

TO OFFICE: District 1

DATE: January 26, 2026

ATTENTION: Allison Smyth

COUNTY: Polk

FROM: Benjamin Adey

PROJ. NO.: NHSX-141-7(077)—3H-77

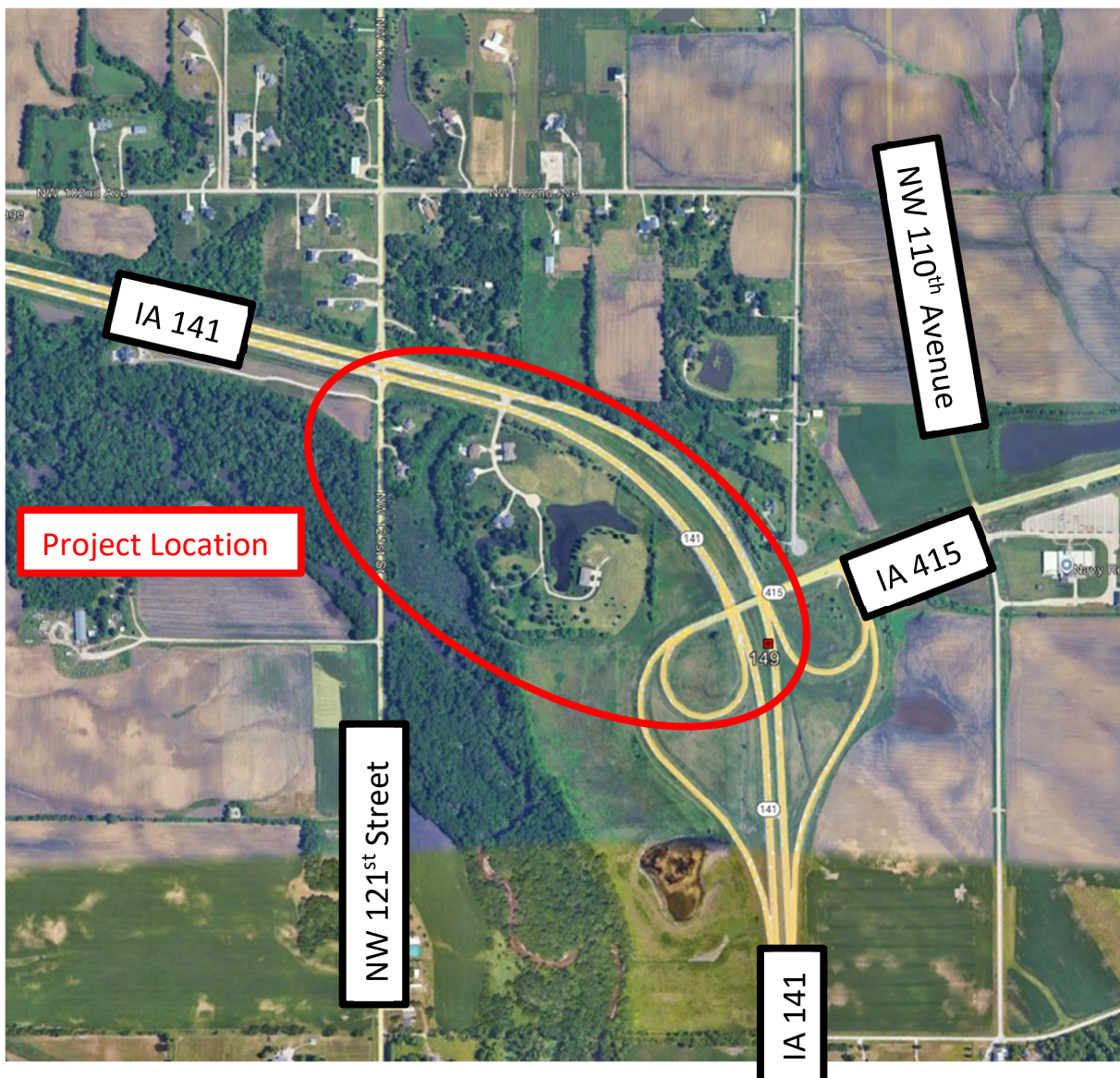
PIN: 17-77-141-020-01

OFFICE: District 1

FOLDER: [D0Submittal \(077\)](#)

SUBJECT: Concept Statement – **FINAL**

PROJECT LOCATION:



I. STUDY AREA**A. Project Description**

IA 141 between IA 44 and IA 17 is a 4-lane roadway with a 65-mph speed limit except near the NW 121st St intersection where it is a 55-mph speed limit. IA 415 is an undivided 2-lane roadway with a 55-mph speed limit. There is an existing Divided, High Speed, Partial Stop Control intersection of IA 141 and NW 121st Street.

In 2025 the DOT, in partnership with Polk County and the City of Johnston, constructed NW 110th Street and removed the north leg of the IA 141 and NW 121st Street intersection (NHSX-141-7(58)--3H-77). In addition, the west leg of NW Towner Drive was removed along with all the median crossovers from north of Towner Drive to east of the IA 141 and IA 17 interchange.

B. Purpose and Need for Project

The proposed project is the next phase of improvements within the IA 141 corridor between the IA 415 and IA 17 interchanges. This project will remove two of the remaining four at-grade intersections, located at NW 121st St and NW 119th Ct from IA 141. This will be done by modifying the interchange of the IA 141 and IA 415. The modification will add a frontage road connection from IA 415 to NW 121st St that parallels IA 141 along the south/west side of the highway. Traffic using the local road network will then use the new frontage road to access IA 141 from the interchange at IA 415.

