4.4 AIR QUALITY

4.4.1 METHODOLOGY

Development of the Proposed Project or action alternatives would contribute to localized carbon monoxide (CO) concentrations at newly signalized intersections surrounding the site, and to air emissions from vehicle exhaust on site. During construction of the Proposed Project, emissions from earth-moving activities, diesel-fueled trucks, and construction equipment would occur. This section presents the methodology used to assess the affected environment and to evaluate the potential air quality effects of the Proposed Project and Alternatives from construction and operation. Information presented here is condensed from the *Cowlitz Casino Project Environmental Impact Statement Air Quality Technical Report* (CH2MHill, 2006a [DEIS Vol. I, **Appendix E**]) and the *Supplemental Air Quality Report* (CH2MHill, 2007 [**Appendix H** of the FEIS]).

HOT SPOT ANALYSIS

Although many pollutants are present in vehicle exhaust, CO is the major pollutant of concern for traffic emissions. Hot spot analyses were conducted to examine the CO concentrations at intersections impacted by the Proposed Project and Alternatives. Vehicle CO emission factors were estimated and input into a dispersion model to estimate the ambient concentration at receptors located at each intersection. Dispersion model results are summarized in **Section 4.4.2** below.

Selection of Intersections for Analysis

Intersections were selected according to the *Guidelines for Modeling Carbon Monoxide from Roadway Intersections* (EPA, 1992a). Three years were considered for the analysis: existing (2005), year of opening (2010), and design year (2030). The year 2030 was used for the design year based on direction by the Washington State Department of Transportation (WsDOT) (Parsons Brinckerhoff, 2006d). Twenty-three intersections within the project area were ranked by traffic volumes and by level of service (LOS) pursuant to data provided in the *Cowlitz Indian Tribe: Traffic Impact Study Final* (Parsons Brinckerhoff, 2006a) (DEIS Vol. II, **Appendix T**). An LOS of A corresponds to the shortest delays. An LOS of F corresponds to the longest delays. Only those intersections with an LOS of D, E, or F were considered for analysis. A more detailed discussion of LOS is included in **Section 3.8** Transportation/Circulation.

The three intersections with the highest traffic volumes (1, 2, and 3) and the three intersections with the highest LOS (12, 23, and 125) were selected for analysis. **Table 4.4-1** lists the intersections by the alternative affected. U.S. Environmental Protection Agency (USEPA) guidance requires modeling of signalized intersections only; this is due to non-signalized intersection having lower traffic volumes than signalized intersections. Therefore, only intersections that will be signalized

during those years were analyzed. Because no intersections are currently signalized, existing (2005) conditions were not analyzed.

TABLE 4.4-1
INTERSECTIONS MODELED

ID	Intersection Description	Alternatives					
		A	B	C	D	E	F
1	NW 319th Street/NW La Center Road at I-5 SB on-Ramps						
	2010 weekday peak	✓	✓	✓	✓		
	2010 event peak	✓	✓	✓	✓		
	2030 weekday peak	✓	✓	✓	✓		
2	NW 319th Street/NW La Center Road at I-5 NB on-Ramps						
	2010 weekday peak	✓	✓	✓	✓		
	2010 event peak	✓	✓	✓	✓		
	2030 weekday peak	✓	✓	✓	✓		
12	NW La Center Road at NE Timmen Road						
	2030 weekday peak	✓	✓	✓	✓	✓	✓
125	SR-501/Pioneer Street at N 65th Avenue						
	2010 weekday peak					✓	
	2010 event peak					✓	
	2030 weekday peak					✓	
3	Pioneer Street at I-5 SB on-Ramps						
	2010 weekday peak					✓	✓
	2010 event peak					✓	
	2030 weekday peak					✓	
23	Pioneer Street at I-5 Single Point Urban Interchange (SPUI)						
	2030 weekday peak					✓	✓

NOTES: ✓ = CO data analysis conducted.
Three years were looked at for the analysis: existing (2005), year of opening (2010), and design year (2030). Only intersections that will be signalized during those years were analyzed. Because no intersections are currently signalized, no analyses of existing (2005) conditions were conducted.

Source: CH2MHill, 2006a.

For those intersections currently unsignalized and proposed for signalization as mitigation for the project, a comparison of the LOS was made for 2005 and 2010, with and without the project, to verify that none would experience a significant degradation. The new signalized intersections whose LOS was D, E or F were included in the modeling analysis. Results of the LOS comparisons are presented in **Table 4.4-2**.

TABLE 4.4-2
INTERSECTION LOS COMPARISONS

ID#	2005	2010	Alternatives in 2010				
	Existing	No Action	A	B	C	D	E
1	C	D	A	A	C	B	E
2	B	C	B	B	B	B	C
3	A	A	N/A	N/A	N/A	N/A	D
12	B	C	C	C	C	C	C
125	B	D	D	D	D	D	D

NOTES: All data are mitigated p.m. (afternoon) data.

