

City of Portland CRC Refinement Work Portland Freight Committee

June 3, 2010



URS

Introduction/Background

- The purpose of the work order is for URS to aid the City in its evaluation and decision-making relative to the Columbia River Crossing project (CRC).
- The City seeks to ensure that the project's locally preferred alternative (LPA):
 - Results in satisfactory performance of Oregon interchanges
 - Gives priority to freight mobility
 - Does not back up traffic from south of the project study area
 - Is cost-effective and fundable

Questions

1. Can the LPA be modified to a smaller facility that performs effectively in 2018 and 2030?
2. How will I-5 south of the project operate in the AM peak in 2030? Will the “Alberta back-up” affect traffic in the CRC project area in the AM peak period?
3. Can the Marine Drive Interchange be reconfigured to accommodate Hayden Island local and freeway access?

Reducing the Number of Lanes

- URS reviewed current CRC design plans and traffic analysis
- CRC plans call for 6 travel lanes in each direction in 2030 across the Columbia River
- Initial URS efforts focus on the question:

Can the LPA be modified to a smaller facility that performs effectively in 2018 and 2030?

Observations related to Southbound I-5 Operations in 2030

- Traveling from north to south, peak traffic volumes generally decline from SR 500 to Victory Boulevard, then increase moving through north Portland to the I-405 split.
- Peak traffic volumes on the bridge in the 2030 AM peak hour are within the capacity range of four or five traffic lanes based on an application of HCM methodology.
- The v/c ratio along I-5 southbound varies between 0.82 (at Victory Boulevard Interchange) and 0.99 (between Alberta Street and I-405), indicating severe congestion will likely occur during the AM peak period in 2030 with or without construction of the CRC project.

Modifications to LPA design to reduce the number of lanes

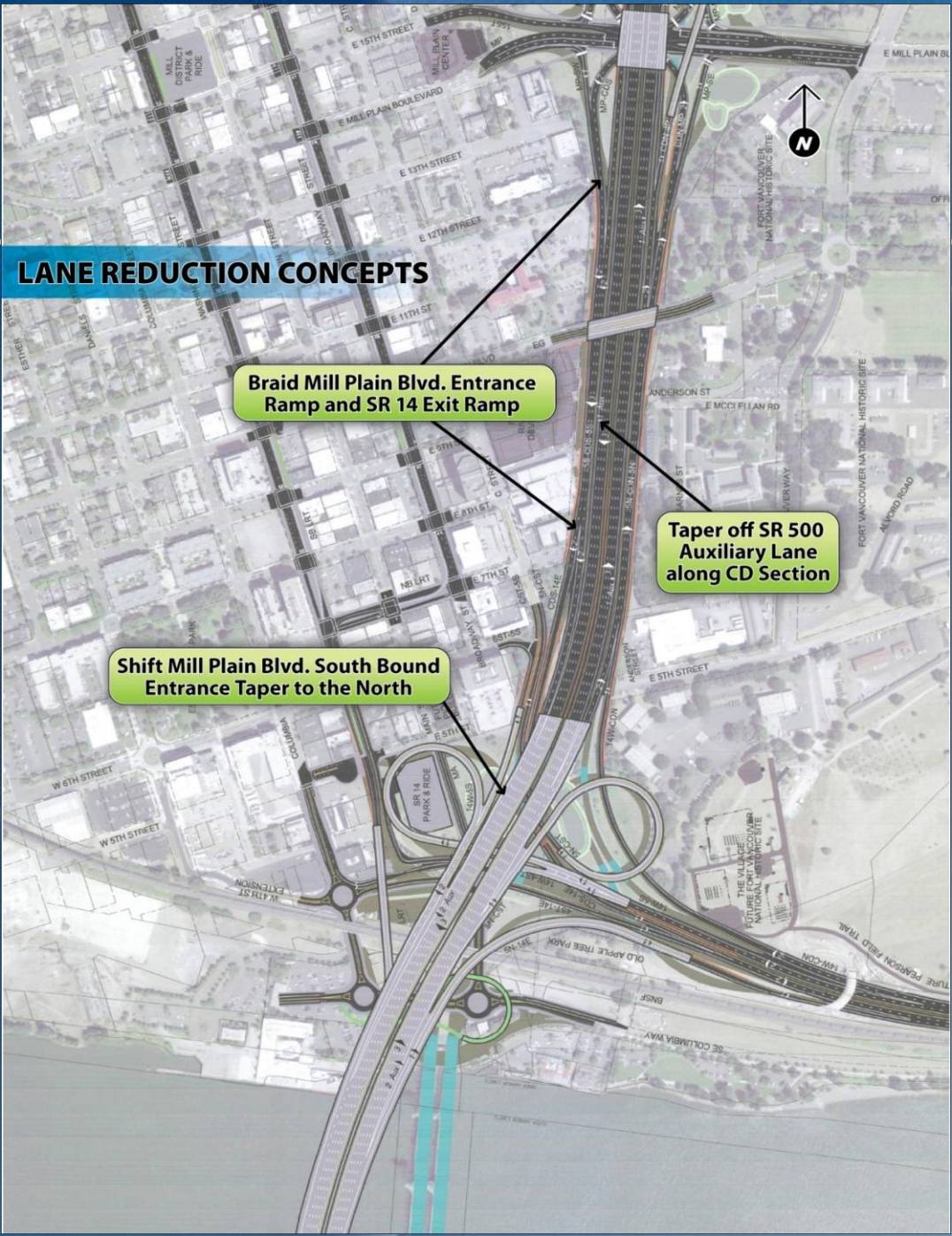
Reducing southbound lanes (options identified)

