

Safety Audits in Iowa

**National RSA Peer Exchange
April 29-10, 2008
Little Rock, AR**

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State Safety Engineer
Office of Traffic and Safety

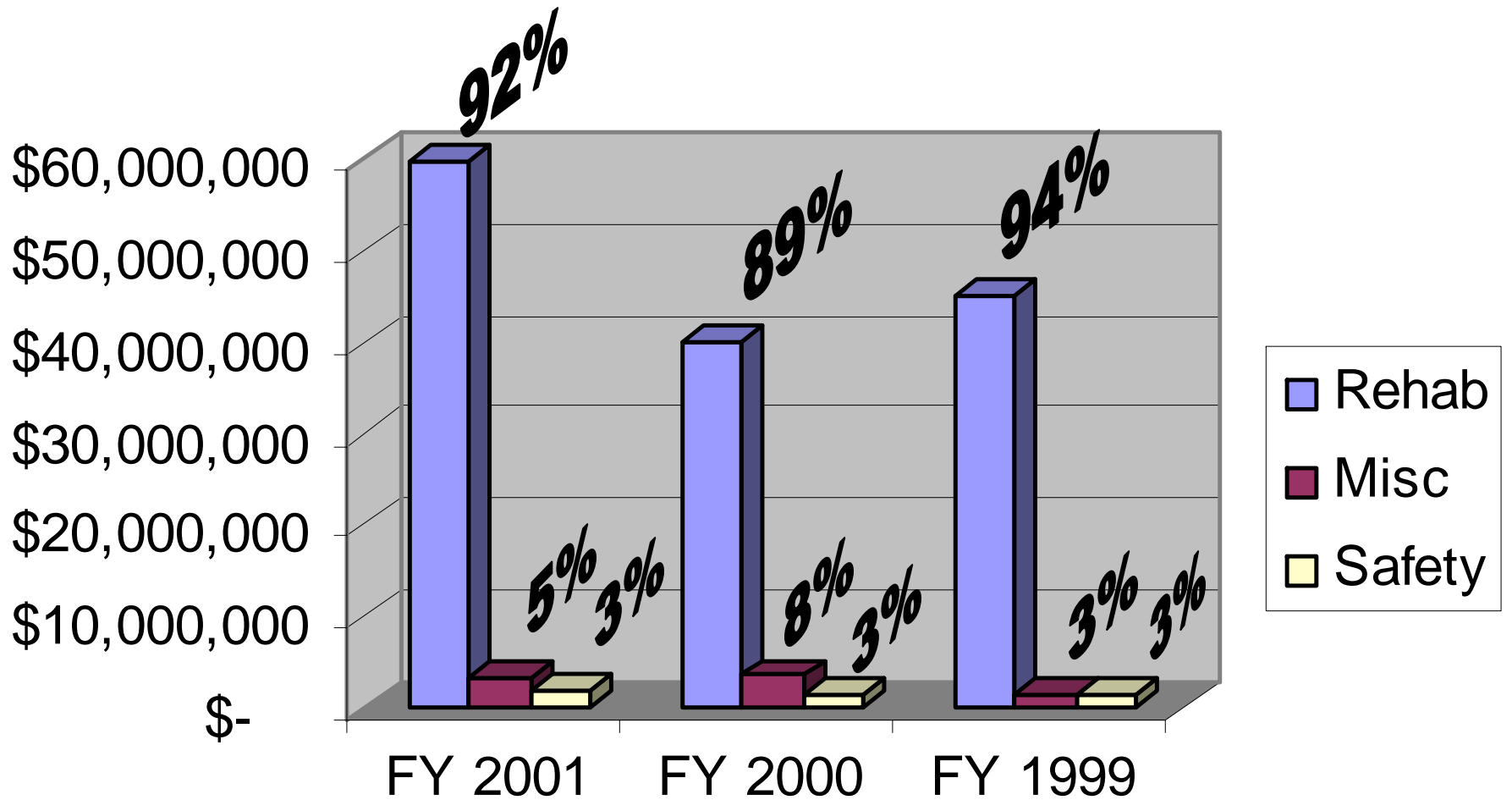
Iowa Department of Transportation

From 3R to 1R

- We were going to resurface the roads and nothing else with those projects
- 3 inch overlay every 20 years would cost \$100,000,000 a year so that was our program goal
- Safety and incidental items slowed this down

End of 1999

3R Project Annual Cost Breakdown



Where Do Safety Improvements Fit Now?

- Corridor Safety Improvements?
 - Instead of 6 to 15 mile resurfacing project cover longer stretches of corridor with safety improvements.
 - Better prices due to larger quantities.
 - New York presentation.

Didn't catch on but got everyone talking.

Reorganization

March 20, 2000

District Design Staff

- Assistant District Engineers
 - 1 Design Engineer
 - 1 Traffic and Safety Engineer
 - 2 Construction Engineers
 - 1 County Engineer
 - 1 Consultant Design Engineer
- Resident Maintenance Engineers became Staff Engineers in charge of 3R concepts and plans.
- Design Technicians came from various backgrounds.

Transition from Central Office to Districts

- Set up a 3R transition team
- Documented process
 - 3R Pre-Concept Inventory form
 - Shell for Concepts
 - Flow chart for process

No more transition – March 1, 2001
Districts do 3R

CADD Training

Design

Pavement Management

Plan Development

Concept Development

Safety

Relocation

- Supply them with information and training to make decisions.
 - Thinking Beyond the Pavement/Context Sensitive Design Workshop
 - Safety & Operational Effects of Highway Design Features on 2-Lane Rural Highways
 - 3R Workshop
 - Intersection Safety Workshop
 - Highway Design for Older Drivers And Pedestrians Workshop



Safety

3R Safety Audit Field Reviews

- Experience resided in the central office.
 - Needed a method to share this knowledge.
- We went from one office responsible for the program to six Districts.
 - Need a platform to share experience across the State.
- Not a critique or thou shall do in the future.