Source: CH2MHill, 2006a.

Emission Factor Calculations

CO emission factors in grams per vehicle miles traveled (g/vmt) were estimated for each vehicle speed evaluated in the analysis using USEPA's model MOBILE6.2 (EPA, 2003b). MOBILE6.2 calculates emission factors for gasoline-fueled light-duty vehicles, trucks, heavy-duty vehicles, and motorcycles, and for diesel-fueled light-duty vehicles, trucks, and heavy-duty vehicles. The model accounts for progressively more stringent tailpipe emission standards over the vehicle model years evaluated.

MOBILE6.2 model output data were obtained from the Southwest Washington Regional Transportation Council (SWRTC) (SWRTC, 2005). Because Clark County does not inspect all vehicles, model runs by SWRTC assumed that 90% of the vehicles were subject to inspection.

Dispersion Model Analysis

The USEPA CAL3QHC dispersion model (EPA, 1992b) was used to calculate 1-hour and 8-hour maximum concentrations of CO near the six roadway intersections for weekdays in 2010 and 2030 and event days in 2010. CAL3QHC model inputs are described and summarized in **Table 4.4-3.**

Traffic volumes were estimated using the predicted volumes from the *Cowlitz Indian Tribe: Traffic Impact Study Final* (Parsons Brinckerhoff, 2006a) (DEIS Vol. II, **Appendix T**). Weekday traffic volumes were estimated using the peak-hour p.m. weekday traffic volumes. Event traffic volumes were estimated using Saturday peak hour traffic volumes for those alternatives that include a casino (Alternatives A, B, C, and E). The Saturday traffic volumes include the predicted event traffic volumes. Peak-hour traffic volumes for events occurring in 2030 are anticipated to be less than weekday peak volumes, due to the traffic arriving at between 4:30 and 7:30 (Parsons Brinckerhoff,

2006e [**Appendix O** of the FEIS) resulting in modeled CO concentrations less than weekday concentrations.

TABLE 4.4-3
SUMMARY OF CAL3QHC INPUTS

Description	Value
Surface roughness coefficient	108 cm[1]
Background CO concentration	3 ppm[2]
Signal type	Actuated[3]
Intersection arrival rate	Average progression[3]
Saturation flow rate	As given in Synchro Files[4]
Clearance lost time	3 seconds[3]

NOTES:
[1] Value recommended for single-family residential (EPA, 1992a).
[2] Value recommended by SWRTC, 2005 for 8-hour only.
[3] Value recommended by USEPA guidance (EPA, 1992a).
[4] Parsons Brinckerhoff, 2006b.

Source: CH2MHill, 2006a.

Modeled receptors were located at sites accessible to the public, generally near intersection corners and near each approach and departure link, according to USEPA guidance (EPA, 1992a). The receptors were placed no closer than 3 meters (10 feet) from the edge of the road, at the corners, and at distances of 25 and 50 meters (82 and 164 feet) from each corner along each approach and departure.

As indicated in the USEPA guidelines (EPA, 1992b), CAL3QHC was run with meteorological input parameters consisting of a 1-meter-per-second wind speed and 1,000-meter (3,250-feet) mixing height. A neutral (Class D) atmosphere was used as recommended by SWRTC (SWRTC, 2005). One-hour average ambient CO concentrations were calculated to estimate the effect during peak-hour traffic conditions.

Concentrations were calculated at a receptor height of 1.8 meters (6 feet). A background CO concentration of 3 parts per million (ppm) was used, which accounts for other CO emission sources in the project vicinity, such as home heating and train exhaust. This value is recommended for intersections located in suburban areas in the *Guidebook for Conformity: Air Quality Assistance for Nonattainment Areas* (KJS Associates, Inc., 1995). This background concentration was only applied to the 8-hour average as recommended by Mark Harrington of SWRTC (SWRTC, 2005) (CH2MHill, 2006b).

The CAL3QHC modeling results for both the 1-hour and 8-hour averaging period are presented. Because the 8-hour average CO national ambient air quality standard is lower and more limiting than the 1-hour standard, results of the air quality analyses of traffic emissions are typically reported for the 8-hour averaging period. Regulatory guidance recommends adjusting the 1-hour concentrations to 8-hour using a factor of 0.7, which conservatively accounts for variations in meteorology over an 8-hour period. Results are reported for both 1-hour and 8-hour CO concentrations.

