27th meeting of the

IOWA FREIGHT ADVISORY COUNCIL

September 6, 2019
10:00 AM to 2:00 PM
Courtyard Marriot
2405 SE Creekview Dr, Ankeny, IA 50021

Meeting input objectives

1. Identification of factors that should be considered when systematically evaluating the criticality of infrastructure and the relative importance of such factors.
2. Identification of innovative mechanisms, approaches, and techniques to replacing and repairing local infrastructure that could be promoted and utilized throughout the state.

10:00 AM	**Safety Briefing**	**Amanda Martin** **Iowa DOT**
	Welcome and Introductions *Ice-breaker: What is a technological innovation in transportation that we need to understand more thoroughly?*	**Mike Steenhoek, Chair** **Soy Transportation Coalition**
	FMCSA Hours of Service Proposal Brief discussion on new Hours of Service proposals released in August 2019.	**Chief David Lorenzen** **Iowa DOT**
10:20 AM	**Evaluation of Infrastructure Criticality - Context** An overview of past and current efforts to systematically evaluate the criticality of transportation infrastructure in the state.	**Sam Hiscocks** **Iowa DOT**
	Past • Crude Oil and Biofuels Rail Transportation Study (2016) • State Freight and Rail Plans bottleneck analysis (2017) • ICE-Ops winter weather and flooding susceptibility	**Tara Cullison** **Bi-State MPO**
	Current • Criticality analysis for use of Emergency Relief (ER) funds • Resilience and Durability to Extreme Weather Pilot Program	
11:00 AM	**Evaluation of Infrastructure Criticality – Input Exercise** A facilitated discussion around the factors that should be considered when systematically evaluating the criticality of infrastructure and the relative importance of such factors.	**Mike Steenhoek, Chair** **Soy Transportation Coalition**

11:45 AM	**Lunch**	
12:30 PM	**Innovative Approaches to Local Infrastructure** A presentation on the use of innovative mechanisms, approaches, and techniques to replacing and repairing local roads and bridges.	**Brian Keierleber** **Buchanan County**
1:15 PM	**Infrastructure Design and Construction to Improve Resiliency** An overview of lessons learned from past emergency weather events such as specific types of infrastructure that were problematic and specific design strategies that have been implemented to improve resiliency.	**Dave Claman** **Iowa DOT**
1:45 PM	**Innovative Approaches to Infrastructure Discussion** Discussion of innovative approaches to infrastructure and how they can be further promoted and utilized throughout the state.	**Mike Steenhoek, Chair** **Soy Transportation Coalition**
2:00 PM	**Adjourn**	

2019 meetings: December 13

27th meeting of the

IOWA FREIGHT ADVISORY COUNCIL

September 6, 2019
10:00 AM to 2:00 PM
Courtyard Marriot
2405 SE Creekview Dr, Ankeny, IA 50021

Members

x	Jillian Walsh for Andy Cernin	x	Bob Rafferty for Delia Moon-Meier
x	Tom Determann	x	James Niffenegger
x	Greg Dickinson	x	Kelli O'Brien
x	Don Egli	x	Joe Parsons
	Greg Jenkins	x	Scott Bannister for Dan Sabin
x	Calean Kokjohn	x	Mike Steenhoek
x	Ron Lang	x	Mark White for Reilly Vaughan
x	Brent McKenzie	x	Ron White
x	Don McDowell	x	Tim Woods

Ex-Officio Members

	Todd Ashby		Mike Norris
	Mike Hadley		Paul Ovrom
	Mark Johnson		Robert Palmer
x	Michael Kober	x	Joseph Rude
x	Sean Litteral	x	Andy Barnes for Col. Steven Sattinger
x	Mark Lowe		Louis Vander Streek
x	Shirley McGuire	x	Jennifer Wright

Iowa DOT

	Stu Anderson	x	Justin Meade
x	Phou Baccam	x	Phil Meraz
	Mikel Derby	x	Tammy Nicholson
x	Sam Hiscocks	x	Garrett Pedersen
x	Laura Hutzell		Charlie Purcell
x	Alex Jansen		Angel Robinson
x	Renee Jerman		John Selmer
x	David Lorenzen		Melissa Spiegel
x	Craig Markley	x	Jeff von Brown
	Scott Marler		Andrea Henry
x	Amanda Martin		Susan Fenton

Guests

x	Tara Cullison (Bi-State Regional Commission)	x	Beau Wittowski (Iowa DOT)
x	Brian Keierleber (Buchanan County)	x	David Claman (Iowa DOT)
x	Mark Nahra (Woodbury County)		

Meeting input objectives

1. Identification of factors that should be considered when systematically evaluating the criticality of infrastructure and the relative importance of such factors.
2. Identification of innovative mechanisms, approaches, and techniques to replacing and repairing local infrastructure that could be promoted and utilized throughout the state.

10:00 AM	**Safety Briefing**	**Amanda Martin** **Iowa DOT**
	Welcome and Introductions *Ice-breaker: What is a technological innovation in transportation that we need to understand more thoroughly?*	**Mike Steenhoek, Chair** **Soy Transportation Coalition**
	FMCSA Hours of Service Proposal Brief discussion on new Hours of Service proposals released in August 2019.	**Chief David Lorenzen** **Iowa DOT**

Amanda Martin opened the meeting with a quick safety briefing. Mike Steenhoek, the FAC Chair, discussed the topics to be covered and kicked off the meeting with an icebreaker. The question "What is a technological innovation in transportation that we need to understand more thoroughly?" was posed to the group. Meeting attendees responded as they introduced themselves.

Responses included:

- Emerging technologies should be embraced, even if the window within which they were expected to have been adopted has passed.
- There is a need to adopt innovative methods to construct and maintain infrastructure.
- Automated vehicles and otherwise would certainly be embraced in rural regions within the state. This is necessitated by agricultural adoption, aging farmers and depopulation.
- The quality of gravel roads, the "headstreams" of freight flow within the state.
- The growing pains encountered with the adoption of Positive Train Control (PTC) on rail networks.
- That new safety mandates such as PTC, and Electronic Logging Devices (ELD) could ultimately lead to greater efficiency within those affected networks.
- The need to examine blockchain's relevance to supply chain management; as well as new modes of transport such as the hyperloop.
- Innovative financing and delivery methods for transportation projects.
- The value of the data generated by autonomous and augmented vehicles, PTC, ELD and the importance of data-sharing relationships with OEMs.
- The value in exploring different axle configurations.
- Utilizing more environmentally friendly de-icers.
- Reducing interactions between vehicles to improve operation.
- New registration technologies and a new streamlined process to the oversize/overweight (OSOW) permitting system.

Beau Wittowski gave a presentation on the Hours of Service proposals released in August 2019. Advanced Notice of Proposed Rulemaking (NPRM) were published and open for comment from August 23 to October 10, 2018. More than 5,000 comments were received.

The goals of the proposed rules are meant to improve safety by providing flexibility to the hours-of-service regulations used by commercial motor vehicle drivers. The proposed update is designed to reduce the need for drivers to "race the clock" by driving through congestion or to find safe parking thus improving safety. The proposal will also provide an estimated $270 million in regulatory savings.

FMCSA is still requesting input and data from both industry and the public and is specifically interested in soliciting feedback regarding:

- Any supporting data on the possibility of a 6 and 4 hour split break
- What operations would benefit from multiple off-duty periods totaling 3 hours?
- How often do work shifts require an individual to drive more than 8 hours without at least a 30-minute change in duty status?
- Whether drivers utilize this provision more often after the proposed changes if adverse conditions cannot be predicted?

Additional information can be found at: https://www.fmcsa.dot.gov/content/hours-service-nprm

10:20 AM	**Evaluation of Infrastructure Criticality - Context** An overview of past and current efforts to systematically evaluate the criticality of transportation infrastructure in the state.	**Sam Hiscocks** **Iowa DOT** **Tara Cullison** **Bi-State MPO**

Past

- Crude Oil and Biofuels Rail Transportation Study (2016)
- State Freight and Rail Plans bottleneck analysis (2017)
- ICE-Ops winter weather and flooding susceptibility

Current

- Criticality analysis for use of Emergency Relief (ER) funds
- Resilience and Durability to Extreme Weather Pilot Program

Sam Hiscocks provided an overview of current and previous efforts the Iowa DOT undertook to evaluate the criticality of transportation infrastructure within the state.

Crude Oil and Biofuels Rail Transportation Study (2016)

- Determine risks, vulnerabilities, prevention methods, preparedness, and response capabilities for crude oil and biofuels railroad transportation in Iowa.
- Analysis included: Routes and volumes of rail traffic; length of rail segments transporting crude or ethanol; population of adjacent communities, critical facilities; risks to public health, safety, and environment; locations of previous incidents; likelihood of future incidents; prevention and mitigation plans and programs.
- Link: https://iowadot.gov/iowarail/safety/full-final-CBR-Biofuels.pdf

State Freight and Rail Plans bottleneck analysis (2017)

- Analyzed modes to identify physical, operational, and regulatory bottlenecks in the freight system.
- Highways were analyzed using a VCAP (Value, Condition, Performance) matrix.

- Rail bottlenecks were identified by flood-prone areas, swing-span bridges, and other locations identified by rail companies.
- Waterway bottlenecks were identified by locks and swing-span bridges.
- Link: https://iowadot.gov/iowainmotion/files/Iowa_State_Freight_Plan_FINAL.pdf

ICE-Ops winter weather and flooding susceptibility (2017)

- Infrastructure Condition Index for Operations (ICE-Ops)
- Screening tool to support data-driven decisions for prioritization of limited resources.
- Factors included: AADT (Average Annual Daily Traffic), All bottleneck occurrences per mile, freight bottleneck occurrences per mile, incident frequency per mile, BTI (Buffer Time Index), event center buffer mileage, weather-sensitive corridor mileage, and Infrastructure Condition Evaluation (ICE) rating
- Link: https://iowadot.gov/TSMO/TSMO-Program-Plan.pdf

Criticality Analysis for Use of Emergency Relief (ER) Funds

- Study undertaken to demonstrate and justify the use of ER funds for betterments used in the design and reconstruction of critical infrastructure impacted by flooding.
- Variables and Factors considered by measuring: Usage by Federal Function Classification (30%), Economic Impact using Truck Traffic Volumes (30%), Social Impact using the Social Vulnerability Index (SoVI) (10%), and Redundancy (System Impact) (30%)
- Factors Classified into quintiles, assigned indices and summed to produce criticality scores into three classes – low, medium, and high criticality.

ISU Resilience and Durability to Extreme Weather Pilot Program

- Define Resilience goals and targets (e.g., functionality of the system after disruptive events);
- Attempt to understand the characteristics of the system;
- Characterize disruption scenarios (e.g., maintenance activities, flooding, snow storms, etc.);
- Estimate Consequences (e.g., replacement cost, economic impact, loss of access, delay, etc.); and
- Find optimized solutions for possible improvements.

Tara Cullison from the Bi-State Regional Commission presented an ongoing FHWA pilot project to conduct a vulnerability assessment in the Quad Cities and determine strategies to mitigate their impacts. The FHWA's "Vulnerability Assessment and Adaptation Framework" provided a structured process for conducting a vulnerability assessment. It suggests ways to use results in practice and features examples from other projects. This study targeted the assessment of multi-modal facilities during extreme weather events within the Quad Cities region. Events such as river flooding and flash flooding; hail and lightning storms, high winds; severe heat events; severe winter events; and tornadoes. Stakeholders were surveyed and interviewed to include additional critical infrastructure and facilities to the list of facilities previously identified.

11:00 AM	**Evaluation of Infrastructure Criticality – Input Exercise** A facilitated discussion around the factors that should be considered when systematically evaluating the criticality of infrastructure and the relative importance of such factors.	**Mike Steenhoek, Chair** **Soy Transportation Coalition**

Mike Steenhoek facilitated a discussion around the factors that should be considered when systematically evaluating the criticality of infrastructure and the relative importance of such factors. The discussion was kicked off by asking how input for criticality measures should be solicited.

Pulling from the previous presentation, it was mentioned that public feedback, when received, is often critical, urgent, and late or untimely. The discussion continued to cover methods to solicit public feedback that are specific and accessible.

Highlights included:

- The importance of "managing expectations;"
- The usefulness of spatially and temporally mapping comments;
- Using social media to shape expectations;
- The value of face-to-face communication;
- The importance of serving all constituents and stakeholders, not just the loudest voices in the room;
- Leveraging technology and decision-making tools to support and communicate needs.

11:45 AM Lunch

12:30 PM	**Innovative Approaches to Local Infrastructure** A presentation on the use of innovative mechanisms, approaches, and techniques to replacing and repairing local roads and bridges.	**Brian Keierleber** **Buchanan County**

Brian Keierleber presented approaches and techniques for replacing and repairing local roads and bridges. Brian discussed the value of understanding and integrating new technologies, and the use of new materials to extend the service lifetimes of bridges and roadways. He also discussed the professional relationships he has built as the Buchanan County Engineer and the dividends they have delivered.

1:15 PM	**Infrastructure Design and Construction to Improve Resiliency** An overview of lessons learned from past emergency weather events such as specific types of infrastructure that were problematic and specific design strategies that have been implemented to improve resiliency.	**Dave Claman** **Iowa DOT**

Dave Claman provided an overview of lessons learned from emergency weather events, specific types of infrastructure that were problematic, technologies that can be deployed quickly to harden infrastructure, and specific design strategies that have been implemented to improve resiliency. Dave also covered flood modeling and how the Department's resiliency mindset shaped the response to events in 2019 and contrasted it with the response to 2011 flooding.

1:45 PM	**Innovative Approaches to Infrastructure Discussion** Discussion of innovative approaches to infrastructure and how they can be further promoted and utilized throughout the state.	**Mike Steenhoek, Chair** **Soy Transportation Coalition**

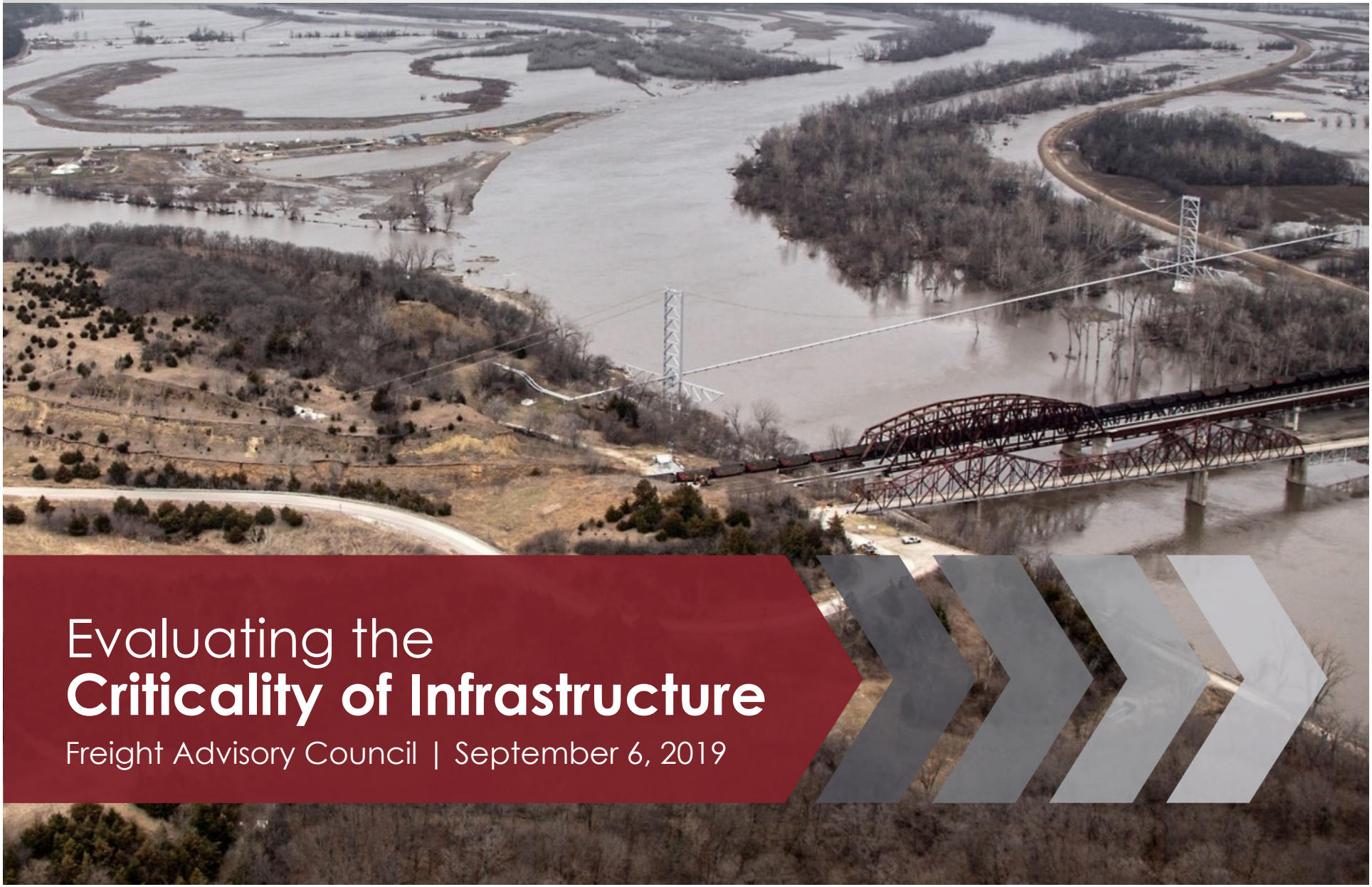
Mike Steenhoek, Chair of the FAC, adjourned the meeting. Before doing so recapped the discussion and encouraged members to:

- Take what is being covered during resiliency discussions and disseminate it to all levels within their organizations; whether that be a state or local government, an industry group, or a commercial enterprise
- Consider the barriers to the implementation of these good ideas and ways that they can be overcome; and to carry the discussion forward at future meetings of the Freight Advisory Council.

2:00 PM Adjourn

2019 meetings: December 13

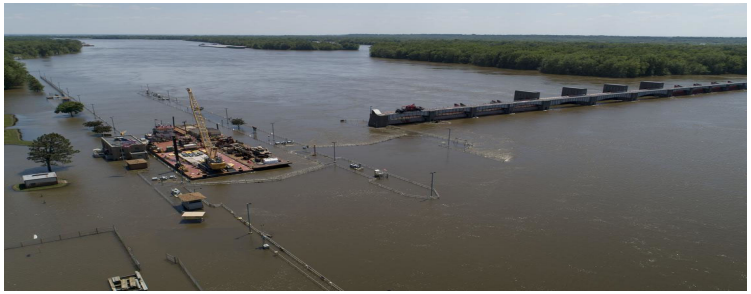
IOWA DOT
GETTING YOU THERE



Evaluating the **Criticality of Infrastructure**

Freight Advisory Council | September 6, 2019

EVALUATING THE CRITICALITY OF INFRASTRUCTURE



Input objective

Identify factors that should be considered when systematically evaluating the criticality of infrastructure and the relative importance of such factors.

Intended use

Systematic evaluation and inclusion of resiliency factors in the State Long-Range Transportation Plan, Freight Plan, and Rail Plan.

Other Evaluation Efforts

- Past
  - Crude Oil and Biofuels Rail Transportation Study (2016)
  - State Freight and Rail Plans bottleneck analysis (2017)
  - Transportation Systems Management and Operations – ICE-Ops (2017)
- Current
  - Criticality analysis for use of Emergency Relief (ER) funds
  - ISU Resiliency Index for the State of Iowa
  - Resilience and Durability to Extreme Weather Pilot Program

Crude Oil and Biofuels Rail Transportation Study (2016)

- Determine risks, vulnerabilities, prevention methods, preparedness, and response capabilities for crude oil and biofuels railroad transportation in Iowa
- Risk and Vulnerability Analysis (RVA) factors
  - Routes and volumes of rail traffic
  - Length of railroad segments carrying crude oil or ethanol
  - Populations
  - Critical facilities
  - Risks to public health, safety, and environment
  - Previous incidents (derailments, spills, and fires)
  - Likelihood of future incidents
  - Prevention/mitigation plans and programs

State Freight and Rail Plans bottleneck analysis (2017)

- Identified physical, operational, and regulatory bottlenecks in the freight system
- Highway
  - Value, Condition, and Performance (VCAP) matrix
- Railroad
  - Flood-prone areas
  - Swing-span bridges
  - Others identified by rail companies
- Waterway
  - Locks
  - Swing-span bridges

Transportation Systems Management and Operations - ICE-Ops (2017)

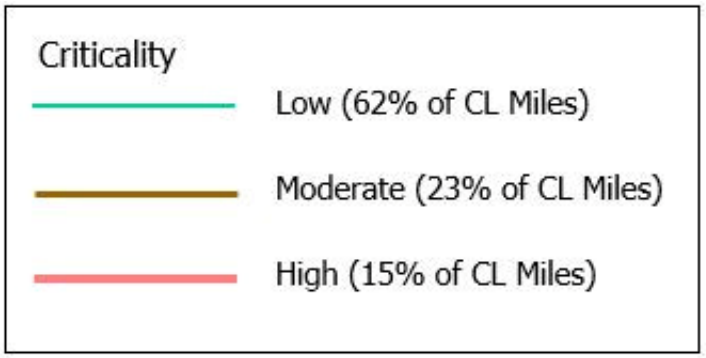
- Infrastructure Condition Index for Operations
- Screening tool to support data-driven decisions on where to apply limited resources was developed
- Factors
  - Average annual daily traffic (AADT)
  - All bottleneck occurrences per mile
  - Freight bottleneck occurrence per mile
  - Incident frequency per mile
  - Crash rate
  - Buffer Time Index (BTI)
  - Event center buffer mileage
  - Weather-sensitive corridor mileage
  - ICE rating

Criticality analysis for use of Emergency Relief (ER) funds

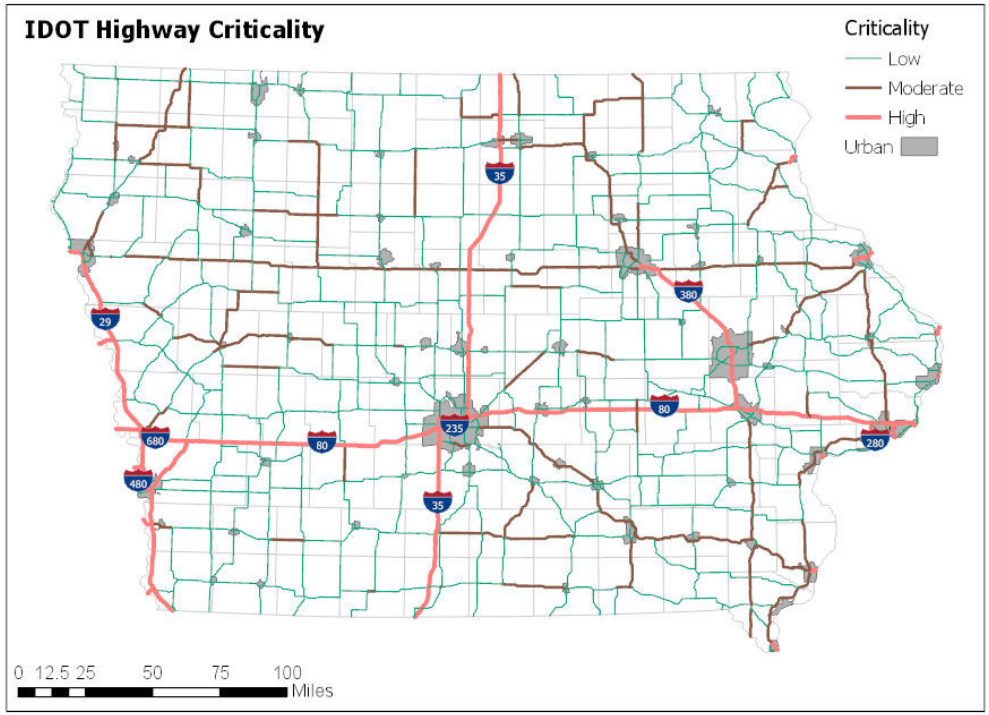
- Demonstrate and justify the use of ER funds for betterments used in the design and reconstruction of critical infrastructure impacted by flooding
- Variables/factors
  - Functional Class (usage)
  - Truck Traffic (economic impact)
  - Social Vulnerability Index (social impact)
  - Redundancy (system impact)
- Factors classified into quintiles, assigned indices, and summed to produce criticality scores
- Three classes – low, medium, and high criticality

Criticality analysis for use of Emergency Relief (ER) funds

Criteria	Weight
Usage: Functional Class	(30%)
Economic Impact: Truck AADT	(30%)
Social Impact: SoVI	(10%)
System Impact: Redundancy	(30%)



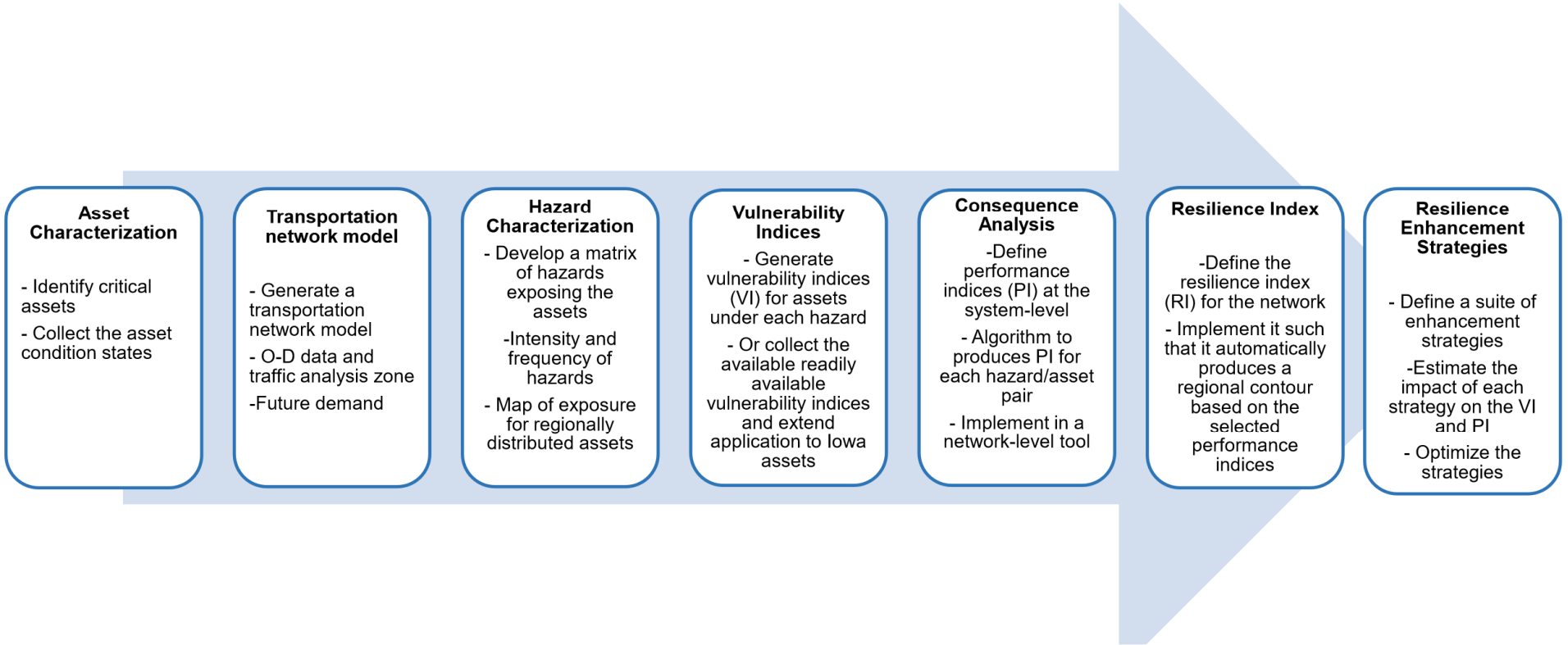
NOTE: Interstate segments and segments connected to bridges near east and west border manually rated “High”.