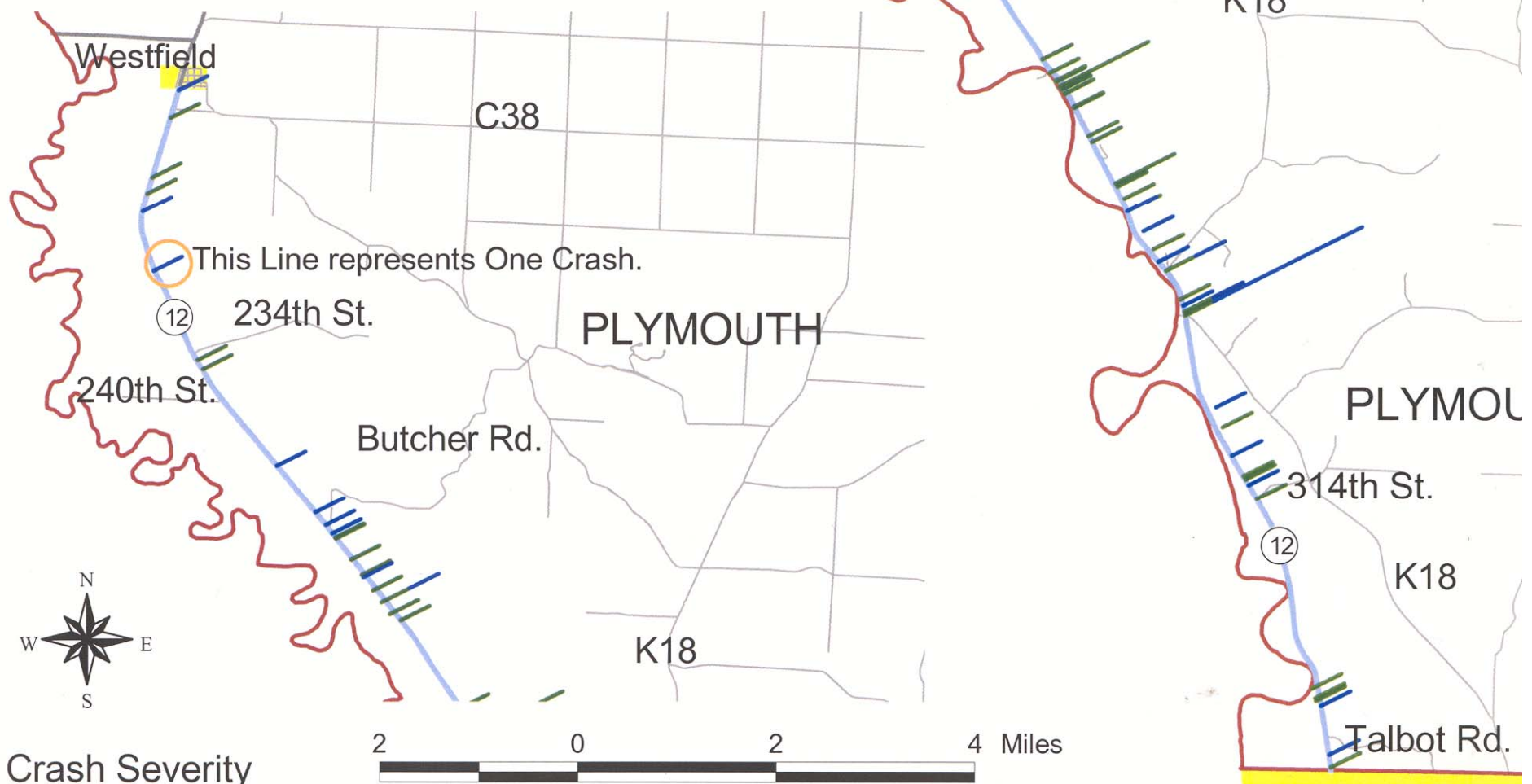
The word "Safety" is written in a bold, 3D, orange-to-yellow gradient font, slanted upwards to the right. It is positioned in the bottom left corner of the slide, partially overlapping a decorative blue arc that sweeps across the bottom left.



**IA 12 (Sioux City to the town of Westfield) Crashes by Collision Type
(1996-2000)**

Year	Collision Type	Crashes				Injuries					
		Total	Fatal	Injury	PDO	Total	Fatalities	Major	Minor	Possible	Unknown
1996-2000	Head-on	1	0	1	0	2	0	1	0	0	1
	Broadside/Left Turn	0	0	0	0	0	0	0	0	0	0
	Rear End	1	0	1	0	3	0	0	3	0	0
	Rear End/Right Turn	0	0	0	0	0	0	0	0	0	0
	Rear End/Left Turn	0	0	0	0	0	0	0	0	0	0
	Sideswipe/Opposite Direction	0	0	0	0	0	0	0	0	0	0
	Sideswipe/Same Direction	0	0	0	0	0	0	0	0	0	0
	Sideswipe/Right Turn	0	0	0	0	0	0	0	0	0	0
	Sideswipe/Left Turn	0	0	0	0	0	0	0	0	0	0
	Sideswipe/Dual Left Turn	0	0	0	0	0	0	0	0	0	0
	Sideswipe/Dual Right Turn	0	0	0	0	0	0	0	0	0	0
	Broadside/Right Angle	2	0	2	0	4	0	0	2	2	0
	Broadside/Right Entering	0	0	0	0	0	0	0	0	0	0
	Broadside/Left Entering	0	0	0	0	0	0	0	0	0	0
	Head-on/Left Entering	0	0	0	0	0	0	0	0	0	0
	Sideswipe/Both Left Turning	0	0	0	0	0	0	0	0	0	0
	Other	9	0	2	7	3	0	0	3	0	0
	Single	40	0	15	25	17	0	3	7	7	0
	Pedestrian	1	0	1	0	1	0	1	0	0	0
	Bicycle	0	0	0	0	0	0	0	0	0	0
Parked	0	0	0	0	0	0	0	0	0	0	
TOTAL	54	0	22	32	30	0	5	15	9	1	

North Section (1996-2000) South Section



- Crash Severity**
- Injury (21)
 - Property Damage Only (43)
- IA 12 AADT**
- 1700 - 2000
- County Boundaries
 - Primary Roads
 - Public Roads



TRAFFIC SAFETY DATA SERVICE
<http://www.ctre.iastate.edu/itsds/>
 Phone: 515-294-2329

IOWA GOVERNOR'S TRAFFIC SAFETY BUREAU

Disclaimer: The Center for Transportation R...



