



**Thruway
Authority**

**Canal
Corporation**

Asset Management Update

Board Briefing

Catherine T. Sheridan, P.E. - Chief Engineer

June 6, 2016

June 6, 2016

Why Asset Management?



Why Asset Management?

- Decisions - informed, defensible, transparent
- Risk - mitigate or reduce
- What - is the appropriate solution (yields cost)
- Where - is the solution needed (location)
- When - should the solution be constructed (service life)
- Performance based Capital Program

June 6, 2016

Chronology



Thruway Authority | Canal Corporation

Chronology

- 2011 - Began serious Asset Management efforts
- 2015 - Highway investment scenario capability
- 2017 - Bridge investment scenario capability
- 2018 - Cross asset allocation analysis

June 6, 2016

Pavements



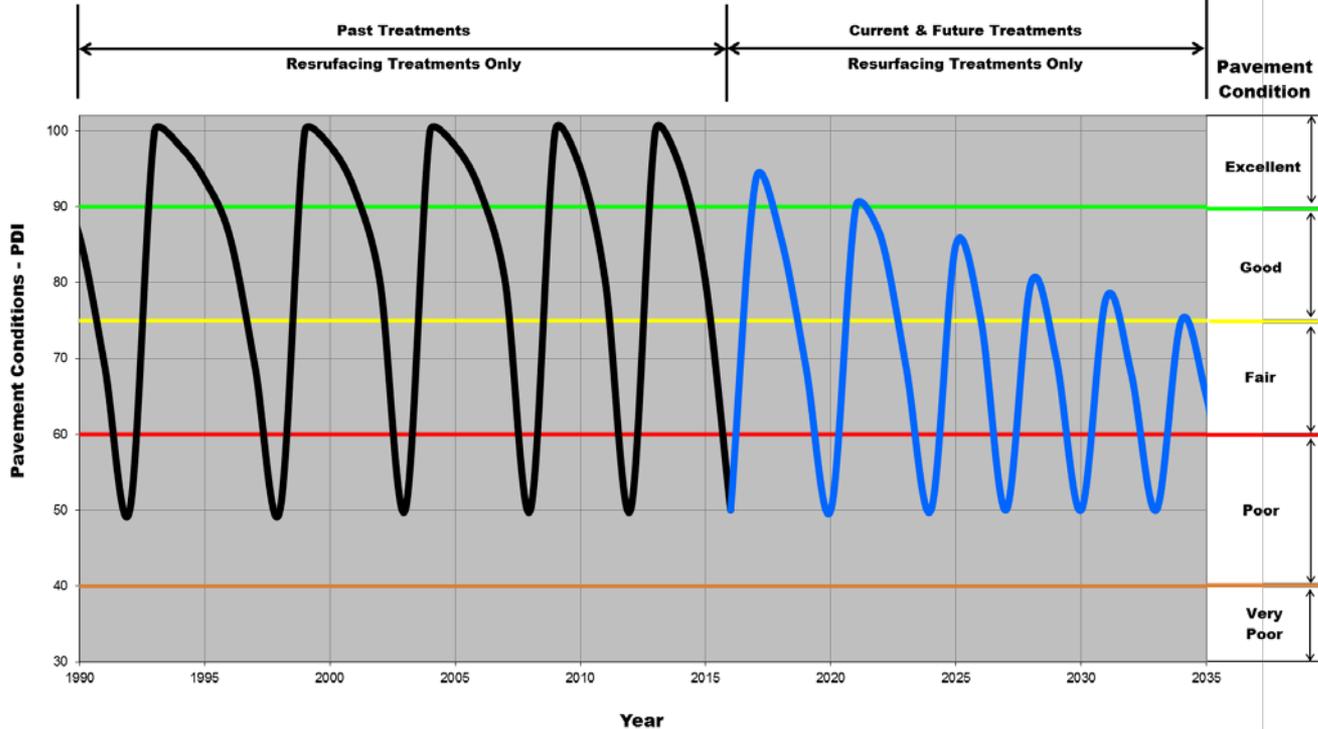
Pavements - Background

- 2,822 total Thruway lane miles (includes interchanges)
- Approximately 90% is original construction (mid-1950s)
- \$8 billion to replace pavement & interchanges
 - \$2.9 million per lane mile
 - some added capacity at select locations
- Need affordable pavement solutions

