

January 23, 2007

TO: Doug Ficco
John Osborn

FROM: CRC Project Staff

SUBJECT: Assessment of Jim Howell's Proposed Concept
(Association of Oregon Rail and Transit Advocates)

After meeting with Jim Howell on November 8, 2006, where Mr. Howell presented AORTA's most recent proposed concept, Columbia River Crossing project staff spent two weeks evaluating the proposal. Your memorandum to the Task Force, dated November 27, 2006, outlined the various reasons project staff found that the proposed concept would fail to meet the project's Statement of Purpose and Need.

This follow-up memorandum was prepared to provide even more detail on reasons CRC staff has concluded that AORTA's recent proposal would continue to fail to meet the project's Statement of Purpose and Need and why no further action on his concept is justified. This memorandum is organized by the project's adopted Statement of Purpose and Need:

- Growing travel demand and congestion
- Impaired freight movement
- Limited public transit operation, connectivity, and reliability
- Safety and vulnerability to incidents
- Substandard bicycle and pedestrian facilities
- Seismic vulnerability

The following information is attached to this memorandum for reference purposes:

- AORTA's proposed concept with annotations illustrating key deficiencies
- Our memorandum to the CRC Task Force dated November 27, 2006
- I-5 Columbia River Crossing Statement of Purpose and Need

As shown in the following pages, AORTA's most recent proposal, hereinafter simply referred to as "proposed concept", would fail to meet the project's Statement of Purpose and Need in several key areas.

Growing Travel Demand and Congestion

Mr. Howell postulates that his most recent proposed concept "will significantly reduce vehicle travel demand and congestion." This claim is partially based on his assumption that the region's travel demand model is highly inaccurate and substantially overestimates future traffic volumes.

The Portland-Vancouver regional model is one of the most sophisticated travel demand forecasting tools in the nation. It is calibrated to existing conditions and considers adopted land use projections and planned transportation improvements in predicting future travel forecasts. This model has been used successfully for years in the planning of regional transit and highway projects.

The travel demand model forecasts daily traffic volumes across the I-5 Bridge will increase from about 130,000 vehicles per day today to about 180,000 vehicles per day by the year 2030 if no investments are made in the I-5 Bridge Influence Area. Congestion levels at the bridge are predicted to increase from six hours today to more than 16 hours by 2030.

The proposed concept, primarily because it would provide an expanded light rail system, could reduce vehicle travel demand to some degree compared to a year 2030 No Build condition. However, because the proposed concept includes several highway features that would actually worsen traffic operations, it would be unable to significantly reduce traffic congestion (and therefore the proposed concept does not meet the project's Statement of Purpose and Need).

This conclusion was reached by testing how traffic would operate under the proposed concept using existing traffic volumes. In other words, if the proposed concept results in worsened conditions compared to today's operations simply based on existing traffic volumes, the proposed concept would function even worse under increased travel demands expected on I-5 over the next 25 years.

For example, it was determined that the proposed concept would result in the following traffic impacts to **northbound** travel during the **afternoon peak period**:

- The removal of the northbound on-ramp from Hayden Island would shift the location of I-5's afternoon peak period bottleneck from the I-5 Bridge approach to the vicinity of Interstate Avenue on-ramp. The duration of northbound congestion would remain similar to the current level of congestion.
- Downstream of the relocated northbound bottleneck, the additional lane from Marine Drive would serve more weaving vehicles between Marine Drive and Hayden Island. Travel speeds in the weaving area would not improve, however. Due to the added capacity, the weaving area's level of service would improve from level of service "E" to "D" conditions.
- Due to the elimination of the on-ramp from Hayden Island to northbound I-5, a significant volume of Hayden Island traffic would first travel south on I-5 to Marine Drive, and then travel from Marine Drive to northbound I-5. As a result, Marine Drive's northbound on-ramp volume would increase from about 1,160 to 1,500 vehicles per hour. This 29 percent increase would exacerbate the number of vehicles queued on the ramp and throughout the Marine Drive interchange complex. Even considering proposed concept's increased local intersection capacities, Marine Drive's signalized ramp terminal intersection's volume-to-capacity ratio would increase from 0.69 to 0.94.

Under existing conditions, **southbound** traffic operations are acceptable along I-5 during the **afternoon peak period**. Under the proposed concept, the following traffic impacts would result:

- Due to the elimination of the on-ramp from Hayden Island to northbound I-5, Hayden Island's southbound on-ramp volume would increase from about 560 to 850 vehicles per hour, a 52 percent increase.
- The proposed SR 14/Downtown Vancouver on-ramp extension bridge would serve about 1,020 vehicles per hour. These vehicles would merge with the 850 vehicles originating from Hayden Island. Thus, a total of about 1,870 vehicles per hour would merge into one lane prior to merging onto southbound I-5.
- A single-lane on-ramp that transitions to two lanes at a metered signal generally cannot serve more than 1,400 vehicles per hour. Overcapacity conditions would result in back-ups along both the SR 14/Downtown Vancouver on-ramp extension bridge and the Hayden Island on-ramp.
- Back-ups along the SR 14/Downtown Vancouver on-ramp extension bridge would impact local street operations in downtown Vancouver. Back-ups would also extend along westbound SR 14.
- Under the proposed concept, the Hayden Island ramp terminals would be moved north to North Hayden Island Drive. In addition, the arterial bridge would intersect with North Hayden Island Drive immediately to the west of the southbound on-ramp terminal. A number of closely spaced intersections would result, creating substandard conditions and affecting traffic capacity and local operations on Hayden Island. Thus significant vehicular queuing would result.