VEHICLE EMISSION ANALYSIS

Emissions of respirable particulate matter (PM_{10}), nitrogen oxides (NO_x), and volatile organic compounds (VOC) from vehicles traveling to, from, and within the alternative project sites were calculated for each alternative. Calculations were based on emission factors estimated using USEPA's MOBILE 6.2 (EPA, 2003b) model and the trip estimations developed by Parsons Brinckerhoff (Parsons Brinckerhoff, 2006a) as presented in DEIS Vol. II, **Appendix T**. Emission factors are not readily available for $PM_{2.5}$. To get $PM_{2.5}$ emissions, California Air Resources Board (CARB) particulate matter speciation profiles were used (CARB, 2002). Estimations were made for project build-out in 2010.

Vehicles traveling to and from the alternative project sites were assumed to travel at 65 miles per hour (mph) (The current speed limit on I-5 is 70 mph, however, the USEPA's MOBILE6.2 model is limited to a maximum speed of 65 mph) (CH2MHill, 2006a). Vehicles traveling within the sites were assumed to travel at 5 mph. Vehicles were assumed to travel an average of 30 miles to the alternative project sites and 1 mile within the sites.

It is important to note that project implementation would also result in emissions of CO. However, because CO disperses rapidly with increased distance from the source, emissions of CO are considered localized pollutants of concern rather than of regional concern and are analyzed separately under Hot Spot Analysis.

The analysis of Mobile Source Air Toxics (MSATs) is an emerging field. Current methods to quantify impacts from air toxics are in the development stage. It is strongly believed that as emissions from motor vehicles continue to decrease over time from the retirement of older vehicles and the continued advancement in technologies, emissions of MSATs will also decline. No significant differences in air toxics emissions among the project alternatives are anticipated. Therefore, a quantitative analysis was not conducted.

BOILER AND GENERATOR ANALYSIS

In all alternatives, natural gas would be used. Uses, particularly for the casino alternatives, include fuel for hot water boilers, space heating, domestic water heaters, steam boilers for food service,

cooking equipment, laundry equipment, and swimming pool heaters. Annual usage is estimated to be approximately 240 million cubic feet (mmcf) of natural gas. Emissions from natural gas combustion are calculated using emission factors from AP-42 (EPA, 1995).

In addition, approximately five 2-megawatt (MW) diesel-fueled generators would be used to provide emergency backup power. Each generator would be exercised weekly for 30 minutes for an annual total for all five generators of 130 hours. According to the USEPA, emergency engines/generators that operate less than 500-hours per year need not operate under a Title V permit. A Title V permit is required by the USEPA when any criteria pollutant emission exceeds 100 tons per year (tpy).

CONSTRUCTION ANALYSIS

Construction would consist of demolition followed by three construction phases: mass earthwork, fine grading/utility construction, and road construction. A mixture of trucks, scrapers, excavators, and graders would be used to complete each phase. Effects on air quality during construction were evaluated by estimating the amount of pollutants that would be emitted over the duration of the construction period. Particulate matter is the primary pollutant of concern resulting from earth-moving activities. Emissions from diesel-fueled trucks and construction equipment were calculated using published emission factors.

NO_x and VOC emissions for the Proposed Project and Alternatives would primarily be produced by diesel-fueled equipment usage. The majority of these emissions would be from off-road truck usage at the alternative project sites, and from dump truck usage both at the alternative project sites and during transportation of material to and from the sites. A detailed list of the proposed equipment and emissions resulting from the equipment is located in DEIS Vol. I, **Appendix E**.

The majority of the PM_{10} emissions would result from the fugitive dust generated during excavation and other earth-moving activities. The AP-42 emission factor is based on 1.2 tons of total suspended particulates (TSP) per acre per month of activity, not PM_{10} (EPA, 1995). PM_{10} and $PM_{2.5}$ estimations were generated using CARB particulate matter speciation profiles (CARB, 2002). PM_{10} is only 48.9% of the TSP from construction activities and $PM_{2.5}$ is only 20.8% of the PM_{10}. Actual emissions also have the potential to be much lower than this emissions estimate, as dust generation can vary day to day, depending on level of activity, specific operations, mitigation measures, and weather conditions.

Although the asphalt emissions for the alternatives are negligible, the asphalt-laying phase would likely result in some odor emissions. These odors would be temporary and would not significantly affect the surrounding area.

IMPACTS TO FEDERAL CLASS I AREAS

Title 1, Part C of the Federal Clean Air Act (CAA) was established, in part, to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value. The CAA promised to prevent significant deterioration of air quality under the Prevention of Significant Deterioration (PSD) program. The CAA designates all international parks, national wilderness areas, and memorial parks larger than 5,000 acres, and national parks larger than 6,000 acres as "Class I areas." There are 156 mandatory Class I areas nationwide.