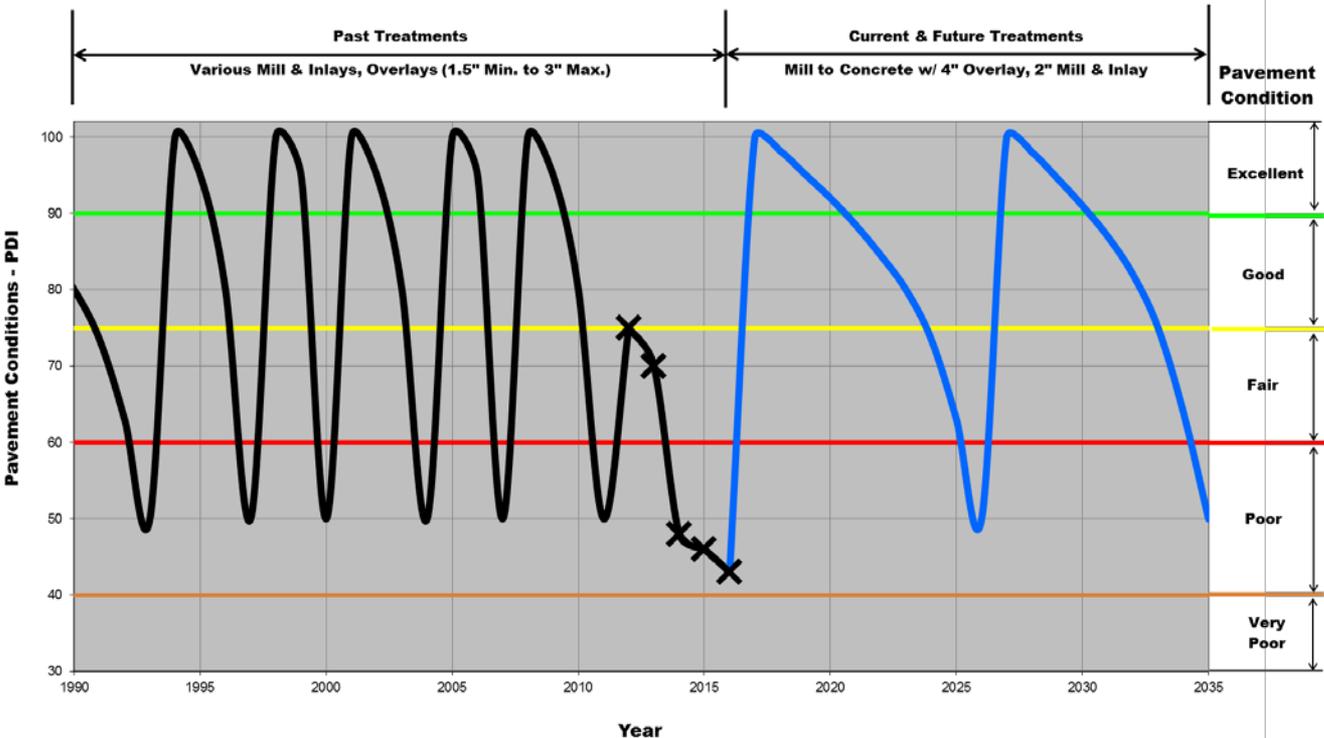
Pavements - What Have We Done?

