# West Seattle High-Rise Bridge Safety Project

Press Briefing

*Embargoed Until April 15, 2020 at 3:30pm*

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April 15, 2020

City of Seattle

# Presentation overview

- Background and what has changed since March 23
- Future of the bridge remains uncertain
- Stabilization and shoring, tentative schedule
- Phase I: Slow or halt bridge deterioration
  - Pier 18 stabilization and repairs
- Phase II: Shoring the bridge
- Phase III: Bridge repairs
- Technical Advisory Panel
- Order of magnitude budget

# Background and what has changed

**Background**

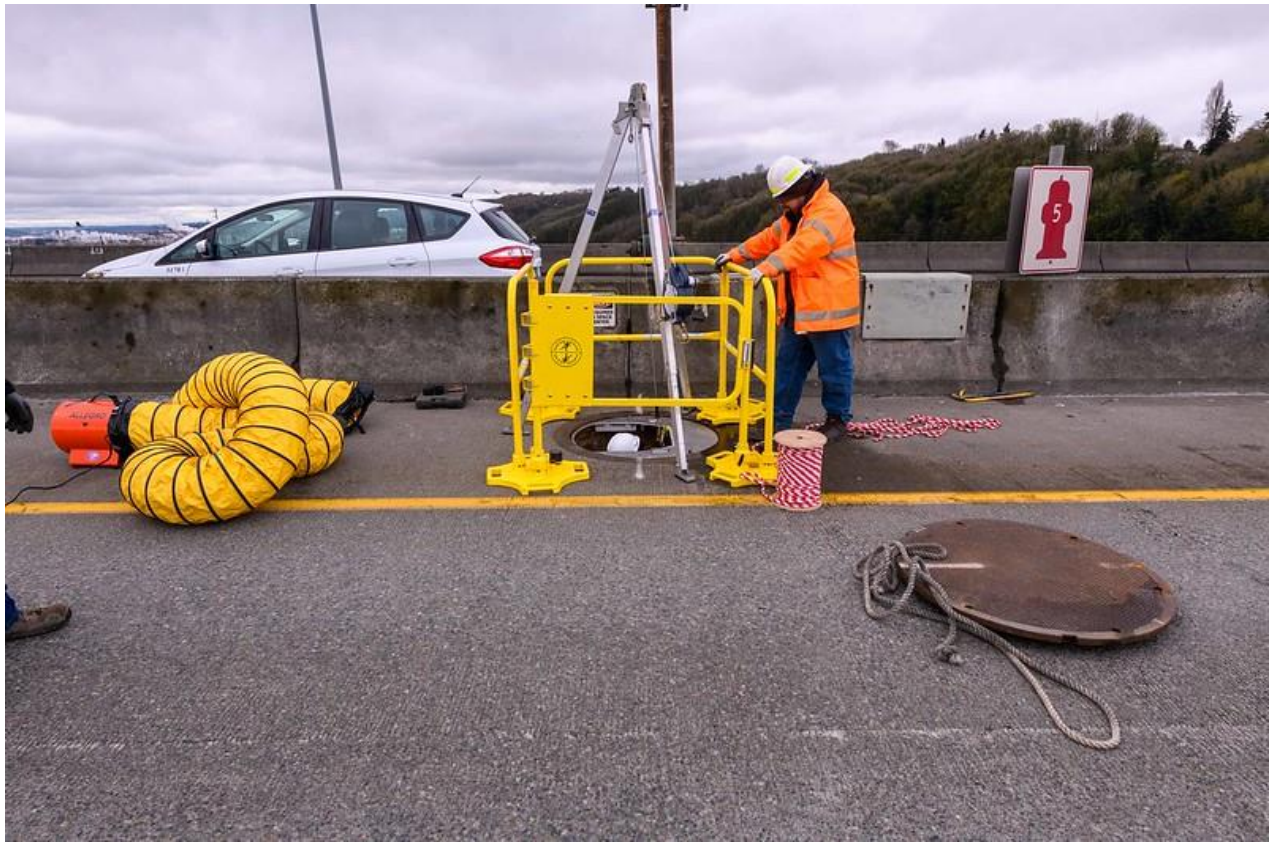
- Bridge closed on March 23 due to rapid growth in cracking along the center section of the bridge

**Recent findings**

- Recent inspections have found cracks continue to grow, but at slower rate, confirming immediate removal of live load was essential
- Crews are inspecting the bridge for new and growing cracks each day
- The bridge is safe for crews to work
- SDOT has a better understanding of stabilization timeline, but there is still uncertainty

# Safety is top priority

- SDOT continues to inspect the bridge daily
- We are installing intelligent monitoring equipment to monitor any changes to the bridge in real time, with 24/7 alerts
- We are modeling potential cracking scenarios and preparing contingency plans
- These plans will enable rapid response to preserve public safety



# Future of the Bridge Remains Uncertain

- SDOT does not yet know if repair of the bridge is feasible technically or financially
- If repair is feasible, it could provide up to 10 years of additional use
- We will need to replace the West Seattle High Bridge, the question is when
- We do not anticipate traffic returning to the bridge in 2020 or 2021
- We are committed to clear communication and transparency throughout