Any major source of emissions within 100 kilometers (km) (62.1 miles) from a federal Class I area is required to conduct a pre-construction review of air quality impacts on the area(s). The PSD Program protects Class I areas by allowing only a small increment of air quality deterioration in these areas by providing for assessment of potential impacts on air quality related values of Class I areas. A "major source" for the PSD program is defined as a facility that would emit (from direct stationary sources) 250 tpy of regulated pollutant. For certain specific industries, the requirements apply to facilities that emit (through direct stationary sources) 100 tpy or more of a regulated pollutant.

CLIMATE CHANGE

Climate change is a global phenomenon attributable to the sum of all human activities and natural processes. It is not possible to attribute a particular climate change impact to a single development project. Project impacts are therefore most appropriately addressed in terms of the incremental contribution to a global cumulative impact. Please refer to discussion of cumulative impacts in **Section 4.15** for this analysis

4.4.2 ALTERNATIVE A – PREFERRED CASINO-RESORT PROJECT

CARBON MONOXIDE HOT SPOTS

Intersections 1 and 2 (**Figure 3.8-2**) were analyzed for CO for the years 2010 and 2030, and Intersection 12 was analyzed for CO for the year 2030. Maximum CO concentrations are presented in **Table 4.4-4**. All results are below the 1-hour and 8-hour standards.

No violation of CO concentrations standards would occur under Alternative A, therefore, the effect of Alternative A on CO hot spot concentrations is less than significant. No mitigation is required.

OPERATIONAL VEHICLE EMISSIONS

Operation of Alternative A would result in the generation of VOC, NO_x, and PM_{10} emissions. Calculated vehicle emissions estimations for Alternative A, and other alternatives for ease of comparison, in the build out year of 2010 are presented in **Table 4.4-5**. A detailed list of motor vehicle emissions is included in DEIS Vol. I, **Appendix E**.

TABLE 4.4-4
MAXIMUM CO CONCENTRATIONS (PPM) – ALTERNATIVES A AND B

	1-Hour Concentration		8-Hour Concentration	
Scenario	**2010**	**2030**	**2010**	**2030**
National and Washington State Standards	35		9	
Intersection 1	2.8	1.9	5.0	4.3
Intersection 2	3.0	2.0	5.1	4.4
Intersection 12	N/A	1.7	N/A	4.2

NOTE:
The 8-hour concentrations include a 3-ppm background concentration. This value is recommended for intersections located in suburban areas in the *Guidebook for Conformity: Air Quality Assistance for Nonattainment Areas*. The background concentration was only applied to the 8-hour average as recommended by SWRTC (CH2MHill, 2006a).
N/A – not applicable

Source: CH2MHill, 2006a.

TABLE 4.4-5
2010 VEHICLE EMISSIONS (TONS/YEAR)

Pollutant	**Alternative**					**Combined Counties[1]**
	A&B	**C**	**D**	**E**	**No Action**	
PM_{10}	9.9 (0.01%)	7.6 (0.01%)	10.3 (0.01%)	10.3 (0.01%)	0.02 (0.00002%)	98,953
$PM_{2.5}$	9.8 (0.03%)	7.6 (0.02%)	10.2 (0.03%)	10.2 (0.03%)	0.02 (0.00007%)	32,530
NO_x	482.1 (0.4%)	372.4 (0.3%)	500.1 (0.4%)	498.9 (0.4%)	1.17 (0.001%)	119,055
CO	4,735 (0.6%)	3,484 (0.4%)	4,940 (0.6%)	4,927 (0.6%)	0.65 (0.00008%)	806,996
VOC	348.4 (0.3%)	256.6 (0.2%)	363.4 (0.3%)	362.5 (0.3%)	0.98 (0.0007%)	137,728
SO_2	1.7 (0.01%)	1.3 (0.004%)	1.8 (0.01%)	1.8 (0.01%)	0.005 (0.00002%)	29,358

NOTE:
*CARB speciation profile for gasoline powered engines show that 99.2% of PM_{10} is $PM_{2.5}$. Percentage of combined Counties emissions inventory shown in parentheses.
[1]Projected 2010 vehicle emissions are from the USEPA 2002 National Emissions Inventory for mobile sources and include Clark, Cowlitz, Multnomah, Washington, and Clackamas Counties.
Emission values include traffic mitigation

Source: CH2MHill, 2006a; AES, 2006.

Emissions from Alternative A would be considered significant. Mitigation measures for operational emissions, specified in **Section 5.2.3**, would reduce the effects of indirect and direct emissions from Alternative A, but not to a level of less than significant. This is an unavoidable adverse effect.

STATIONARY SOURCE EMISSIONS

Annual natural gas usage in the proposed boilers would be approximately 240 million cubic feet. In addition, approximately five 2-MW diesel-fueled generators would be used to provide emergency and standby power. Each generator would be exercised weekly for 30 minutes for an annual total of 130 hours. Emissions associated with these stationary sources are presented in **Table 4.4-6**.