- Pavement Distress Index (PDI) & inspection method
 - 5th year of annual pavement distress survey
- 20-year plan for each roadway segment
- Peer review (Applied Research Associates, Inc.)
- Alternate pavement solutions
 - thin overlays
 - mill to concrete

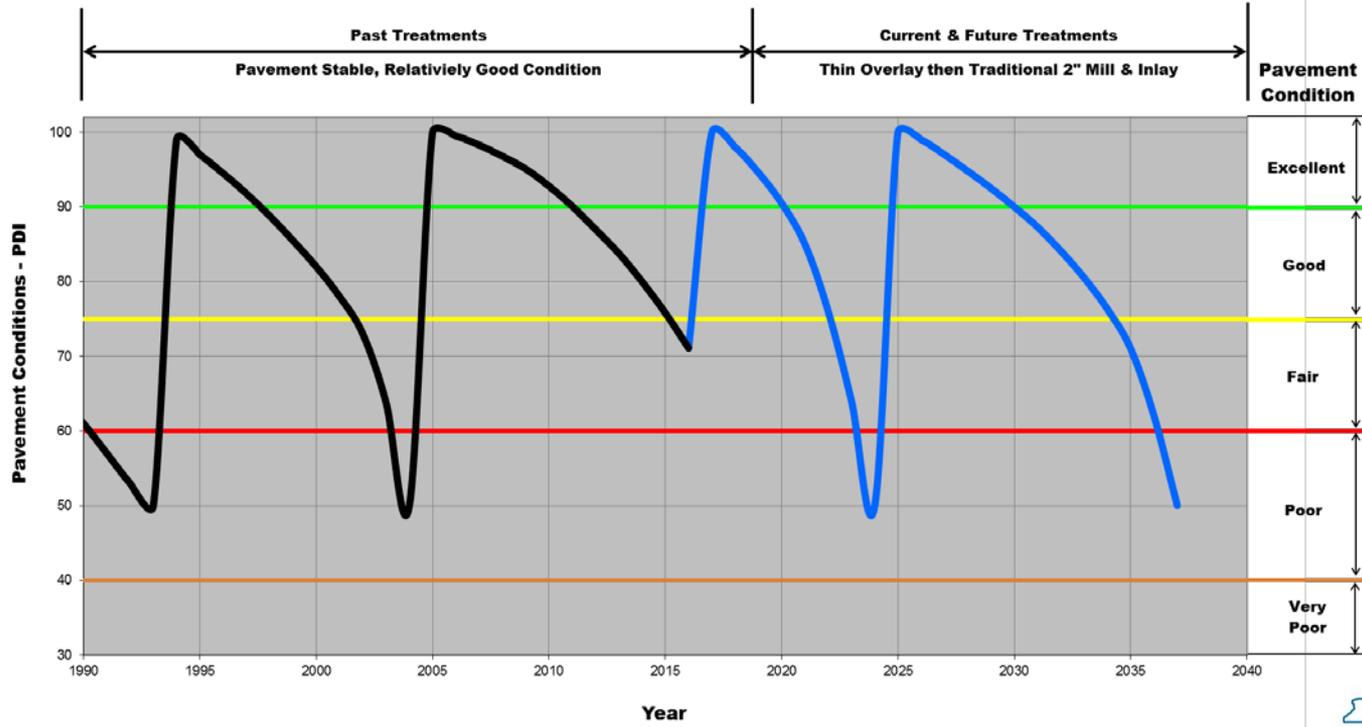
Pavements - PDI (Typical)



