



**PLANNING/BUILDING/
PUBLIC WORKS DEPARTMENT**

M E M O R A N D U M

DATE: November 30, 2007
TO: Toni Nelson, Council President
Members of the Renton City Council
VIA: Kathy Keolker, Mayor
FROM: Gregg Zimmerman, *GZ* Administrator
STAFF CONTACT: Bob Hanson, Design Planning/Programming Supervisor,
Ext. 7223
SUBJECT: **Proposed Temporary Closure of Duvall Avenue NE/Coal
Creek Parkway SE**

ISSUE:

Should Council authorize the closure of Duvall Avenue NE/Coal Creek Parkway SE between SE 107th Street and SE 95th Way from the beginning of construction in February 2008 until February 28, 2009 or earlier as may be determined by the Planning/Building/Public Works Administrator?

RECOMMENDATION:

Adopt the resolution authorizing the temporary full closure of Duvall Avenue NE/Coal Creek Parkway SE between SE 107th Street and SE 95th Way from the beginning of construction in February 2008 until February 28, 2009, or earlier as may be determined by the Planning/Building/Public Works Administrator.

BACKGROUND:

Summary

- Existing traffic on Coal Creek Parkway SE functions at level of service F with delays of up to 20 minutes.
- Queues typically develop between 6:00 a.m. and 10:00 a.m. on Coal Creek Parkway SE, Duvall Avenue SE, NE 95th Way, SE May Valley Road, and 148th Avenue SE.
- The limiting capacity of Coal Creek Parkway occurs in the City of Newcastle at the intersection of Coal Creek Parkway SE and SE May Valley Road.

- Any increase in the capacity of this intersection results in a breakdown on Coal Creek Parkway SE at one of the next three intersections north.
- Closure of Duvall Avenue NE/Coal Creek Parkway SE to through traffic during reconstruction within the City of Renton:
 - Will result in longer queues, but will have no effect on the capacity of Coal Creek Parkway SE in Newcastle.
 - Will not reduce the aggregate delay.
 - Will increase travel distance, for northbound local vicinity commuters, by approximately one mile each trip.
- Leaving Duvall Avenue NE/Coal Creek Parkway SE open to through traffic during reconstruction will result in:
 - Doubling the time of construction.
 - Continuing construction after the beginning of Phase II construction on I-405.
 - Unnecessary extension for nearly one year of direct impacts on residents and businesses fronting on Duvall Avenue NE.
 - Significant increase in through traffic on vicinity local streets, particularly Field Avenue NE/SE 100th Street and SE 24th Street.
 - Frequent shutdown of Duvall Avenue NE for through traffic between SR 900 and SE 24th Street because of space constraints between obstructions.
 - An increase in construction cost of approximately \$3,000,000.

Project Description

Historically, Coal Creek Parkway SE was a two-lane country road that existed for years under a variety of names. As Newport Hills and the Renton Highlands developed and Bellevue extended southward, those segments from I-405 to what is now the City of Newcastle and 138th Avenue NE (Duvall Avenue SE) between SE 128th Street (NE 4th Street) and SR 900 (NE Sunset Boulevard) were improved to four lanes. In more recent times the City of Newcastle extended the improvements as far south as SE 84th Way. This year the City of Newcastle is improving Coal Creek Parkway SE from SE 84th Way to SE 95th Way (north Renton City limit). Newcastle's roadway projects are expected to be completed in the summer of 2009.

The City of Renton has been preparing for reconstruction of the remaining section between NE Sunset Boulevard and the City of Newcastle for the last several years. The project will include widening to four lanes with left-turn lanes, a traffic signalized intersection at NE 21st Street and placement of underground conduits for a signal at NE 24th Street when warrants exist, sidewalks, retaining walls, undergrounding of all overhead utilities, water improvements, sanitary sewer improvements, storm drainage improvements, and landscaping. The signal at NE 21st Street will help break up traffic to improve access for the neighboring streets as well as providing good level of service access at NE 21st Street itself. A pedestrian actuated signal will be included. When the

project is complete, Duvall Avenue NE is expected to operate generally at level of service C.

