Moines community the chance to contribute to the first ever Vision Zero Transportation Safety Action Plan. Feedback was gathered to identify actions that the greater Des Moines community could help implement toward achieving Vision Zero.
- **Commitment to Vision Zero** – The City passed a Vision Zero Resolution and adopted this Action Plan unanimously on June 26, 2023 to apply for a United States Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) implementation Grant by July 10, 2023. Agency partners, organizations, and employers in Des Moines can sign on to a Vision Zero pledge, create incentive programs that improve street safety, and assist with ongoing Vision Zero education and

Action Plan Timeline

June 2022

- Action Plan process launched
- Presentations to introduce Vision Zero to the City Council and Transportation Safety Committee
- Community listening workshop
- City's Vision Zero webpage launched

August 2022

- 2 community pop-up events
- Working Group #1

September 2022

- Community listening workshops
- Online engagement website opened
- Online engagement website closed, and results posted

October 2022

- 4 community listening workshops
- Review of City's current practices
- Vision Zero resources provided to City
- Crash Analysis conducted
- Engagement recap completed
- Working Group #2

November 2022 to May 2023

- City staff and partner interviews to understand current practices
- Project update to City Council in January 2023
- Action Plan development
- Working Group #3-5
- Project updates to City Council and TSC in April and May 2023
- Virtual and in-person community listening workshops

June 2023

- Adopted Vision Zero Resolution and Action Plan

Coming Soon

- Implement actions and projects
- Community pledge to Vision Zero

Figure 8. Des Moines Vision Zero Action Plan Development Timeline.

outreach efforts. There will also be a citizen pledge available for people in Des Moines to commit to doing their part to ensure the safety of everyone while traveling on streets in Des Moines and help reach Vision Zero together.

During the Investigation and Consensus Building phases of the project, outreach focused on understanding people's experience on the streets of Des Moines. The events also gathered information about street safety concerns and ideas to incorporate into the goals and actions of the first Action Plan from as many residents and visitors as possible. Providing engagement through multiple formats—listening workshops, pop-up events, and an interactive engagement website—was intended to increase the reach of the engagement.

Vision Zero Transportation Safety Working Group

The City selected representatives from a cross-section of the Des Moines community to serve on a Vision Zero Working Group that guided the development of the Action Plan from the onset. They included Des Moines City staff members, agency partners, as well as community organizations that represent the broader Des Moines community. The Working Group met six times over the course of the Action Plan development to provide high-level guidance in the beginning on the engagement approach. In the middle of the project, the Working Group reviewed the crash analysis and provided reactions as well as feedback. Later in the process, the project team held a series of three work sessions where the Working Group helped develop actions, reviewed the list, and provided feedback on actions and implementation timelines. The Working Group reviewed and provided comments on both the first and second drafts of the Action Plan. Moving forward, the Working Group will help with implementation of the Action Plan, advising on changes and updates to the Vision Zero program in Des Moines, and ensuring the success of Vision Zero and reaching zero deaths and serious injuries on streets in Des Moines.

Let's Take Action: The Working Group's job is not done! **Action 1.1.6** establishes a Vision Zero technical advisory group (VZAG) to guide the implementation of this plan. It will include staff from multiple departments, including engineering, transportation, planning, police, fire, communications, public works and legal.

Steps to Reaching Vision Zero in Des Moines by 2040

This Action Plan summarizes the steps taken to determine the actions necessary for the City and its partners to achieve Vision Zero by 2040. Following adoption, the actions described later in this Action Plan will be implemented, and the City will continue to monitor progress. Between adoption and 2040, the City will make any adjustments to keep Des Moines on track to achieving Vision Zero.

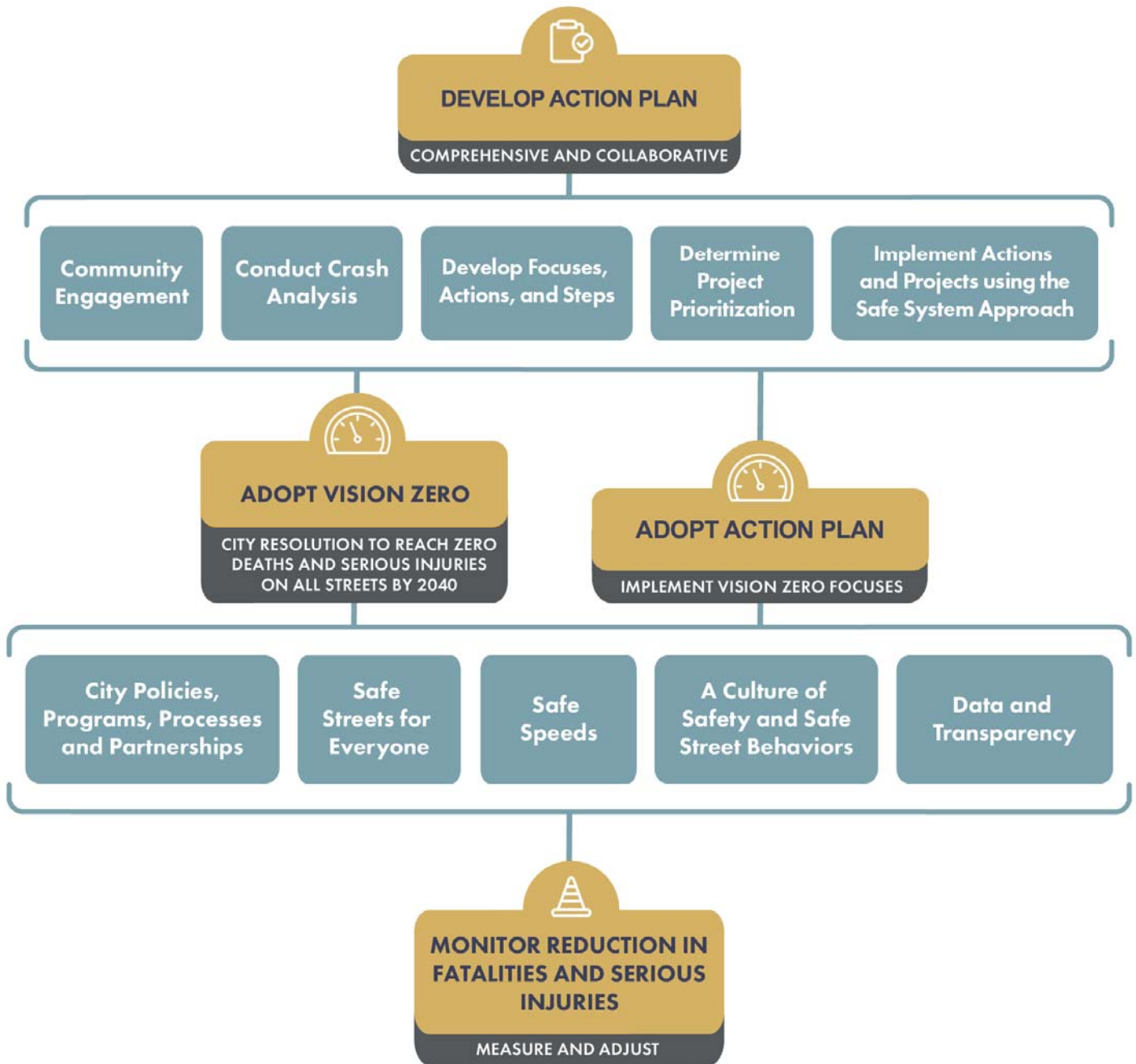


Figure 9. Steps to Vision Zero in Des Moines.

What We Heard from the Des Moines Community

Community engagement is important to achieving Vision Zero. Thorough engagement allows for the community to help identify street safety issues and concerns, for dialogue on street safety processes, to understand the impact that crashes on streets in Des Moines have on people's lives, and to build community support for improving street safety across Des Moines. It also creates a sense of community in the planning process that emphasizes the need for shared responsibility through the Safe System Approach and reinforces that everyone must do their part to prevent transportation deaths and serious injuries in Des Moines. At the start of the project, the City launched a Vision Zero webpage to keep the public informed on the Action Plan process.¹¹ Throughout the project, engagement efforts online, in the workshops, and in pop-ups gathered similar feedback about locations where people experienced safety issues, felt safe, or had project ideas.

Pop-Up Events

In August 2022, there were two pop-up events to catch the public at busy locations during the initial investigation phase of the project: an afternoon at the DART Central Station and before the start of an Iowa Cubs game at Principal Park. The pop-ups were an opportunity for people to encounter the project in their daily life without having to attend a specific meeting or listening workshop.



Figure 10. Pop-up event interaction at DART Central Station on August 25, 2022. Source: Confluence

¹¹ https://www.dsm.city/departments/engineering - division/vision_zero/index.php

Listening Workshops

Four workshops were held in late September 2022 and a total of 55 residents participated. The workshops were held across the city to reach as many segments of the Des Moines population as possible. The workshops were promoted on the City's Vision Zero webpage, through flyers, and news coverage. During each community listening workshop, there were four stations for participants to provide input on street safety across Des Moines:


- **Recording station** – Share stories on street safety and how it has impacted lives
- **Post-it activity** – Provide ideas and concerns
- **Visioning activity** – Draw or describe how to make streets safer
- **Mapping activity** – Pinpoint places where streets felt safe or unsafe

VISION ZERO TRANSPORTATION SAFETY COMMUNITY LISTENING WORKSHOP SERIES


*Share your thoughts on transportation safety as the City develops its first **Vision Zero Transportation Safety** Action Plan with a goal of **ZERO** traffic deaths and serious injuries.*

Stop by to provide input at:

<p>Workshop #1 Tues, Sept 20, 2022 4:00pm-7:00pm Pioneer Columbus Community Recreation Center 2100 SE 5th Street</p> <p>Workshop #2 Wed, Sept 21, 2022 4:00pm-7:00pm East Side Library 2559 Hubbell Avenue</p>	<p>Workshop #3 Thurs, Sept 22, 2022 4:00pm-7:00pm South Side Library 1111 SW Porter Avenue</p> <p>Workshop #4: Thurs, Sept 29, 2022 4:00pm-7:00pm Franklin Avenue Library 5000 Franklin Avenue</p>
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Scan to access the website!



or visit: dsm.city/visionzero

Figure 11. Workshop handout to promote the engagement workshops during the investigation phase of the project. Source: Confluence



Figure 12. Sample of the visioning activity at the community listening workshops. Source: Confluence

Interactive Engagement Website

The interactive engagement website was launched September 20, 2022 and closed October 24, 2022 to coincide with the in-person community listening workshops. The website offered similar engagement activities that were available at the in-person public workshops in a virtual format to reach more people. The intent was to allow for multiple activities in two formats to engage the public to contribute thoughts and ideas in inform the Vision Zero Action Plan in Des Moines. The site had 1,140 total visits, with 362 map your idea comments, 19 tell us your story responses, and 66 share your idea or other forum-type responses.

- **Tell Us Your Story** – This activity was intended to collect stories from those that have been impacted by a crash or to understand a near miss crash experience to understand how street safety impacts the people of Des Moines.
- **Share Your Ideas** – Participants were asked to provide ideas on ways to create safer streets in Des Moines. There was a wide variety of ideas and potential solutions received in the feedback to this activity. The next section summarizes the feedback received.
- **Online Mapping** – The mapping activity allowed participants to identify specific locations using three comment types – safe location, unsafe location, and transportation safety improvement idea – and leave a comment about that location.
- **Key Questions** – Participants were asked specific questions about what actions they would like to see in the Action Plan, who should carry them forward, and about any other ideas for improving safety.

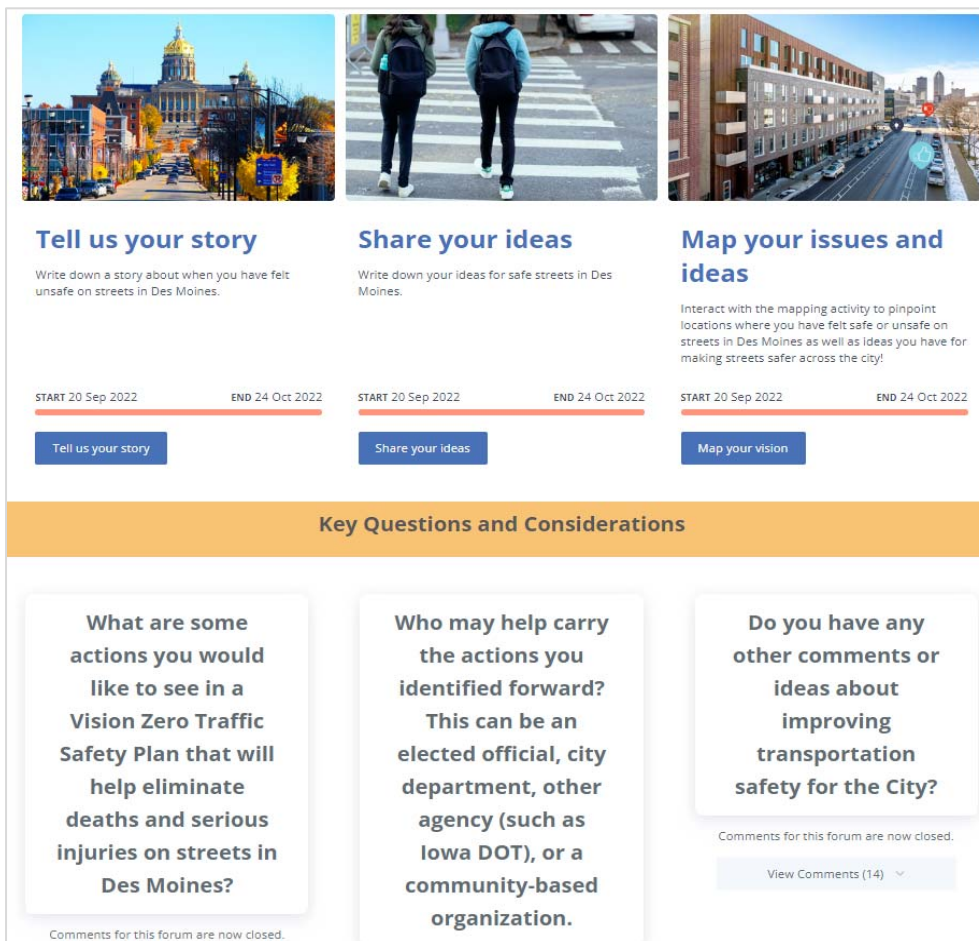


Figure 13. Screenshot of online engagement activities for Des Moines Vision Zero as part of the initial community engagement. Source: Confluence/Social Pinpoint

The engagement process gathered transportation stories, locations where people felt safe or unsafe, and project ideas. Community feedback provided qualitative information about the experiences of those using streets throughout Des Moines. This feedback, combined with the crash analysis described in the next section, painted a broader picture of street safety in Des Moines.



Overall, there was community support for making our streets safer for all road users, especially for pedestrians and bicyclists. Major concerns included cars speeding through neighborhoods, the need for safe locations to cross streets, and the desire for better bike facilities. Participants expressed an understanding of the complexity and the potentially great costs of implementing an Action Plan and that it would not happen overnight. Participants understood this work requires physical improvements as well as public awareness/education campaigns.

How Can We Make Streets Safer?

- Slow cars down – Lower the speed limit in key areas and build streets that encourage slower vehicle speeds
- Design and build more multimodal streets – expand the bike network and sidewalk network. Design intersections for bicyclists and pedestrians
- Make space for transit – Consider transit improvements in every street project, including bike projects
- Make multimodal improvements more permanent – use more than paint for multimodal street improvements and accommodate bike lanes during construction projects
- Build a multimodal culture through education and communication

What Are Your Ideas?

- Build speed tables
- Make walk signals recall automatically
- Educate the public on new street designs, such as the application of yellow flashing lights with left turn arrows
- Educate the public on existing laws, such as how to share the road with people riding bikes
- Increase funding and services to DART. Also, allow elementary-aged children to ride free like the middle and high schoolers currently do
- Providing protected bike lanes throughout the city
- Coordinate with elected officials to gain their support in these endeavors.
- Provide more police patrolling and monitoring of speeds. Consider additional speed cameras or red-light cameras as well

Where Are Improvements Needed?

- Build dedicated bike lanes on Urbandale Avenue
- Slow vehicles down on East Walnut Avenue
- Expand the sidewalk on the east side of Des Moines, specifically on Guthrie Avenue, the west side of Hubbell Avenue, and on the west side of the SW 3rd Street bridge
- Build a trail connecting Downtown to the east side
- Downtown. Specifically start along SW 9th Street, SE 14th Avenue, and Fleur Drive, and near Drake University. Paint the bike lanes green and build pedestrian bumpouts
- Focus on making residential streets and streets near schools safer
- Lower speed limits to 20 mph in residential areas and Downtown

Let's Take Action: Adoption of this plan is not the end of the City's commitment to engaging the community about Vision Zero. **Action 4.1.3** calls for a comprehensive multimodal safety education campaign focused on safe interactions with other road users. **Action 4.1.6** calls for the creation of better resources so community members can be more informed about the connection between a street's design and safety.

