

## 3.8 TRANSPORTATION/CIRCULATION

### 3.8.1 SETTING – LA CENTER INTERCHANGE AND RIDGEFIELD INTERCHANGE SITES

#### *EXISTING CIRCULATION NETWORK*

The La Center Interchange Site and the Ridgefield Interchange Site are located within 2 miles of each other along Interstate 5 (I-5) in Clark County, Washington. As both alternative project sites are in reasonable proximity to each other, the project traffic generated by any of the alternatives on either site would affect the same group of roadways and intersections. Therefore, this setting section discusses the two sites within one circulation network.

The La Center Interchange Site is located west of I-5 at the La Center Road/NW 319<sup>th</sup> Street interchange (Exit #16), on both sides of NW 319<sup>th</sup> Street between NW 41<sup>st</sup> Avenue and NW 31<sup>st</sup> Avenue. Additional roadways in the immediate vicinity of the site include NW La Center Road and Paradise Park Road. The Ridgefield Interchange Site is located approximately 2 miles south of the La Center Interchange Site, at the Ridgefield Interchange (Exit #13) on the east side of I-5. Additional roadways in the immediate vicinity of the Ridgefield Interchange Site include State Route (SR)-501/Pioneer Street, Timmen Road, NW 11<sup>th</sup> Avenue, North 65<sup>th</sup> Avenue, NE 10<sup>th</sup> Avenue, and South 5<sup>th</sup> Street.

The major roadways located in the vicinity of the alternative project sites are described below and shown in **Figures 3.8-1** and **3.8-2**.

*Interstate 5* is a two-lane divided, generally north-south trending, limited-access highway with full access control. This roadway type is the most restrictive as it provides access for selected roadways and local streets at interchanges and does not include at-grade intersections. The posted speed limit on I-5 in the vicinity of the alternative project sites is 70 miles per hour (mph).

*NW 319<sup>th</sup> Street* is an east-west rural minor collector with a total of two lanes, one in each direction. This road provides primary access to I-5 from the Pekin Ferry area west of the La Center Interchange Site. At NW Paradise Park Road, NW 319<sup>th</sup> Street turns into NW La Center Road, connecting the site to I-5 and La Center to the east. There are no shoulders, sidewalks, or bike lanes on either side of the roadway. There is no posted speed limit on this roadway from the I-5 Interchange west to NW 41<sup>st</sup> Avenue, however there is a 20 mph warning sign posted. None of the intersections along NW 319<sup>th</sup> Street are signalized or have turning lanes.

*NW La Center Road* is an east-west rural major collector with a total of two lanes, one in each direction. This road provides primary access to I-5 from the City of La Center east of the La Center Interchange Site. There are no sidewalks or bike lanes on either side of the roadway. There is a 50 mph posted speed limit east of the I-5 Interchange, which drops to 25 mph as the road crosses the East Fork Lewis River and

**Figure 3.8-1**

**Figure 3.8-2**

approaches the City of La Center. None of the intersections along NW La Center Road are signalized or have turning lanes.

*NW 31<sup>st</sup> Avenue* is a hilly north-south rural major collector with a total of two lanes, one in each direction. This road provides an alternate route to I-5 between the Pekin Ferry area and the City of Ridgefield. There are no shoulders, sidewalks, or bike lanes on either side of the roadway. The posted speed limit is 40 mph. None of the intersections along NW 31<sup>st</sup> Avenue are signalized or have turning lanes.

*SR-501/Pioneer Street* is an east-west State highway with a total of two lanes, one in each direction. This highway provides primary access from the City of Ridgefield to I-5. There are no sidewalks or bicycle lanes on either side of the highway. The posted speed limit is 50 mph west of the I-5 Interchange, which drops to 35 mph east of the interchange. None of the intersections along SR-501/Pioneer Street are signalized or have turning lanes.

