Draft 2035 Build Transportation Analysis Fact Sheet

The 2035 build transportation analysis summarizes the future transportation network, traffic volumes, traffic operations, intersection operations, freeway operations, queuing, and safety in the interchange study area. The land use assumptions are the same as for the No Build. The roadway scenario analyzed for the build condition assumes the construction of the Jobs and Transportation Act (JTA) Project interchange improvements plus local roadway improvements funded by JTA and planned projects in City and County Transportation System Plans (TSPs).

2035 Build and Mitigation Transportation Network

The 2035 Build scenario assumes that in addition to the City and County TSP projects, the JTA Project is constructed and that NW Jacobson Road is widened/re-aligned to the north to improve access spacing between the new JTA design and Jacobson Road.

In addition, safety concerns near the new Brookwood Interchange require closing Meek Road access at Brookwood Parkway and Groveland Road is re-aligned to the north and will access Helvatia Road across from Schaff Road. To mitigate for the closure of Meek Road at Brookwood Parkway, NW 253rd Avenue is widened to three lanes with bike lanes and sidewalks from Evergreen to Meek and NW Brookwood Parkway is widened to seven lanes (three lanes in each direction) from Evergreen Road to the westbound ramp terminal at the US 26 interchange.

Traffic Volumes

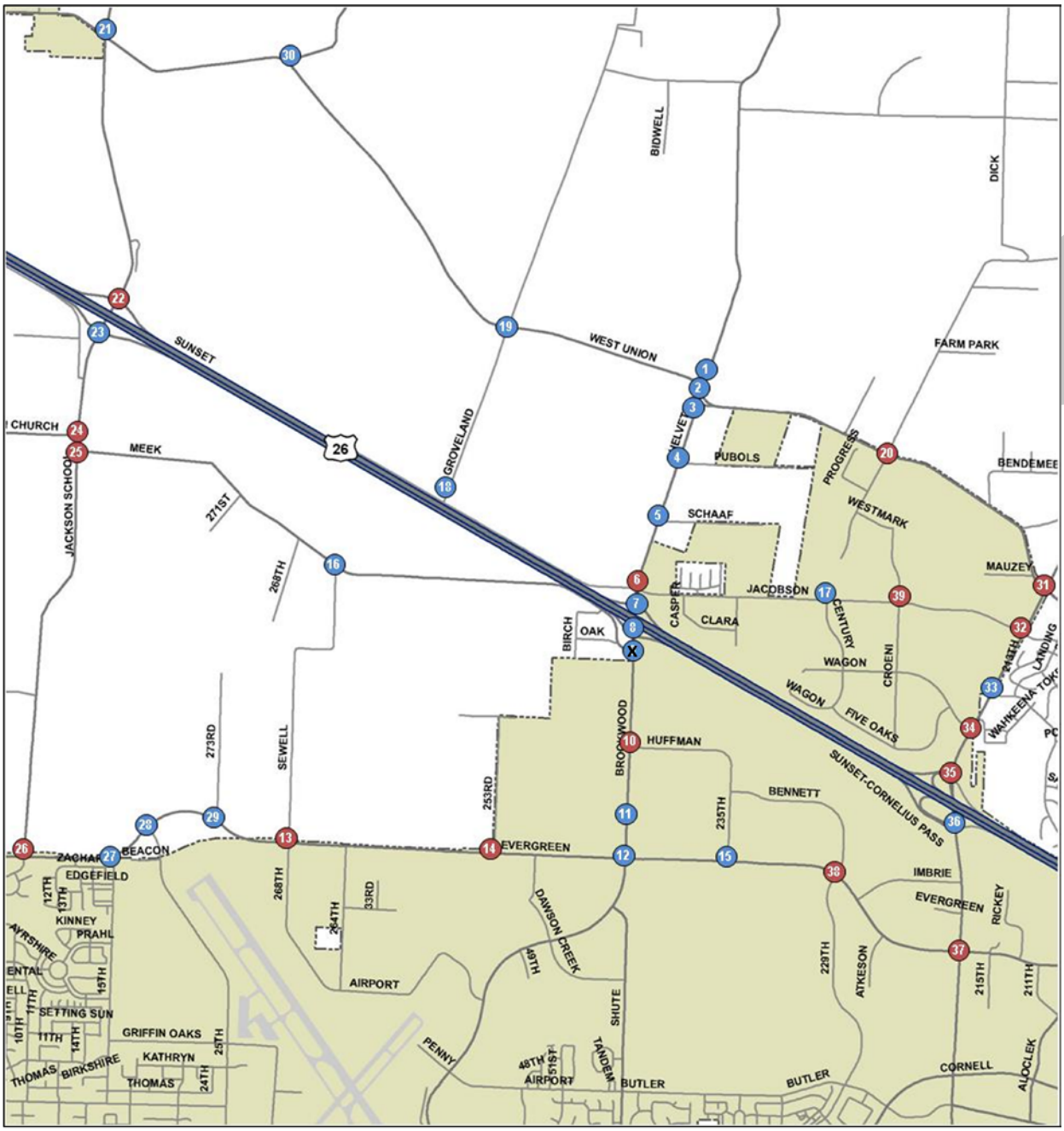
Future Build traffic volumes for the project area were forecast based on adopted local and regional transportation system plans for the City of Hillsboro, Washington County, and Metro Region. Planned population growth and expected land uses resulted in an average vehicular growth rate from 2011 to 2035 of approximately 50 percent for the AM peak hour and approximately 45 percent for the PM peak hour. Traffic volume growth varies throughout the study area with some intersections experiencing a minimal growth of approximately 2 percent. Intersection near areas of intense lane use changes result in forecasted traffic volumes that are more than double existing traffic volumes.

