



# Local Bridge Bundling

## 2019 Michigan Bridge Conference

March 20, 2019



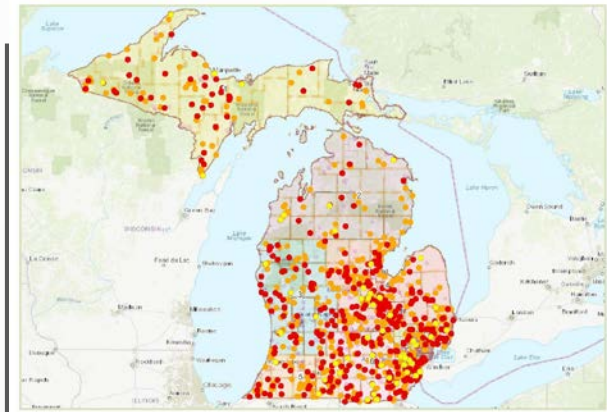
# Presentation Outline

- Bridge Conditions
- Bridge Bundling Overview
- Program Goals
- Partnering
- Feedback & Next Steps
- Q & A





# Bridge Conditions




**400**  
LOCAL HIGHWAY  
BRIDGES ARE  
RATED IN  
**SERIOUS  
OR CRITICAL  
CONDITION**

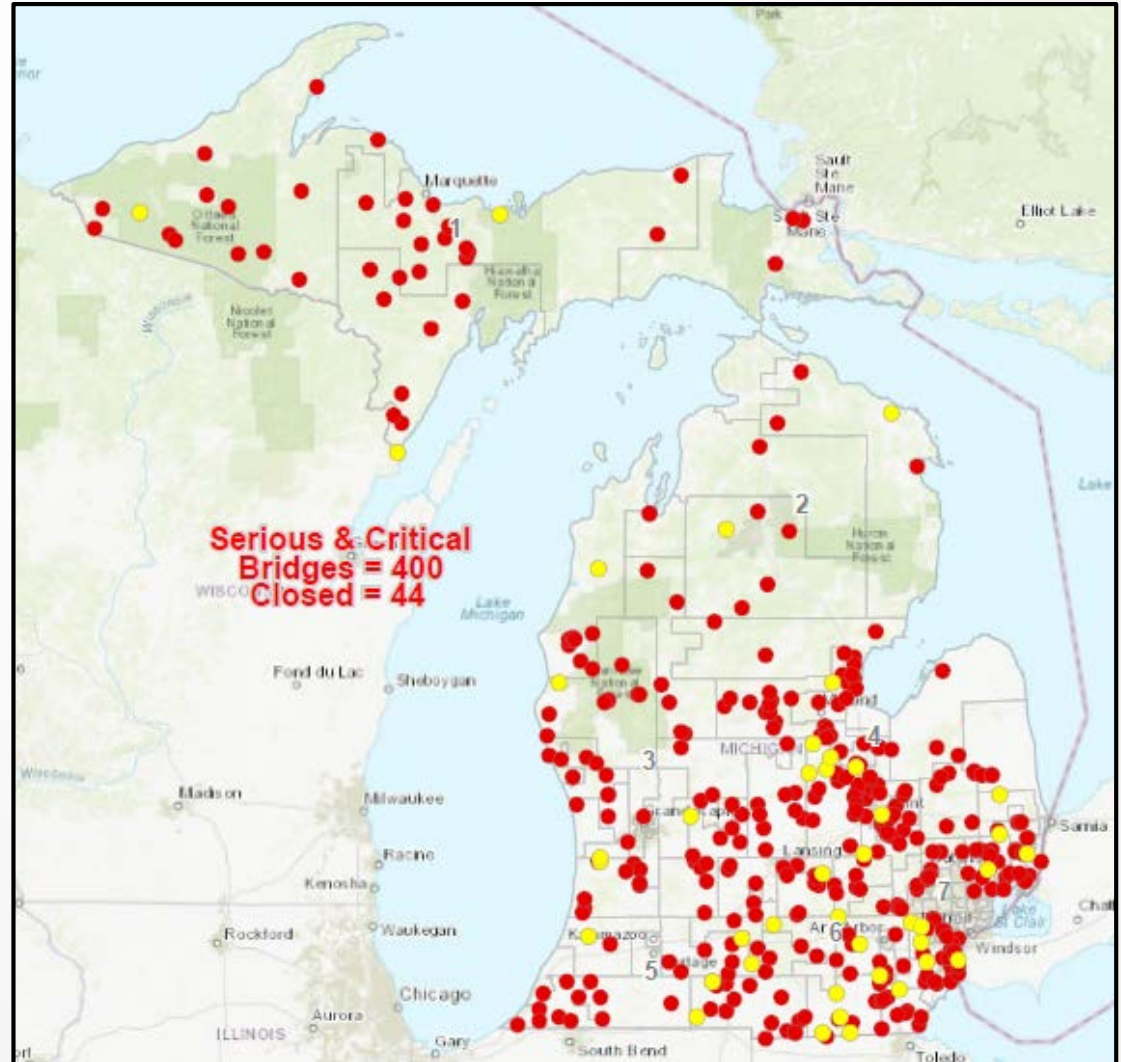
**44**  
**LOCAL BRIDGES  
ARE CURRENTLY  
CLOSED**  
DUE TO LOAD  
OR CONDITION  
CONCERNS