# Stabilization and shoring schedule

- Ongoing—Continue field inspection and install instrumentation hardware/real time alerts
- Immediately—Pier 18 restraint release design
- Spring—Shoring and repair design begin, technical advisory panel for peer review launched
- Summer—Pier 18 restraint released; shoring materials procurement begins
- Late Fall—Shoring construction begins
- Early Spring 2021—Shoring construction complete

# Phase I: Slow or halt bridge deterioration

- On March 23, SDOT discovered new cracking, confirming growth had rapidly increased over the prior two weeks
- Cracking has slowed since we removed live load, indicating that removing the weight of traffic has helped prevent worse damage
- Stabilization is intended to slow or stop the cracking and preserve the integrity of the bridge
- Next steps: continue to assess repair feasibility, timeline, and costs

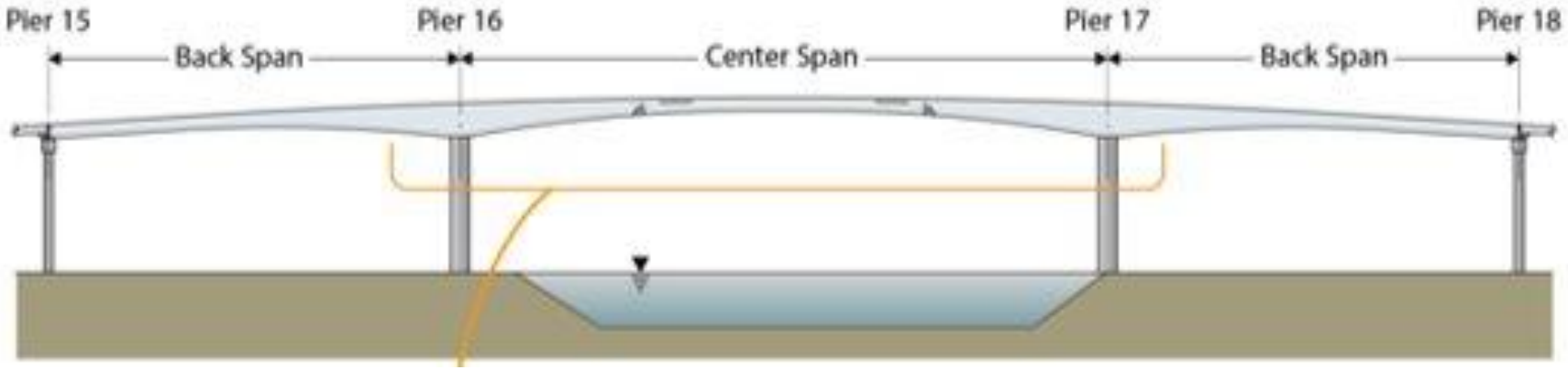
# What is a lateral bearing?

- Bridge bearings sit between the bridge's roadway
  and the support piers holding it up
- Bearings allow the bridge to be move in response to traffic, normal concrete creep and shrinkage, thermal variations
- Pier 18 bearings are compressed and bulging, creating additional pressure and affecting the whole bridge

Figure 7. Pier 18 – Bulging of Elastomeric Lateral South Bearing

# Stabilization through Pier 18 repairs

- To slow cracking, unlocking Pier 18 lateral bearing is the top priority for repair
- Repairing the locked bearing is contingent on bridge strength analysis to determine if the bridge can handle the stress
- SDOT is procuring a contractor to perform these immediate emergency repairs



# Phase II: Shoring the bridge to further stabilize

- The process of “shoring” means adding temporary support to the bridge to preserve its integrity and enable repairs
- Mid-2020 – obtain and build specially fabricated materials for shoring while Pier 18 repairs are made
- Late 2020 – Shoring Construction

# Phase III: Bridge Repair

**Key elements of uncertainty right now:**

- Can bridge be stabilized before further deterioration makes repair infeasible?
- Will repair require permits to impact the navigation channel?
- Will repair require special fabrication or equipment?
- Is repair feasible technically or financially?

# Phase III: Bridge Repair

- Repair of the West Seattle Bridge may not be possible
- We are at 0 percent design, and each step will impact what's feasible and how long it will take
- If repair is possible, we anticipate it could provide up to 10 years of additional use