C. Traffic Estimates

See attached traffic volumes diagrams.

D. Access Control

Access rights may be acquired along the new frontage road adjacent to the IA 141 and IA 415 interchange.

E. Crash History

During the five-year study period from 2020 through 2024, there were 19 crashes near the intersections of NW 121st St and NW 119th Ct. Of these, 10 crashes were related to failing to yield the right of way, 1 was following too close, 1 lost control, 1 was driver inexperience and 1 was vision obstructed. Only 4 were animal related.

Below is the Potential for Crash Reduction (PCR) information for the IA 141 and NW 121st Street intersection. The PCR information is for crashes from 2018 to 2020.

Category: Divided, High Speed, Partial Stop
Control

District: 1

PCR Level All Crashes (KABCO): Medium
(0.80)

PCR Level Severe Crashes (KAB): Negligible
(0.07)

Category Ranking Divided High Speed

Partial Stop Control: 55 of 1,166

Statewide Ranking Category: 1,483 of
115,274

II. PROJECT CONCEPT

A. Feasible Alternatives

1. Option 1: Undivided, Partial Stop Control at the west ramp terminal

Option 1 would reconstruct the west ramp terminal of the interchange to be a partial stop control intersection. A high-level traffic analysis of this intersection control was completed by District 1. This analysis showed that there should be dedicated left and right turn lanes (as applicable) on all intersection approaches to accommodate the 2050 traffic volumes.

2. Option 2: Roundabout at the west ramp terminal

Option 2 would reconstruct the west ramp terminal of the interchange to be a roundabout intersection. A high-level analysis of this intersection control was completed by District 1. This analysis showed that a single lane roundabout without any dedicated turn lanes would accommodate the 2050 traffic volumes.

Regardless of the ramp terminal intersection control, the new frontage road would be constructed as a 24' wide two-lane roadway with 10' shoulders (6' paved, 4' granular). The intersections of both NW 121st St and NW 119th Ct will be side road stop-controlled intersections without turn lanes. Additionally, the driveway of 12742 NW Granger Drive will be realigned to form the 3rd leg of the NW 121st St and Frontage Rd intersection. The alignment of the frontage road will parallel the IA 141 ROW line. The alignment should be far enough away to maintain separate ditches and drainage between the highway and frontage road. The existing at-grade accesses of NW 121st St and NW 119th Ct will be removed from IA 141.

3. Estimated Project Costs

The project limits and estimated quantities for both alternatives is the same. Thus, the cost estimate for either intersection control is the same. The estimated construction costs are included below.

Embankment-in-Place, Contractor Furnish	\$ 750,000
Excavation, Class 10, Roadway and Borrow	\$ 100,000
Modified Subbase	\$ 350,000
Granular Shoulder	\$ 156,000
PCC Shoulder, 10"	\$ 469,000
PCC Paving, 10"	\$ 923,000
Earth Shoulder Construction	\$ 30,000
Traffic Control	\$ 40,000
Mobilization	\$ 170,000
Drainage – 10%	\$ 445,000
Erosion Control – 2%	\$ 90,000
Contingency – 20%	\$ 900,000
Total Estimated Construction Costs	\$ 4,423,000

B. Recommendation

District 1 and Polk County recommend proceeding with Option 2 and constructing a roundabout at the west ramp terminal with a frontage road that parallels the southern side of IA 141.

C. Construction Staging and Detour Analysis

Construction will be staged to keep the IA 415 to southbound IA 141 ramp open as much as possible. Short term closures for temporary pavement connections will be needed.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. The DOT will design all associated roadway and drainage improvements that will be constructed with this project.

E. ADA Accommodations

There are currently no ADA facilities within the limits of this projects, and no new facilities are proposed to be added with this project.

F. Special Considerations

This will be a traffic critical project.

No railroads exist within the limits of this project.

Right of Way will be required for this project.

Lighting will be installed at the interchange ramp terminals. This lighting will be owned and maintained by the DOT. Any additional lighting requested by the County will be theirs to maintain.