Mapping Community Safety Concerns and Ideas

In the community listening workshops and the online engagement website, the community was asked to share specific locations across Des Moines where they felt safe, unsafe, or had a safety project idea. In the listening workshops, participants put dots on a map of safe or unsafe locations as shown in Figure 16 below. Online participants were able to zoom into an interactive map and add locations that felt safe or unsafe, or where they had a project idea, and they could provide specific comments where the icons were placed as shown in Figure 18 on page 19.

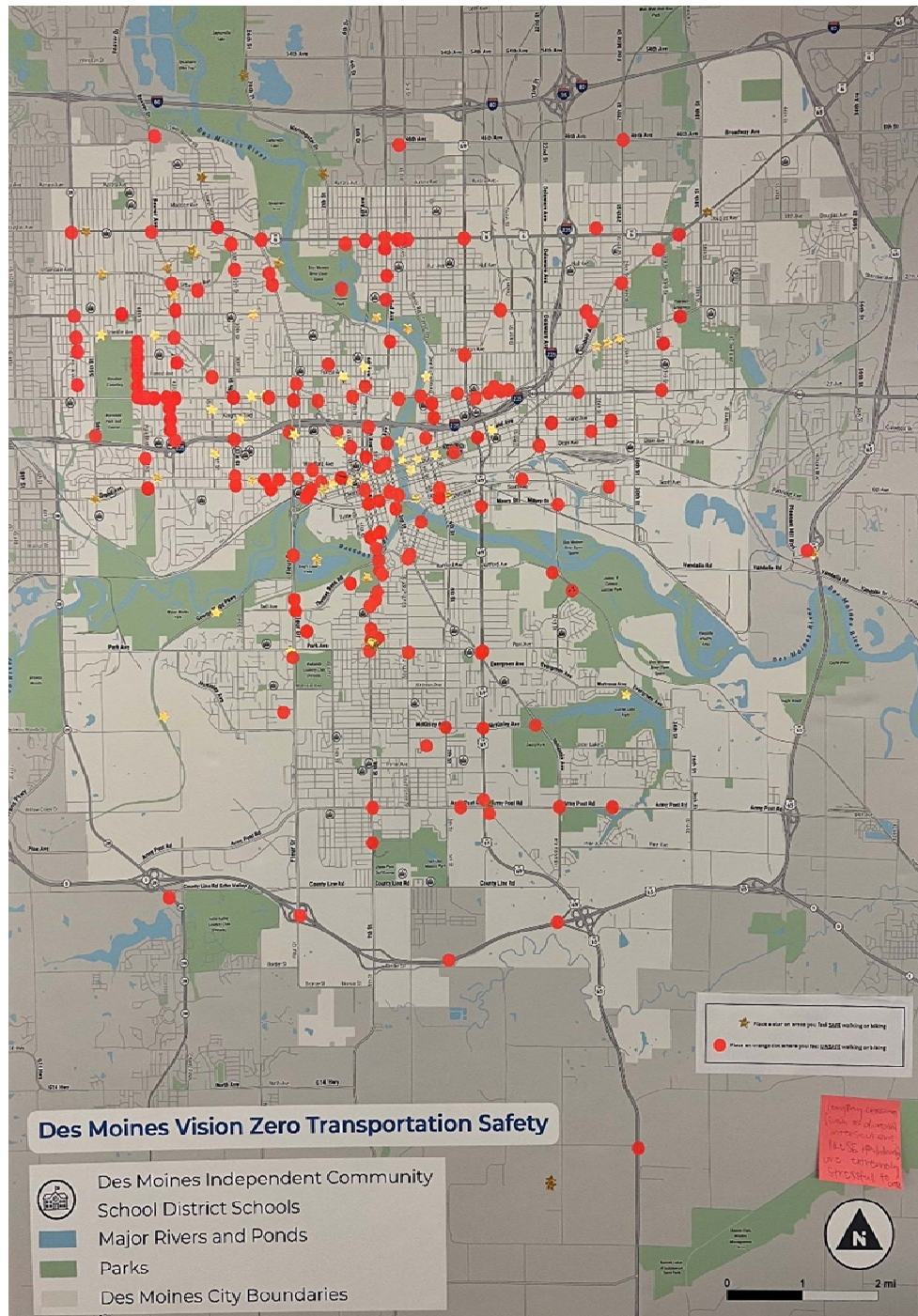


Figure 15. Results of the listening workshop mapping activity. Orange dots represent areas where people felt unsafe and gold stars are places where people felt safe. Source: Confluence

Where Do You Feel Safe?

- University Avenue and 41st Street, where traffic calming is installed
- The raised crossings and off-street paths at Roosevelt High
- The bus stop along 42nd Street
- Ingersoll Avenue
- SW 12th Street speed humps
- Bicycle facilities throughout downtown
- Bicycle and pedestrian bridges and dedicated trails throughout the city

Where Do You Feel Unsafe?

- 48th Street, University Avenue, and 42nd Street
- Unprotected bike lanes
- Intersections as a pedestrian
- Many intersections are the culprit of people's senses of feeling unsafe. Additionally, speeding was mentioned frequently. A lack of thru road connections inhibits mobility and should be addressed moving forward.

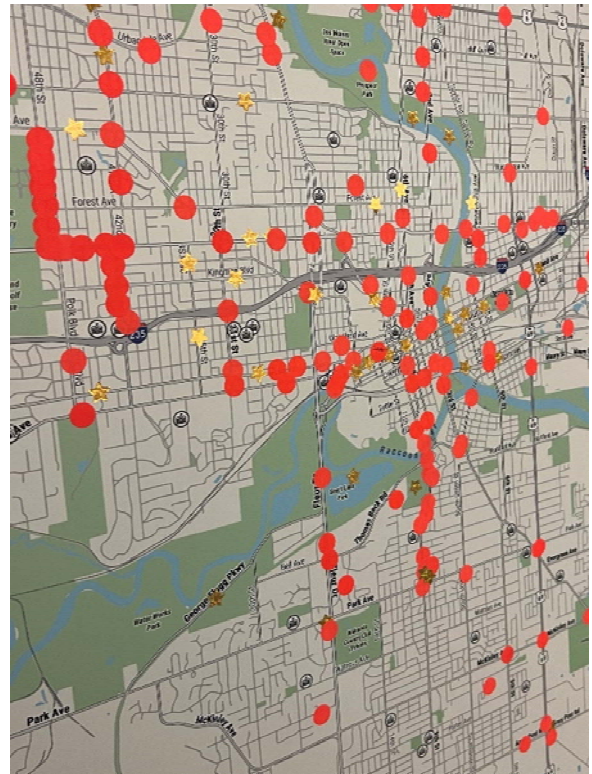


Figure 16. Results of the listening workshop mapping activity in the center of Des Moines. Source: Confluence

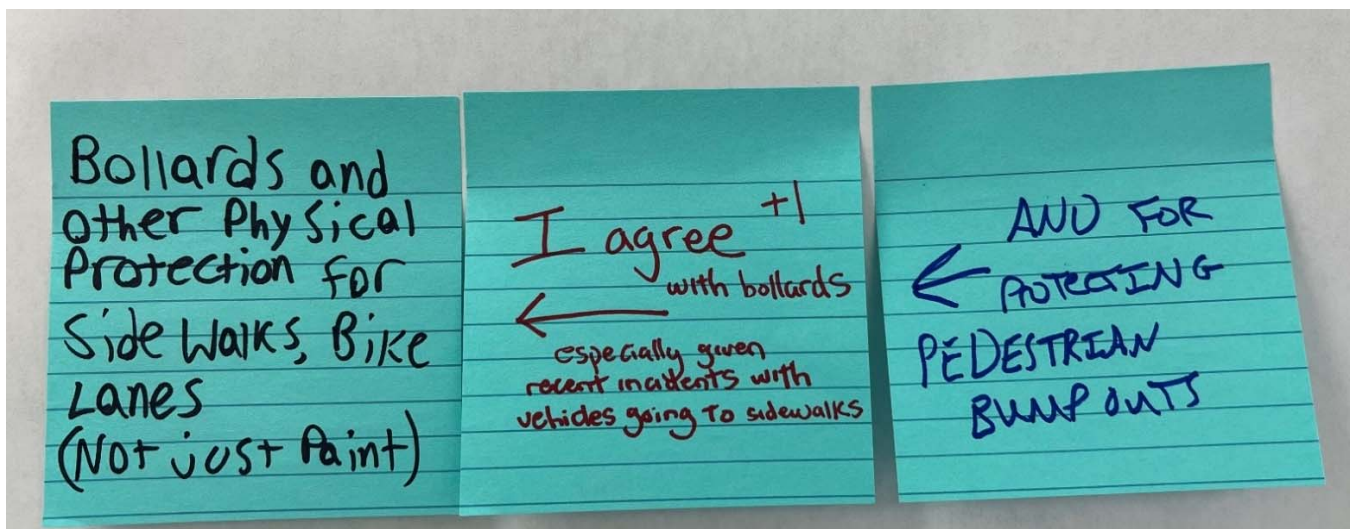


Figure 17. Sample of feedback received at Workshop #1. Source: Confluence

In the online map, out of 362 total comments: 54.4% used the Unsafe Location comment type, 34.5% used the transportation safety improvement idea comment type, and 11.1% used the safe location comment type. The unsafe location feedback was concentrated on arterial streets, streets near schools, and the west side of the city. The comments showed a lack of consideration for pedestrians crossing the street or motorists not understanding how to share the street with bicyclists.¹²

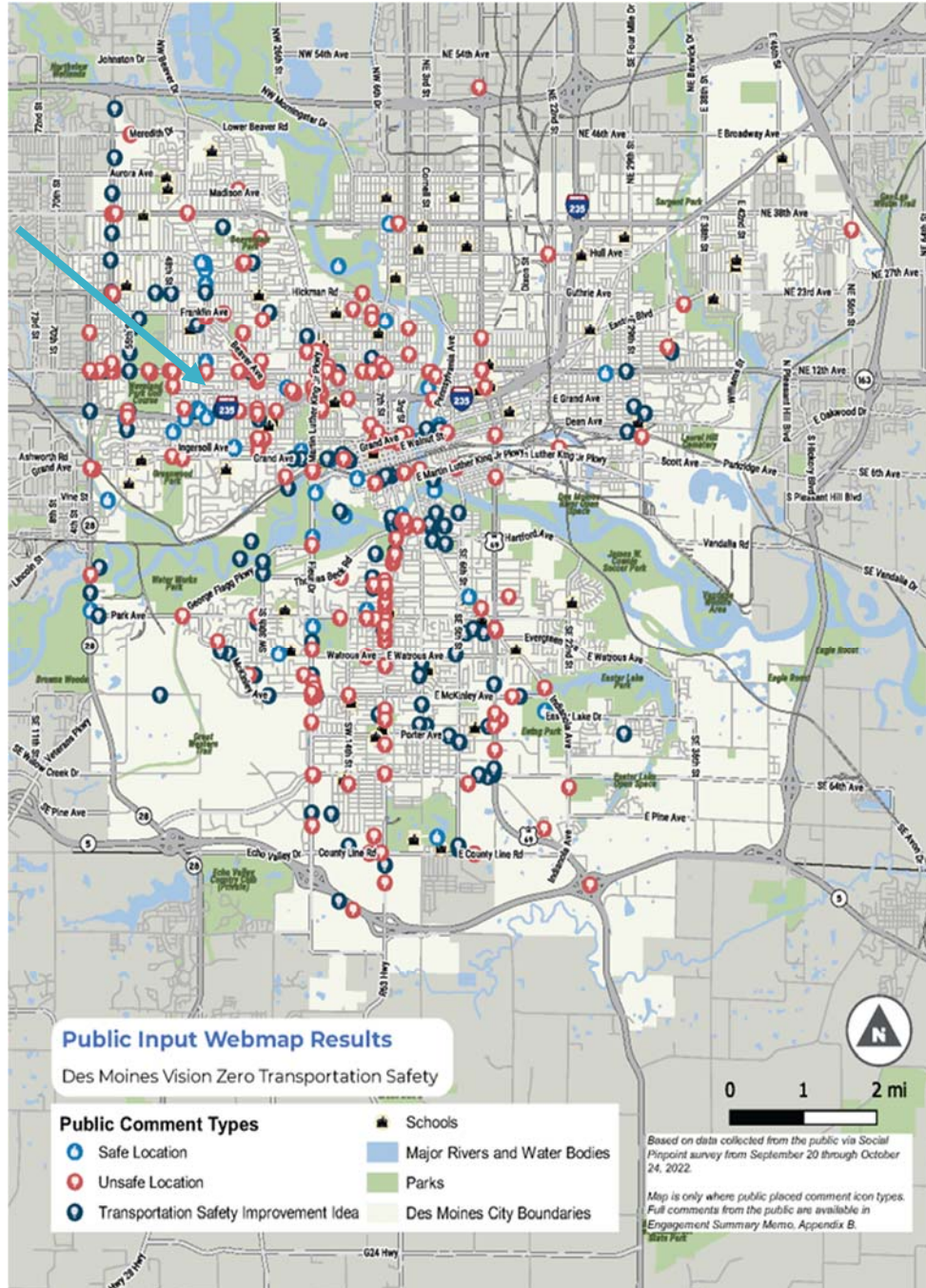


Figure 18. Icons located by the public during the online mapping activity. Source: Social Pinpoint

¹² Social Pinpoint mapping results can be found at <https://confluence.mysocialpinpoint.com/dsmvisionzero/map#/>

You Helped Identify Priority HIN Streets

During the Consensus Building phase, from April 2023 to May 2023, the second draft of the Transportation Safety Action Plan was shared with the public. Two community listening workshops (one virtual, one in-person) were held and an update to the interactive engagement website was launched at the end of this phase to allow the Des Moines community to provide feedback on the top priority High Injury Network (HIN) streets, identify which of the focus areas and actions were top priority, and identify safe street design features that are the most important. Each engagement activity offered the same information to create similar experiences and have consistency in feedback. There were 231 participants during the in-person and virtual engagements.

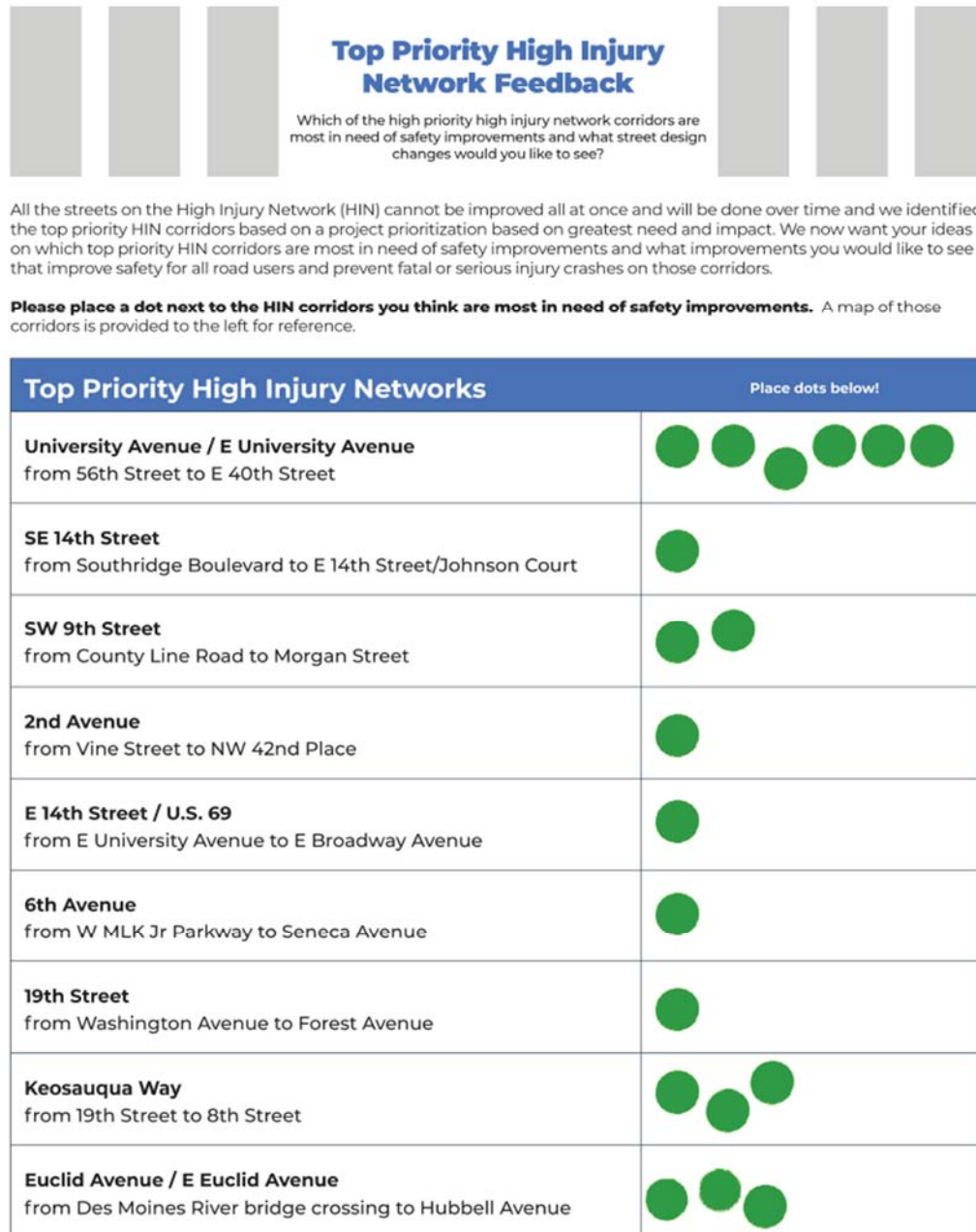


Figure 19. Feedback received indicating top priority HIN streets during the April 25, 2023 workshop. Source: Confluence

Where and Why Crashes Happen on Des Moines Streets?