# Establishing Technical Advisory Panel

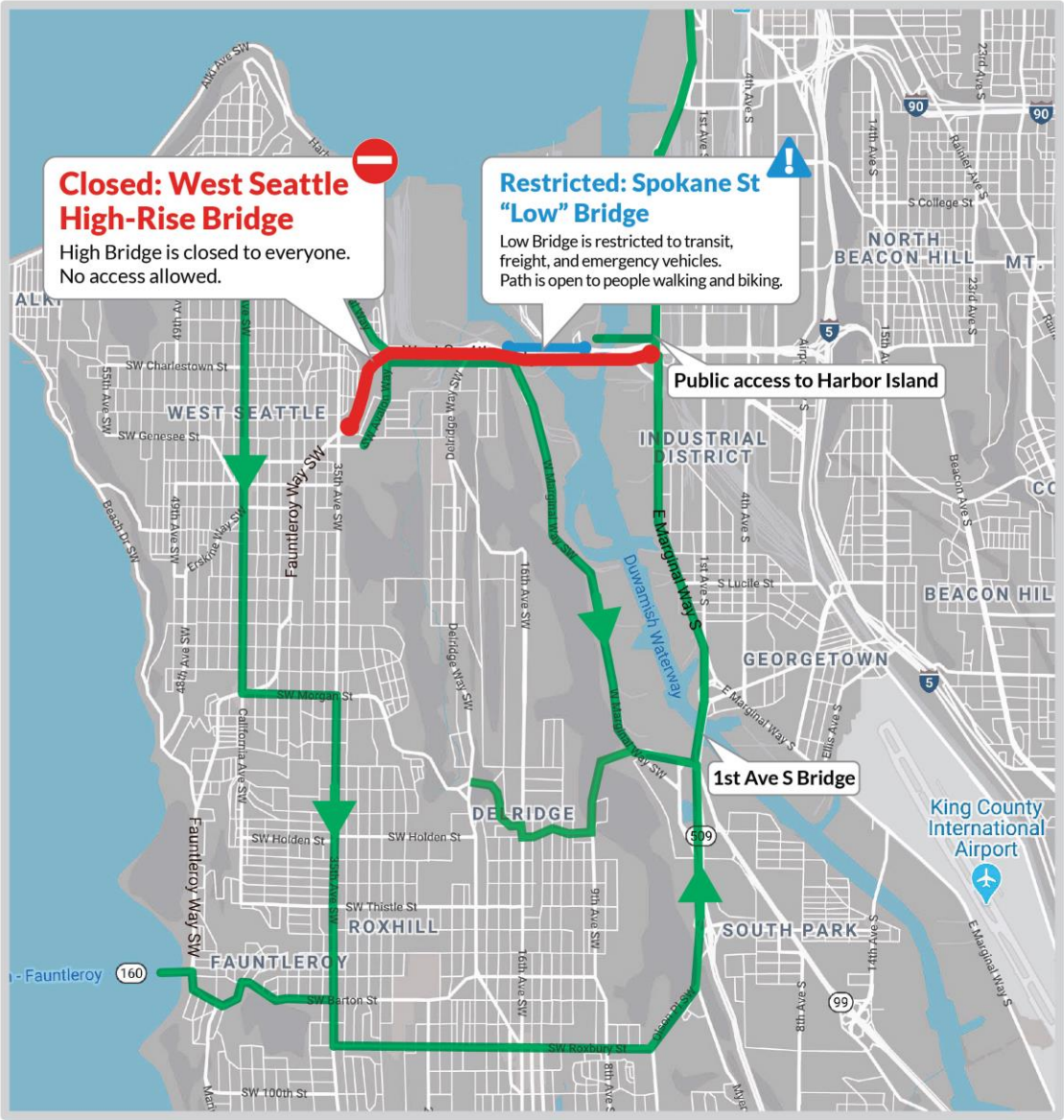
- The condition of the West Seattle High Bridge and the complexities of monitoring, design, and repair are complex
- The Technical Advisory Panel will provide qualitative review, insight, constructive feedback, and validation
- The Panel will consist of experts with experience in bridge design and construction, geotechnical engineering for bridge structures, and marine/maritime expertise

# Traffic Mitigations

- Closing the West Seattle Bridge has a similar level of complexity to our recent Viaduct closure, but with fewer re-route choices, and shorter timeline
- Low Bridge restricted to people driving emergency vehicles, freight trucks, and public transit
- Seattle Police Department is supporting enforcement
- Path open to people walking and biking
- Access to Harbor Island for general public via east channel bridge

# Traffic Mitigations

- Traffic signal installed at Highland Park Way SW and SW Holden St
- Detour route signage to 1st Ave S Bridge improved
- Signals at the five-way intersection connected to citywide system for remote monitoring adjustment. Repave intersection.
- Stripe, sign, and smooth alternative routes
- Additional measures to be identified



# Order of magnitude budget through shoring

| Action | Estimated Cost |
|---|---|
| Monitoring* | $2,000,000 |
| Design* | $6,000,000 |
| Pier 18 repair construction | $1,000,000 |
| Shoring construction | $15,000,000 |
| Traffic control and mitigations* | $3,000,000 |
| Project Management, Communications, and outreach | $1,000,000 |
| Swing Bridge Maintenance* | $5,000,000 |
| **Total** | **$33,000,000** |
| Repair | TBD |

* Portions of these costs included in current programmatic budgets, but other deliverables may be affected

# Bringing Community Together

- Work with West Seattle community and businesses to keep people informed, provide resources, and answer questions
- Share email updates with 1,000+ subscribers so they hear from SDOT about what's happening and how to get around
- Post blogs, new maps and graphics to help with commuting, and answers to important questions online
- Work closely with media, sharing news and answering questions for broader audiences
- Continue to build partnership with Department of Neighborhoods and Office of Economic Development to reach out to the broader community, freight, and maritime communities

# Questions / Discussion

www.seattle.gov/transportation/westseattlebridge