NDDOT LOCAL GOVERNMENT UPDATE

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NORTH Dakota
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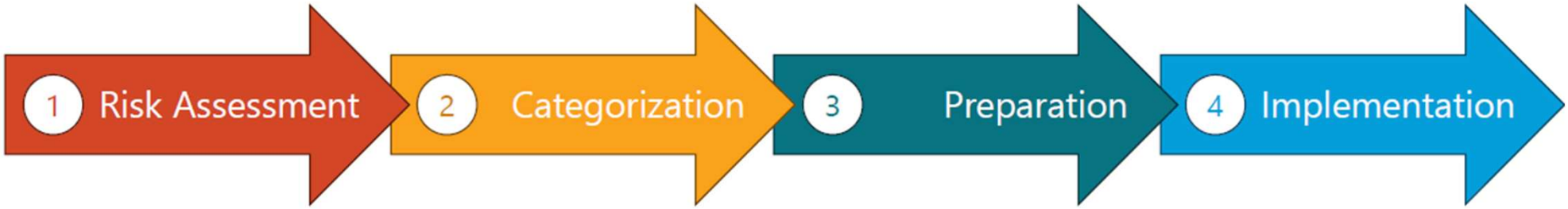
TO DO LIST

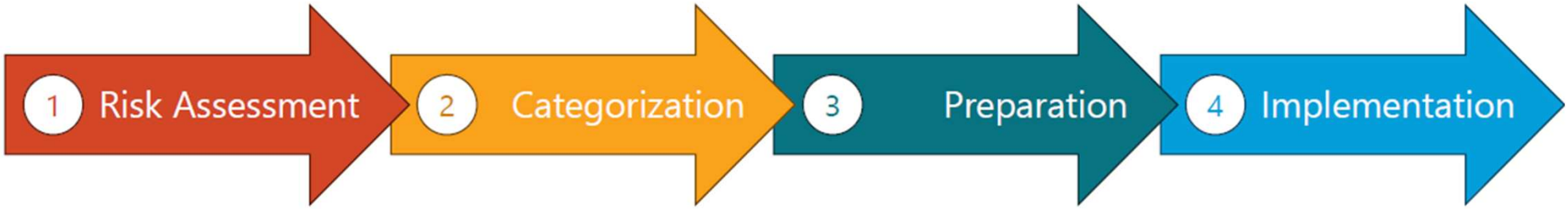
- Metric 18 & Scour Plans of Action Update
- Bridge Inspection Update
- Box Culvert Inspection Update
- County Design Standards
- Odd & Ends
- Questions, Comments, Concerns

METRIC 18 UPDATE

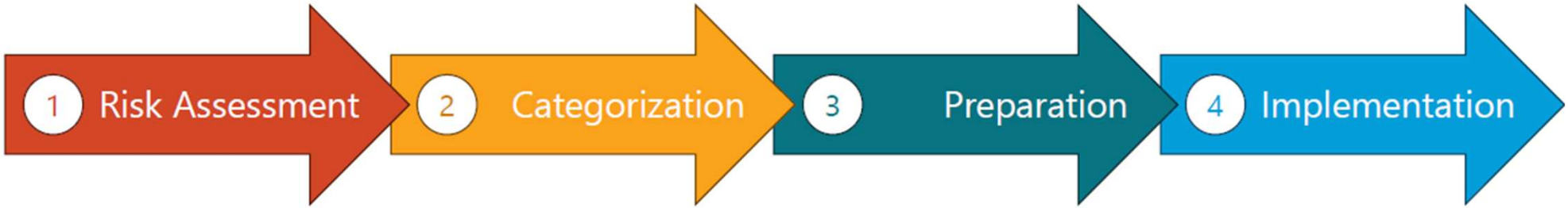
- NBI Program Metric 18 Compliance - Scour
- Code of Federal Regulations 23 CFR Part 650
- NDDOT Metric 18 Scour Inspections LPA Training
  - October 30, 2024

- **Definition**: Provide guidance for Scour Critical and Unknown Foundation bridges before, during, and after flood events
- **Purpose**: Protect structures and the traveling public and meet FHWA requirements

