SDOT Roadway Structures

City Council Transportation Committee Briefing

March 5, 2024

City of Seattle

Our Vision, Mission, Values, & Goals

Seattle is a thriving equitable community powered by dependable transportation. We're on a mission to deliver a transportation system that provides safe and affordable access to places and opportunities.

Core Values & Goals:

Equity, Safety, Mobility, Sustainability, Livability, and Excellence.

Agenda

- Roadway Structures Division
  - What we do
  - Organization
- Bridge Strategic Asset Management Plan
- Update Audit Recommendations

Key Takeaways

- Division Functions
- Division Responsibilities
- Bridge Asset Management
- Status Audit Response

Roadway Structures Asset Responsibility

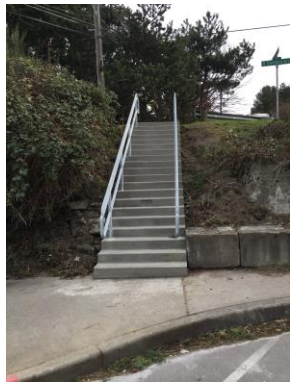
- Why number of assets may vary
  - New construction
  - Decommissioning of existing
  - Newly discovered assets
  - Change in ownership
- Misc. Structures
  - Historic bus shelters
  - Aerial siren
  - Seawall

135
Bridges

682
Retaining walls

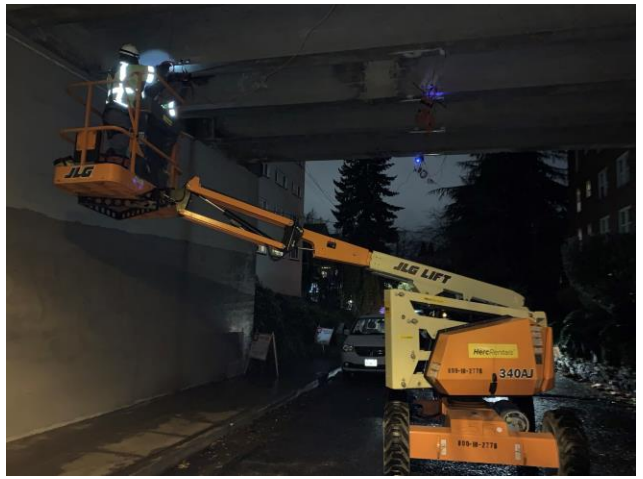
493
Stairways

208
Areaways



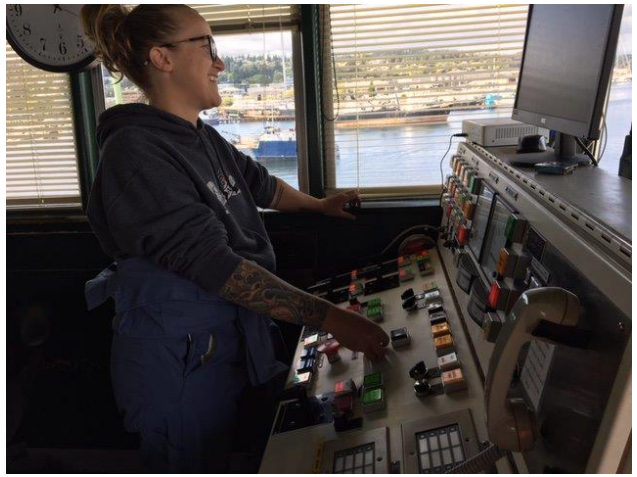
Roadway Structures - Division Functions

- Key Functional Areas
  - ➢ Operation & Maintenance
    - Movable Bridge Operations
    - Routine maintenance
    - Repairs
  - ➢ Emergency Response/Incident Management Team
    - 24/7/365 Staffed On-Call Calendar
    - Response to roadway structures related issues for SDOT and as needed for WSDOT
    - Snow & Ice Response
  - ➢ Managing/Executing Capital Programs (Levy/Non-levy)
- Asset Management
- Bridge and other asset inspection
- Subject Matter Expert



Roadway Structure – Groups and Functions

- **Bridge Operators**
  - 24/7 Operations
  - Operation responsibilities:
    - Ship Canal Bridges: University, Fremont and Ballard
    - Spokane Street Swing Bridge
    - South Park Bridge (King Cty)
  - Maintain safety and accessibility of the waterways
- **Structural Maintenance Group**
  - Maintenance
  - Emergency Response
  - Major Rehabilitation
  - Capital Replacement
- **Engineering Group**
  - Certified Bridge Inspectors
  - Bridge Inspection per Code of Federal Regulations
  - Repair Design
  - New Asset Design Review and Intake
  - Subject Matter Experts