TABLE 4.4-6
STATIONARY SOURCE COMBUSTION EMISSIONS (TONS/YEAR)

Pollutant	Boilers	Emergency Generators
CO	10	0.38
NO_x	12	2.93
PM_{10}	0.9	0.02
$PM_{2.5}$*	0.9	0.02
SO_2	0.07	0.59
VOC	0.7	0.08

NOTE:
*CARB speciation profile shows that 100% of the natural gas PM_{10} is $PM_{2.5}$ and 92% of the diesel-fueled engines PM_{10} is $PM_{2.5}$

Source: CH2MHill, 2006a; AES, 2006.

These values do not exceed the Washington Administrative Code (WAC) 173-401 threshold for major sources. No toxics exceed the WAC 173-460 small quantity emission rate (SQER) thresholds. The stationary source emissions associated with Alternative A would be minimal and are not considered significant. No mitigation is required.

CONSTRUCTION EMISSIONS

The proposed construction is anticipated to begin in 2006 and last approximately two construction seasons (18 months). Construction is assumed to occur 10 hours a day, 6 days a week. The construction emission totals for the Alternative A are shown in **Table 4.4-7**.

Although no significance threshold has been established for temporary sources of emissions such as a construction site, the estimates indicate that construction would likely result in less than significant effects on air quality. However, recognizing that construction dust can be of a localized concern, mitigation measures to reduce the localized effects on construction dust from Alternative A are specified in **Section 5.2.3**.

TABLE 4.4-7
ESTIMATED TOTAL CONSTRUCTION EMISSIONS

	Emissions (tons, for 18 month project)					
Source	**CO**	**VOC**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$ ***
Diesel-fueled Equipment	68.5	8.1	46.7	6.7	1.3	1.2
Demolition	N/A	N/A	N/A	N/A	0.02	0.004
Hauling	0.3	0.9	0.05	N/A	N/A	N/A
Site Grading	N/A	N/A	N/A	N/A	57.9	12.0
Worker Commute	17.8	0.5	0.8	N/A	N/A	N/A
Asphalt Paving	N/A	0.02	N/A	N/A	N/A	N/A
Total	86.5	9.6	47.6	6.7	59.2	13.2

NOTES:
N/A = not applicable.
* CARB speciation profile shows that 92% of the diesel-fueled engines PM_{10} is $PM_{2.5}$ and only 20.8% of the construction/demolition PM_{10} is $PM_{2.5}$.

Source: EPA, 1995; SCAQMD, 1993 & 1994; URBEMIS, 2002; CARB, 2002; CHM2Hill, 2006a.

CONSTRUCTION-RELATED ASBESTOS EMISSIONS

Construction of Alternative A would entail the demolition of existing buildings. Buildings often include materials containing asbestos. Airborne asbestos fibers pose a serious health threat if adequate control techniques are not used when the material is disturbed. The demolition, renovation, or removal of asbestos-containing materials is subject to the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed at 40 CFR Part 61, Subpart M requiring notification and inspection. Most demolitions and many renovations are subject to an asbestos inspection prior to the start of activity. Demolition activities associated with Alternative A would be subject to NESHAP. Strict compliance with NESHAP would result in less than significant construction-related asbestos emissions.

FEDERAL CLASS I AREAS IMPACTS

Mount Hood Wilderness Area and Mount Adams Wilderness Area are the only Federal Class I areas within 100 km of Alternative A. Analysis of operational emissions associated with Alternative A, presented in **Tables 4.4-5** and **4.4-6**, show that Alternative A does not constitute a "major source" under PSD definitions and, therefore, does not trigger need for preconstruction review and assessment of impacts. This impact is less than significant. No mitigation is required.

CONFORMITY DETERMINATION

Conformity regulations apply to Federal actions that would cause emissions of criteria air pollutants above certain levels to occur in locations designated as non-attainment or maintenance areas for the emitted pollutants. If a Federal action occurs in a location designated as attainment or unclassified, then the general conformity regulation does not apply to the Proposed Project. As discussed in **Section 3.4** of this Environmental Impact Statement (EIS), the alternative project sites are located in an area that is either unclassifiable or attainment for all national standards and, therefore, would not be subject to a conformity determination.

4.4.3 ALTERNATIVE B – PREFERRED PROJECT WITHOUT REROUTING NW 319TH STREET

Alternative B is similar to Alternative A with the exception that NW 319th Street would not be rerouted.