- Taper SR 500 Auxiliary Lane at CD Section
- Shift Mill Plain SB Ramp Taper to the North
- Braid Mill Plain SB Ramp with SR 14 Exit

Reducing northbound lanes

- Two options developed
- Phase I permanent 5-lane

Further reduction in travel lanes may result from combining the Hayden Island and Marine Drive Interchanges (options identified)



LANE REDUCTION CONCEPTS

Braid Mill Plain Blvd. Entrance Ramp and SR 14 Exit Ramp

Shift Mill Plain Blvd. South Bound Entrance Taper to the North

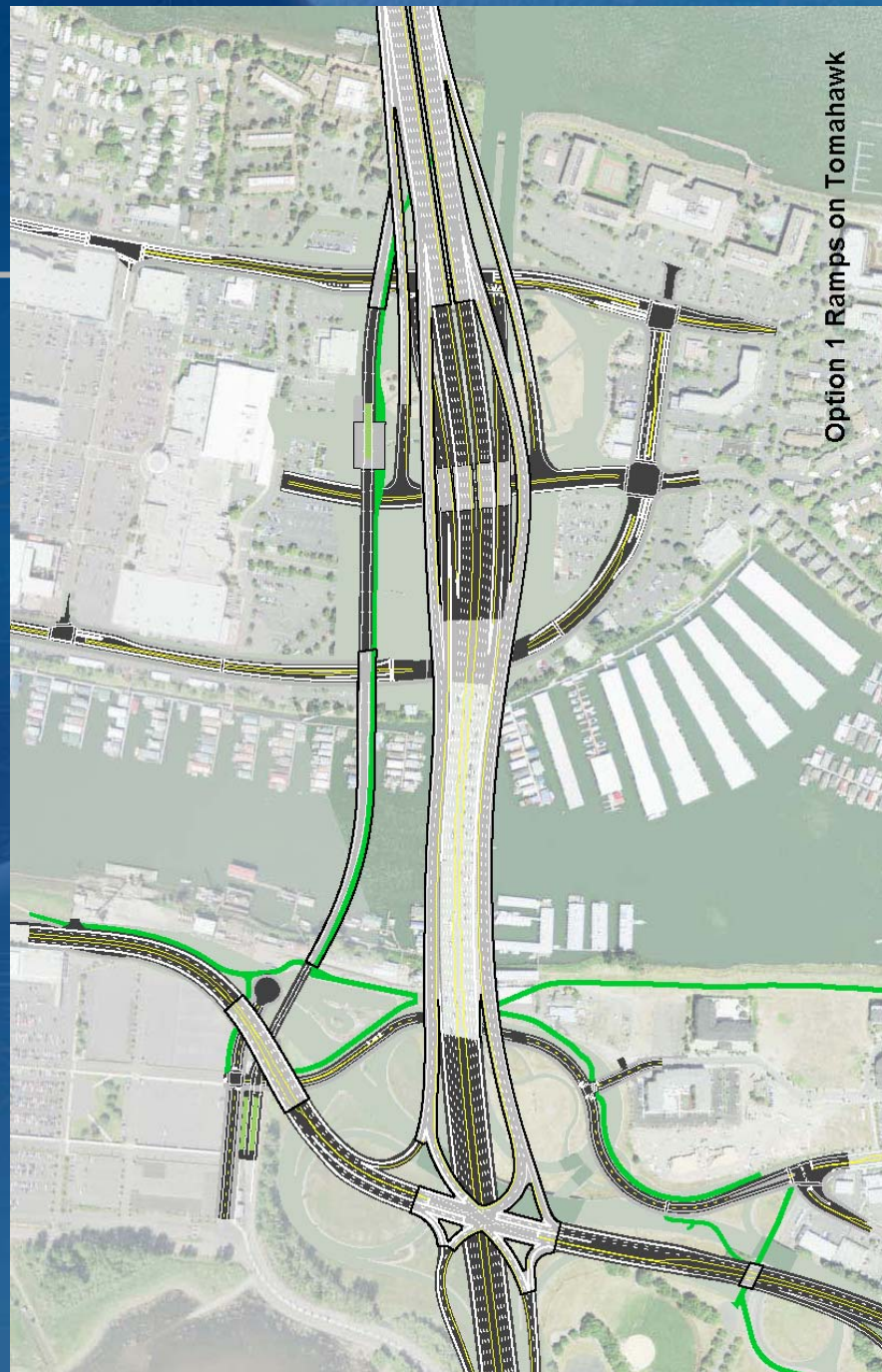
Taper off SR 500 Auxiliary Lane along CD Section

Hayden Island Interchange and Alternative Access

- Investigate design options for reducing the size and impact of the highway facilities on Hayden Island.
- Consider design modifications to the current interchange on Hayden Island with relocated ramp locations and changes in the local street network.
- Consider elimination of the Hayden Island interchange ramps with island access being provided from the Marine Drive interchange and bridges across the slough.
- Evaluate options based on access, land use plans, system performance, right-of-way and implementation.