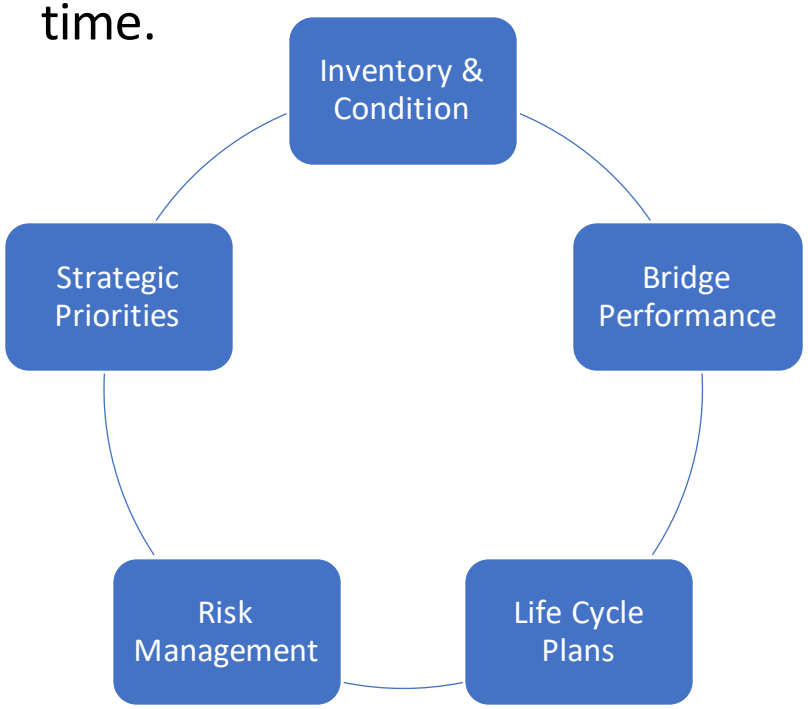
OCA Audit Recommendations

Objective: A strategic shift from a reactive asset maintenance project list to a proactive asset preservation work plan

Rec #	Description	Status
1	Resolve all the issues identified in the 2019 Federal Highway Administration review	Completed
2	Reduce the share of the department's bridge maintenance workload that is currently dedicated to reimbursable projects	Completed
3 & 4	Develop draft legislation to ensure adequate oversight of private bridges. Then develop policies and procedures to adequately align with the revised legislation	Completed
5	Conduct a staffing analysis to determine the number and type of staff required for the implementation of a bridge preservation program. Incorporate the City's Race and Social Justice Initiative values into the staffing analysis.	Pending: Data analysis completed, drafting the report. The RSJI toolkit is in QA/QC.
7	Conduct a cost benefit analysis of technology upgrades needed to improve staff efficiency as part of their staffing analysis	Completed
8 & 9	Update the estimated useful life of their bridges using the condition. Use the updated useful life estimates of its bridges to plan for preservation work and lifecycle costs.	Pending: The life cycle cost analysis report is in QA/QC
10	Development of Bridge Strategic Asset Management Plan (BSAMP)	Pending: Drafting

Bridge Strategic Asset Management Plan

A holistic, proactive approach to bridge preservation that plans for the right treatment at the right time.



- Asset Inventory and Condition Assessment
- Enhanced Maintenance Planning
- Budget Planning
- Risk Mitigation
- Long-Term Performance Monitoring
- Data-Driven Decision Making
- Improved Public Satisfaction
- Asset Value Preservation