- The existing I-5 southbound weaving segment between Hayden Island and Marine Drive is already substandard. Under the proposed concept, the weaving segment would be reduced by approximately 300 feet.
- Due to the elimination of the on-ramp from Hayden Island to northbound I-5, the volume of vehicles weaving on southbound I-5 would increase from about 1,380 to 2,550 vehicles per hour, an 85 percent increase.
- The increased weaving volume under the proposed concept would introduce turbulence to southbound I-5. The weaving area's level of service would degrade from "D" to "E" conditions.
- Due to the constrained weaving conditions, resulting travel speeds along southbound I-5 would decrease by 10 to 15 mph compared to existing conditions.
- Also, due to the elimination of the on-ramp from Hayden Island to northbound I-5, traffic volumes to the southbound off-ramp to Marine Drive would increase from about 830 to 1,350 vehicles per hour. This 63 percent increase would extend vehicular queuing along the off-ramp, even considering the proposed concept's addition of a second lane along the ramp, as well as ramp terminal intersection improvements. Marine Drive's signalized ramp terminal intersection's volume-to-capacity ratio would increase from 0.69 to 0.94.

The proposed concept would result in the following traffic impacts to **southbound** travel during the **morning peak period**:

- Relocation of the SR 14/Downtown Vancouver on-ramp's merge from north of the Columbia River to a combined merge with Hayden Island south of the Columbia River creates a new southbound bottleneck at the proposed SR 14/Downtown Vancouver/Hayden Island merging area.
- The duration of southbound congestion would increase from two hours today to more than four hours as a result of the new bottleneck.
- The number of vehicles weaving on southbound I-5 between the Hayden Island on-ramp and the Marine Drive off-ramp would increase from about 1,550 to 2,290 vehicles per hour, a 48 percent increase. The weaving area's level of service would degrade from level of service "E" to level of service "F" conditions.
- Also, due to the elimination of the on-ramp from Hayden Island to northbound I-5, traffic volumes to the southbound off-ramp to Marine Drive would increase from about 1,180 to 1,280 vehicles per hour, an eight percent increase.

Compared to existing conditions, no substantial traffic operational changes would be expected for **northbound** travel during the **morning peak period** under the proposed concept.

It should be reiterated that the above results are based upon application of existing traffic volumes. The analysis proves that the proposed concept would result in overall worsened conditions compared to today's operations. The proposed concept would function even worse under increased travel demand over the next 25 years.

Therefore, the proposed concept does not meet the project's Statement of Purpose and Need related to growing travel demand and congestion.

Impaired Freight Movement

The proposed concept would provide a truck only ramp lane from Marine Drive to northbound I-5. This unmetered lane would improve mobility for trucks once they enter the on-ramp from the local street system. However, as discussed above, under the proposed concept the Marine Drive interchange complex would operate at higher congestion levels than are currently experienced, even with local intersection modifications he suggested. Overall truck mobility to and through the interchange complex would be substantially degraded compared to current conditions.

In addition, due to the general traffic impacts that would result from implementation of the proposed concept as described in the previous section, freight movements would continue to be significantly impaired.

Considering that freight volumes moved by truck to and from the area are expected to more than double over the next 25 years and that vehicle-hours of delay for trucks is estimated to increase by more than 90 percent, freight mobility would be even further affected under the proposed concept.

Therefore, the proposed concept does not meet the project's Statement of Purpose and Need related to impaired freight movement.

Limited Public Transit Operation, Connectivity and Reliability

The proposed concept would extend light rail from the Expo MAX Station to downtown Vancouver. Stations would be provided at Hayden Island and in downtown Vancouver. The light rail line would cross the Columbia River on a new arterial bridge that includes a lift span.

Provision of such a high capacity transit system, supplemented with an extensive feeder bus system as proposed, would provide increased public transportation opportunities over existing conditions.

To minimize the occurrence of bridge lifts, on both the I-5 Interstate Bridge as well as on a proposed multimodal bridge, the downstream railroad bridge swing span would be replaced with a lift span, aligned with the "hump" of Interstate Bridge and the new multi-modal bridge. According to Mr. Howell, the only time the lift spans of either bridge would have to be raised is when an occasional high-mast sailboat or construction crane traveled beneath the bridges and that such openings could be scheduled when light rail is not operating.

In that case, bridge openings would only be allowed very late at night or very early in the morning. If navigational traffic needed a bridge lift during other periods, however, it is likely that such lifts would cause severe disruption to light rail transit operations by delaying trains, randomly interrupting schedules, impairing corridor signal prioritization and impeding the operator's ability to coordinate signalization at the Steel Bridge in Portland. These effects would not just impact the extended MAX Yellow Line, but would have cascading impacts to other light rail lines and on traffic operations.

In addition, each bridge lift would delay passengers, including those making time-sensitive trips such as commuters. According to a recent system-wide survey, transit passengers view schedule reliability as one of the top public transit attributes.

Safety and Vulnerability to Incidents

A comprehensive analysis of crashes reported along I-5 and its ramps over a five-year period shows that there is a strong correlation between the presence of substandard design features and the frequency and type of collisions.

Under the proposed concept, three existing substandard features would be eliminated by the following actions:

- Elimination of Hayden Island's on-ramp to northbound I-5: This action would eliminate a substandard acceleration ramp length.
- Elimination of Hayden Island's off-ramp from southbound I-5: This action would eliminate a substandard deceleration ramp length.
- Relocation of SR 14's westbound on-ramp to southbound I-5: This action would eliminate a substandard acceleration ramp length.