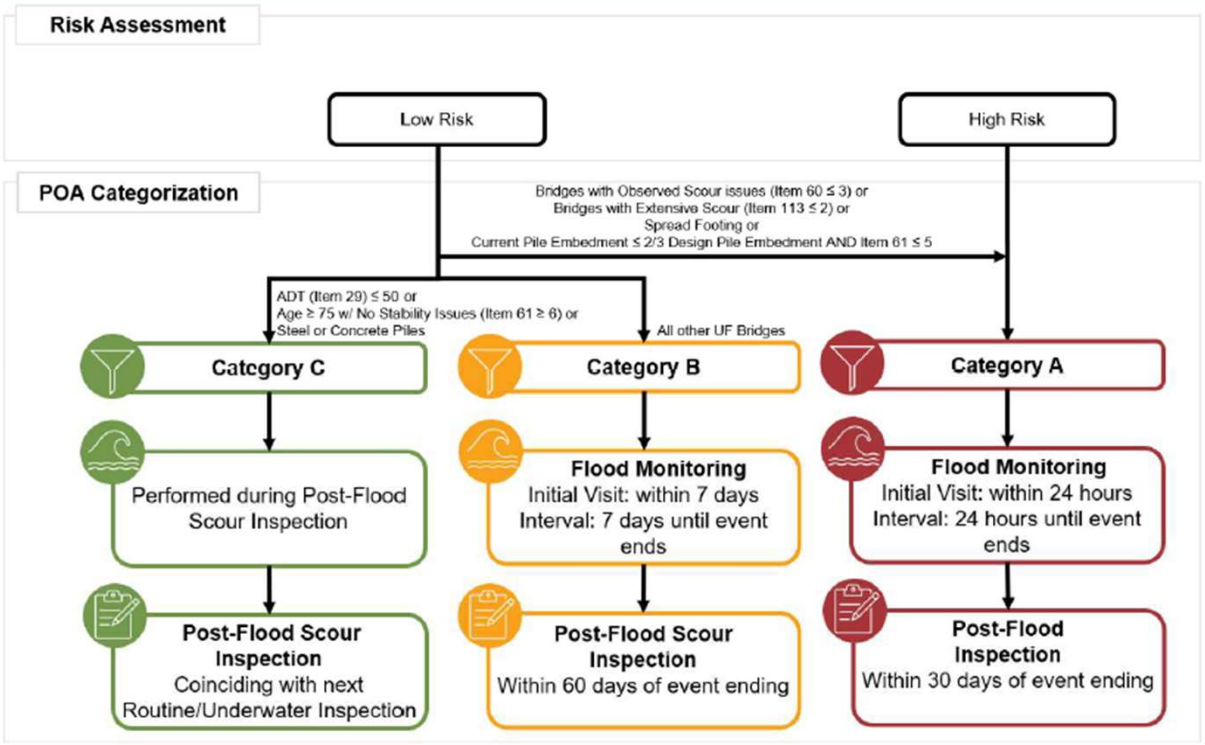

1
Risk Assessment
2
Categorization
3
Preparation
4
Implementation

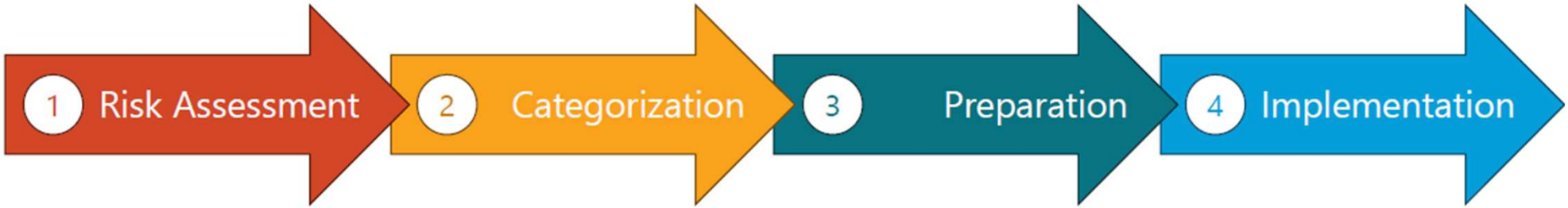


- National Highway System
- Functional Class
- ADT
- Channel

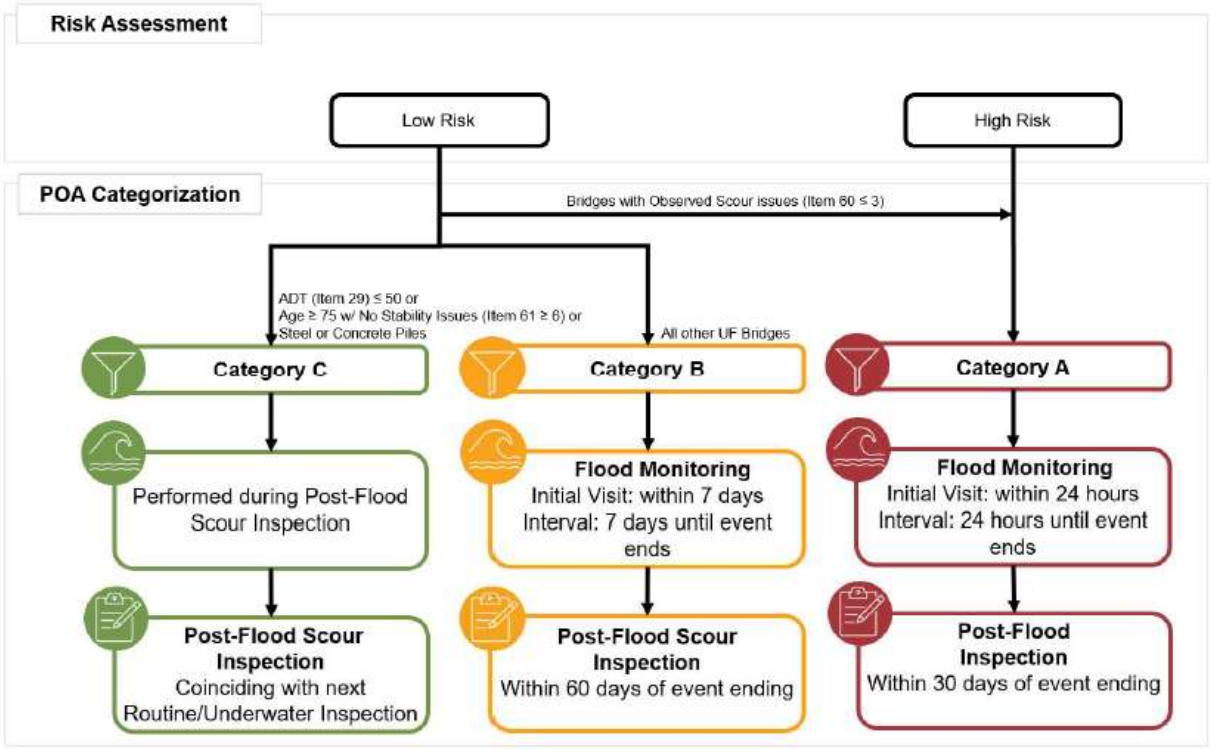


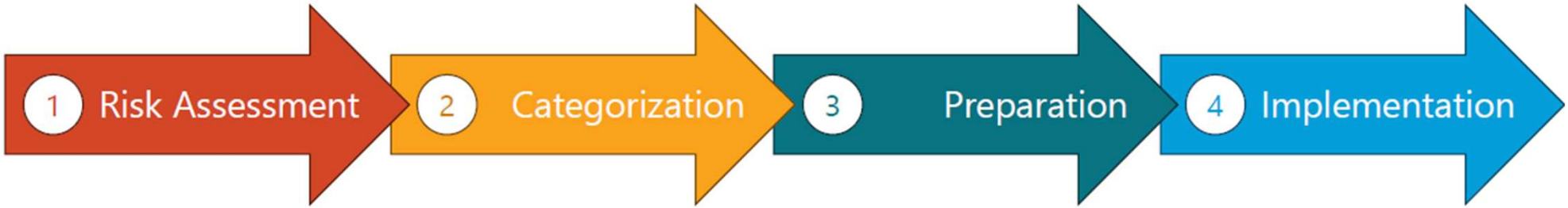
SCOUR CRITICAL CATEGORIZATION





UNKNOWN FOUNDATION CATEGORIZATION





Category A
127 Bridges

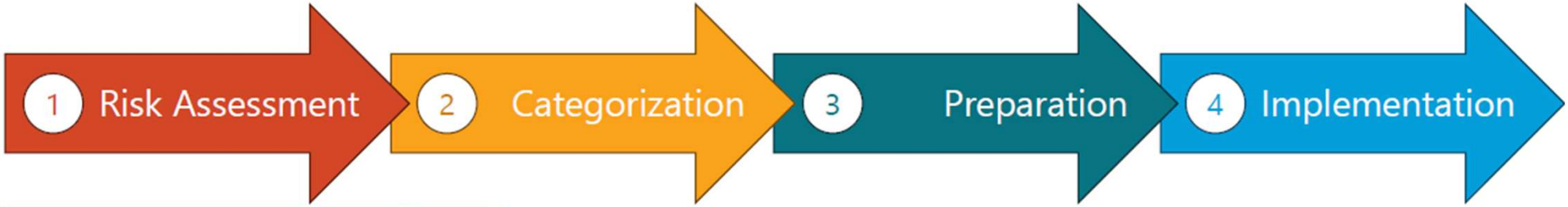
- High Risk OR
- Bridges with observed stability issues OR
- Bridges with extensive scour that could lead to imminent failure OR
- Have spread footings or shallow pile embedment with poor channel protection condition

Category B
179 Bridges

- Low Risk AND
- Does not fall into Category A or C

Category C
986 Bridges

- Low Risk with low ADT
- Low Risk and probabilistically survived previous large events with no developing channel stability issues
- Low Risk and has steel or concrete piling



04-114-03.0 Billings

CATEGORY- C SCOUR PLAN OF ACTION

North Dakota | Transportation

SECTION 1 - GENERAL INFORMATION

Bridge ID:	04-114-03.0	District:	Dickinson Distric	County:	Billings
Feature Intersected:	NORTH CREEK			Facitily Carried:	UPPER MAGPIE ROAD
