Capital District Locally-Owned Bridges
Preservation Candidates, Treatments and Costs - 2020 Update

CDTC Planning Committee Meeting

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August 4, 2021

CDM Smith

Presentation Outline

- 2020 Locally-Owned Bridge Study Overview
- Bridge Condition Rating System Changes
- Condition Assessment & Work Strategies
- Repair Program Schedule
- In-Depth Assessments
- Condition Rating Updates
- Projected Repair Costs
- Summary

2020 Locally-Owned Bridge Study Overview

2020 Locally-Owned Bridge Study Overview

- Study Objectives
  - Identify candidates for bridge preservation treatment
  - Evaluate the extent of repairs needed
  - Assess At-Risk bridges
  - Provide program schedule recommendations
  - Summarize bridge data for CDTC & Local Bridge Owner use
- Assessed 377 locally-owned Bridges
- Follow-up to 2015 Study

Bridge Condition Rating System Changes

Bridge Condition Rating System Changes

- Transition to AASHTO Element Rating System
- 2015 Study based on NYSDOT 7 to 1 scale
- Some NYSDOT bridge components based on ‘worst of’ rating
- AASHTO rating system implemented in 2016
- Based on Condition States CS-1 to CS-4
- Entire quantity of each element is assessed

Condition State	Condition Type
CS-1	Good 7
CS-2	Fair 6,5
CS-3	Poor 4,3
CS-4	Severe 2,1

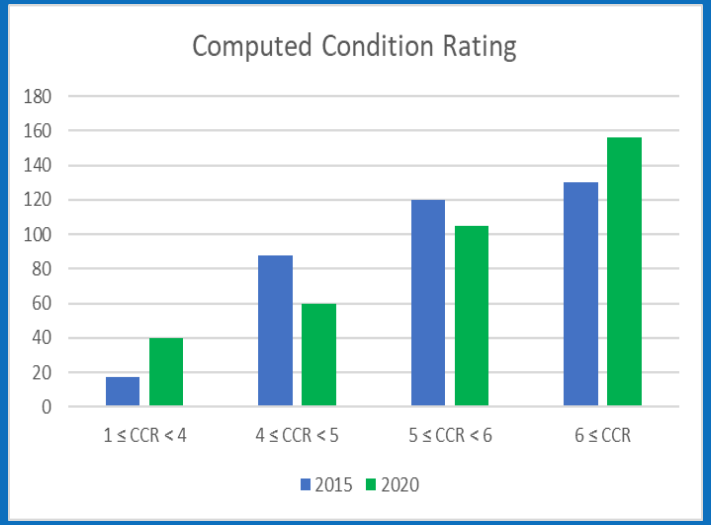
Bridge Condition Rating System Changes

- AASHTO system focuses on bridge elements
- Provides both condition rating and quantities
- More accurate data for asset management
- Alters 2015 to 2020 data correlation