The following 11 new or worsened substandard design and safety features would result under the proposed concept:

- Relocation of SR 14's westbound on-ramp to southbound I-5, with Hayden Island on-ramp:

- This action would reduce the existing substandard weaving length between Hayden Island and Marine Drive by approximately 300 feet.
- It would introduce a substandard length between the new Hayden Island and SR 14 merge point and the combined merge with southbound I-5. The proposed distance is 450 feet but the minimum standard for successive on-ramps is 800 feet.
- The SR 14/Downtown Vancouver connector ramp, proposed to provide one-lane, should be two lanes to meet design guidelines for its length.
- Modification of Marine Drive's off-ramp from southbound I-5:
 - This action would decrease the existing substandard deceleration distance by approximately 435 feet.
 - It would reduce the clear zone distance between the traveled way and the west abutment of the Marine Drive overpass.
- Modification of Marine Drive's on-ramp to northbound I-5:
 - This action would violate lane balance standards needed to provide continuity in traffic flow.
 - Maintains the existing substandard weaving length, but when additional lanes are added as proposed, design standards require extending the weaving length.
 - Results in substandard recovery distance beyond the proposed lane drop.
- Provision of new arterial roadway across the North Portland Harbor:
 - The roadway curves shown on the proposed concept would enable a 20 mph design speed, likely translating into a roadway with a 15 mph posted speed. This is inconsistent with arterial roadway standards.
- Provision of a new arterial roadway across the Columbia River:
 - The roadway curves proposed on the proposed concept would enable a 20 mph design speed, likely translating into a roadway with a 15 mph posted speed. This is inconsistent with arterial roadway standards.
 - The intersection of the arterial roadway with North Hayden Island Drive would be located about 250 feet west of the relocated ramp terminal to southbound I-5. This violates minimum design standards that require at least 1,320 feet between ramp terminals and adjacent intersections.

Since the proposed concept does not substantially address existing substandard features, but in fact introduces new substandard design elements, it is unlikely that the proposed concept design would improve safety over existing conditions. The crash rate for the I-5 Bridge Influence Area is currently over twice as high as the average rate experienced on similar urban freeways in the Northwest. Projections show that without eliminating most of the existing substandard features and providing additional mainline and ramp capacity in the Bridge Influence Area, the number of crashes would increase by approximately 70 percent by the year 2020.

The comprehensive crash analysis for I-5 showed that crashes generally occur in proportion to prevailing traffic volumes, except during periods of congestion. During congested periods, when traffic volumes are near or at capacity conditions and travel speeds are relatively low, the number of crashes increases substantially.

During the morning peak period, traffic congestion and vehicular crashes in the Bridge Influence Area are prevalent along southbound I-5's approach to the Interstate Bridge. The average prevailing travel speed during the three-hour peak period is 36 mph.

During the afternoon peak period, traffic congestion and vehicular crashes are prevalent along northbound I-5's approach to the Interstate Bridge. The average prevailing travel speed during the four-hour peak period is 19 mph.

The existing posted speed limit on I-5 in the vicinity of the Interstate Bridge is 50 mph.

A Federal Highway Administration study on the effects of raising and lowering speed limits on highways found that arbitrarily lowering speed limits has a minor effect on vehicle speeds. The study found that crashes at the study's 58 experimental sites where speed limits were lowered actually increased by 5.4 percent. According to the study, speed limit compliance decreases when speed limits are lowered.

Based on the above findings, the proposed concept's plan to reduce the posted speed of I-5 to 45 mph would likely have minimal benefits to safety.

For the above reasons, the proposed concept does not meet the project's Statement of Purpose and Need related to safety and vulnerability to incidents.

Substandard Bicycle and Pedestrian Facilities

According to the proposed concept, a continuous pedestrian and bicycle pathway would be provided between downtown Vancouver, Hayden Island, the Marine Drive Trail, and the Expo MAX station. CRC staff agrees that if carefully designed, the multi-use pathway and its connections could potentially meet the project's Statement of Purpose and Need.

Seismic Vulnerability

Recent studies indicate that the existing Interstate Bridges are vulnerable to failure in a significant seismic event and the cost for retrofitting the bridges to meet "no-collapse" or "serviceability" criteria range from \$125 million to \$265 million. These retrofit costs are high compared to available funding levels and therefore would be a low priority for implementation by either the Oregon Department of Transportation or the Washington Department of Transportation. Because of the age and condition of the existing bridges, replacement would be a better option than retrofitting the existing structures.

The proposed concept would not seismically retrofit the existing I-5 bridges, but would instead provide earthquake-resistant multimodal bridges across the Columbia River and North Portland Harbor. The bridges carrying I-5 traffic would continue to be vulnerable in the event of a significant seismic event.

Therefore, the proposed concept does not meet the project's Statement of Purpose and Need related to seismic vulnerability of the existing Interstate Bridges.

Attachments:

- AORTA's proposed concept with annotations illustrating key deficiencies
- Our memorandum to the CRC Task Force dated November 27, 2006
- I-5 Columbia River Crossing Statement of Purpose and Need