#### ***LEVEL OF SERVICE STANDARDS***

Traffic congestion is generally measured in terms of level of service (LOS). Peak hour LOS at critical off-site intersections was determined using the methodology described in the 2000 Highway Capacity Manual (Transportation Research Board, 2000). In accordance with the manual, road facilities and intersections are rated between LOS A and F, with LOS A being free flow and LOS F being forced flow or over-capacity conditions. The LOS at intersections is measured in terms of average delay per vehicle in seconds. For unsignalized intersections, the LOS is determined by the worst approach at the intersection (i.e. the intersection leg with the most delay, usually the minor leg). For signalized intersections, the LOS is determined as an average delay for all the entering vehicles. The LOS intersection criteria are listed in **Table 3.8-1**.

#### ***EXISTING CONDITIONS***

Parsons Brinckerhoff Quade & Douglas, Inc. conducted a traffic impact study (TIS) in January 2006 (DEIS Vol. II, **Appendix T**) (Parsons Brinckerhoff, 2006a) to assess traffic counts, existing roadway geometry, and existing development conditions for both the La Center Interchange and Ridgefield Interchange Sites. A Supplemental TIS (**Appendix O** of the FEIS) was prepared by Parsons Brinckerhoff in 2006 (Parsons Brinckerhoff, 2006e). The results serve as a baseline from which the 2010 and 2030 year traffic volume projections are derived (**Section 4.8**). Traffic analyses were completed to evaluate the existing operation conditions of the following 23 study intersections, shown in **Figures 3.8-1** and **3.8-2**.

**TABLE 3.8-1**  
**INTERSECTION LEVEL OF SERVICE CRITERIA**

Level of Service	Expected Delay	Control Delay (Seconds Per Vehicle)	
		Unsignalized Intersections	Signalized Intersections
A	Little/No Delay - Free flow traffic conditions with minimal delay to stopped vehicles (no vehicle is delayed longer than one cycle at signalized intersection).	10	10
B	Short Delays - Generally stable traffic flow conditions.	10-15	10-20
C	Average Delays - Occasional back-ups may develop, but delay to vehicles is short-term and still tolerable.	15-25	20-35
D	Long Delays - During short periods of the peak hour, delays to approaching vehicles may be substantial but are tolerable during times of less demand (i.e. vehicles delayed one cycle or less at signal).	25-35	35-55
E	Very Long Delays - Intersections operate at or near capacity, with long queues developing on all approaches and long delays.	35-50	55-80
F	Jammed conditions on all approaches with excessively long delays and vehicles unable to move at times.*	50+	80+

NOTES: \*When demand volume exceeds the capacity of the lane, extreme delays will result with queuing, which may cause severe congestion affecting other traffic movements in the intersection.

Source: Transportation Research Board, 2000.

1. NW 319<sup>th</sup> Street/NW La Center Road and NW 41<sup>st</sup> Avenue
2. NW 319<sup>th</sup> Street/NW La Center Road and NW 31<sup>st</sup> Avenue
3. NW 319<sup>th</sup> Street/NW La Center Road and I-5 southbound (SB) Ramps
4. NW 319<sup>th</sup> Street/NW La Center Road and I-5 northbound (NB) Ramps
5. NW La Center Road and NW Paradise Park Road
6. NW La Center Road and NE Timmen Road
7. NE Timmen Road and NW Spencer Road
8. NW La Center Road/NW Pacific Highway and W/E 4<sup>th</sup> Street
9. NE Highland Avenue and E 4<sup>th</sup> Street/NE Lockwood Creek Road
10. NW Pacific Highway and NW Bolen Street
11. NW 51<sup>st</sup> Avenue and NW 289<sup>th</sup> Street
12. NW 31<sup>st</sup> Avenue/N 45<sup>th</sup> Avenue and NW 289<sup>th</sup> Street
13. NW Hillhurst Road/N 9<sup>th</sup> Street and NW 269<sup>th</sup> Street/Pioneer Street (SR-501)
14. NW 51<sup>st</sup> Avenue/N Reiman Road and NW 269<sup>th</sup> Street/Pioneer Street (SR-501)
15. NW 31<sup>st</sup> Avenue/N 45<sup>th</sup> Avenue and NW 269<sup>th</sup> Street/Pioneer Street (SR-501)
16. NW 269<sup>th</sup> Street/Pioneer Street (SR-501) and I-5 SB Ramps (signalized)
17. NW 269<sup>th</sup> Street/Pioneer Street (SR-501) and I-5 NB Ramps (signalized)
18. NW 269<sup>th</sup> Street/Pioneer Street (SR-501) and NW 11<sup>th</sup> Avenue/N 65<sup>th</sup> Avenue
19. NE 10<sup>th</sup> Avenue and South 5<sup>th</sup> Street/NE 264<sup>th</sup> Street