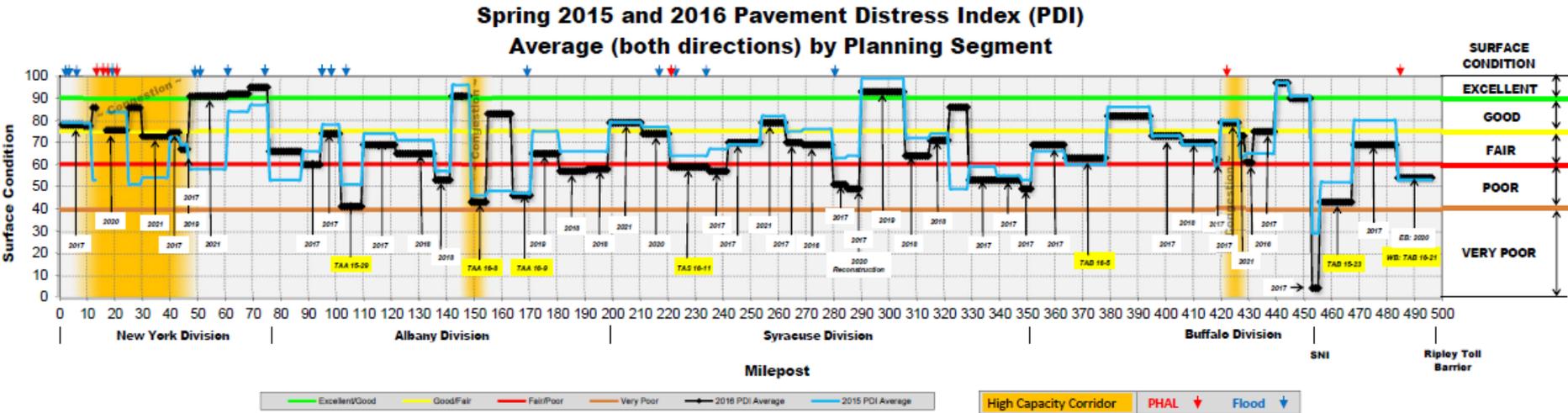
Pavements - PDI (Mill to Concrete)



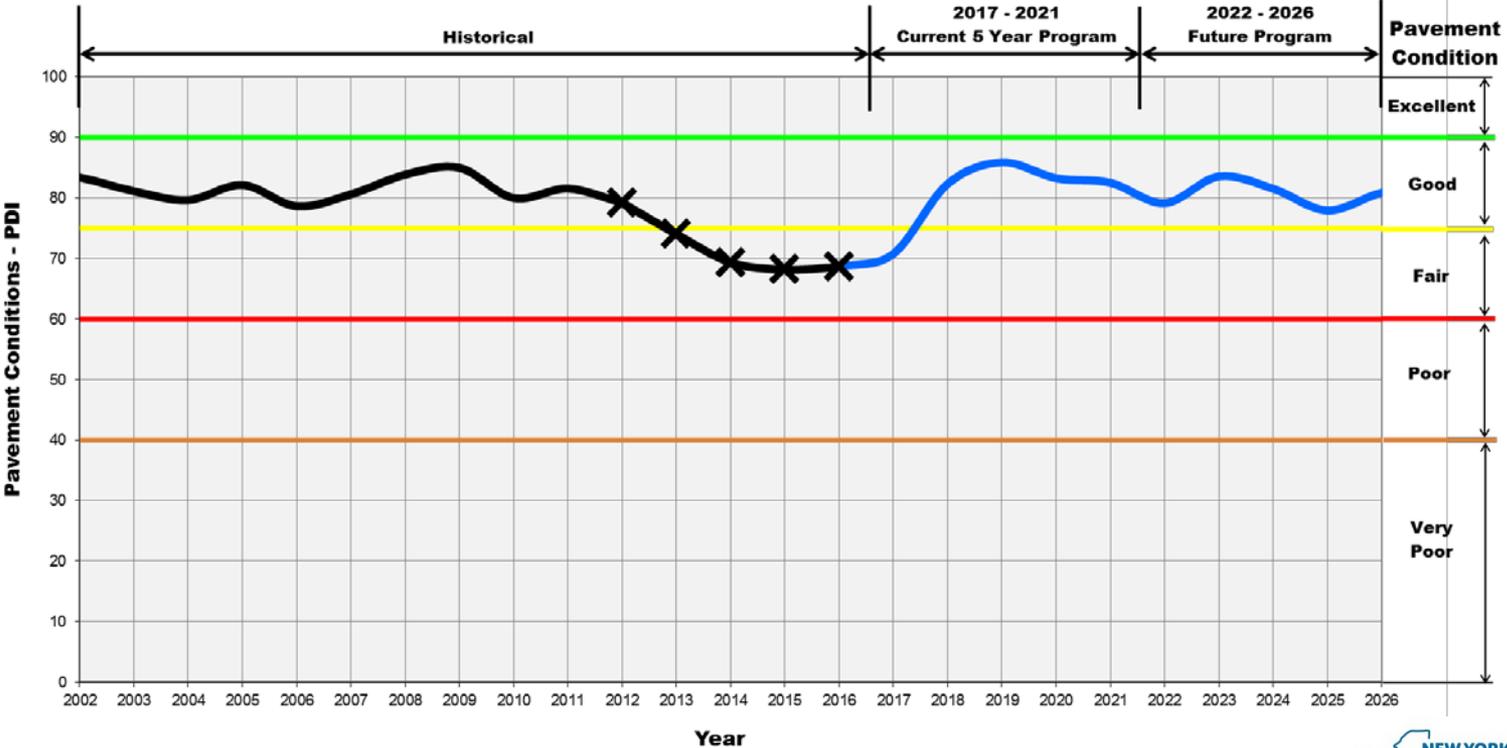
Pavements - PDI (Thin Overlay)