Traffic Operations

The two methods used to measure traffic operations of roadways and intersections are volume-to-capacity (V/C) ratio and level of service (LOS). When the v/c ratio is closer to zero, traffic conditions are generally good, with little congestion and low delays for most intersection movements. As the v/c ratio approaches 1.00, traffic becomes more congested and unstable, with longer delays. Six LOS standards have been established, ranging from LOS A, where there is little or no delays, to LOS F, where there is delay of more than 50 seconds at unsignalized intersections, or more than 80 seconds at signalized intersections.

Intersection Operations

Traffic operations were evaluated at all 39 study area intersections during the PM peak hour and at 17 key AM peak hour intersections. The Figure below illustrates the study area intersections. Intersections highlighted in red show intersections failing to meet operational standards in the AM and/or PM peak hour.



Fails to meet operational standards in either the AM and/or PM Peak Hour
X Intersections closed

The table summarizes the intersections that exceed operational standards for ODOT, City of Hillsboro, or Washington County in the 2035 Build scenario. The 2035 Build condition shows improvement from the Baseline condition. Though many of the same intersections fail to meet operational standards as compared to the No Build (Baseline) scenario, intersections near the new JTA Brookwood Interchange experience improvement. With the Build scenario, 16 intersections would fail to meet operational standards compared to the Baseline scenario of 20 intersections. In addition to improved intersection operations, the Brookwood Interchange ramp terminals no longer affect US 26 operations as it is forecast to under the No Build (Baseline) scenario.

2035 Build Intersections Where Operational Standards Are Exceeded [1]

Intersection		Critical Movement[2]	AM		PM		Jurisdiction Where Operational Standard Not Met[3]
			V/C Ratio	LOS	V/C Ratio	LOS	
22	Jackson Sch Rd @ US26 WB Ramps	Overall	**>1.0**	**F**	**>1.0**	**F**	Wash Co, Hillsboro
24	Jackson Sch Rd @ Scotch Church Rd	(EB L/R)	Not analyzed in AM Peak Hour		**>1.0**	**F**	Wash Co, Hillsboro
25	Jackson Sch Rd @ Meek Rd	(WB L/R)	Not analyzed in AM Peak Hour		**>1.0**	**F**	Wash Co, Hillsboro
26	Jackson Sch Rd @ Evergreen Pkwy	Overall	**>1.0**	**E**	**>1.0**	**F**	Wash Co, Hillsboro
13	Sewell Rd @ Evergreen Pkwy	(SB L)	Not analyzed in AM Peak Hour		**>1.0**	**F**	Wash Co, Hillsboro
14	Meier-Jurgen Rd @ Evergreen Pkwy	(SB L)	Not analyzed in AM Peak Hour		**>1.0**	**F**	Wash Co, Hillsboro
6	Helvetia Rd @ Jacobson Rd	WB L (WB L)	0.18	C	**>1.0**	**F**	All
10	Brookwood Pkwy @ Huffman Street	Overall	0.98	**E**	**>1.0**	**E**	Wash Co, Hillsboro
20	Century Blvd @ West Union Rd	(SB L/T/R)	Not analyzed in AM Peak Hour		**>1.0**	**F**	Wash Co, Hillsboro
39	Croeni Rd @ Jacobson Rd	(SB L)	Not analyzed in AM Peak Hour		**>1.0**	**F**	Wash Co, Hillsboro
38	229th Avenue @ Evergreen Pkwy	Overall	**1.00**	**F**	**>1.0**	**F**	Wash Co, Hillsboro
31	Cornelius Pass Rd @ West Union Rd	Overall	**>1.0**	**F**	**>1.0**	**F**	Wash Co, Hillsboro
32	Cornelius Pass Rd @ Jacobson Rd	Overall	Not analyzed in AM Peak Hour		**>1.0**	**E**	Wash Co, Hillsboro
35	Cornelius Pass Rd @ US26 WB Ramps	Overall	**>1.0**	**F**	**>1.0**	**E**	All
37	Cornelius Pass Rd @ Evergreen Pkwy	Overall	0.88	D	**>1.0**	**F**	Wash Co, Hillsboro
34	Cornelius Pass Rd @ Wagon Way	Overall	Not analyzed in AM Peak Hour		**>1.0**	D	ODOT, Wash Co

Acronyms: For intersection approaches NB = northbound, SB = southbound, EB = eastbound, and WB = westbound. At the intersection approach L = left-turn movement, T = through movement, and R right-turn movement. Some approaches have shared lanes where two or more travel movements may be permitted as indicated with a slash.

