

West Seattle High-Rise Bridge Safety Project

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Council Briefing
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City of Seattle

Presentation overview

1. Background
2. Bridge Inspection, Maintenance, and Analysis History
3. Decision to Close
4. Short-term Recommendations
5. Traffic Management, Impacts, and Mitigations
6. Repair Options
7. Communications Plan
8. Project Leadership Structure
9. Next Steps



Bridge Background and Details

- Opened for use in 1984
- Cast-in-place concrete and steel bridge
- One-of-a-kind, uniquely designed for our topography and geography
- Designed for three lanes in either direction
- Highest daily traffic volumes among SDOT roadways
 - 84,000 vehicles (2019)
 - 17,000 transit riders



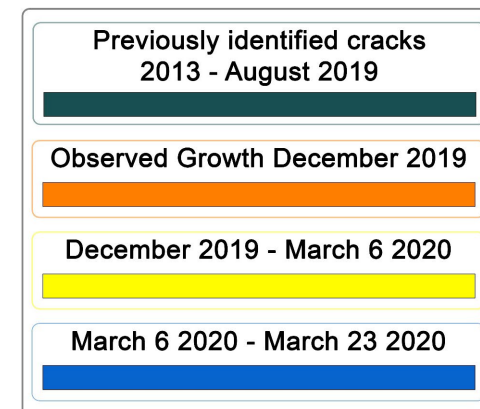
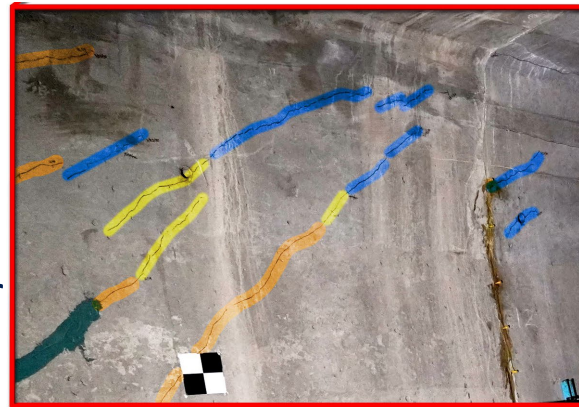
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Bridge Inspection, Maintenance and Analysis History

Date	Bridge Condition	Impact on Public	Response
2013	SDOT observes cracking in West Seattle Bridge	None	<ul style="list-style-type: none"> • Increase inspection frequency to annually
2014-2019	Annual inspections confirm low level of crack growth	None	<ul style="list-style-type: none"> • Ongoing maintenance and monitoring
Aug 2019	Routine inspection reveals moderate crack growth	None	<ul style="list-style-type: none"> • Fill cracks with epoxy • Increase inspection frequency to monthly
Oct / Nov/ Dec 2019	Inspection reveals ongoing crack growth	None	<ul style="list-style-type: none"> • Begin analyzing mitigation options
Late Feb 2020	Engineering consultant recommends reducing traffic load	Lane Reduction Under Consideration	<ul style="list-style-type: none"> • Begin preparing for discussions with City leaders and community outreach
March 19 2020	Engineering consultant notifies SDOT of new analysis raising larger concerns	Potential for Full Closure	<ul style="list-style-type: none"> • SDOT visits bridge on daily basis
March 23 2020	Engineers discover new cracks, confirming growth has increased exponentially	Immediate Full Closure	<ul style="list-style-type: none"> • 9 am: Engineers assess crack growth and alert leadership • 11 am: Mayor Durkan approves plan to close bridge • 7 pm: SDOT begins implementing bridge closure

Decision to Close

- Rapid and unexpected growth in cracks, over the course of days
- Public safety is SDOT's number one priority
- Public and private sector engineers agreed that the bridge was no longer reasonably safe for ordinary travel
- Decision was made and communication happened within hours



Short-term Recommendation - High Pass

- Take all steps to maintain the integrity of the structure
 - Restrict travel completely to reduce load stress on the bridge and preserve the structure
- Return bridge to normal operation as soon as possible while mitigating short-term impacts for people and goods
 - Seek interim repairs with a goal of restoring some traffic
 - Accelerate major maintenance/repair to extend bridge life by 10+ years

Short-term Recommendation - Swing Bridge

- Protect deteriorating primary alternate route to the High Pass
 - Continue weekly inspection and monitoring
 - Complete load rating project
 - Complete ped gate replacement
 - Complete controls upgrade project
 - Complete rehabilitation of the Pier 6 and Pier 7 lift cylinders