ISU Resiliency Index for the State of Iowa

- Define the resilience goals or targets
  - e.g., the functionality level after the disruptive events
- Understand the system characteristics
  - e.g., resolution level on the network
- Characterize disruption scenarios
  - e.g., extreme flood, snow storms, or maintenance activities)
- Estimate the consequences
  - e.g., level of physical loss, drivers' delay, economic loss, loss of accessibility
- Find optimized solutions for the possible improvements

ISU Resiliency Index for the State of Iowa



Extreme Weather and Infrastructure Resilience

BI-STATE REGIONAL COMMISSION

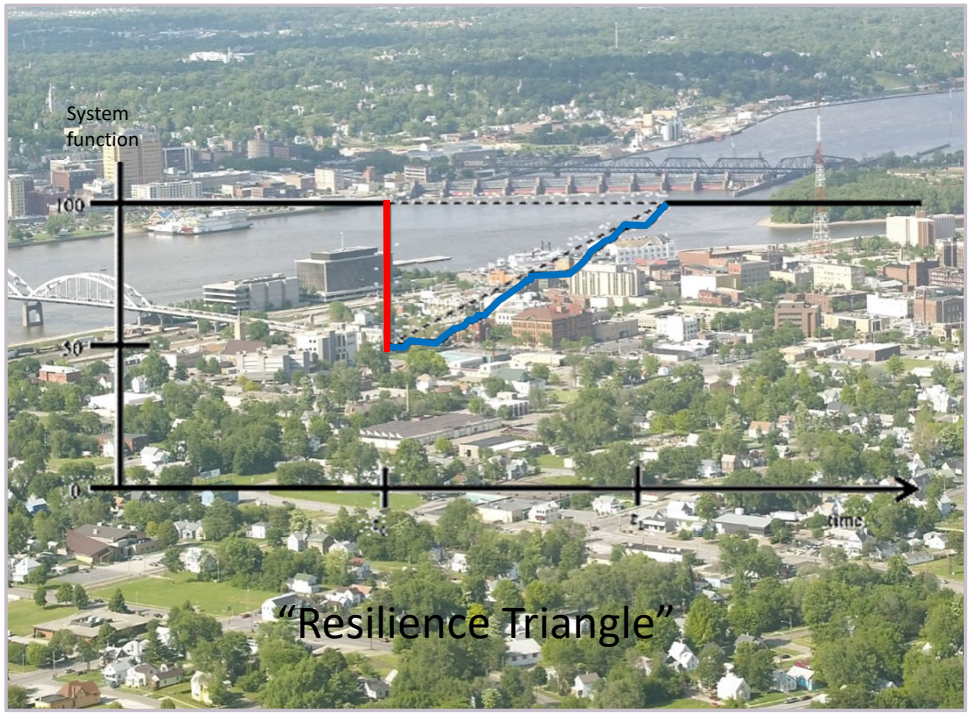
FHWA PILOT PROJECT

U.S.Department of Transportation
Federal Highway Administration

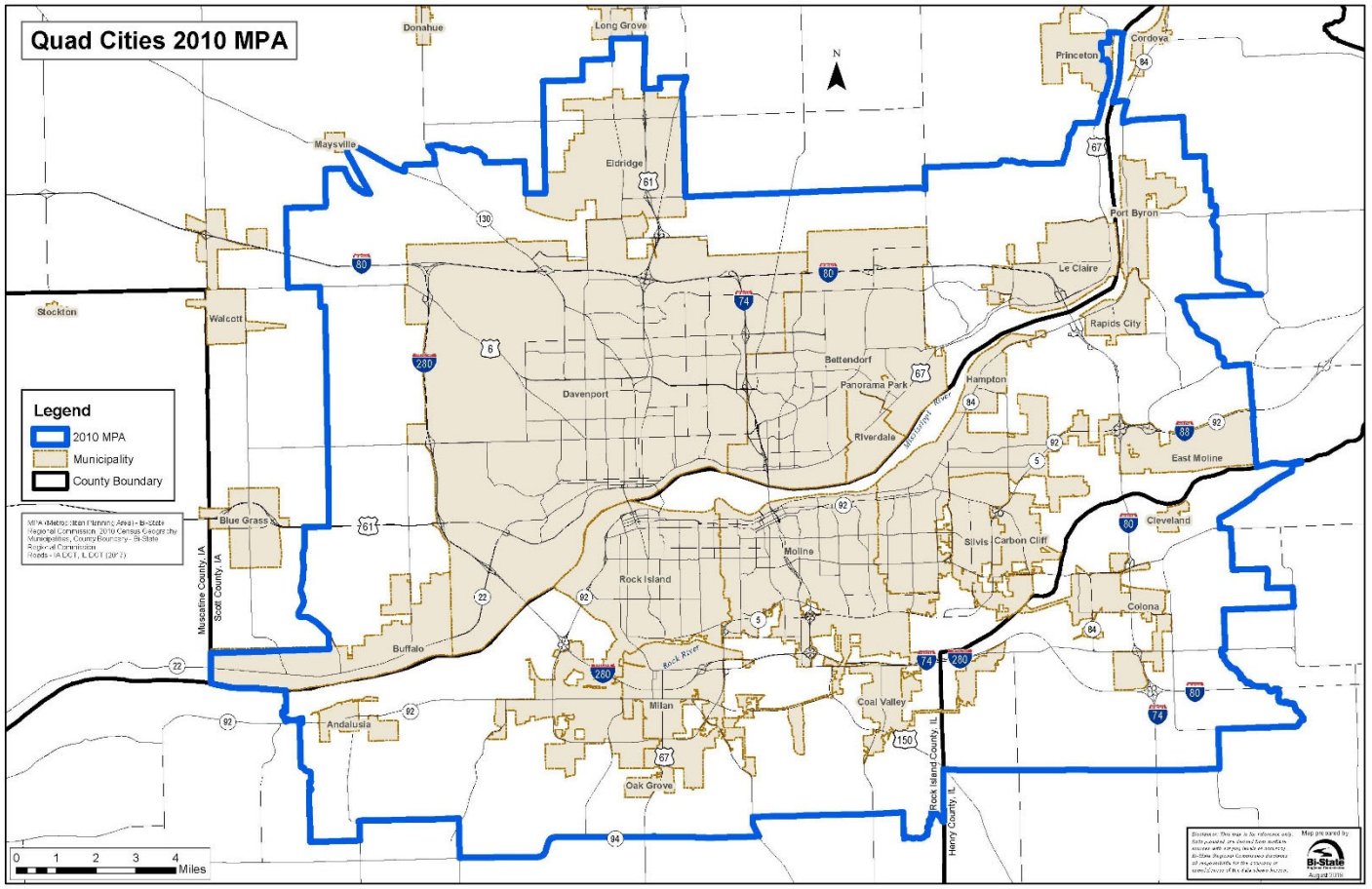
Bi-State
Regional Commission

Purpose of the Grant

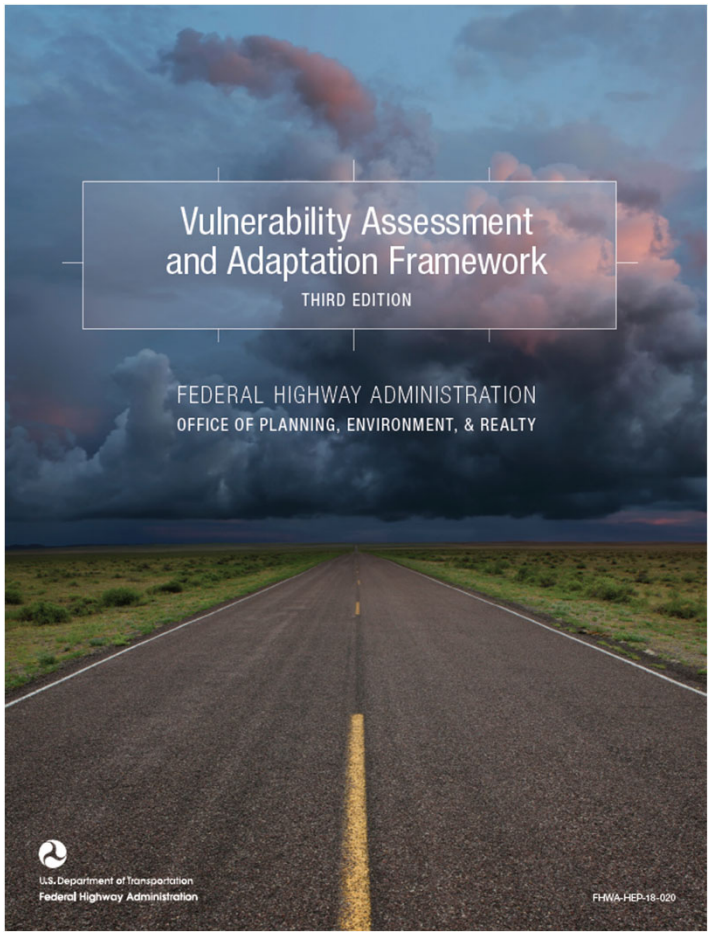
- Conduct vulnerability assessment
- Determine strategies to mitigate impacts



Geographic Focus



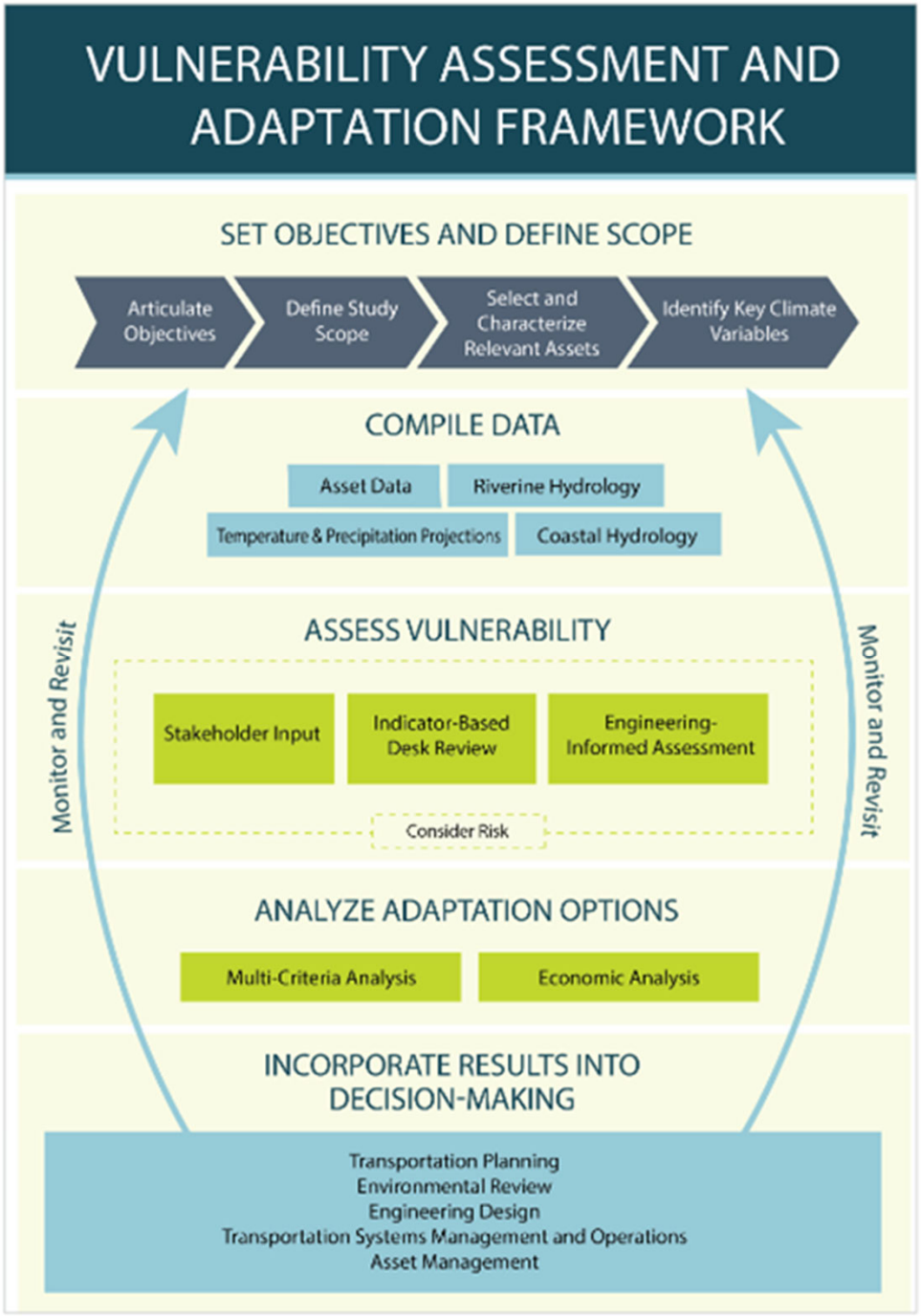
Vulnerability Assessment



- Provides structured process for conducting a vulnerability assessment
- Suggests ways to use results in practice
- Features examples from other similar projects
- Includes links and references to related resources and tools

Project framework

- Set objective and define scope
- Compile data
- Assess Vulnerability
- Analyze adaption options
- Incorporate results into decision-making



Multi-modal Facilities

- I-74, I-80, I-88, I-280
- State highways
- Municipal streets and roads
- Airports
- Railroad lines
- Lock and dam 15
- Transit hubs
- Trails

Extreme weather in the QC

- River flooding
- Flash flooding
- Combined storms
  - Hail
  - Lightning/ thunder
  - High winds
- Severe winter storm
- Extreme heat
- Tornadoes

Record Crests

22.70 ft on 5/2/2019 1st

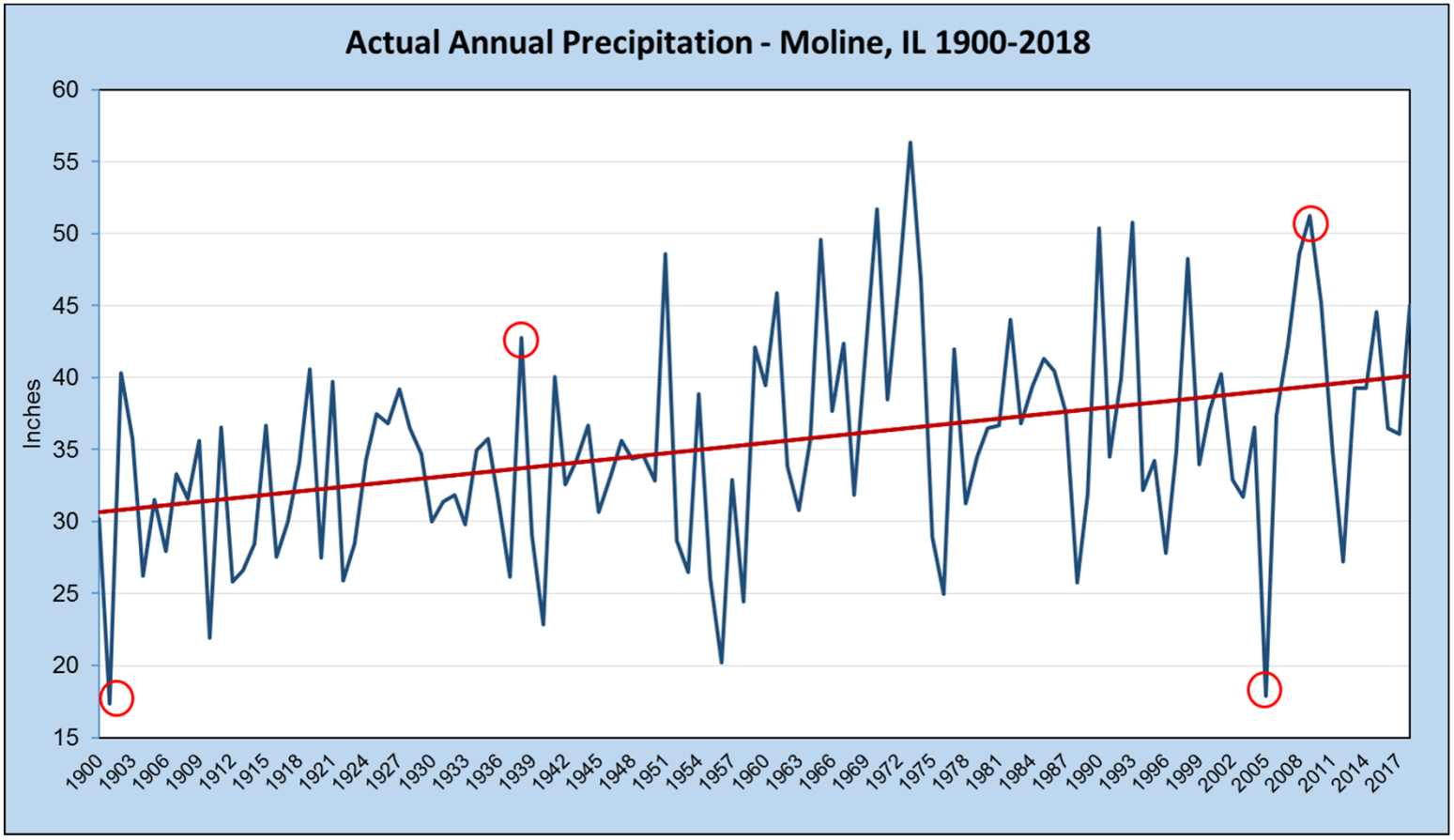
22.63 ft on 7/09/1993 2nd

Records for Consecutive Days above Flood Stage

96 days: 2019 – 3/15 to 6/18

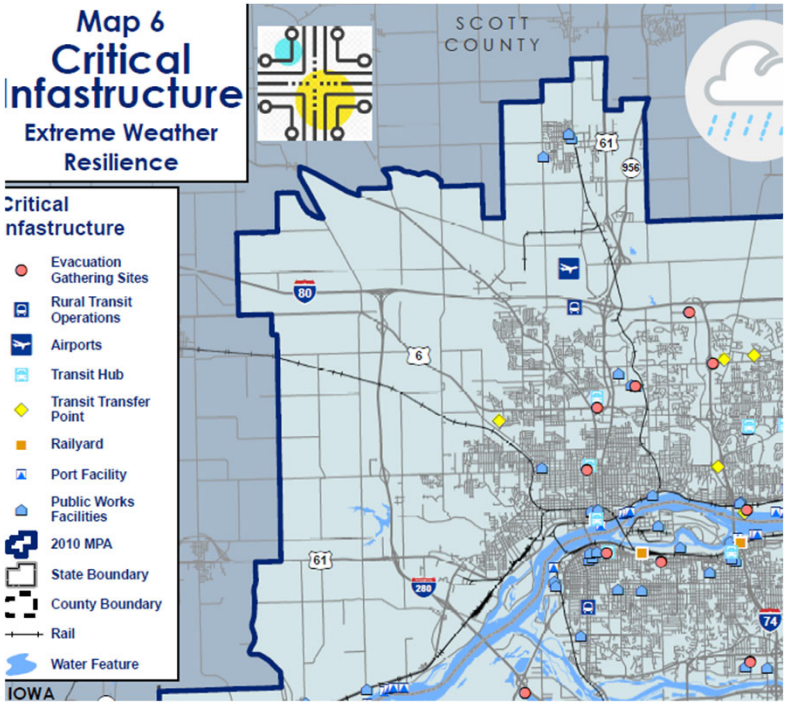
43 days: 2011 – 3/29 to 5/10

Local Trends

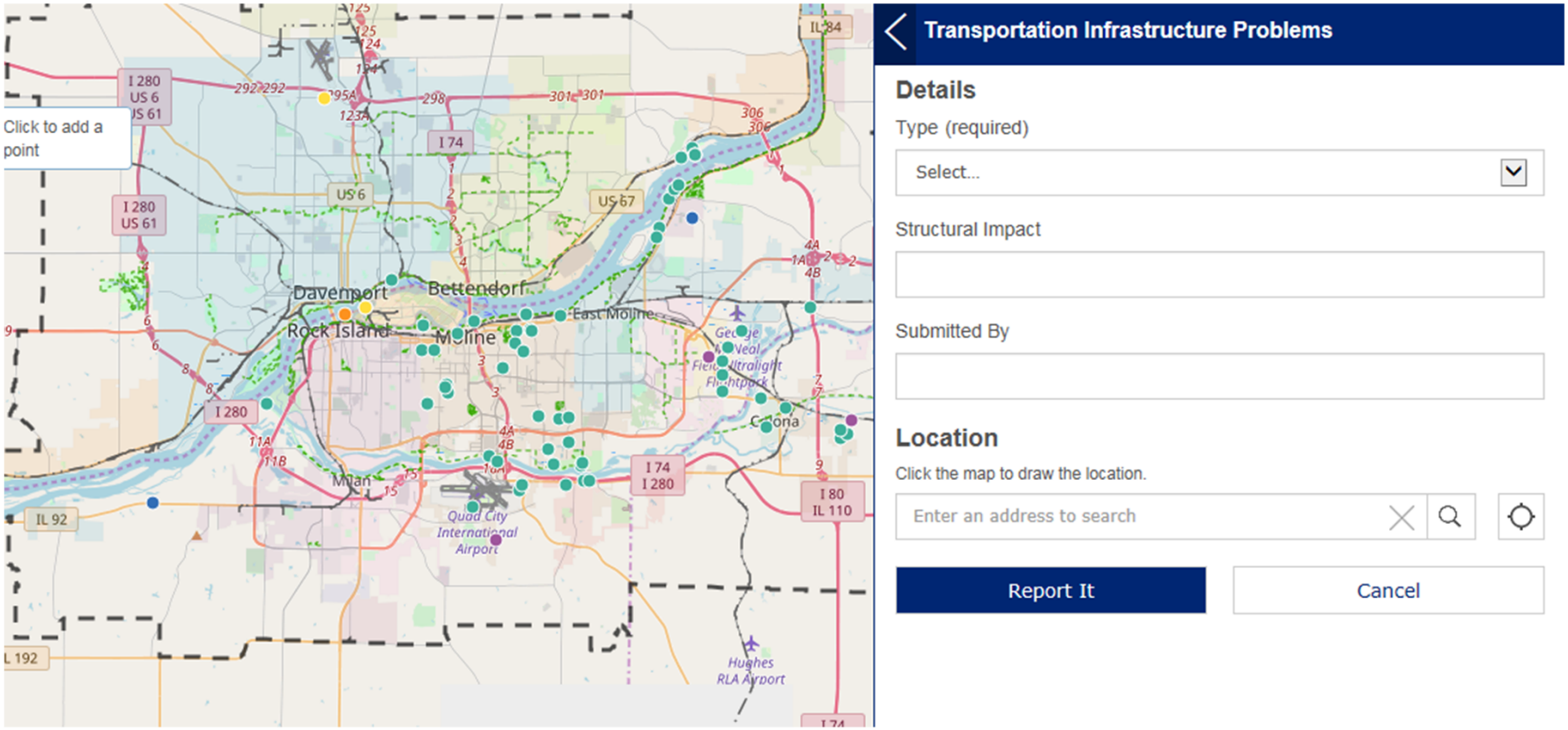


Critical Infrastructure & Facilities

- Evacuation gathering sites
- Public works facilities
- Transit hubs
- Transit transfer points
- Rural transit operations
- Airports
- Port facilities
- Railyard