The City conducted a crash analysis to understand where recorded crashes occurred in Des Moines from 2017 through 2021 from IowaDOT's Iowa Crash Analysis Tool (ICAT).¹³ This analysis also looked at infrastructure and behavioral contributing factors of crashes in Des Moines. Recorded crash data within the study period informed roadway safety improvements including the location of the crash, roadway context, and dynamics between the parties involved in the crash.¹⁴ The crash data was used to conduct a historical crash analysis in two phases:

- **Crash Mapping** – a series of maps that identified HIN streets with the greatest historical crash risk and most in need of safety improvements based on where crashes have occurred.
- **Descriptive Crash Analysis** – a statistical analysis of key crash factors to understand circumstances of crashes to devote resources to prevent leading causes of crashes in the future.

When a crash occurs and first responders are dispatched, the police investigate the details and reasons for the crash. Information from the scene of the crash, contributing factors that led to a crash, and information of parties involved are recorded on a crash report form used in the State of Iowa.¹⁵ These reports are entered into ICAT to provide high level crash statistics and geocoded information that is publicly available at icat.iowadot.gov.

Why focus on fatal and serious injury crashes? Since Vision Zero is focused on eliminating fatal and serious injury crashes, crash injury severity was a constant throughout the crash analysis conducted across Des Moines. Those incidents referred to as killed or serious injury (KSI) crashes are labeled as K and A crashes on the KABCO injury severity scale used in Iowa.¹⁶

Why focus on vulnerable road users? Vulnerable road users include anyone outside of a motor vehicle that protects them from injury. Those road users outside of a vehicle, including pedestrians, bicyclists, and motorcyclists, have a greater risk of death or serious injury if involved in a crash.¹⁷

Crash Mapping

Using ICAT crash data from 2017 through 2021 for all recorded crashes, a Crash Maps Report was developed in the Vision Zero planning process to identify where crashes have historically occurred on all streets across Des Moines through a series of maps in the Crash Maps Report. These maps help in the prioritization of transportation safety improvement locations. These series of maps include crash location dots based on KSI and non-KSI crashes, sliding windows scoring, and High Injury Network (HIN) maps by specific modes, including pedestrians, bicyclists, motorcyclists, and motorists. Crashes by mode are coded by the most vulnerable road user involved in the crash (e.g., a crash that involved a pedestrian were recorded as a pedestrian crash) for the crash mapping and analysis.

¹³ <https://icat.iowadot.gov/>

¹⁴ A National Highway Traffic Safety Administration (NHTSA) survey estimated that 30 percent of crashes across the United States go unreported. Crash data is also ultimately collected by humans and information on the exact location or contributing factors is often determined by an officer's discretion at the scene of the crash. Because this Plan only includes police-reported crashes it does not reflect near miss crashes. 2015, "National Telephone Survey of Reported and Unreported Motor Crashes"

¹⁵ <https://iowadot.seamlessdocs.com/f/IowaAccidentReport>

¹⁶ https://safety.fhwa.dot.gov/hsip/spm/conversion_tbl/pdfs/kabco_cstable_by_state.pdf

¹⁷ <https://aaaafoundation.org/impact-speed-pedestrians-risk-severe-injury-death/>

The maps shown in this Action Plan are important for public awareness and informed project prioritization. A map of all recorded locations of KSI crashes and non-KSI crashes by all modes is shown in Figure 20.

The High Injury Network in Des Moines

The development of a HIN is often a key element of Vision Zero planning and implementation. The HIN is a data-driven approach to identifying priority streets where safety improvements, education, and enforcement should be prioritized first for the greatest need and impact. The HIN mapping was developed based on all recorded crashes from 2017 through 2021 on all streets in Des Moines, regardless of agency ownership. Crashes by location were scored based on the number of crashes and level of injury severity to determine where crashes happen most often and result in greater injuries, called a sliding windows map. Streets with a higher number of fatal and serious injury crashes and where all crashes happen more often were scored higher and are included in the Overall HIN map shown in Figure 21. The Overall HIN map was developed by combining four mode-specific HIN maps for pedestrians, bicyclists, motorcyclists, and motorists.¹⁸ For Des Moines, the HIN is predominately arterial streets with higher speeds and vehicle volumes that run through the city.

To improve streets where crashes have historically occurred most severely and more often, the City and agency partners should focus resources on the HIN streets. Further analysis of the HIN streets should be done to identify the contexts and factors impacting crashes and to inform the selection of safety countermeasures and programs that can be implemented to eliminate fatal and serious injury crashes. When resources are limited, it is most important to implement safety improvements on the HIN first. It is also important to conduct systemic safety analysis throughout implementation of Vision Zero to identify similar conditions where fatal and serious injury crashes could occur to proactively install effective safety countermeasures. The City will develop a data dashboard to track recorded crashes annually using the same crash mapping methodology and to measure and understand how improvements are hopefully reducing fatal and serious injury crashes throughout the Vision Zero process. Guidance on how to review crash analysis to inform safety countermeasure selection on HIN streets and proactively across the city are provided in the *Implementing Projects that Make Streets Safer* section of this Action Plan.

What is a High Injury Network (HIN)?

Streets where recorded crashes from 2017-2021 have resulted in death or serious injury and have happened more often in Des Moines.

While the HIN accounts for **7.4% of roadway miles, 59% of KSI crashes** happened on the HIN in Des Moines.

¹⁸ See full Crash Maps Report for mode specific HIN maps.

High Injury Network and Equity Overlay

Another factor to consider in determining safety need and impact is equity. The Des Moines Area MPO identified Environmental Justice (EJ) areas using Census tract level data to identify areas with large populations of traditionally underserved populations.¹⁹ The analysis calculated degrees of disadvantage by identifying Census tracts where the population exceeds the 70th percentile for seven equity considerations by population groups. Overlaying the HIN map with EJ data shows where safety concerns and underserved communities overlap, shown in Figure 22. Because many of the HIN streets span the length of the city, a direct relationship of HIN streets to areas with a higher degree of disadvantage (6 of 7 degrees) was not apparent. However, portions of many HIN streets run along the edge or through higher degrees of disadvantage areas in the north to south center of the city.

To further identify portions of HIN streets that are in underserved communities, the City and MPO should conduct additional equity analysis at the Census block level. Census blocks, which cover smaller geographies than Census tracts, would allow the City and MPO to gain a hyper-local focus on demographics and characteristics. This will identify localized correlations between the HIN and underserved areas in Des Moines. A further equity analysis will also identify and address specific transportation disadvantage populations and impacts, such as people without access to a motor vehicle. Results from further equity analysis could help identify where to prioritize safety improvements and address specific needs of underserved communities.

The Environmental Justice analysis considered **seven degrees of disadvantage:**

- Non-white population
- Carless households
- Households in poverty
- Single heads of households with children
- Households with person(s) over 65 years old
- Limited English proficiency
- Persons with disabilities

Let's Take Action: Action 5.2.4 outlines steps for further equity analysis as part of a Vision Zero program.

¹⁹ <https://dmampo.org/wp-content/uploads/2021/04/EJ-2021-Final.pdf>

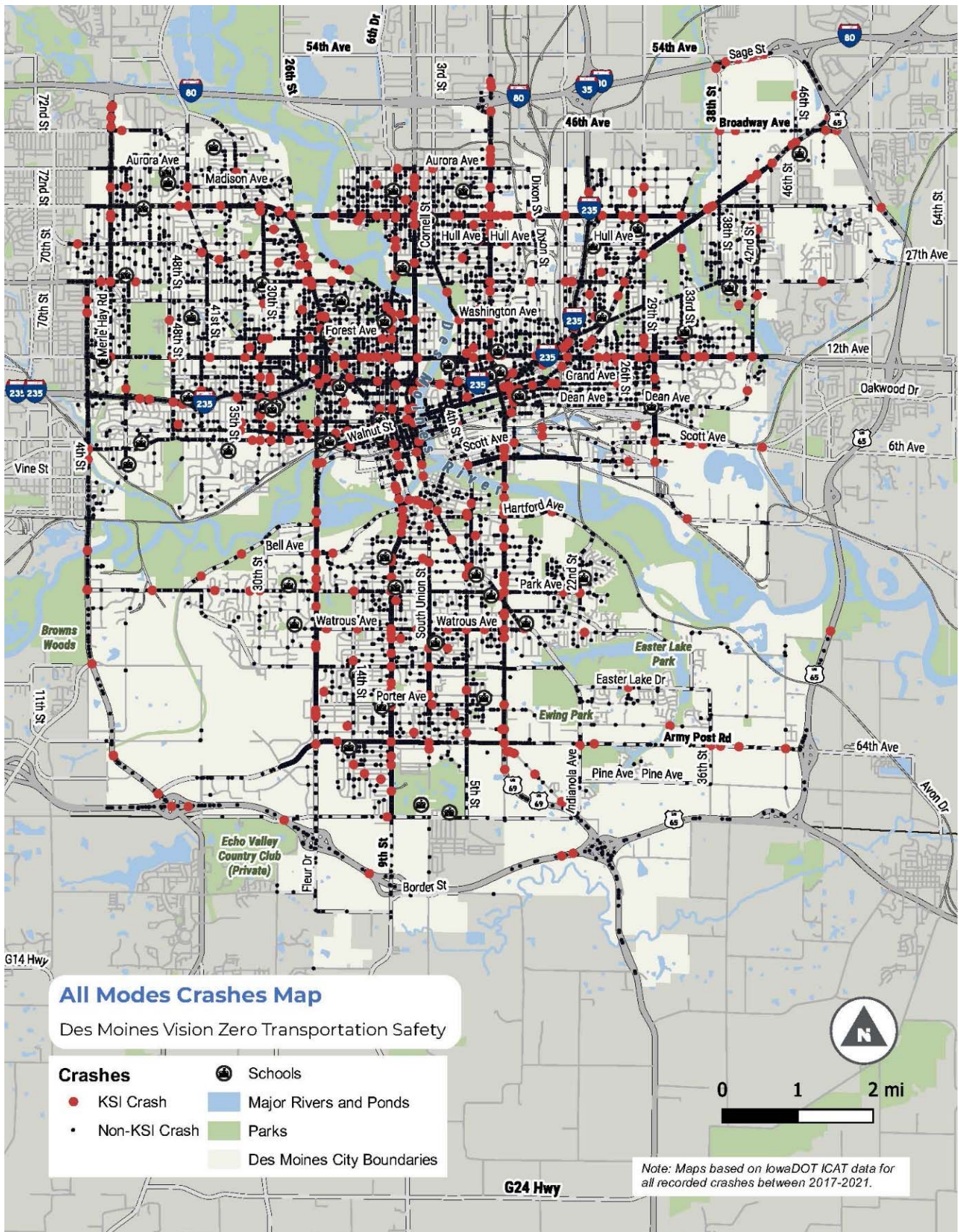


Figure 20. Des Moines all modes crashes map. Data Source: IowaDOT ICAT 2017-2021

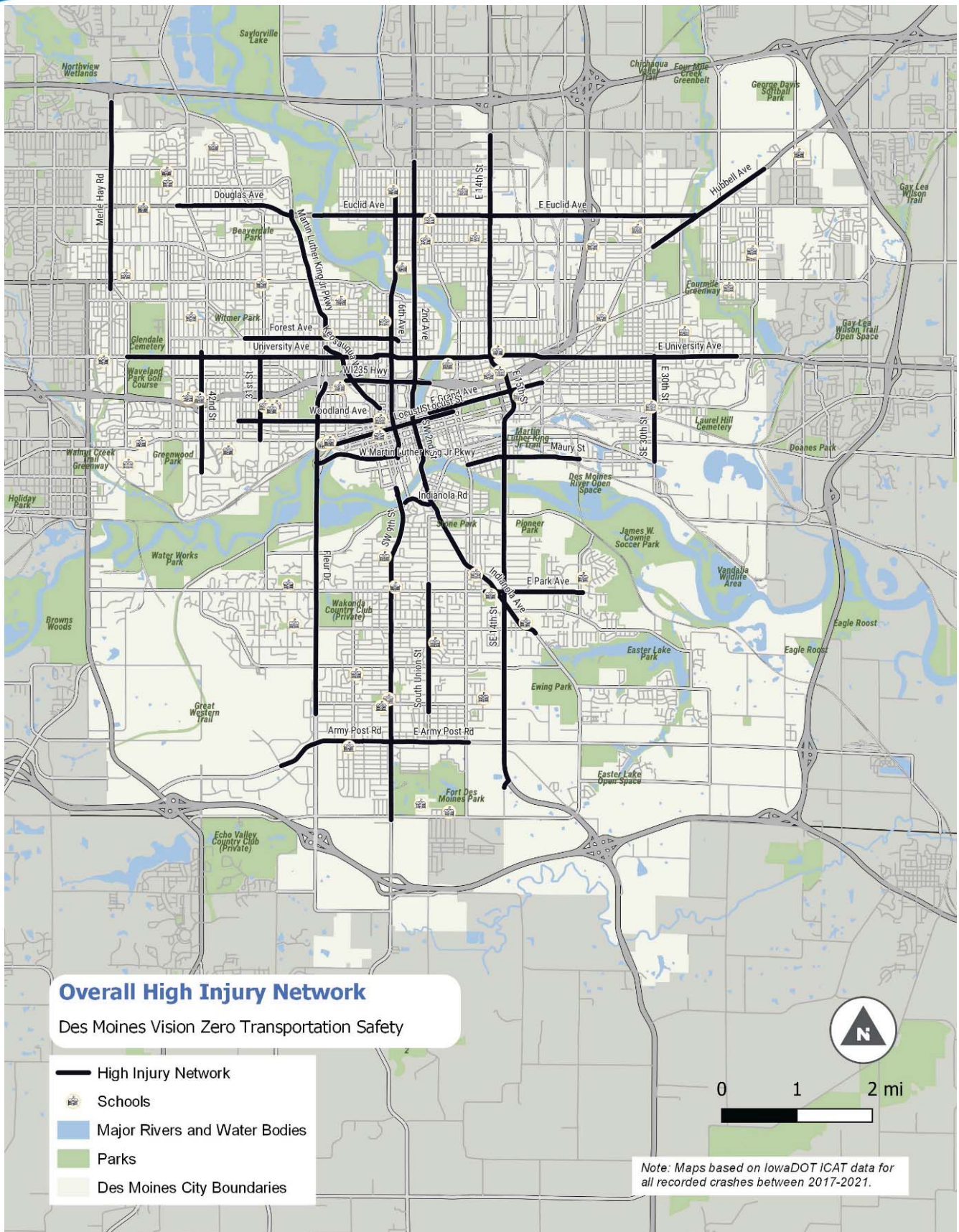


Figure 21. Des Moines High Injury Network for all modes. Data Source: IowaDOT ICAT 2017-2021

