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To: Dave Ramsay, City Manager

From: Daryl Grigsby, Public Works Director
David Godfrey, P.E., Transportation Engineering Manager

Date: February 22, 2007

Subject: EMAIL FROM BILL HIRT CONCERNING SOUND TRANSIT

RECOMMENDATION**:**

It is recommended that the City Council authorize the Mayor to sign a letter of response to Mr. Hirt, who wrote the City concerning his proposal for Sound Transit.

BACKGROUND DISCUSSION:

Mr. Hirt's proposal doesn't seem to be precluded by the current ST2 proposal. However, I believe it does require rebuilding of the SR 520 bridge and at this time it is not clear where the funding for that project will come from. Mr. Hirt's proposal is more appropriately addressed to the Sound Transit Board rather than to the Kirkland City Council.

-----Original Message-----
From: William Hirt
To: Webmaster
Sent: Tue Feb 20 08:33:01 2007
Subject: help for kirkland commuters

Dear Kirkland City Council
I am concerned that eastside residents are not aware of the impact of the current Sound Transit proposal. I would like to be able to talk to you about the issues involved and my proposal for an improved approach to congestion problems on the eastside. I have tried in vain since July 2005 to have Sound Transit consider this approach. I recently sent it to all the eastside legislators with no response. I would really appreciate your taking the time to read it (I apologize for the length) and allow me to answer any questions or comments you might have at your next council meeting.

Thank you!
Bill Hirt
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Bellevue, WA
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425-747-4185
wjhirt@yahoo.com

An Alternative High Capacity Transit System for the Eastside.

The current Sound Transit East Link proposal consists of a light-rail system connecting Seattle with Redmond via the 1-90 bridge, Bellevue central business district (CBD), and Overlake. The analysis used to arrive at this proposed configuration is documented in March 2005 and May 2005 issue papers dealing with the 1-90/East King County HCT Analysis. The problem with this study was that it did not look at a hybrid system with express bus service across the 520 bridge for those areas north and east of Bellevue in combination with a light rail system for Bellevue CBD and those living east of 405 along the 1-90 corridor. This alternate system has the following advantages:

1. All eastside bus routes into downtown Seattle are eliminated.
2. The costs and time required for light rail construction can be reduced by 30 to 50%.
3. The number of light rail trains and their operating costs required for eastside service will be reduced by more than 50%.
4. The proposed system will have greater flexibility and passenger capacity.
5. It is more attractive to current and potential eastside commuters.
6. It provides most Seattleites with faster more comfortable service to eastside.

The 520 express bus service would connect each of the major P&R lots in the Kirkland, Overlake and Redmond areas via non-stop service to the planned University Light Rail station. These buses would make maximum use of the HOV bus lanes planned for the 520 bridge corridor. Return routes would provide Seattleites with direct access to Bellevue, Overlake or Redmond CBDs depending on demand. Eastside residents would have access from local bus routes throughout the respective areas that would connect local P&R lots and residential areas with the major P&R lots.

The light rail system for Bellevue CBD and 1-90 commuters would have two branches; one into Bellevue, and the other terminating at the Eastgate P&R. The Bellevue branch would include a station at the South Bellevue P&R and end at the Bellevue Transit Center. The transit center station would provide access to the Bellevue CBD for Seattleites and connections into Seattle for Bellevue residents and the many buses that stop there. The South Bellevue station would provide access for those who park their car there or arrive on some of the buses from the south 405 corridor. The remaining 405 buses with passengers destined for Seattle would terminate at Eastgate. The return routes for these buses would provide service from both stations to Renton and other southern destinations. The 405 buses destined for Bellevue and other eastside locations would continue as before.

The Eastgate branch would provide access for those living east of 405 along the 1-90 corridor and the remaining northbound 405 bus passengers. All 1-90 buses that currently cross Mercer Island and Lake Washington bridge would terminate at Eastgate. The remaining buses would continue on into Bellevue CBD or Overlake.