**244 LOCAL  
BRIDGES  
IN POOR  
CONDITION**  
ARE LOAD  
RESTRICTED

# Local Agency Bridge Bundling Initiative

# Bridges of Concern

- **400** LOCAL HIGHWAY BRIDGES ARE RATED IN **SERIOUS OR CRITICAL CONDITION**
- **44** LOCAL BRIDGES ARE CURRENTLY **CLOSED**  DUE TO LOAD OR CONDITION CONCERNS

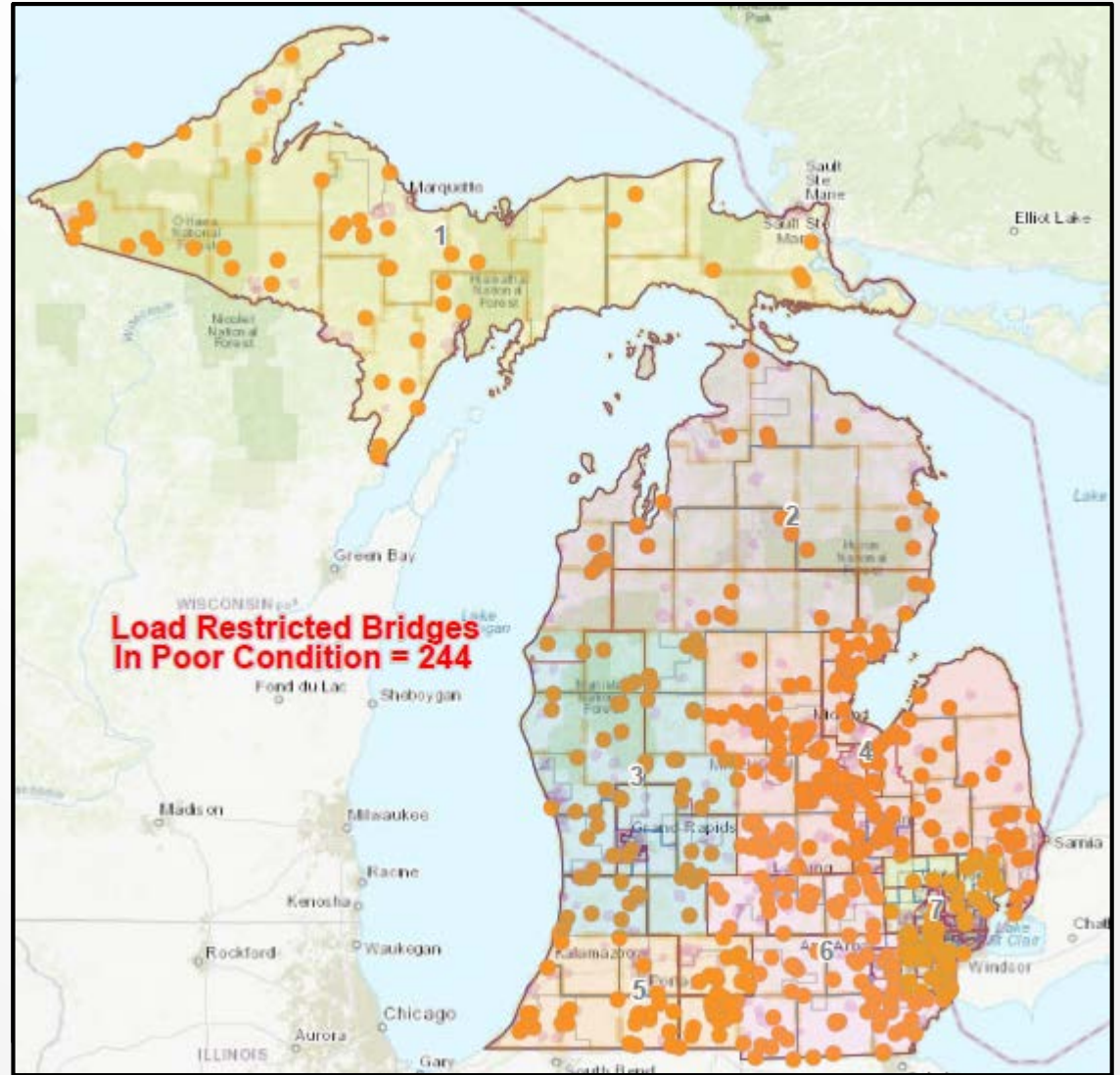


According to NBIS Data December 21, 2018



# Bridges of Concern

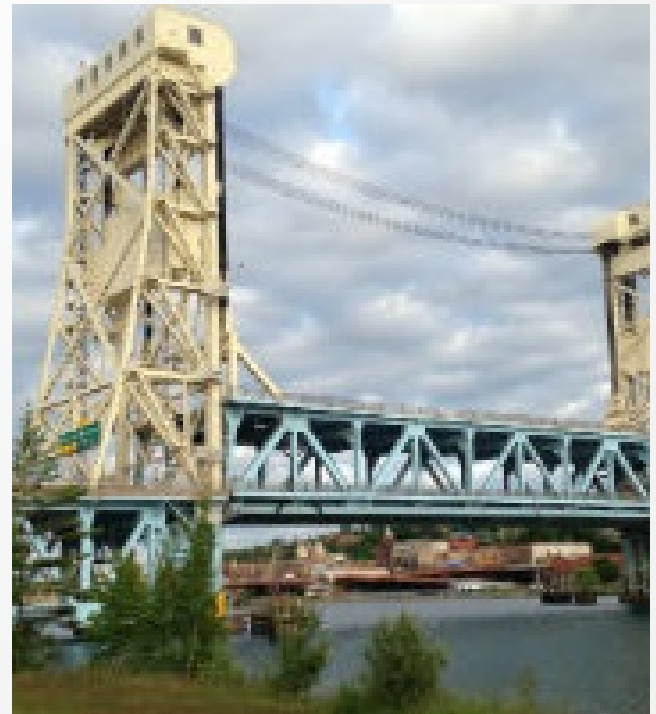
- **244** LOCAL BRIDGES in **POOR CONDITION** are **LOAD RESTRICTED**



According to NBIS Data December 21, 2018

# Current/Potential Program Strategies

- Local bridge projects developed and delivered separately by bridge owners — limited by \$\$\$ and LAP Capacity
- New funding, rising needs and stakeholder expectations provide opportunity for some state-local program integration to preserve resources and optimize program strategies
- A statewide, accelerated strategy --- like Bridge Bundling --- could yield positive system improvements and drive economic development



# Local Bridge Owner Facts

- 312 separate local agencies own at least 1 bridge
  - MDOT
  - 83 Counties
  - 148 Cities
  - 80 Villages
- 77 local agencies own only 1 bridge



**The Bridge**  
A quarterly newsletter from Michigan's Local Technical Assistance Program

Vol. 30, No. 1 - Summer 2016

Photos and videos can powerfully connect people from "distant places"... they illustrate the stories behind construction projects and they confirm the documented work done on a project.

**Picture This!**  
Stories Beyond the Steel and Stone  
Victoria Sage - Technical Writer  
Center for Technology & Training  
Photo credit: G.D. Gilchrist

**Inside**

- TAMC Website 2.0  
► Page 2
- Getting Youth Excited about Road Construction  
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- Tips for Preventing Heat Stress  
► Page 3
- Making Construction Information Accessible  
► Page 5
- Preparing for Emergency Means Fostering Relationships  
► Page 7

**Back Page**

Upcoming Events  
Register now: 2016 Winter Ops

Michigan's Local Technical Assistance Program

When five o'clock rush-hour motorists come to a halt due to bright orange traffic barrier barrels infringing on the roadway, motorists become impatient and irritable. The public perceives road construction as an annoyance, so much so that everyday conversations sometimes include disparaging jokes about road work. By communicating the stories of our projects better, we can combat the view of construction as an annoyance and help people understand the depth and breadth of our construction feats.

"Construction projects can be frustrating to the motoring public," explained Maura Lamoreaux, who is the communications manager at Kent County Road Commission (KCRC). "So, sharing through images is a great way to tell our story." Images can share, preserve, and validate construction stories; but, the right images can do more: they link agencies to their communities and engaging the community in the complexities of civil engineering.