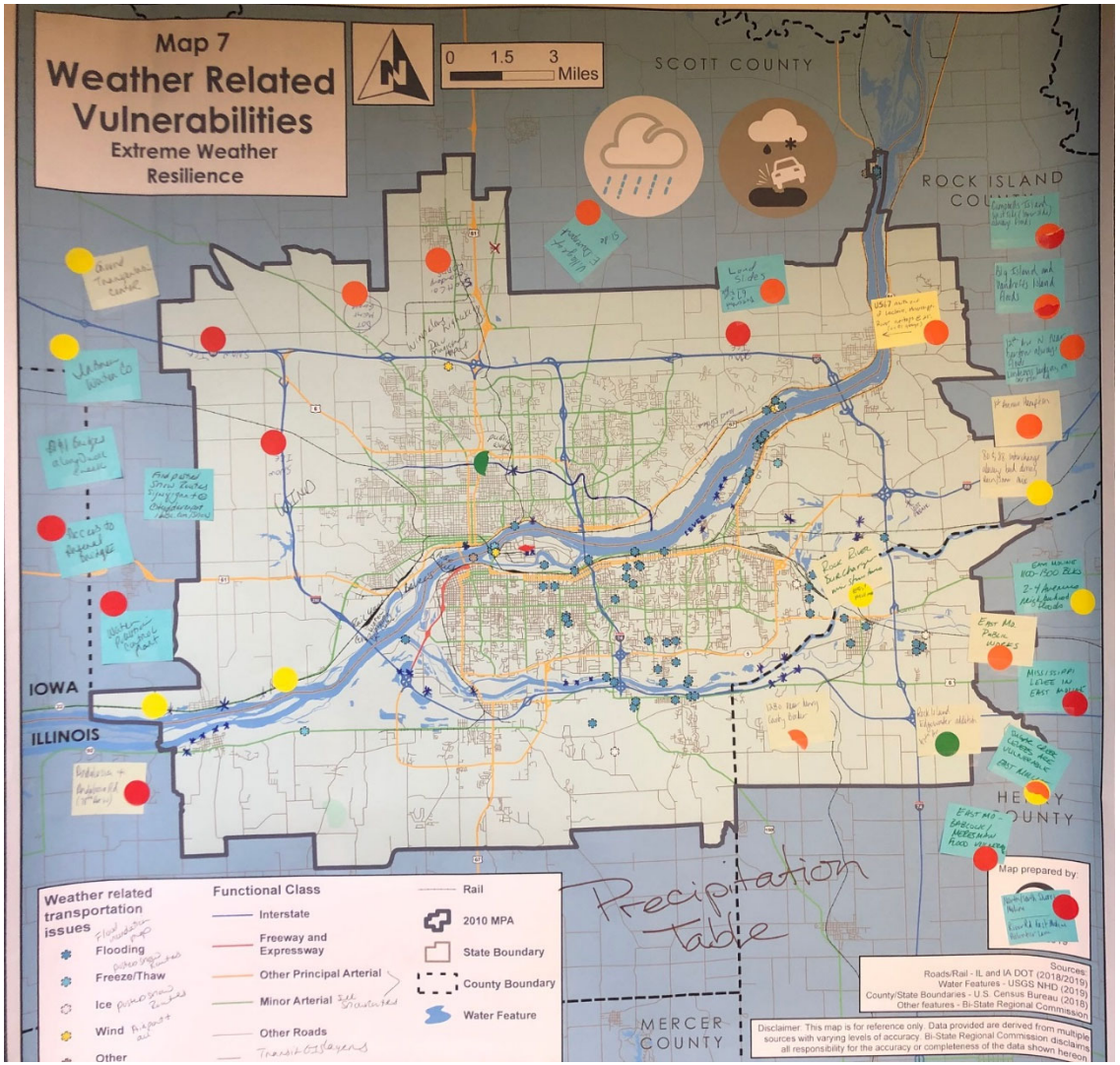


Stakeholder Survey & Interviews



Stakeholder Workshop

- Vulnerability assessment
- Adaptation options



Next Steps

Priorities and Opportunities for Adaptation

+

Integrate Results & Recommendations

Sept.-Dec. 2019

- Workshop Results
- Advisory Committee for Progress to Date
- Adaptation Strategies
- MPO Technical Committee
- Draft Resilience Study Report & Recommendations for the LRTP
- Peer Exchange

Jan.-March 2020

- Draft to MPO Technical Committee and Advisory Committee
- Final Report to FHWA

Questions? Suggestions?

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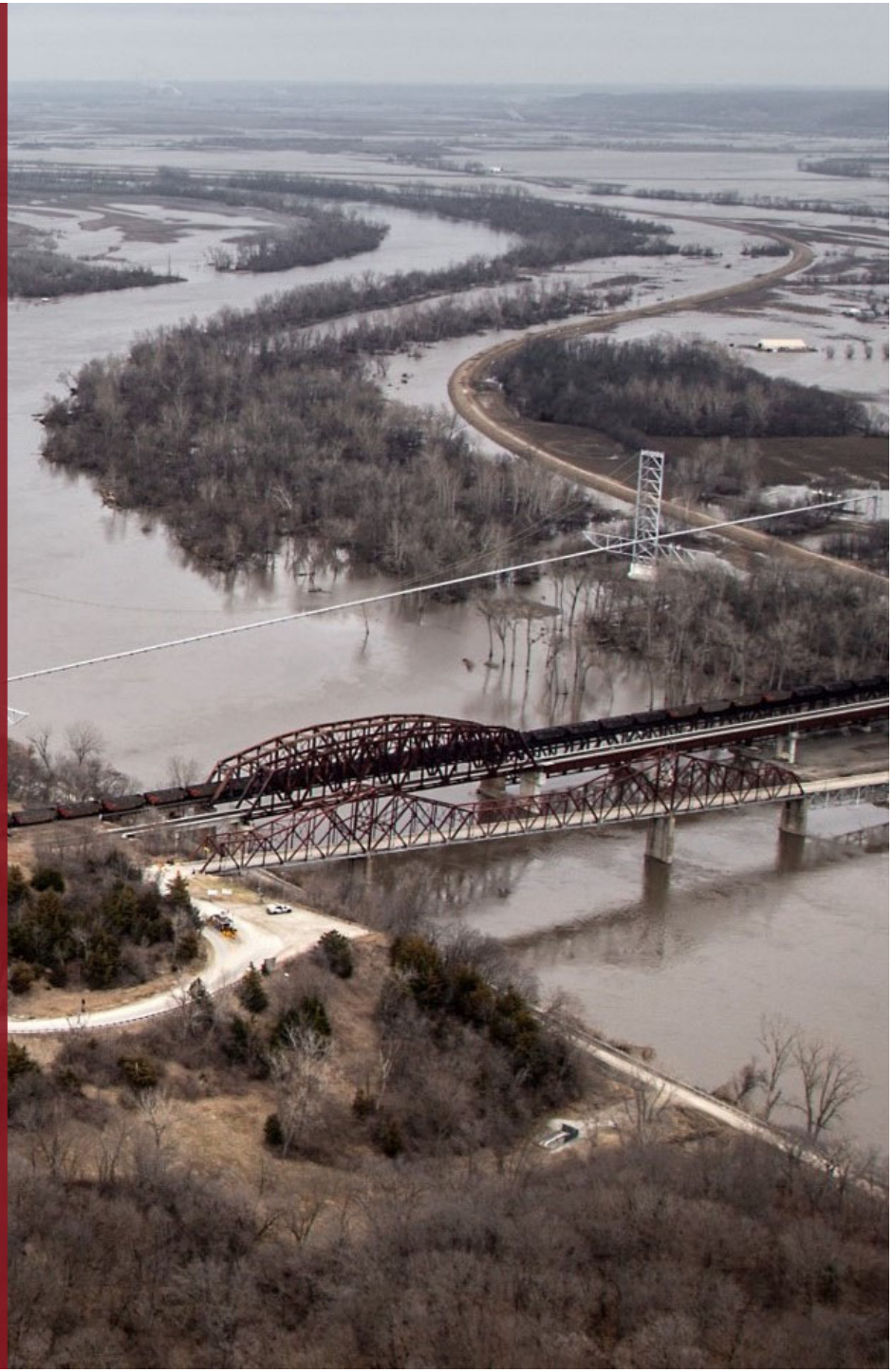
Input **Exercise**

Factors for systematically evaluating the criticality of infrastructure



Exercise Objective

- Identify factors for evaluating the criticality of multimodal infrastructure
- For example:
  - Usage/importance
  - System redundancy
  - Proximity to facilities/multimodal connections
  - Bottlenecks/pinch points
  - Susceptibility to disaster

Next steps

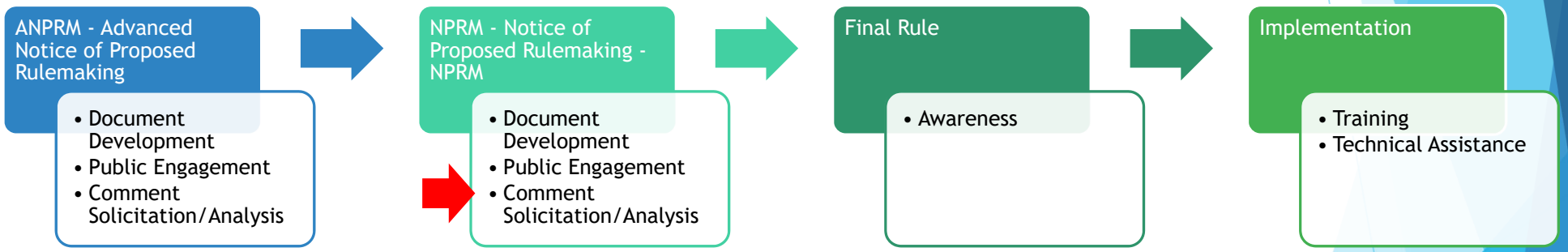
- Iowa DOT intends to use this information to complete infrastructure criticality analysis for the next State Freight Plan and State Long Range Transportation Plan

THANK YOU FOR YOUR TIME AND ATTENTION

Hours of Service

Notice of Proposed Rulemaking

Rulemaking Process



Background

FMCSA began work on an Advanced Notice of Proposed Rulemaking (ANPRM) in 2018 in response to widespread Congressional, industry, and citizen concerns surrounding existing hours of service (HOS) rules. The purpose of the ANPRM was to seek feedback from the public to determine if HOS revisions may alleviate unnecessary burdens placed on drivers while maintaining safety on our nation's highways and roads.

ANPRM:

- Was published and open for comment last year from August 23, 2018 to October 10, 2018;
- Agency received more than 5,000 comments;
- Considered 4 areas for revision (and 2 related petitions)
- Was used to develop this Notice of Proposed Rulemaking (NPRM)

Goals of the Proposed Rule

Improved Safety. Increased Flexibility.

- The Department's proposed rule on hours-of-service regulations seeks to improve safety by providing additional flexibility for the nation's commercial motor vehicle drivers.
- The Department believes this proposal will improve safety by offering the flexibility drivers need to not feel like they must race the clock, needlessly drive through congestion, or have troubles finding safe parking.
- This proposed update to hours-of-service rules is designed to improve safety, but will also provide critical regulatory savings ($270 million) for the American economy.
- This rule is still only a proposal and an additional comment period is now open. We strongly encourage everyone to submit their comments to the federal register and take part in shaping this critical reform.

Short Haul Exception

Short Haul Exception: FMCSA is proposing to change the short-haul exception time period from 12 to 14 hours and extending the distance the driver may operate from 100 air miles to 150 air miles.

Example: The driver here is based out of Peoria. Under current rules the distance the driver could go in a day left out Chicago and St. Louis. The new proposal would allow that driver to service those two cities, as well as an additional 2 hours to do so.

Current Rule

Proposed Rule

Adverse Driving Conditions Exception

Adverse Driving Conditions Exception: FMCSA is proposing to change the adverse driving conditions exception by extending the duty day by 2 hours when adverse driving conditions are encountered. This is in addition to the additional 2 hours of driving time already allowed.

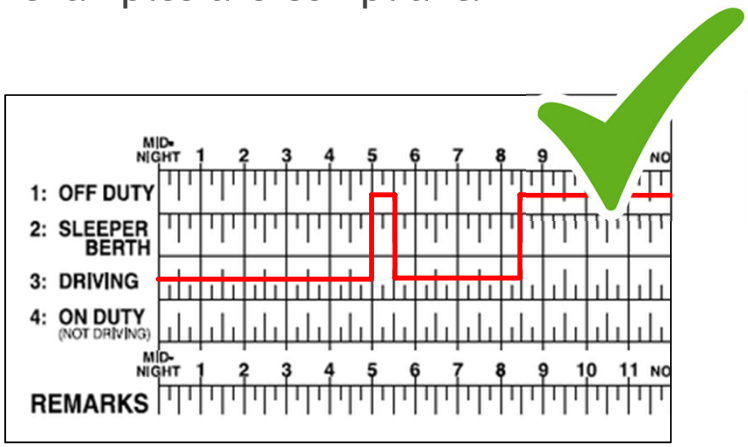
The proposed change would apply for both property-carrying (14 hour "driving window") and passenger-carrying (15 hour "driving window") operators.

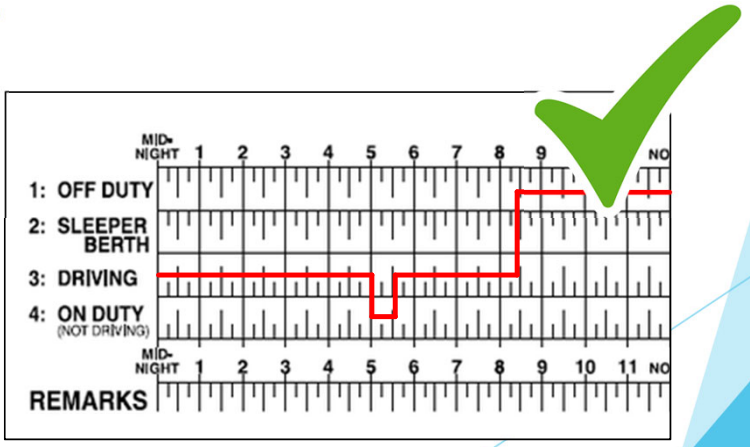
Example: A driver is 15 miles from his destination when he hears of a gravel spill on the bridge just ahead (the bridge is the only access to the destination). He has an hour left of driving time and an hour left in his driving day. Under the new proposal this driver can stop at the rest stop at the next exit (for up to 2 hours) and let the road clean up crew work and still have time to get to his destination without violating HOS rules.

30-Minute Break Rule

30-Minute Break Rule: FMCSA is proposing to change the 30-minute break rule by allowing the requirement to be satisfied by an on-duty break (in addition to an off-duty break). The requirement for property-carrying drivers would applicable in situations where a driver has driven for a period of 8 hours without at least a 30-minute interruption.

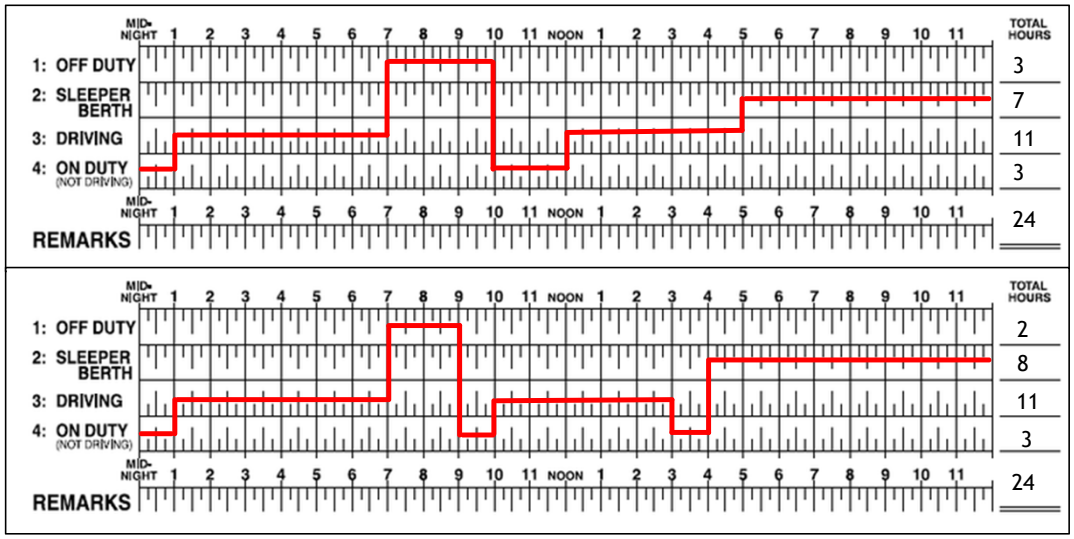
Example: The examples below assume the driver has driven for 8 hours and needs to take a 30 minute break. Currently only the log book in the left is in compliance with the HOS rules. Under this proposal both examples are compliant.





Split Sleeper-Berth Exception

Split Sleeper-Berth Exception: FMCSA is proposing to change the sleeper-berth exception so that neither part of the split would count against the 14 hour driving window. Drivers would be able to utilize a 7/3 (or 8/2) split break.

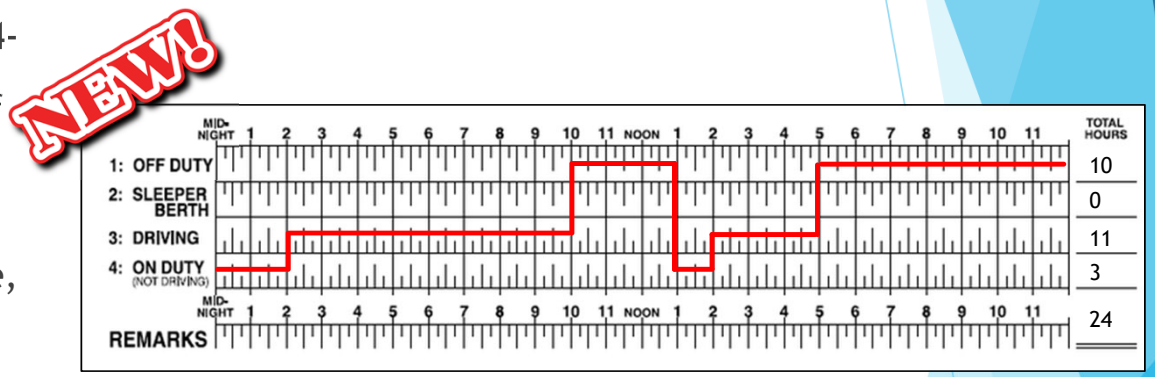


Example: This example assume the driver starts day 1 having just come off a 10 hour consecutive off duty period. In this 2 day log example you can see that none of the 4 break periods count against the driver's 14 hour window. Additionally, you can see that both a 7 and 3 split was used, as well an 8 and 2 split.

Split Duty Provision

Split Duty Provision: The Agency proposes to allow one off-duty break of 30 minutes up to a maximum of 3 hours, that would pause a driver's 14-hour driving window, provided the driver takes 10 consecutive hours off duty at the end of the work shift.

Example: The example to the right assumes the driver has just come off of a 10 hour consecutive break. Here, the driver takes a 3 hour break from 10 am to 1 pm. This break 'pauses' the 14 hour driving window. Under this new proposal as long as the driver takes 3 more hours of a break on the next day, in order to get the 10 consecutive hours off duty, they will not be in violation of this new provision.



Focus Questions

NPRMs often ask questions, similar to ANPRMs. We continue to seek input and data from industry and the public on a number of questions included throughout the NPRM. These questions cover a range of topics so read carefully. While we are interested in hearing back on all those questions in the NPRM, here are a few we'd like to focus on:

- FMCSA is interested in comments and any supporting data on the possibility of a 6 and 4 hour split break.
- What operations would benefit from multiple off duty periods totaling 3 hours?
- How often do work shifts require an individual to drive more than 8 hours without at least a 30-minute change in duty status?
- Understanding adverse conditions cannot be predicted, will drivers utilize this provision more often after the proposed changes?

Comments

- **Docket Number**: FMCSA-2018-0248
  https://www.regulations.gov/docket?D=FMCSA-2018-0248

- **Submit a Comment**: If you'd like to comment on any of the topics discussed please go to the docket. There you can view the full NPRM, submit a comment and view other people's comments.

- **Comment Period**: PLACEHOLDER FOR DATES

- **Additional Information**:
  https://www.fmcsa.dot.gov/content/hours-service-nprm

Evaluating the Criticality of Infrastructure

Freight Advisory Council – September 6, 2019

Please use this form to record any thoughts, comments, and/or other things for Iowa DOT to consider when evaluating the criticality of multimodal infrastructure, including the factors that should be considered and the relative importance of such factors. Please turn this form in to a DOT employee or leave at your seat at the end of the meeting.

Name:

Identify factors for evaluating the criticality of multimodal infrastructure:

Any additional thoughts:

Brian P. Keierleber P.E.
Iowa Freight Advisory Council
September 6, 2019

Buchanan County Iowa

BUCHANAN CO.