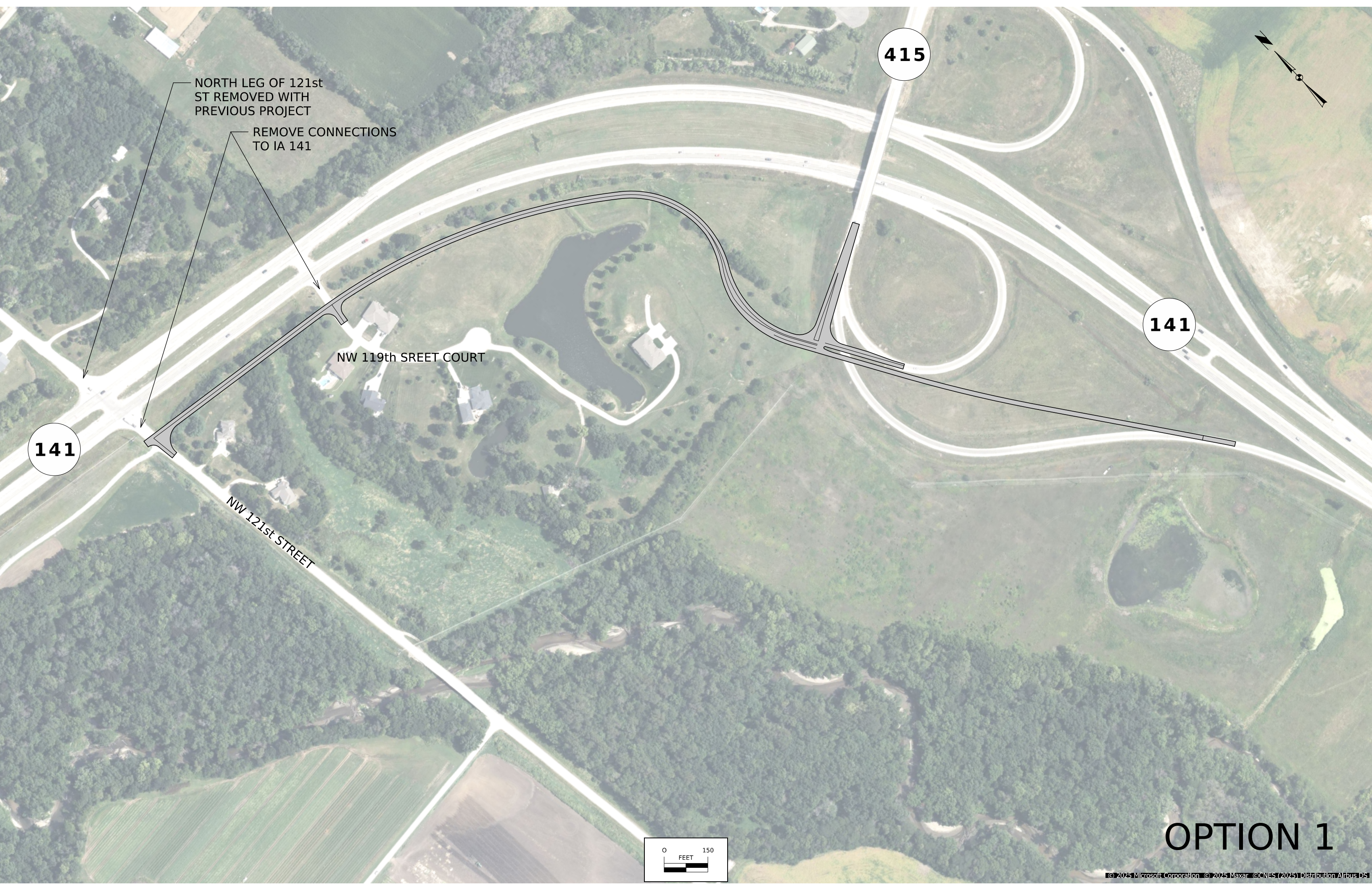
G. Program Status

The concept level cost of the proposed improvements is estimated at \$4,423,000. This project will be considered for programming once the concept is finalized.

H. Project Schedule:

The project schedule will be updated once the project concept is finalized. It is anticipated that ROW plans will be completed in December 2026 so that a letting could be achieved by FY2028 at the earliest.

Cc: T. Gustafson	C. Purcell	K. D. Nicholson
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E. C. Wright	M. E. Ross	A. A. Welch
J. Harris	C. C. Poole	B. E. Azeltine
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A. Swisher	B. Ellis	J. Bennett
B. Lafrenz	B. Vandelune (Polk Co.)	A. Putnam (Polk Co.)
R. Conrad (Polk Co.)	T. Burhenn (Polk Co.)	M. Hahn (Polk Co.)