- **Troy Jerman TAS**
- **Tim Simodynes TAS**
- **Jerry Roche FHWA**
- **Reg Souleyrette ISU- CTRE**
- **Hossein Naraghi CTRE-ITSDS**
- **Jack Latterell Consultant**
- **Rich Michaelis District Engineer-3**
- **Tony Lazarowicz Asst. District Eng'r.-3**
- **Dwight Rorholm Maintenance-District 3**
- **Mark Wright Design-District 3**

Safety Improvements Incorporated Into 3R Projects



Delineate Obstacle

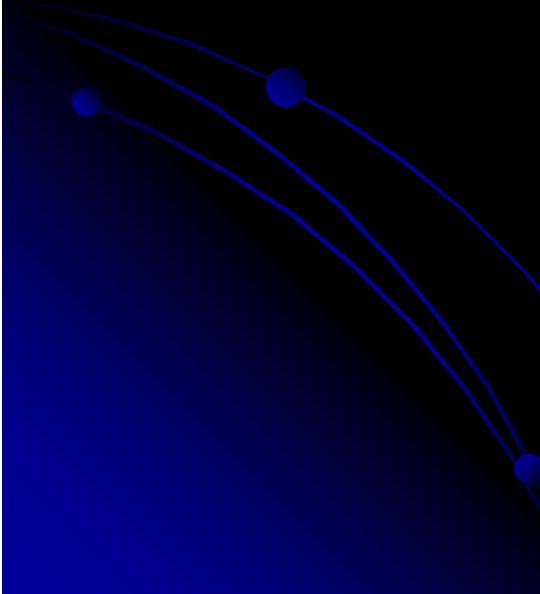


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Safety Improvements Incorporated Into 3R Projects



Shield Obstacle



Safety Improvements Incorporated Into 3R Projects



Safety Improvements Incorporated Into 3R Projects



Safety Improvements Incorporated Into 3R Projects

Reduce Impact Severity



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Relocate Obstacle

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Remove Obstacle

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**Flatten
Transverse
Slopes**