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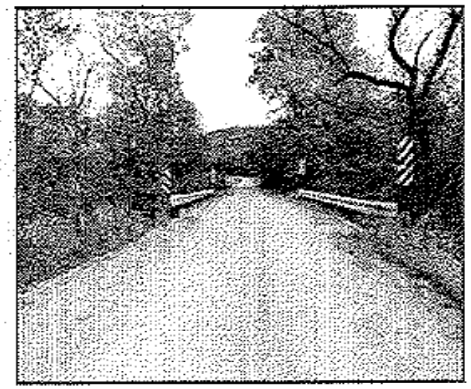

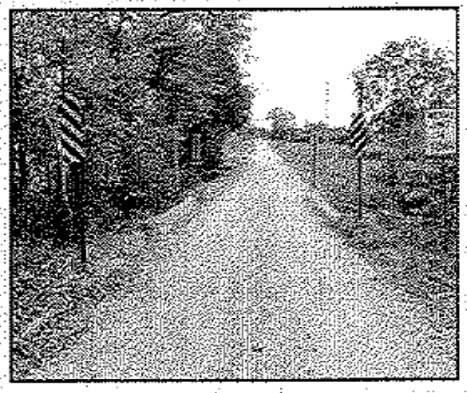

Kansas
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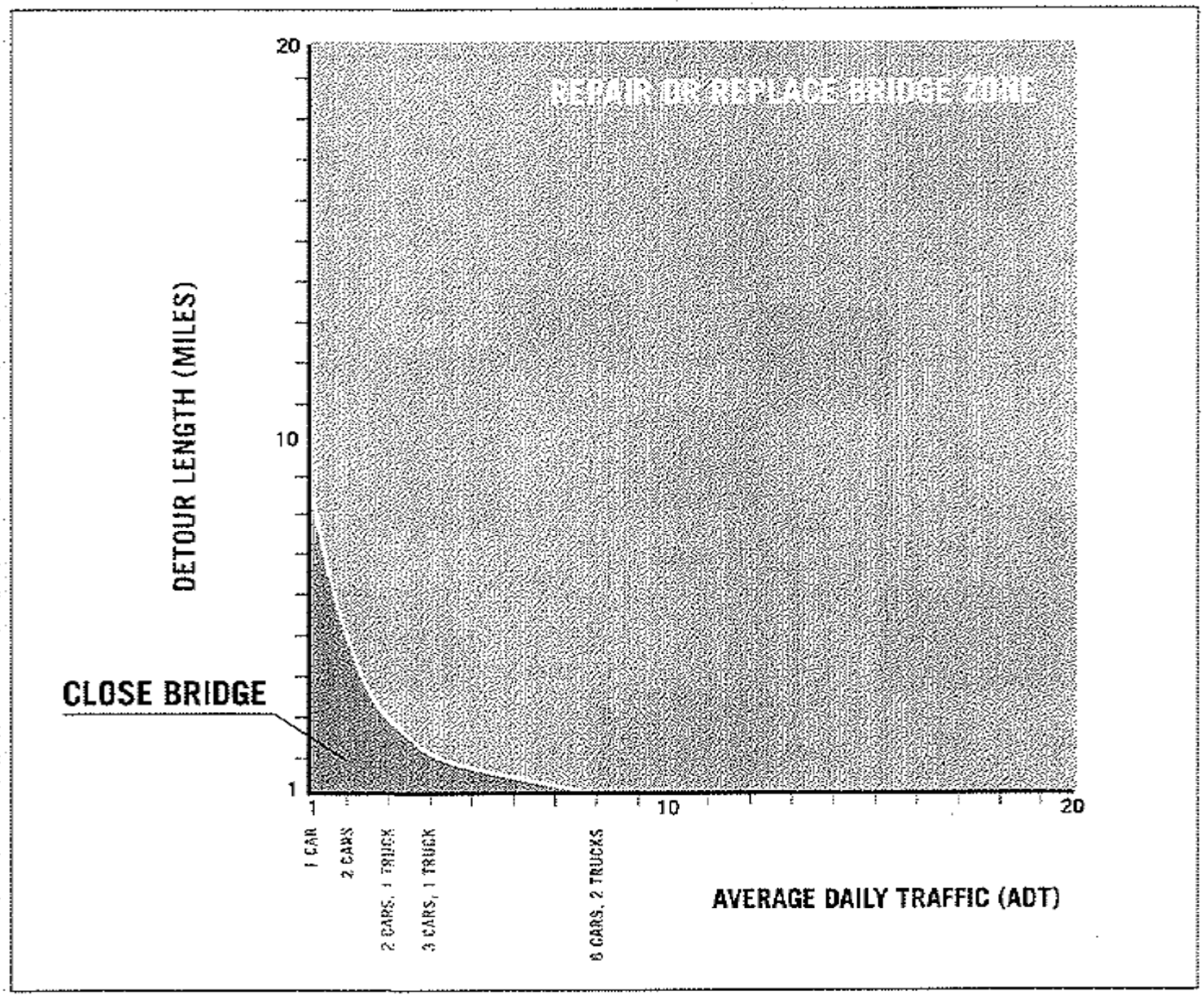

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Asphalt Over Concrete

Simplified Deck Overlaying

Over Time the backwall kicks out

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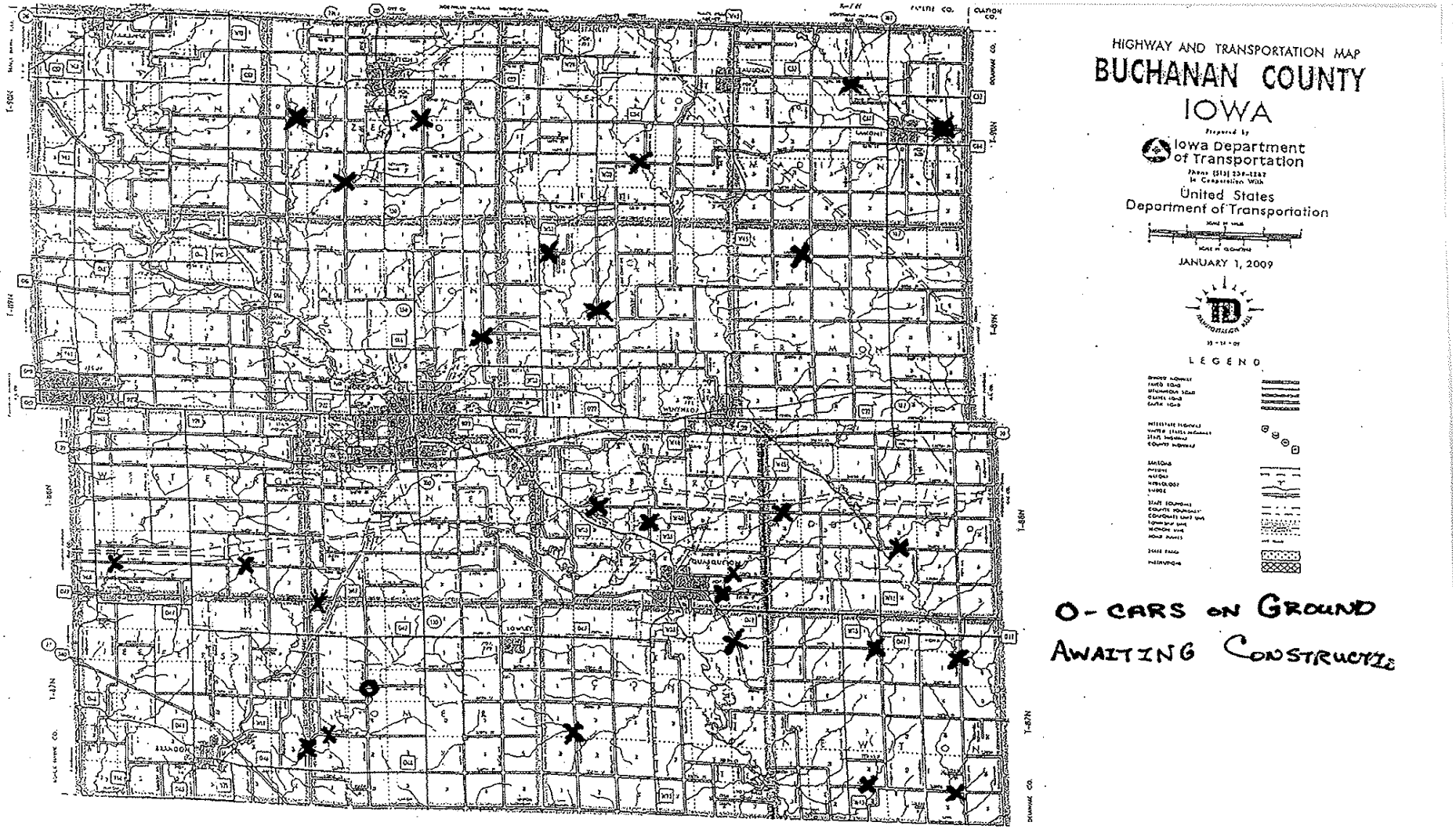

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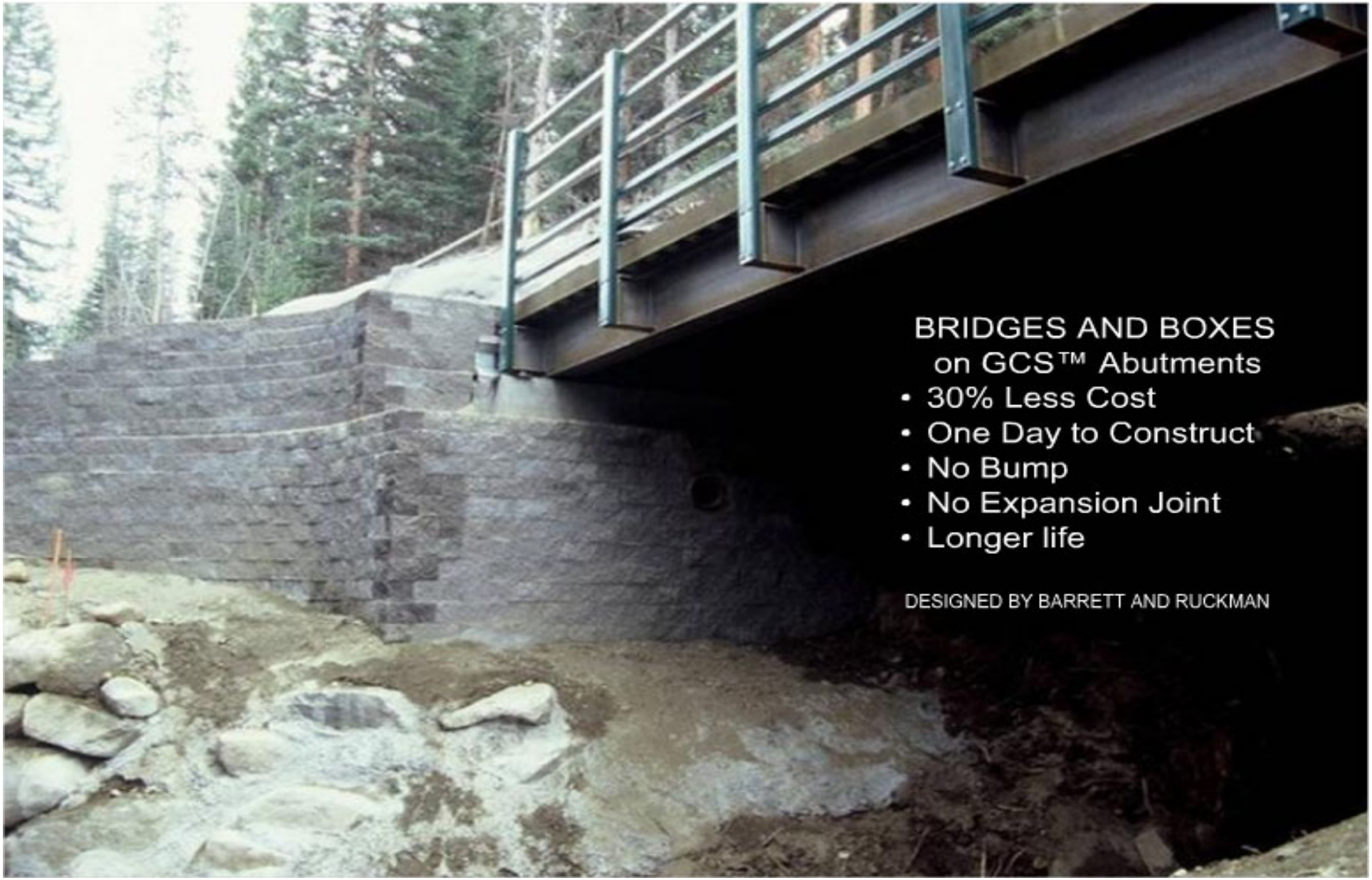

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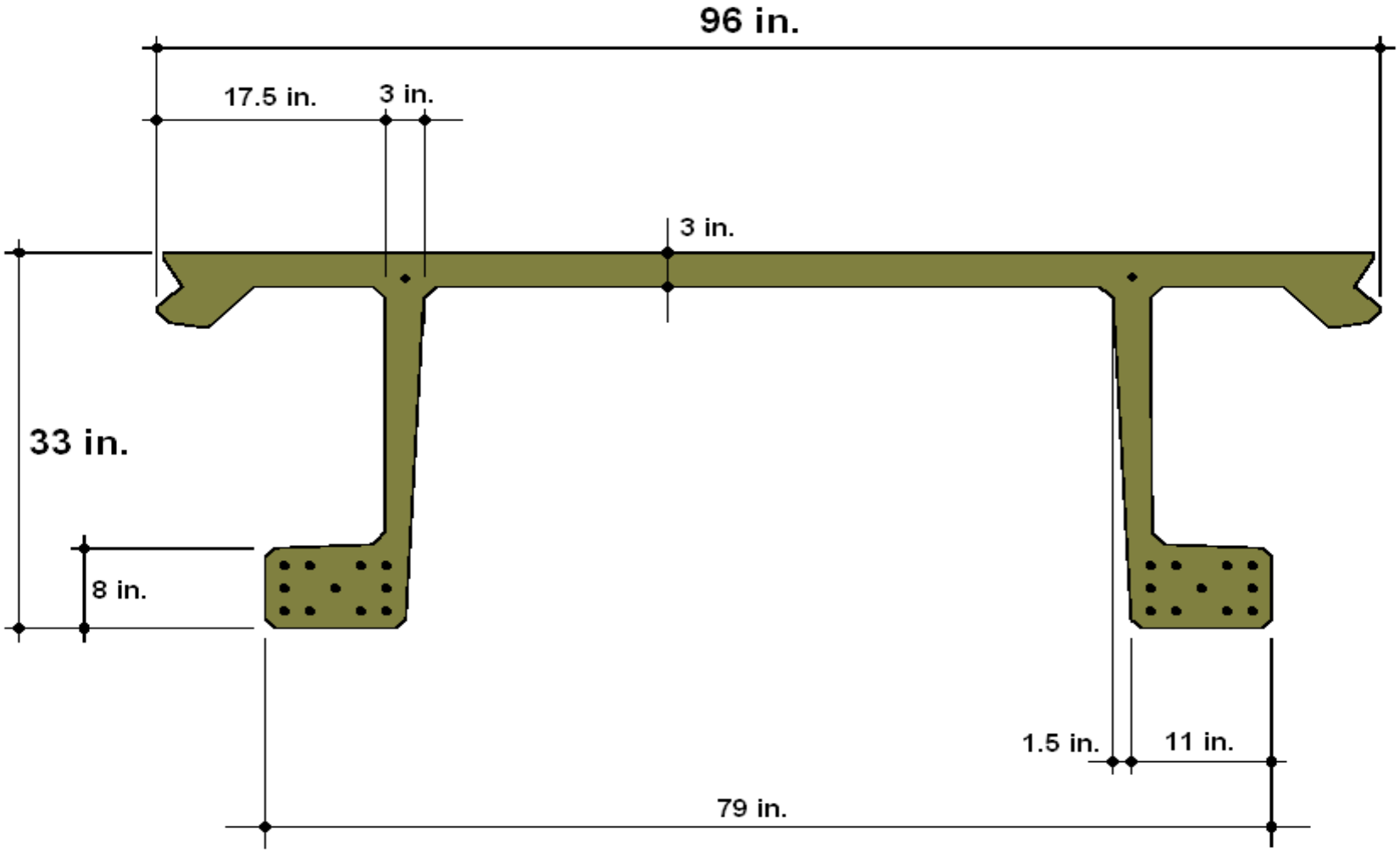

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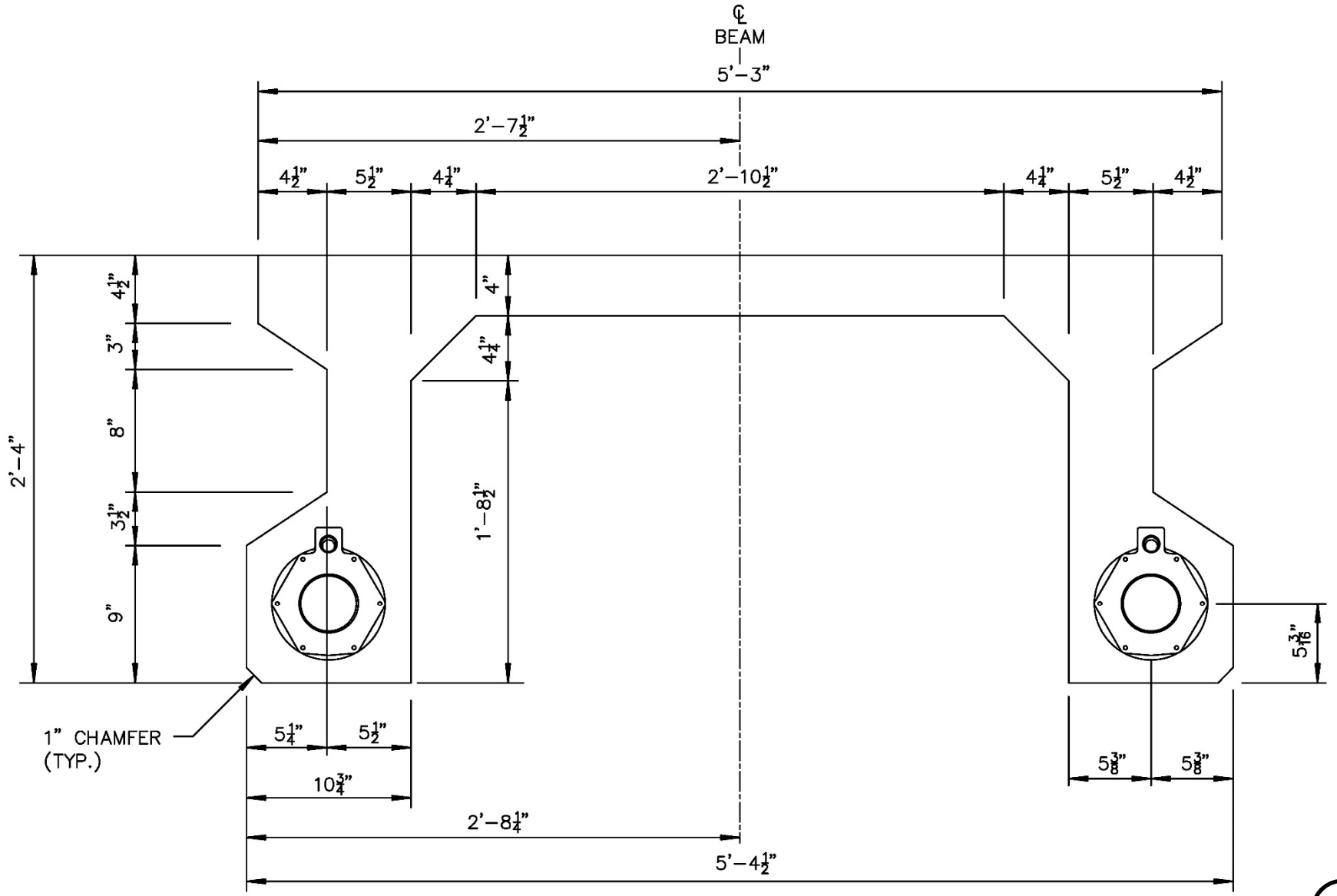

Mixing Proportions and Process

Mixing orders	SC180 KICT MIX	Total (lb/5.5CY)	Location	Mixing instruction
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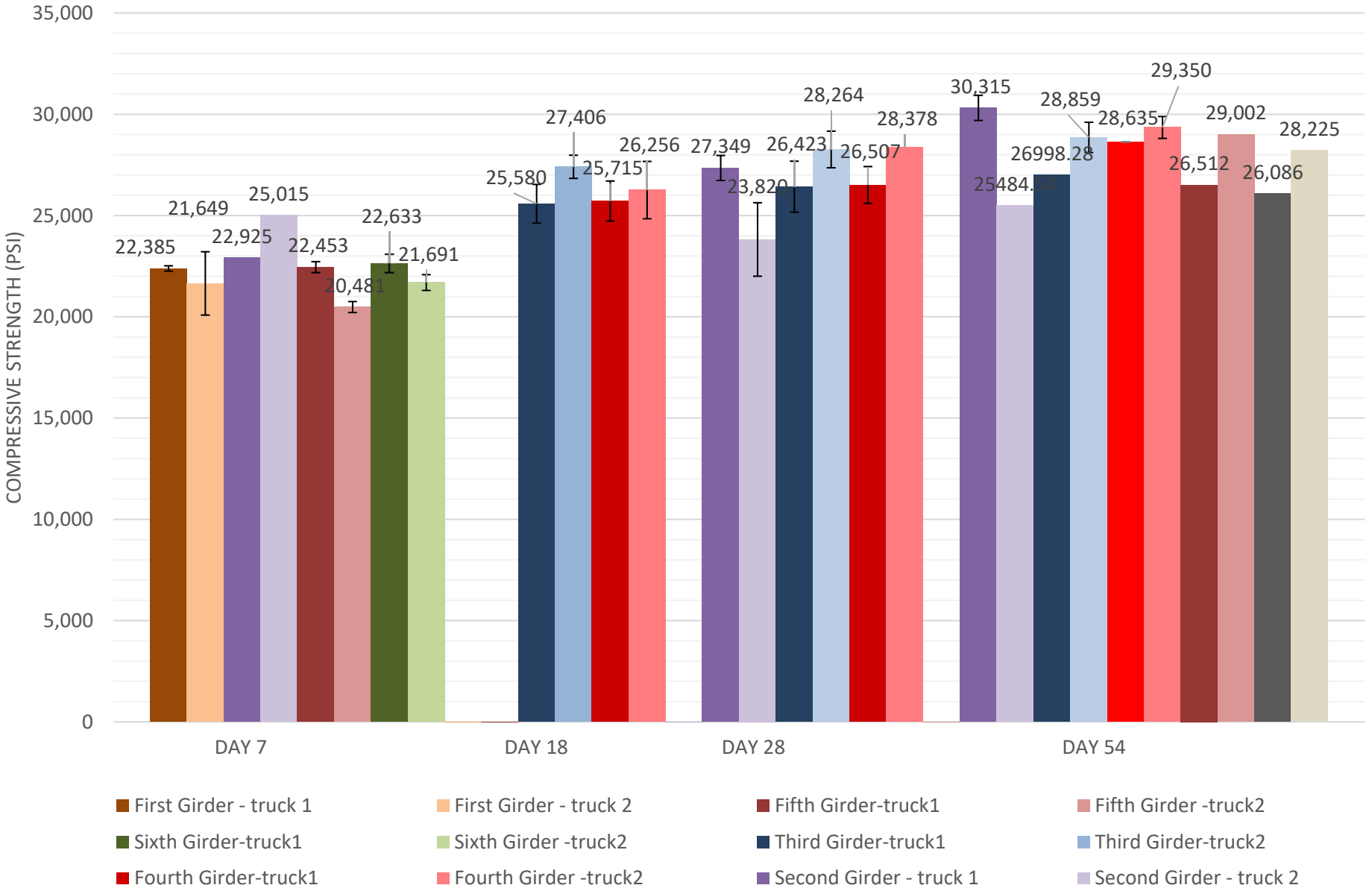
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
COMPRESSIVE STRENGTH (PSI)
22,385
21,649
22,925
25,015
22,453
20,481
22,633
21,691
25,580
27,406
25,715
26,256
27,349
23,820
26,423
28,264
26,507
28,378
30,315
25484.64
26998.28
28,859
28,635
29,350
26,512
29,002
26,086
28,225
DAY 7
DAY 18
DAY 28
DAY 54
First Girder - truck 1
First Girder - truck 2
Fifth Girder-truck1
Fifth Girder -truck2
Sixth Girder-truck1
Sixth Girder -truck2
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Third Girder-truck2
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Fourth Girder -truck2
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Limited Finish Work

Completed K UHPC Bridge

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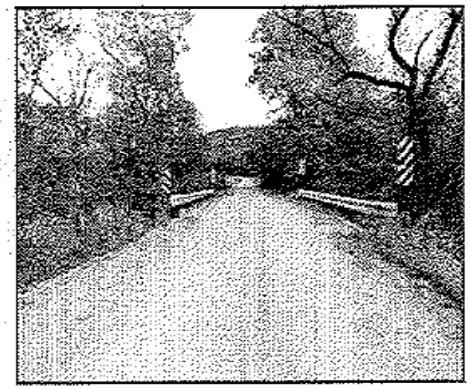

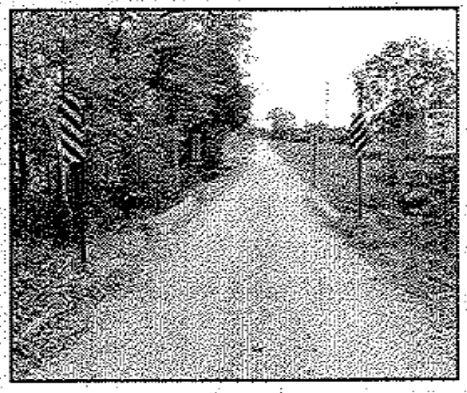

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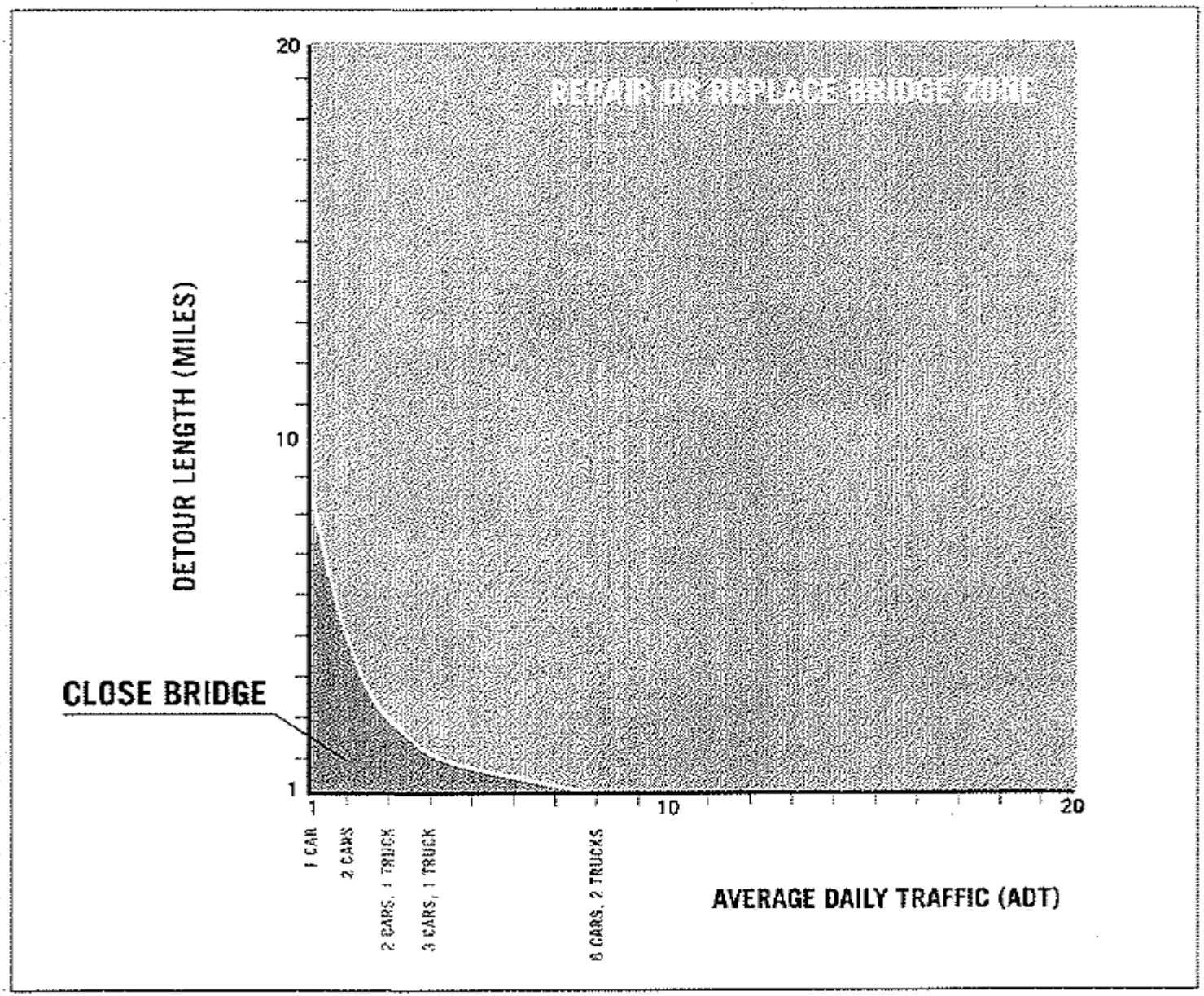