NORTH LEG OF 121st
ST REMOVED WITH
PREVIOUS PROJECT

REMOVE CONNECTIONS
TO IA 141

NW 119th SREET COURT

NW 121st STREET

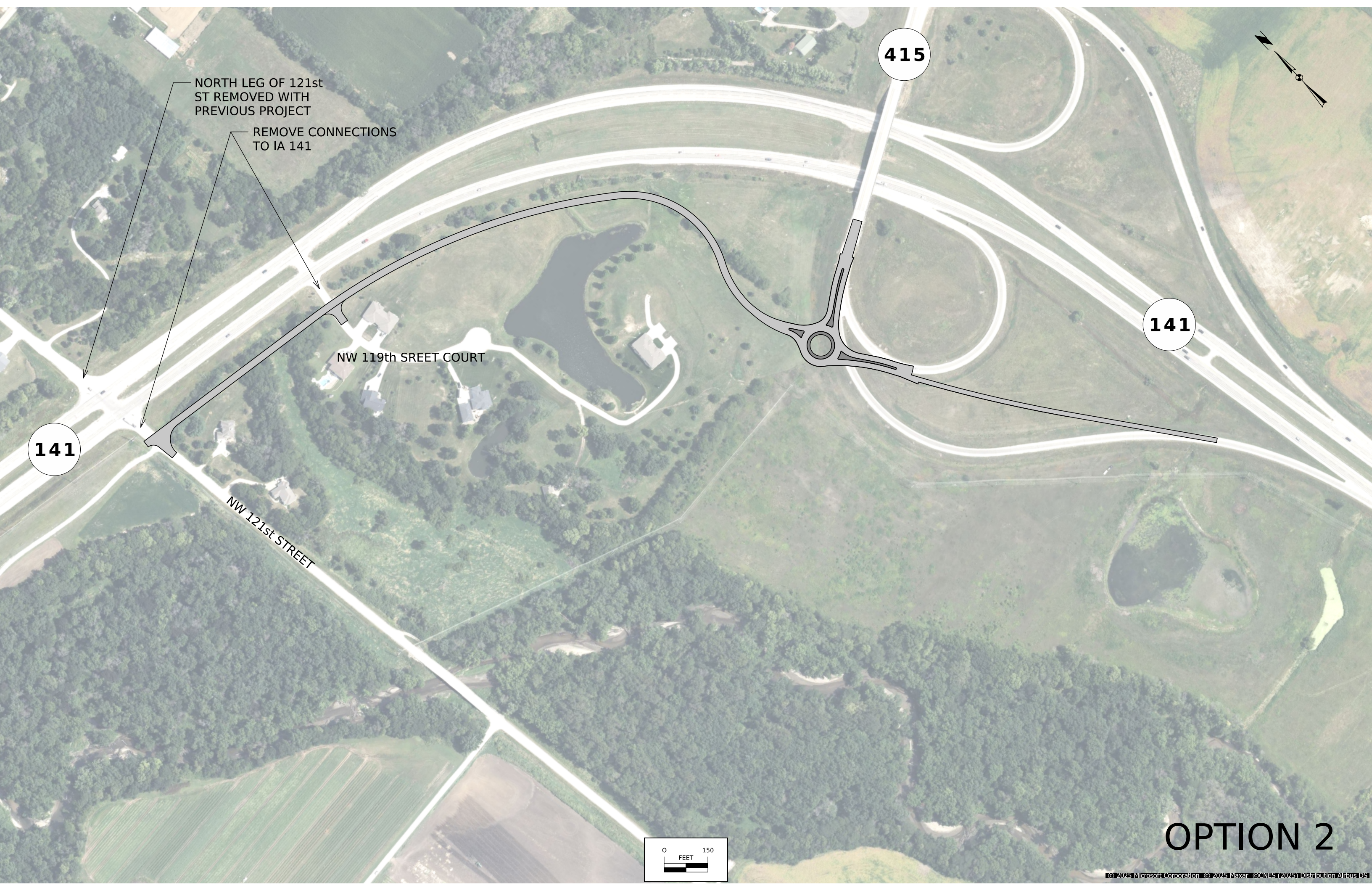
415

141

141

OPTION 1

0 150
FEET



NORTH LEG OF 121st
ST REMOVED WITH
PREVIOUS PROJECT

REMOVE CONNECTIONS
TO IA 141

NW 119th SREET COURT

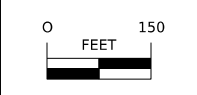
NW 121st STREET

415

141

141

OPTION 2

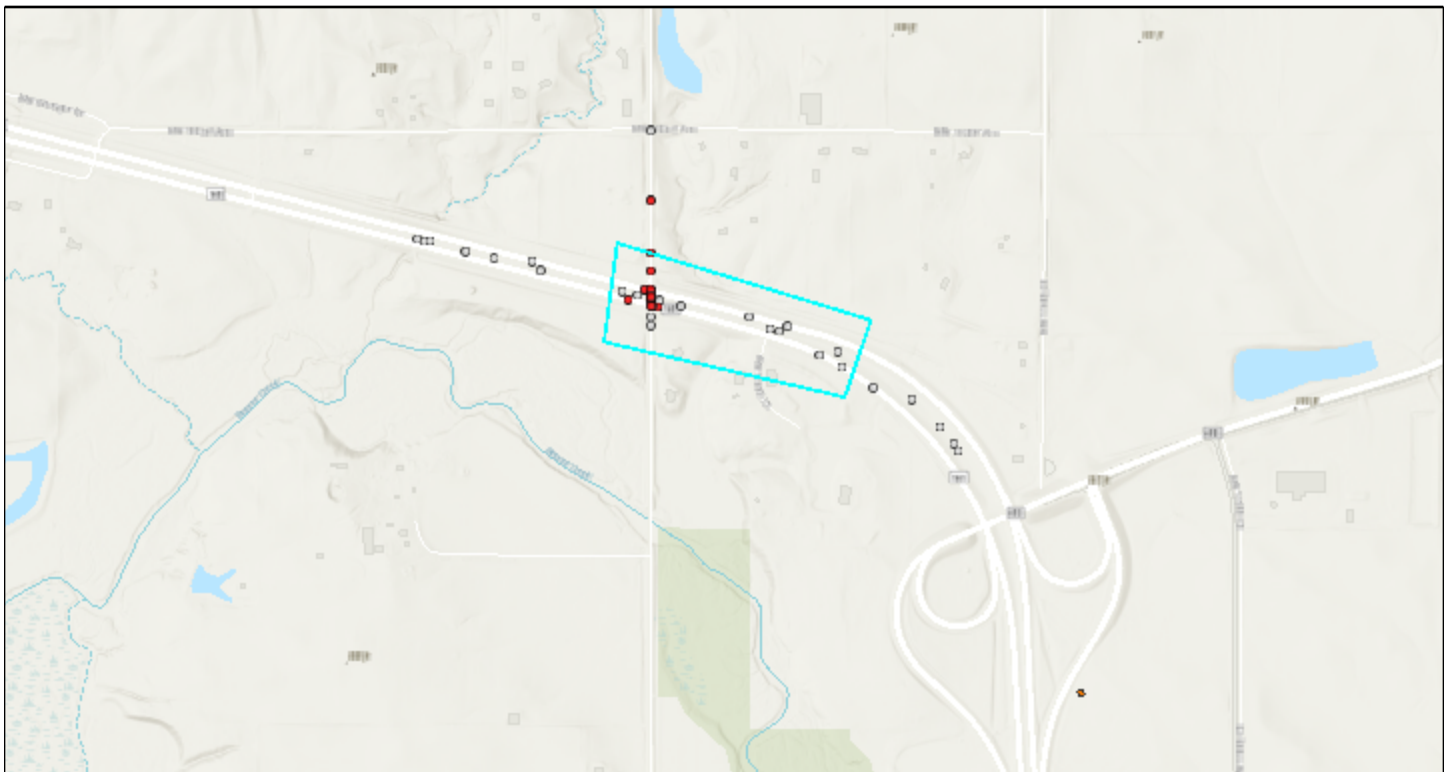




Iowa Crash Analysis Tool
Quick Report
2020-2024

Crash Severity	19	Injury Status Summary	15
Fatal Crash	0	Fatalities	0
Suspected Serious Injury Crash	1	Suspected serious/incapacitating	1
Suspected Minor Injury Crash	4	Suspected minor/non-incapacitating	6
Possible/Unknown Injury Crash	2	Possible (complaint of pain/injury)	5
Property Damage Only	12	Uninjured	0
		Unknown	0
		Not Reported	3

Property/Vehicles/Occupants		Average Severity	
Property Damage Total (dollars):	186,550.00	Fatalities/Fatal Crash:	0.00
Average (per crash dollars):	9,818.42	Fatalities/Crash:	0.00
Total Vehicles:	34.00	Injuries/Crash:	0.63
Average (per crash):	1.79	Major Injuries/Crash:	0.05
Total Occupants:	50.00	Minor Injuries/Crash:	0.32
Average (per crash):	2.63	Possible/Unknown Injuries/Crash:	0.26





Iowa Crash Analysis Tool
Quick Report
2020-2024

Major Cause		19
Animal	4 Ran traffic signal	0
Ran stop sign	1 Failed to yield to emergency vehicle	0
FTYROW: At uncontrolled intersection	0 FTYROW: Making right turn on red signal	0
FTYROW: From stop sign	7 FTYROW: From yield sign	1
FTYROW: Making left turn	0 FTYROW: From driveway	0
FTYROW: From parked position	0 FTYROW: To pedestrian	0
FTYROW: Other	1 Drove around RR grade crossing gates	0
Disregarded RR Signal	0 Crossed centerline (undivided)	0
Crossed median (divided)	0 Traveling wrong way or on wrong side of road	0
Aggressive driving/road rage	0 Driving too fast for conditions	0
Exceeded authorized speed	0 Improper or erratic lane changing	0
Operating vehicle in an reckless/erratic/care...	0 Followed too close	1
Passing: On wrong side	0 Passing: Where prohibited by signs/markings	0
