



City of Tukwila

Allan Ekberg, Mayor

Public Works Department – Bob Giberson, Director

TO: **Transportation and Infrastructure Committee**
FROM: **Bob Giberson, Public Works Director** *BJ*
BY: **Steve Carstens, Senior Program Manager**
CC: **Mayor Ekberg**
DATE: **March 24, 2017**
SUBJECT: **Presentation on the State of the City's Bridges**

ISSUE

Provide the Transportation and Infrastructure Committee with information about the entire City bridge inventory and program. This will show the overall condition of the City's bridges as well as steps we can take for future projects and maintenance.

BACKGROUND

The Federal Highways Administration (FHWA) and Washington State Department of Transportation (WSDOT) require regularly scheduled inspections of all the City's traffic carrying bridge structures. The City also extends this effort to its pedestrian bridges. This requirement allows for continuity in reporting as well as the opportunity to identify and potentially fund bridges in need of replacement and rehabilitation.

DISCUSSION

The City currently has 23 bridges owned by the City (16 traffic bearing and 7 pedestrian). Of those, two are jointly owned jurisdictional bridges with shared ownership between the City of Renton (Grady Way) and the City of Kent (196th/200). The structure types vary from Steel Truss, pre-cast concrete girders, cast-in-place concrete girders, steel girder, wood girder, and steel tied arch spans. This discussion will focus on why the City inspects its bridges, where the City stands with respect to the state and the country, and recommendations for additional steps that can be taken to address known issues.

RECOMMENDATION

Discuss, with the *Transportation and Infrastructure Committee*, the state of the City's bridge program and address any issues the committee may have.

Attachments: State of the City's Bridges Presentation

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6300 Building ♦ 6300 Southcenter Boulevard Suite 100 ♦ Tukwila, WA 98188 ♦ 206-433-0179

Tukwila City Hall • 6200 Southcenter Boulevard • Tukwila, WA 98188 • 206-433-1800 • Website: TukwilaWA.gov

State of the City's Bridges





- 1967 Silver Bridge Collapse
- Rush hour Traffic
- 46 people lost their lives
- Prompted 1968 Federal Highway Act requiring inspection of bridges and inspector training

Why do we inspect bridges?



- Guidelines go back to 1971
- Minimum training hours required for inspectors
- Creates a consistent standard for inspectors to meet.
- Ranks bridges from 0 to 100
- Requires inspections to be performed on a regular basis.

Why do we inspect bridges?

CITY OF TUKWILA



CITY ENGINEER'S BRIDGE INSPECTION REPORT

FEBRUARY 2017

- City Engineer's Bridge Report lists all of the City's 23 bridges
- Gives reader key information on each structure
- Lets you know if a bridge is structurally deficient or functionally obsolete.
- Allows you to gauge the health of the structure.
- Keeps you and the public informed of the state of our most expensive assets!

What are the conditions of
our bridges?



- **Structurally Deficient (SD)** = If key load carrying elements are found to be in poor condition (deterioration/damage)
- **Functionally Obsolete (FO)** = certain items do not meet current design criteria (geometry, load capacity, clearance, etc)
- **Sufficiency Rating (SR)** = way to quantify the structure using a numbering system. You can also think of it as the age left before a structure is not able to carry vehicles (or people).

Quick Definitions

- **Number of total Traffic bridges:** 16
- **Number of Pedestrian bridges:** 7 (includes TUC Ped Bridge)
- **Number of SD bridges:** 3 or (18%), it will soon be 2, or (13%)
- **Number of FO bridges:** 4 or (25%)
- **Average SR:** 69.22
- **Average Age:** 37 years (design life = 50 years, service life = 75 years)
- **Our Overall Grade =** C to D (based on grading method from ASCE report)
- **WA Average: Percent of SD bridges =** 5%, Grade = C-*
- **National average: percent of SD bridges =** 9%, Overall grade = C+**

*from Transportation for America, 2013

**from ASCE 2017 Report Card for America's Infrastructure

Show me the numbers!



- **There are 2 potential candidates for the Bridge Replacement Advisory Committee (BRAC) grant which we would ask permission to submit for:**
- **42nd Avenue South Bridge (Tuk #14)**
Replacement Candidate
- **South Boeing Access Road (over Airport Way – Tuk#11) Seismic Upgrade**
Candidate

BRAC Candidates



- SR 19.76 and SD. Built in 1949.
- Paint System is failing
- Structural issues with load carrying ability –may be required to place load restrictions on it soon.
- Rehabilitation could run \$6 million (higher maintenance costs)
- Replacement could run \$10 - \$12 million (lower maintenance costs). Need to determine location of new structure
- Costs of either option are paid 80% federal, 20% city.

42nd Ave South



- SR 56.50 and SD. Built in 1952.
- Only meets requirement for seismic grant
- Major access route from I-5 to major commercial areas
- Seismic rehabilitation could run \$4 million. Construction costs 100% reimbursed by Federal Grant. Design costs are 80% federal share and 20% city.
- No work on deck, limited to substructure. Therefore limited impact to BAR traffic on deck.
- Future funding to install sidewalk or repair deck would still be available

Boeing Access over Airport Way

- Public Works/Engineering is requesting permission from the *Transportation Infrastructure Committee* to submit applications for the 2017 BRAC grant cycle. Specifically:
 - Submit an application for the replacement of **42nd Avenue South**.
 - Submit an application for the seismic upgrade of **South Boeing Access Road (over Airport Way)**.

What are we asking for?



Questions?