Safety Improvements Incorporated Into 3R Projects



**Safety
Dikes**

Safety Improvements Incorporated Into 3R Projects

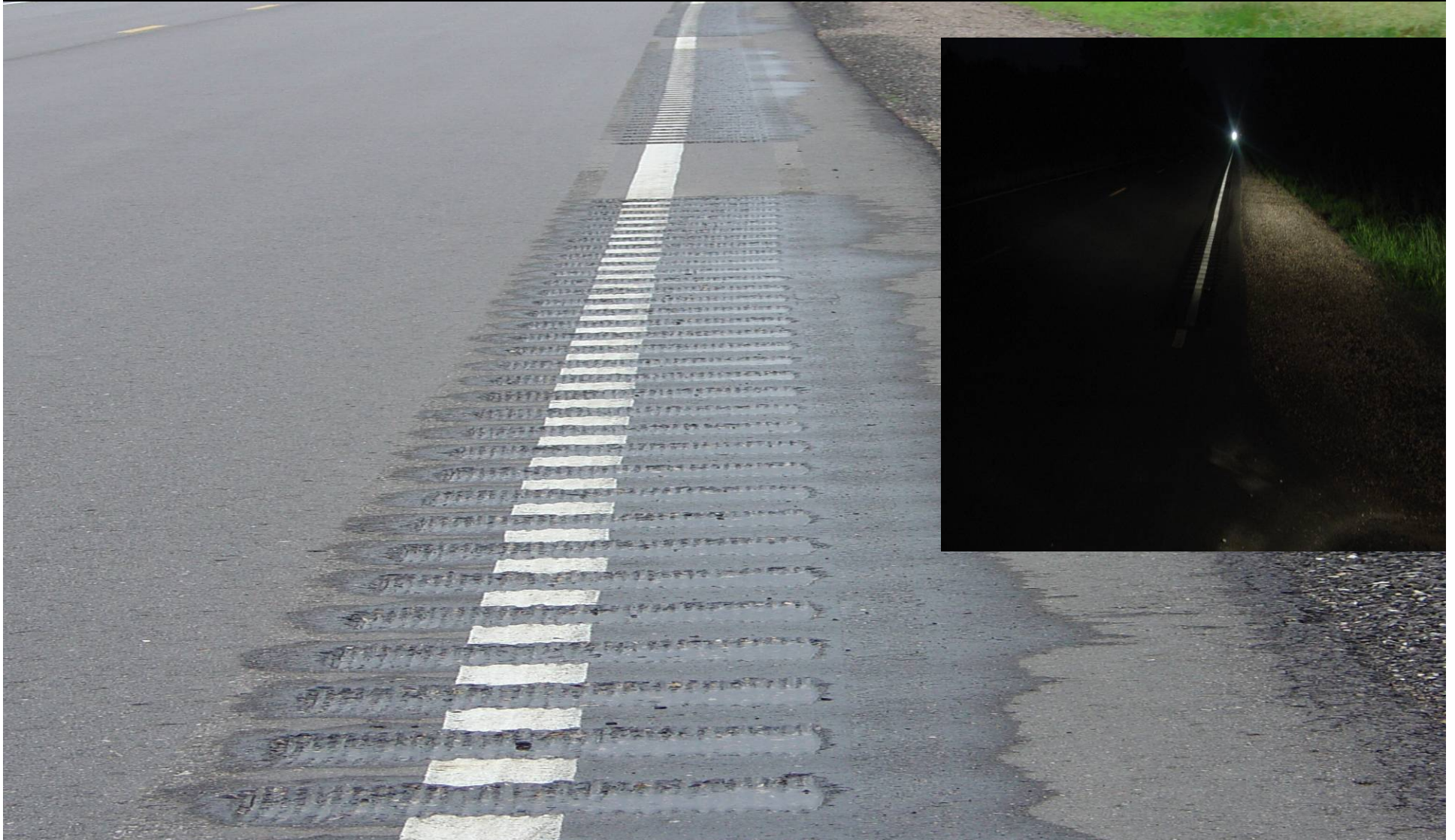


**4' Paved
Shoulder
s with
milled
rumble
strips**



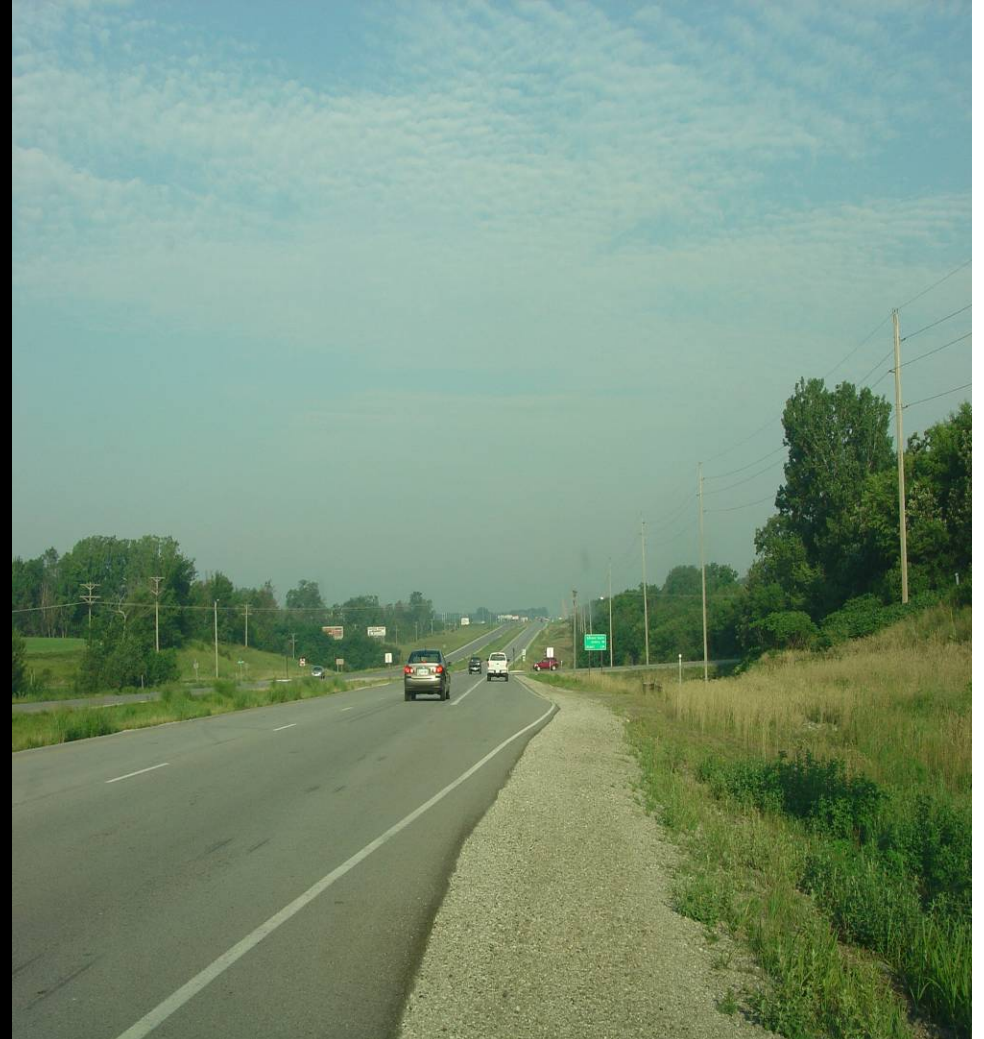


Safety Improvements Incorporated Into 3R Projects



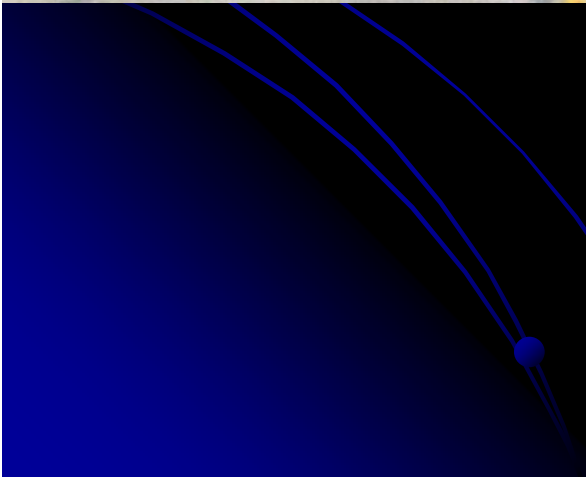
Safety Improvements Incorporated Into 3R Projects

Add turn lanes





Safety Improvements Incorporated Into 3R Projects





Curves

- Super elevation: add or correct
- Pave shoulders: outside & inside
- Shoulder rumble strips
- Flatten outside slope
- Remove objects outside curve
- Delineate, chevron, RPM's (raised pavement markers)
- Advisory speed plate, ball bank advisory