Passing: With insufficient distance/inadequa...	0 Passing: Through/around barrier	0
Passing: Other passing	0 Made improper turn	0
Driver Distraction: Manual operation of an e...	0 Driver Distraction: Talking on a hand-held d...	0
Driver Distraction: Talking on a hands free ...	0 Driver Distraction: Adjusting devices (radio...	0
Driver Distraction: Other electronic device ...	0 Driver Distraction: Passenger	0
Driver Distraction: Unrestrained animal	0 Driver Distraction: Reaching for object(s)/f...	0
Driver Distraction: Inattentive/lost in thou...	0 Driver Distraction: Other interior distracti...	0
Driver Distraction: Exterior distraction	0 Ran off road - right	0
Ran off road - straight	0 Ran off road - left	0
Lost control	1 Swerving/Evasive Action	0
Over correcting/over steering	0 Failed to keep in proper lane	0
Failure to signal intentions	0 Traveling on prohibited traffic way	0
Vehicle stopped on railroad tracks	0 Other: Vision obstructed	1
Other: Improper operation	0 Other: Disregarded warning sign	0
Other: Disregarded signs/road markings	0 Other: Illegal off-road driving	0
Downhill runaway	0 Separation of units	0
Towing improperly	0 Cargo/equipment loss or shift	0
Equipment failure	0 Oversized load/vehicle	0
Other: Getting off/out of vehicle	0 Failure to dim lights/have lights on	0
Improper backing	0 Improper starting	0
Illegally parked/unattended	0 Driving less than the posted speed limit	0
Operator inexperience	1 Other	1
Unknown	0 Not reported	0
Other: No improper action	0	



Iowa Crash Analysis Tool
Quick Report
2020-2024

Time of Day/Day of Week														
	12 AM to 2 AM	2 AM to 4 AM	4 AM to 6 AM	6 AM to 8 AM	8 AM to 10 AM	10 AM to Noon	Noon to 2 PM	2 PM to 4 PM	4 PM to 6 PM	6 PM to 8 PM	8 PM to 10 PM	10 PM to 12 AM	Not reported	Total
Day of Week														
Sunday	0	0	0	0	0	0	0	1	0	1	2	1	0	5
Monday	0	0	0	0	0	1	0	1	0	1	0	0	0	3
Tuesday	0	0	0	0	0	0	0	0	3	1	0	0	0	4
Wednesday	0	0	0	0	0	1	1	0	1	0	0	0	0	3
Thursday	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Friday	0	0	0	0	0	0	0	0	1	0	1	0	0	2
Saturday	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	0	0	0	0	2	2	2	6	3	3	1	0	19