Location:	6 NORTH 8 WEST FAIRFIELD			Owner:	County Hwy Agency
Design Main:	Truss - Thru	Material Main:	Steel	ADT:	10
Latitude:	471710.87	Longitude:	1032230.54	Year of ADT:	2018

SECTION 2 - NBIS CODING AND SCOUR VULNERABILITY

Last Inspection Date:	9/13/2023	Overtopping Likelihood:	
Load Posting Status:	P Posted for load	Scour Critical Bridges (NBI 113):	
Substructure Condition:	7 Good	Scour Vulnerability (B.AP.03):	
Culvert Condition:	N N/A (NBI)	Channel Protection Condition Rating:	
Channel Condition:	7 Minor Damage	Scour Condition Rating (B.C.11):	

SECTION 3 - FLOOD MONITORING (BY BRIDGE OWNERS)

Based on the risk assessment, this bridge flood monitoring = **CATEGORY C**

Please see below for the details of this category

Category A	During Event Flood Monitoring - Initial visit within 24 Hours, recurring every 24 hours if flooding is confirmed. Monitoring continues until the flood has subsided. Complete Monitoring Log for each visit.
Category B	During Event Flood Monitoring - Initial visit within 7 days, recurring every 7 days if flooding is confirmed. Monitoring continues until the flood has subsided. Complete Monitoring Log for each visit.
Category C	No During Event Flood Monitoring is required.