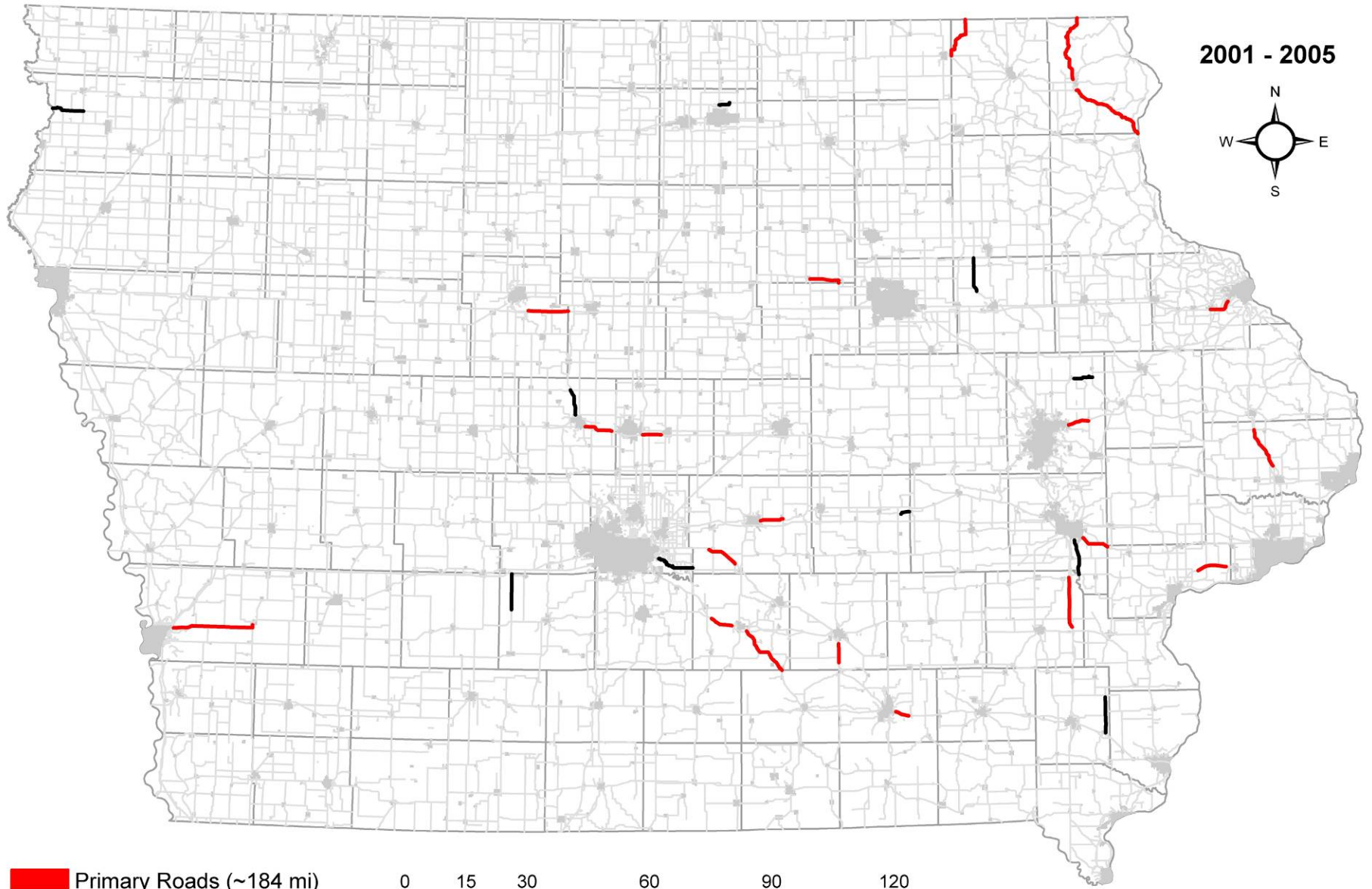
Golden Ave

Safety Corridors

CHSP Administrative Strategy

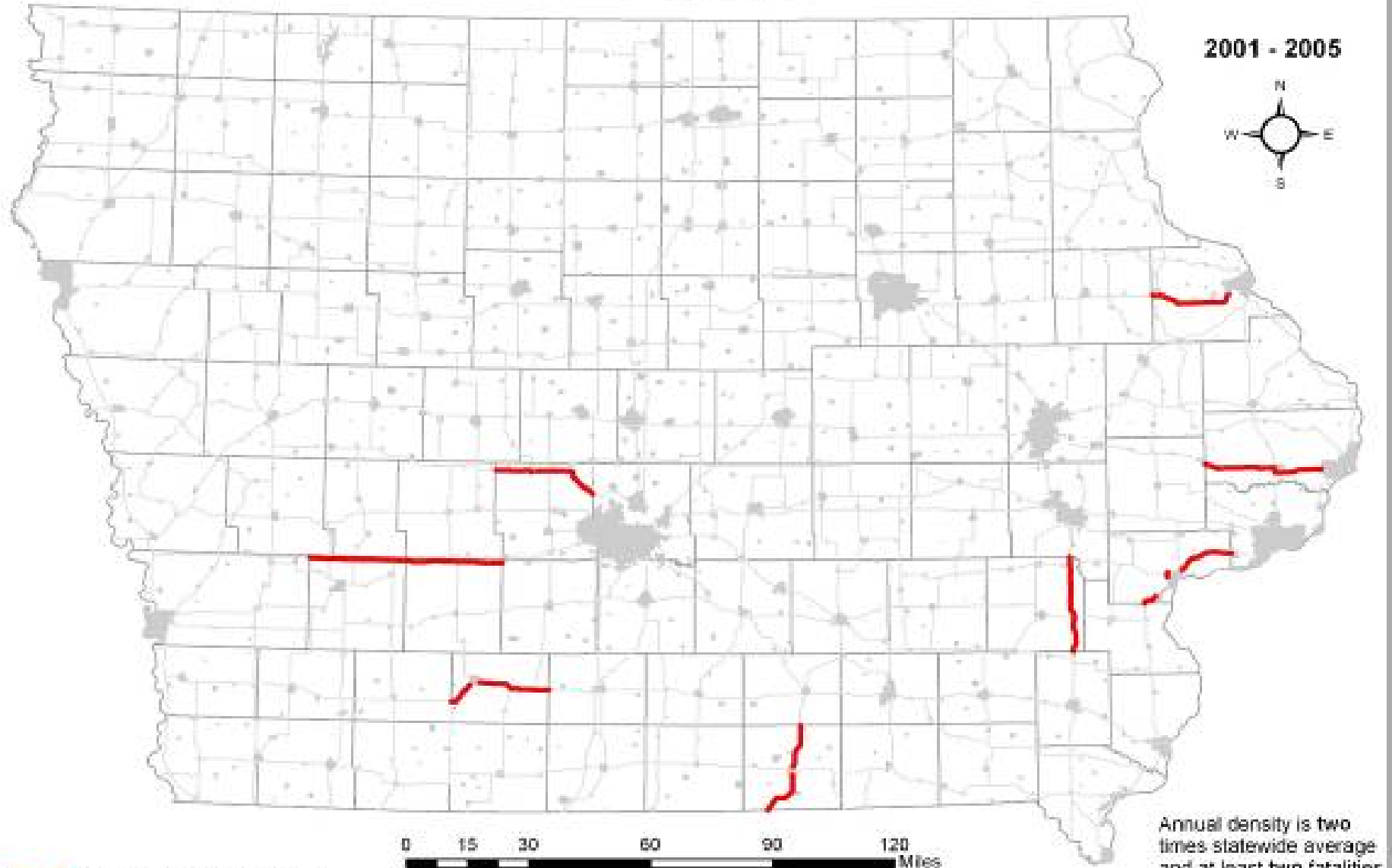
Identify “Safety Corridors” and use multi-disciplinary strategies to mitigate specific crash causes or conditions.