Option 1

Ramps on Tomahawk



Option 2

Island Couplet

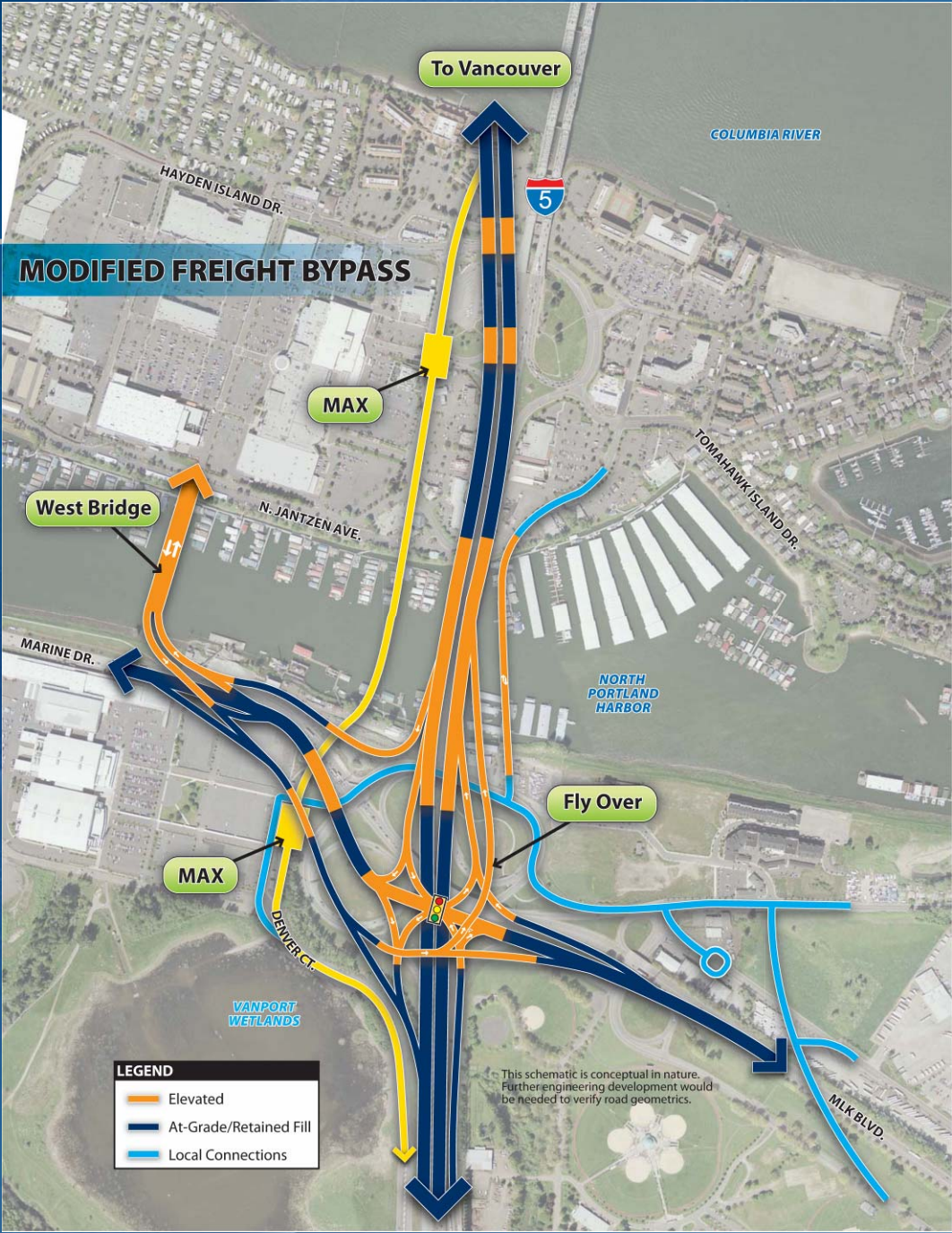


Option 3

Light Rail & Arterial Shift



Option 3 Light Rail & Arterial shift







Conclusions

- Several concepts have been identified that would potentially reduce the number of travel lanes on the bridge. Further investigation, including stakeholder receptiveness and testing within the CRC traffic model, would be needed to validate these options.
- Factors to reduce vehicle volumes should be evaluated, including active traffic management strategies, post-construction TDM programs, HOV ramps and/or lanes and peak period tolls comparable to similar West Coast bridges.

Next Steps in Concert with Integrated Project Staff (IPS)

- Evaluate the concepts for reducing southbound auxiliary lanes.
- Identify and evaluate options for reducing northbound auxiliary lanes.
- Concurrently evaluate options for combining Hayden Island and Marine Drive interchanges and, should this option appear feasible, evaluate implications on mainline lane requirements and freeway performance.
- Further VISSIM analysis taking into consideration other recommended design geometric changes (location of auxiliary lane drop/merges; interchange reconfigurations, etc.) is needed to validate lane design options.
- Review travel demand model results with respect to the operation of parallel arterials in north Portland