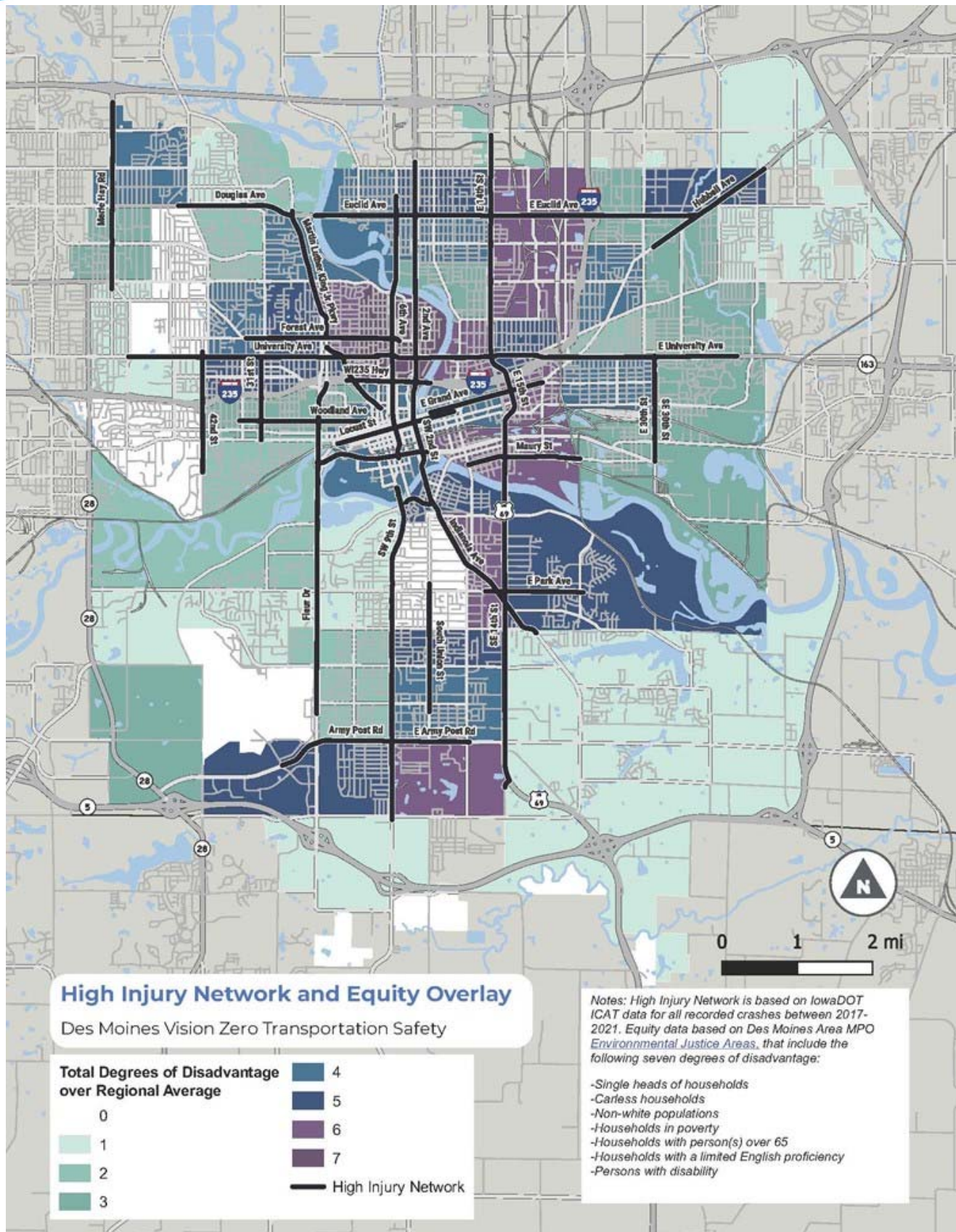


Figure 22. Des Moines High Injury Network for all modes and equity overlay. Data Source: IowaDOT ICAT 2017-2021; Des Moines Area MPO Environmental Justice Areas 2021

List of High Injury Network Streets

Table 1 lists the limits (to and from extents) for all HIN streets across Des Moines based on the map shown in Figure 21. This table should be used by the City and agency partners to track the status of safety improvement projects on HIN streets, including some projects that are already underway on the HIN. The process of identifying top priority HIN streets from this full HIN street list is explained in detail in the *Implementing Projects that Make Streets Safer* section of the Action Plan.

Table 1. Des Moines HIN Streets Shown in Figure 21 and Figure 22. Data Source: IowaDOT ICAT 2017-2021

HIN Street	From	To
19th St	Washington Ave	Forest Ave
2nd Ave	Vine St	NW 42nd Pl
31st St	Grand Ave	University Ave
42nd St	130 ft north of Woodlawn Ave	360 ft north of University Ave
6th Ave	W Martin Luther King Jr Pkwy	Seneca Ave
Army Post Rd / E Army Post Rd	SW 28th St	SE 5th St
Douglas Ave	4529 Douglas Ave	Martin Luther King Jr Pkwy
E 14th St / US 69	E University Ave	E Broadway Ave
E 15th St / US 69	Dean Ave	I-235 westbound ramp
Johnson Ct / US 69	I-235 westbound ramp	Fremont St
Johnson Ct / US 69	E 14th St/ E Vine St	Dean Ave
E Grand Ave	Robert D Ray Dr	E 18th St
E Park Ave	SE 8th St	2201 E Park Ave
E 30th St / SE 30th St	E Martin Luther King Jr Pkwy	E University Ave
Euclid Ave / E Euclid Ave	Des Moines River bridge crossing	Hubbell Ave
Fleur Dr	Highview Dr	W Martin Luther King Jr Pkwy
Forest Ave	34th St	5th Ave
Hubbell Ave	E 30th St	4219 Hubbell Ave
I-235	Keosauqua Way	Robert D Ray Dr
Indianola Ave	E Marion St	Jackson Ave
Indianola Rd	Monona Ave	Indianola Ave
Keosauqua Way	19th St	8th St
Locust St	Fleur Dr	E 6th St
Maury St	SE 6th St	SE 22nd St
Merle Hay Rd	Franklin Ave	Northern City Limit
Martin Luther King Jr. Pkwy	Washington Ave	Douglas Ave/Euclid Ave
S Union St	Wall Ave	Pleasant View Dr
SE 14th St	Southridge Blvd	E 14th St/Johnson Ct
SW 2nd St	Jackson Ave	Vine St
SW 9th St	County Line Rd	Morgan St
University Ave / E University Ave	56th St	E 40th St
W Martin Luther King Jr. Pkwy	Fleur Dr	SW Water St
Woodland Ave	35th St	10th St

Key Findings of the Descriptive Crash Analysis

The project team used statistical analysis to understand broader trends in the crash data, called a descriptive analysis. This analysis included statistics of information of the five-year study period, including crashes by year and crashes by mode. The descriptive analysis key findings come from the full *Descriptive Crash Analysis Report* that informed focuses, actions, and steps in this Action Plan.

How Severe Are the Injuries from Crashes in Des Moines?

Table 2 shows the crash injury severity indicated on the crash report for all crashes in Des Moines between 2017 and 2021. Although the majority of crashes were indicated as property damage only, there were 82 fatal crashes and 420 suspected serious injury crashes in Des Moines from 2017 through 2021. Crashes often result in more than one person being injured, so the crash injury severity is documented the highest injury severity of a person involved in the crash and the number of persons injured in a crash is often higher than the number of crashes. Between 2017 and 2021, 91 people were killed and 478 people experienced serious injuries as a result of crashes in Des Moines as shown in Table 3. While fatal and serious injury crashes are a smaller portion of all crashes, eliminating fatal and serious injury crashes by 2040 is the focus of Vision Zero in Des Moines.

Table 2. Crash Injury Severity. Data Source: IowaDOT ICAT 2017-2021

Injury Severity	# Crashes	% Crashes
Fatal (K)	82	0.3%
Suspected Serious Injury (A)	420	1.5%
Suspected Minor Injury (B)	2,385	8.5%
Possible/Unknown Injury (C)	7,451	26.6%
Property Damage Only (O)	17,708	63.1%
Total	28,046	100%

Table 3. Injury Severity of Persons Involved in Crashes. Data Source: IowaDOT ICAT 2017-2021

Injury Severity	# Persons	% Persons
Fatal (K)	91	0.1%
Suspected Serious Injury (A)	478	0.7%
Suspected Minor Injury (B)	2,826	3.9%
Possible/Unknown Injury (C)	9,679	13.5%
Property Damage Only (O)	58,718	81.8%
Total	71,792	100.0%

People Walking, Bicycling, and on Motorcycles Are Most at Risk of being Killed or Seriously Injured While Travelling in Des Moines

When vulnerable road users (i.e., people walking, bicycling, and riding motorcycle) were involved in a crash, they were more likely to be killed or seriously injured compared to motorists. Crashes with only motor vehicles involved accounted for most of the crashes with 97% of total crashes but did not result in a high number of KSI crashes.

Crashes on trails were not specifically analyzed as part of this crash analysis. Trails are a safe way to separate users in space to prevent a crash from being fatal or serious per the Safe System Approach Framework. Separated pedestrian and bicycle facilities from motor vehicles should be installed wherever possible in Des Moines.

Let's Take Action: Off-street trails are a way to separate people riding bikes and walking from people driving. To ensure they are operating safely, **Action 5.2.5** calls for an analysis of any crashes on and around the Des Moines trail system, especially where trails cross the HIN.

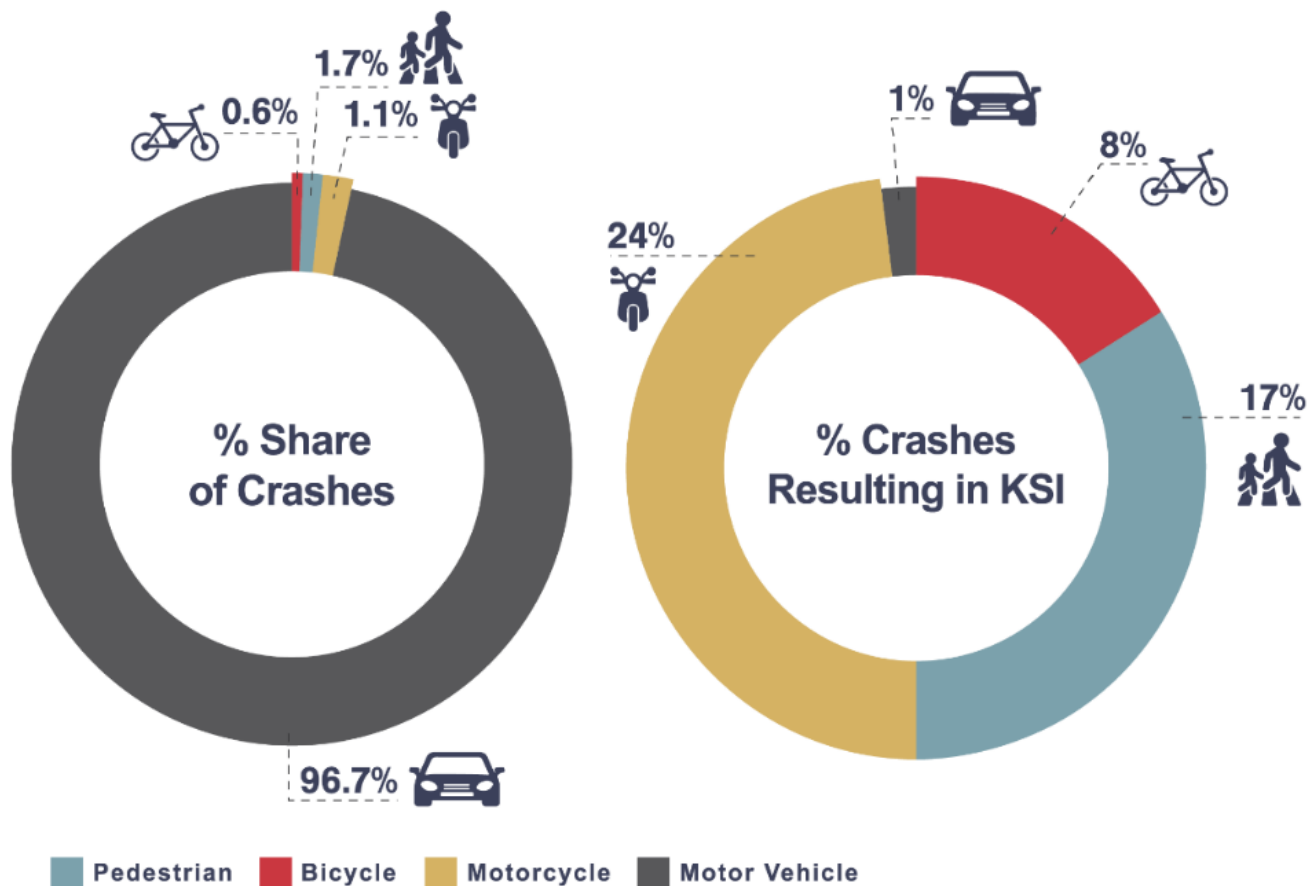


Figure 23. All crashes compared to those resulting in a KSI by mode. Data Source: IowaDOT ICAT 2017-2021

How Many Crashes Happen Yearly?

For the years analyzed, crashes were highest in 2019 and lowest in 2020. However, crashes that resulted in people being killed or seriously injured were lowest in 2019 and were highest in 2021. This follows national crash trends during the first few years of the COVID-19 pandemic, though the primary causes remain unclear.²⁰ Figure 24 shows the number of all crashes and KSI crashes per year from 2017 through 2021.

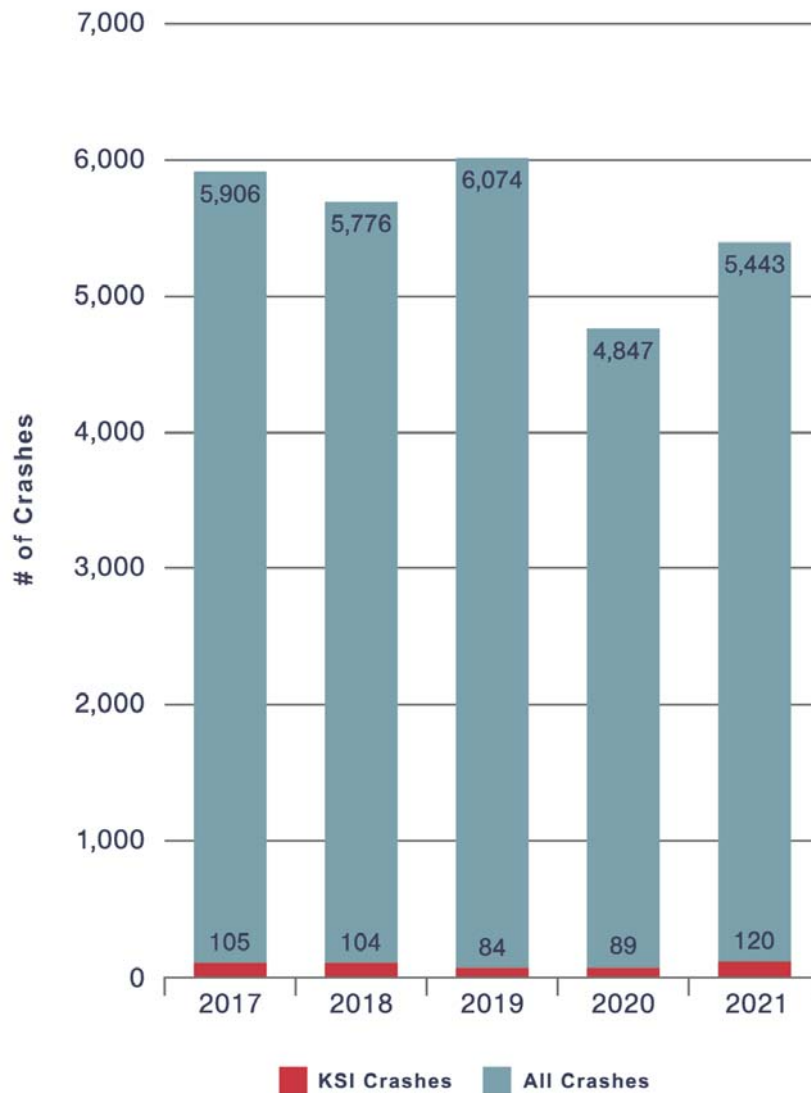


Figure 24. Crashes by year. Data Source: IowaDOT ICAT 2017-2021

²⁰ Office of Behavioral Safety Research. (2021, October). Continuation of research on street safety during the COVID19 public health emergency: January – June 2021. (Report No. DOT HS 813 210). National Highway Traffic Safety Administration. https://www.nhtsa.gov/sites/nhtsa.gov/files/2021-10/Traffic-Safety-During-COVID-19_Jan-June2021-102621-v3-tag.pdf

Crash Risk Varies Throughout the Day

Most crashes occurred during the typical peak evening commute period as shown in Figure 25. However, crashes were more severe during the night and early evening, particularly for people walking, rolling, bicycling, or motorcycling.