Manner of Crash Collision	19	Surface Conditions	19
Non-collision (single vehicle)	4	Dry	16
Head-on (front to front)	0	Wet	0
Rear-end (front to rear)	3	Ice/frost	0
Angle (oncoming left turn)	1	Snow	0
Broadside (front to side)	8	Slush	0
Sideswipe (same direction)	1	Mud/dirt	0
Sideswipe (opposite direction)	0	Water (standing or moving)	0
Rear to rear	0	Sand	0
Rear to side	0	Oil	0
Not reported	1	Gravel	0
Other	1	Not reported	3
Unknown	0	Other	0
		Unknown	0

Fixed Object Struck	34
Bridge overhead structure	0
Bridge/bridge rail parapet	0
Ditch	1
Ground	0
Guardrail - face	0
Concrete traffic barrier (median or right sid...	0
Cable barrier	0
Utility pole/light support	0
Traffic signal support	1
Fire hydrant	0
Tree	0
Snow bank	0
Wall	0
Other fixed object	1
Bridge pier or support	0
Curb/island/raised median	0
Embankment	0
Culvert/pipe opening	0
Guardrail - end	0
Other traffic barrier	0
Impact attenuator/crash cushion	0
Traffic sign support	0
Other post/pole/support	0
Mailbox	0
Landscape/shrubbery	0
Fence	0
Building	0
None (no fixed object struck)	31



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Quick Report
2020-2024

Driver Age/Driver Gender					
Driver Age - 5 year Bins	Female	Male	Not reported	Unknown	Total
< 14	0	0	0	0	0
= 14	0	0	0	0	0
= 15	0	2	0	0	2
= 16	0	0	0	0	0
= 17	1	0	0	0	1
= 18	1	1	0	0	2
= 19	1	0	0	0	1
= 20	0	1	0	0	1
>= 21 and <= 24	1	2	0	0	3
>= 25 and <= 29	1	0	0	0	1
>= 30 and <= 34	0	2	0	0	2
>= 35 and <= 39	1	2	0	0	3
>= 40 and <= 44	3	2	0	0	5
>= 45 and <= 49	0	0	0	0	0
>= 50 and <= 54	1	1	0	0	2
>= 55 and <= 59	0	2	0	0	2
>= 60 and <= 64	0	1	0	0	1
>= 65 and <= 69	0	3	0	0	3
>= 70 and <= 74	0	1	0	0	1
>= 75 and <= 79	1	0	0	0	1
>= 80 and <= 84	0	2	0	0	2
>= 85 and <= 89	1	0	0	0	1
>= 90 and <= 94	0	0	0	0	0
>= 95	0	0	0	0	0
Not reported	0	0	0	0	0
Unknown	0	0	0	0	0
Total	12	22	0	0	34

Alcohol Test Given	34
None	33
Blood	0
Urine	0
Breath	0
Vitreous	0
Refused	0
Not reported	1

Drug Test Given	34
None	33
Blood	0
Urine	0
Breath	0
Vitreous	0
Refused	0
Not reported	1

Drug Test Result	34
Negative	0
Cannabis	0
Central Nervous System depressants	0
Central Nervous System stimulants	0
Hallucinogens	0
Inhalants	0
Narcotic Analgesics	0
Dissociative Anesthetic (PCP)	0
Prescription Drug	0
Not reported	34
Other	0

Drug/Alcohol Related	19
Drug	0
Alcohol (< Statutory)	0
Alcohol (Statutory)	0
Drug and Alcohol (< Statutory)	0
Drug and Alcohol (Statutory)	0
Refused	0
Under Influence of Alcohol/Drugs/Medications	0
None Indicated	19