Condition Assessment & Work Strategies

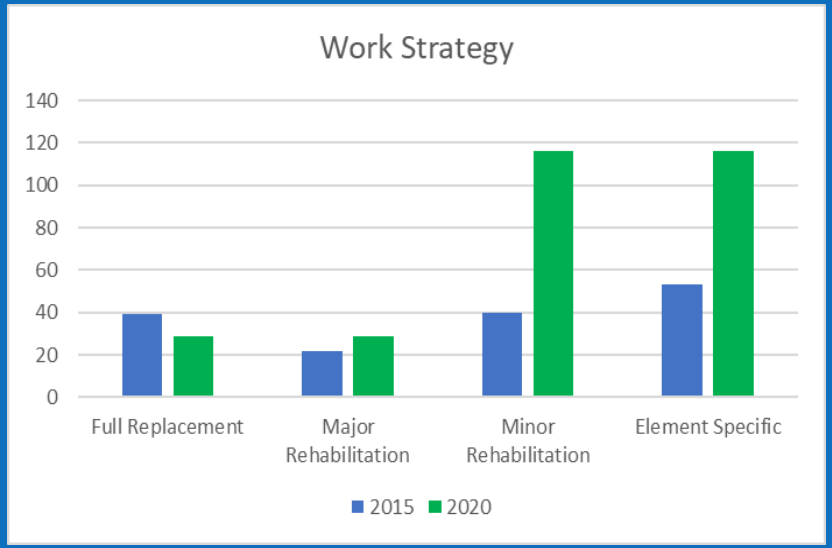
Condition Assessment & Work Strategies

- Assessment based on 2019 & 2020 NYSDOT inspection data
- Utilized available bridge inventory data to confirm structural details
- Identified type of repairs needed
- Assigned repair time frame for program schedule



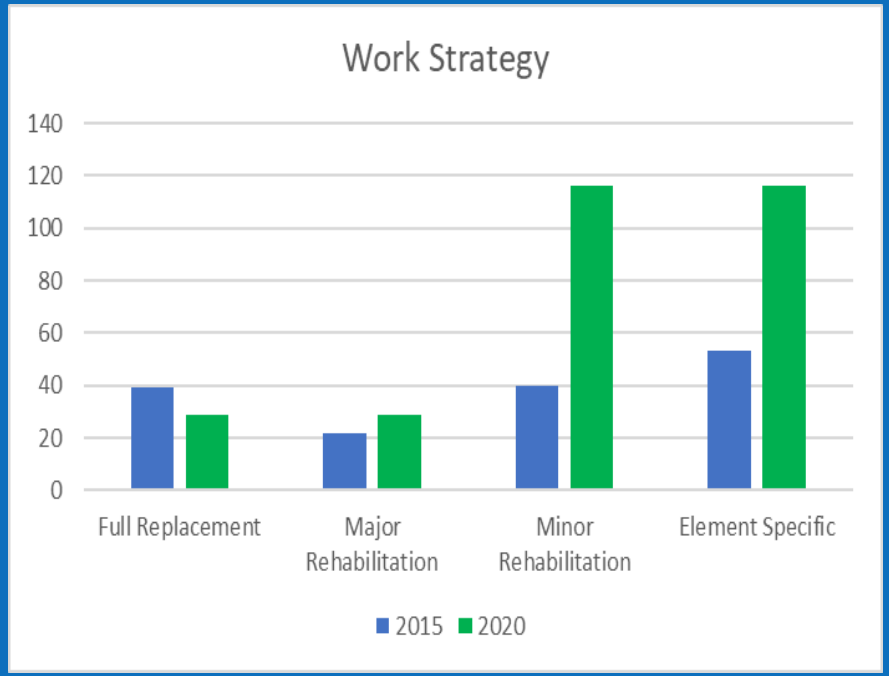
Condition Assessment & Work Strategies

- Categorize bridges by preservation work strategy
  - Full Replacement
  - Major Rehabilitation
  - Minor Rehabilitation
  - Element Specific Repair
  - Preventative Maintenance