Pavements - PDI by Planning Segment



Pavements - PDI Scenarios



Pavements - Current Efforts

- 1st year of alternate pavement solutions
- Automating methodology
 - Department of Information Technology

Pavements - Next Steps

- Continue annual pavement distress surveys
- Investigate automated data collection

June 6, 2016

Bridges



Bridges - Background

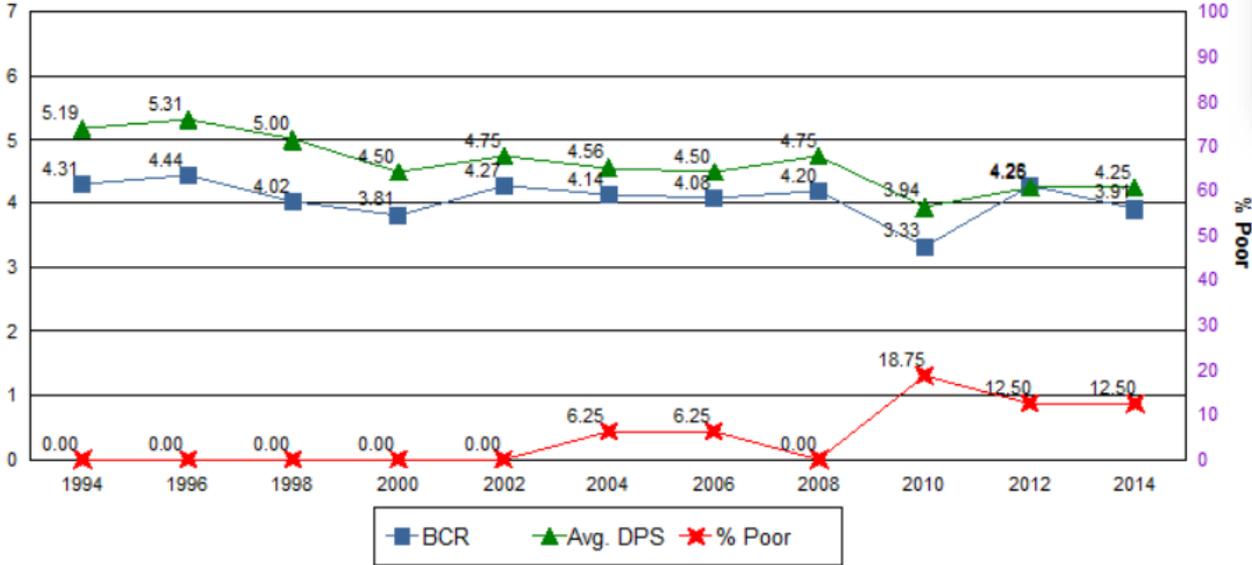
- 809 total Thruway bridges
- 600± bridges are original construction (mid-1950s)
- \$7 billion to replace pre-1990 bridges
 - does not include 4 Grand Island Bridges, Castleton-On-Hudson Bridge, Niagara Viaduct
- Need affordable bridge solutions

Bridges - What Have We Done ?