**Seeing Stories and Preserving Memories**

While photographing road work is still an uncommon practice, Bruce Deter, a concrete plant inspector for the 1957-1959 Portage Lake Lift Bridge construction, received an avant-garde assignment from the Michigan Department of Transportation (MDOT) district engineer. When the concrete plant was closed, Deter's camera was to capture images of pilings, lift cables, balance chains, and counterweights through its lens.

In the early 1960s, a similar record was being made of the International Bridge in Sault Ste. Marie. "Building the bridge was a big deal for this little town back then," explained Karl Hansen, bridge engineer for the International Bridge Administration (IBA). "There were a lot of people camped out watching the construction that was going on." One person who came to watch was a local photographer, Carl Materna, who caught the construction story in a series of photos.

These image archives from the International Bridge and the Portage Lake Lift Bridge projects allowed the public to see these bridge-building projects up close. "Sometimes people just like to see," reflected Lamoreaux, "...and, sometimes, they don't get a chance to see." To give people that chance, Lamoreaux has helped launch a series of web pages featuring mini-galleries of

Construction of the Portage Lake Lift Bridge, Houghton/Hancock, Michigan. Photographer unknown. Photo courtesy of Michigan Tech Archives.

"A bridge is more than a thing of steel and stone: it is a fulfillment of human dreams to link together distant places." - Dr. David B. Steinman

► Picture This!, page 4





# Bridge Bundling Overview

# Collaborative Process

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MDOT Bureau of Bridges and Structures Proposal



Partnering and collaboration sessions with CRA



Development of survey tool to solicit further input



Evaluate national models, funding options, delivery options, etc.



**Provided program estimates for inclusion in Governor Whitmer's proposed budget**

# Local Agency Bridge Bundling Initiative

## What is Bridge Bundling?

Grouping similar bridges contractually to enable efficient use of program resources, saving time and money on design and construction.

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Applicable to  
all project  
types and sizes



Encourages  
standardization



Increases  
economies  
of scale



Reduces  
management  
time and  
construction  
administration



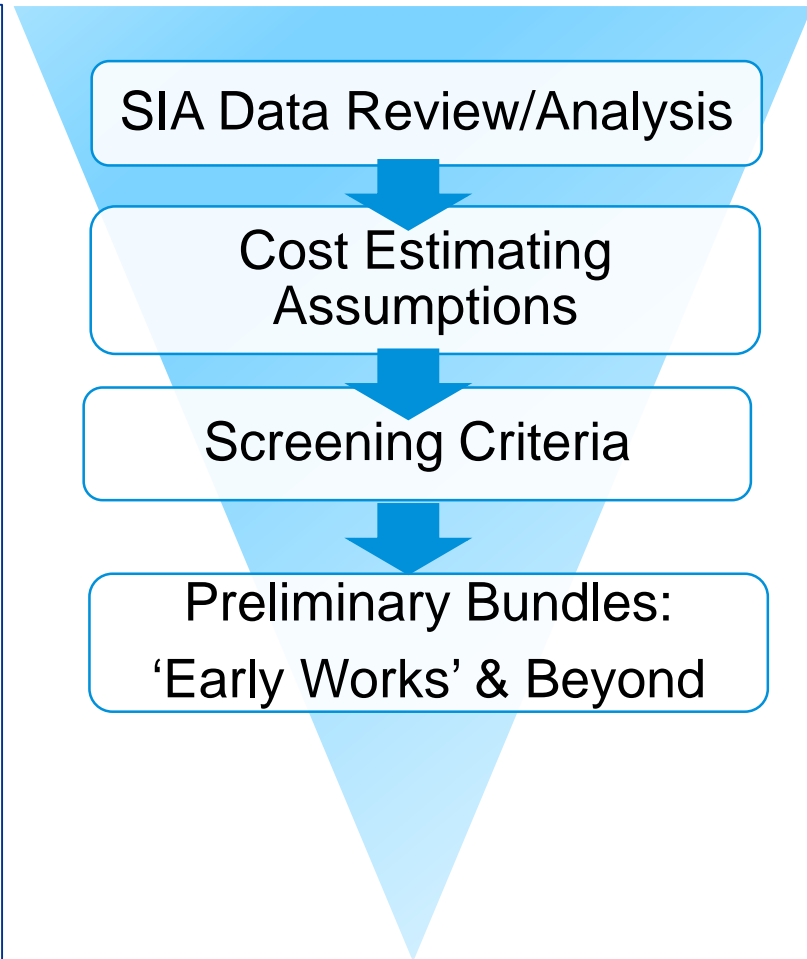
Streamlines  
external  
coordination  
and permitting



