

COMMISSION AGENDA

Item No: 9A

Meeting: 7/21/22

DATE: July 5, 2022

TO: Port Commission

FROM: Eric D. Johnson, Executive Director
Sponsor: Jason Jordan, Director, Environmental and Planning Services
Project Manager: Christine Wolf, Senior Planner

SUBJECT: Issue Briefing: Tideflats Traffic Study - Part 1

A. BRIEFING REQUESTED

Port staff will provide an update on the Tideflats Traffic Study - Part 1, which covers an analysis of demand on the transportation systems, and two scenarios: one with the replacement of the East 11th Street bridge and one with widening the Lincoln Avenue bridge.

In September, staff will brief the Commission on Part 2, an analysis of how the system would perform by modeling smaller scale improvements or changes to the system, such as intersection improvements, focusing on the areas of congestion noted in the demand analysis.

No action is requested.

B. SYNOPSIS

In response to Commission requests for data to support the Ports' Strategic Plan Goal TA-3, staff began work on a truck freight study in January 2022.

From the baseline scenario of the overall Tideflats network, the following congestion hotspots were identified:

- Lincoln Avenue Bridge operates over capacity, i.e., traffic volumes in the morning peak at 120% of available roadway capacity.
- Marine View Drive operates close to roadway capacity at 95%.
- State Route 509 has some sections failing with volumes at 106% roadway capacity.

The study analyzed overall Tideflats network traffic as well as two scenarios, one to replace the East 11th Street Bridge, and one to widen the Lincoln Avenue Bridge. Both scenarios result in small reductions in Vehicles Hours Travelled (VHT) inside the Tideflats road network. Scenario 2 (Lincoln Avenue) performs marginally better than Scenario 1 (East 11th Street Bridge). The viability of these scenarios is to be assessed further using a more detailed traffic analysis tool known as a microsimulation model.

Forecast year development and microsimulation modeling work is underway and will be reported at the September Commission meeting. It is anticipated that smaller intersection improvements, as opposed to the construction of new bridges, may relieve some congestion. Staff will provide recommendations with Part 2 upon completion of this Tideflats Traffic Study.

C. BACKGROUND

The City of Tacoma recently had a truck model built. Port staff coordinated with City staff and other local stakeholders in the process of updating and making any necessary improvements to the model to get the information we are after. Staff have been cautious not to overspend on this current project with the existing model because the City of Tacoma has budgeted, and has received grant dollars to support, a more advanced trip-based model in 2023.

Freight Model Updates

For this study, the 2018 City of Tacoma Freight Model (TFM) and accompanying documentation were reviewed. In this study, the TFM Model was updated for the following three peak periods:

- AM, or Morning 6:00 to 9:00 AM
- MD, or Mid-day 9:00 AM to 3:00 PM
- PM, or Afternoon 3:00 to 6:00 PM

Closer evaluation of modeling results has shown that the Morning (AM) and Mid-day (MD) peak periods were the dominant peak periods for the Tideflats area. Therefore, the evaluation and comparison of various scenarios were undertaken based on the results of the AM and MD peak periods.

The port consultant, Transpo Group, identified and implemented the following model improvement needs:

1. Road Network Updates: Missing and/or incorrect road network elements were fixed, additional details were added to improve the accuracy and sensitivity of the model. Among the improvements:
 - Additional internal roads were added
 - Missing signalized intersections were added
 - Traffic analysis zones were moved or combined
 - Connector loading points were added/adjusted to better represent traffic loading.
2. Trip Generation Updates: Improved trip generation estimates calculated for port terminals were included in the model. This revised trip generation calculation was undertaken based on TEUs (Twenty-foot Equivalent Unit) at the terminals instead of the number of employees. This approach has significantly improved the precision of the model with observed truck traffic.
3. Trip Distribution Improvements: To improve the distribution pattern of truck trips within and outside the Tideflats area, the following steps were taken:
 - Observed truck movement data from ATRI (American Transportation Research Institute) was used to improve the distribution pattern of truck traffic between the Tideflats, the PSRC region and external destinations.

- 380 peak hour traffic counts from the City of Tacoma were used to calibrate truck matrices.
4. Model runtime improvements including model database dimension issues preventing full model runs were resolved, model run script issues were fixed, assignment-only procedures were also created for use in this and subsequent studies.

Evaluation Scenarios

1. Baseline Scenario:

This is a current/near future scenario that incorporates recently completed as well as fully funded infrastructure projects that are expected to be built. This scenario serves as the reference base to compare other scenarios against. From the baseline scenario, the following congestion hotspots were identified:

- Lincoln Avenue Bridge – Operates over capacity, i.e., traffic volumes in the morning peak 120% of available roadway capacity.
- Marine View Drive – Operates close to roadway capacity – 95%
- SR509 – Some sections fail with 106% roadway capacity

2. Scenario 1: Replacing the East 11th Street Bridge:

- The East 11th Street bridge is primarily used for short distance trips between the Tideflats area and the City of Tacoma and destinations further south.
- The addition of this bridge does not seem to have an impact on long distance port related trips currently using SR 509 and I-5.
- Less than 25 heavy trucks use the East 11th Street bridge in both directions during the critical peak hours of the port: morning and midday. Even with the replacement of the East 11th St Bridge, the Lincoln Bridge still operates over capacity in the morning peak hours.

3. Scenario 2: Widening the Lincoln Avenue Bridge:

- The current configuration of the Lincoln Bridge (1x1 lanes) operates near or over capacity in the AM and midday peak periods.
- Increasing the capacity of the Lincoln Bridge reduces the existing congestion on the corridor.
- The widening of the Lincoln bridge has resulted in a considerable reduction in link volume-to-capacity ratio (VOC), i.e., the bridge and its approaches operate well below the available roadway capacity.

D. ATTACHMENTS TO THIS REQUEST

- Slide presentation

E. NEXT STEPS

In September, staff will brief the Commission on Tideflats Traffic Study - Part 2, an analysis of how the system would perform by modeling smaller scale improvements or changes to the system, such as intersection improvements, and changes in the operation of port facilities.