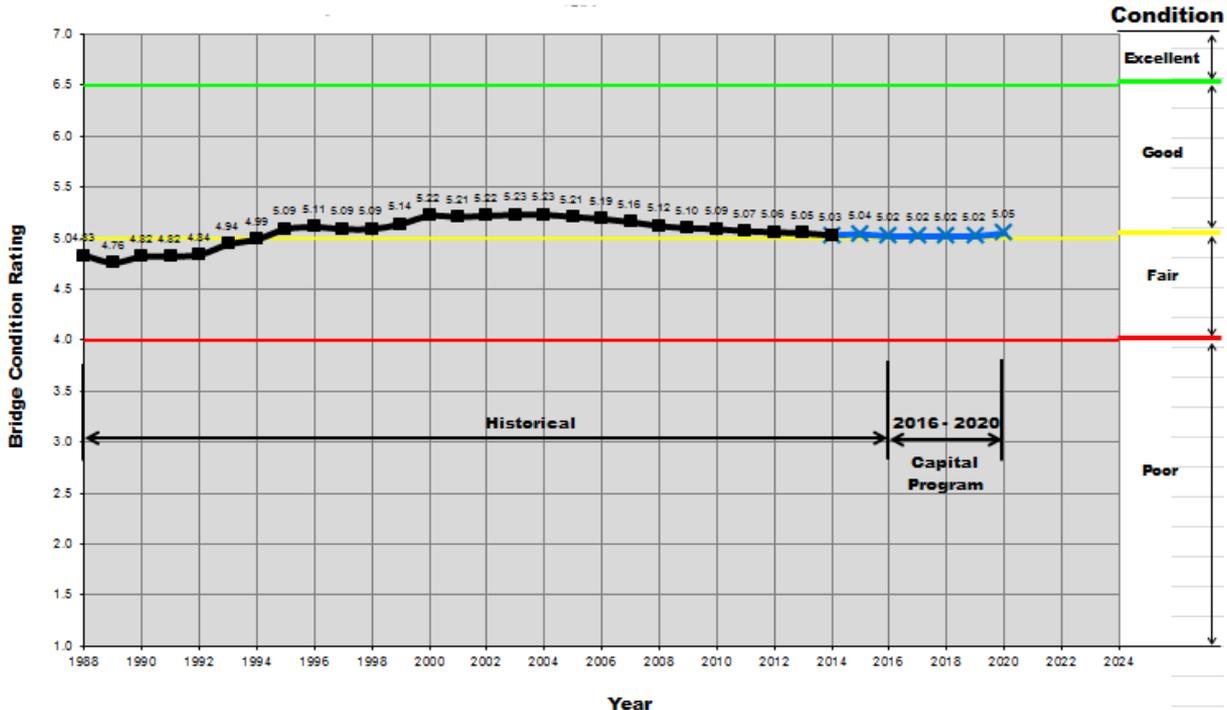
- Comprehensive bridge history
- Vulnerabilities
 - verified & updated information
 - created plans to monitor or address
- Ground Penetrating Radar (GPR)

Bridges - Condition

MP: 47.58, O/H, PINE HILL ROAD
Main Span: Steel, Stringer/Multi-Beam or Girder
4 Spans, Length: 196 ft., Deck: 6,468 sf
BCR: 3.91, Avg. DPS: 4.25, 12.50 % Poor, GR: 4