20. NE 259<sup>th</sup> Street and NE 10<sup>th</sup> Avenue
21. NE 10<sup>th</sup> Avenue and NE Carty Road
22. NE 219<sup>th</sup> Street (SR-502) and NE 10<sup>th</sup> Avenue (signalized)
23. South Royle Road and South/NW Hillhurst Road

Additionally, the following locations were included in the Supplemental TIS as shown on **Figure 3.8-3**:

- I-5 from the Interstate Bridge to SR-500
- I-205 from the Glenn Jackson Bridge to SR-500
- I-5 in the vicinity of the Woodland/I-5 interchange

Average daily traffic (ADT) volumes for the major area roadways are shown in **Table 3.8-2**.

**TABLE 3.8-2**  
ADT AND PEAK HOUR PERIOD - EXISTING CONDITIONS

Major Roadways	Without Project		
	Number of Vehicles per Day	Peak Period AM	Peak Period PM
NW 319 <sup>th</sup> Street- as measured at NW 319 <sup>th</sup> St. and I-5.	1,300	7:00 to 8:00	5:00 to 6:00
La Center Road- as measured at La Center Rd. and NE Timmen Rd.	10,800	7:00 to 8:00	5:00 to 6:00
31 <sup>st</sup> Street- as measured at 31 <sup>st</sup> St/45 <sup>th</sup> St and Pioneer (SR-501).	900	7:00 to 8:00	5:00 to 6:00
Pioneer Street (SR-501)- as measured at Pioneer St (SR-501) and I-5.	10,200	7:00 to 8:00	4:00 to 5:00

Source: Parsons Brinckerhoff, 2006a.

**Tables 3.8-3** through **3.8-5** summarize the existing peak hour intersection operations at the 23 project study intersections. **Figures 3.8-4** through **3.8-9** show the existing weekday AM and PM peak hour and Saturday peak traffic volume turning movements, respectively. The Saturday peak hour was determined to occur as the highest hour between 4:00 to 5:00 PM. This peak hour is assumed to be consistent for both the roadway and casino weekend peak hour. In accordance with the Memorandum of Understanding (MOU) between Clark County and the Cowlitz Indian Tribe (DEIS Vol. I, **Appendix C**) and Section 3(E) of the Tribe's Environment, Public Health and Safety (EPHS) Ordinance (**Appendix U** of the FEIS), the LOS is considered unacceptable when it falls below LOS D. As shown in **Tables 3.8-3** through **3.8-5**, all of the intersections currently operate at an acceptable standard (LOS D or better), with the exception of the following:

- NW 319<sup>th</sup> Street/NW La Center Road and I-5 SB Ramps
- Hillhurst Road/N 9<sup>th</sup> Street and NW 269<sup>th</sup> Street/Pioneer Street (SR-501)