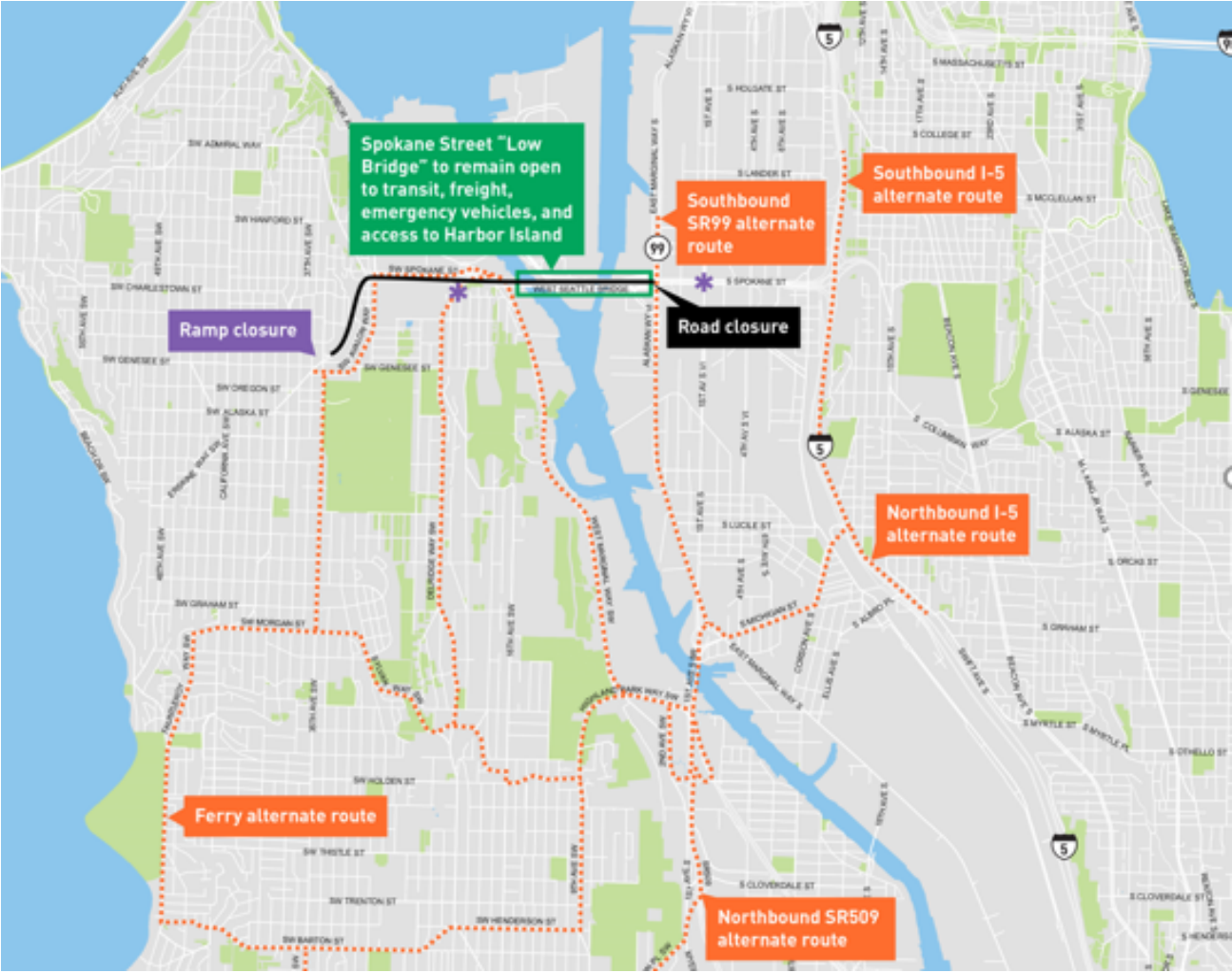


Traffic Management Plan

- **Primary Consideration at this Time:** Critical to maintain unfettered access for first responders to and from West Seattle in the midst of a public health crisis
- Similar level of complexity to Viaduct closure, but with fewer re-route choices
 - Nine lanes (High and Low bridges) have been reduced to two lanes, for more than 100,000 average daily trips
 - Viaduct closure permitted years for planning, 40 joint community briefings, dozens of press events
- Reserve lower bridge for emergency vehicles, freight and transit use only
 - Lower bridge still subject to opening
 - Capacity is 20,000 average daily trips
- Redirect passenger vehicles to 1st Ave S Bridge and South Park Bridge
- Install temporary signal at Highland Park Way SW and SW Holden St
- Install further traffic count stations to monitor alternate routes
- Develop medium- and long-range plan and additional mitigations