Development of the Closure Alternative

The Duvall Avenue NE/Coal Creek Parkway SE reconstruction project is finally going out to bid. One of the last tasks was to prepare a construction staging plan that provided two clear travel lanes and met the requirements of the MUTCD and WSDOT Standard Specifications, including providing pedestrian accessibility at least as good as that existing prior to construction. This proved to be rather difficult because of horizontal constraints caused by existing utility poles that could not be removed until the new underground power, telephone, and cable utilities were constructed and extended to the homes along Duvall Avenue NE and activated. A surface water quality and detention vault will be located in the center of Duvall Avenue NE north of SE 107th Street. A joint utility trench will run the full length of the project and over 50 utility crossings will be required. Its construction constraints will severely impact the contractor's ability to maintain two lanes of traffic during construction.

Further constricting the construction site will be paved, fenced and jersey barricaded walkways for the passage of school children.

A cost estimate for relocating poles, interim temporary paving, striping, barricades, and traffic control was prepared. That cost, together with the effects of escalating construction costs, resulted in a total cost that exceeded the City budget by over \$3,000,000. The effect on the proposed construction schedule that was worked out with the franchise utilities put our estimated construction time of two calendar years in question.

The City approached the Transportation Improvement Board (TIB) staff to request an increase in both City and county grants. No increase was promised, but if one was made it would have an upper limit of \$500,000.

The City's consultant was asked to prepare a new cost estimate based on complete closure of Duvall Avenue NE. The new estimate showed potential savings of up to \$3,000,000 without taking into account the increased cost of the project due to staging constraints. Arguably, the most important predicted effect of such a closure was that the expected time of construction was reduced from two calendar years to one year.

Two local contractors were informally approached and asked to comment on the time and cost savings that should be expected for this project under closure to through traffic. Their responses suggested similar time savings, but a cost savings closer to \$2,000,000.

King County and WSDOT have reported reductions in cost of approximately 20 percent by closure of streets through construction zones.

Nighttime construction was considered and found to be problematic because of the unacceptable noise impacts on the people in the residences fronting on or in near proximity to Duvall Avenue NE.

Analysis of construction staging has shown that even under the "open to through traffic" alternative, there will be full closures of up to 60 days duration and numerous short-term duration closures.

The City Council was advised of staff's intent to propose closure of Duvall Avenue NE to thru traffic during construction.

Recent Closure Experience

During a little over a year during 2006 and 2007 the City closed Park Avenue North for the The Landing project and for three days a portion of Rainier Avenue South was closed in August of 2007.

No formal traffic study for the Park Avenue North closure was made. It was assumed that drivers would respond by finding alternative routes or schedules and this assumption was born out in practice with a detour plan using Garden Avenue North as the sole replacement for both Garden and Park Avenues North. Garden Avenue North was reduced from four to three lanes to improve its ability to handle trucks and was amazingly successful in replacing four lanes each of both Park Avenue North and Garden Avenue North. There were times that Garden Avenue North was reduced to two lanes because of construction activities. It is estimated that level of service F delays occurred on only 10 to 20 occasions.

City staff performed a traffic analysis of the Rainier Avenue South closure. It predicted level of service F delays. However, traffic was shown not to go into complete gridlock, even though 24-hour traffic counts on Rainier Avenue South were in excess of 50,000 vehicles per day, and five lanes of Rainier Avenue South were being replaced with a total of four lanes, two each on Hardie Avenue SW and Shattuck Avenue South. The Rainier Avenue South closure was an event of some considerable energy, but was a significant success in both cost and time saved and elimination of nighttime noise.

The City of Newcastle is currently constructing a new bridge over May Creek in a project north of and adjacent to the north end of the Duvall Avenue NE/SE Coal Creek Parkway project. They elected not to close the parkway for this project. Their city engineer reports that traffic has reduced the construction hours on their project to four hours per day, 10:00 AM to 2:00 PM. No one has yet addressed the effect on time of contract and damages due to unforeseen conditions.

Existing Conditions

The effects of the proposed closure have been studied by staff and the consultant by observing the behavior of the drivers using Duvall Avenue NE and performing detailed computer simulations of the proposed conditions. The morning peak that stretches from 6:00 a.m. to nearly 10:00 a.m. resulted in the greatest daily delays south of May Creek. Under current conditions, queues form on Coal Creek Parkway SE/Duvall Avenue NE, SE May Valley Road, and SE 95th Way and at times, as have been observed or reported by others, on 148th Avenue SE, SE May Valley Road east of 148th Avenue SE and Union Avenue NE.

