



INFORMATIONAL MEMORANDUM

TO: **Transportation and Infrastructure Services Committee**
 FROM: **Hari Ponnekanti, Public Works Director/City Engineer**
 BY: **Adam Cox, Transportation Program Manager**
 CC: **Mayor Allan Ekberg**
 DATE: **May 21, 2021**
 SUBJECT: **42nd Ave South Bridge Replacement Project**
Project No. 91810404
Project Update and Next Steps

ISSUE

Provide a quarterly update and information regarding the 42nd Ave South Bridge Replacement Project and next steps moving forward.

BACKGROUND

City Infrastructure Priority Project

The 42nd Ave S Bridge was built in 1949 and is reaching the end of its useful life. Built to last 75 years, it turned 72 years old in 2021. The 42nd Ave S. bridge is a critical bridge and infrastructure link that serves an important residential community, Allentown, key community assets such as the Tukwila Community Center (TCC), several businesses and is a key link to other nearby communities such as Skyway. The Bridge currently is used by approximately 10,000 vehicles per day.

The current need to replace the 42nd Ave South Bridge has been listed as the City’s top state and federal priority due to its low sufficiency rating (currently at 7.56 out of 100) and concerns of failure. The City applied for state and federal grant funds in 2017 and 2019 for bridge replacement and was unsuccessful. To be more competitive in the next round of the state two-year grant cycle as well as other state and federal grants, the City approved a 30% design contract with TranTech Engineering, LLC in November 2020 for \$1.1 million. Based on the initial work from this design contract, the City applied for the next round of state grant funding for 42nd Ave S Bridge Replacement Project in February 2021. The state is expected to do an on-site review in August 2021 and make a grant determination by fall 2021. City and TranTech representative have been working closely with the state and federal delegations to secure the full \$2.5 million to replace this critical bridge.

Historical Perspective 42nd Ave S Bridge Replacement Timeline

Shown below are activities associated with replacing the 42nd Ave S Bridge due to end-of-life concerns:

Date	Activity
May 2013	<ul style="list-style-type: none"> Skagit Bridge Collapse on I-5. Similar bridge design as 42nd Ave S Bridge
2015	<ul style="list-style-type: none"> City receives updated rating of bridge with a sufficiency rate of 17.29 (see section below on history of inspections and sufficiency ratings)
March 2017	<ul style="list-style-type: none"> City Engineer’s Bridge Inspection Report stated 42nd Ave S Bridge has Sufficiency Rating of 19.44 and recommended replacement or rehabilitation.
April 2017	<ul style="list-style-type: none"> City applies for state and federal grant funding (BRAC) for 42nd Ave S Bridge Replacement