CARBON MONOXIDE HOT SPOTS – ALTERNATIVE B

As described under Alternative A, Intersections 1 and 2 were analyzed for CO for the years 2010 and 2030 and Intersection 12 was analyzed for CO for the year 2030. Maximum CO concentrations are presented in **Table 4.4-5**. All results are below the 1-hour and 8-hour standards. No violation of CO concentrations standards would occur under Alternative B, therefore, the effect of Alternative B on CO hot spot concentrations is less than significant. No mitigation is required.

OPERATIONAL VEHICLE EMISSIONS

Operation of Alternative B would be similar to that of Alternative A and would result in the generation of VOC, NO_x, and PM_{10} emissions. Emission estimations for vehicles are summarized in **Table 4.4-5**. A detailed list of motor vehicle emissions is included in DEIS Vol. I, **Appendix E**.

Emissions from Alternative B would be considered significant. Mitigation measures for operational emissions, specified in **Section 5.2.3**, would reduce the effects of indirect and direct emissions from Alternative B, but not to a level of less than significant. This is an unavoidable adverse effect.

STATIONARY SOURCE EMISSIONS

Stationary source emissions from Alternative B are similar to those of Alternative A as presented in **Table 4.4-6**. Emissions from the stationary sources associated with Alternative B would be minimal and not considered significant. No mitigation is required.

CONSTRUCTION EMISSIONS

The construction activity associated with Alternative B is similar to that of Alternative A as presented in **Table 4.4-7.** Construction emissions for Alternative A were considered to be the maximum for all casino alternatives (Alternatives A, B, C, and E). As NW 319th Street would not be rerouted under Alternative B, construction emissions were not expected to exceed those for Alternative A. Although no significance threshold has been established for temporary sources of emissions such as a construction site, the estimates indicate that construction would likely result in less than significant effects on air quality. However, recognizing that construction dust can be of a localized concern, mitigation measures to reduce the localized effects on construction dust from Alternative B are specified in **Section 5.2.3.**

CONSTRUCTION-RELATED ASBESTOS EMISSIONS

As with Alternative A, construction of Alternative B would entail the demolition of existing buildings. Demolition activities associated with Alternative B would be subject to NESHAP. Strict compliance with NESHAP would result in less than significant construction-related asbestos emissions.

FEDERAL CLASS I AREAS IMPACTS

Mount Hood Wilderness Area and Mount Adams Wilderness Area are the only Federal Class I areas within 100 km of Alternative B. Analysis of operational emissions associated with Alternative B, presented in **Tables 4.4-5** and **4.4-6**, show that Alternative B does not constitute a "major source" under PSD definitions and, therefore, does not trigger need for preconstruction review and assessment of impacts. This impact is less than significant. No mitigation is required.

CONFORMITY DETERMINATION

As described under Alternative A, the alternative project sites are located in an area that is either unclassifiable or attainment for all national standards and, therefore, would not be subject to a conformity determination.

4.4.4 ALTERNATIVE C – REDUCED INTENSITY

Alternative C is smaller in scale and development intensity than Alternatives A and B.

CARBON MONOXIDE HOT SPOTS

Intersections 1 and 2 (**Figure 3.8-2**) were analyzed for CO for the years 2010 and 2030, and Intersection 12 was analyzed for CO for the year 2030. Maximum CO concentrations are presented in **Table 4.4-8**. All results are below the 1-hour and 8-hour standards.

TABLE 4.4-8
MAXIMUM CO CONCENTRATIONS (PPM) – ALTERNATIVE C

	1-Hour Concentration		8-Hour Concentration	
Scenario	**2010**	**2030**	**2010**	**2030**
National and Washington State Standards	35		9	
Intersection 1	2.7	1.8	4.9	4.3
Intersection 2	2.9	2.2	5.0	4.5
Intersection 12	N/A	1.7	N/A	4.2

NOTE:
The 8-hour concentrations include a 3-ppm background concentration. No background concentration is included in the 1-hour concentration.
N/A = not applicable

Source: CH2MHill, 2006a.

No violation of CO concentrations standards would occur under Alternative C, therefore, the effect of Alternative C on CO hot spot concentrations is less than significant. No mitigation is required.

OPERATIONAL VEHICLE EMISSIONS

Operation of Alternative C would be similar to that of Alternatives A and B but would result in the generation of less VOC, NO_x, and PM_{10} emissions due to reduced activity relevant to the reduced development intensity. Emissions from Alternative C are presented in **Table 4.4-5**.

Emissions from Alternative C would be considered significant. Mitigation measures for operational emissions, specified in **Section 5.2.3**, would reduce the effects of indirect and direct emissions from Alternative C, but not to a level of less than significant. This is an unavoidable adverse effect.

STATIONARY SOURCE EMISSIONS

Stationary source emissions from Alternative C would be similar to those of Alternatives A and B as presented in **Table 4.4-6,** but would be less in quantity due to the reduced development intensity. Emissions from the stationary sources associated with Alternative C would be minimal and are not considered significant. No mitigation is required.