At times Coal Creek Parkway SE is backed up from the business district in Newcastle through the unincorporated area and on into Renton on Duvall Avenue NE south to SR 900 and beyond. At other times the backup north terminus is at the intersection of Coal Creek Parkway SE and SE May Valley Road. Drivers have responded by proceeding through both the intersections of Coal Creek Parkway SE at SE 95th Way and SE May Valley Road by alternating access through the intersections. The result is that SE Coal Creek Parkway through the City of Newcastle determines the capacity of the total of all approaching streets, and that 17 percent of the traffic comes from SE 95th Way, 50 percent from Duvall Avenue NE, and 33 percent from SE May Valley Road. Recent intersection traffic counts show similar results.

Average daily traffic in 2007 on NE Duvall Avenue is about 15,000 vehicles per day. The Renton School District has approximately 100 bus trips per day on Duvall Avenue NE.

Anecdotal information such as field observations and commuter interviews suggest that significant numbers of vehicles use Coal Creek Parkway SE in preference to I-405. Many vehicles from the area that stretches from Fairwood to and beyond Maple Valley use Coal Creek Parkway SE via SR169, 154th Avenue SE, the new Elliott Bridge, 156th Avenue SE and then SE 128th/4th Street to Duvall Avenue SE, 148th Avenue SE (Nile Avenue NE), or 164th Avenue SE instead of I-405. Others go east on SR 900 to Issaquah.

Public Outreach for the Proposed Closure

Over the past nine months, City staff has held meetings with the City of Newcastle, Renton School District, Issaquah School District, Metro Transit, the Renton Police Department, and the Renton Fire Department explaining the proposed closure action and seeking input. The comments have been addressed in the proposed minimization measures.

On November 7, City staff and the consultant held a public meeting at Hazen High School. A total of 2,341 information sheets were mailed to all the residents on carrier

routes 48, 57, 67, and 72 of zip code 98059 on Tuesday of the previous week. The package of information sheets intended for carrier route 72 was sent to carrier route 78 in error. An announcement of the meeting was posted on the City's web site. Approximately 60 people attended. Staff gave a project status update and solicited comments on the proposed closure from the attendees. Oral comments were received from about 20 residents and 10 written comment sheets and e-mails have been received. Additional comments were posted on a councilmember's blog. The comments in general were excellent and made staff and the consultant aware of several potential impacts that had not been considered but have now been addressed in the proposed minimization measures. It was reported that many businesses and residents did not receive their notices. A turnout of 60 people for a meeting like this is considered excellent.

The City will maintain a project web page with weekly updates and more frequently as needed. Personal contact will be maintained with those whose properties are directly affected by construction activities. These measures will be taken with or without closure of Duvall Avenue NE/Coal Creek Avenue SE.

Findings and Analysis for the Proposed Street Closure

Some impacts will be more onerous than others. Those residents fronting on Union Avenue NE/SE 95th Way, SE May Valley Road, and 148th Avenue SE and traffic on SR 900 at the intersections with Union Avenue NE and 148th Avenue SE are expected to be most impacted by the queues and increased traffic. Both intersections have signals that can be adjusted to accommodate the traffic pattern changes.

It is expected that diverted local traffic will generally choose to use Union Avenue NE and regional traffic will use 148th Avenue SE and 164th Avenue SE.

The following intersections are already and/or may be impacted further by queues of traffic waiting to use Coal Creek Parkway due to the closure of Duvall Avenue:

1. Coal Creek Parkway SE at SE May Valley Road
2. Coal Creek Parkway SE at SE 95th Way
3. SE May Valley Road at 148th Avenue SE
4. Union Avenue NE at SE 95th Way
5. 148th Avenue SE at NE 26th Street

If queues develop on Union Avenue NE, south to NE 24th Street, access to Sierra Heights Elementary School may be restricted causing delays for buses, teachers and students.

School buses and other vehicles from the Summer Wind and other areas that use the signalized intersection on SR 900 at Duvall Avenue NE for left turns eastbound on SR 900 may find it necessary to enter at an unsignalized intersection on SR 900 at

Field Avenue NE. All such vehicles within the affected areas can choose to enter SR 900 at Union Avenue NE or 148th Avenue SE by extending the length of their trips.

Impacts of construction on the Duvall Avenue NE abutting residents will be that of any similar street improvement project. Those impacts include:

1. The reduction of front yards for use as additional required right-of-way.
2. Construction noise and vibration for the duration of the project.
3. Interrupted vehicular access to their properties.
4. Construction activity on their properties and homes to extend underground utilities and reconstruct driveways.
5. Temporary interruption of utilities that must be disconnected and reconnected.
6. Supervision of children walking through the construction zone on their way to school.