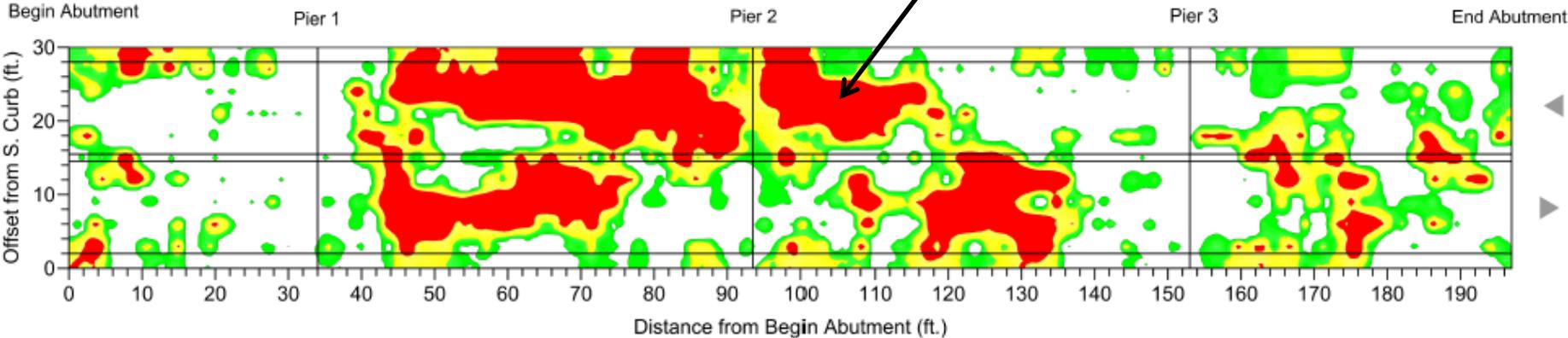
Bridges - BCR (Average)



Bridges - Vulnerabilities

- Bridge Safety Assurance Program
- Inspect, Evaluate, Monitor, Mitigate
- NYSDOT 5 Vulnerabilities
 - Hydraulic
 - Seismic
 - Steel Details
 - Collision
 - Concrete Details

Bridges - GPR



Bridges - Current Efforts

- NYS State bridge inspection system (new for 2016)
 - better for asset management
- Developing 20-year plan for each bridge
- Flagging procedures updates
- Load testing
- Drone testing

Bridges - Next Steps

- Convert old ratings to new
- Reports / graphs with new rating system
- Methodology for Statewide comparisons
 - deterioration rates
 - risk mitigation
- Peer review (similar to pavements)



June 6, 2016

Canals



Canals - Background

- 2,000+ Canal structures
- Modern system is 100+ years old
 - some elements date to the 1820s
- Recent NYSOSC audit
- Need risk based prioritization

Canals - What Have We Done ?

- Canal Infrastructure Management System (CIMS)
- Flood Warning & Optimization System (FWOS)
- Inventory & inspection responsibility validation
- Risk based inspection frequency
- Lift Bridge Agreement

Canals - Current Efforts

- Dam Safety
 - NYSDEC hazard class - reclassification
 - Emergency Action Plans
 - Engineering Assessments
 - Inspection & Maintenance Plans
 - NYPA independent risk analysis
- Fixed Bridges
 - ownership & inspection responsibility



Canals - Next Steps

- Inspection data validation
- Methodology for Statewide comparisons
 - deterioration rates
 - risk mitigation
- Transfer to NYPA

June 6, 2016

Programmatic Next Steps



Programmatic Next Steps

- Performance based Capital Program scenarios
 - 15-year scenarios
 - Level of Service
 - Capital Investment
 - Condition Based
 - Financially Constrained
- Cross asset allocations
 - Pavements vs. Bridges
 - Corridor improvements
 - Weigh-In-Motion (WIM)



**Thruway
Authority**

**Canal
Corporation**