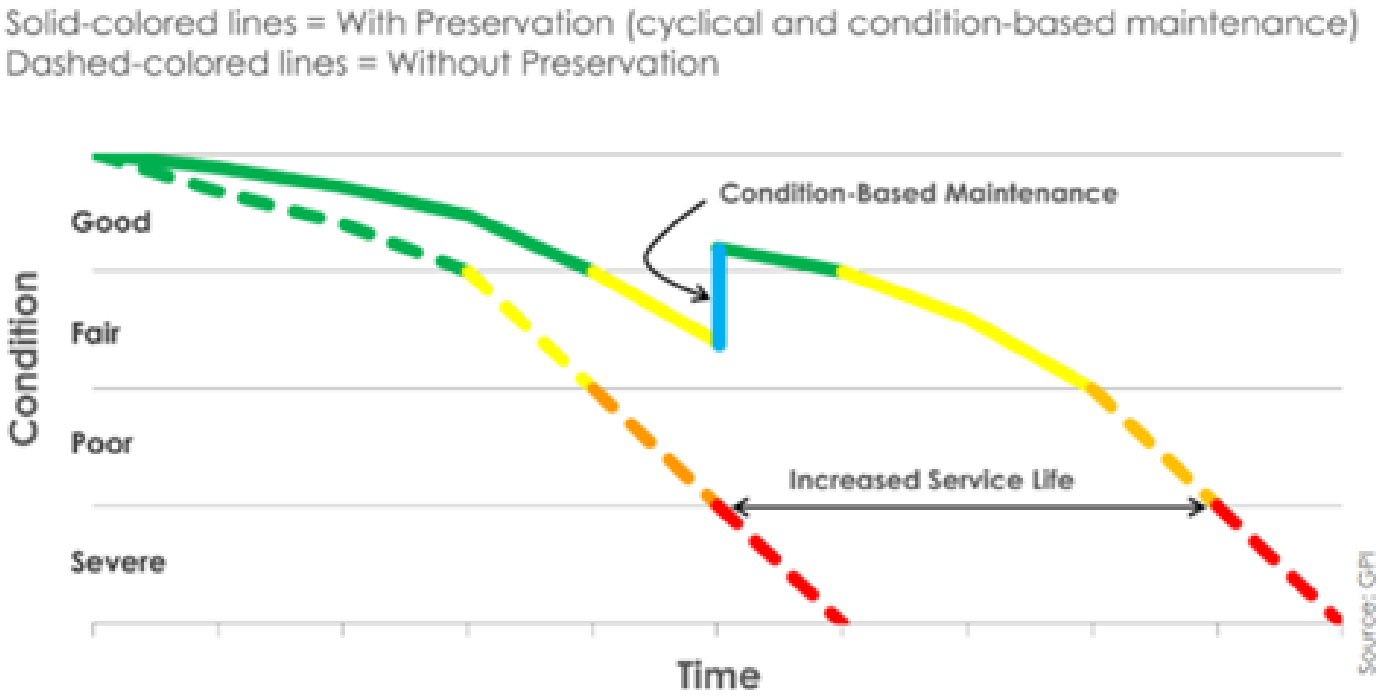
Bridge Inspection & Maintenance Program

- Average age of bridges in Seattle is 60 years old – with many exceeding their designed life
- Appraise bridge conditions by using a bridge management system and follow guidelines prescribed by FHWA and the Washington State Bridge Inspection Manual
- Inspect elements for each bridge: footings, columns, cross beams, girders, decks, railings, underwater components and movable systems
- Identify corrective measures

Life Cycle Cost Analysis

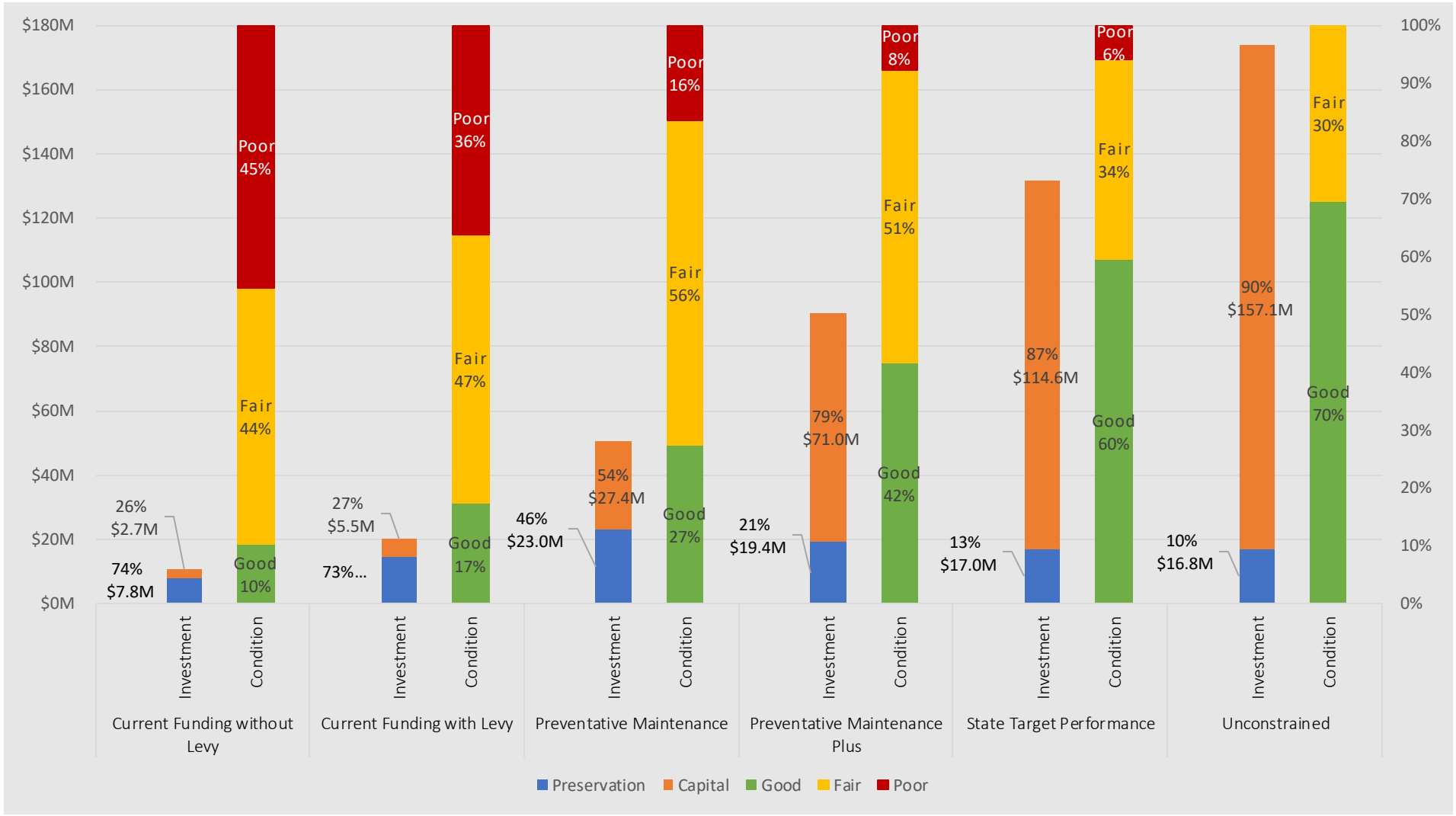
- Life cycle cost analysis: *Assess the total cost of maintaining and operating an asset for its entire lifespan determining the most cost-effective way to do so.*