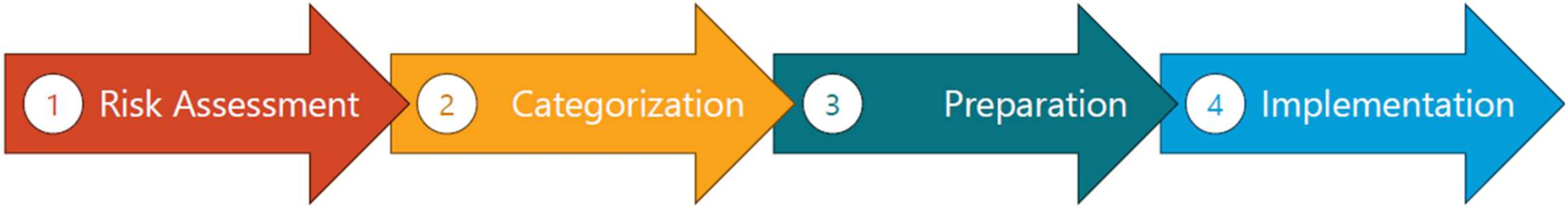
Triggering Event

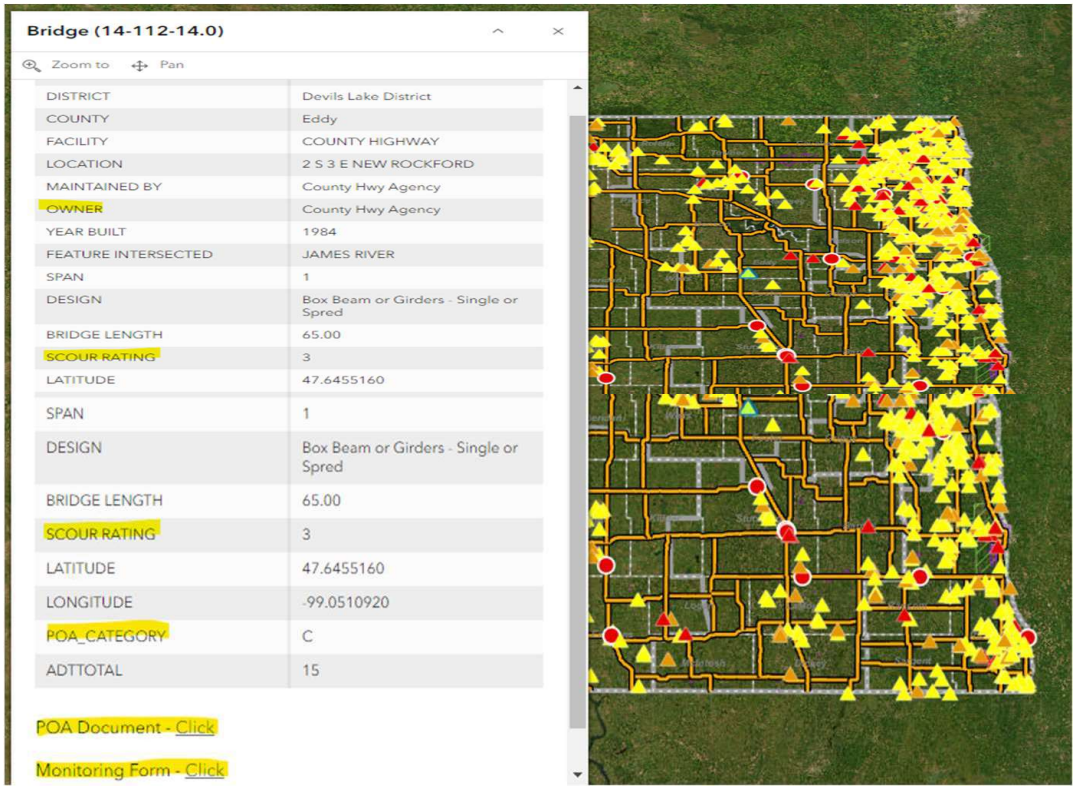
National Weather Service (Flood Warning, Flash Flood Warning) NDDOT GIS Map will send out automatic alerts to the bridge owners when the triggering event has occured.	USGS Gage - Major Flooding Gage No: _____

During Event Flood Monitoring Items to Watch

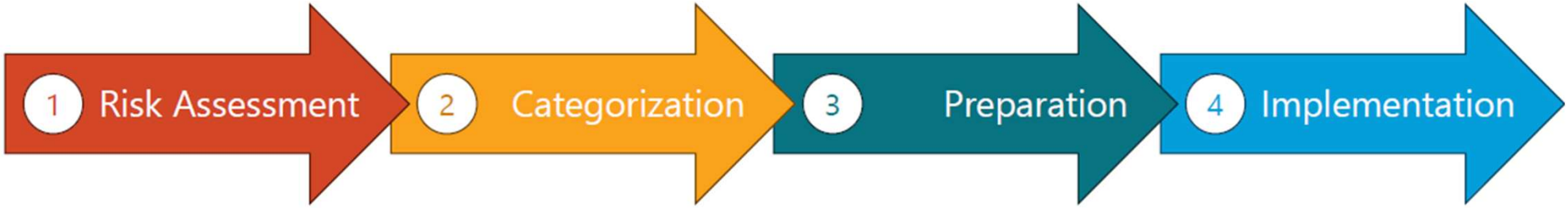
• Bank Erosion	• Exposed utilities
• Observed structure movement/settlement	• Pressure Flow - water surface up to or above bridge beams
• Overtopping stream banks, approach road, or structure	• Debris buildup on substructure units
• Damage to channel protection items or substructure units	• Document water surface level (rising/receding)
• Downstream deposition	

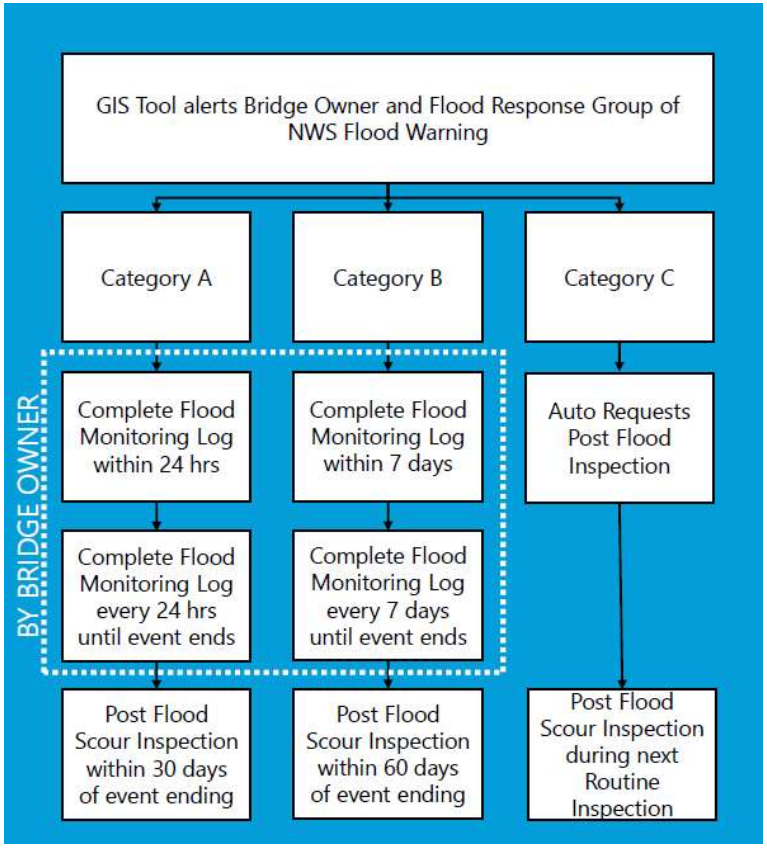
- Plan of Action (POA) Templates
- Monitoring varies based on category
- Completed By Bridge Owners
  - Used by Bridge Owners