**Figure 3.8-3**

**Figure 3.8-4**

**Figure 3.8-5**

**Figure 3.8-6**

**Figure 3.8-7**

**Figure 3.8-8**

**Figure 3.8-9**

**TABLE 3.8-3**  
EXISTING CONDITIONS - AM PEAK HOUR INTERSECTION PERFORMANCE

<b>Unsignalized Intersections<sup>1</sup></b>	<b>Max Delay(seconds/vehicle)</b>	<b>LOS</b>
NW 319th Street/NW La Center Rd & I-5 SB Ramps	60	F
NW 319th Street/NW La Center Rd & I-5 NB Ramps	12	B
45th Avenue & Pioneer Street (SR 501)	23	C
Pioneer Street (SR 501) & NW 65th Avenue	11	B
NW 31st Avenue & NW 289th Street	9	A
NW 51st Avenue & NW 289th Street	10	A
NW 319th Street & NW 31st Avenue	9	A
NE 10th Avenue & S 5th Street	11	B
NE Timmen Road & NW Spencer Road	9	A
NE La Center Road & NE Timmen Road	13	B
NW La Center Road & E 4th Street	27	D
NE Highland Avenue & E 4th Street	13	B
NW Pacific Hwy & NW Bolen Street	10	A
NW La Center Road & NW Paradise Park Road	23	C
NW 319th Street & 41st Avenue	8	A
S Royle Road & S Hillhurst Road	12	B
S Hillhurst Road & Pioneer Street	45	E
N Reiman Road & Pioneer Street	14	B
NE 10th Avenue & NE Carty Road	10	A
NE 259th Street & NE 10th Avenue	11	B
<b>Signalized Intersections</b>	<b>Average Delay</b>	<b>LOS</b>
NE 219th Street (SR 502) & NE 10th Avenue	30	C
Pioneer Street (SR 501) & I-5 SB Ramps	4	A
Pioneer Street (SR 501) & I-5 NB Ramps	3	A

## NOTES:

<sup>1</sup>For unsignalized intersections the “worst-case” level-of-service is reported; this is typically the left-turn from the side street which has the stop sign. The “worst case” LOS will be reported throughout the rest of this report for unsignalized intersections.

Source: Parsons Brinckerhoff, 2006a.

**TABLE 3.8-4**  
EXISTING CONDITIONS - PM PEAK HOUR INTERSECTION PERFORMANCE

<b>Unsignalized Intersections<sup>1</sup></b>	<b>Max Delay(seconds/vehicle)</b>	<b>LOS</b>
NW 319th Street/NW La Center Rd & I-5 SB Ramps	19	C
NW 319th Street/NW La Center Rd & I-5 NB Ramps	15	B
45th Avenue & Pioneer Street (SR 501)	17	C
Pioneer Street (SR 501) & NW 65th Avenue	12	B
NW 31st Avenue & NW 289th Street	10	B
NW 51st Avenue & NW 289th Street	9	A
NW 319th Street & NW 31st Avenue	9	A
NE 10th Avenue & S 5th Street	16	C
NE Timmen Road & NW Spencer Road	10	A
NE La Center Road & NE Timmen Road	15	B
NW La Center Road & E 4th Street	18	C
NE Highland Avenue & E 4th Street	10	B
NW Pacific Hwy & NW Bolen Street	9	A
NW La Center Road & NW Paradise Park Road	21	C
NW 319th Street & 41st Avenue	7	A
S Royle Road & S Hillhurst Road	10	A
S Hillhurst Road & Pioneer Street	13	B
N Reiman Road & Pioneer Street	12	B
NE 10th Avenue & NE Carty Road	11	B
NE 259th Street & NE 10th Avenue	13	B
<b>Signalized Intersections</b>	<b>Average Delay</b>	<b>LOS</b>
NE 219th Street (SR 502) & NE 10th Avenue	14	B
Pioneer Street (SR 501) & I-5 SB Ramps	4	A
Pioneer Street (SR 501) & I-5 NB Ramps	5	A

**NOTES:**

<sup>1</sup>For unsignalized intersections the “worst-case” level-of-service is reported; this is typically the left-turn from the side street, which has the stop sign. The “worst case” LOS will be reported throughout the rest of this report for unsignalized intersections.

Source: Parsons Brinckerhoff, 2006a.