Rural Primary and Paved Secondary Roads with Highest Fatal and Major Injury Crash Density for Single Vehicle Run-off-the-Road Crashes

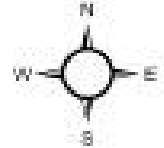


Annual Fatalities & Major Injuries per Mile Involving Unbelted Drivers/Passengers*

Primary Roads State of Iowa



2001 - 2005



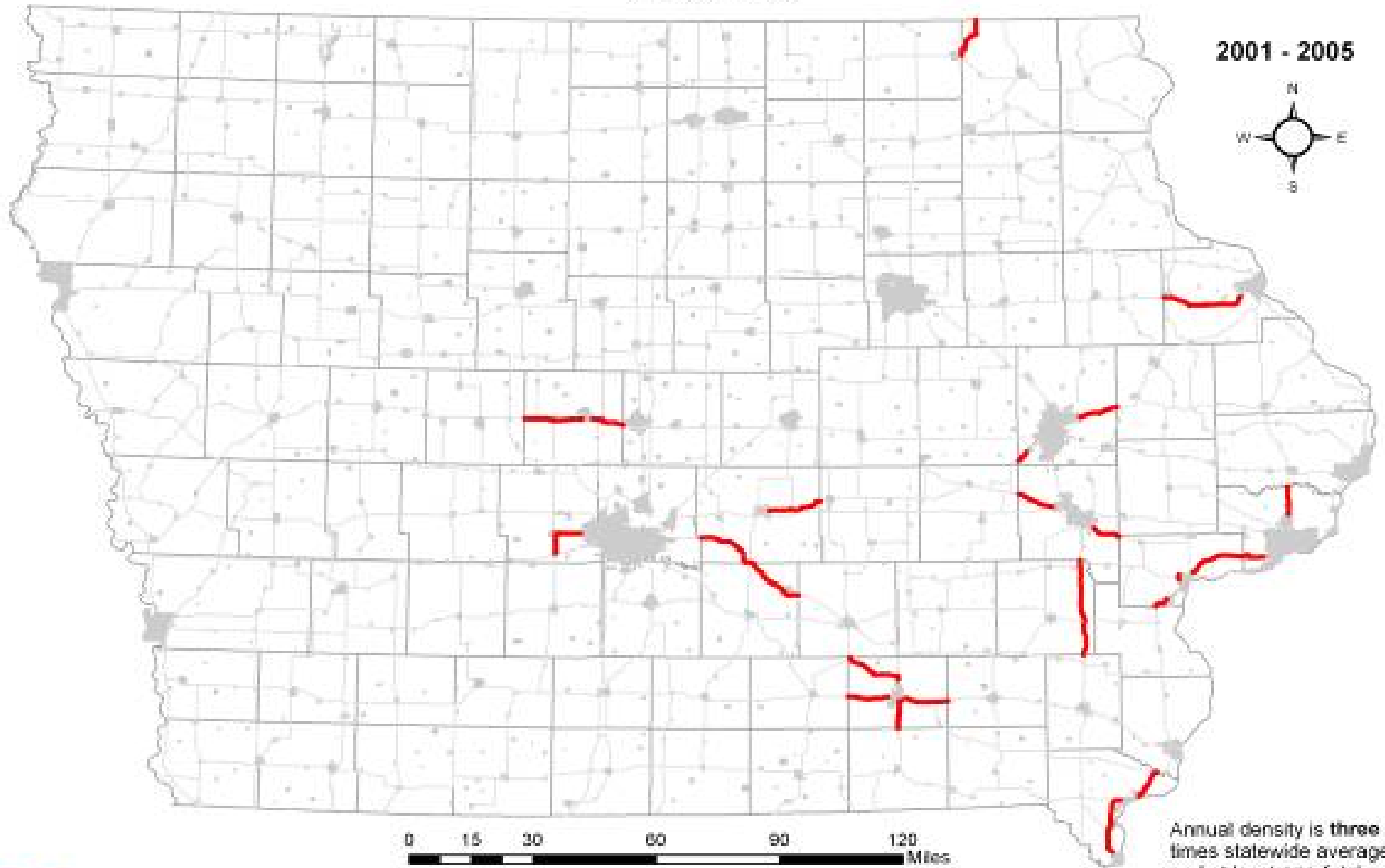
 Primary Roads (~209 mi)

0 15 30 60 90 120 Miles

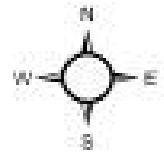
* Non-Motorcyclist

Annual density is two times statewide average and at least two fatalities or major injuries have occurred per year.

Annual Fatal & Major Injury Speed-related* Crashes per Mile Rural Expressways & Two-lane Primary Roads State of Iowa