Achieves significant  
improvement to local  
bridge conditions  
statewide

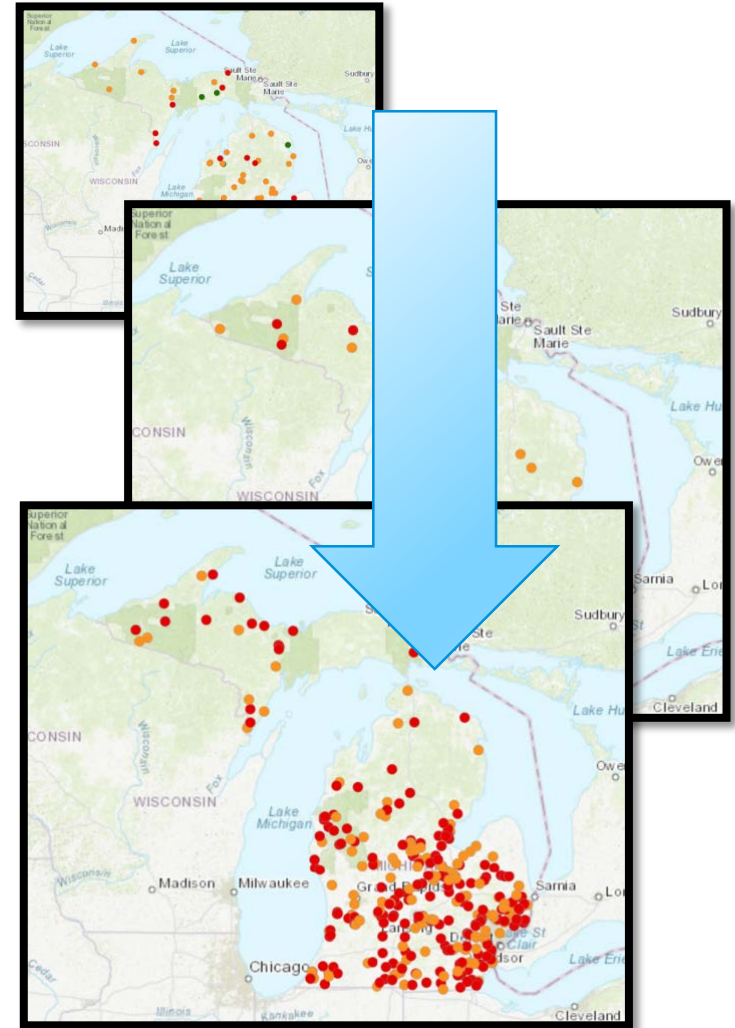
# Preliminary Bridge Bundle Development Process

- +6000 Local Bridge Structure Inventory & Appraisal (SIA) Data Collected and Analyzed
- Focused on Replacements/Partial Replacements
- Screening Criteria/Process
  - Condition/Operational Status
  - LAP Program Status
  - Geography
  - Work type
  - Likely Categorical Exclusions
  - Permitting Time & Risk
  - Local Vetting/Support