**TABLE 3.8-5**  
EXISTING CONDITIONS - SATURDAY PEAK HOUR INTERSECTION PERFORMANCE

<b>Unsignalized Intersections<sup>1</sup></b>	<b>Max Delay(seconds/vehicle)</b>	<b>LOS</b>
NW 319th Street/NW La Center Rd & I-5 SB Ramps	17	C
NW 319th Street/NW La Center Rd & I-5 NB Ramps	11	B
45th Avenue & Pioneer Street (SR 501)	14	B
Pioneer Street (SR 501) & NW 65th Avenue	11	B
NW 31st Avenue & NW 289th Street	10	A
NW 51st Avenue & NW 289th Street	10	A
NW 319th Street & NW 31st Avenue	9	A
NE 10th Avenue & S 5th Street	10	A
NE Timmen Road & NW Spencer Road	9	A
NE La Center Road & NE Timmen Road	12	B
NW La Center Road & E 4th Street	12	B
NE Highland Avenue & E 4th Street	9	A
NW Pacific Hwy & NW Bolen Street	10	A
NW La Center Road & NW Paradise Park Road	18	C
NW 319th Street & 41st Avenue	7	A
S Royle Road & S Hillhurst Road	9	A
S Hillhurst Road & Pioneer Street	11	B
N Reiman Road & Pioneer Street	11	B
NE 10th Avenue & NE Carty Road	10	A
NE 259th Street & NE 10th Avenue	11	B
<b>Signalized Intersections</b>	<b>Average Delay</b>	<b>LOS</b>
NE 219th Street (SR 502) & NE 10th Avenue	9	A
Pioneer Street (SR 501) & I-5 SB Ramps	2	A
Pioneer Street (SR 501) & I-5 NB Ramps	2	A

**NOTES:**

<sup>1</sup>For unsignalized intersections the “worst-case” level-of-service is reported; this is typically the left-turn from the side street, which has the stop sign. The “worst case” LOS will be reported throughout the rest of this report for unsignalized intersections.

Source: Parsons Brinckerhoff, 2006a.

### ***TRANSIT SERVICES***

C-TRAN, the local bus service provider for Clark County currently has no regularly scheduled transit service to either of the alternative project sites or vicinity. In March 2005, C-TRAN adopted a new service and taxing area that includes the City of Vancouver and its Urban Growth Area (UGA), plus the city limits of Battle Ground, Ridgefield, La Center and the Town of Yacolt. A “non-service” (closed-door express service that does not permit travelers to board or de-board the bus between stops) transportation corridor connects these cities with the Vancouver area, but does not provide stops at the alternative project sites. The sites are not anticipated to have regular transit service in the foreseeable future.

### ***TRANSPORTATION POLICIES***

#### ***Washington Department of Transportation***

The Washington State Department of Transportation (WsDOT) Design Manual specifies requirements for a limited access highway with full access control (WsDOT, 2003). Full control limited access highways provide for the most restrictive access options available. Full access control is required for all interstate highways. The Federal Highway Administration (FHWA) has jurisdiction over all interstate highways and access points. The following presents the applicable design requirements for full control limited access highways as outlined in the WsDOT Design Manual, which are necessary to comply with the Federal requirements for interstate highways:

- At-grade intersections are prohibited.
- Direct access from highway to local roads is allowed only via the interchange crossroad.
- Right-of-way needs to be acquired along the interchange crossroad for a minimum distance of 300 feet beyond the center line of the ramp or at the end of the transition taper.
- If a frontage road or local road is located at or within 350 feet of a ramp, additional right-of-way will be acquired for an additional distance of 130 feet in all directions from the center line of the intersection of the crossroad and the frontage or local road, or 130 feet from the ends of the raised splitter islands of a roundabout.
- If an at-grade intersection for a local road will be located opposite the ramp terminals, limited access will be extended an additional minimum of 300 feet along that leg of the intersection.
- If economics to implement a full control for the full 300 feet are excessive, full control for the first 130 feet followed by a partial or modified control for the remaining 170 feet will be provided. Contact is required with the WsDOT Headquarters Access and Hearings Unit when this option is considered.
- If a limited access control is less than 300 feet and any accesses have been allowed to remain within the first 130 feet, an approved access deviation is required.
- Approaches (driveways) need to be far enough away from a frontage road to allow for efficient intersection operation.

### *Clark County*

The Uniform Development Code (UDC) adopted by Clark County includes minimum design standards for transportation and circulation that are also specific for each class of roadway (Clark County, 2004b). NW 319<sup>th</sup> Street is currently classified as a rural minor collector. Once the proposed UGA extension into the La Center Interchange area has taken place, the roadways within this new urban area would likely be reclassified as urban roadways as opposed to their current rural classification. **Sections 3.9 and 4.9** provide more details about the proposed expansion of the La Center UGA. This extension of the UGA is a proposed action separate and not contingent on the proposed Cowlitz project. With the reclassification of area roadways, it is assumed that NW 319<sup>th</sup> Street would be classified as an urban collector. According to Table 40.350.030.2 of the Clark County UDC design criteria, a two-lane urban collector arterial-classified roadway includes the following minimum design criteria:

- Maximum spacing between intersections must be less than 2 miles.
- Minimum right-of-way must be 60 feet.
- Lanes must be 11 feet wide.
- Roadway must be 38 feet wide.
- Roadway must have a design speed of 35 miles per hour.
- Roadway must have a maximum grade of 7%.
- Roadway must have a design average daily traffic volume of 12,000 vehicles.
- Full access intersections must be spaced at a minimum of 275 feet.
- Roadway must have a 6-foot sidewalk on both sides with an 18-inch curb and gutter.
- Roadway must have a minimum centerline radius of 575 feet.
- Intersections must have a curb return radius of 45 (as truck/transit use of this roadway is anticipated and the roadway would have one lane of traffic in each direction).
- Design of intersections needs to be as close to 90 degrees as possible, but shall in no case be laid out with less than 75 degrees for roads intersecting collectors, or less than 60 degrees for access roads unless modified per Table 40.550.010 of the Clark County Code.
- Opposing roads need to be either aligned or separated by a minimum intersection spacing of 275 feet.
- Driveways on collectors must be spaced at a minimum of 150 feet for the posted speed limit of 35 miles per hour.

NW 31<sup>st</sup> Avenue is currently classified as a rural major collector. It is assumed that this roadway, including the section of realigned roadway on the La Center Interchange Site, will be reclassified as an urban minor arterial. The following are applicable policies for a two-lane road with center turn lane and bike lane, classified as an urban minor arterial (Clark County, 2004b):

- Maximum spacing must be less than 2 miles between intersections.
- Minimum right-of-way must be 80 feet.
- Median width must be 12 feet.
- Lanes must be 12 feet wide.
- Roadway must be 46 feet wide.
- Roadway must have a design speed of 40 miles per hour.
- Roadway must have a design average daily traffic volume of 16,000 vehicles.
- Full access intersections must be spaced at a minimum of 500 feet.
- Roadway must have a minimum curve radius of 35 feet.
- Roadway must have a minimum centerline radius of 955 feet.
- Roadway must have a maximum grade of 6%.
- Roadway must have a 6-foot sidewalk on both sides with an 18-inch curb and gutter.
- Passing sight distance, as measured from a height of 3.5 feet to an object of 4.25 feet in height shall be distance of 1,500 feet.
- Driveway accesses to arterials need to be spaced at a minimum of 185 feet for the posted speed limit of 40 miles per hour.
- Design of intersections needs to be as close to 90 degrees as possible, but shall in no case be laid out with less than 75 degrees for roads intersecting collectors, or less than 60 degrees for access roads unless modified per Table 40.550.010 of the Clark County Code.
- Opposing roads need to be either aligned or separated by a minimum intersection spacing of 500 feet.

Clark County may approve road, irrigation, drainage work or other required right of way construction for provisional maintenance upon receiving a recommendation from a responsible official and a workmanship and materials bond of 10% of the construction costs. The provisional maintenance agreement will not receive final acceptance (into Clark County ownership) until a 2-year period has passed. Within the 2-year period, the developer is responsible to repair any failure. When the 2-year provisional maintenance period is reached, the applicant may request an inspection of the constructed facilities for release of the workmanship and materials bond (Clark County, 2004b).

One access to the Ridgefield Interchange Site is via a private roadway: 78<sup>th</sup> Place/NE 3<sup>rd</sup> Street. This private roadway currently extends north from NE 264<sup>th</sup> Avenue/S 5<sup>th</sup> Street and terminates without connection to other roadways, thus providing access only to private properties. If the Ridgefield Interchange Site (Alternative E) were to be developed in accordance with the proposed site plans (**Figure 2-9**), 78<sup>th</sup> Place/NE 3<sup>rd</sup> Street would be extended to connect with NE 279<sup>th</sup> Avenue to the north and NE 264<sup>th</sup> Street/S 5<sup>th</sup> Street to the south. According to the Clark County Code, private roads are not permitted when they connect two public roads, except for commercial or industrial uses in urban areas. Therefore, the roadway would need to be converted to public use. In this case, the “new” roadway would be classified as an urban collector.