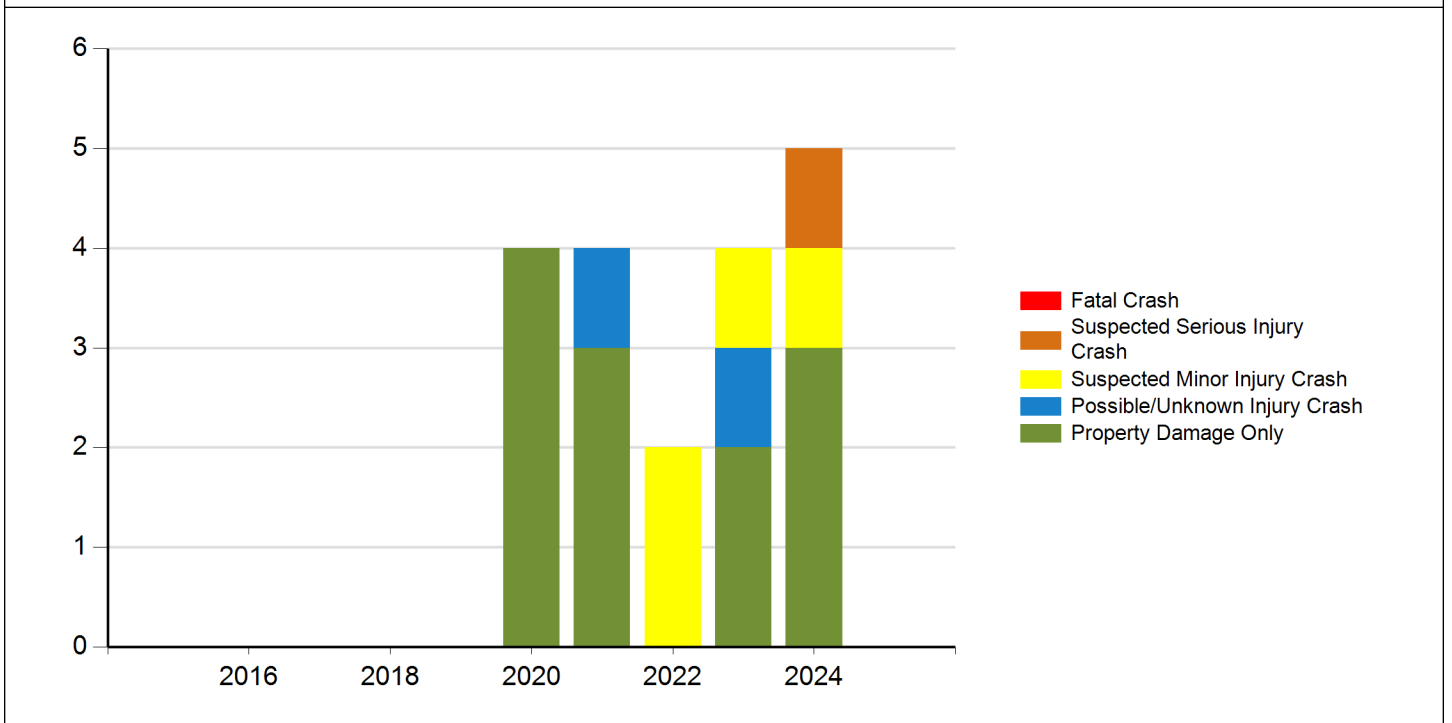


Iowa Crash Analysis Tool
Quick Report
2020-2024

Crash Severity - Annual

Crash Year	Fatal Crash	Suspected Serious Injury Crash	Suspected Minor Injury Crash	Possible/Unknown Injury Crash	Property Damage Only	Total
2015	0	0	0	0	0	0
2016	0	0	0	0	0	0
2017	0	0	0	0	0	0
2018	0	0	0	0	0	0
2019	0	0	0	0	0	0
2020	0	0	0	0	4	4
2021	0	0	0	1	3	4
2022	0	0	2	0	0	2
2023	0	0	1	1	2	4
2024	0	1	1	0	3	5
2025	0	0	0	0	0	0
Total	0	1	4	2	12	19

Severity/Year



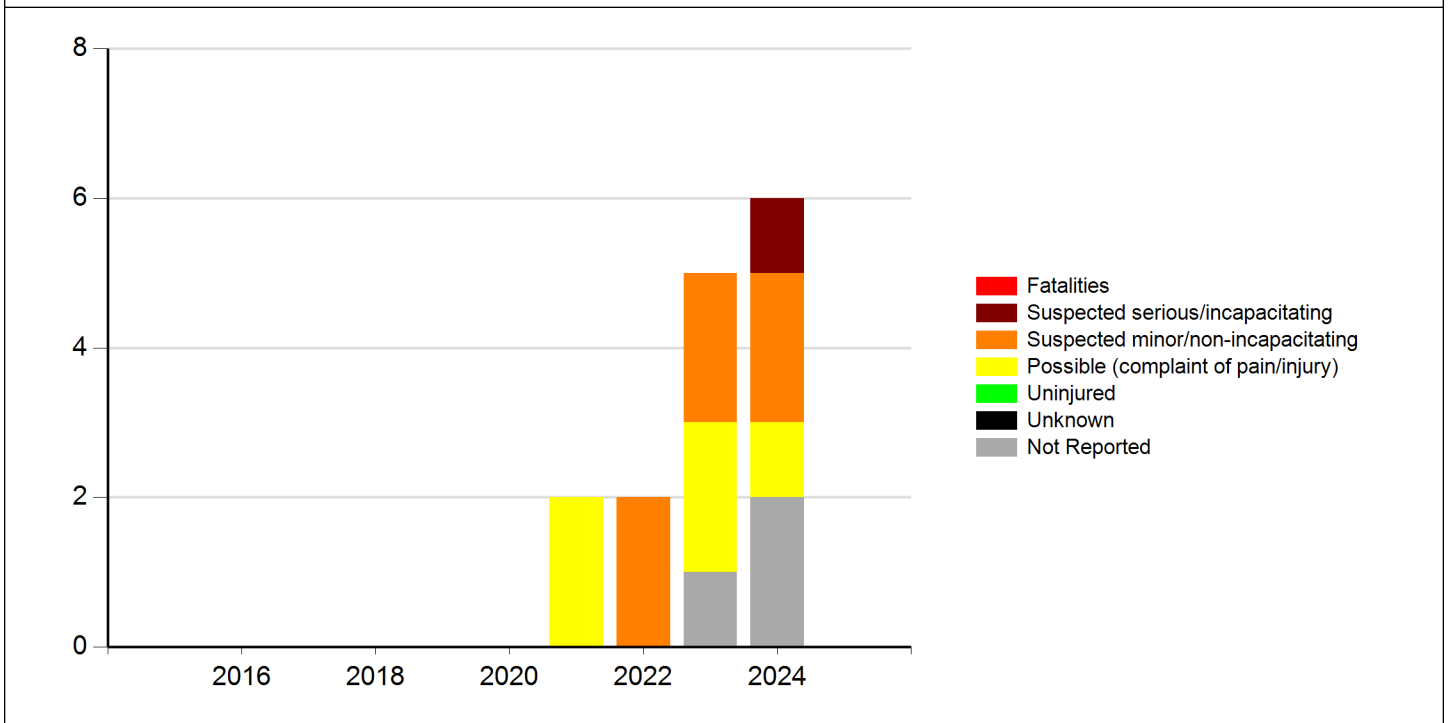


Iowa Crash Analysis Tool
Quick Report
2020-2024

Injury Status - Annual

Crash Year	Fatalities	Suspected serious/incapacitating	Suspected minor/non-incapacitating	Possible (complaint of pain/injury)	Uninjured	Unknown	Not Reported	Total
2015	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0
2021	0	0	0	2	0	0	0	2
2022	0	0	2	0	0	0	0	2
2023	0	0	2	2	0	0	1	5
2024	0	1	2	1	0	0	2	6
2025	0	0	0	0	0	0	0	0
Total	0	1	6	5	0	0	3	15