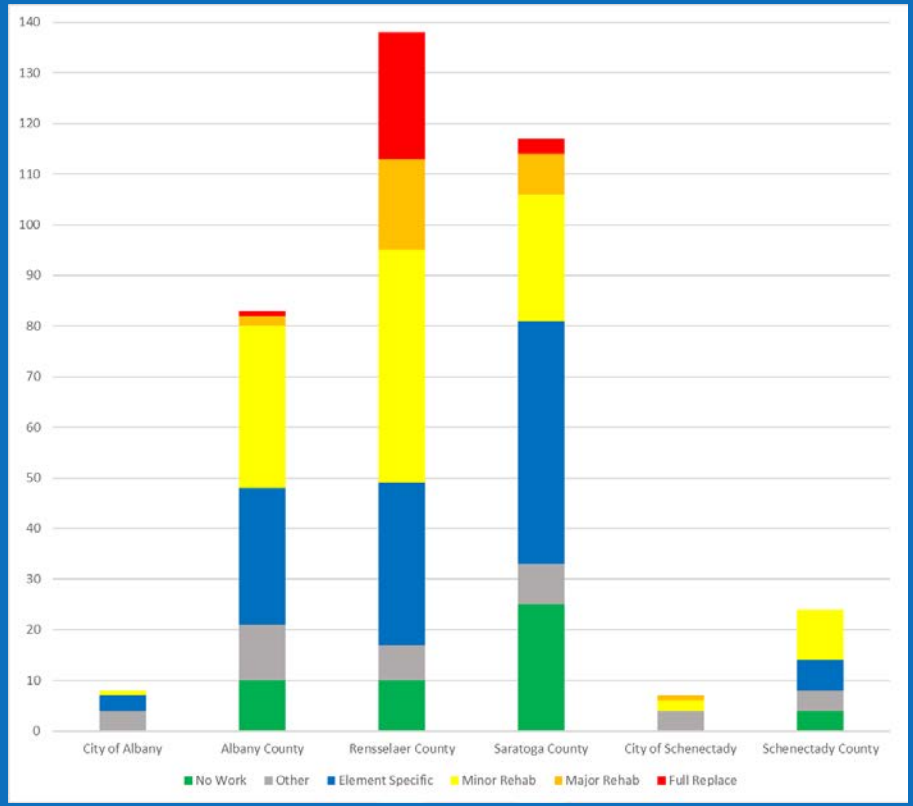
Condition Assessment & Work Strategies

- Substantial increase in Minor Rehabilitation and Element Specific Repairs
- Due to element specific ratings