CONSTRUCTION EMISSIONS

The construction activity associated with Alternative C is similar to that described under Alternatives A and B and presented in **Table 4.4-7**. However, under Alternative C, impacts would be slightly less due to a reduced area of disturbance on the northern parcel. Although no significance threshold has been established for temporary sources of emissions such as a construction site, the estimates indicate that construction would likely result in less than significant effects on air quality. However,

recognizing that construction dust can be of a localized concern, mitigation measures to reduce the localized effects on construction dust from Alternative C are specified in **Section 5.2.3.**

CONSTRUCTION-RELATED ASBESTOS EMISSIONS

Construction of Alternative C would entail the demolition of existing buildings. As with Alternative A, demolition activities associated with Alternative C would be subject to NESHAP. Strict compliance with NESHAP is expected to result in less than significant construction-related asbestos emissions.

FEDERAL CLASS I AREAS IMPACTS

Mount Hood Wilderness Area and Mount Adams Wilderness Area are the only Federal Class I areas within 100 km of Alternative C. Analysis of operational emissions associated with Alternative C, presented in **Tables 4.4-5** and **4.4-6**, show that Alternative C does not constitute a "major source" under PSD definitions and, therefore, does not trigger need for preconstruction review and assessment of impacts. This impact is less than significant. No mitigation is required.

CONFORMITY DETERMINATION

As described under Alternative A, the alternative project sites are located in an area that is either unclassifiable or attainment for all national standards and, therefore, would not be subject to a conformity determination.

4.4.5 ALTERNATIVE D – BUSINESS PARK

Alternative D is a non-gaming alternative; however, emissions from construction and vehicle usage would still be of concern. Refer to the description of methodology in **Section 4.4.1**.

CARBON MONOXIDE HOT SPOTS – ALTERNATIVE D

Intersections 1 and 2 were analyzed for CO for the years 2010 and 2030, and Intersection 12 was analyzed for CO for the year 2030. Maximum CO concentrations are presented in **Table 4.4-9**. All results are below the 1-hour and 8-hour standards.

No violation of CO concentrations standards would occur under Alternative D, therefore, the effect of Alternative D on CO hot spot concentrations is less than significant. No mitigation is required.

OPERATIONAL VEHICLE EMISSIONS

Operation of Alternative D would be similar to that of Alternatives A and B but would result in the generation of more VOC, NO_x, and PM_{10} emissions vehicular activity. Since this is the non-gaming alternative, emissions estimates were based on automobile activity associated with a Technical Office

Park. Whereas weekend trip activity associated with the Office Park was less than the gaming alternatives, the weekday trip activity was estimated as significantly increased. Emissions from Alternative D are presented in **Table 4.4-5**.

TABLE 4.4-9
MAXIMUM CO CONCENTRATIONS (PPM) – ALTERNATIVE D

	1-Hour Concentration		8-Hour Concentration	
Scenario	**2010**	**2030**	**2010**	**2030**
National and Washington State Standards	35		9	
Intersection 1	4.8	3.2	6.4	5.2
Intersection 2	3.0	1.8	5.1	4.3
Intersection 12	N/A	1.9	N/A	4.3

NOTE:
The 8-hour concentrations include a 3-ppm background concentration. No background concentration is included in the 1-hour concentration.
N/A = not applicable

Source: CH2MHill, 2006a.

Emissions from Alternative D would be considered significant. Mitigation measures for operational emissions, specified in **Section 5.2.3**, would reduce the effects of indirect and direct emissions from Alternative D, but not to a level of less than significant. This is an unavoidable adverse effect.

STATIONARY SOURCE EMISSIONS

Stationary source emissions from Alternative D are an unknown factor. Business parks are traditionally considered low users of boilers and generators and are not considered stationary sources under the CAA because of their size and operational type (CH2MHill, 2006a). Emissions from the potential minor stationary sources are considered less than significant for Alternative D.

CONSTRUCTION EMISSIONS

The amount of construction activity associated with Alternative D would likely be higher due to the increased square footage of buildings proposed. In fact, Alternative D has approximately 33% more square footage that Alternative A, as presented in **Table 4.4-7**, but the increase would not be considered significant. Although no significance threshold has been established for temporary sources of emissions such as a construction site, the estimates indicate that construction would still likely result in less than significant effects on air quality. However, recognizing that construction dust can be of a localized concern, mitigation measures to reduce the localized effects on construction dust from Alternative D are specified in **Section 5.2.3.**

CONSTRUCTION-RELATED ASBESTOS EMISSIONS

Construction of Alternative D would entail the demolition of existing buildings. As with Alternative A, demolition activities associated with Alternative C would be subject to NESHAP. Strict compliance with NESHAP would result in less than significant construction-related asbestos emissions.