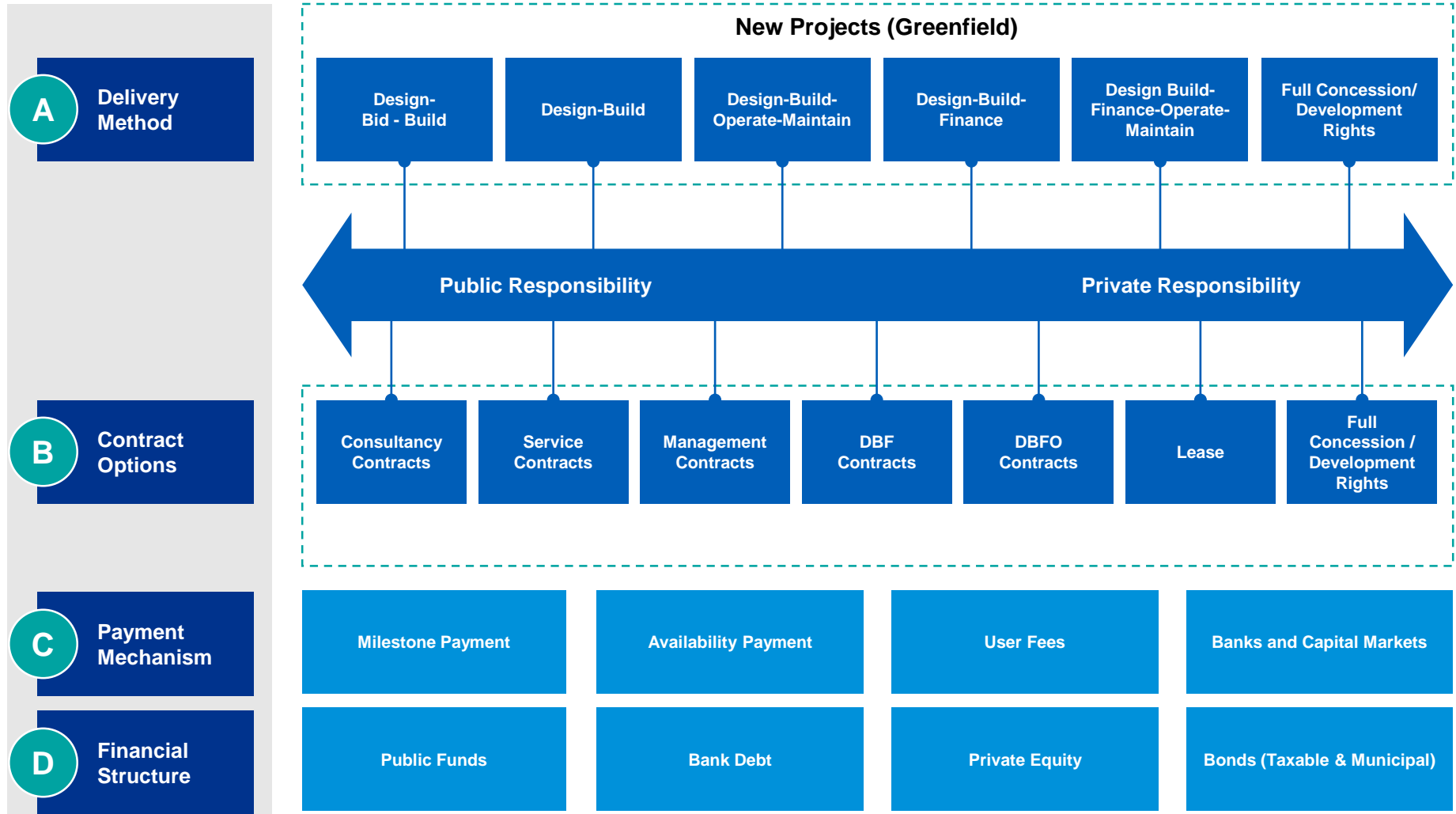
# Preliminary Bundle Analysis – Our Approach

- Examined nearly 1000 S/C/P bridges
- Developed candidate ‘Early Works’ bundle alternatives for 326 structures that could be part of early packages
  - Partial replacements (deck, superstructure) – based on NBI rating
  - ‘Low hanging fruit’ – many already vetted in the LAP Program
- Then we assessed these ‘early works’ candidates at the SI&A level for waterway adequacy - scour critical designations - historical significance - navigable waterway significance