Detour Map



Traffic Impacts & Mitigation

- Significant impacts to travel times, as traffic returns to normal state
- Mitigation includes:
 - Redistribute traffic flow where possible
 - Expand targeted messaging on mode shift and transit options
 - Coast Guard sent a notice to mariners requesting limited requests for opening during peak times
 - Harbor Island employees allowed access to low bridge



Repair Options

- Temporary shoring to preserve structure
- Approach to repair
 - Likely fiber wrap with additional reinforcement at key connections
 - Alternative project delivery may allow faster procurement of materials and other decisions
 - If repairs impact navigation channel, Coast Guard permits will be required

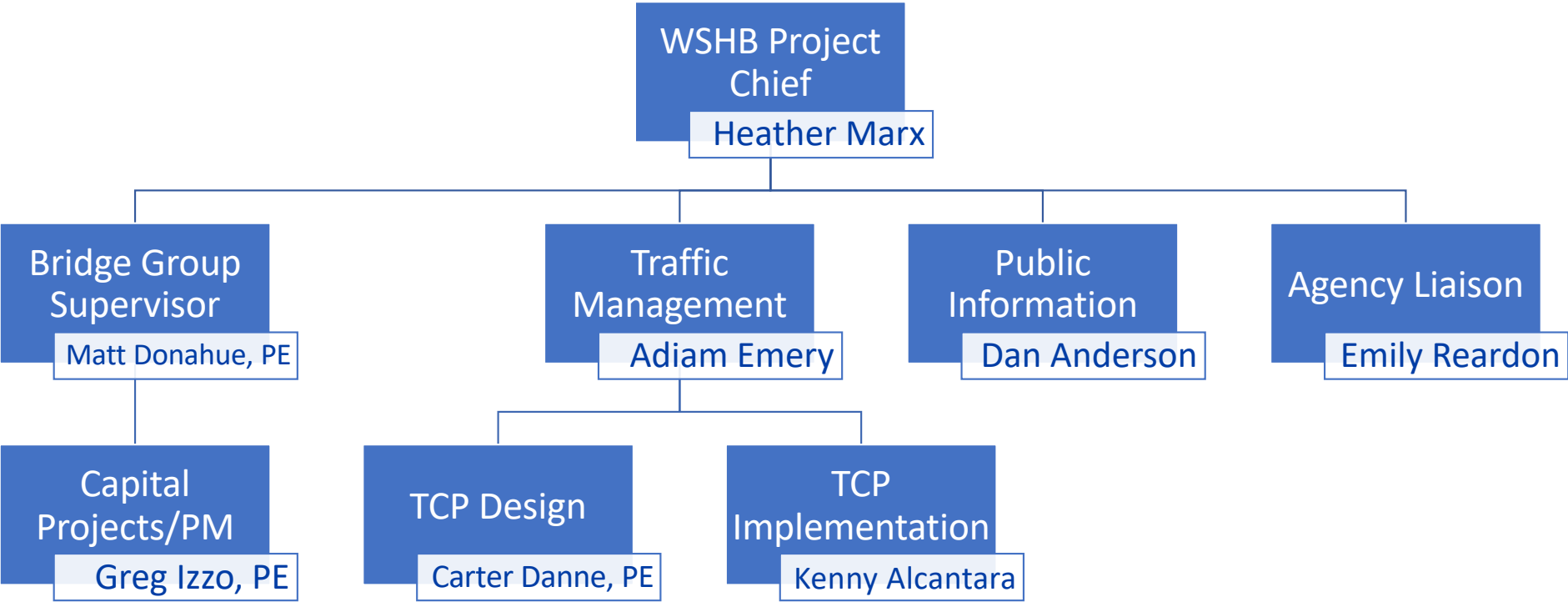


Communications Plan

- Provide timely, accurate information about bridge closure to communities, businesses, and agency partners through local media and City channels
- Create SDOT information sources online with background information, guidance, and future notification sign-up
- Share updates about alternate routes, bridge inspection history, and closure decision-making
- Partner with DON to further connect with community and open feedback channels to ensure people feel heard and we're able to problem-solve as a team
- Keep Mayor, City Council, media, and stakeholders updated as new information becomes available



SDOT West Seattle High Bridge IMT Structure



Next Steps

- Expedite design and repair contracts
- Implement initial steps to mitigate traffic impacts and identify further mitigations
- Distribute communications and media materials
- Conduct study to determine the structure's remaining useful life (start fall 2020)



Questions / Discussion