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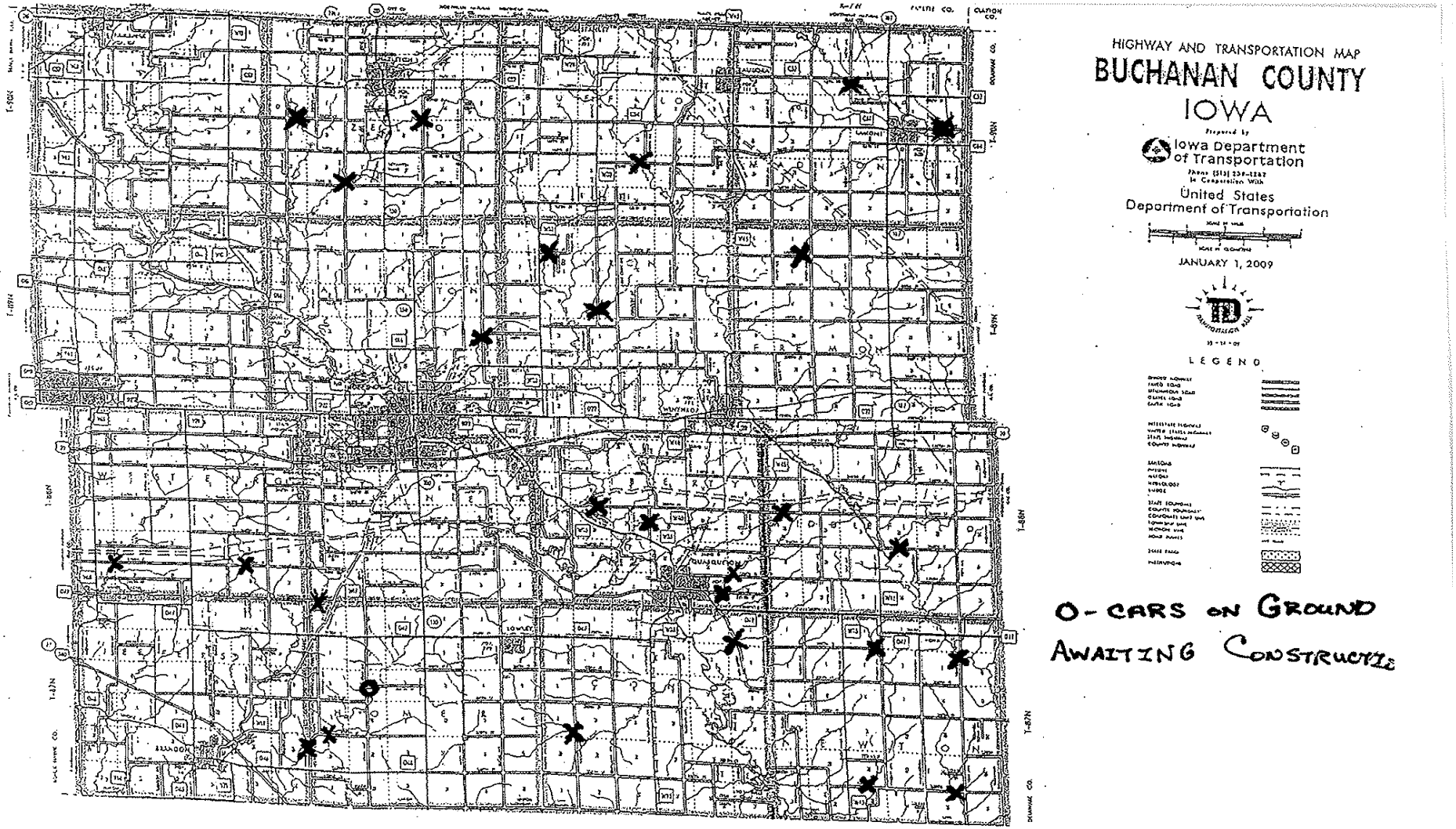

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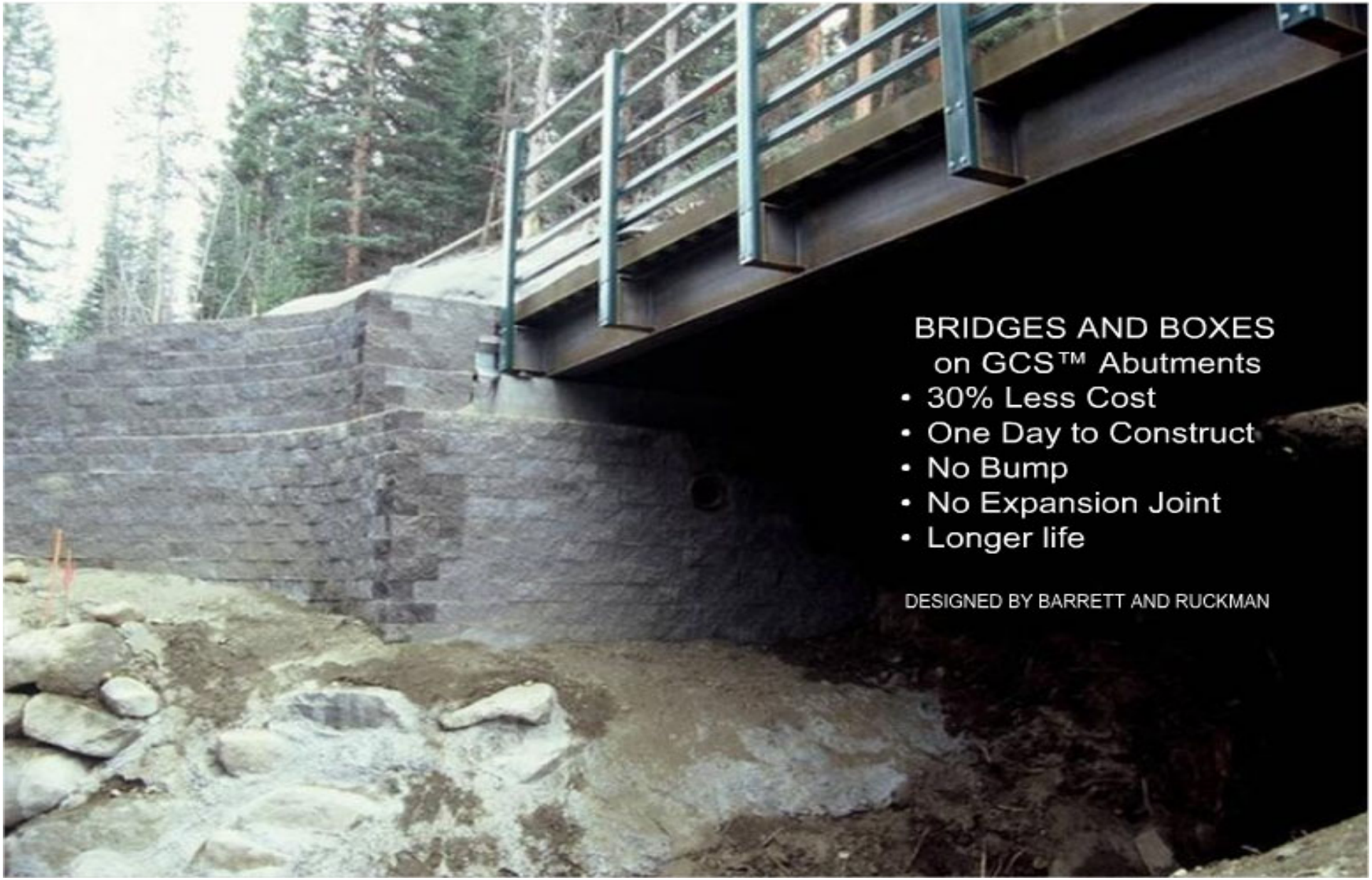

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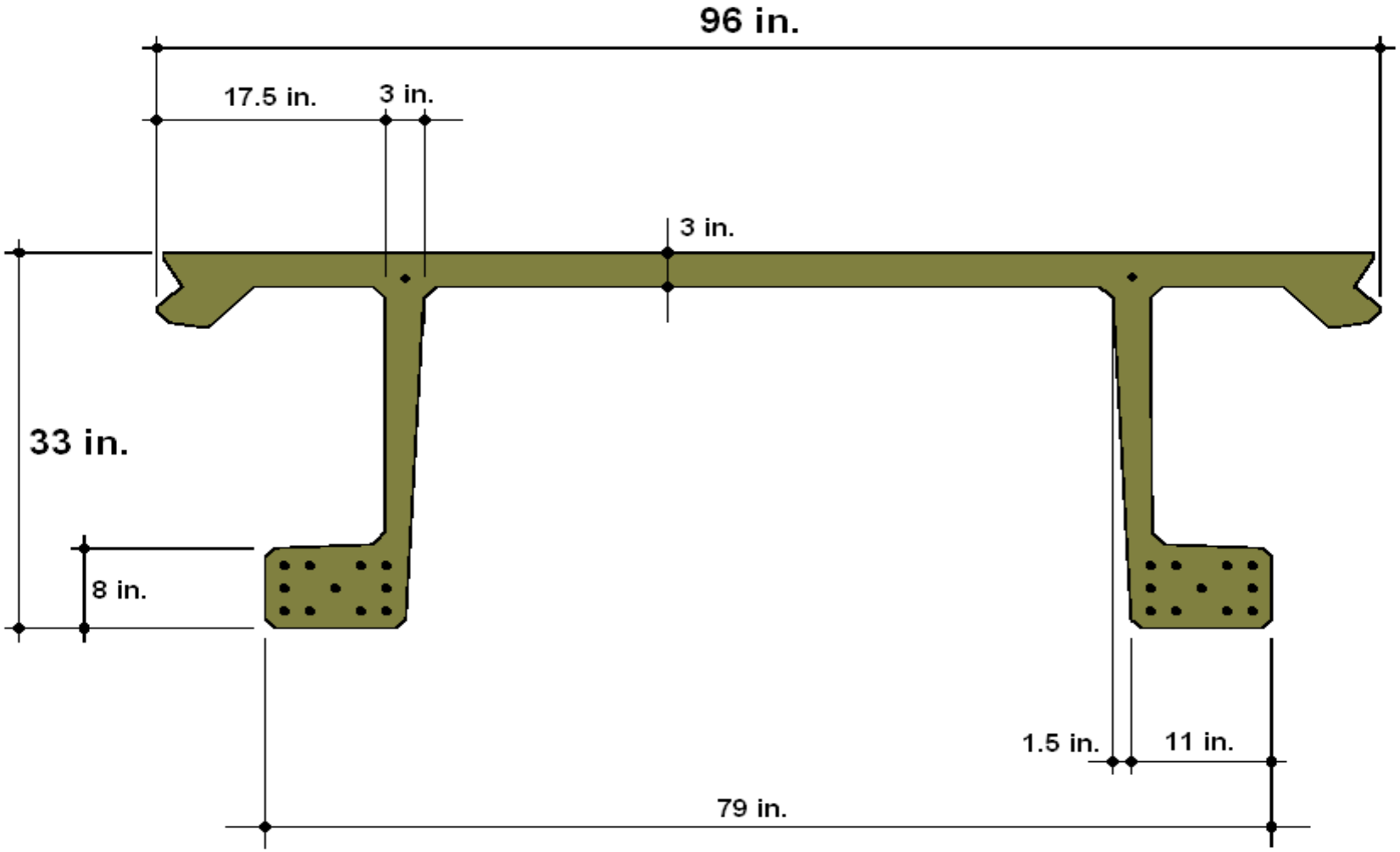

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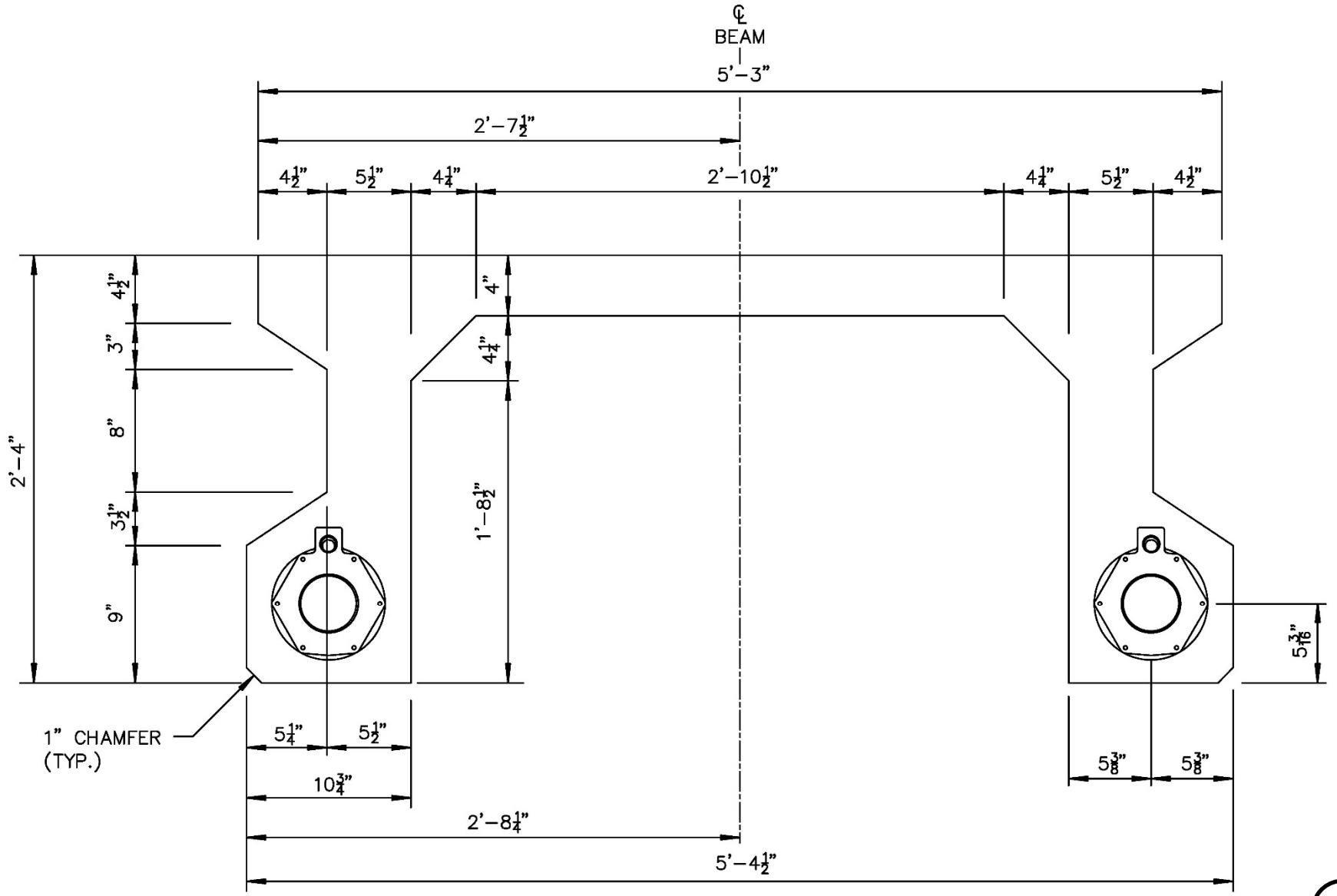

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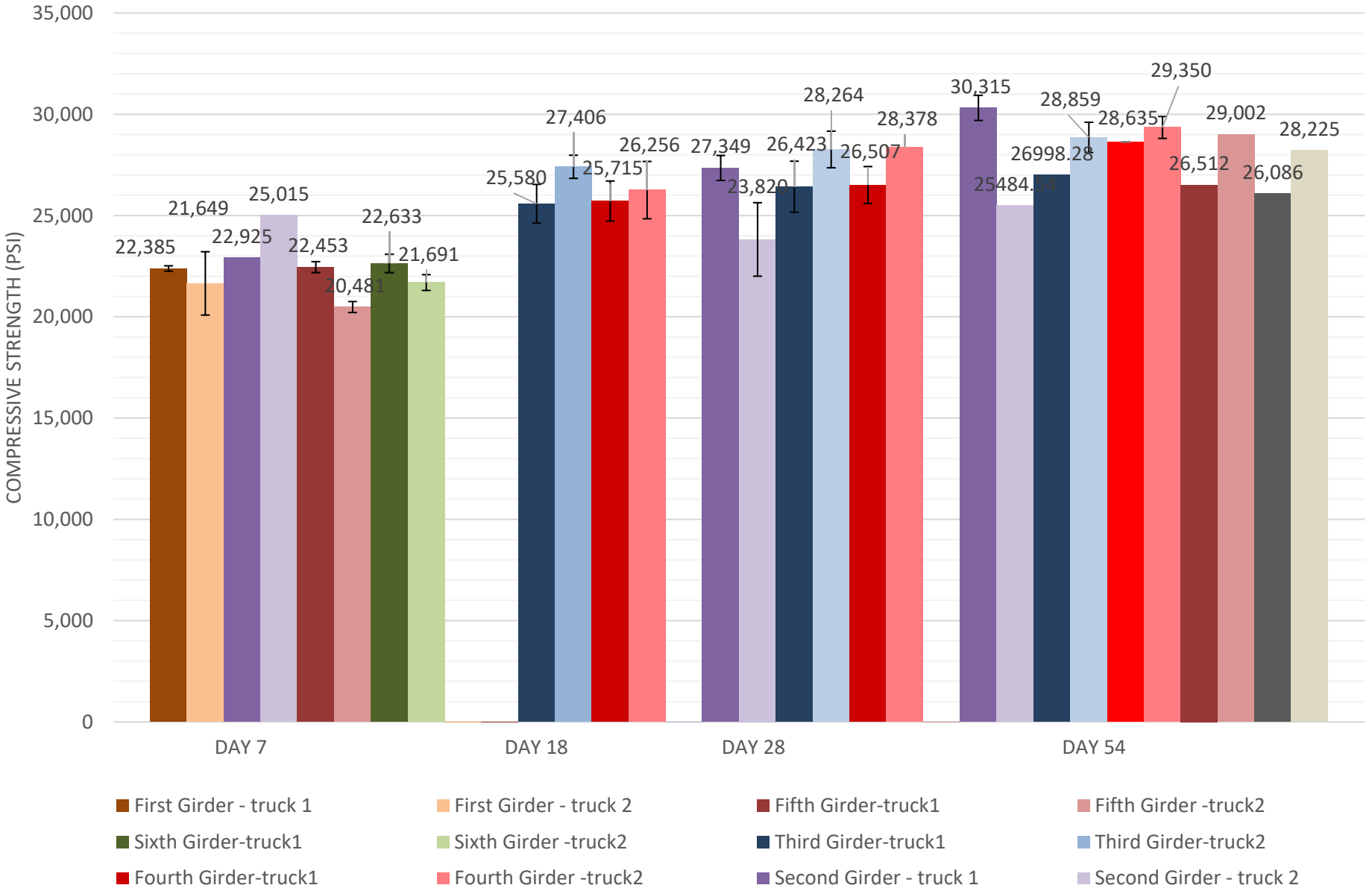
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28,264
26,507
28,378
30,315
25484.64
26998.28
28,859
28,635
29,350
26,512
29,002
26,086
28,225
DAY 7
DAY 18
DAY 28
DAY 54
First Girder - truck 1
First Girder - truck 2
Fifth Girder-truck1
Fifth Girder -truck2
Sixth Girder-truck1
Sixth Girder -truck2
Third Girder-truck1
Third Girder-truck2
Fourth Girder-truck1
Fourth Girder -truck2
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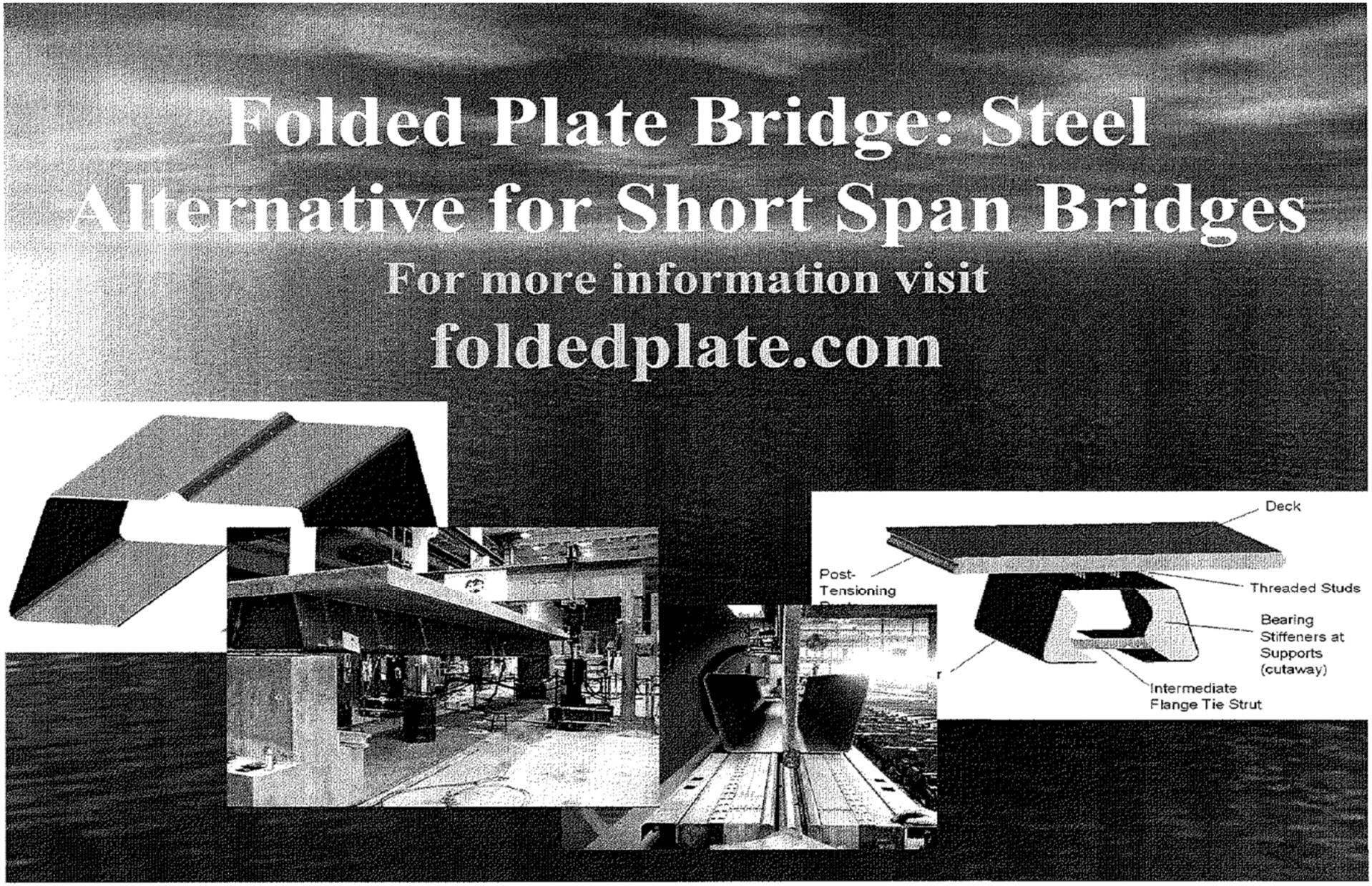
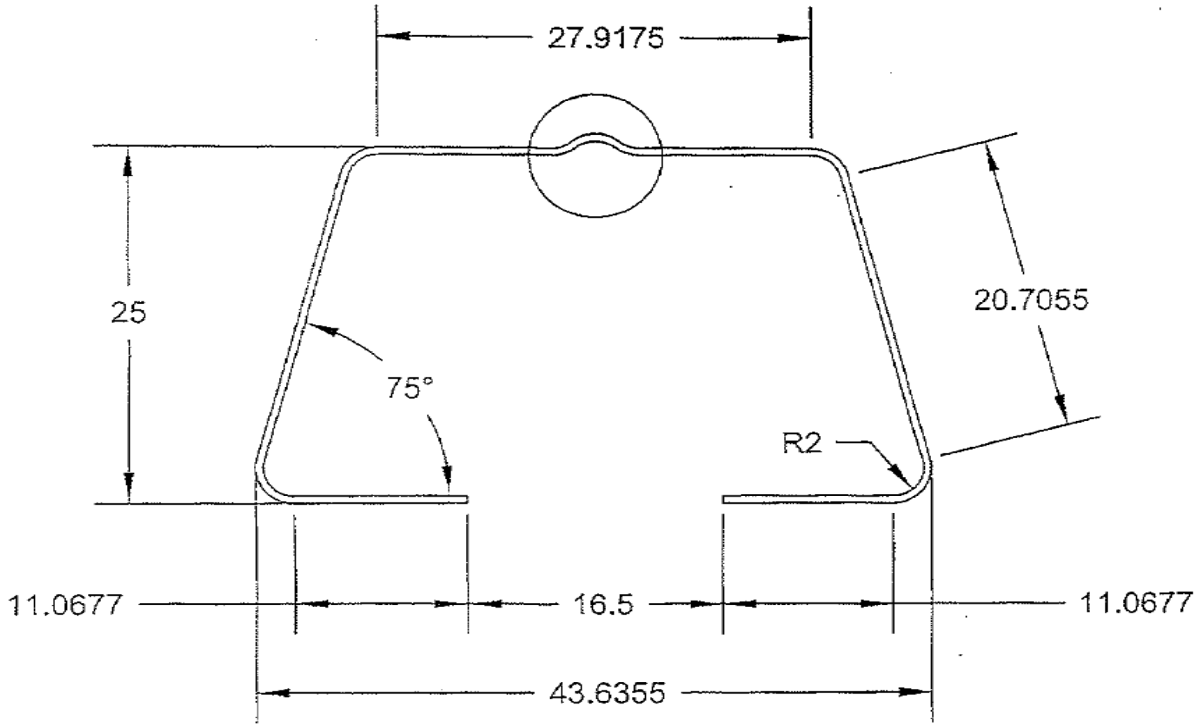
Jesup South Bridge