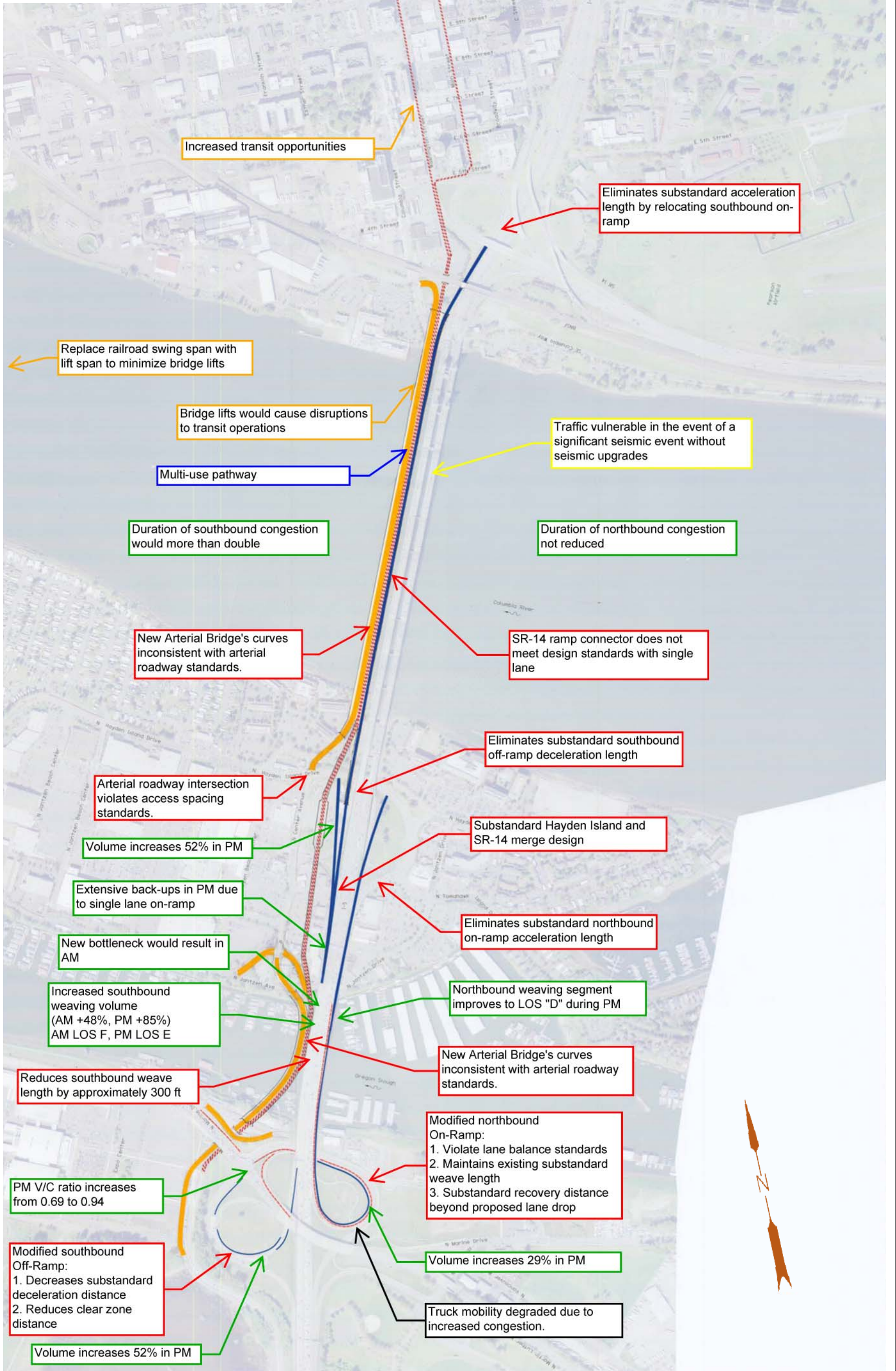
DP: bh

Cc: Project Controls

LEGEND:

- Growing travel demand and congestion
- Impaired freight movement
- Limited public transit operation, connectivity, and reliability
- Safety and vulnerability to incidents
- Substandard bicycle and pedestrian facilities
- Seismic vulnerability

*Background image provided by Jim Howell on 11/08/2006



January 16, 2007

TO: Columbia River Crossing Task Force Members
FROM: John Osborn, ODOT
Doug Ficco, WSDOT
SUBJECT: Letter from AORTA
COPY: n/a

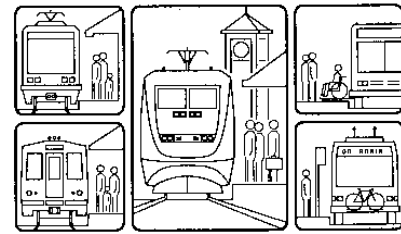
The attached materials for your review include a recent letter from Jim Howell of the Association of Oregon Rail and Transit Advocates. Included in his letter is a request that we provide the back-up information for our previously stated conclusions that his most recent proposal does not meet the project's Statement of Purpose and Need. A summary of our analyses, also attached, is being provided concurrently to Mr. Howell and to members of the Task Force.

The memorandum from CRC project staff includes a lot of detail. If you do not have time to read it thoroughly, please note that it strongly confirms the conclusions from our November 27, 2006 memorandum that Mr. Howell's proposal does not address the project's Statement of Purpose and Need in at least four key areas: 1) growing travel demand and congestion, 2) impaired freight movement, 3) safety and vulnerability to incidents, and 4) seismic vulnerability.

Association of Oregon Rail and Transit Advocates

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Also known as OreARP • Oregon Association of Railway Passengers



Memorandum

Date: Jan. 2, 2007
To: Columbia River Crossing Task Force
From: Jim Howell
Subject: Response to Nov. 27, 2006 Memorandum from staff

The Memorandum of November 27, 2006 to the Columbia River Task Force from Doug Ficco and John Osborn regarding Jim Howell's Proposal contains significant inaccuracies and omissions. In addition, the memo contains conclusions for which they provide no evidence. Last, but not least, going into the EIS with only two variants of the same high-cost freeway bridge proposal not only does a disservice to informed decision-making, but may not meet NEPA requirements for a range of alternatives.