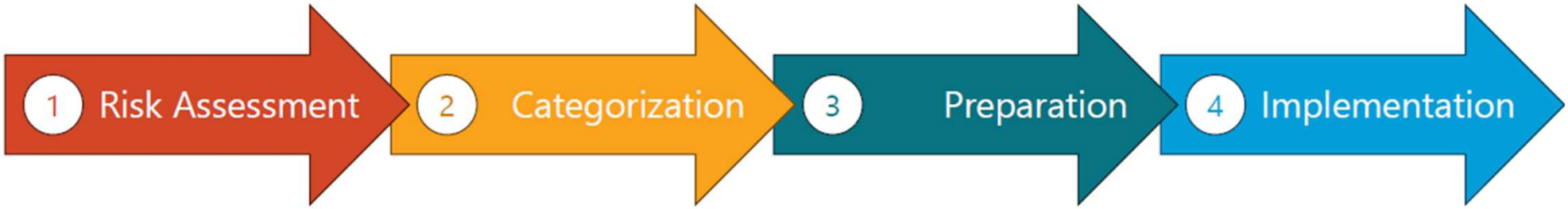


- NDDOT GIS MAP
- Easy Access to Additional Info about Bridge
  - Owner
  - Scour Rating
  - POA Category
  - Link to POA
  - Link to Monitoring Log



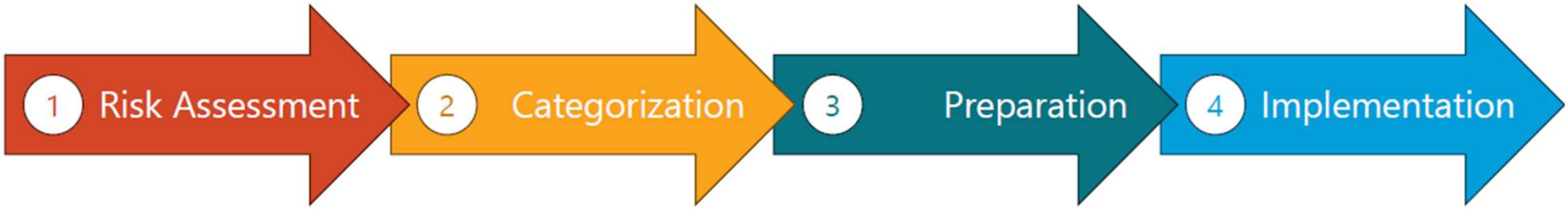


- Email Alerts
- Flood Monitoring Logs
- Post Flood Inspections



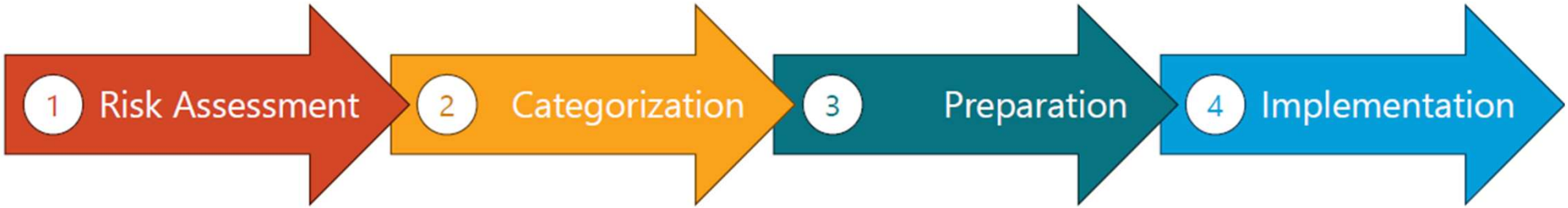
Flood Monitoring

- High velocity flow impinging on abutments, piers, or embankments
- Visible damage to the bridge deck, low chord, or substructure
- Observed structure movement/settlement
- Overtopping of road or structure
- Debris accumulation
- Water is rising or receding



Flood Monitoring

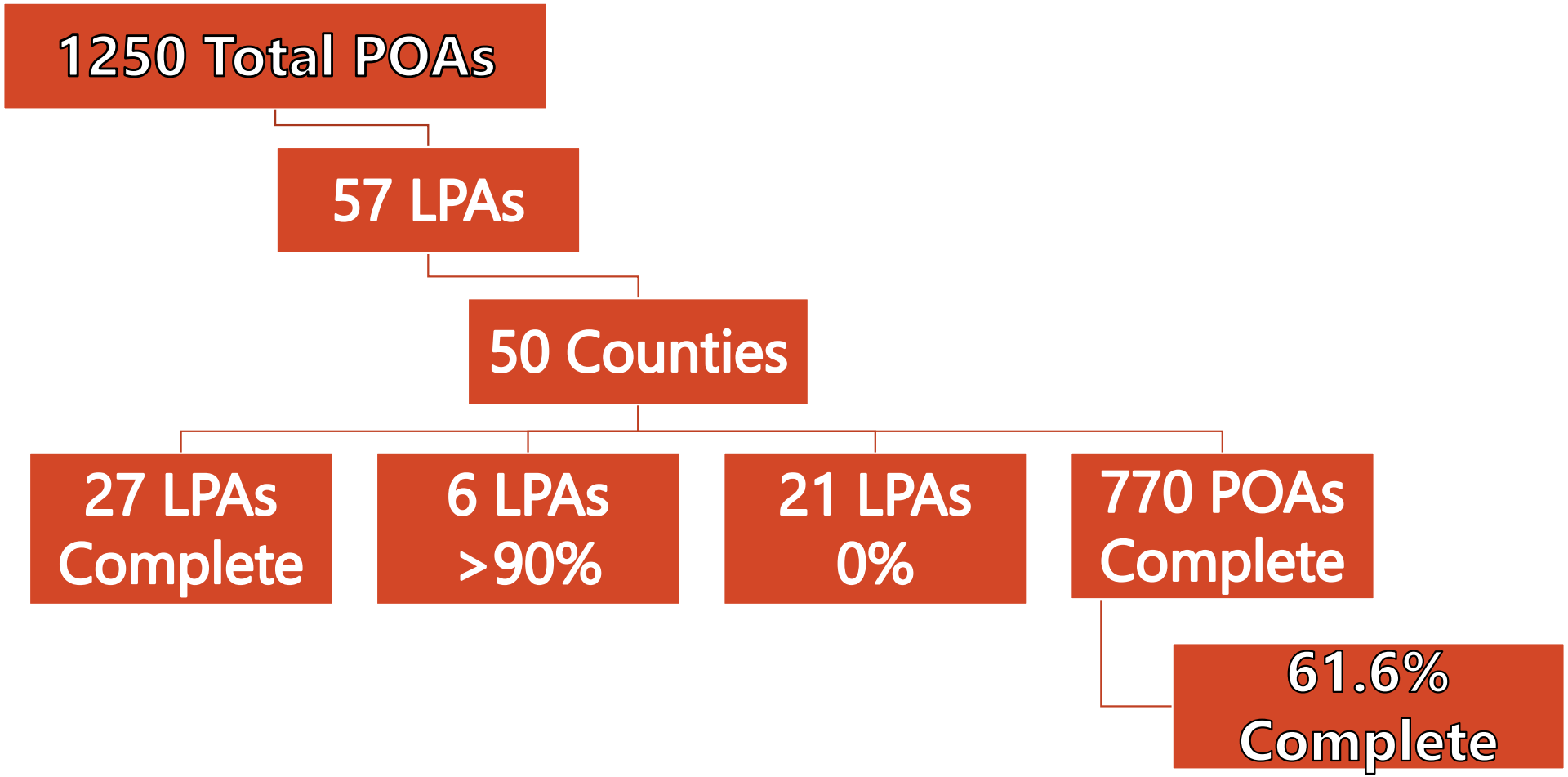
- Visual check on the bridge as a result of flooding to:
  - Document flood conditions and scour
  - Determine if the bridge should be closed
  - Comply with Metric 18 and POA
- Flood Monitoring Log
  - Continue as needed
  - **Has the Flood Subsided? Yes or No? ***