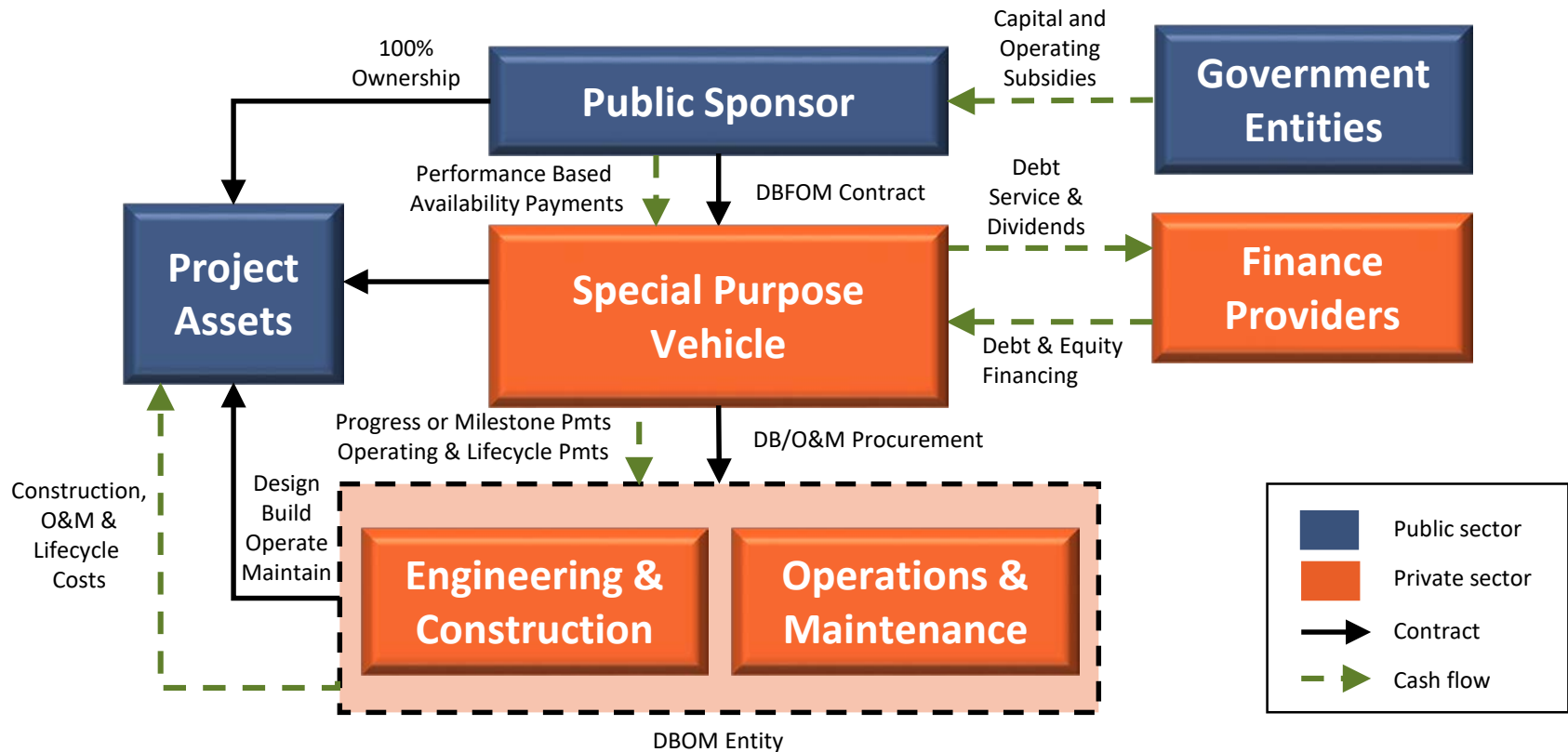




# Delivery Option Overview



# Illustrative Design-Build-Finance-Operate-Maintain (DBFOM) Structure





# Program Goals

**GO BRIDGE OR GO HOME**



**BIG HAIRY  
AUDACIOUS  
GOAL**

**ZERO  
CRITICAL  
BRIDGES IN  
MICHIGAN BY  
2025**

# Preliminary Project Goals and Objectives

- Achieve goal of **Zero Critical Bridges by 2025** (or earlier)
- Prioritize **Closed/Critical/Serious/Poor** bridges
- Integrate** with existing Local Agency Bridge Program to achieve sustained system goals
- Leverage national, statewide and local **best practices**
- Use funding sources **efficiently**
- Best use of limited available construction labor and **resources**
- Encourage **standardization**, streamlining and innovation to drive program value
- Engage** local stakeholders for a collaborative and coordinated Bridge Program
- Maintenance and **lifecycle** plan to provide the best whole life value