Injury Status/Year





Meeting the following criteria

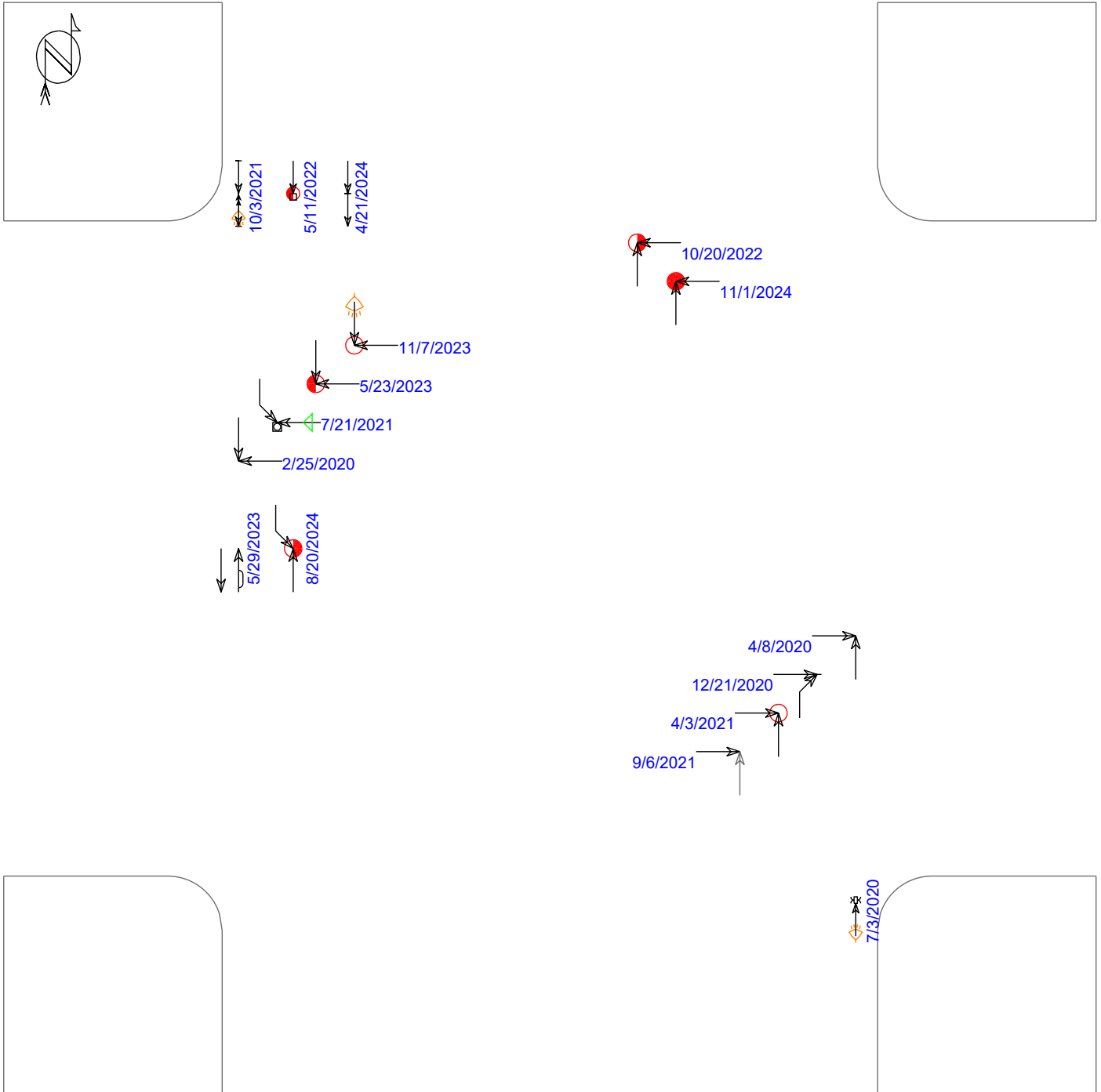
Jurisdiction: Statewide
Year: 2020, 2021, 2022, 2023, 2024
Map Selection: Yes
Filter: None

Analyst Information

Collision Diagram

19 Crashes

Clear



(3) crashes could not be placed in this schematic

- ← Straight
- ←+ Stopped
- ← Unknown
- ↔ Backing
- ↔ Overtaking
- ↔ Sideswipe

- ▬ Parked
- ↗ Erratic
- ↗ Out of control
- ↗ Right turn
- ↗ Left turn
- ↗ U-turn

- ★ Fatal
- Major
- ◐ Minor
- Injury
- × Pedestrian
- ⊗ Bicycle

Fixed objects:

- General
- ▣ Signal
- ▣ Tree
- ⊠ Pole
- ⊠ Curb
- ⊠ Animal
- ⚡ DUI
- ⚡ 3rd vehicle
- ⚡ Nighttime

Crash Magic Online 12/29/2025

