ENVIRON

November 20, 2009

MEMORANDUM

To: Susan Graham
CC: David Sherrard

ENVIRON Project No: 03-21287C

From: Richard Steffel
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Project Name: Yarrow Bay Black Diamond Projects EIS Review

Subject: Cumulative Environmental Air Impact Analysis – Summary

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At the request of Yarrow Bay and Parametrix, in the fall of 2008 ENVIRON conducted an analysis of the potential air quality implications of Yarrow Bay's proposed Lawson Hills and The Villages developments in Black Diamond, WA. We provided the results of the analysis to Parametrix in tabular form, and those data were included in the DEIS. Because the methods used in the analysis were essentially the same as those employed and documented in earlier stages of these projects, ENVIRON was not asked to provide any information or documentation other than the tabular results. Now, in order to clarify the context and purpose of the most recent air quality analysis, this memo summarizes the methods employed and comments briefly on the findings of that analysis.

Background Regarding Methods

Because traffic is the largest air emission source related to the project, the air quality analysis focused on the potential for vehicle emissions to affect air quality, specifically carbon monoxide (CO). ENVIRON used EPA-approved and/or WSDOT-approved air quality models to assess potential impacts due to cumulative traffic growth near intersections within the study area. Discussions of the CAL3QHC and WASIST models used in the analysis and other pertinent information regarding analytical methods were included in the draft EIS sections for the individual Lawson Hills and The Villages projects that were developed prior to the choice by the City of Black Diamond to prepare a more consolidated analysis.

For the cumulative impact analysis requested by Parametrix, ENVIRON used provided traffic data that represented a future baseline condition and the cumulative traffic condition. These revised traffic data were based on different assumptions and traffic demand modeling and included a larger study area than were considered in the earlier analyses. Therefore, the traffic study that provided the basis of the Draft EISs for these projects included several new intersections not previously considered. Based on EPA guidance, ENVIRON selected three intersections to evaluate with air quality modeling based on traffic volumes and cumulative delays at all signalized intersections. This was accomplished by ranking the study intersections by cumulative delay. The two worst intersections based on delay were Witte Road at SR-169 and Roberts Drive/Lawson Connector at SR-169. ENVIRON employed the WSDOT WASIST modeling tool to assess whether this screening tool would indicate compliance with air quality standards. However, because the SR-169 intersection with Roberts Drive/Lawson connector is very near the intersection of SR-169 with Ravensdale Road, ENVIRON evaluated operation of these two intersections together using the more sophisticated EPA CAL3QHC dispersion model because WASIST cannot handle this level of analysis.

Modeling Results

The cumulative traffic scenario considered represents the worst-case traffic condition because the traffic volumes were projected based on full buildout of both the Lawson Hills and The Villages developments, and the projections of future conditions included traffic growth within the project vicinity. The results of the air quality analysis indicate that projected maximum CO concentrations are less than the ambient air quality standards at the most affected intersections under the worst-case meteorological conditions considered. Because these worst case conditions do not result in projected air quality impacts, it follows that other less congested intersections also would not likely adversely affect air quality. Therefore, traffic related to the two Yarrow bay projects is unlikely to significantly affect air quality in the project vicinity. The results of the analysis are included in **Table 1**, which was previously submitted to Parametrix for inclusion in the draft EIS.

Table 1. Cumulative Case Intersection Modeling Results (ppm)

Intersection	Averaging Period	2007 Existing	2025 Alternatives	
			Baseline	Cumulative Condition
Witte Rd. SE & SR-169 [(a)]	1-hour	9.3	7.3	7.9
	8-hour	7.7	6.3	6.7
Pipeline (Ravensdale Rd) & SR-169 [(b)]	1-hour	--	--	12.0
	8-hour	--	--	8.4
Roberts Dr./Lawson Connector & SR-169 [(b)]	1-hour	--	--	9.1
	8-hour	--	--	6.8

Notes:

[(a)] Approved WSDOT screening methods including WASIST modeling were used to determine compliance with ambient standards at this intersection within the CO Maintenance area. Background concentration = 4.0 ppm

[(b)] CAL3QHC was used to determine compliance at the dual intersection of Ravensdale Rd. and Roberts Dr. at SR-169 because screening methods did not show compliance with standards. Also, these intersections are not signalized in 2007 or 2025 baseline conditions so modeling was not performed. Background concentration = 3.0 ppm

- 1-hr CO standard is 35 ppm; 8-hr CO standard is 9 ppm
- Modeling based on Synchro traffic data provided by Parametrix

Source: ENVIRON International Corporation 2009

Analytical Differences with Previous Analyses

The previous air quality analyses of the Lawson Hills and The Villages projects and the documentation that summarized those analyses are in many respects useful for both background information pertaining to existing conditions in the project area and details of the methods employed. However, the overall project-related conditions considered in these previous analyses bear little resemblance to the "cumulative conditions" assumed for the DEIS air quality analysis. For example, the traffic conditions and modeling efforts were not the same, nor were the greenhouse gas calculations. Finally, the DEISs omit discussion of the projects proponent's commitment to prohibit residential wood-burning devices from both developments in order to avoid a major source of air pollution that would need to be considered in detail were this commitment not in place. ENVIRON suggests this commitment either be recognized and memorialized for purposes of the SEPA review, or else the issue of residential wood burning evaluated for potential air quality impacts.