2001 - 2005



0 15 30 60 90 120 Miles

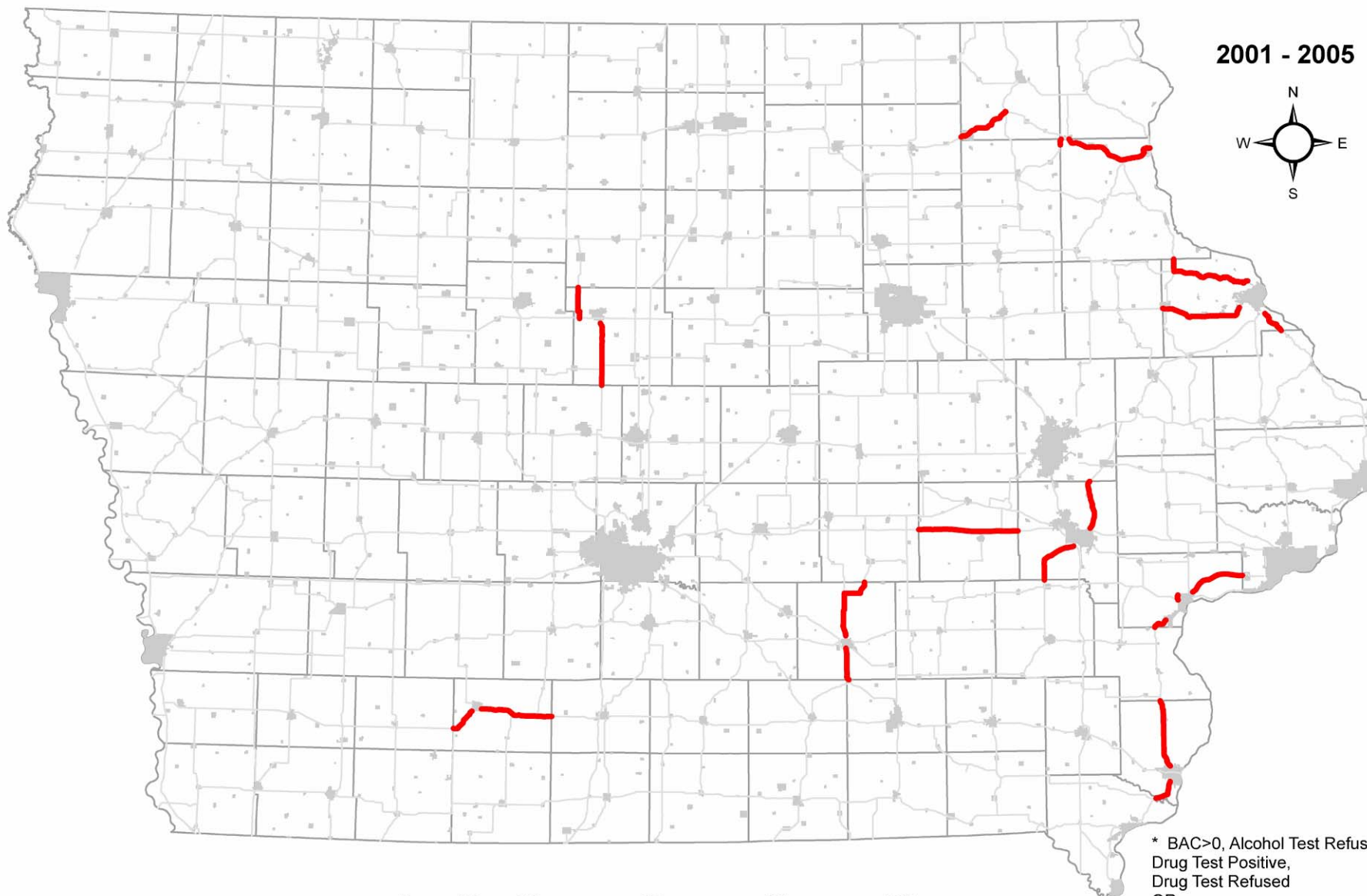
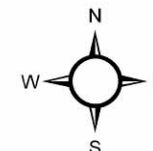
 Primary Roads (~249 mi)

* Driver Contributing Circumstances:
Exceeded Authorized Speed, Driving Too Fast for Conditions,
Lost Control, Followed Too Close OR Over Correcting/Over Steering

Annual density is **three** times statewide average and at least **one** fatal or major injury crash has occurred per year.

Rural Primary Roads with the Highest Fatal and Major Injury Crash Density Involving an Impaired Driver*

2001 - 2005



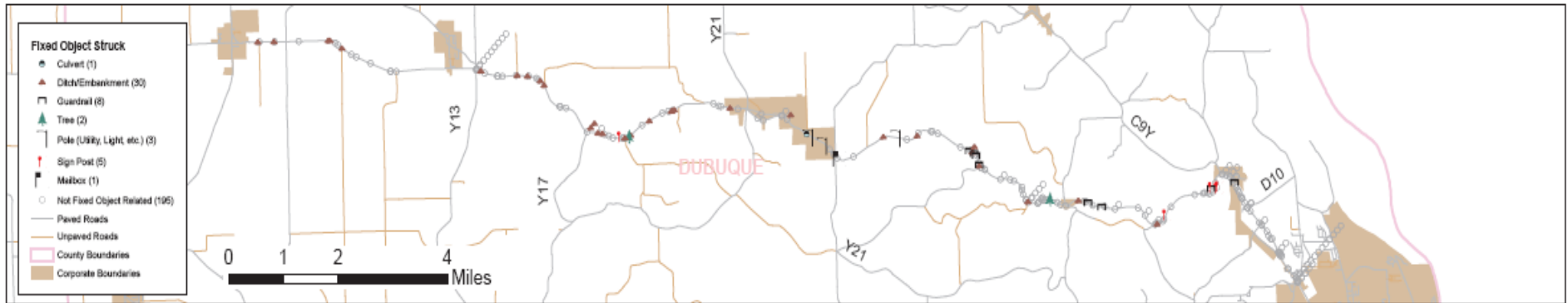
 Primary Roads (~247 mi)

0 15 30 60 90 120 Miles

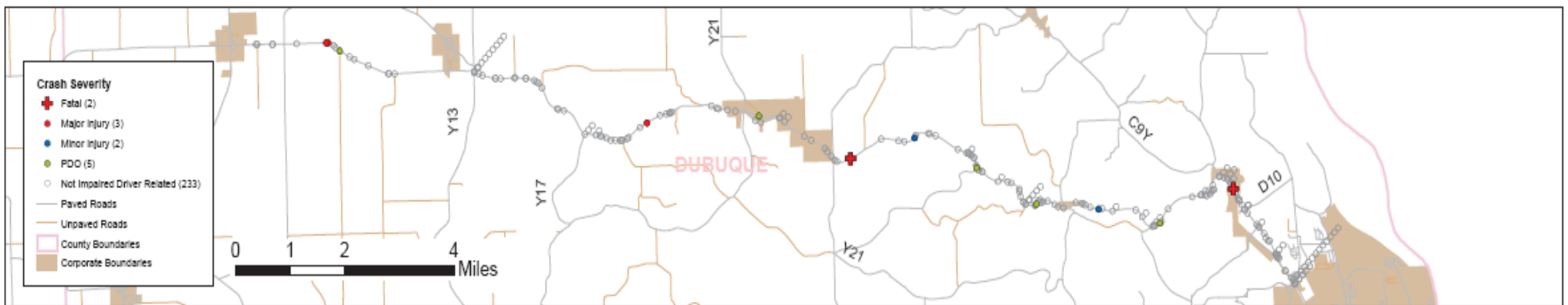
* BAC>0, Alcohol Test Refused,
Drug Test Positive,
Drug Test Refused
OR
Driver Condition:
Under Influence of
Alcohol/Drugs/Medication