The two light-rail branches would provide additional route flexibility. During the morning commute into Seattle, only the Eastgate train would stop at Mercer Island, providing Seattle access for those residents. For the morning return route, the Bellevue train would add an intermediate stop at Mercer Island giving those residents access to Bellevue CBD and buses to Overlake and Redmond. The Eastgate branch morning return would add a stop at the Martin Luther King (MLK) station to provide access for South Seattle residents to BCC and other 1-90 destinations. The afternoon Bellevue-to-Seattle train would include a stop at Mercer Island providing return routes for those working in Bellevue and beyond. Similarly, the afternoon Eastgate train to Seattle would stop at the MLK station for South Seattle residents.

The trains for both branches will be able to maintain a very high average speed because of the minimal stops and isolation from surrounding traffic for most of the route. The high average speed and relatively short routes should result in commute times of less than 15 minutes, allowing each train to make 2 round trips per hour. The trains from the two branches can be sequenced such that if both trains were heading in the same directions in close proximity, the Eastgate train would trail the Bellevue train. The delays from Eastgate train stop on Mercer Island going westward and the MLK stop going eastward will insure that there was only one train going in each direction on the bridge at any given time. (if needed because of structural limits.)

The Sound Transit proposal includes 8 stops on the eastside. The time lost at each station by the necessity to slow down, stop, safely unload and load passengers, and then accelerate reduces the "average" speed. The unload and load times could be particularly long at the intermediate stations in Overlake and Bellevue CBD where large numbers of riders get off and on the train. The train maximum speed for the Bellevue to Redmond segment will probably be restricted by safety concerns for surroundings, further reducing average speed. The combination of the relatively low average speed and long distance from Redmond to Seattle will result in transit times approaching one hour. Thus, each train will only be able to make only one round trip during the peak two-hour commutes in the morning and afternoon.

The light-rail trains will be limited to four cars by Lake Washington bridge and tunnel constraints. The current car configuration has 74 seats or approximately 300 seats per train. Assuming 200 people are willing to stand for this relatively long commute, each train will be able to carry approximately 500 passengers into Seattle and 500 passengers from Seattle to the eastside during the morning commute. Carrying 10,000 commuters each direction during the peak commute will take approximately 20 trains. There is a limit to the number of trains that can be added. Ground-level-light-rail-train frequencies are typically limited to 12 to 15 trains per hour. Thus, the system would only have the capability to provide 2 to 5 additional trains in each direction, limiting the long-term growth capability.

The shorter Bellevue and Eastgate branches would have the vast majority of riders exiting or entering the train at their starting and end points so transit times would not be affected. If there were concerns over the loading time at the starting point, a second train could always be cued up for people to start loading early. At the end point there could be sufficient room in the station for a second train to begin unloading prior to the first train leaving. In-route transit time for commuters would be minimized and substantially more passengers might be willing to stand during the commute.

However, even with the 500 riders per train, the two round trips per hour schedule will allow each train to carry approximately 2000 passengers into and out of Seattle during the two-hour morning and afternoon commutes. The number of trains running on each branch could be adjusted to meet the demand. For example, during the peak commute, each branch could have three trains operational. Each station would have a train arriving and departing at 10-minute intervals with the capacity to carry passengers from nine or ten buses. The six trains could carry 6000 passengers an hour in each direction. During the off-peak hours one or two of the trains could be parked at the stations to better match passenger traffic for the two routes. At night only the Bellevue branch might operate with one or two trains to allow Seattleites to shop and eat in Bellevue and Bellevue residents to see shows and other activities downtown. Two trains would be able to carry 2000 passengers each way every hour with only 15 minute wait times between trains. If additional riders would be willing to stand, each car is capable of carrying 200 riders or 800 passengers per train and up to 3200 passengers per hour for the two trains. One or

both trains could be shut down during the early morning hours. Sufficient room would be provided at Bellevue CBD station and Eastgate station to park the three trains. (Sound Transit plans do not include provisions for the overnight train parking.)

Light rail across Lake Washington and Mercer Island will close down the center section, eliminating two traffic lanes for Mercer Island and HOV vehicles as well as all buses. The current proposal calls for adding a bus/HOV lane to the outer sections by reducing lane widths for the current three lanes. It seems highly problematic whether this single lane can provide the necessary capacity for HOV and buses. The narrower lanes will probably require reduced speeds for the other three lanes. The lower speeds, added Mercer Island traffic, and anticipated increase in single occupancy vehicles from growth further east along 1-90 and south along 405 seem a recipe for gridlock.