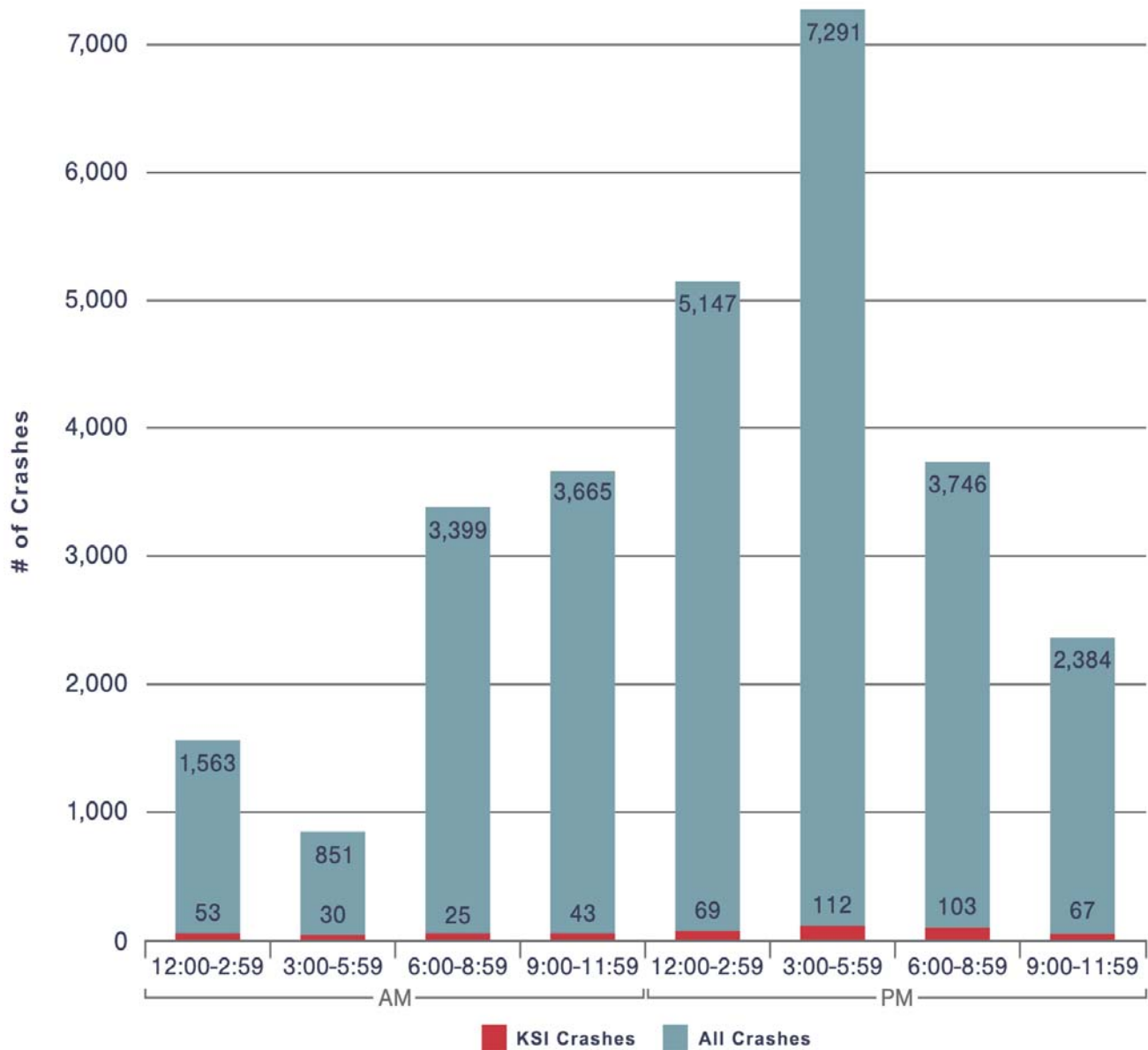


Figure 25. Crashes by time of day. Data Source: IowaDOT ICAT 2017-2021

Where Do Most Serious Crashes Happen?

More Crashes Happen at Intersections

Crashes occurred more often at intersections (74% of crashes; 69% of KSI crashes), however segment crashes had a slightly higher risk of resulting in a KSI (2.1% for all modes, 24% for vulnerable road users). Most KSI crashes occurred at unsignalized intersections (54% crashes, 58% KSI crashes).

More Serious Crashes Occur on Streets with Higher Speed Limits

Streets with a higher posted speed limit had a higher number of crashes and KSI crashes on a per-mile basis, particularly for streets with posted speed limits of 35 mph and 40 mph. Streets with a posted speed of 35 mph saw 88.3 crashes per mile and 1.7 KSI crashes per mile, while those with a 40 mph posted speed saw 80.3 crashes per mile and 1.7 KSI crashes per mile. In contrast, streets with a posted speed of 25 mph—which is most roads in Des Moines—had 8.4 crashes per mile and 0.1 KSI crashes per mile.

Streets with More Vehicles Have Higher Crash Rates

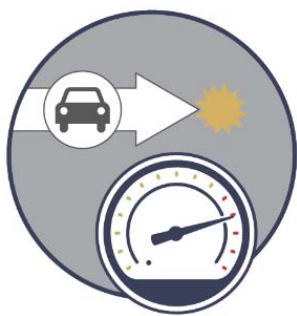
Streets with higher vehicle volumes, measured by annual average daily traffic (AADT) estimates, saw higher crashes per mile and KSI crashes per mile compared to low-volume roads. Arterials and state highways had the largest frequencies of both overall and KSI crashes.

Table 4. Crashes by Vehicle Volume. Data Source: IowaDOT ICAT 2017-2021

Vehicle Volume	Crashes per Mile	KSI Crashes per Mile
20,000-24,999	93.7	2.1
10,000	11.8	0.2

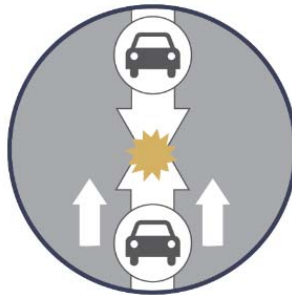
What Are the Most Common Types of Serious Crashes?

Crash types are used to categorize and inform safety countermeasures needed on streets with the highest number of KSI crashes. They may also inform systemic safety improvements needed across Des Moines, such as speed limit reduction or signal modifications that are applied citywide to prevent crashes even where there have not been previously observed crashes.



11.9%

of crashes **exceeding authorized speed** resulted in a KSI



7.7%

of crashes from **traveling the wrong way or on the wrong side** resulted in KSI



6.7%

of crashes from **failing to yield to non-motorist** resulted in KSI

Figure 26. Crash causes resulting in the highest share of KSI crashes. Data Source: IowaDOT ICAT 2017-2021

Some Crash Causes Are More Dangerous Than Others

Some crash causes had a larger share of KSI outcomes compared to other causes. “Exceeded authorized speed” and “lost control” had the highest number of KSI crashes, with 54 KSI crashes each.

Let's Take Action: Many Actions focus on addressing speeding including all of those under **Focus Area 3: Safe Speeds**.

Solo Motorcycles and Motor Vehicles Going Straight are a Common KSI Crash Type

Solo-motor vehicle going straight crashes accounted for the largest share of KSI crashes with 75 (23%) KSI crashes, followed by broadside (front to side) with 73 KSI crashes (22%), and non-collision (single vehicle) crashes 44 KSI crashes (14%). Broadside crashes also had a high share of KSI crashes, with 23% of motorcycle broadside crashes resulting in a KSI and 22% for motor vehicles.

Vulnerable Road Users Are at Greater Risk of Death and Serious Injury if a Crash Involves Impairment

Crashes where individuals were driving while impaired often led to risk of fatal or serious crashes for vulnerable pedestrians and motorcyclists.

- Of the 7 pedestrian crashes that involved an impaired motorist, 3 (or 42%) of those crashes resulted in a fatal or serious injury.
- Of the 42 motorcycle crashes that involved an impaired motorist, 25 (or 59%) of those crashes resulted in a fatal or serious injury.
- Of the 961 motor vehicle crashes that involved an impaired driver, 72 (or 7.5%) of those crashes resulted in a fatal or serious injury.

The Most Common and Dangerous Crash Types Vary by Mode

Figure 27 shows the most common crash types based on reported pre-crash movements resulting by mode—for people biking, walking, driving a motorcycle, or driving a motor vehicle—in order of highest number of KSI crashes.²¹

²¹ Crash types were based on the ICAT Investigating Officers Crash Reporting Guide per definitions on pages 35-40. <https://iowadot.gov/mvd/driverslicense/InvestigatingOfficersCrashReportingGuide.pdf>

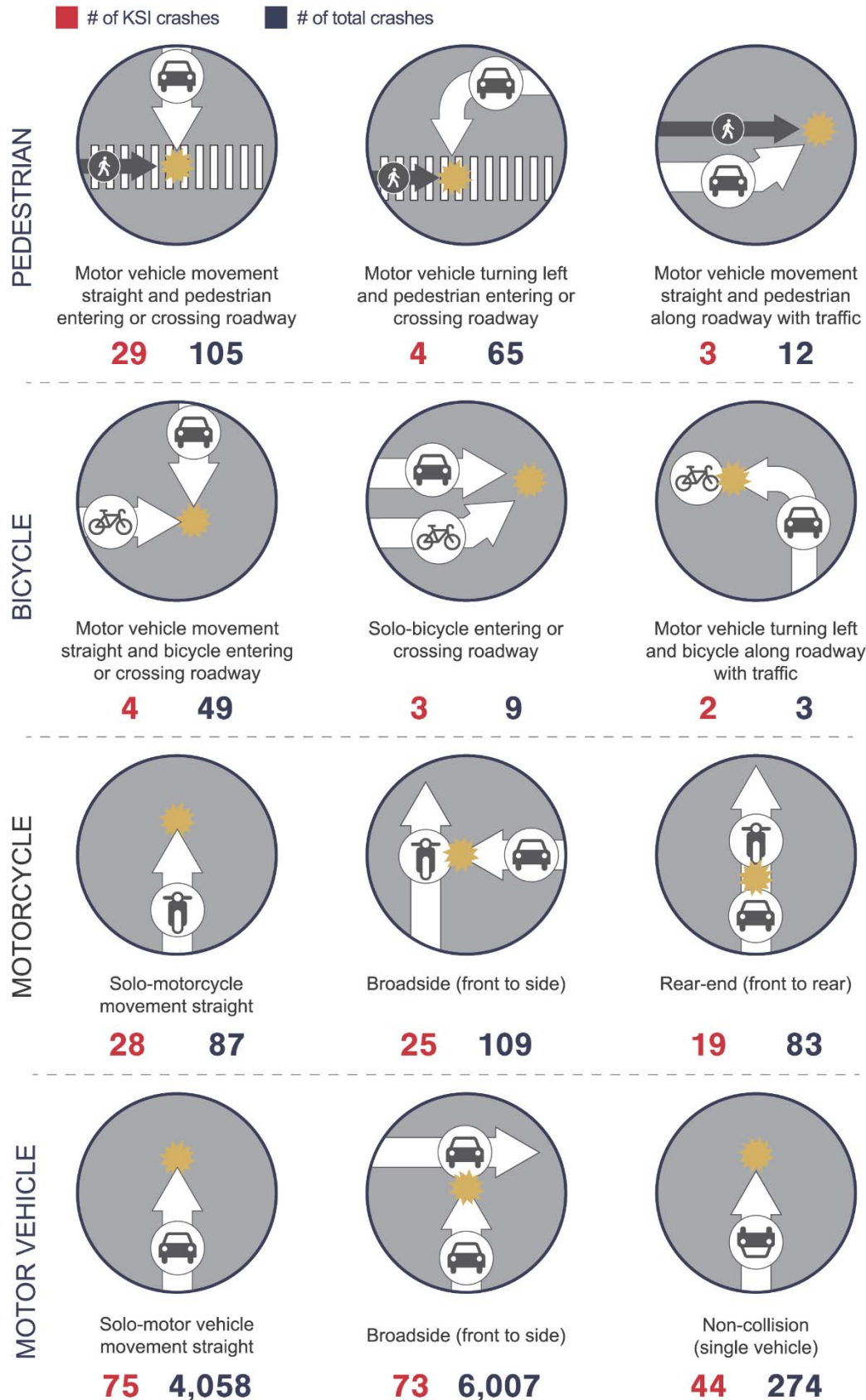


Figure 27. Most common crash types by each mode, 2017-2021. Data Source: IowaDOT ICAT 2017-2021

Let's Take Action

At the heart of Vision Zero and the Safe System Approach is the principle that transportation deaths and serious injuries are unacceptable and, most importantly, preventable. Reaching Vision Zero in Des Moines will take a combination of bold actions by many people across the whole community—the City of Des Moines, agency partners, community organizations, and the greater public. This section organizes key focus areas, actions, and steps along with possible partners for each action and step. However, additional actions and everyone contributing to these actions are important to Vision Zero.

Focus Areas

The goal of this Action Plan is to have zero transportation deaths and serious injuries by 2040. The following five key focus areas organize provide recommended actions and steps. The focus areas are data-driven and drawn from the public engagement, crashes analysis, and review of current agency practices across Des Moines. The focus areas are consistent with Vision Zero best practices but were adapted to represent the specific context, needs, and priorities for Des Moines. The five focus areas are:

City Policies, Programs, Processes, and Partnerships

Vision Zero and the Safe System Approach completely reframe how the City of Des Moines will make changes to our streets. It is clear that “business as usual” is not working and will not get us to zero. This work should be rooted in the Safe System Approach and creating a positive transportation safety culture in Des Moines. We need City processes, partnerships, and laws to prioritize street safety and systematic change. We need to not only react to tragedies but be proactive in preventing transportation deaths and serious injuries.

Safe Streets for Everyone

We recognize that people make mistakes, but that those mistakes should not result in death. The Safe System Approach means that our transportation system can and will protect all street users. Because our resources are limited, we will first focus on the HIN and the most vulnerable roadway users in Des Moines, while looking for opportunities to make citywide changes.

Safe Speeds

Speed management is a critical component of Vision Zero because it is one of the most influential factors in crash severity and frequency. In Des Moines, speeds are most problematic on multilane arterials. We will create safe speeds by focusing on speed reduction along the HIN through automated enforcement and messaging to promote slower speeds within the city. We will pair these actions with the infrastructure actions in the *Safe Streets for Everyone* focus area and the actions in *A Culture of Safety and Safe Street Behaviors* focus area, when possible, so that speed limits are self-enforcing.

A Culture of Safety and Safe Street Behaviors

We're all in this together. Vision Zero requires creating a Des Moines culture of good behavior on the part of both the individual and the institution. Promoting a culture of safety includes engagement, education, awareness, and institutional actions. In keeping with the Vision Zero philosophy, our efforts will be evidence-based and will account for the inevitability of human mistakes.

Data and Transparency

A Vision Zero approach is different than previous approaches as it uses data to prioritize projects with a focus on saving lives. Vision Zero also holds the government and its partners accountable for its commitments. Clear, usable data that is available to both the City and to the public is essential to progress, not to mention the secondary benefits like providing detailed communications on Vision Zero progress and outcomes.

Actions

Within the five focus areas, the Action Plan has 19 actions that were developed in close collaboration with stakeholders from all perspectives of street safety: transportation, enforcement, public and environmental health, sustainability, community planning, emergency services, parks and recreation, schools, and social justice. Additionally, hundreds of Des Moines community members helped shape the actions by telling us about their street safety concerns and wishes. These actions were developed to save lives by creating safer streets and promoting safe driving, walking, and bicycling behaviors. These actions include steps to substantially reduce transportation deaths and serious injuries over a five-year period.

Steps

Each action has several steps that the City and its community and government partners need to do to implement the action. Transformative steps are identified as those that have the potentially greatest impact of reducing fatal and serious injury crashes in Des Moines. Under each action, any transformative steps should be prioritized first if staffing and funding are limited. The Action Plan identifies a lead entity who will spearhead the step to implementation. Following the Safe System Approach principle that responsibility be shared, the Action Plan also identifies partners who will provide support on each step. A timeline for each step is also identified to indicate when within the next five years the step should be completed. Finally, each of the steps includes metrics that the City will use to measure progress and level of success for each action.

Each step in the Action Plan should be specific and measurable, and provide answers to the following questions:

- What does success look like? What are the measures of success?
- Who is primarily responsible for achieving this goal and in what timeframe?
- What are the conditions and limitations for success?