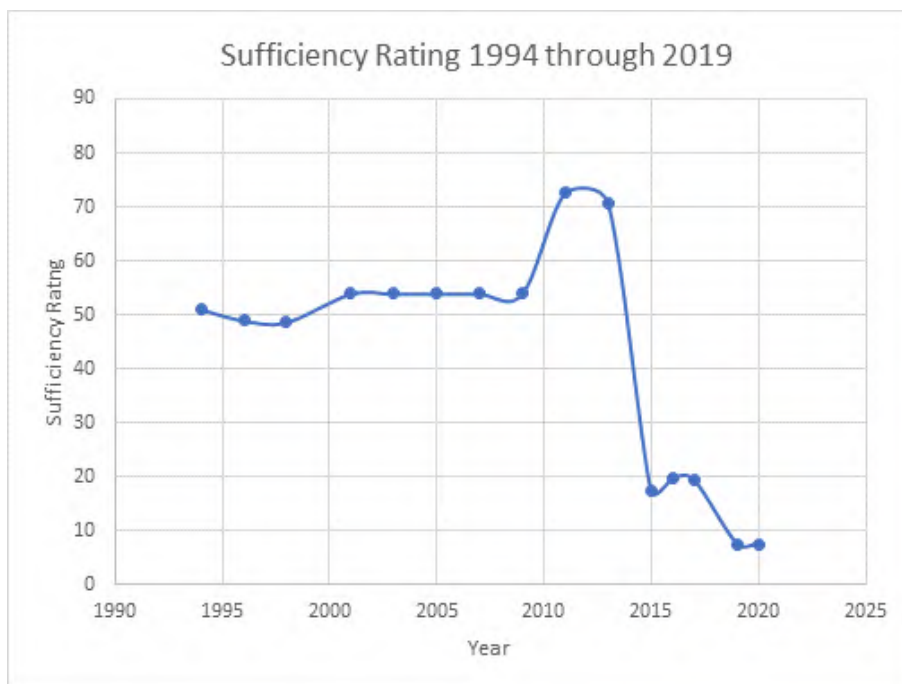
Date	Activity
December 2017	<ul style="list-style-type: none"> • City receives notification that 42nd Ave S Bridge did not receive state and federal grant funding (BRAC)
February 2018	<ul style="list-style-type: none"> • Council adopts Ordinance No. 2566 restricting speeds on 42nd Ave S Bridge
April 2019	<ul style="list-style-type: none"> • City applied for state and federal grant funding (BRAC) for 42nd Ave S Bridge
July 2019	<ul style="list-style-type: none"> • City receives updated rating of bridge with a sufficiency rate of 7.56
September 2019	<ul style="list-style-type: none"> • Transportation & Infrastructure Services (TIS) Committee discussed State of the Bridges Report, which Chair Idan reported on to the full Council
November 2019	<ul style="list-style-type: none"> • City receives notification that 42nd Ave S Bridge did not receive state grant funding (BRAC)
November 2019	<ul style="list-style-type: none"> • Council Adopts Legislative Priorities with 42nd Ave S Bridge Replacement as a top capital priority
December 2019	<ul style="list-style-type: none"> • TIS Committee requested additional analysis to weigh options
February 2020	<ul style="list-style-type: none"> • TIS Committee discussed next steps for 42nd Avenue South, including need to fund design to make shovel-ready project Finance Committee discussed funding
April 2020	<ul style="list-style-type: none"> • Surface Transportation Program (STP) funding pursued through Puget Sound Regional Council (PSRC)
July 2020	<ul style="list-style-type: none"> • 42nd Avenue South Bridge in-depth inspection and closure
September 2020	<ul style="list-style-type: none"> • 42nd Avenue South Bridge in-depth inspection confirmed bridge is approaching end of service life and the cost of repair would exceed the replacement cost
November 2020	<ul style="list-style-type: none"> • Council adopts contract for 42nd Ave S. 30% design
February 2021	<ul style="list-style-type: none"> • City applied for state and federal grant funding (BRAC) for 42nd Ave S Bridge
2021	<ul style="list-style-type: none"> • Administration and staff met with Representative Adam Smith to request a \$1.7M earmark for FY 2022 to finish the design of the bridge; Congressman Smith indicated he was supportive of the request • Senator Murray’s office requested infrastructure funding priority list from jurisdictions in advance of the coming federal infrastructure package. Staff requested \$17 million for construction; the Port of Seattle has written a letter of support to the delegation • With the sponsorship of Representative David Hackney and the assistance of David Foster (State lobbyist), Representative Fey included \$17 million in funding for the construction of the 42nd Ave. Bridge in his proposed House transportation package. With support from Senator Hasegawa, \$17 million is also included in the Senate transportation package. Both transportation packages were not acted upon in the 2021 legislative session, but are expected to be taken up in future sessions • City receives notice of \$1.5 million PSRC grant to be used to complete the design of 42nd Ave. S. Bridge Replacement

42nd Ave S Bridge Sufficiency Rating

The City has been monitoring the Sufficiency Rating (SR) of the bridge through routine and fracture critical inspections. Sufficiency Ratings were developed by the Federal Highway Administration to serve

as a prioritization tool to allocate funds. The rating varies from 0 percent (poor) to 100 percent (very good). The formula considers structural adequacy, whether the bridge is functionally obsolete, and level of service provided to the public. The SR is calculated, based 55% on the structural evaluation, 30% on the obsolescence of its design, and 15% on its importance to the public.

The inspection records obtained by the City illustrates that the Sufficiency Rating (SR) of the 42nd Ave S Bridge began in 1994 and is calculated during the routine and fracture critical inspection. The 1994 inspection report states that the SR of the bridge was 51.04. The SR hovered between 51 to 54 from 1994 to 2009. Then in 2011 through 2013 the SR increased to 72 and then dropped to 17.29 in 2015. The SR then dropped again in 2019 to the current 7.56. Please refer to the graph below for the SR over the last 17 years.



Additional research was performed to investigate the drop of 54 points (from 72 to 17) from 2013 through 2015. The City met with current King County bridge inspectors to understand the precipitous drop in the SR in such a short timeframe. Recognizing the original inspectors from 2013 and 2015 have since retired, and that the City's former bridge engineer during this time recently passed away, the following are the stated reasons for this change in rating;

- Rating change from Satisfactory to Fair/Poor: Both the superstructure (steel truss) and substructure (concrete bridge piers) went from satisfactory condition (6 in the NBI ratings) to Fair for the superstructure (5 in the NBI ratings) and Poor for the substructure (4 in the NBI ratings)
- Load ratings reduced: The load ratings during the timeframe also reduced the Inventory Rating or Capacity Rating from 33 tons to 16 tons; then to 14 tons in 2019
- Actual clearance was lowered: Previous inspections had clearance incorrectly rated at 15' 07" which was lowered to the actual clearance of 15'.
- Weight and Speed Restrictions: In 2017 through 2019 the bridge analysis was performed to enforce weight and speed restrictions for trucks to ensure that the bridge would remain operational beyond the designed life expectancy.