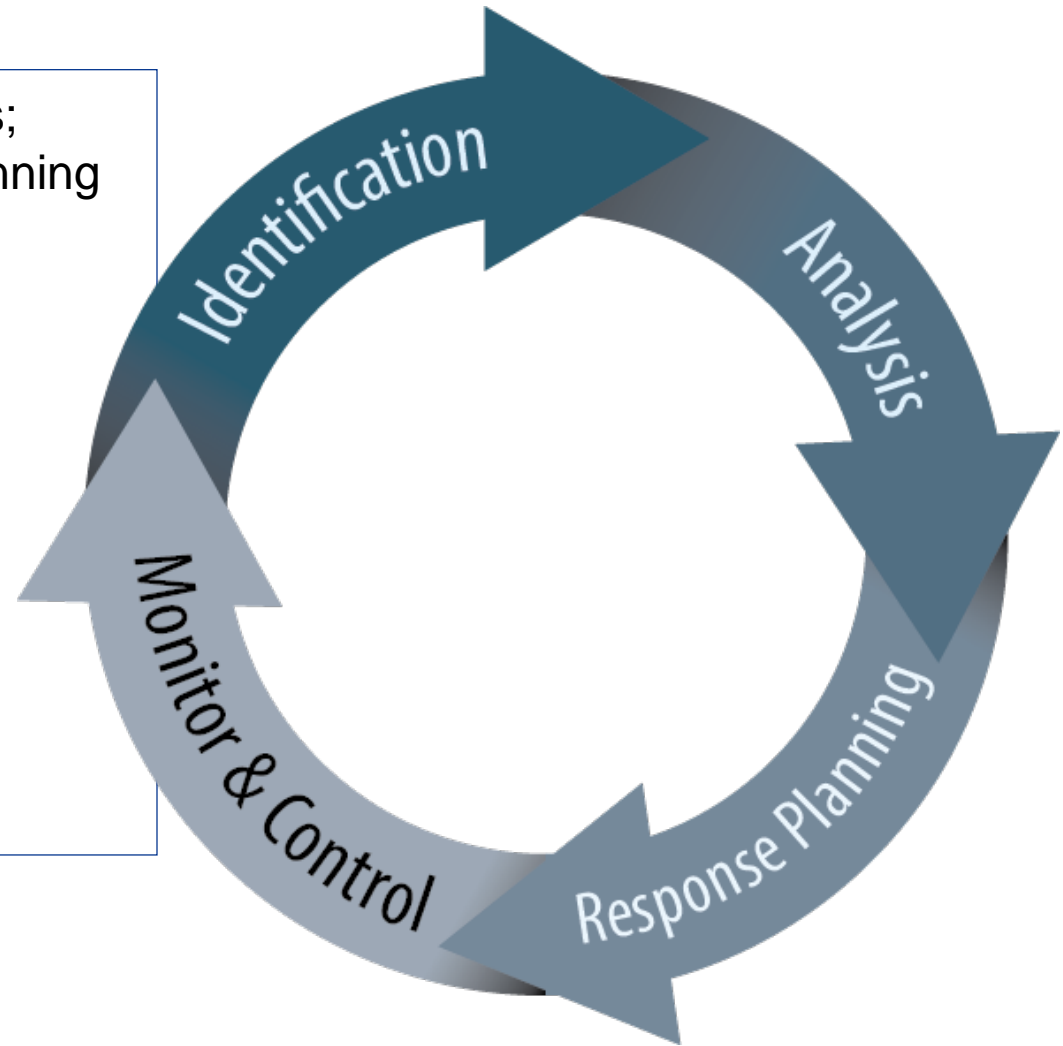




Partnering

# Risk Management Process Overview

- Iterative, analytical process;  
results during program planning  
phase help with structured  
decision-making
- Risk Identification
- Analysis
  - *Qualitative*
  - *Quantitative*
- Response Planning
- Monitoring & Control



# Local Bridge Survey Tool & Workbook

- Survey Tool Developed with feedback from Local Working Group
- 'Bridges of Concern' Workbook Developed from MiBridge and SI&A Data
- FY 19-21 LAP Program Data added
- 17 Survey Questions drafted and vetted to inform Program Assessment
- County Bridge Champions Identified by CRA
- Survey Version 1.0 Sent to Champions by CRA last week
- Goal of this stage of the assessment is to validate program-level data and get feedback from local owners on priorities and planning and design inputs for **program-level** cost and schedule considerations



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# Local Bridge Survey Tool & Workbook

- 4 questions on demographics/program management
- 13 questions (5-17) focused on 'bridges of concern' in the 'Table of Structures'
- + Final 'Open-ended' question for any additional feedback
- Responses due March 29, 2019



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## Current Initiative Underway

KPMG and HNTB working together to provide financial and delivery method modeling, along with development of preliminary bridge bundles







Next Steps

# Next Steps

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Collect and analyze local bridge survey data



Continue engagement and collaboration with local agency partners



Continue refinement and evaluation of bundle investment and delivery options



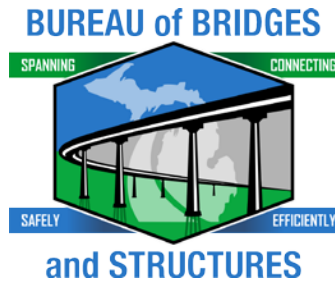
Feasibility Report – Spring 2019



Program Manager(s) to be selected to support next steps and possible implementation

Questions?  
Feedback?

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**BIG HAIRY  
AUDACIOUS  
GOAL**

**MI BRIDGE MY WAY**  
**ZERO**  
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