The description of our proposed concept in the second paragraph indicated that the two-lane roadway extends south to Marine Drive. This is incorrect. We proposed in our revised version that it not connect to Marine Drive, but continue under Marine Drive to connect to Expo Road via a short road extension next to the Expo MAX Station. The last sentence in the fifth paragraph is also incorrect. We are not proposing the creation of "a new intersection just west of the interchange".

These obvious errors are a clear indication that the CRC staff failed to review our latest version with any diligence. Their review of our initial proposal was equally perfunctory.

Staff also failed to mention or, we suspect, analyze our proposed addition of a "truck only" bypass lane from Marine Drive and MLK Blvd. to I-5 north. We recommended that, unlike the general traffic lane, this lane should not be metered. This can be achieved by adding a ninth travel lane to the Portland Harbor Bridge by reassigning the lane currently used for bicycles and pedestrians. Bike and foot traffic would be relocated to the new bridge.

In addition, we recommended adding another lane to the SB off-ramp to Marine Drive and increasing the capacity of the Marine Drive Signal with additional turn lanes.

Our proposal **does** meet the project's Purpose and Needs.

It will significantly reduce vehicle travel demand and congestion. A new ten to twelve lane mega-bridge will do neither because it will induce more traffic, creating serious additional downstream congestion.

Our proposal extends light rail to Vancouver. It also replaces five congestion-causing ramps with two more efficient ones that will increase through capacity to match the rest of the

freeway. The light rail has far more capacity for commuters than I-5. What must occur to take advantage of this capacity is the development of an effective multi-destinational feeder bus system in Clark County and Portland's metro area. This type of feeder service has never been proposed or analyzed by any regional planning organization. An analysis of this option would have shown a significant difference in the outcome of the travel forecasting for this project. This type of system provides reduced travel time between many dispersed destinations, making public transit a more viable alternative for many more commuters.

Over time, the deployment of a truly multi-destinational transit system would also encourage the development of more compact and sustainable communities.

Travel forecasts are not always correct. The 1973 I-80 N Environmental Study for the proposed Mt. Hood Freeway stated that it would be carrying over 130,000 vehicles a day by 1990. The freeway was never built and, in 1982, TriMet established a grid bus system on the eastside that provided the essential feeder connections to the MAX Line when it opened in 1986, making it an instant success. Now, MAX carries more peak hour passengers than could be accommodated on an additional lane on I-84 and has the latent capacity of at least three more lanes in each direction.

Forecasting mistakes continue to be made, even with more sophisticated software and computers, because of similar wrong assumptions. If we have the wisdom to provide an effective bi-state transit system, the existing interstate bridges will never have to carry the currently projected 180,000 vehicles a day by 2020, just as the Mt. Hood Freeway never carried the 130,000 vehicles a day that were projected for 1990.

It will improve freight movement on I-5 by attracting commuter traffic to an effective public transit system. This leaves more space for trucks. In addition, the proposed ramp improvements mentioned above and in the original proposal improve truck access to and from I-5.

It will address many of the known safety issues associated with the river crossing and adjacent interchanges by removing the five substandard ramps and replacing them with two new ones. The staff memo states "...the proposed configuration of the freeway ramps on Hayden Island would exacerbate the congestion and safety problems for both the northbound and southbound weaving areas between Hayden Island and Marine Drive when compared with the existing ramp configuration." We strongly disagree with this statement and challenge staff to provide the engineering analysis of this configuration they used to arrive at this conclusion and submit it for an independent professional review. Furthermore, the staff should provide their analysis of the effect on safety and capacity of reducing the posted speed to 45 mph.

It will address the seismic vulnerability of the river crossing by providing new earthquake-resistant multi-modal bridges across the Columbia River and the Portland Harbor. The freeway bridges would not be changed or seismically upgraded but, in the event of a large earthquake, the local bridge with light rail would be a more effective river

crossing alternative. The freeway system in general would probably become dysfunctional because of its many vulnerable overpasses and bridges.

Furthermore, our proposal would replace the ancient, extremely vulnerable, railroad swing span with a new seismically stable lift span. Keeping the railroads in operation during a disaster is arguably more important to commerce than the freeway.

Although the memo did not mention bridge lifts, the prevailing assumption is that another bridge, with an opening span, as we have proposed, would be unacceptable because it would interfere with light rail operation.

Replacing the railroad bridge swing span with a lift span, aligned with the "hump" of the existing freeway bridges and the "hump" of a new multi-modal bridge, eliminates the need to open these bridges for all barge traffic at any time. The only time they would have to be opened is for the occasional high-mast sailboat or construction crane. Openings could be scheduled when light rail is not operating.

In addition, the visual impact of a high bridge over the railroad embankment in downtown Vancouver would be extreme. Views upriver to Mt. Hood would probably be blocked from the buildings in the redeveloping heart of Vancouver around Ester Short Park.

We posit that the Columbia River Crossing Task Force has a fiduciary responsibility to include, in the environmental impact phase of this project, an alternative with lower impacts and costs than replacement bridge alternatives alone. In addition, we question if having only two variants of the same new, high I-5 bridge proposal as the only build alternatives in the EIS will satisfy NEPA requirements. Whether the high capacity transit in the corridor is Light Rail or Bus Rapid Transit is a pretty minor issue, if both are built in the context of a parallel \$1-2 billion freeway bridge.

The maxim "we can't build our way out of congestion" is becoming an accepted principle, at least among planners and decisionmakers in this region. Yet the only proposal on the table at the moment is an attempt to address congestion by building increased freeway capacity, in direct contradiction to this principle. The Multi-modal Bridge provides a viable alternative more in keeping with this principle and should be carried forward in the EIS.