As mentioned earlier, the two-branch proposal will eliminate all bus routes across Lake Washington bridge, eliminating the obvious inefficiency of having both buses and trains operating across Lake Washington bridge at the same time. The two-branch proposal has the capacity to absorb large numbers of additional riders, further reducing the bridge traffic load. Ending the 1-90 and 405 commuter bus routes at Eastgate will allow those buses to make more round trips to their respective P&R lots. The increased capacity per bus could either be used to add passengers or allow some buses to transfer to other routes. For example, bus service good added along West Lake Sammamish Parkway connecting Issaquah and Highlands P&Rs with Overlake. The Lakemont/Cougar Mountain area and Snoqualmie Ridge areas could finally get bus service along with other areas east and south of Issaquah. Terminating these buses at Eastgate means that empty seats are more tolerable since they do not use up valuable cross bridge capacity.

The 520 bus lanes will have the capacity to provide 15-minute morning commutes to University station from the large P&R lots north and east of Bellevue. The morning reverse routes for these buses would provide similar commute times from University to either Overlake, Redmond, or Bellevue (for north Seattle residents). Each bus would then return to a P&R lot and repeat the round trip procedure. The relatively short round trip commute times will allow the buses to repeat the procedure two or three times during the peak commute. Additional buses could be easily added to specific routes to meet demands. In the afternoon, the routes would be reversed with the buses leaving the respective CBDs and crossing 520 to the University for the Seattleites return commute. The afternoon routes eastward would go directly to the various P&R lots for eastside residents. (There are no provisions in the current Sound Transit proposal for eastside residents commuting to and from their respective train stations.)

In conclusion, this system offers several advantages over the current Sound Transit proposal. The shorter light rail routes will reduce construction costs substantially and will be available far sooner. The two-branch train configuration will have lower operating costs because of the reduced number of trains required and yet will have greater flexibility and growth potential. The shortened bus routes will allow more bus capacity or added routes to attract more riders. The north end 520 express system will provide eastside residents in those areas with fast comfortable bus seats to and from major P&R

lots along with bus connections from these lots to their local P&R lots or residential areas near their home. Seattleites destined for eastside CBSs would have similar fast, direct, and comfortable bus connections between the University station and the eastside CBDs.

Most important, all eastside residents will benefit from this proposal so they will be more likely to support the tax increases needed for funding. They may be far less likely to support the current proposal if made aware of its shortcomings.

D R A F T

March 6, 2007

Mr. Bill Hirt
2615 170th SE
Bellevue, WA 98008

Dear Mr. Hirt:

Thank you for your email concerning your ideas for Sound Transit's ST2 package. Although this matter is really one for the Sound Transit Board rather than the Kirkland City Council, we have the following thoughts.

Unfortunately, regardless of its merit, your proposal may be a little late. The Sound Transit Board has approved a draft package and some of the elements that are key to your proposal are not included for further study. On the other hand, with a rebuild of the SR 520 bridge to include HOV lanes and with a light rail connection across I-90, it seems that the most of the intents of your proposal could be met. The ST2 package currently under consideration by the Sound Transit Board includes funds to study high capacity transit across SR 520, which may also fit into your concept. In the next couple of months we will find out exactly what mix of funding will have been approved by the legislature and exactly what will be on the ballot in the fall in the form of a roads and transit proposal. This will make the future of transit in our region clearer.

You also mentioned that trains may be slowed because of all the passengers they need to pick up at multiple stops. Sound Transit has done modeling on a number of different rail alignments and station configurations and found that the Seattle-Bellevue-Overlake-Redmond branch is the most productive. Light rail systems can easily handle ridership increases by increasing the capacity and frequency of trains.

If you have further questions, about transit in Kirkland please contact David Godfrey, Transportation Engineering Manager in our Public Works Department at (425) 587-3865 or dgodfrey@ci.kirkland.wa.us.

Sincerely,
KIRKLAND CITY COUNCIL

James L. Lauinger
Mayor