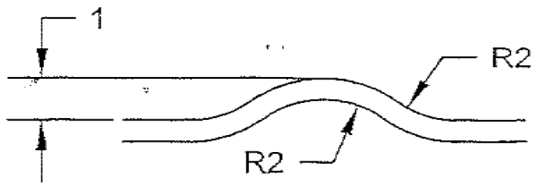
Folded Plate Steel Bridge Concepts



Atorod Azizinamini Process

Folded Plate Specime
Half Inch Plate





Detail A

Bending Dimensions

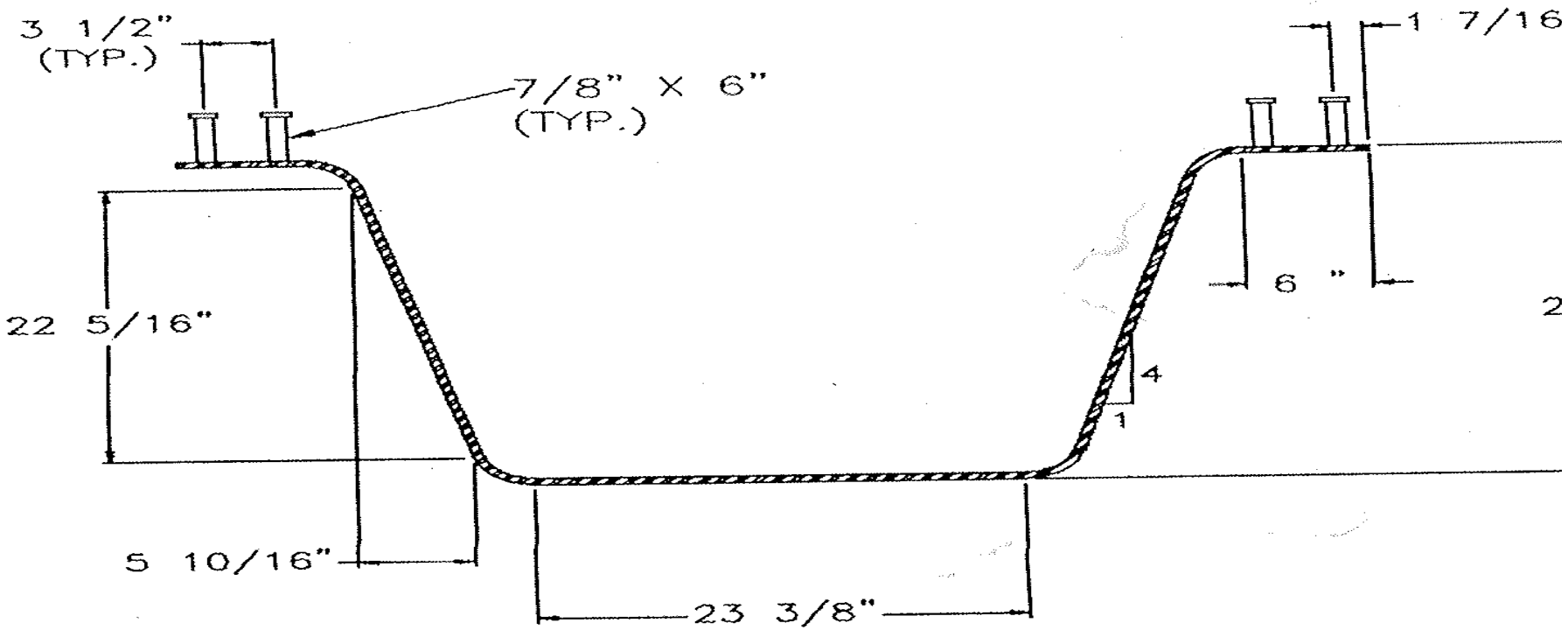
Total Plate Width = 105.6012

Dr.Karl Barth From

WestVirginiaUniversity.

and Dr.Michael Barker From

The University of Wyoming



PRESS BRAKE TUB GIDDER

Initial tests are very promising

Find More ECONOMICAL Solutions

Stay in place decking and Galvanized rebar

A county in Michigan claims to build for less than the 20% Federal Match

Press Brake Tub Girder Amish Sawmill

Piling Encasements Deteriorating

Current Concrete Pier Repair

Change the design to solve the problem

Galvanized and coated piling no encasements

D22 Buffalo Creek Constructed 1928 rehabilitated 1956

Why replace a perfectly good Bridge

Abutment Fractured and shifting

Complaints about visibility

Coffer Dams for encased piling not this year

Trying to stay high and dry

Record Rains

The Beams are Completed.

Placing the Concrete

Open Rail improves visibility

Opened last year not this year

Buffalo Creek Bridge

Vibratory Piling Driver Clinton, Scott and Harrison Counties

Cedar Rock Timber Bridge

Widened for a path

Buried Soil Structures

US Forest Products Lab

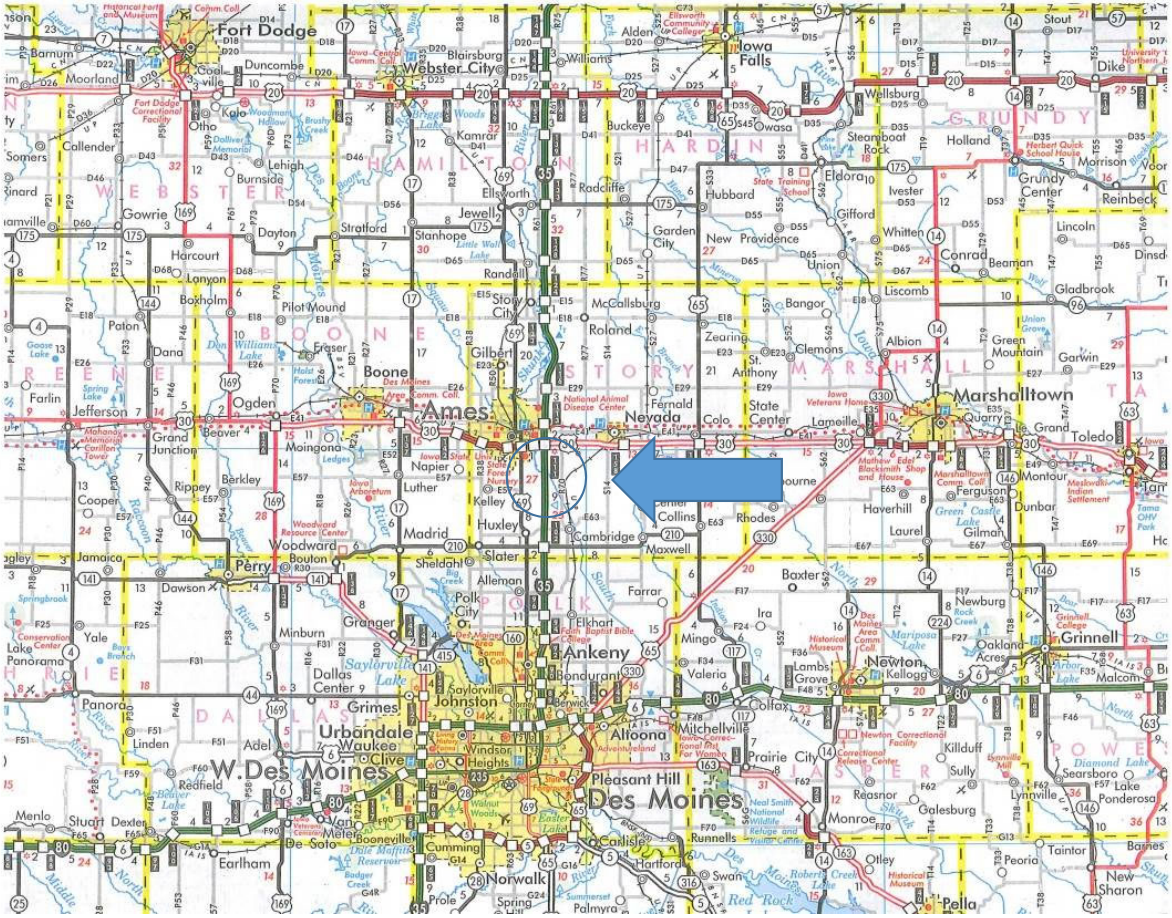
THANK YOU

Incorporating Resiliency into Iowa DOT Infrastructure

Webster's Definition of Risk & Resiliency

- **Risk/Vulnerability –** Possibility of LOSS or Exposure to Hazard
- **Resiliency -** An ability to RECOVER from or ADJUST easily to MISFORTUNE or CHANGE..
- **Transportation Resilience** can be reflected as a measure of annualized monetary loss of service or mobility from weather related threats based on asset design, characteristics and vulnerability.

Design for Resiliency
I-35 over South Skunk River



I-35 over South Skunk River - 2010

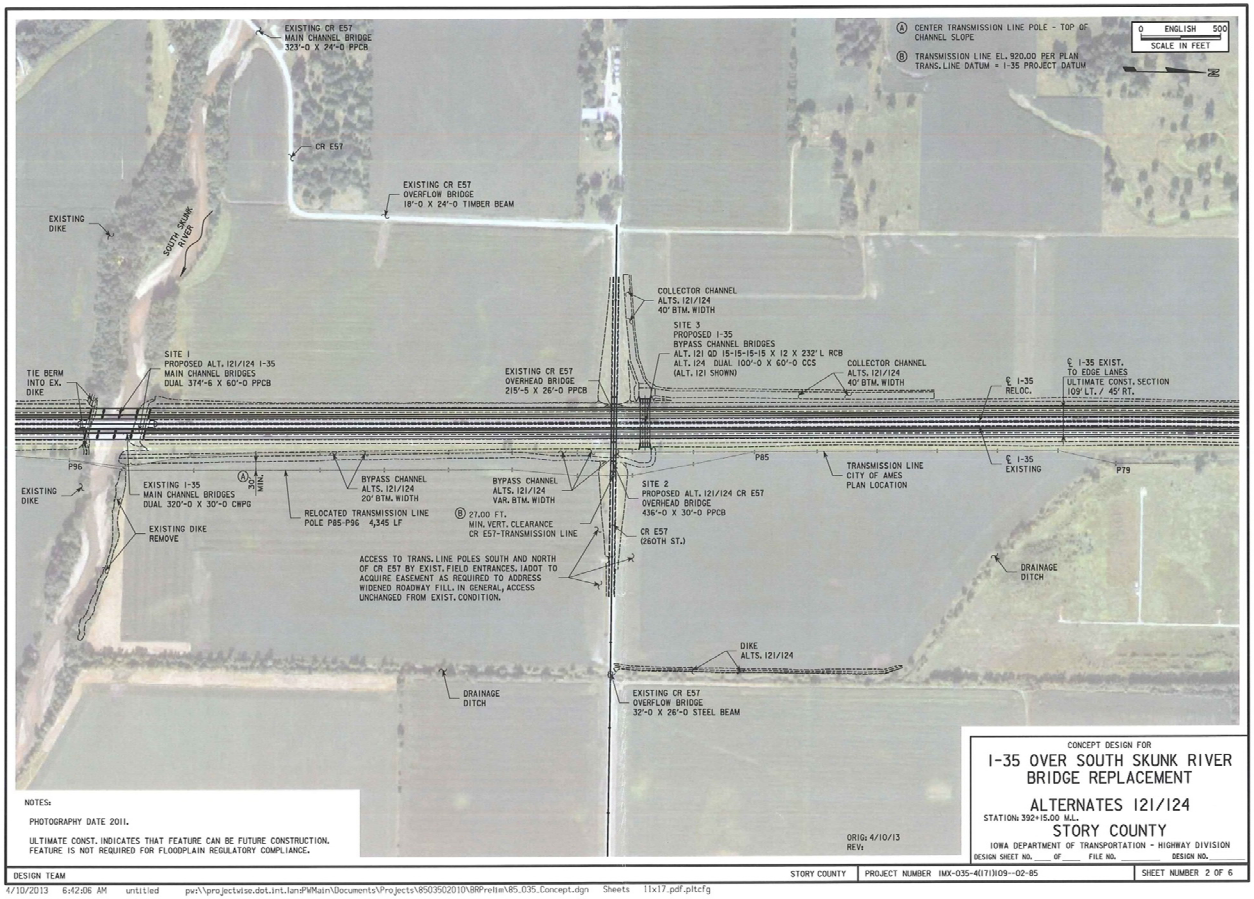
Flood Event

- South Skunk River - Over 500 Yr. Flood in 2010
  - Previous Peak = 26,000 cfs
  - 2010 Flood = 36,000 cfs (38% increase above Record Flood)
  - Gage has 63 years of record

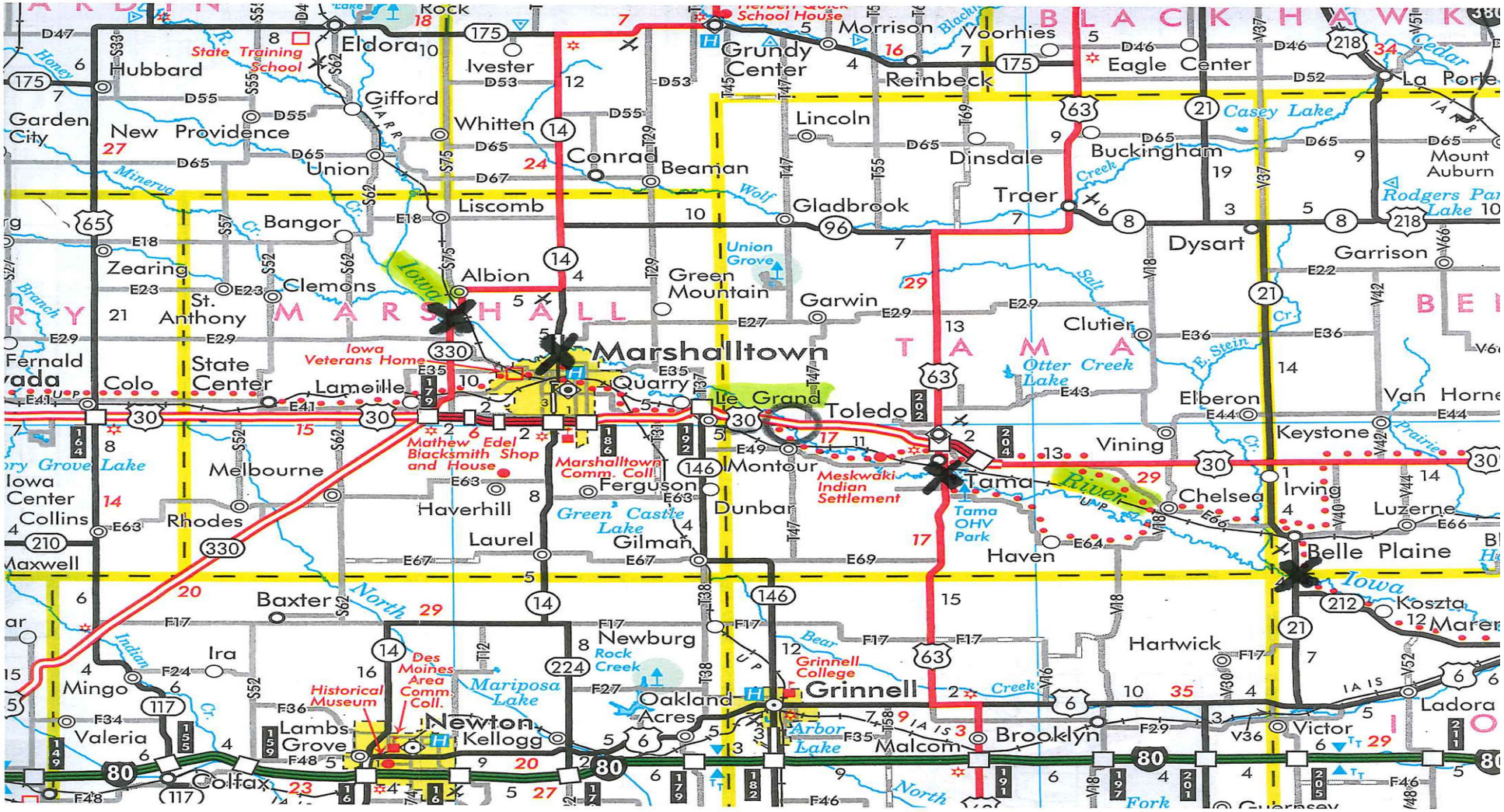
2D Hydraulic Modeling

- Conventional 1D Modeling is Difficult – Due to Levees/Dikes & Skewed Highway to Flood Plain
- 2D Hydraulic Model more Accurate
  - Modeling Surface vs. Cross Sections
- Model was Correlated with 2010 Flood

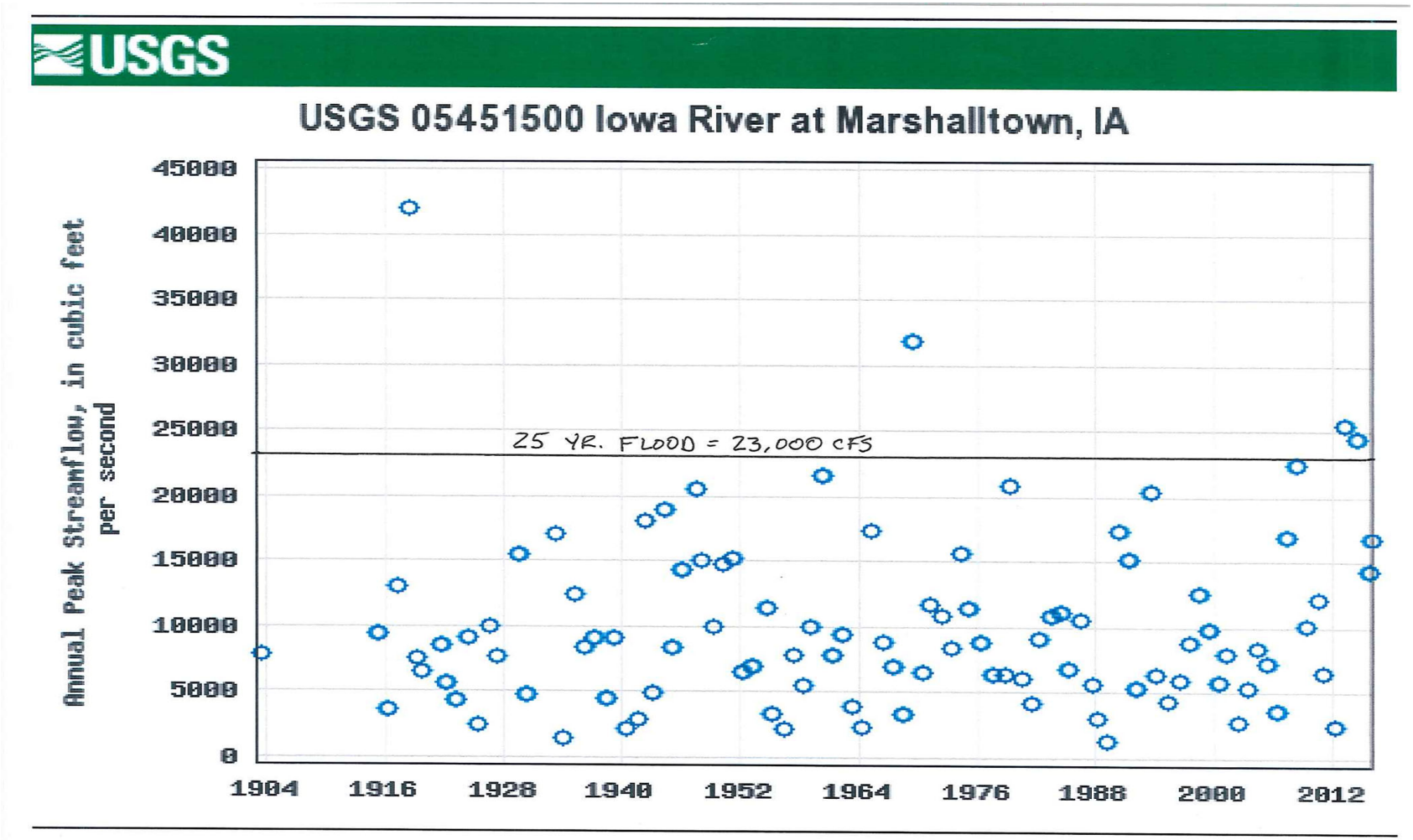
Design for Resiliency – I-35 over South Skunk River