Attachments:

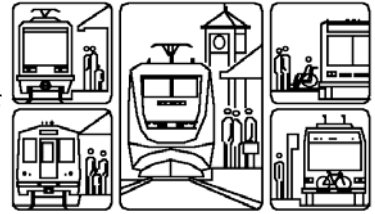
- 11-27-06 Memo to: Columbia River Crossing Task Force From: Doug Ficco and John Osborn
- 11-29-06 Memo To: Columbia river Crossing Task Force From: Jim Howell
- Multi-modal Bridge Option Site Plan. Jim Howell, 11-08-06

Association of Oregon Rail and Transit Advocates

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Nov. 29, 2006

To: The Columbia River Crossing Task Force
From: Jim Howell, Director
Re: CRC Environmental Impact Study

An alternative that retains the existing bridges, in addition to the mandatory No Build Alternative, must be studied in the Environmental Impact phase of this project.

AORTA has shown how such an alternative can address all of the significant problems associated with the current infrastructure. Our first proposal made almost three years ago in February 2004 is still viable with some modifications.

Our simple and practical proposal has been summarily rejected by this project team without even the courtesy of taking the time to understand it, as was evidenced by the inaccurate statements made by the consultant at the last Task Force meeting.

Briefly, our proposal would:

1. Build a Multi-modal Bridge with a lift span, immediately downstream from the existing bridges, that would carry an extended on-ramp from SR-14 and downtown Vancouver separated from two local traffic lanes, bikes and pedestrians by two light rail tracks.
2. Remove five existing dysfunctional ramps in the bridge area and replace them with two long ones on Hayden Island.
3. Build a Portland Harbor Bridge for light rail, local traffic, bikes and pedestrians.
4. Provide a local road connection from the Portland Harbor Bridge to Expo Road, under Marine Drive and through the Expo Center parking lot next to the MAX Station.
5. Provide a new unrestricted truck-only northbound I-5 access lane from Marine Drive and MLK Blvd.

November 27, 2006

TO: Columbia River Crossing Task Force

FROM: Doug Ficco
John Osborn

SUBJECT: Jim Howell Proposal

COPY:

Following up on the discussion at the October 25 Task Force meeting, we have taken another look at the river crossing component that was identified as RC-22 in our component screening process (see *Draft Components Step A Screening Report, March 22, 2006*). To be certain that we fully understood the author's intent, we invited Jim Howell to review his proposal with the project team as well as interested Task Force members.

A copy of the proposed concept is attached, including minor changes recently incorporated. In brief, the concept includes a new bridge just west of the existing bridges with two LRT tracks, a two-lane roadway linking Vancouver and Hayden Island (and extending south to Marine Drive), a new southbound on-ramp to I-5 from SR-14 that would bring the traffic onto the freeway on Hayden Island, and a bicycle/pedestrian pathway. The new bridge would be low-level and would include a lift span. Other elements of the concept would include an LRT loop through downtown Vancouver, and replacing the opening on the downstream railroad bridge with a new opening closer to the center of the river.

The concept is intended to provide a relatively low-cost crossing, and in that spirit includes some creative, although non-standard, elements (some of which would not meet federal and state design requirements). Although the concept has been updated since the earlier screening, the conclusions reached during the component screening phase are still relevant. The concept fails to meet the project Purpose and Need in several key respects. The concept does not:

- o significantly reduce travel demand or congestion;
- o improve freight movement on I-5; or
- o address many of the known safety issues associated with the river crossing and the adjacent interchanges.

Furthermore, with I-5 traffic remaining on the existing bridges, the seismic vulnerability of the river crossing would not be addressed.

Our review of the concept also included a more detailed analysis of traffic operations and a comparison of the concept to the No-Build Alternative and to Alternative 3—the arterial/LRT crossing carried forward as part of the initial 12 alternatives. The concept would not significantly improve the daily hours of congestion when compared to the No-Build or Arterial alternatives, and would not improve travel speeds crossing the river. Moreover, the proposed configuration of the freeway ramps on Hayden Island would exacerbate the congestion and safety problems for both the northbound and southbound weaving areas between Hayden Island and Marine Drive when compared to the existing ramp configurations. It would also add traffic volumes to the currently congested Marine Drive interchange while reducing its functional capacity by creating a new intersection just west of the interchange.

CRC staff recommends that the prior conclusions and actions by the Task Force (and others) should stand, and that no further action on this concept is warranted.

Nov. 23, 2006

What a Comprehensive Columbia Crossing package built around a new Multi-modal Bridge would do. (See attached illustration)

The Multi-Modal Bridge

- Would provide SR14 and downtown Vancouver an extended approach lane to a southbound I-5 on-ramp at Hayden Island.
- Would carry light rail
- Would accommodate local traffic with two arterial lanes.
- Would provide a safe bicycle and pedestrian crossing.
- Would provide clearance for safe barge movements without lifts.
- Would have either a vertical lift or bascule opening span aligned with the existing Green Bridges for the passage of an occasional tall vessel.
- Would have a low profile that would not interfere with air traffic.
- Would not be a visual eyesore in downtown Vancouver because it would not have to fly over the railroad embankment.
- Would be built to withstand a major seismic event.

The Freeway

- Would reduce traffic turbulence and improve safety on the freeway in the bridge area by eliminating five short dysfunctional ramps and replacing them with two long ramps on Hayden Island.
- Would increase freeway capacity by allowing the existing six lanes on the Green Bridges to function as through lanes.