Post Flood Inspection

- Inspected by Certified Bridge Inspectors
- Identify flood-related damage
  - Piers, abutments, pilings, scour, approach roadways, & similar elements
- Condition changes directly caused by the flood event
  - Minor defects from natural wear should be excluded
  - Significant or Critical Findings that affect safety
- Special attention to scour
  - New channel profile, scour assessment, scour condition rating

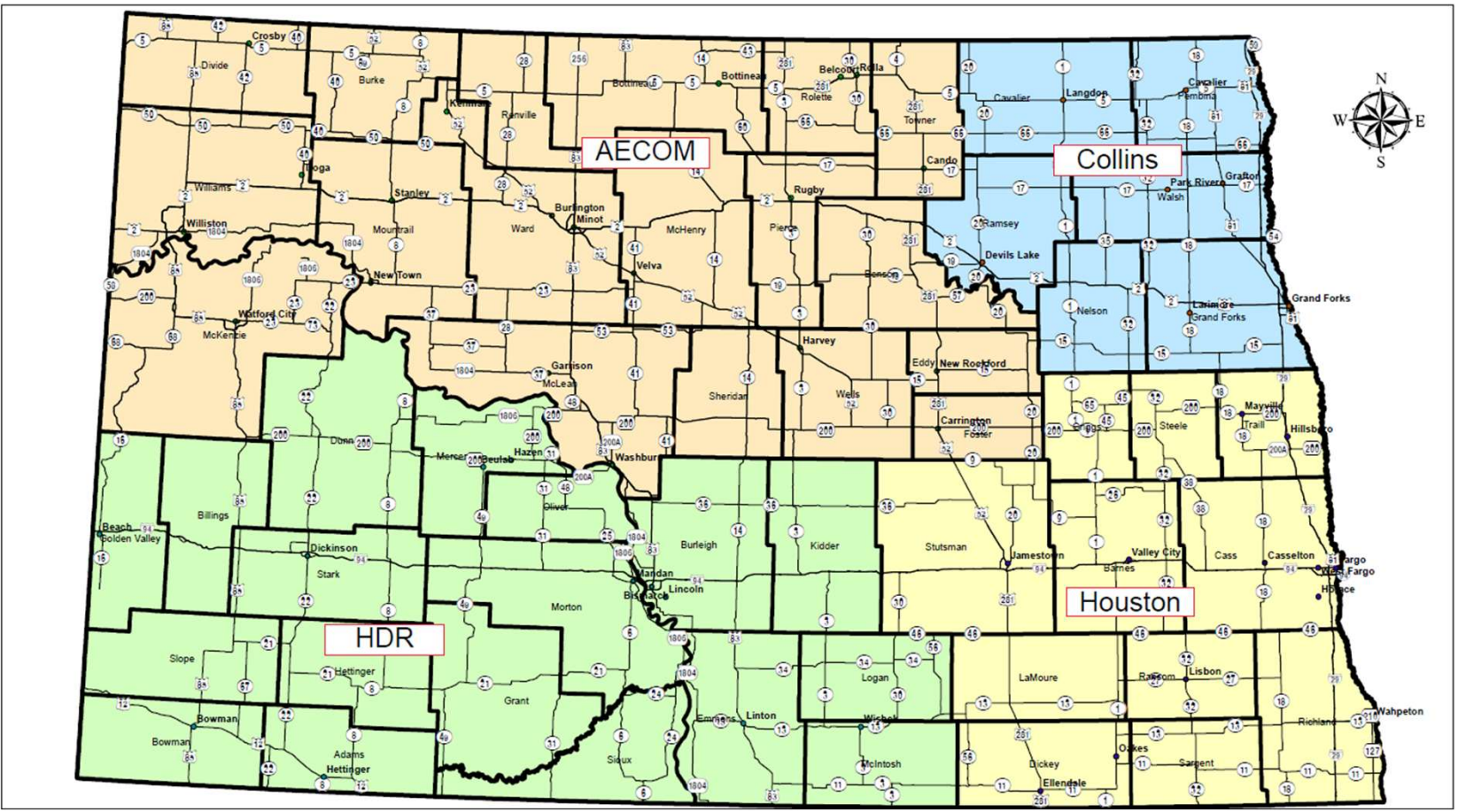
METRIC 18 UPDATE



BRIDGE INSPECTION UPDATE

- Completed 2024 inspections
  - ± 1300 LPA inspections
  - April – November and beyond
  - New Structures
  - Repairs & Rehabs
  - LPA requests
- Working on scopes for 2025 inspections
- RFP for 2026-2027 and beyond