There is an anticipated annual cost level listed with each step based on the following ranges:

- \$ - low (less than \$100k)
- \$\$ - medium (between \$101k-\$500k)
- \$\$\$ - high (\$500k and above)

A Working Spreadsheet of Focus Areas, Actions, and Steps to Get to Vision Zero

The focus areas, actions, and steps are provided in an Excel spreadsheet that the City can use as a living document to track implementation progress. A copy of that spreadsheet is provided on the subsequent pages of the Action Plan for incorporation. During each Vision Zero annual report, this Action spreadsheet should show progress, changes, and additions to the actions as Vision Zero advances in Des Moines.

Focus Areas / Actions / Implementation Steps			Implementation Timeline						Lead	Partners	Measurement	Cost
			FY 2023	FY 2024	FY 2025	FY2026	FY2027	FY 2028				
FOCUS AREA 1 City Policies, Programs, Processes, and Partnerships												
	ACTION 1.1 Establish a Vision Zero program within the City of Des Moines											
Transformative Step	1	Adopt a Vision Zero Resolution and Action Plan	Complete action						T&T	CMO, ENG, TSC, VZAG	Plan adopted	\$
	2	Create a press release announcing the Vision Zero Resolution and Action Plan upon adoption	Complete action						T&T	COM	Press release issued	\$
Transformative Step	3	Establish a permanent, dedicated funding source for Vision Zero implementation and coordination		Prepare BRC request					ENG	CMO, FIN, T&T	Funding established at needed levels	\$\$\$
	4	Continue to create a Vision Zero program with dedicated staff			Initiate action to add 1 full time staff position	On-going action	On-going action	On-going action			Funding and staffing at needed levels to reach Vision Zero, 1 full time staff dedicated to Vision Zero by FY2025	\$\$\$
	5	Create identifiable branding for Vision Zero in Des Moines		Initiate action	Complete Action				T&T	COM	Branding finalized	\$
	6	Establish a Vision Zero technical advisory group (VZAG) to create an interdisciplinary Vision Zero program and administrative framework that guides all street safety decision and includes staff from multiple departments, including engineering, transportation, planning, police, fire, communications, public works and legal		Initiate action	On-going action	On-going action	On-going action	On-going action	T&T	CMO, COM, DEV, NBS, DMFD, DMPD, Polk Health, AARP, IowaDOT, DART, DMPS, MPO, LEGAL, PW, EQUITY, P&R, other groups	Group established, at least 2 meetings annually	\$
	7	Conduct a joint meeting of the TSC and VZAG at least once a year to collaborate on the overall Vision Zero program		Initiate action	On-going action	On-going action	On-going action	On-going action	T&T	TSC, VZAG	Annual meeting convened	\$
	8	Conduct annual review of Vision Zero successes and challenges to include in the Vision Zero annual report		Initiate action	On-going action	On-going action	On-going action	On-going action	T&T	CMO, VZAG	Review conducted annually	\$\$
	ACTION 1.2 Institutionalize the Safe System Approach and a goal of Vision Zero on all street-related decision in Des Moines											
	1	Incorporate the Action Plan by reference as an element in the City's PlanDSM and MoveDSM		Initiate action	Complete action				T&T	DEV, CMO	Plan adopted into PlanDSM and MoveDSM	\$

Focus Areas / Actions / Implementation Steps			Implementation Timeline						Lead	Partners	Measurement	Cost
			FY 2023	FY 2024	FY 2025	FY2026	FY2027	FY 2028				
Transformative Step	2	Update the purchasing standards to size City-owned vehicles to safe system street designs and require latest driver assistance safety features			Initiate action	Complete action			FIN - FLEET	T&T	Purchasing standards updated	\$\$\$
	3	Integrate Complete Streets Policy and Traffic Calming Program into the Vision Zero program			Initiate action	Complete action			ENG		Integration established and being considered	\$
	4	Integrate Vision Zero into the BRC and CIP project approval process by requiring information about how a project works to achieve Vision Zero goals in the project justification on the CIP sheet and give priority to projects on the HIN and in EJ areas			Initiate action	Complete action			ENG	T&T, CMO, BRC	Integration established and being considered	\$\$\$
	5	Establish internal processes for the Des Moines Engineering and Public Works Departments to ensure that traffic safety improvements and mitigations are evaluated and implemented where feasible on projects identified on the HIN			Initiate action	Complete action			T&T	ENG, PW	Process created and being implemented	\$\$\$
	6	Establish a process to ensure maintenance projects include safety improvements for all road users			Initiate action	Complete action			ENG	T&T, CMO, BRC	Process created and being implemented	\$\$\$
ACTION 1.3 Increase collaboration between agencies and partners to improve safety outcomes through routine decision-making												
	1	Ensure Vision Zero is accounted for in IowaDOT project development process for projects in Des Moines. Modify process to ensure safety considerations happen before design decisions have been made, including during any National Environmental Policy Act (NEPA) process				Initiate action	Complete action		ENG	IowaDOT	Safety considerations are established in IowaDOT project processes	\$
	2	Ensure safety of all road users and safety countermeasures are included in the Iowa Statewide Urban Design and Specifications (SUDAS)		Initiate action	On-going action	On-going action	On-going action	On-going action	ENG	T&T	Safety of all road user best practices are included in SUDAS or City adopts supplement	\$
	3	Work with IowaDOT and Des Moines Area MPO to ensure 5-year fatality projections for Des Moines do not estimate an increase in fatalities		Initiate action	On-going action	On-going action	On-going action	On-going action	ENG	IowaDOT, MPO	Fatality projections for region project reductions	\$

Focus Areas / Actions / Implementation Steps			Implementation Timeline						Lead	Partners	Measurement	Cost
			FY 2023	FY 2024	FY 2025	FY2026	FY2027	FY 2028				
	4	Coordinate with Des Moines Area MPO on their Safe Streets and Roads for All (SS4) regional safety plan		Initiate action	Complete Action				CMO	T&T, ENG	City involved in regional safety plan and vice versa	\$
	5	Review and monitor Iowa state laws and policies related to street safety as well as infrastructure and vehicle safety technologies, including automated street safety cameras and distracted driving			Initiate action	On-going action	On-going action	On-going action	CMO, LEGAL	T&T, ENG, VZAG	Review Iowa law changes annually	\$
	ACTION 1.4 Develop and implement infrastructure policies and practices that reduce roadway fatalities and serious injuries											
	1	Update the City's plans, policies, and procedures related to transportation and mobility to ensure that these documents elevate safety of all road users and achieving Vision Zero as a priority in decision-making			Initiate action	Complete action			T&T	CMO, DEV, ENG, PW, DMFD, DMPD	Initial review and updates completed, then reviewed and refined annually	\$
	2	Review and update land use policies and development standards to prioritize the safety of all road users (e.g., block size, crosswalk spacing, access management)			Initiate action	Complete action			DEV	T&T, ENG, DMFD, PW	Initial review and updates completed, then reviewed and refined annually	\$\$
	3	Update traffic control standards to consider safety of all road users when developing temporary work zone detours			Initiate action	Complete action			T&T	ENG, PW, DEV	Updates complete and then standards being applied	\$
	ACTION 1.5 Secure funding for implementing Vision Zero and increase funding for long-term maintenance of improvements											
	1	Apply for USDOT Safe Streets and Roads for All Implementation Grant funding	Initiate action	Complete action					ENG	T&T, CMO	Grant requests awarded	\$\$\$
	2	Determine list of local, state, and federal funding sources to advance Vision Zero projects and programs, such as State Highway Safety Improvement (HSIP) or Active Transportation grants		Initiate action	On-going action	On-going action	On-going action	On-going action	ENG	T&T, PW, DEV, CMO	List of grants created and matched with Vision Zero projects and steps	\$
	3	Increase operations funding for long-term maintenance of street improvements (i.e., signs, markings, signals, etc.)		Prepare BRC request	On-going action	On-going action	On-going action	On-going action	ENG, PW	CMO, FIN, T&T	Funding established at needed levels, no fatal or serious injury crashes are due to lack of maintenance	\$\$

Focus Areas / Actions / Implementation Steps			Implementation Timeline						Lead	Partners	Measurement	Cost
			FY 2023	FY 2024	FY 2025	FY2026	FY2027	FY 2028				
FOCUS AREA 2 Safe Streets for Everyone												
Transformative Step	ACTION 2.1 Improve streets for all road users by applying the Safe System Approach Framework, especially on the High Injury Network											
	1	Identify comprehensive safety projects along the HIN where need and impact are greatest, especially where HIN overlaps EJ areas; Prepare BRC requests for inclusion to existing projects or as new projects in City CIP		Initiate action	On-going action	On-going action	On-going action	On-going action	T&T	ENG, PW	Fatal and serious injury crashes are reduced	\$
	2	Create a CIP project sheet for the implementation of low-cost, high-impact strategies that can improve safety at locations.		Prepare BRC request	On-going action	On-going action	On-going action	On-going action	T&T	ENG, PW	Fatal and serious injury crashes are reduced	\$
	3	Manage safe speeds through implementation of safety countermeasures that achieve target speeds on HIN corridors where speeds or speeding is identified as a safety concern based on crash records, speed studies, and speeding citations issued		Prepare BRC request	On-going action	On-going action	On-going action	On-going action	T&T	ENG	Speeding-related fatal and serious injury crashes are reduced	\$\$\$
	4	Identify and implement proactive safety countermeasure improvements on the HIN, including signal improvements and crosswalk enhancements to be consistent with City standards, practices and budgetary levels		Prepare BRC request	On-going action	On-going action	On-going action	On-going action	T&T	ENG, PW	Intersections improvements completed and fatal and serious injury crashes reduced	\$\$\$
	5	Implement safety technologies on HIN corridors identified in the City's ITS Master Plan			Initiate action	On-going action	On-going action	On-going action	T&T	ENG	Safety technologies being used and working to reduce fatal and serious injury crashes	\$\$\$
Transformative Step	6	Incorporate Safe Streets Approach practices and Visions Zero principles to all projects in all locations as they arise in CIP, identified for MPO Surface Transporation Block Grant (STBG) funds, and other funding sources		Initiate action	On-going action	On-going action	On-going action	On-going action	T&T	ENG	Fatal and serious injury crashes are reduced	\$
	ACTION 2.2 Ensure alternatives to driving and active transportation modes are safe for all ages and abilities											
	1	Continue building the enhanced bikeway network along the HIN and connectivity locations identified in MoveDSM	On-going action	On-going action	On-going action	On-going action	On-going action	On-going action	T&T	ENG, PW, P&R	Miles constructed	\$\$\$

Focus Areas / Actions / Implementation Steps			Implementation Timeline						Lead	Partners	Measurement	Cost
			FY 2023	FY 2024	FY 2025	FY2026	FY2027	FY 2028				
	2	Continue to improve pedestrian sidewalks and high visibility crossing treatments along the HIN and priority one sidewalks in MoveDSM	On-going action	On-going action	On-going action	On-going action	On-going action	On-going action	T&T	CMO, ENG, PW, P&R	Miles constructed, fatal and serious injury pedestrian crashes reduced	\$\$
	ACTION 2.3 Perform engineering reviews on the HIN to identify risk factors that can be addressed											
	1	Establish an interagency crash rapid response team to review serious injury and fatal crash locations			Initiate action	On-going action	On-going action	On-going action	T&T	DMPD, DMFD, ENG	Team created, review conducted, and recommendations being incorporated into safety improvements	\$
	2	Establish a program to conduct road safety audits (RSA) at high crash locations to identify contributing street factors and inform appropriate safety countermeasures			Prepare BRC request	On-going action	On-going action	On-going action	ENG	T&T, DMPD, DMFD, ENG	RSA conducted and recommendations being incorporated into safety improvements	\$\$
FOCUS AREA 3 Safe Speeds												
	ACTION 3.1 Create a speed management program within the Vision Zero program to systematically evaluate and promote safe speeds											
Transformative Step	1	Conduct evaluation of HIN arterial and collector streets to identify speeding issues and determine process for setting safe target speed limits for all road users			Prepare BRC request	Initiate action			T&T	CMO, DMPD	Greatest need and impact locations, speeding reduced, fatal and serious injury crashes reduced	\$\$
	2	Identify and implement systematic programs and practices that reduce speeding citywide				Prepare BRC request to establish program	On-going action	On-going action	T&T	CMO, DMPD	Greatest need and impact locations, speeding reduced, fatal and serious injury crashes reduced	\$\$

Focus Areas / Actions / Implementation Steps			Implementation Timeline						Lead	Partners	Measurement	Cost
			FY 2023	FY 2024	FY 2025	FY2026	FY2027	FY 2028				
	3	Work with IowaDOT to evaluate speed limits on designated state highways, considering context, and explore ways to make changes			Initiate action	On-going action	On-going action	On-going action	T&T	IowaDOT	Greatest need and impact locations, speeding reduced, fatal and serious injury crashes reduced	\$
ACTION 3.2 Enhance speed management along the HIN Streets												
	1	Implement speed feedback signs on HIN corridors and near schools		Prepare BRC request	On-going action	On-going action	On-going action	On-going action	T&T	DMPD, ENG	Greatest need and impact locations, speeding reduced, fatal and serious injury crashes reduced	\$
	2	Install more automated street safety cameras on HIN corridors and near schools		Prepare BRC request	On-going action	On-going action	On-going action	On-going action	DMPD	T&T, IowaDOT	Greatest need and impact locations, speeding reduced, fatal and serious injury crashes reduced	\$\$
ACTION 3.3 Enhance slow zones in priority areas near schools and parks												
	1	Define types of slow zones, determine locations, and set appropriate speeds for each based on level of safety needed. Define treatments to be applied to slow zones, such as lower speed limits, increased fines, increased enforcement, street design measures, and signage as part of the Traffic Calming Program			Initiate action	On-going action	Complete action		T&T	DMPS, DMPD, IowaDOT	Greatest need and impact locations, speeding reduced, fatal and serious injury crashes reduced	\$
	2	Implement slow zones on the HIN and in EJ areas. Educate and inform neighborhood associations and community groups about the zones				Initiate action	On-going action	On-going action	T&T	DMPS, DMPD, NBS, IowaDOT	Greatest need and impact locations, speeding reduced, fatal and serious injury crashes reduced	\$\$

Focus Areas / Actions / Implementation Steps			Implementation Timeline						Lead	Partners	Measurement	Cost
			FY 2023	FY 2024	FY 2025	FY2026	FY2027	FY 2028				
FOCUS AREA 4 A Culture of Safe Street Behaviors												
	ACTION 4.1 Implement an inclusive communications campaign to heighten awareness and understanding of traffic safety among the public, public agency staff, and the media, and celebrate Vision Zero successes											
	1	Review Descriptive Crash Analysis to identify demographic groups to engage to promote positive street safety work with a broad range of agencies and organizations			Initiate action	On-going action	Complete action		COM	VZAG	Groups coordinated	\$
	2	Develop standard language regarding Vision Zero and street safety for use by all City departments and partner agencies when interacting with the media and with the public directly			Initiate action	Compete action			COM	CMO, VZAG	Standard language developed and published	\$
Transformative Step	3	Implement a multimodal safety education campaign highlighting the prevalence and impact of distracted driving, the benefits of seat belt, car seat, and helmet use, and safe interactions with other road users. Employing multiple communication methods and focus on the HIN and EJ areas. Coordinate with City and Statewide messaging for maximum impact				Initiate development of action	Implement campaign	On-going action	TBD	TBD	Campaign created and implemented	\$\$
	4	Couple major infrastructure changes and enforcement activities with messaging to communicate why traffic safety is important			Initiate action	On-going action	On-going action	On-going action	COM	T&T, ENG	Messages issued	\$
	5	Develop branded Vision Zero signage to be installed with Vision Zero infrastructure projects during construction			Complete action				COM	T&T	Signage designed and deployed	\$
	6	Provide information about Vision Zero implementation: create resources for community members to better understand engineering strategies used to address roadway safety issues				Initiate action	Complete action		T&T	COM	Resources created and published	\$
	7	Create an online pledge form for groups and individuals in Des Moines to commit to Vision Zero		Initiate action	On-going action	On-going action	On-going action	On-going action	COM	T&T	Pledge created; number of new pledges	\$