Notes:
1. **Shaded** results indicate an intersection that fails to meet operational standards
2. The critical movement at a signalized intersection is the overall operation of the intersection. The critical movement at an unsignalized intersection is the stopped (or yield) movement with the worst v/c ratio.
3. "All" indicates the following jurisdictions: ODOT, City of Hillsboro, Washington County.

Freeway Operations

During the AM and PM peak hour, US 26 within the Study Area (between the Jackson School Road interchanges and the Cornelius Pass Road interchange) would operate within ODOT standards in the

Oregon Highway Plan. The westbound mainline segment between the Brookwood Parkway/Helvetia Road off-ramps is forecast to operate at a volume-to-capacity ratio of 0.90 and 0.83 for the AM and PM peak hours, respectively. This is less than the Oregon Highway Plan standard of 0.99.

With the addition of the westbound off-ramp to southbound Brookwood Parkway, the v/c ratio for the diverege to Brookwood Parkway/Helvetia Road is improved. During the AM peak hour, the single off-ramp is forecast to operate with a v/c ratio of 1.09 under Baseline conditions. Under Build conditions, the westbound off-ramp to northbound Helvetia Road would operate with a v/c ratio of 0.14 and the westbound off-ramp to southbound Brookwood Parkway would operate with a v/c ratio of 0.54. During the PM peak hour, the single westbound off-ramp is forecast to operate with a v/c ratio of 0.47 under Baseline conditions. Under Build conditions, the westbound off-ramp to northbound Helvetia Road would operate with a v/c ratio of 0.07 and the westbound off-ramp to southbound Brookwood Parkway would operate with a v/c ratio of 0.23.

Queuing

Queuing was evaluated at the Jackson School Road interchange, the Cornelius Pass Road Interchange, and along Brookwood Parkway/Helvetia Road from Jacobson Road to Evergreen Parkway. For the 2035 Build scenario, queue spillback would not occur from the ramp terminals at Brookwood Parkway onto US 26 as it would under the Baseline scenario. Queuing would be reduced from the Baseline scenario with fewer intersections spilling back into upstream intersection under the Build scenario. During the AM peak hour, four intersections would spillback into upstream intersections Build scenario compared to the Baseline scenario with seven intersections. Although more traffic and congestion would be on Brookwood Parkway, the queuing would not extend into the Brookwood Parkway eastbound ramp terminal.

During the PM peak hour, queuing primarily occurs in the northbound direction and the minor street approaches of the intersections. With the Build scenario, six intersections would spillback into upstream intersections compared to the Baseline scenario with eight intersections. In addition, the following eastbound ramp meters spillback into the ramp terminals:

- Northbound Jackson School Road to eastbound US 26
- Northbound Brookwood Parkway to eastbound US 26
- Southbound Cornelius Pass Road to eastbound US 26

The Brookwood Parkway/Helvetia Road eastbound on-ramp spills back onto Brookwood Parkway under the Build scenario and not the Baseline scenario. This is due to demand (which is similar in both the Baseline and Build scenarios) being able to reach the on-ramp in the Build scenario and not the Baseline scenario. In the Baseline scenario, vehicles are unable to reach the interchange from Meek Road, Huffman Street, and Evergreen Parkway. With the addition of the additional northbound lane on Brookwood Pakway, more vehicles are able to reach the northbound on-ramp. The table below illustrates the approach and time period when queuing would be expected to extend into the upstream intersections.

Intersection with Queue Spillback		Direction & Movement	Peak Period	
			AM	PM
22	Jackson Sch Rd @ US26 WB Ramps	WBLT	■	■
23	Jackson Sch Rd @ US26 EB Ramps	NBT		■
7	Brookwood Pkwy @ US26 WB Ramps	SBT	■	
10	Brookwood Pkwy @ Huffman Street	EBTR	■	■
		WBT	■	
		NBL	■	
12	Brookwood Pkwy @ Evergreen Pkwy	NBT	■	■
		SBT	■	
		SBR	■	
35	Cornelius Pass Rd @ US26 WB Ramps	NBT		■
		SBT		■
36	Cornelius Pass Rd @ US26 EB Ramps	SBT		■

■ = Queue spillback during peak period

Safety

The Build operations analysis reveals several long-term traffic safety issues that need consideration. Long delays and extensive queues may cause drivers to engage in riskier actions, such as running lights or traveling longer distances in the TWLTL to go around queues, which could result in more turning, angle, and sideswipe collisions. Congestion at the Brookwood/Helvetia westbound ramp terminal with US 26 is improved compared to the Baseline, which should result in improved safety on the westbound off-ramps. On unsignalized side streets, longer delays may increase the likelihood that drivers would accept shorter gaps in the mainline traffic putting them at risk for turning or angle collisions. Where congestion is expected to worsen, it is safe to assume that current safety concerns would be exacerbated.