BRIDGE INSPECTION UPDATE



- AECOM
  - 330
- Collins
  - 340
- HDR
  - 320
- Houston
  - 400

BRIDGE INSPECTION UPDATE

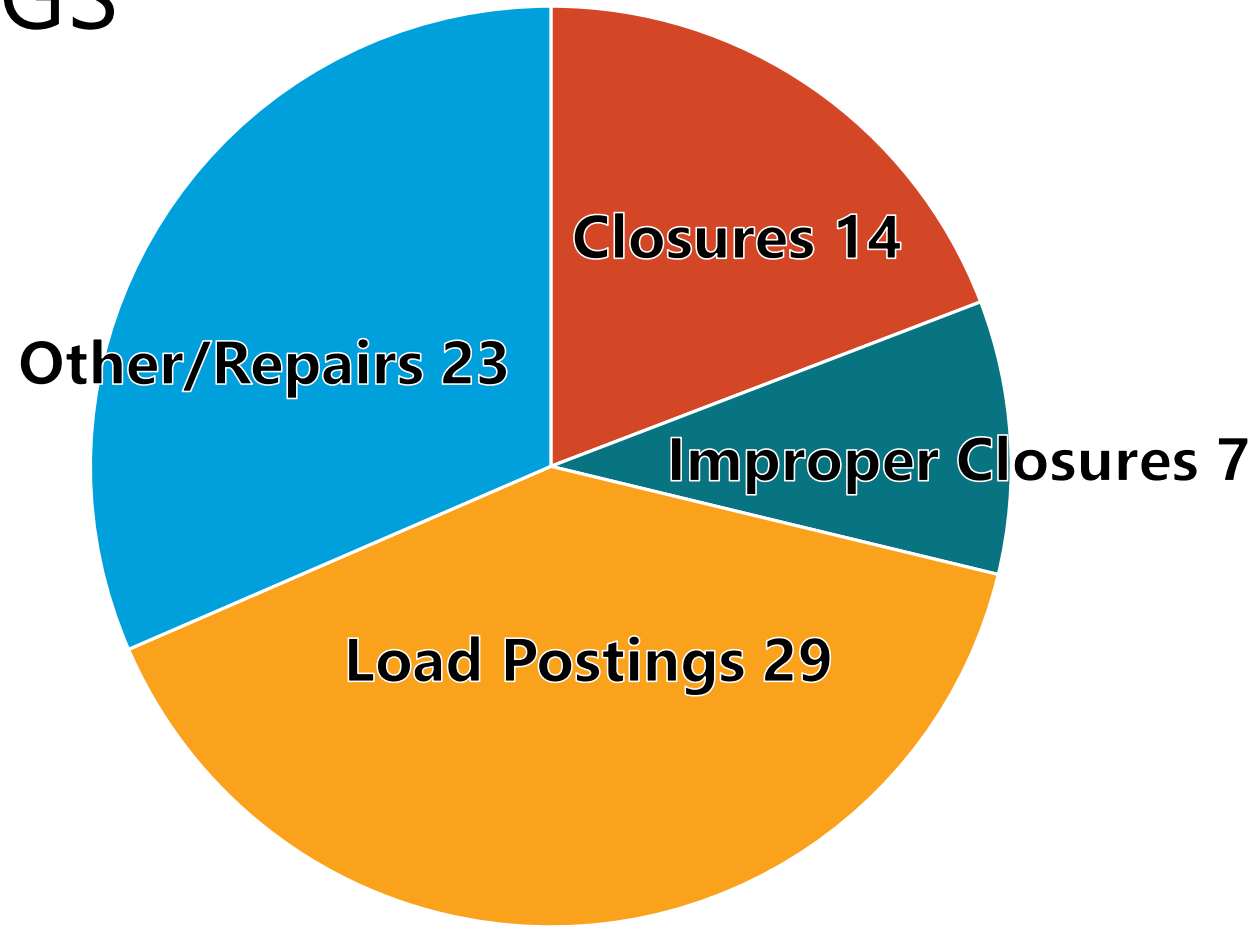
Required documents to code to inventory

- Bridge Inspection Form
- Bridge Plans
- Shop Drawings
- Load Rating
- Hydraulic Report/Scour Evaluation
  - NDDOT Design Manual (Chap 5, Sect 2.07)
  - Explicit statement from the designer on assessed stability for scour
  - Is the stability dependent on any designed and installed countermeasures (i.e. rip rap)?