TRANSPORTATION RESILIENCY

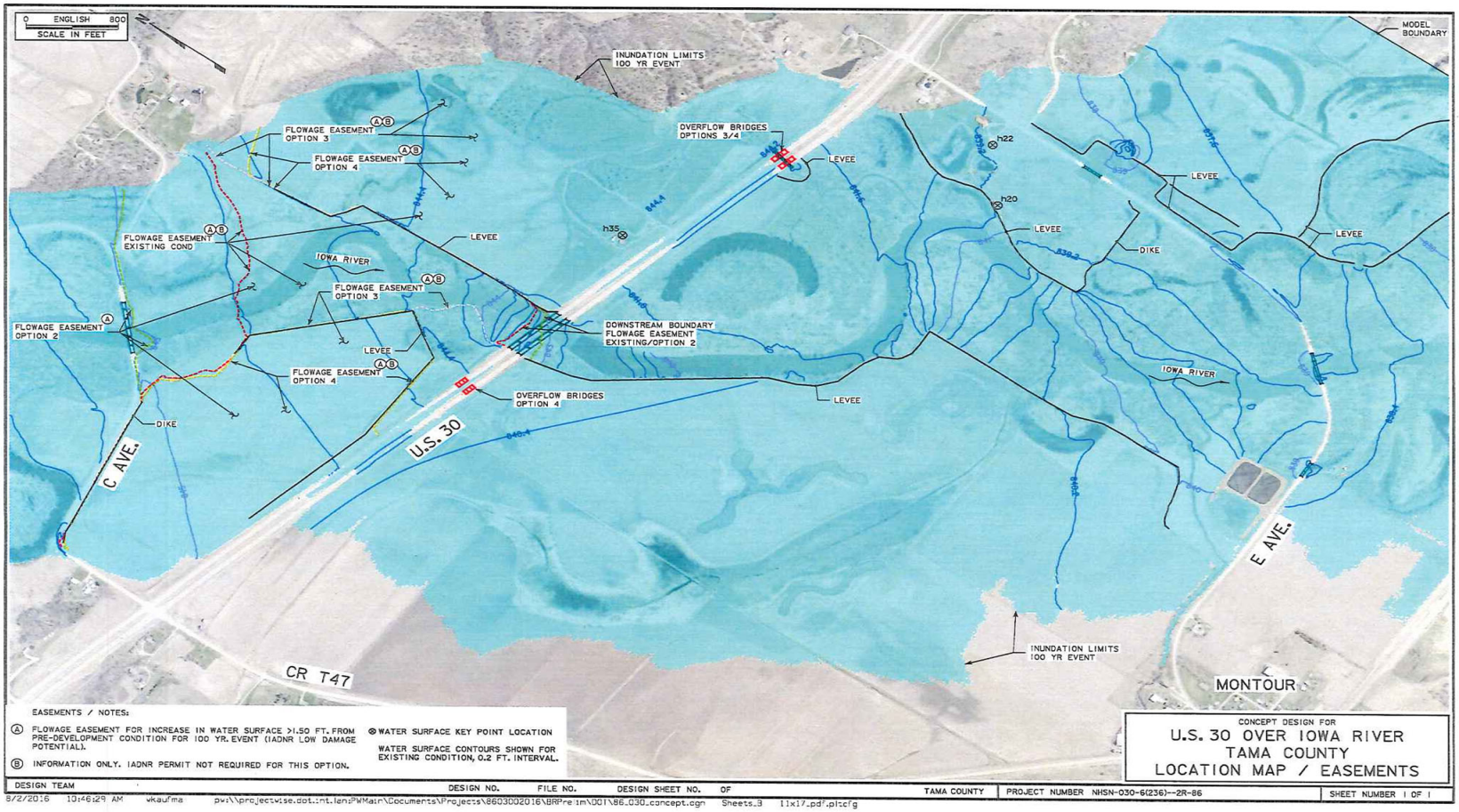


Gage Record – Historic Floods



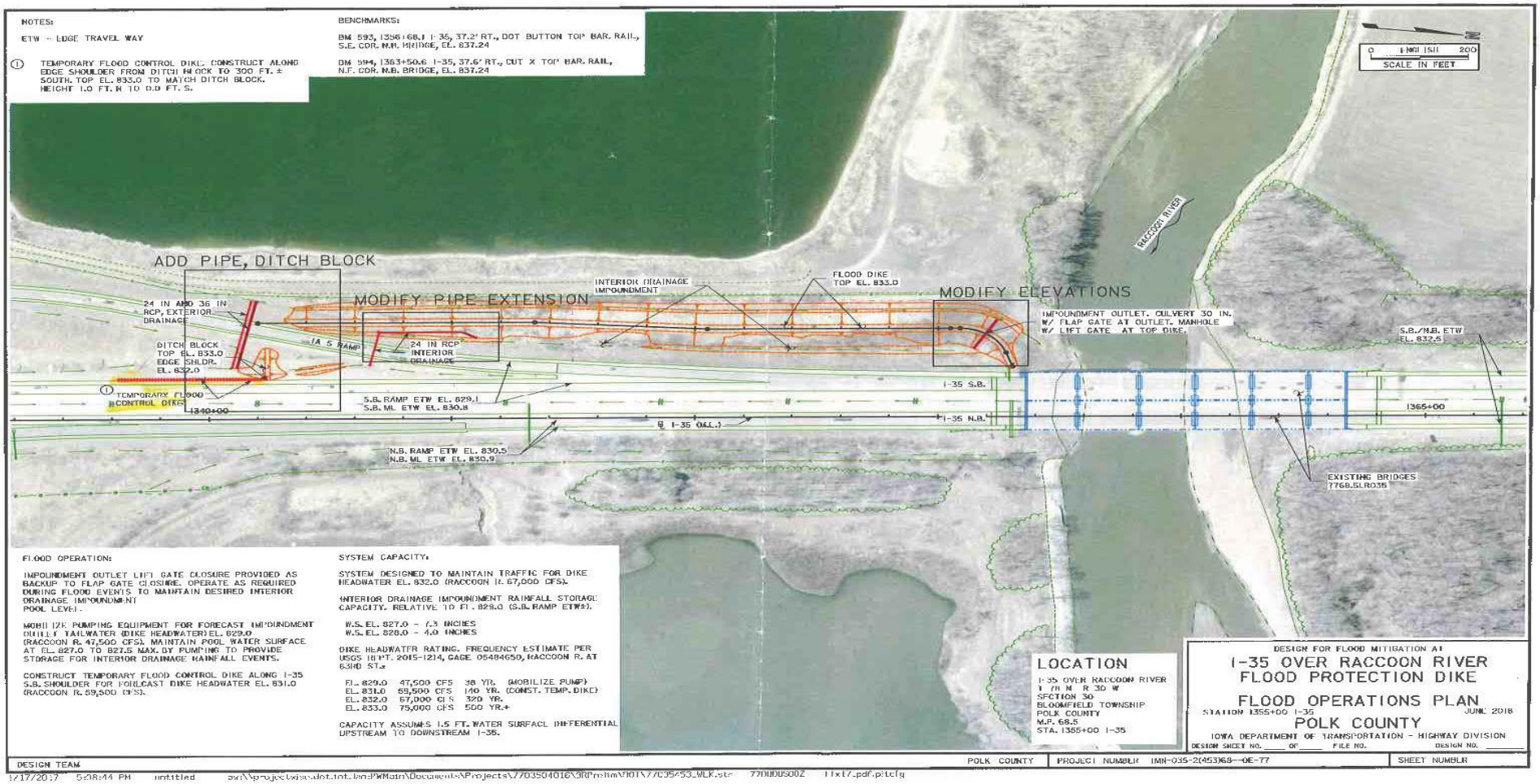
U.S. 30 over Iowa River near Le Grand, IA

U.S. 30 Flood Resiliency/Adaptation



I-35 over Raccoon River in West Des Moines

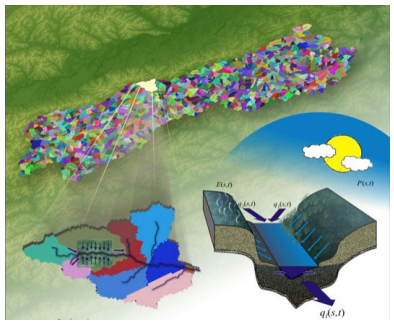
I-35 over Raccoon River

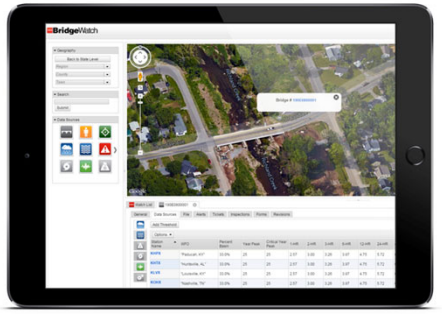


Resilient Mobility w/Implementation of Real-Time Monitoring of Highway Overtopping:

1. Integrating IFC technologies into the IDOT Operational Framework for Roadway Flooding

&





2. Proactively notifying Garage Supervisors of Highway Overtopping

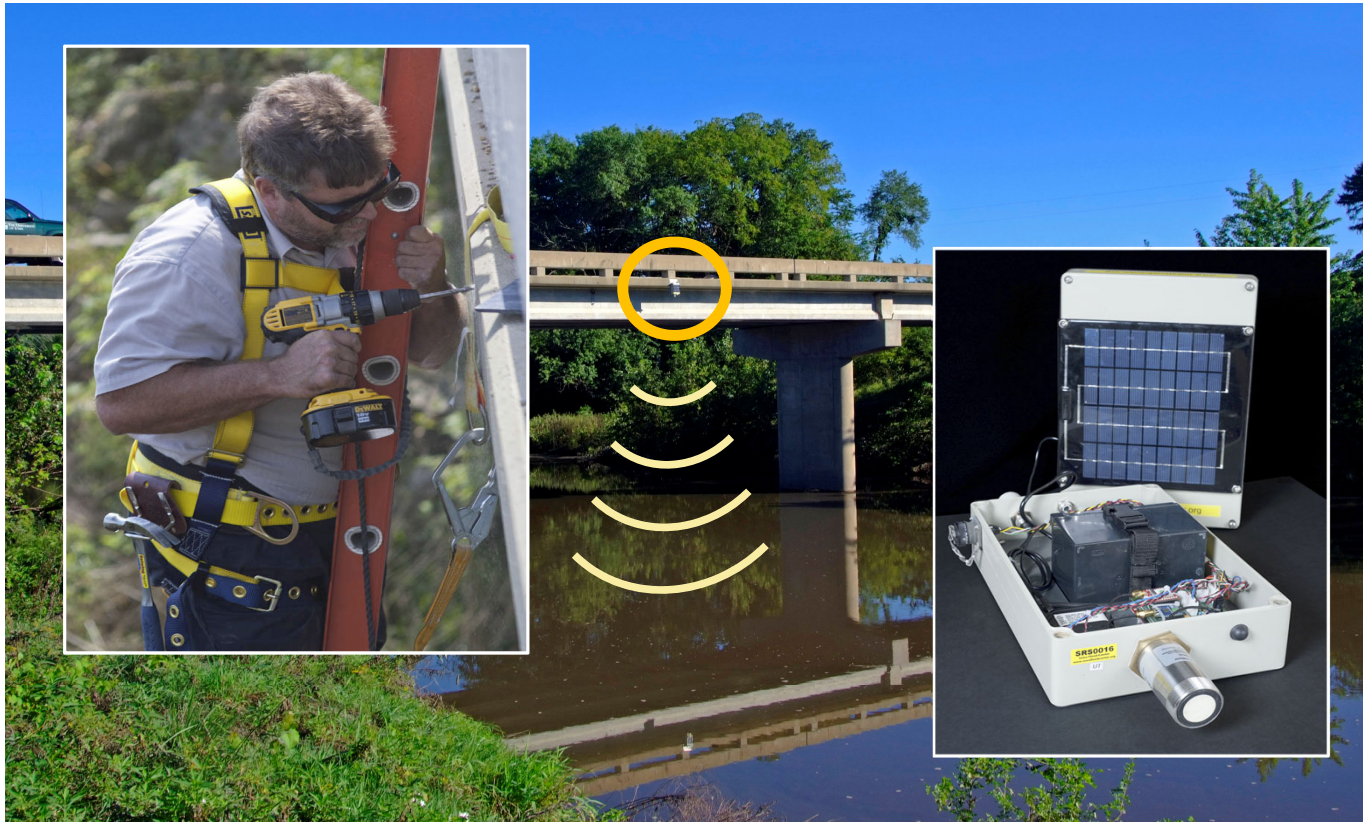
22 Most Susceptible Overtopping Sites

	CURRENT STAGE	FUTURE STAGE
11 Sensor Sites	**Ultrasonic Bridge Mounted Sensor** High Accuracy	**Hydrological Model + Rating Curve** Limited but Higher Accuracy
11 Model Sites (*2 USGS Gauge)	**Hydrological Model + Rating Curve** Limited Accuracy	**Hydrological Model + Rating Curve** Limited Accuracy

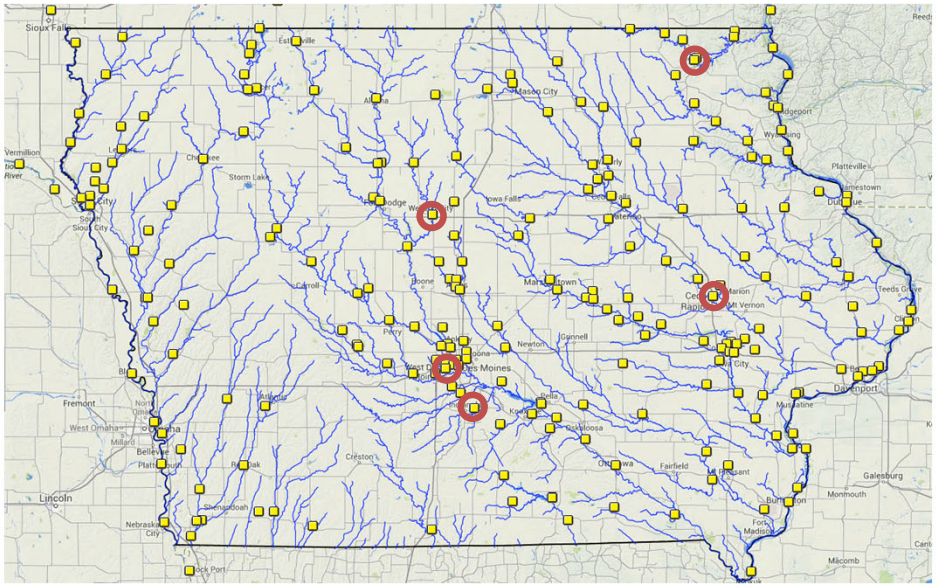
The Iowa Flood Center

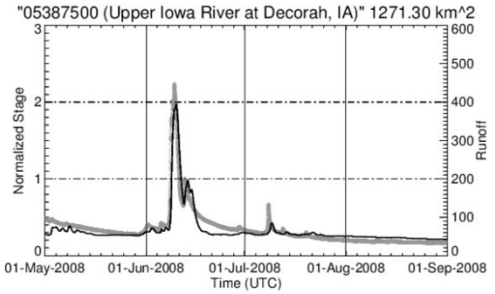
Since its creation in 2009 the IFC has been developing technologies for monitoring, predicting and anticipating the effect of floods and flash-floods in Iowa

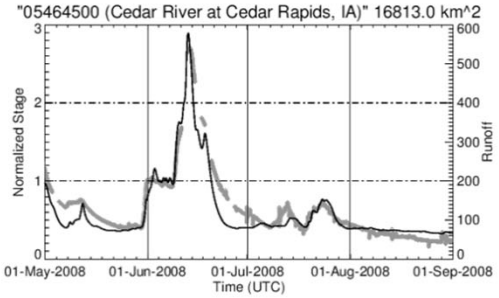
Sonic Stage Sensors

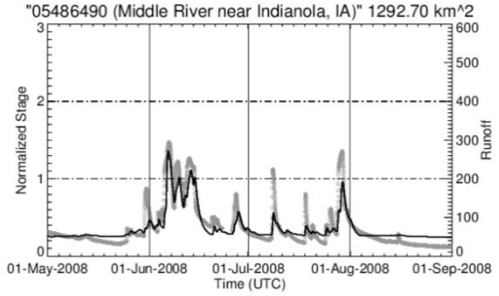


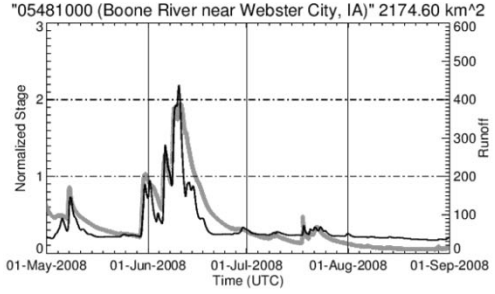
Flood Forecasting Model

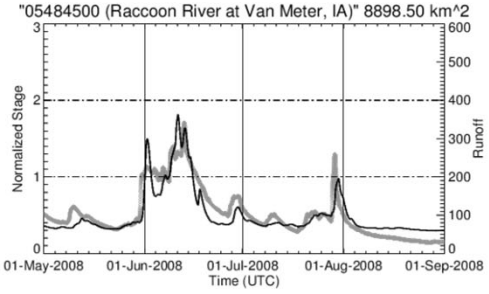








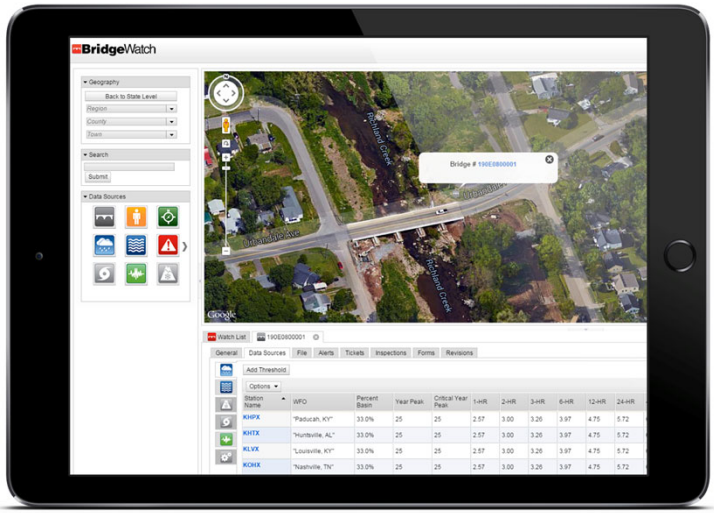




Integration with BridgeWatch™

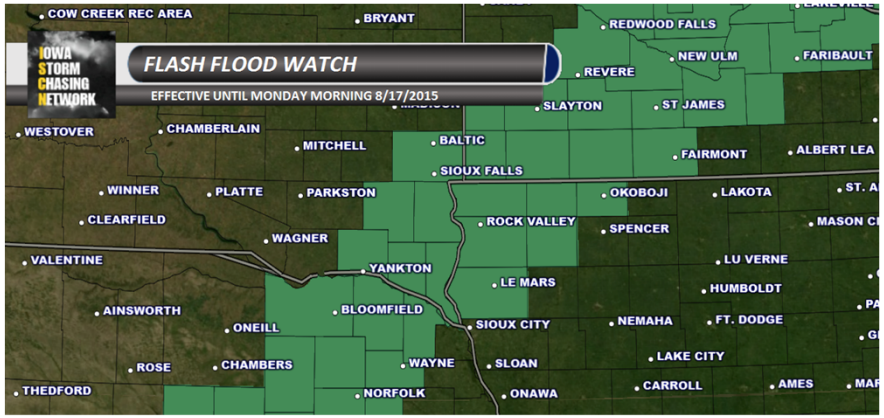
US Engineering Solutions

BridgeWatch



Garage Supervisors will receive information from from actual observations by sonic-sensors or from model predicted states. In addition, roadway overtopping locations with rating curves will receive model forecast.

Resiliency is Proacative – Not Reactive



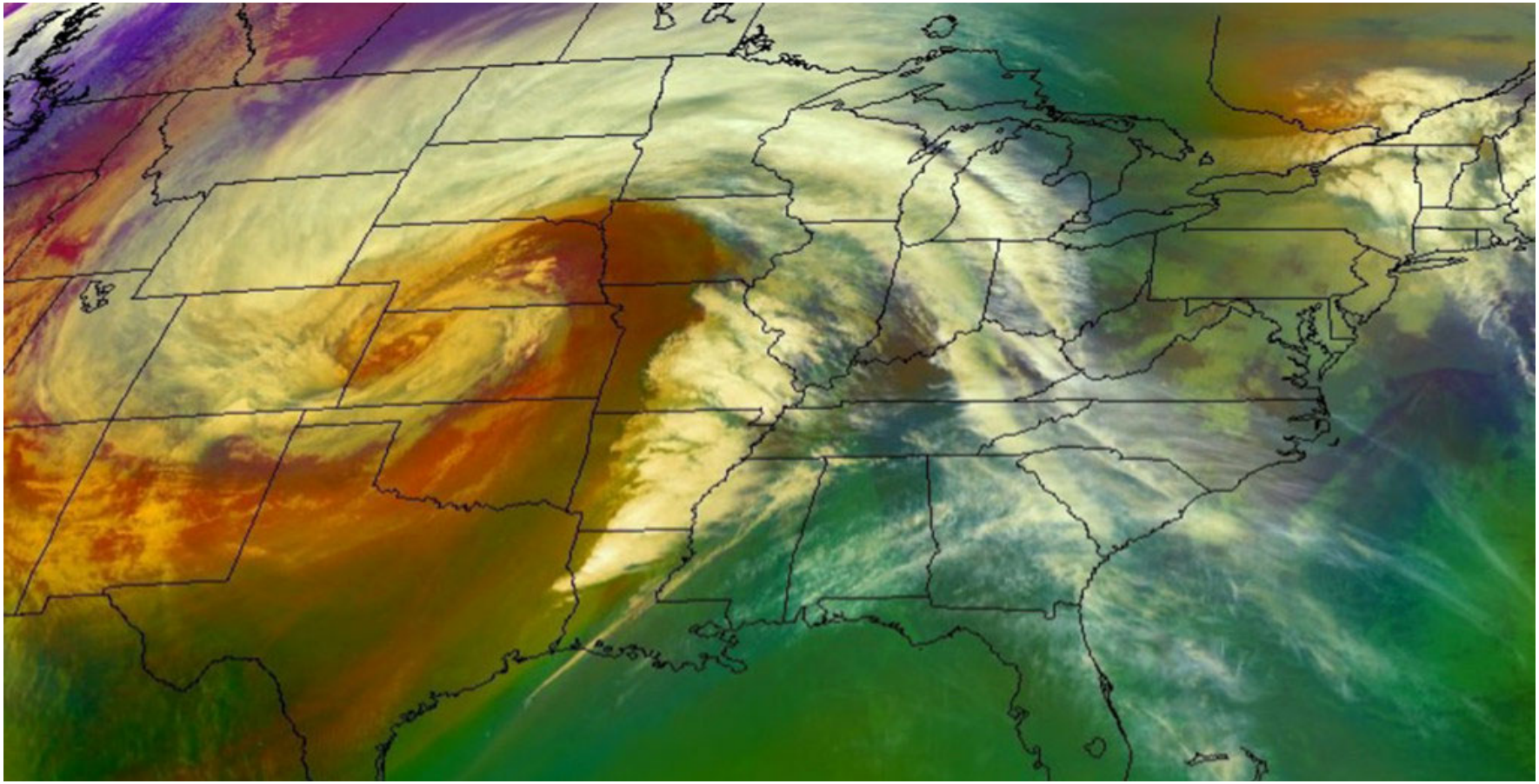
Monitoring will Accomplish:

Consistency - to develop a statewide framework which enhances public safety by proactively responding to overtopping alerts as opposed to responding to situations where overtopping has already occurred.

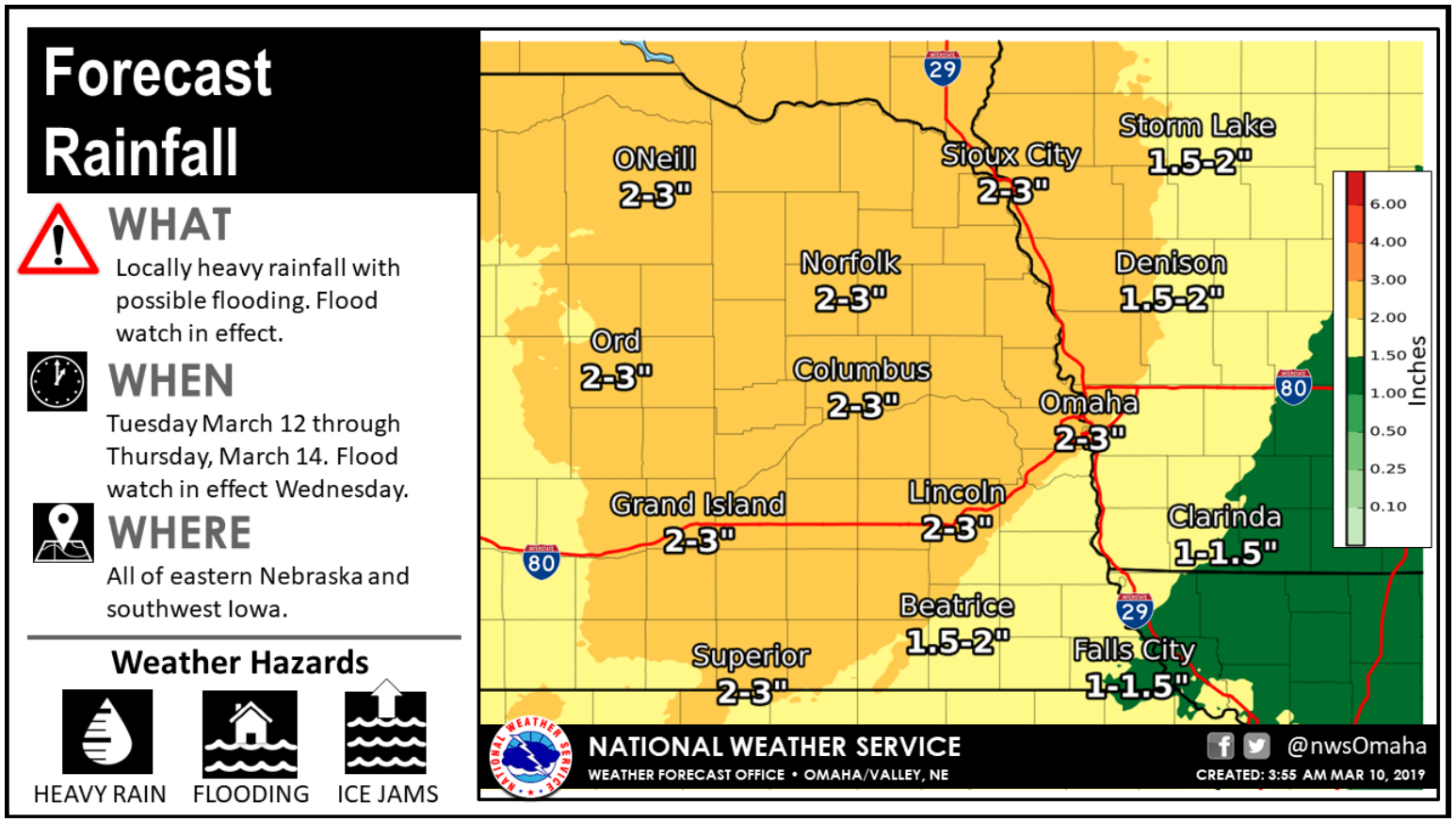
Quality - the degree to which the forecast corresponds to what actually happened.

Value - the economic benefits of the real-time forecast by properly allocating time and resources for monitoring and closing the road.