The elimination of through traffic on Duvall Avenue NE will minimize those impacts by reducing traffic conflicts during construction and dramatically reducing time of construction.

Existing traffic that cuts through the local neighborhood streets to avoid some of the queue on Duvall Avenue NE should be reduced or eliminated altogether.

Residents on NE 24th Street have complained of speeding on their street. It is expected that traffic will increase on NE 24th Street whether Duvall Avenue NE is closed or not.

The queues on Union Avenue NE, SE May Valley Road, and 148th Avenue SE should increase in aggregate by approximately 40 percent. It is expected that some commuters will alter their trip timing or route to avoid the increased lengths of queues.

The impacts to traffic caused by the contractor's activities will be such that most of the through traffic will seek other routes during construction whether or not the street is formally closed.

Traffic using the intersections on SR 900 at Union Avenue NE and 148th Avenue SE is expected to increase.

Traffic on NE 24th Street wishing to turn north or south at Union Avenue NE may be delayed by increased traffic or queuing on Union Avenue NE.

Mirai Associates has concluded a traffic analysis of the proposed detour plan with results in the report that will be presented at the public hearing. The proposed minimization measures are listed below.

It has been concluded that the closure of Duvall Avenue NE will have no impact on the capacity of the total Coal Creek Parkway SE system until the improvements to Coal Creek Parkway SE within the City of Newcastle have been completed.

The initial estimate of construction time was 340 working days. Detailed staging analysis to accommodate traffic and time requirements for the franchise utilities to get their work completed extended the estimated construction time to about 500 working days (about two calendar years including holidays and non-working days due to weather and other delays). Estimated time of construction with the street closed to through traffic is 250 working days (one calendar year).

Monetary incentives were considered for completing the project early. Franchise utility work to convert overhead to underground can take: 30 days notice, 45 days additional if requested, and 90 days estimated to complete the transition following completion of the joint utility trench. That equals 165 calendar days that the contractor must work around. This situation would make it difficult (and subject to claims for reduced incentive payments) to use early completion incentives, because much of the work is not in the control of the City or the contractor.

Metro has taken a bus through the proposed detour routes and determined it has a viable detour route only on 148th Avenue SE and SE May Valley Road.

The analysis shows that the benefits of closure clearly outweigh the negative impacts.

Minimization Measures

If closure is approved by Council, staff will take the following measures to mitigate the potential effects of the closure:

Prior to Closure:

1. Request King County to install an all-way stop at the intersection of SE May Valley Road and 148th Avenue SE.
2. Request WSDOT to adjust the signal at the intersection of SR 900 and 148th Avenue SE.
3. Request approval from WSDOT to install pavement markings on SR 900 east of its intersection with Field Avenue NE creating a refuge pocket for left turns from Field Avenue NE.
4. Upon approval by Council, immediately install signs on Duvall Avenue NE near its intersection with SR 900 and on Coal Creek Parkway SE near its intersection with SE 95th Way setting forth the dates of closure.
5. Complete review and approval of the detour plan that has been prepared by staff.
6. Install signs and pavement markings on Union Avenue NE north of its intersection with NE 24th Street creating an exclusive north bound left-turn lane between NE 24th Street and the northern-most driveway into Sierra Heights Elementary School and eliminating parking on the east side of Union Avenue NE, north of NE 24th Street.

7. Bring an action to the Council for its consideration limiting truck traffic on NE Union Avenue.
8. Provide for police presence at the intersection of Union Avenue NE and NE 24th Street with project funds.
9. Seek Council approval for the use of chicanes or speed tables on NE 24th Street for the duration of this project.
10. Adjust the timing of the signals on SR 900 at Union Avenue NE and Duvall Avenue NE as suggested in the Mirai Report.
11. Install and maintain the detour signs and markings as approved in the detour plan.

Following closure:

12. Monitor traffic on the affected streets.
13. Request King County to install an all-way stop on 148th Avenue NE at NE 26th Street if warrants exist.
14. Install an all-way stop on Union Avenue at NE 24th Street if warrants exist.
15. Install signs and pavement markings on Union Avenue NE south of NE 24th Street prohibiting parking and establishing a queuing lane as necessary.