Focus Areas / Actions / Implementation Steps			Implementation Timeline						Lead	Partners	Measurement	Cost
			FY 2023	FY 2024	FY 2025	FY2026	FY2027	FY 2028				
	ACTION 4.2 Strengthen street safety enforcement policies and practices											
Transformative Step	1	Expand use of automated street safety cameras and high visibility awareness campaigns for speeding and red light running on the HIN			Initiate action	On-going action	On-going action	On-going action	DMPD	T&T, COM, DMFD	locations or units	\$\$
	2	Host a Roadway Safety Day annually that is collaborative with street safety awareness programs, such as speeding, seat belts, impairment, motorcycles, crosswalks, and car seat safety			Initiate action	On-going action	On-going action	On-going action	DMPD	T&T, DMFD, CMO, COM	Events per year	\$
	3	Conduct targeted impairment enforcement on City streets throughout the HIN, including sobriety checkpoints, saturation patrols, and issuance of warnings			Initiate action	On-going action	On-going action	On-going action	DMPD	T&T, COM	Activities per year	\$
	ACTION 4.3 Implement training to promote culture change											
Transformative Step	1	Create and deliver a train the trainer course to City agencies and community organizations about Vision Zero goals, actions, and language			Initiate action	On-going action	On-going action	On-going action	T&T, HR	COM	Unsafe street behaviors reduced, fatal and serious injury crashes reduced	\$
	2	Develop public education materials around street safety behaviors and effective safety countermeasures			Initiate action	On-going action	On-going action	On-going action	COM	CMO, DMPD, DMFD	Unsafe street behaviors reduced, fatal and serious injury crashes reduced	\$
	3	Create insurance incentives programs for safe drivers and required trainings for those involved in crashes and/or receive multiple tickets		Initiate action	On-going action	On-going action	On-going action	On-going action	CMO	VZAG, insurance companies	Unsafe street behaviors reduced, fatal and serious injury crashes reduced	\$
	ACTION 4.4 Work with schools to improve the culture of safety around schools and to promote safe, active transportation through education, school policies, and pick-ups and drop-offs											
	1	Create a Safe Routes to School (SRTS) Plan and program for each school			Initiate action	On-going action	On-going action	On-going action	DMPS, T&T	CMO, DMPD	Number of successful SRTS programs per year	\$

Focus Areas / Actions / Implementation Steps			Implementation Timeline						Lead	Partners	Measurement	Cost
			FY 2023	FY 2024	FY 2025	FY2026	FY2027	FY 2028				
	2	Develop programs and presentations on street safety and Vision Zero for schools to engage students, parents and staff, including a Safe Routes to Schools and Safety Towns programs, include education that promotes walking and biking and multi-modal travel				Initiate action	On-going action	On-going action	DMPS	T&T, DMPD, DMFD	School presentations per year	\$
	3	Develop safety plans for pickup and drop-off times at schools as part of Safe Routes to Schools program				Initiate action	On-going action	On-going action	DMPS	T&T	Number of schools with plans developed, being used, reduced crashes around schools	\$

FOCUS AREA 5 Data and Transparency

ACTION 5.1 Implement demonstration/pilot projects to test innovative safety countermeasures

1	Conduct a pilot projects along the HIN and in EJ areas to test nnovative safety countermeasure to determine effectiveness in Des Moines before permanent installation and at other locations			Initiate action	On-going action	On-going action	On-going action	T&T	ENG, PW, IowaDOT	Treatments evaluated before permanent installation, education public of benefits of new safety countermeasures	\$
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ACTION 5.2 Routinely conduct evaluation studies to determine safety impacts of Vision Zero projects

1	Develop a framework and metrics for evaluating safety projects, including indicators such as operating speed and yielding behavior. Collect and geocode data before and after projects are completed		Initiate action	Complete action				T&T	ENG, GIS, PW	Safety project evaluation created and being used	\$
2	Conduct project before-and-after analysis to know what safety countermeasures are reducing fatal and serious injury crashes			Initiate action	On-going action	On-going action	On-going action	T&T	ENG, PW	Fatal and serious injury crashes are reduced	\$
3	Document effects of infrastructure projects and share findings with the public			Initiate action	On-going action	On-going action	On-going action	T&T	ENG, PW, COM	Included in annual report	\$
4	Conduct a more in-depth equity analysis that examines block-by-block segments of the HIN and neighborhood demographics to further inform the Vision Zero program		Make request to MPO	Initiate action	Complete action			MPO	T&T, EQUITY	Analysis completed	\$
5	Conduct an analysis of crashes on and around the Des Moines trail system, especially where trials cross the HIN		Make request to MPO	Initiate action	Complete action			MPO	T&T	Analysis completed	\$

Focus Areas / Actions / Implementation Steps			Implementation Timeline						Lead	Partners	Measurement	Cost
			FY 2023	FY 2024	FY 2025	FY2026	FY2027	FY 2028				
Transformative Step	ACTION 5.3 Regularly report back to the community about Vision Zero progress											
	1	Develop and publish an annual report that documents the implementation status of the Vision Zero Action Plan, tracks progress toward fatal, serious injury, and overall crash reduction, summarizes the effects of safety interventions, and changes to the Vision Zero program		Initiate action	On-going action	On-going action	On-going action	On-going action	T&T	CMO, COM, VZAG	Annual report published	\$
	2	Create a dashboard on the City's Vision Zero webpage and maintain it with project updates, progress on actions, and program updates. Provide up-to-date and accessible data about traffic fatalities and serious collisions on the City's website, highlighting equity metrics when appropriate and Vision Zero program successes		Initiate action	On-going action	On-going action	On-going action	On-going action	COM, T&T		Dashboard created and maintained	\$
	3	Conduct an annual public survey on safety concerns and ideas in Des Moines that get reported out in the Vision Zero Annual Report			Initiate action	On-going action	On-going action	On-going action	COM	T&T	Survey conducted annually	\$
	ACTION 5.4 Improve crash data management processes											
	1	Share hyperlink to Iowa Crash Analysis Tool (ICAT) portal on the City's Vision Zero web page to share crash records data		Complete action					COM	T&T	Hyperlink posted to website	\$
	2	Work with IowaDOT on enhancing crash data reporting and systemic safety models			Initiate action	On-going action	On-going action	On-going action	T&T	IowaDOT	Enanhancements made to reporting and models	\$
	3	Pilot a program with emergency management services and hospitals to better understand injury severity and type and to link reported crash data to health outcomes					Initiate action	On-going action	T&T	PolkHealth, DMPD, DMFD, IowaDOT, Hospitals	Pilot program developed and deployed	\$

Implementing Projects that Make Streets Safer

Making on-the-ground safety improvements to streets across Des Moines is key to reaching Vision Zero by 2040. Vision Zero requires location-specific projects on the HIN, proactive improvements in similar locations where crashes could occur, and general safety improvements within all street projects. Implementing Vision Zero safety projects will be embedded in the City's Capital Improvement Program (CIP).

Vision Zero as part of the City's Capital Improvement Program

Each year the City of Des Moines creates a CIP that details all the projects that will be included in the City's Capital Budget for the next five years. One near-term step within the first Vision Zero Focus Area is to establish a permanent, dedicated funding source for Vision Zero implementation and coordination. This means that the City will use this Action Plan to select projects to be included in the next CIP. The flow chart in Figure 28 shows how projects go from an idea to a funded project. With Vision Zero as a top priority in all decisions, street projects will be evaluated and approved accordingly in the CIP process.

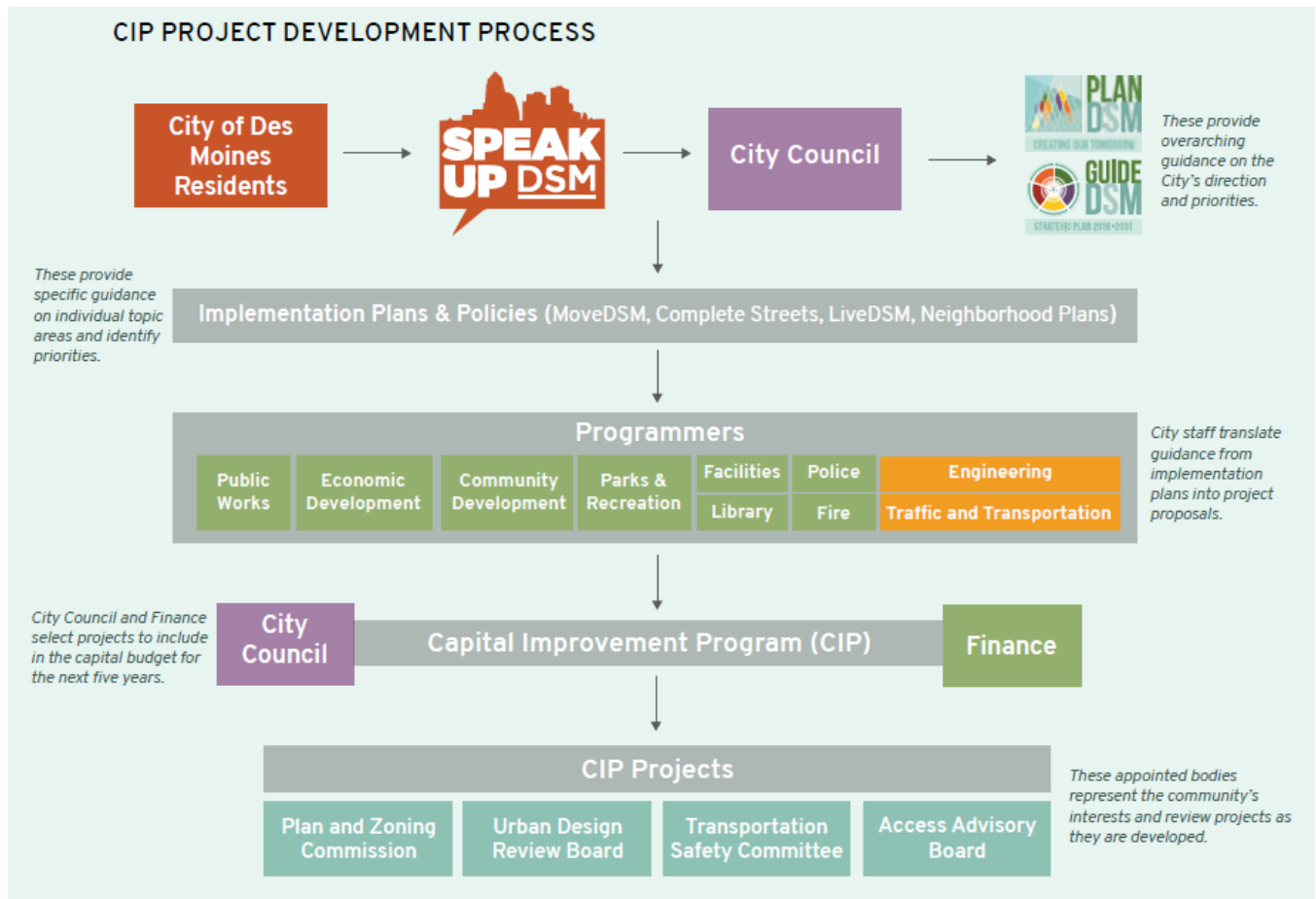


Figure 28. Flow chart of CIP process. Source: MoveDSM

Project Prioritization and Monitoring Process

Given that the number of HIN streets is greater than the number of projects that can be built annually with current City funding levels, the City and agency partners must further prioritize projects based on where need and impact are greatest using the following prioritization metrics in Table 5.

Table 5. Location-Specific Prioritization Metrics

Metric	Weight
Number of KSI Crashes	30%
On the Overall HIN	25%
EJ Degrees of Disadvantage	20%
Total Crashes	15%
Number of Unsafe Location Comments from Public	10%
Total	100%

Using these project prioritization metrics, the top priority HIN streets have the greatest need for safety improvements first and are shown in Table 6. The project prioritization metrics should also be used to evaluate safety needs on all roadway projects on the City's CIP, from road reconstruction needs to other desired capital projects. The next section, *Project Implementation Steps*, outlines the steps for selecting and designing safety countermeasures, constructing the safety improvements, and evaluating before and after crashes on the top priority HIN streets and then the rest of the HIN. The top priority HIN streets should be included in the City's CIP per MoveDSM.

Table 6. Top Priority HIN Streets for Safety Improvement Projects

Street	From	To
University Ave / E University Ave	56th St	E 40th St
SE 14th St	Southridge Blvd	E 14th St/Johnson Ct
SW 9th St	County Line Rd	Morgan St
2nd Ave	Vine St	NW 42nd Pl
E 14th St / US 69	E University Ave	E Broadway Ave
6th Ave	W Martin Luther King Jr Pkwy	Seneca Ave
19th St	Washington Ave	Forest Ave
Keosauqua Way	19th St	8th St
Euclid Ave / E Euclid Ave	Des Moines River bridge crossing	Hubbell Ave

Another consideration of project prioritization is project readiness and current available funding for construction. As part of this, the City is planning to seek a USDOT SS4A Implementation Grant to fund safety improvements on the following HIN streets listed in Table 7 on the next page.²²

²² The City intends to apply for an USDOT SS4A implementation grant in year 2 by July 10, 2023.

Table 7. City of Des Moines Implementation Projects for SS4A Grant

Street	From	To
Martin Luther King Jr. Parkway & 19th St	Cottage Grove Ave	Mondamin Ave
Douglas Ave (U.S. 6)	Merle Hay Rd	Martin Luther King Jr. Pkwy
Euclid Ave (U.S. 6)	Des Moines River	2nd Ave
Forest Ave	Beaver Ave	9th St
SE 14th St (U.S. 69) & Maury St Intersection		

Project Implementation Steps

The process to develop, identify, and implement CIP projects is defined as a part of MoveDSM.²³ Once funded, the City will keep track projects per the following steps of project implementation:

1. **Planning** – Further crash analysis and review of community concerns on the corridor during the September 2022 and April 2023 engagement will be evaluated on each HIN street to identify crash causation and modes impacted to then identify a list of potential safety countermeasures that will eliminate fatal and serious injury crashes.
2. **Design** – Once a list of potential safety countermeasures is identified, the design step will be to evaluate and determine the final set of safety countermeasures that will be used on the HIN street, identify and sketch specific areas on the HIN street where each safety countermeasure will be installed, and calculate the combined crash reduction factor for the safety countermeasures being suggested.
3. **Engineering** – Once the safety countermeasures have been estimated to ensure the greatest potential combined crash reduction factor, a complete set of engineered construction documents will be prepared, ensuring the key design details that provide the greatest level of safety through the Safe System Approach Framework provided in *The Safe System Approach Framework as Our Lens* section.
4. **Construction** – Safety improvements will be constructed per the engineering drawings and ensuring that the level of safety is not compromised in the construction process.
5. **Evaluation** – Within one year of construction, a safety performance evaluation will be conducted to ensure the safety improvements made are reducing and hopefully eliminating fatal and serious injury crashes both within the project area and immediately surrounding. This step should also measure the effectiveness of safety countermeasures in Des Moines that can be applied to similar conditions where crashes could occur.
6. **Refinement** – Based on the safety project evaluation results, additions, changes, or refinement to the safety improvements may need to be made to the project to ensure fatal and serious injury crashes are eliminated.

Project Tracking

Throughout the Vision Zero implementation process, the City will actively track project implementation status in the Vision Zero Data Dashboard, including information like priority, segmenting improvements on longer HIN streets, and project status in relation to the *Project Implementation Steps* outlined above. The City has started tracking the status of projects on the HIN in the map shown in Figure 29 on the next page.