U.S. 52 Road Safety Audit 2007

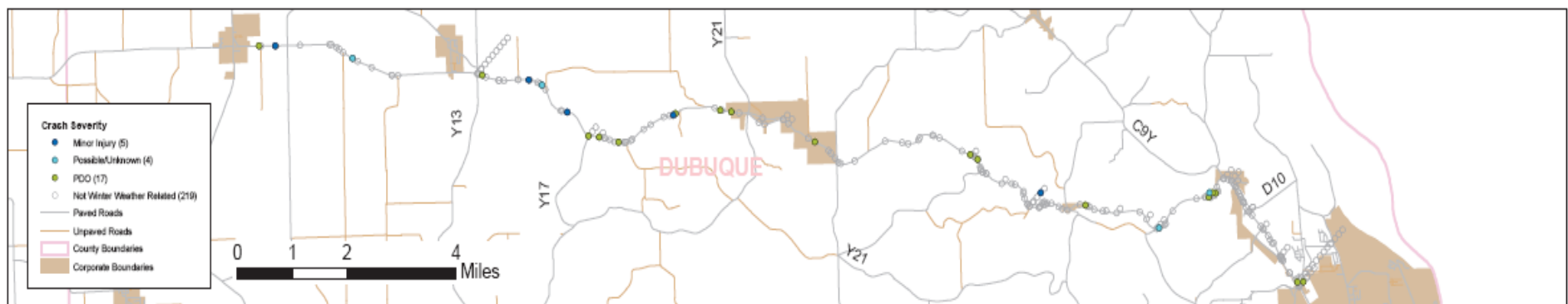
Fixed Object Related Crashes ('02-'06)



Impaired Driver Crashes ('02-'06)

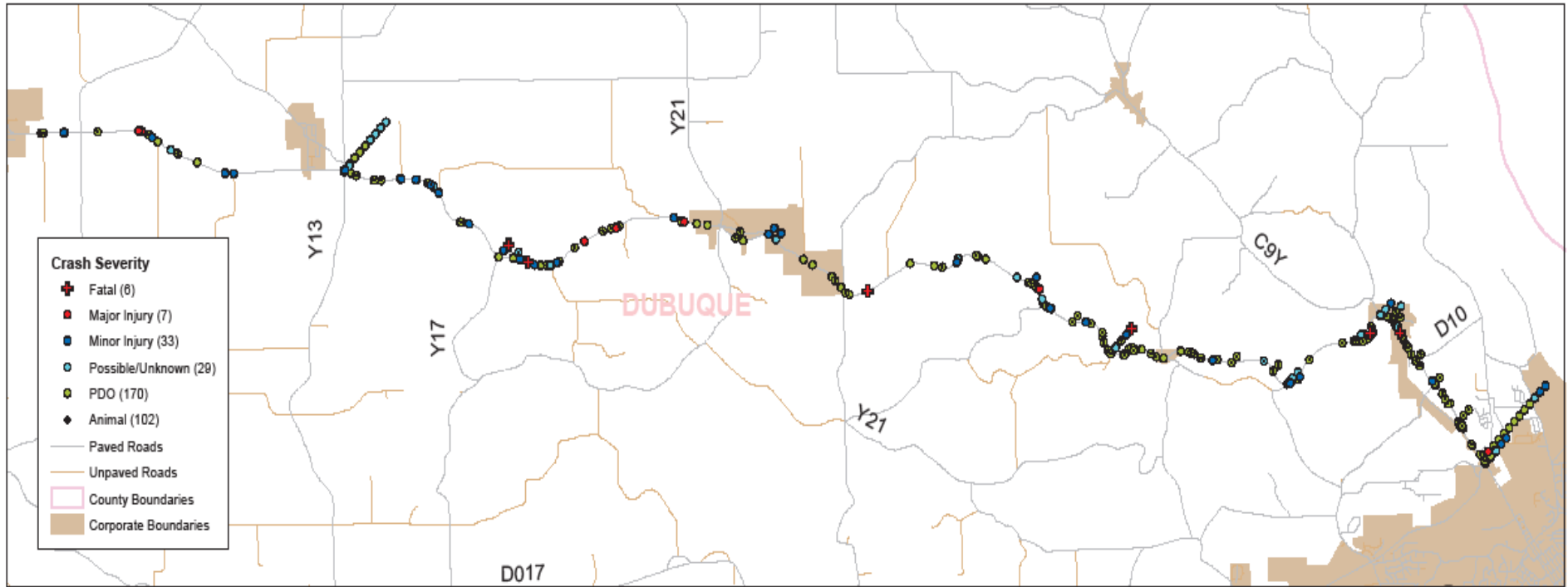


Winter Weather Related Crashes ('02-'06)

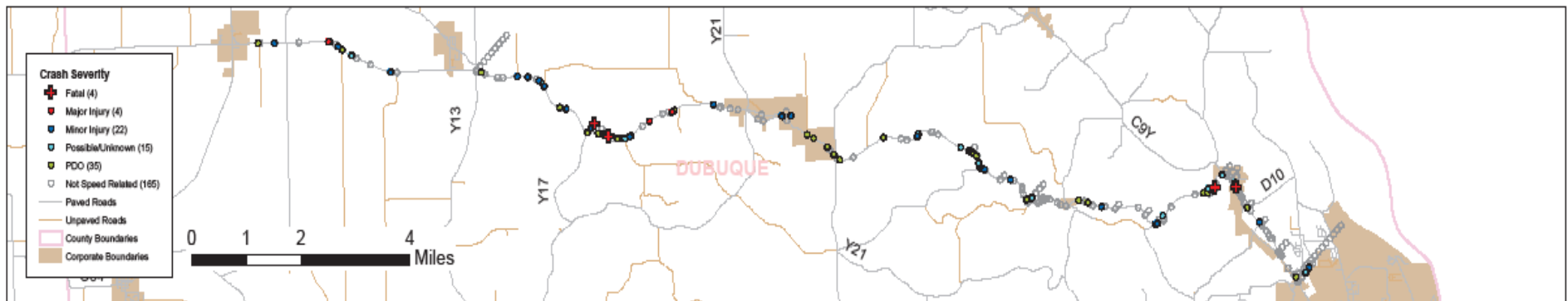


U.S. 52 Road Safety Audit 2007

Crash Severity and Animal Crashes ('02-'06)



Speed Related Crashes ('02-'06)



Safety Corridor Multi-Disciplinary Safety Audits





*“The care of human life and happiness
...is the first and only objective of good
government.”*

-Thomas Jefferson



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