Summary:

The deterioration of sufficiency ratings (SR) shows the bridge is not effectively supporting the capacity and load requirements needed to be efficient, and its poor structural integrity makes it a hazard. If one or more of the beams were impacted by a large seismic event or vehicle collision, it could cause the bridge to collapse into the river.

The bridge has been maintained properly and inspected regularly to make the bridge last the entire design life. The King County Bridge Inspector inspected the bridge on Tuesday, April 20, 2021. The preliminary indications illustrated that it is no worse than expected, and the county will provide an inspection report within the next few months.

Community Outreach Update and Next Steps

Community outreach is a critical component of the 30% design process. City staff, TranTech Engineering LLC, and EnviroIssues, a communications consultant, conducted a Zoom meeting on March 30th with representatives from Allentown to inform the residents of the next steps for the 42nd Ave S Bridge Replacement Project design and to receive input from the residents on how to engage the entire Allentown community for steps moving forward. A follow-up meeting with Allentown representatives was held on May 4, 2021. A community open house will take place in summer of 2021 to gather community feedback for the Type, Size, & Location (TS&L) report for the 42nd Ave S Bridge. Findings for the TS&L report will be shared with the public at a virtual meeting in fall of 2021.

TranTech Engineering has progressed the following design items for the 30% plans and estimate and the type, size, and location study:

- Surveying – Complete
- Geotechnical – Collected enough data for the TS&L
- Aesthetics – Oh hold until the public meeting
- Traffic Engineering – First report completed. Traffic is on-hold until TS&L report
- Roadway/Utilities – Alignments have been created using the surveying data. Utilities will be investigated more in the TS&L report
- Structural Design – Once roadway alignment is complete, the structural analysis can be performed for the TS&L report
- Constructability – Constructability study will be performed once the structural analysis is complete

FISCAL UPDATE

The City applied for \$1.5M in federal Surface Transportation Program (STP) funds from the Puget Sound Regional Council (PSRC) to complete 100% design of the 42nd Ave S Bridge Replacement Project. This funding has been approved by PSRC and will be brought to Council once the award letter has been received.

RECOMMENDATION

Discussion only.

CITY OF TUKWILA CAPITAL PROJECT SUMMARY

2021 to 2026

PROJECT: 42nd Ave S Bridge Replacement

Project No. 91810404

DESCRIPTION: Design and construct a replacement structure for the existing 42nd Ave S Bridge near the Tukwila Community Center. Council approved 30% design with City funding of \$1M in 2020, remaining scheduled in 2022.

JUSTIFICATION: The current bridge has a sufficiency rating of 7.6 (out of 100), is load restricted for AASHTO Type 3 trucks and is structurally deficient. Truck speed was reduced to 15 mph in 2018.

STATUS: In 2017 and 2019, Bridge Replacement Advisory Committee (BRAC) funding was submitted, but not awarded. Staff will apply for future BRAC funding during the next call. Applying for STP funding in 2020 for \$1.5m for design.

MAINT. IMPACT: New bridge.

COMMENT: STP funding has 13.5% match requirement. BRAC funding would be at 80% match for up to \$12 million. Project partners may include FMSIB & BNSF Railroad as they have over 1,800 trips a day on the 42nd Ave S Bridge and it is the only ingress/egress available for their intermodal yard. Also State TIB for \$3M.

FINANCIAL (in \$000's)	Through Estimated									TOTAL
	2019	2020	2021	2022	2023	2024	2025	2026	BEYOND	
EXPENSES										
Design	19	200	878		1,252					2,349
Land (R/W)					30					30
Const. Mgmt.					250	1,650	1,650			3,550
Construction						7,800	7,800			15,600
TOTAL EXPENSES	19	200	878	0	1,532	9,450	9,450	0	0	21,529
FUND SOURCES										
Awarded Grant										0
Proposed BRAC Grant						6,000	6,000			12,000
Proposed STP Grant						1,000	1,000			2,000
Proposed TIB						1,500	1,500			3,000
Proposed FMSIB							500			500
Solid Waste Utility Tax			650	700	700	710	720	549		4,029
City Oper. Revenue	19	200	228	(700)	832	240	(270)	(549)	0	0
TOTAL SOURCES	19	200	878	0	1,532	9,450	9,450	0	0	21,529