CRITICAL FINDINGS

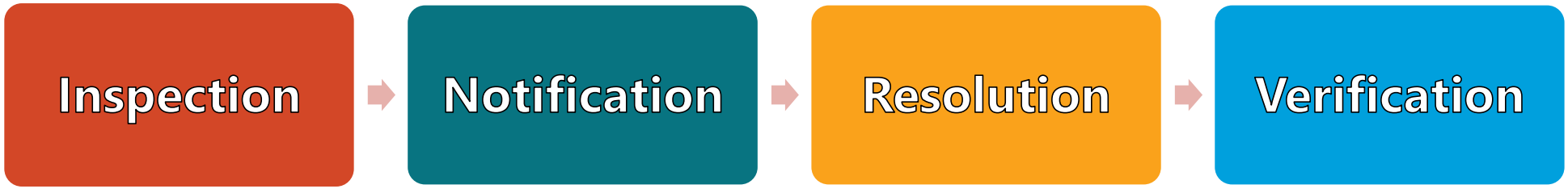
72 CFs in 2024

- 5 state structures
- 67 LPA structures



CRITICAL FINDINGS

Critical Finding Process



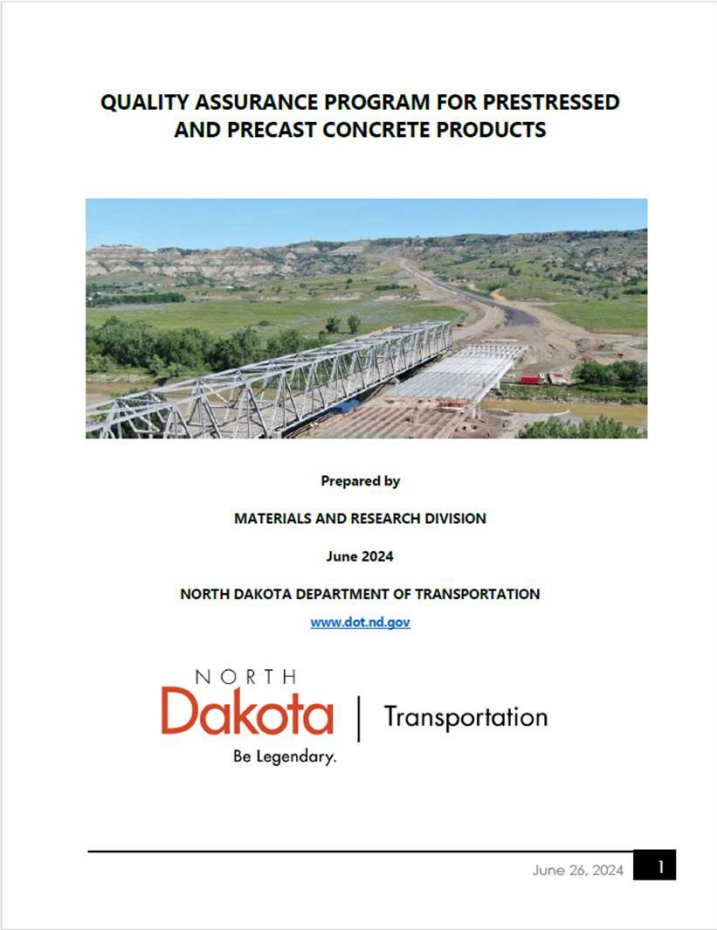
LPA Bridge Inspection & Load Rating Agreements (c. 2020)

- **Allow access**
- **Notify of repairs, rehabs, replacements**
- **Post load ratings**
- **Close**
- **Comply with federal requirements as revised**

BOX CULVERT INSPECTION UPDATE

Page 2, Responsibility:

On LPA projects, the owner of the project is responsible for carrying out the Quality Assurance process. The LPA or a consultant representing the LPA would be designated as the Engineer or Materials Coordinator in this manual and would be responsible for inspection and testing of prestressed and precast concrete products.



QUALITY ASSURANCE PROGRAM FOR PRESTRESSED AND PRECAST CONCRETE PRODUCTS

Prepared by

MATERIALS AND RESEARCH DIVISION

June 2024

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

www.dot.nd.gov

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June 26, 2024 1

BOX CULVERT INSPECTION UPDATE

- The District Materials Coordinator or a designated representative will inspect (at a minimum) the first section of a box culvert for each project.

  Steel Inventory / Steel Placement / Forms

- NDDOT Materials & Research website
  - QA Program for Prestressed and Precast Concrete Products PDF

BOX CULVERT INSPECTION UPDATE

- LPAs should include on-site inspection in CE contracts and scopes
- NDDOT will allow LPAs to move sooner on CE solicitations

COUNTY DESIGN STANDARDS

- UGPTI awarded a Safe Streets for All federal grant

- North Dakota Unpaved Road Safety Action Plan
  - Research evidence-based counter measures used on unpaved roads
  - Identify specific safety concerns on ND county, township, and tribal unpaved roads where the researched counter measures will eliminate fatalities on unpaved roads.

COUNTY DESIGN STANDARDS

- County design standards last updated in 2010
- NDDOT LGD will solicit county design standards this spring
  - New template
  - Evaluate existing standards
  - Add new criteria
- Benefit to the counties, LGD, and UGPTI's grant study
- Only apply to projects going forward
  - Not applied retroactively to existing roads

Design·Standards·on·County·Major·Collectors·and·Local·Roads¶
for·New·or·Reconstruction·of·Existing·Infrastructure¶

¶

¤	County·Major·Collectors·(CMC)·"On-System"¤	Local·Roads·(County)·"Off-System"¤	Local·Roads·(Township)·"Off-System"¤	Local·Roads·(Other)·"Off-System"¤
Bridge·Width·(Clear·Roadway)—·Min·is·28·ft¤	¤	¤	¤	¤
Storm·Design·Frequency·(Bridges)*¤	¤	¤	¤	¤
Design·Loading·(Bridges)—·Min·is·HL-93¤	¤	¤	¤	¤
Culvert·Design·Frequency*¤	¤	¤	¤	¤
Graded·Roadbed·Width·(sub-grade)—·Paved·surface¤	¤	¤	¤	¤
- → Minimum·travel·way·width·(both·lanes·+·shoulders)¤	¤	¤	¤	¤
- → Minimum·pavement·section·(base·and·HBP)¤	¤	¤	¤	¤
Graded·Roadbed·Width·(sub-grade)—·Gravel·surface¤	¤	¤	¤	¤
- → Minimum·travel·way·width·(both·lanes·+·shoulders)¤	¤	¤	¤	¤
- → Minimum·gravel·thickness¤	¤	¤	¤	¤
Design·Speed¤	¤	¤	¤	¤
Right·of·Way·Width¤	¤	¤	¤	¤
Inslope·Ratio¤	¤	¤	¤	¤
Separation·(Road·top·to·Ditch·Bottom)¤	¤	¤	¤	¤

***Bridges**—·For·County·Major·Collectors·(on-system);·the·design·frequency·is·25-years·and·other·local·roads·(off-system);·the·design·frequency·is·15-years.··If·an·overflow·section·is·provided,·then·the·waterway·opening·plus·the·overflow·section·must·pass·the·appropriate·design·frequency.··**Culverts**—·The·same·design·frequencies·are·required·for·culverts·as·they·are·for·bridges;·except·for·Township·roads,·the·design·frequency·is·10-years.··These·requirements·are·required·according·to·North·Dakota·Century·Code.··¶

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Adopted·by → → → → → County¶

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Date → → → → → ¶

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Chairperson,·Board·of·County·Commissioners¶

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ATTEST:¶

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County·Auditor¶

ODDS & ENDS

- Continuing Resolution – Through March 20
- Flex Fund – waiting for session, solicit next summer
  - Asking for improvement comments
- Special Road Funds & Transportation Alternative project selection
- Vision Zero Infrastructure Safety Awards Nominations
  - Justin Schlosser - Individual, Program, Project awards
- Local Government Manual updates
- Pam Wenger is retiring in April

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