- Would provide greater capacity and safety by reducing the posted speed limit in the entire influence area to 45 MPH.
- Would provide additional lanes in the Marine Drive Interchange.
- Would provide an exclusive unrestricted northbound queue-jump lane to I-5 for trucks coming from Marine Drive and MLK Blvd.
- Would provide Hayden Island direct access to I-5 south and access to I-5 north through an improved Hayden Island Interchange.
- Would greatly decrease the need to open the lift spans.
- Would retain the existing shoulders on the Green Bridges which is similar to those on the I-5 Marquam Bridge.
- Would retain the existing vertical grades which are similar to those on the I-5 Marquam Bridge. However the elimination of the SR14 and downtown on-ramp from the Washington side coupled with a slower posted freeway speed would greatly reduce traffic incidents in this area.
- Would provide a new bridge for local traffic and transit that would meet modern seismic standards. In the event of the "big one", I-5 through Portland and Vancouver would probably not be passable because many overpasses and other freeway structures would probably collapse.

Light Rail

- Would provide light rail (Yellow Line) access to Hayden Island and downtown Vancouver.
- Would provide the opportunity to integrate the Hayden Island station into a creative transit oriented development.
- Would provide frequent, high capacity, reliable and economical bi-state transit service that could seamlessly interface with the CTRAN bus system in downtown Vancouver.

- Would extend light rail only to downtown Vancouver but would not preclude the opportunity to extend it further into Clark County in the future.

Local Roads

- Would provide a two lane local road between Hayden Island and downtown Vancouver over the new Multi-modal Columbia River Bridge.
- Would connect Hayden Island Drive and N. Center Avenue on Hayden Island to Columbia Street in downtown Vancouver.
- Would provide Hayden Island with a local road connection south, over a new Portland Harbor Bridge that would carry two lanes of traffic, light rail, bikes and pedestrians.
- Would provide a logical connection to Denver Avenue via a Marine Drive underpass, a new road adjacent to the light rail station and Expo Road.
- Would allow access to Marine Drive via N. Force Avenue. A more direct access could be constructed through the Expo Center's parking lot.

The Railroad Bridge

- Would replace the old short unsafe swing-span on the Railroad Bridge with a longer and better-located lift span.
- Would reduce bridge opening time, thus increase rail capacity.
- Would be one of many infrastructure improvements in this rail corridor needed to provide more efficient freight and passenger service that ultimately would reduce traffic demand on I-5.

Navigation

- Would allow tug and barge tows to make a straight and safe maneuver under the “hump” to the new railroad bridge lift span during most river conditions.
- Would require highway bridge lifts only for the movement of an occasional tall vessel that could be scheduled during off peak hours.