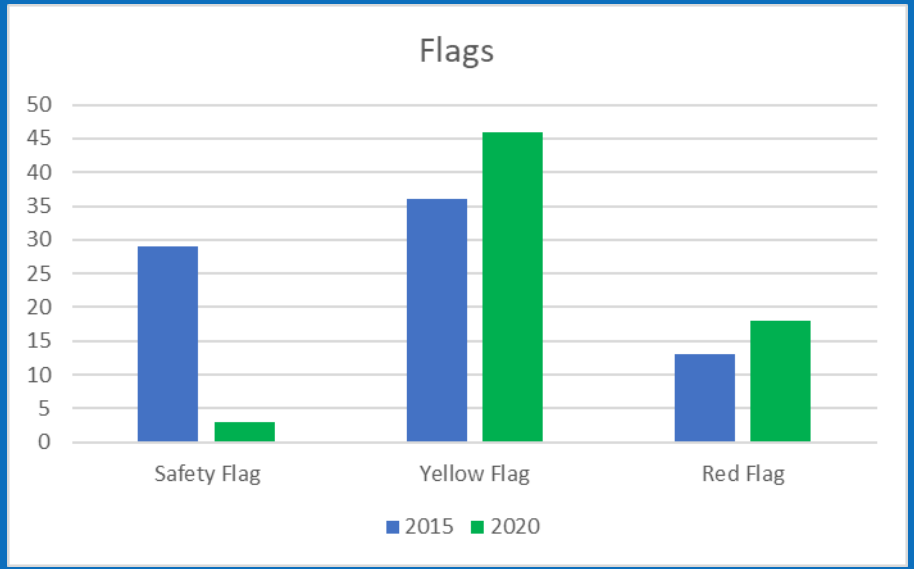
Condition Assessment & Work Strategies

- Combined data provides view of CDTC planning area bridge health



Condition Assessment & Work Strategies

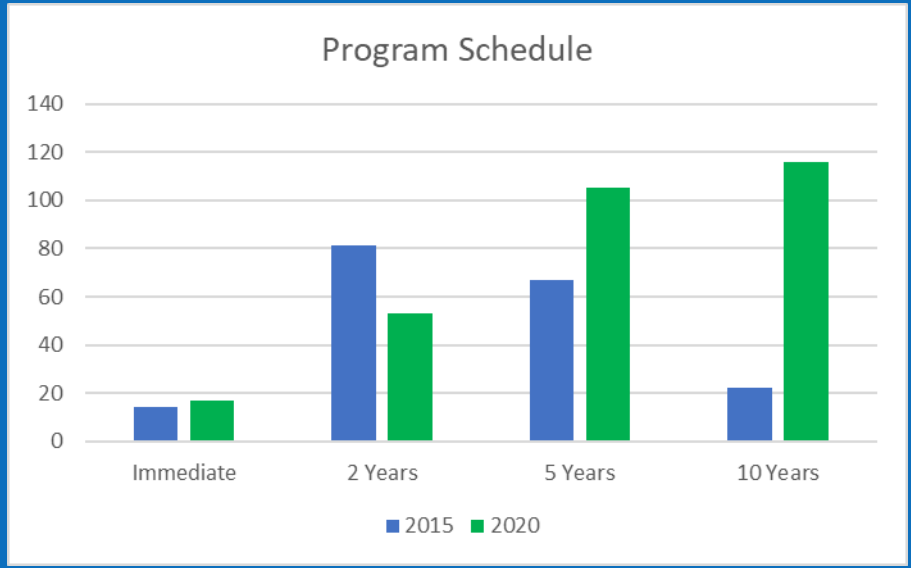
- Reviewed At-Risk bridges
- Require immediate repair or replacement
- Condition Flags
- Precast Concrete < CS-3
- Load posted
- Imminent risk of capacity reduction or closure



Repair Program Schedule

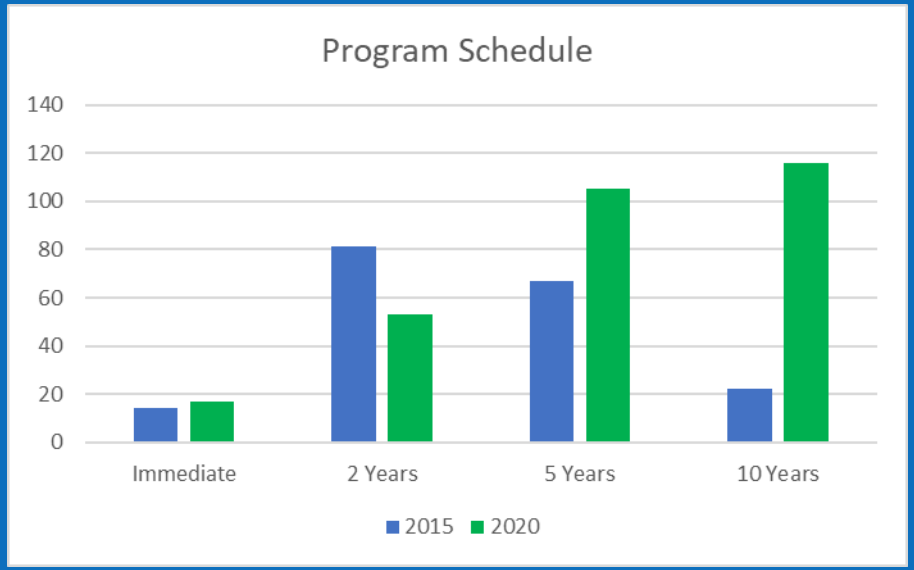
Repair Programming Schedule

- Assigned recommended timing of repairs
- Immediate, 2, 5 or 10 year
- Major structural elements with CS-3/4 rating = 2 year
- Fair condition or non-structural = 5 year
- Good condition = 10 year+



Repair Programming Schedule

- Increase in 5/10 year programming due to element specific assessment
- More accurate picture of bridges that would benefit from preservation