FEDERAL CLASS I AREAS IMPACTS

Mount Hood Wilderness Area and Mount Adams Wilderness Area are the only Federal Class I areas within 100 km of Alternative D. Analysis of operational emissions associated with Alternative D, presented in **Tables 4.4-5** and **4.4-6**, show that Alternative D does not constitute a "major source" under PSD definitions and, therefore, does not trigger need for preconstruction review and assessment of impacts. This impact is less than significant. No mitigation is required.

CONFORMITY DETERMINATION

As described under Alternative A, the alternative project sites are located in an area that is either unclassifiable or attainment for all national standards and, therefore, would not be subject to a conformity determination.

4.4.6 ALTERNATIVE E – RIDGEFIELD INTERCHANGE SITE

Alternative E is similar in size and setting to Alternative A, but is located 2 miles south along Interstate 5.

CARBON MONOXIDE HOT SPOTS

Intersection number 125 (**Figure 3.8-2**) was analyzed for CO for the years 2010 and 2030; Intersections 23 and 12 were analyzed for CO for the year 2030; and Intersection 3 was analyzed for CO for the year 2010. Intersection 3 was not modeled for the year 2030 due to the fact that it will be replaced by Intersection 23 in 2030. Maximum CO concentrations are presented in **Table 4.4-10**. All results are below the 1-hour and 8-hour standards.

No violation of CO concentrations standards would occur under Alternative E, therefore, the effect of Alternative E on CO hot spot concentrations is less than significant. No mitigation is required.

OPERATIONAL VEHICLE EMISSIONS

Operation of Alternative E would be similar to that of Alternative A and would result in the generation of VOC, NO_x, and PM_{10} emissions. Emissions from Alternative E are presented in **Table 4.4-5**.

TABLE 4.4-10
MAXIMUM CO CONCENTRATIONS (PPM) – ALTERNATIVE E

	1-Hour Concentration		8-Hour Concentration	
Scenario	**2010**	**2030**	**2010**	**2030**
National and Washington Standards	35		9	
Intersection 125	3.7	2.5	5.6	4.8
Intersection 3	3.6	N/A	5.5	N/A
Intersection 23	N/A	2.3	N/A	4.6
Intersection 12	N/A	1.7	N/A	4.2

NOTE: The 8-hour concentrations include a 3-ppm background concentration. No background concentration is included in the 1-hour concentration.
N/A = Not applicable

Source: CH2MHill, 2006a.

Emissions from Alternative E would be considered significant. Mitigation measures for operational emissions, specified in **Section 5.2.3**, would reduce the effects of indirect and direct emissions from Alternative E, but not to a level of less than significant. This is an unavoidable adverse effect.

STATIONARY SOURCE EMISSIONS

Stationary source emissions from Alternative E are similar to those of Alternative A as presented in **Table 4.4-6**. Emissions from the stationary sources associated with the Alternative E would be minimal and are not considered significant. No mitigation is required.

CONSTRUCTION EMISSIONS

The construction activity associated with Alternative E is similar to that of Alternative A as presented in **Table 4.4-7.** Although no significance threshold has been established for temporary sources of emissions such as a construction site, the estimates indicate that construction would likely result in less than significant effects on air quality. However, recognizing that construction dust can be of a localized concern, mitigation measures to reduce the localized effects on construction dust from Alternative E are specified in **Section 5.2.3.**

CONSTRUCTION-RELATED ASBESTOS EMISSIONS

Construction of Alternative E would entail the demolition of existing buildings. Demolition activities associated with Alternative E would be subject to NESHAP. Strict compliance with NESHAP would result in less than significant construction-related asbestos emissions.

FEDERAL CLASS I AREAS IMPACTS

Mount Hood Wilderness Area and Mount Adams Wilderness Area are the only Federal Class I areas within 100 km of Alternative E. Analysis of operational emissions associated with Alternative E, presented in **Tables 4.4-5** and **4.4-6**, show that Alternative E does not constitute a "major source" under PSD definitions and, therefore, does not trigger need for preconstruction review and assessment of impacts. This impact is less than significant. No mitigation is required.

CONFORMITY DETERMINATION

As described under Alternative A, the alternative project sites are located in an area that is either unclassifiable or attainment for all national standards and, therefore, would not be subject to a conformity determination.

4.4.7 ALTERNATIVE F – NO ACTION

Under the No Action Alternative, development would not occur on either of the alternative project sites as part of the Proposed Project or Alternatives. No violation of CO concentration standards would occur; no additional emissions would be generated; no new stationary source emissions would be created; and no demolition or construction activity would occur.