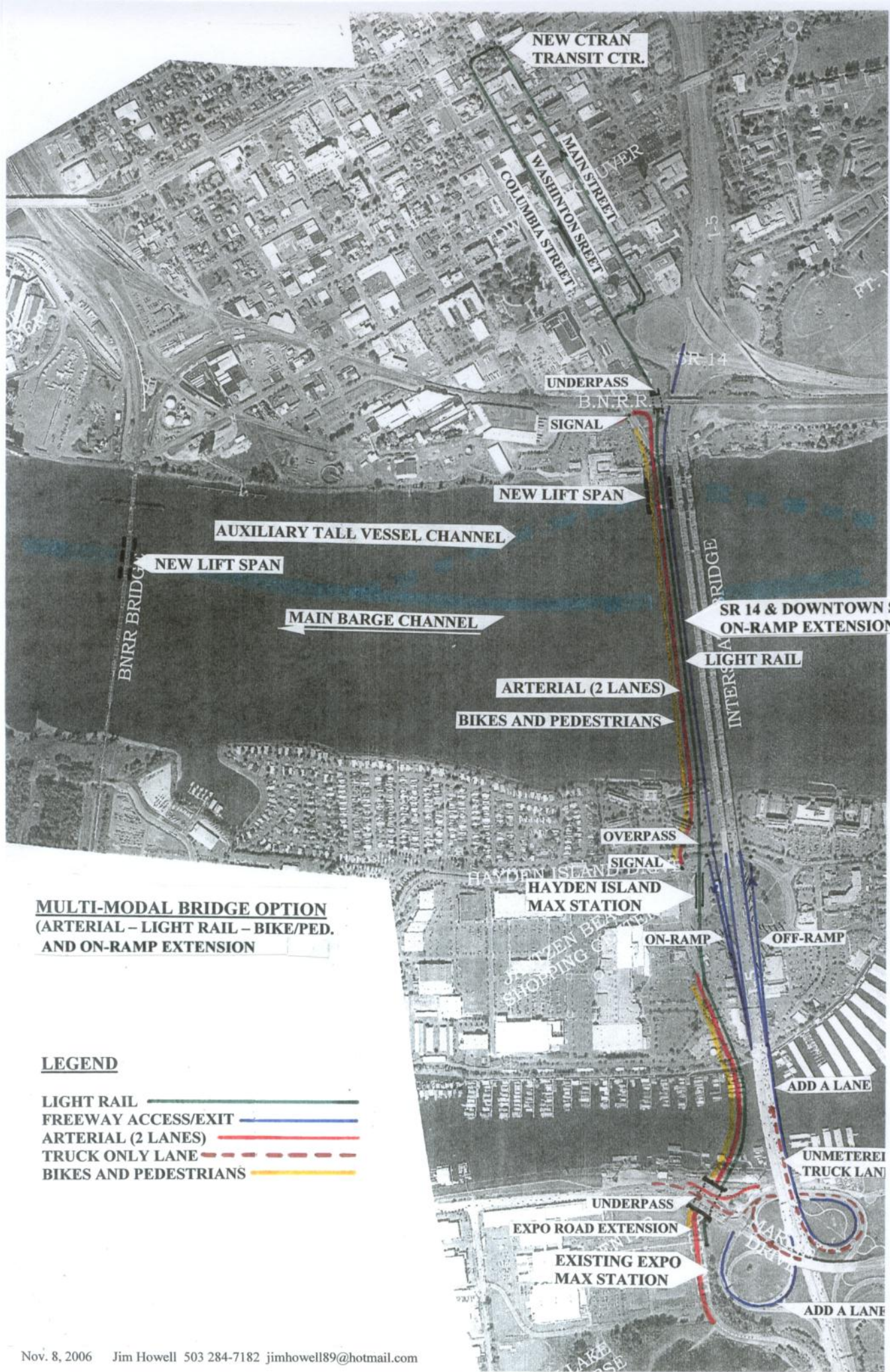
Bicycles and Pedestrians

- Would provide wide and safe bike and pedestrian lanes separated from vehicular traffic.
- Would replace the bike/ped. Lane on the existing Portland Harbor Freeway Bridge with one on the new Multi-modal Portland Harbor Bridge.
- Would provide an uninterrupted bicycle and pedestrian connection between downtown Vancouver, the Marine Drive Trail and the Expo MAX Station.

Costs

- Would cost a fraction of a new freeway bridge and approaches and includes practical solutions to transit, rail, navigation and local traffic.
- Would allow for multiple funding sources. (Federal, state and local highway, transit, railroad and navigational programs.)

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**MULTI-MODAL BRIDGE OPTION
(ARTERIAL - LIGHT RAIL - BIKE/PED.
AND ON-RAMP EXTENSION)**

LEGEND

- LIGHT RAIL
- FREEWAY ACCESS/EXIT
- ARTERIAL (2 LANES)
- TRUCK ONLY LANE
- BIKES AND PEDESTRIANS



I-5 Columbia River Crossing Statement of Purpose and Need

Project Purpose

The purpose of the proposed action is to improve Interstate 5 corridor mobility by addressing present and future travel demand and mobility needs in the Columbia River crossing Bridge Influence Area (BIA). The BIA extends from approximately Columbia Boulevard in the south to SR 500 in the north. Relative to the No-build alternative, the proposed action is intended to achieve the following objectives: a) improve travel safety and traffic operations on the Interstate 5 crossing's bridges and associated interchanges; b) improve connectivity, reliability, travel times and operations of public transportation modal alternatives in the BIA; c) improve highway freight mobility and address interstate travel and commerce needs in the BIA; and d) improve the Interstate 5 river crossing's structural integrity.

Project Need

The specific needs to be addressed by the proposed action include:

- **Growing Travel Demand and Congestion:** Existing travel demand exceeds capacity in the I-5 Columbia River crossing and associated interchanges. This corridor experiences heavy congestion and delay lasting 2 to 5 hours during both the morning and afternoon peak travel periods and when traffic accidents, vehicle breakdowns, or bridge-lifts occur. Due to excess travel demand and congestion in the I-5 bridge corridor, many trips take the longer, alternative I-205 route across the river. Spillover traffic from I-5 onto parallel arterials such as Martin Luther King Boulevard, and Interstate Avenue increases local congestion. The two crossings currently carry over 260,000 trips across the Columbia River daily. Daily traffic demand over the I-5 crossing is projected to increase by 40 percent during the next 20 years, with stop-and-go conditions increasing to at least 10 to 12 hours each day if no improvements are made.
- **Impaired freight movement:** I-5 is part of the National Truck Network, and the most important freight freeway on the West Coast linking international, national and regional markets in Canada, Mexico and the Pacific Rim with destinations throughout the western United States. In the center of the project area, I-5 intersects with the Columbia River's deep water shipping and barging as well as two river-level, transcontinental rail lines. The I-5 crossing provides direct and important highway connection to the Port of Vancouver and Port of Portland facilities located on the Columbia River as well as the majority of the area's freight consolidation facilities and distribution terminals. Freight volumes moved by truck to and from the area are projected to more than double over the next 25 years. Vehicle-hours of delay on truck routes in the Portland-Vancouver area are projected to increase by more than

90 percent over the next 20 years. Growing demand and congestion will result in increasing delay, costs and uncertainty for all businesses that rely on this corridor for freight movement.

- **Limited public transportation operation, connectivity and reliability:** Due to limited public transportation options, a number of transportation markets are not well served. The key transit markets include trips between the Portland Central City and the City of Vancouver and Clark County, trips between North/Northeast Portland and the City of Vancouver and Clark County, and trips connecting the City of Vancouver and Clark County with the regional transit system in Oregon. Current congestion in the corridor adversely impacts public transportation service reliability and travel speed. Southbound bus travel times across the bridge are currently up to three times longer during parts of the am peak compared to off peak. Travel times for public transit using general purpose lanes on I-5 in the bridge influence area are expected to increase substantially by 2030.
- **Safety and Vulnerability to Incidents:** The I-5 river crossing and its approach-sections experience crash rates nearly 2.5 times higher than statewide averages for comparable facilities. Incident evaluations generally attribute these crashes to traffic congestion and weaving movements associated with closely spaced interchanges. Without breakdown lanes or shoulders, even minor traffic accidents or stalls cause severe delay or more serious accidents.
- **Substandard bicycle and pedestrian facilities:** The bike/pedestrian lanes on the I-5 Columbia River bridges are 6 to 8 feet wide, narrower than the 10-foot standard, and are located extremely close to traffic lanes thus impacting safety for pedestrians and bicyclists. Direct pedestrian and bicycle connectivity are poor in the BIA.
- **Seismic vulnerability:** The existing I-5 bridges are located in a seismically active zone. They do not meet current seismic standards and are vulnerable to failure in an earthquake.