“Bomb Cyclone”



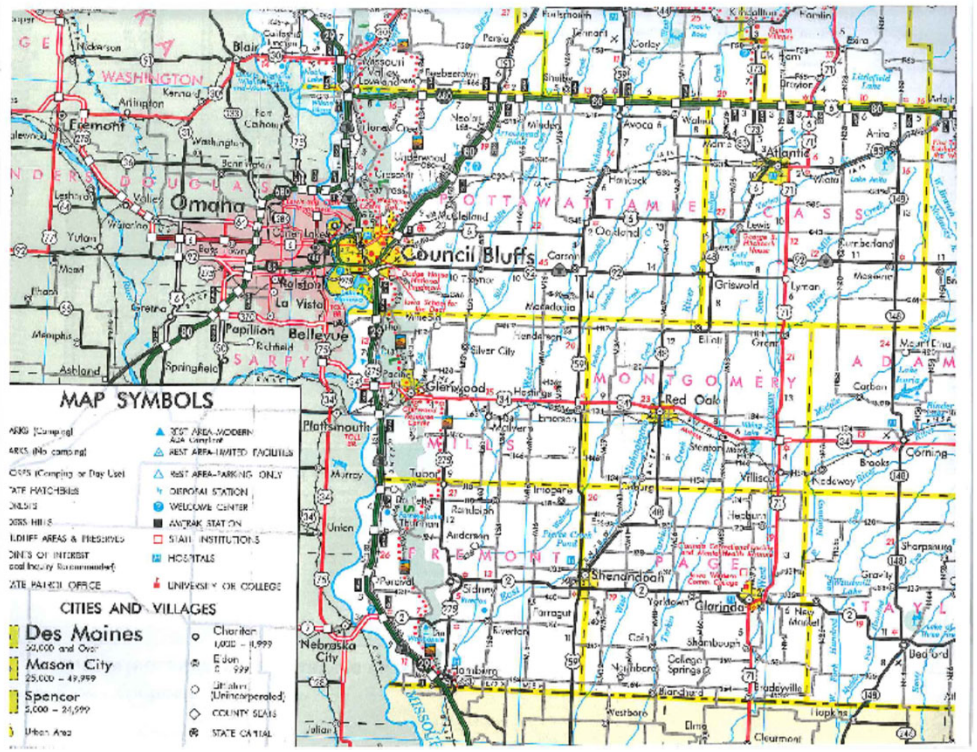
Rainfall from Bomb Cyclone



Published on: 03/11/2019 at 4:54AM

Levee Breach

Infrastructure Impacts



I-680 Damage - 2011

I-680 – Restored In-Kind – 34 Working Days

I-680 Damage – March 2019

Incorporating Resiliency - Flexamat

Sufficient Anchorage

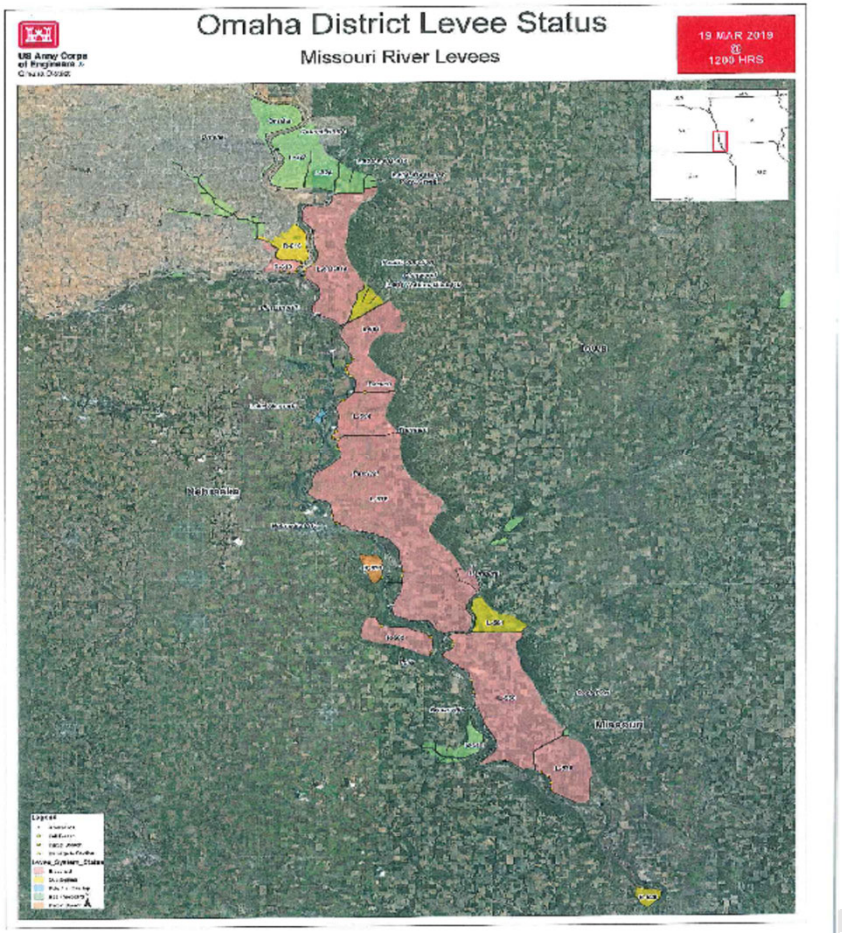
I-680 Asphalt Connection – June Event

I-680 June 2019 Flood Event

I-680 Flexamat – June Event

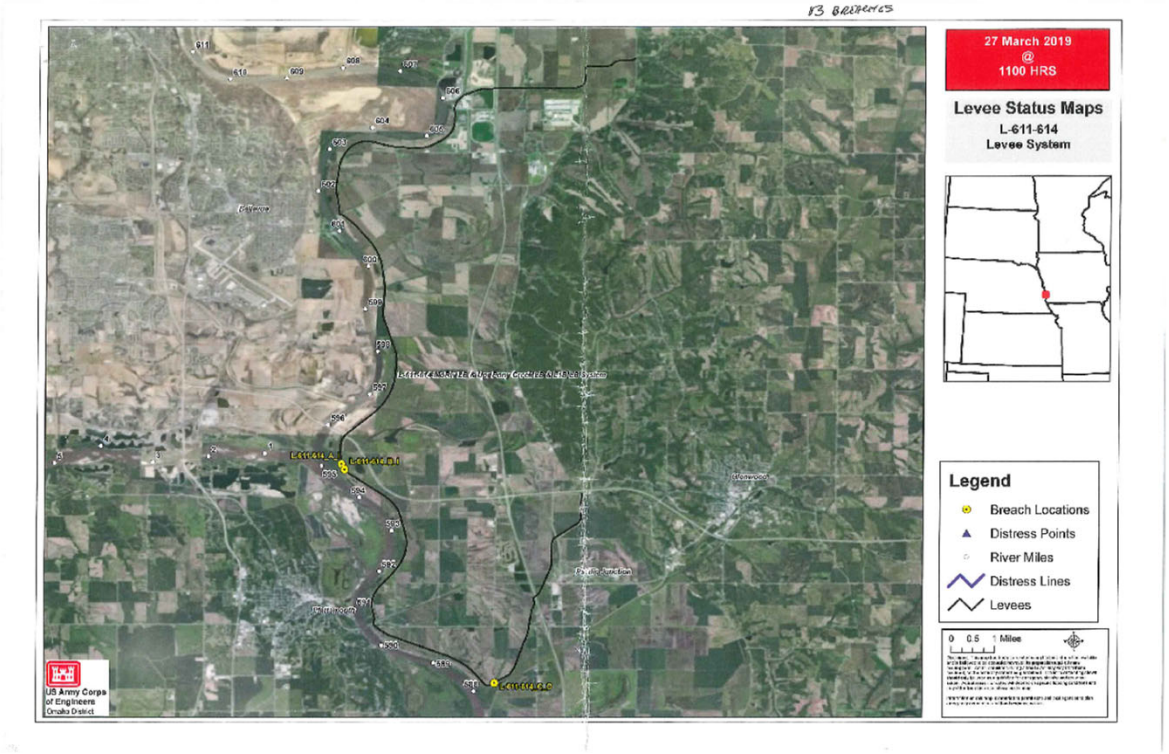
Minor Repairs – More Resilient

Corps Levee System



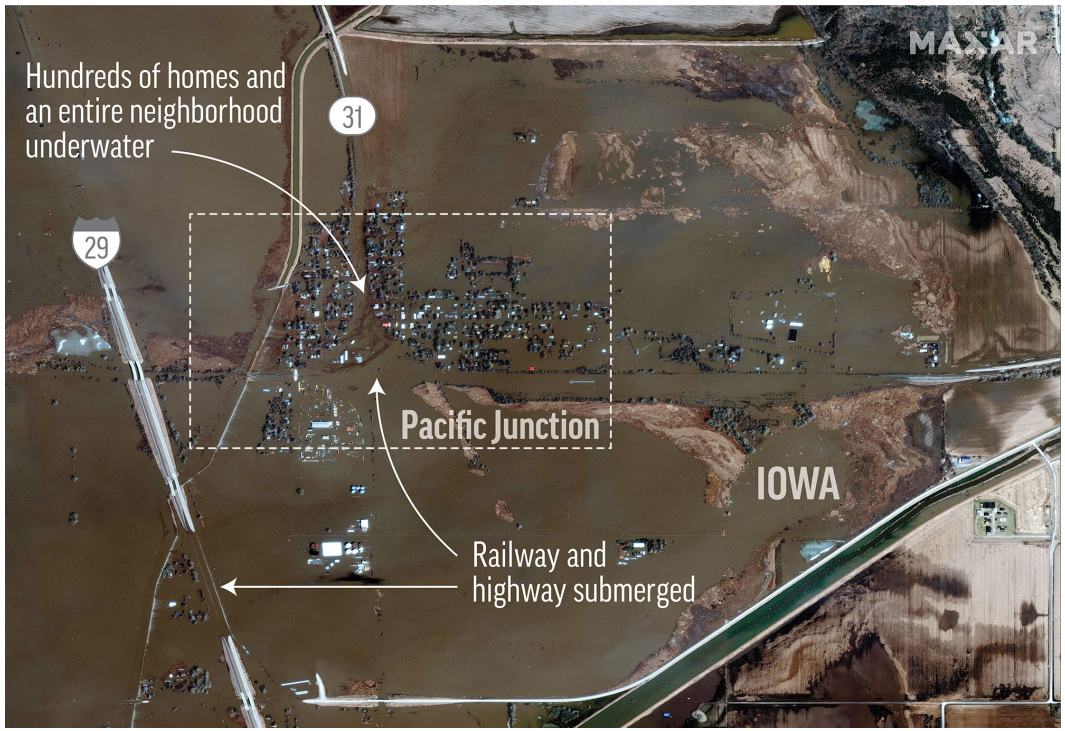
Recovery Status
May 23, 2019

L-611-614 – U.S. 34 & Pacific Junction



Pacific Junction - Before

Pacific Junction - After



U.S. 34 – March Event

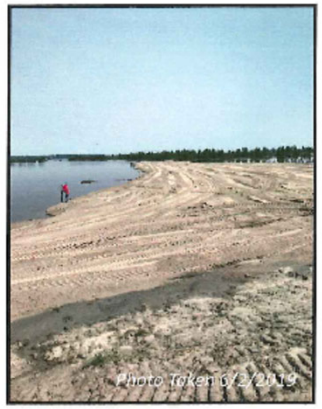
U.S. 34 Damage – March 2019 Event

U.S. 34 – June Event – Revetment Countermeasure

Corps Repair of L-611 – 614 Levee

L-611-614 Initial Breach Repair

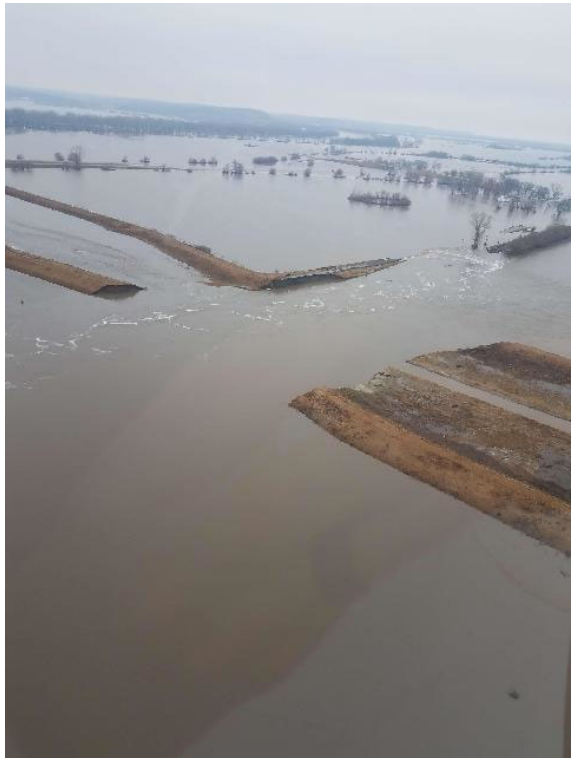
- Breach Closure Target ~ 21 June 2019
- Sand placement on-going within berm alignment. Sand berm elevation changed to 965' (was 961'). ~1/3 of sand berm length now at 965'.



L-601 Cell - Bartlett

Wabonsie Creek - Before

Wabonsie Creek Flank Levee Breach

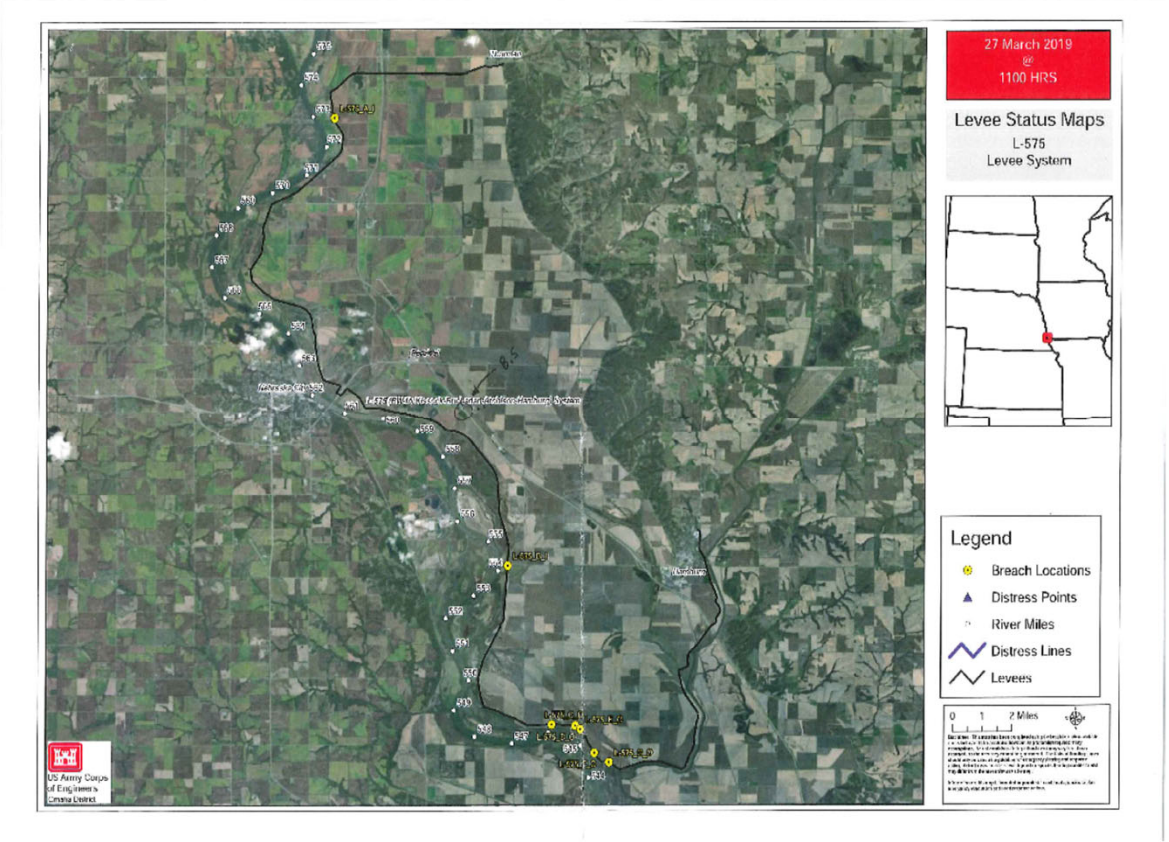


Corps Levee Repair L-601

2D Modeling for Resiliency along I-29 and Bartlett Interchange – Most Vulnerable Cell

- Modeling will Determine Level of Service
- Analyze Resiliency by Constructing Earthen Dike in Lieu of Raising I-29
- Provide Interior Drainage Design at Bartlett Interchange
- Determine Potential Use of AquaDam

L-575 Cell – IA 2 and Hamburg



Repair of L-575

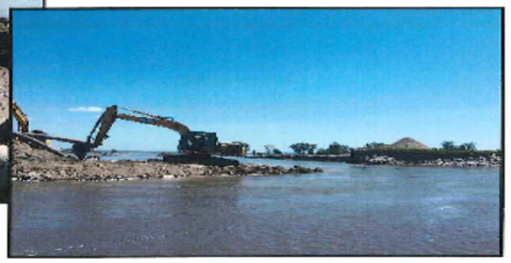
L-575 A_I Initial Repair

- Dredge Iowa re-mobilized and began pumping on 6/3
- Target breach closure is ~June 17th

L-575 Levee Repair

L-575_B Initial Breach Repair

- Target breach closure late this week
- Revetment construction is complete
- Roughly 80 LF of breach closure alignment remaining
- Contract is 80% complete



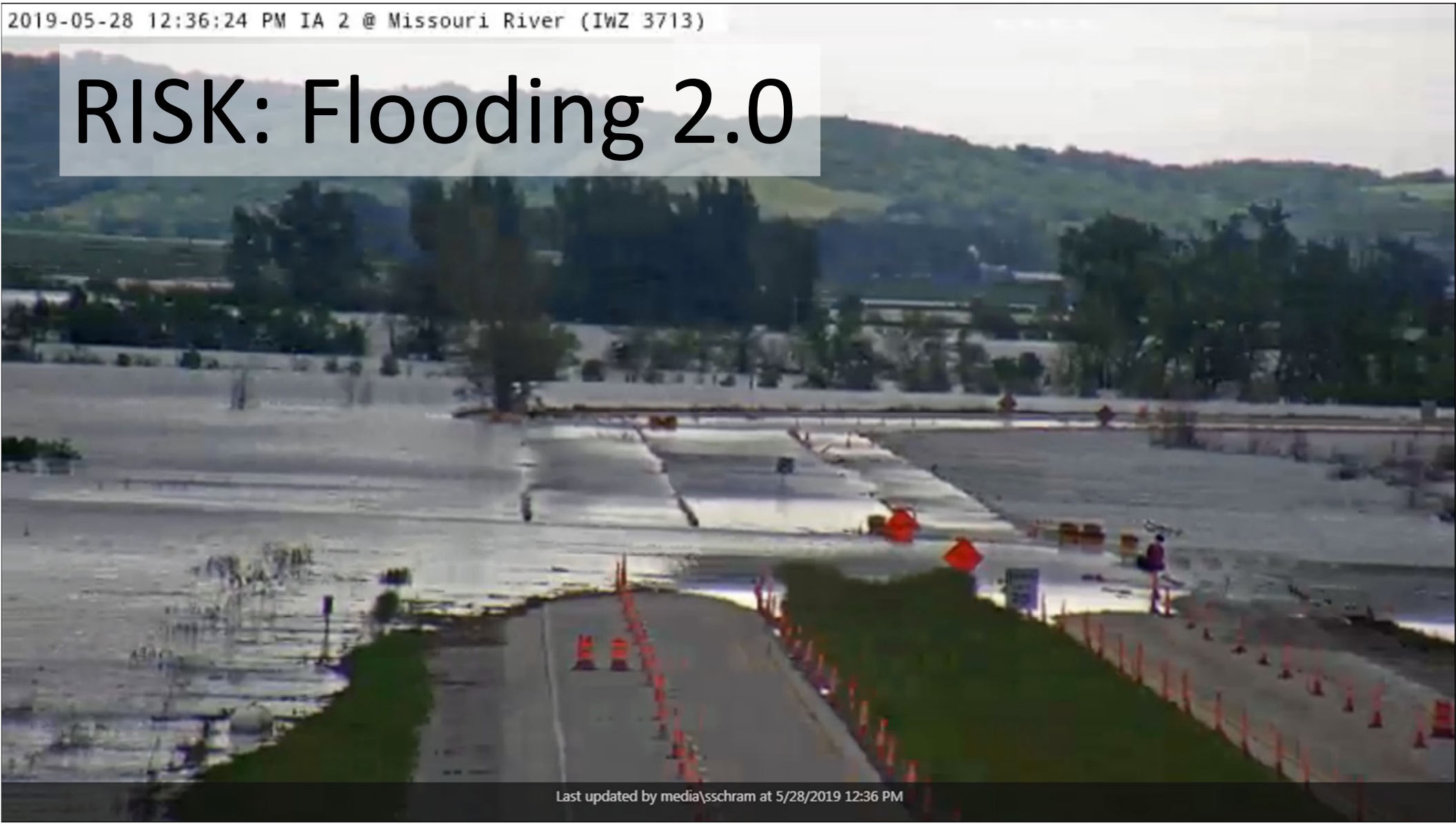

REILLY
REILLY
REILLY

---Plow Cam--- IA 2: today at 10:25 AM CDT

Done

Temporary Mobility

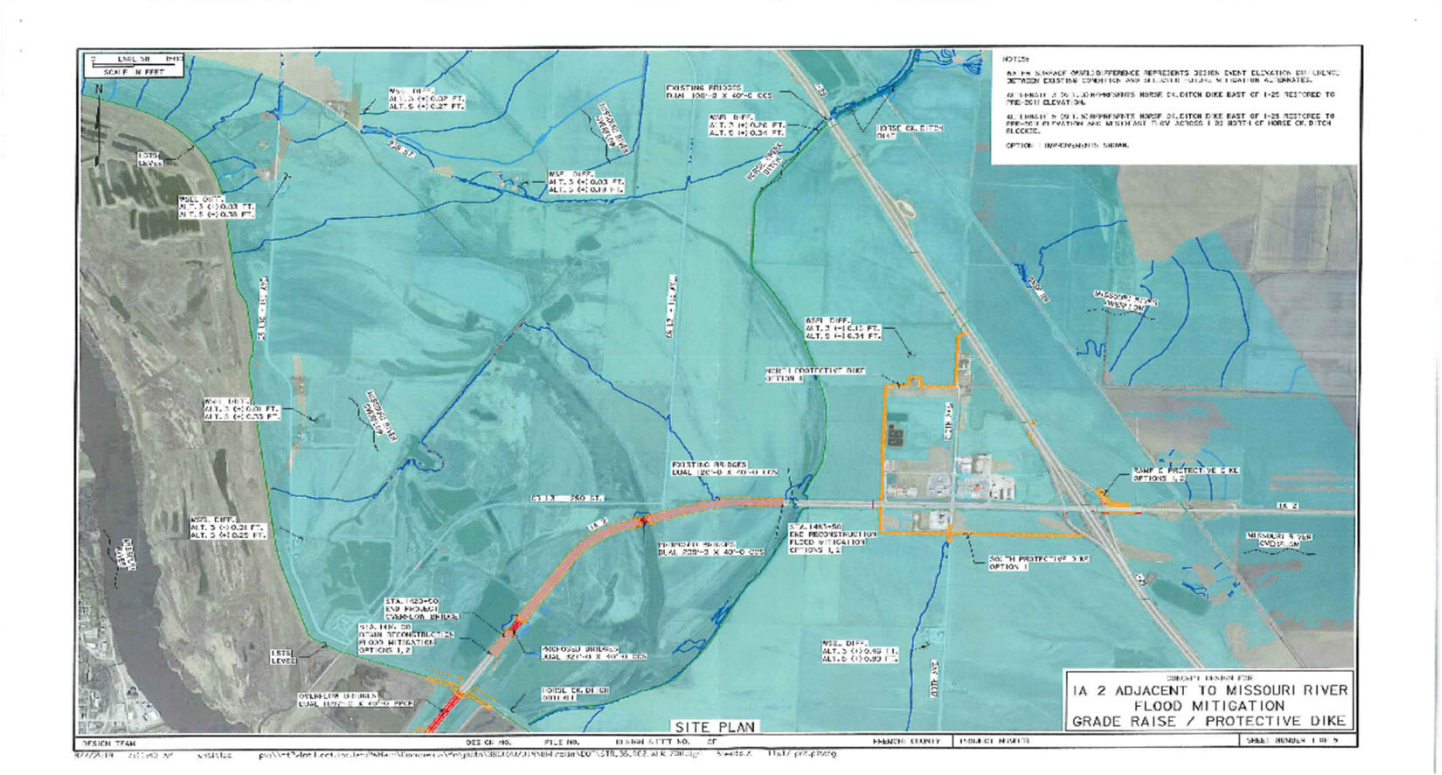

2019-05-20 08:55:38 AM IA 2 @ Missouri River (IWZ 3713)
Temporary Mobility
Last updated by media\sschram at 5/20/2019 8:54 AM



RISK: Flooding 2.0

RISK: Additional Damages

IA 2 Grade Raise w/Overflow Bridges



Incorporating Resiliency for DOT Infrastructure

- Raise Road Grade
- Add More Conveyance under Highway
  - Bridges/Culverts
- Provide Real-Time Monitoring to Enhance Safety/Mobility
- Incorporate Cost Effective Strategies
  - Dikes
  - Paved Shoulders
  - Flexamat
- Design Anticipating Higher Design Storms/Flows

HYDRAULIC DESIGN for RESILIENCY

Continue to Design Based on the Past

or

Based on Potential Future Impacts?

Dave Claman, P.E.
Preliminary Bridge Engineer

Office of Bridges & Structures
Iowa DOT
515-239-1487
david.claman@iowadot.us