In-Depth Assessments

In-Depth Assessments

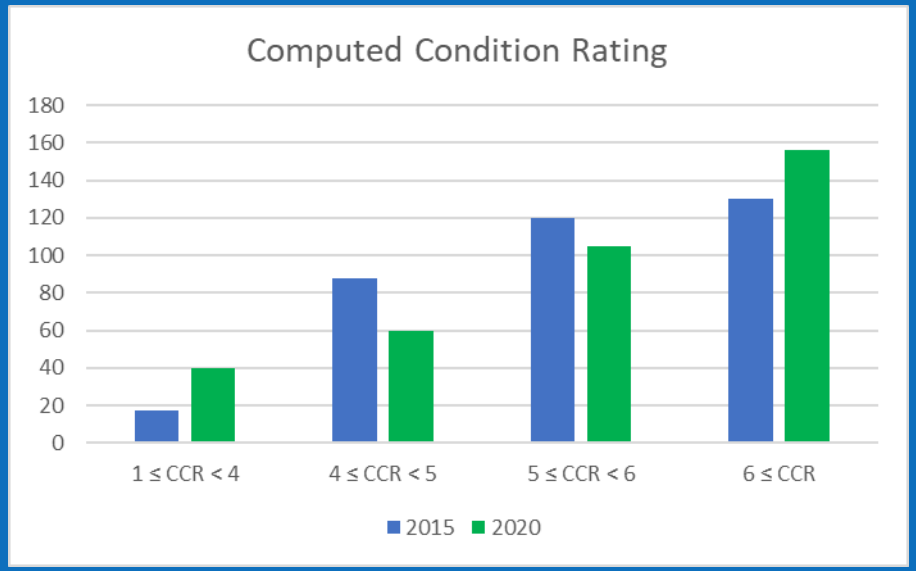
- Initial review used to identify candidates for In-Depth Assessment
- Up to 6 bridges for each owner
- 14 In-Depth Assessments
- Field visit
- Detailed repair strategy
- Conceptual cost estimate

Photo 6: BIN 2203110 – General Framing

Condition Rating Updates

Condition Rating Updates

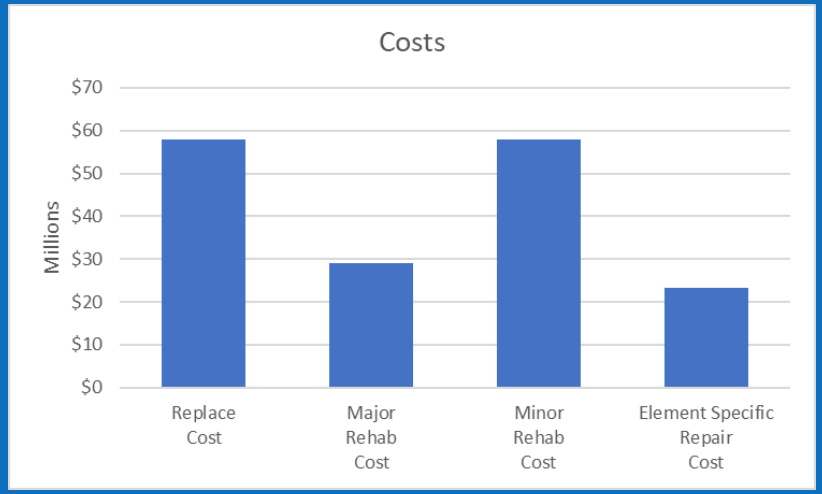
- Developed calculator update for determining Computed Condition Rating after repairs are implemented



Projected Repair Costs

Projected Repair Costs

- Average cost by work strategy
  - Replacement - $2M
  - Major Rehab - $1M
  - Minor Rehab - $500k
  - Element Specific. - $200k
- Total repair/replace cost ~ $168M
- 2020 Preservation cost ~ $110M
- 2015 Preservation cost = $80.5M
- Caution: small sample size



Summary

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- Evaluated 377 locally-owned bridges
- Identified preservation work strategies for all bridges with elements rated CS-3 or less
- Developed recommended program schedule
- Conducted In-Depth Assessments of 14 bridges
- Developed updated Computed Condition Rating calculator
- Assembled comprehensive, searchable bridge data worksheet

Questions?