²³ CIP Development Process and Project Design and Implementation is provided in MoveDSM on pages 78-79.
https://cms2.revize.com/revize/desmoines/document_center/Engineering%20and%20Traffic%20Forms%20and%20Documents/Traffic/MoveDSM_Transportation%20Master%20Plan.pdf

Vision Zero High Injury Network -- Projects

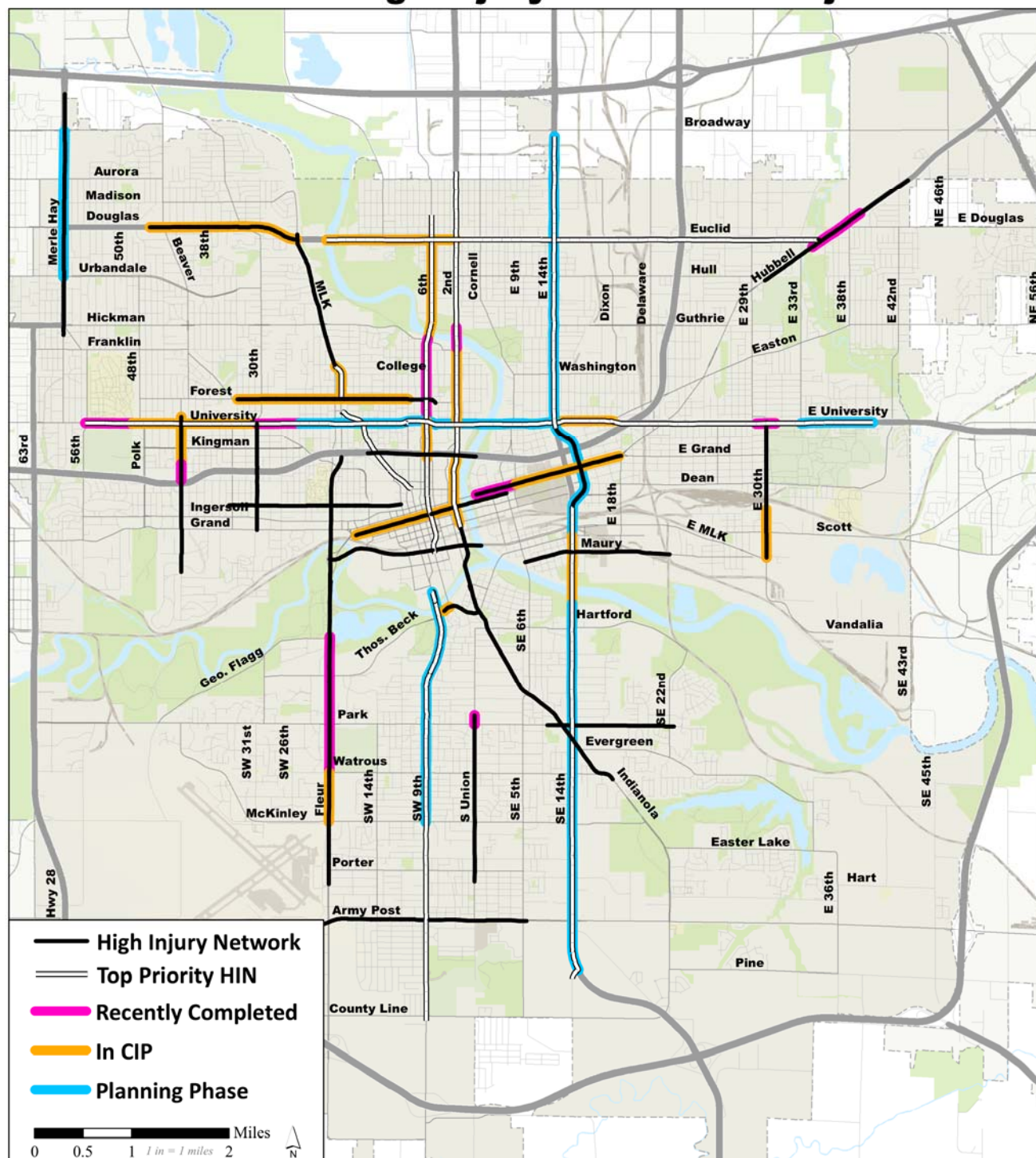


Figure 29. Vision Zero Project Status Map. Source: City of Des Moines

Safety Countermeasure Toolbox and Instruction Guide

The *Safety Countermeasure Toolbox and Instruction Guide* developed as part of Des Moines Vision Zero guides the selection and potential effectiveness of safety countermeasures to be used in Des Moines. Selection and design of safety countermeasures on every street project in Des Moines should be decided through *The Safe System Approach Framework as Our Lens* section, so that if a crash occurs it cannot result in a fatal or serious injury. Safety countermeasures should not be compromised or simplified in any way that reduces the level of safety for all road users. The FHWA Proven Safety Countermeasures initiative (PCSi) is a collection of specific design or operational changes to streets that have been proven nationally to improve safety. These safety countermeasures are shown in Figure 30 below, and hyperlinks to each full safety countermeasure are provided by clicking on the name.

Let's Take Action: Action

5.1.1 calls for the installation of pilot projects along the High Injury Network and in Environmental Justice areas. These projects will incorporate the proven safety countermeasures discussed in this section.

Speed Management



[Appropriate Speed Limits for All Road Users](#)



[Speed Safety Cameras](#)



[Variable Speed Limits](#)



[Bicycle Lanes](#)



[Crosswalk Visibility Enhancements](#)



[Leading Pedestrian Interval](#)



[Medians and Pedestrian Refuge Islands in Urban and Suburban Areas](#)



[Pedestrian Hybrid Beacons](#)



[Rectangle Rapid Flashing Beacons \(RRFB\)](#)



[Road Diets \(Roadway Configuration\)](#)



[Walkways](#)

Roadway Departure



[Enhanced Delineation for Horizontal Curves](#)



[Longitudinal Rumble Strips and Stripes on Two-Lane Roads](#)



[Median Barriers](#)



[Roadside Design Improvements at Curves](#)



[SafetyEdge](#)



[Wider Edge Lines](#)

Intersections



Backplates with
Retroreflective Borders



Corridor Access Management



Dedicated Left-and Right-
Turn Lanes at Intersections



Reduced Left-Turn Conflict
Intersections



Roundabouts



Systemic Application of
Multiple Low-Cost
Countermeasures at Stop-
Controlled Intersection



Yellow Change Intervals



Lighting



Crosscutting

Local Road Safety Plans



Pavement Friction
Management



Road Safety Audit

Figure 30. Proven Safety Countermeasures. Source: FHWA

Proactive Systemic Safety Countermeasures

The *Safety Countermeasure Toolbox and Instruction Guide* also provides recommended systemic safety countermeasures that can be installed on the HIN or proactively citywide where similar conditions exist for crashes to potentially occur. Generally, systemic safety improvements are overall good for the safety of all road users. These proactive systemic safety countermeasures will likely require additional funding for implementation and perpetual maintenance for staffing and materials, and/or changing a policy or standard by the City or State to allow the measures to be installed or for use citywide. These systemic safety countermeasures could also be implemented proactively as part of other street improvements, such as street reconstruction or as part of new land use development projects. Figure 31 below identifies several potential safety countermeasures for proactive, systemic implementation in Des Moines. The proactive and systemic safety countermeasures would be installed on the HIN first, as part of other street projects, in similar conditions where crashes could occur, and eventually citywide as budget and staff resources allow. In addition to prior and current efforts to implement systemic safety countermeasures, the following additional proactive systemic safety countermeasures in Des Moines include:



Make high-visibility continental-style crosswalks the standard in Des Moines in school areas on the HIN first.



Evaluate the use of pedestrian safety strategies, such as leading pedestrian or leading through intervals at signalized intersections in Des Moines, starting with locations on HIN first.



Install backplates with retroreflective boards at all signalized intersections in Des Moines.



Reduce left turn conflict on arterials by installing positive offset left turn lanes, signal phasing at signalized intersections or reducing uncontrolled left turns onto private property.



Implement parking restrictions and/or bumpouts at pedestrian crossings to reduce pedestrian crossing distance and increase attentiveness and awareness of pedestrians.

Figure 31. Recommended Systemic Proactive Safety Countermeasures for Des Moines.

Post-Construction Project Evaluation

Once each project is constructed, it should be analyzed to determine if the safety improvements are eliminating fatal and serious injury crashes. These evaluations should be performed within two years after the project is constructed. The evaluation would be led by the City's Traffic & Transportation Division and include the following sequence:

- Develop metrics and a framework for the evaluation of projects
- Collect geocoded data and crash stats before projects are constructed
- Conduct before-and-after analyses within one year after construction
- Document and share findings from the before-and-after analyses on the effects of the projects

Let's Take Action: Evaluating a project's effectiveness in reducing improving safety is key to achieving Vision Zero. **Action 5.2.1** outlines a process for beginning evaluation in 2026.

As noted in the *Proactive Systemic Safety Countermeasures* section, effective safety countermeasures should also be implemented proactively at locations with similar conditions where fatal and serious crashes could potentially occur. If the safety countermeasures are not effective, refinement or additional safety countermeasures should be implemented along the HIN street project.

Measures of Vision Zero Success in Des Moines

To achieve Vision Zero by 2040, it is important to prioritize street safety where need and impact are greatest until the goal of zero deaths and serious injuries on streets across Des Moines is reached. Figure 32 charts a potential path to reducing deaths and serious injuries annually. Ideally, all involved partners should strive for fewer fatal and serious injuries than the chart indicates and achieve Vision Zero sooner.

Charting a Path to Vision Zero by 2040

The City should track fatal and serious injury crashes annually compared to this chart to understand whether steps and projects being implemented are on track or need to be adjusted to reach the goal of Vision Zero by 2040. The path will look different than the graph below, but crashes should follow or be below this general trend line over time. The target year of 2040 was selected based on the levels of funding and staffing being provided to support Vision Zero implementation and based on the timeline of actions and projects currently identified in the Action Plan. Additional funding and staffing may allow for the goal of Vision Zero to be achieved before 2040 if the actions and projects can advance sooner or if fatal and serious injury crashes are reduced at a greater level than those charted below. If the estimated number of fatal and serious injury crashes do not meet these goals, more resources and/or shifts in street safety decisions will need to be made and identified in the Vision Zero Annual Report.²⁴

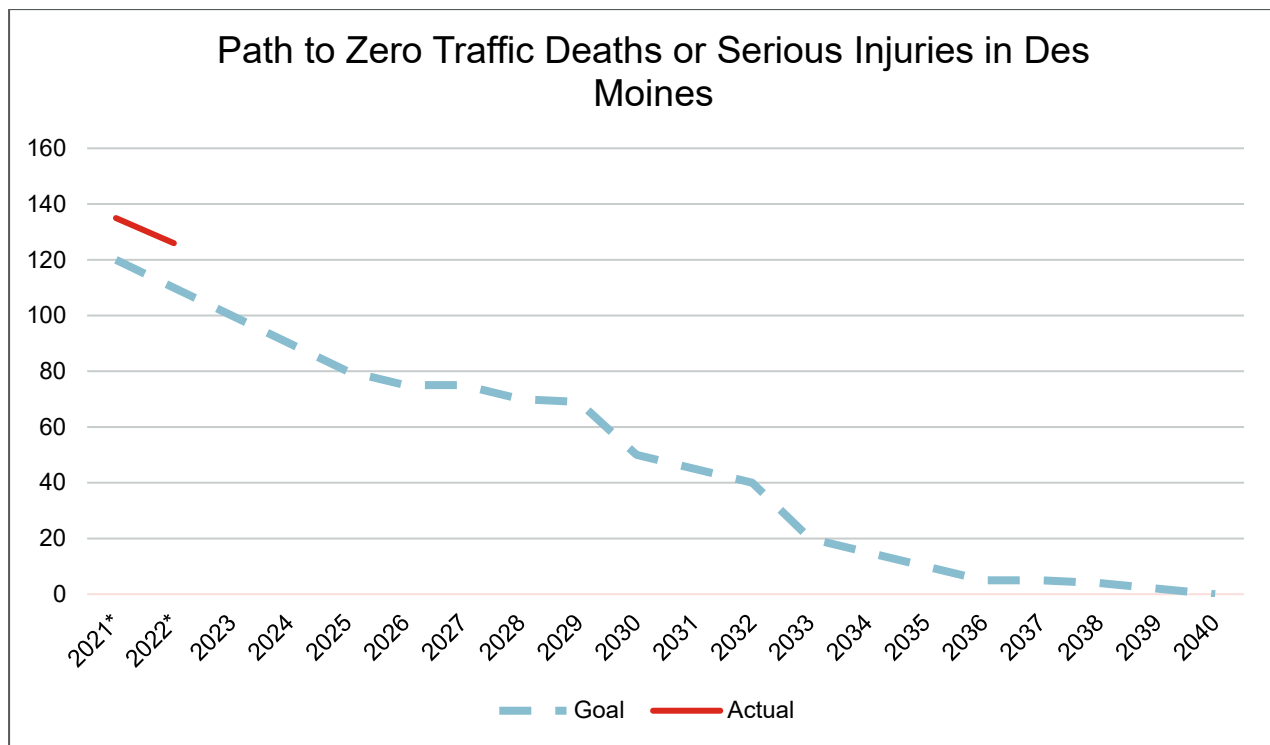


Figure 32. Path to Zero street-related deaths or serious injuries in Des Moines by 2040.²⁵

²⁴ As of July 6, 2023, there were 5 people killed and 40 serious injuries in crashes in Des Moines to date in 2023 per ICAT.

²⁵ 2021 and 2022 crash data is provisional data from ICAT and numbers shown is persons injured, not number of crashes.

Vision Zero Annual Report, Data Dashboard, and Public Survey

To continue tracking progress towards achieving the goal of zero deaths and serious injuries on streets in Des Moines by 2040, the City will publish a Vision Zero Annual Report prior to the CIP process. The report will provide updates on Vision Zero projects and actions, crash stats compared to the chart in Figure 32, Vision Zero performance measures, and any recommendations or changes to the Vision Zero program, projects, and/or actions for City Council in the next fiscal year. The Traffic & Transportation Division will lead the development of the Vision Zero Annual Report and it will be reviewed by the Vision Zero Advisory Group. Developing this annual report will be an opportunity for the City and its partners to adjust the Vision Zero Action Plan based on lessons learned from the previous year's implementation.

In addition to the Vision Zero Annual Report, the City will create a data dashboard on the City's Vision Zero webpage and conduct an annual public survey. At least annually, the City will update the dashboard to provide project updates, describe the status of implementing Vision Zero actions, and provide accessible data about fatal and serious injury crashes. A public survey will be conducted annually to gather information on the community's safety concerns and ideas to improve safety. The data dashboard and survey results will be summarized in the Vision Zero Annual Report.

Primary Vision Zero Action Plan Performance Measures

In addition to charting a path to Vision Zero as described above, it is important to measure the following key indicators to understand if the Des Moines community is on the path to reaching Vision Zero by 2040. The following performance measures should be analyzed yearly and adjustments to the program should be outlined in the City's Vision Zero Annual Report:

- Fatal and serious injury crashes decrease annually until reaching zero by 2040
- Number of safety improvements implemented where need and impact are greatest, including on HIN streets, in disadvantaged communities, and proactively to prevent crashes before they occur
- Number of steps fully implemented and that are working to reduce fatal and serious injury crashes
- Number of crashes by type, modes involved, and locations are decreasing citywide
- Once zero fatal and serious injury crashes are reached, measure that all crashes should decrease annually

Performance Measures

The City of Des Moines will need to monitor the success of individual Vision Zero steps in the previous section and spreadsheet of focuses, actions, and steps. Each action in the list in the previous section includes a method for measurement to guide implementation of that action. If certain actions are not successful, are not moving fast enough, or are not working for another reason, the City should assess and adjust based on each step. However, the specific measures of each step should not reduce the focus on the ultimate performance measure of eliminating fatal and serious injuries on all streets in Des Moines by 2040. If roadblocks that limit the City's ability to implement an action are encountered, or the action is not meeting the stated performance measures or eliminating fatal and serious injuries, the City will re-evaluate the action to understand what adjustments may be needed to the action, for example changes to the timeline, lead entity, or implementation steps. The status of actions – those completed, those underway, or those that have encountered roadblocks – and any adjustments to the actions will be included in the City's Vision Zero Annual Report.

Next Steps for Vision Zero in Des Moines

To carry out everything presented in this Action Plan and to eliminate fatalities and serious injuries on all streets in Des Moines by 2040, we need help from everyone. We all have a personal responsibility to make the right choices and to spread the word about why street safety matters—making the City's efforts even more effective.

What Happens First?

This Action Plan is the first step towards achieving Vision Zero in Des Moines. Immediately following the adoption of this Action Plan by the City Council, the City and partners are ready to get started with a clear roadmap and next steps. These actions will ensure the Action Plan is integrated into the work of every department and at the highest level.

Within the year following adoption, City staff will set out to complete some key actions. These include applying for a USDOT SS4A Implementation Grant, evaluating the HIN using the prioritization framework in this Action Plan, and incorporating priority projects into the City's CIP process. The City will also continue efforts to expand the bicycling and pedestrian network based on current programmed projects. Over time, bicycle and pedestrian projects will be prioritized based on the criteria in this Action Plan.

Following the first year, the City will initiate the publication of an Annual Report that documents the implementation status of the Vision Zero Action Plan; tracks progress toward fatality, serious injury, and overall crash reduction; summarizes the effects of safety interventions; and details any adjustments to the Vision Zero program. A Vision Zero data dashboard will actively and publicly track progress toward zero street-related deaths or serious injuries.

How to Get Involved

Achieving Vision Zero is a citywide effort. You have already helped this effort by reading this Plan. You can also:

- Visit the City's Vision Zero webpage to stay up to date on the latest information on the Vision Zero program in Des Moines at dsm.city/visionzero.
- Tell your friends, community organizations, and family about the Vision Zero Action Plan. Des Moines will only reach zero street-related deaths and serious injuries by 2040 if everyone is committed to Vision Zero, so please help the City get the word out!

Achieving safer streets in Des Moines is everyone's responsibility. The City of Des Moines is committed to carrying out the ambitious actions and projects laid out in this Action Plan to achieve safe streets. We look forward to working with all of you to reach our shared goal of Vision Zero.