- Building a preservation maintenance program is critical to reducing total life cycle cost.



Investment vs Condition State

- Capital investment changes condition states
- Preservation maintenance maintain and prolong existing condition states



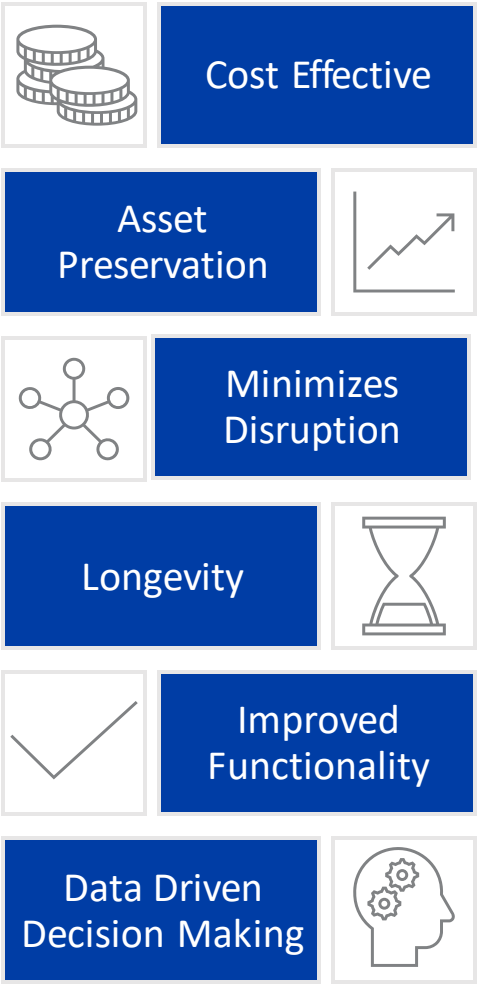
Preservation Maintenance

Preventative Maintenance Program:

- Maximize the life of bridge with the “right treatment at the right time”
- Program includes bridge painting, deck replacement and overlays, joint replacement, bridge cleaning and spot repair
- Work would be delivered by Contractors and Roadway Structures crews

Outcomes:

- Slow deterioration, keeping bridges in their current condition state for as long as possible, notwithstanding unforeseen events
- Bridge cleaning to minimize deterioration of bridge elements from accumulated corrosive substances, reduce spot repair needs, and provide early intervention for latent issues
- Long term outcomes:
  - Stabilize bridge condition over time, reduces the amount of major capital investment over the life of the bridge.
  - Reduce emergent structural repairs on bridges currently in good condition



Summary

- Division goals:
  - maximize investments in our transportation infrastructure,
  - preserve existing facilities,
  - manage capital improvements,
  - operate assets to provide a safe and reliable transportation system for the traveling public.
- Proactive planning investments in our aging assets
- Importance of preventative maintenance
- SDOT considers many factors before recommending a structure for replacement, including detailed condition assessments, functional improvements, and other local factors.

Questions?

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