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CLARK COUNTY
WASHINGTON

DATE: OCTOBER 1, 2010
TO: STEVE SCHULTE
CC: MIKE MABREY, FILE
FROM: DAVID JARDIN
RE: URBAN HOLDING AREA – NE 10TH AVENUE CORRIDOR

The Transportation Program was asked to evaluate the traffic impacts of lifting an urban holding area on the NE 10th Avenue corridor. This urban holding area is bounded by NE 194th Street on the south, NE 209th Street on the north, I-5 on the west and NE 10th Avenue and NE 22nd Avenue on the east. This area is referred to as Traffic Analysis Zone (TAZ) 545 & 546 and covers approximately 0.47 square miles.

An additional 0.06 square mile area was also added as a part of Staff's analysis. This area is referred to as TAZ 5010 and was defined by Long Range Planning Staff such that parcels were contiguous with TAZ's 545 & 546. TAZ 5010 is bounded by NE 199th Street on the north, NE 10th Street on the east, NE 194th Street on the south and Interstate 5 on the west.

Staff used a scenario that assumed regional and local development growth would occur. In addition, this scenario also assumed that regionally planned transportation projects on financially constrained project lists would be constructed, but not improvements within the area of NE 179TH Street from NE Delfel Road to NE 15th Avenue.

It should be noted that the evaluation years, 2013 and 2016, have been chosen to be consistent with the historical and code process of determining Concurrency compliance. 3-years, 2013, was chosen because this is the typical length of time for a development to build out and generate all proposed trips on the roadway network. 2016, 6-years, is more conservative and allows full buildout of development to establish their number of trips and their distributions on surrounding roadway networks.

Estimated Trip Generation

The trip generation of TAZ's 545 & 546 were estimated from EMME/2 regional model data. The EMME/2 data takes into account land use and regional growth. The vehicle volumes from the EMME/2 data represent the PM peak period. TAZ 5010 trip generation was calculated using the *ITE Trip Generation Manual, 8th Edition* Land Use Code (LUC) 140 with an independent variable in acres. The trip generation for TAZ 5010 was also calculated for the PM peak hour of the adjacent street between 4 & 6 PM. These trip generations are as follows:

TAZ – Trip Generations

Area	PM Peak Hour TAZ Trip Generation	
	Year 2013	Year 2016
TAZ 545	212	248
TAZ 546	210	238
TAZ 5010	129	240

Estimated Volume Calculations

The site trip generations were used to estimate the potential vehicle volume contributions at key intersections along the NE 10th Avenue corridor. These key intersections include:

- NE 219th Street (SR 502)/NE 10th Avenue;
- NE 199th Street/NE 10th Avenue; and,
- NE 179th Street/NE 10th Avenue.

Intersection Contribution – By TAZ

Intersection	TAZ PM Peak Hour Trip Contribution					
	545		546		5010	
	Year 2013	Year 2016	Year 2013	Year 2016	Year 2013	Year 2016
219th St/10th Av	66	77	10	9	34	62
199th St/10th Av	54	67	34	39	34	62
179th St/10th Av	54	67	34	39	21	38

Using the assumption that all trips from TAZ's 545, 546 and 5010 either go north toward NE 219th Street (SR 502) or south toward NE 179th Street only, a worse case scenario, the table above represents 47% of the PM peak hour trips headed north in 2013. The PM peak hour trips headed south, in 2013, would be 53%. In 2016, the table indicates that 51% of the PM peak hour trips head north and 49% head south.

Intersection Operations – NE 10th Avenue Corridor

These 10th Avenue corridor volume contributions from TAZ's 545, 546 & 5010 were then evaluated for impacts to intersection level-of-service (LOS) for all intersections listed above. This yielded the following information:

Year 2013

Intersection	PM Peak Hour		
	Average Delay (sec/veh)	Level of Service	Critical v/c
<i>Signalized</i>			
219th St/10th Av	18.7	B	0.501
199th St/10th Av	31.1	C	0.800
179th St/10th Av	24.1	C	0.499
<i>Unsignalized</i>			
194th St/10th Av	5.3	D/A	0.270
199th St/22nd Av	4.4	A/B	0.120
209th St/10th Av	3.8	D/A	0.320

(LOS D/A – Street / Avenue)

Year 2016

Intersection	PM Peak Hour		
	Average Delay (sec/veh)	Level of Service	Critical v/c
<i>Signalized</i>			
219th St/10th Av	19.2	B	0.595
199th St/10th Av	35.8	D	0.809
179th St/10th Av	24.7	C	0.541
<i>Unsignalized</i>			
194th St/10th Av	9.3	F/A	0.500
199th St/22nd Av	4.7	A/B	0.150
209th St/10th Av	5.5	E/A	0.450

As shown in the tables above, the intersections along the NE 10th Avenue corridor are forecast to operate at acceptable levels of service in the 2013 concurrency test year and the 2016 concurrency six-year rule. However, in 2016 the unsignalized intersection of NE 194th Street/NE 10th Avenue operates at a LOS F. It should be noted that for the purposes of this analysis, the traffic generated by TAZ 5010 is all assumed to use the intersection of NE 194th Street/NE 10th Avenue and may be causing the low LOS on the eastbound approach. Furthermore, the intersection of NE 194th Street/NE 10th Avenue is not regulated by Concurrency; safety will govern any necessary mitigation.

Intersection Operations - NE 179th Street Corridor at the Interstate 5 Interchange

Staff used an analysis that was performed by DKS Associates dated September 16, 2010 and identified as Technical Memorandum #3. This technical memo assumed the same roadway network scenario as identified above and used in Staff's analysis.

It is important to note, information from DKS and Staff's analysis was not added together to determine impacts. They were not added together because the technical memo volumes were more conservative than volumes forecast in Staff's analysis. Therefore, the technical memo in the 2015 horizon year was used specifically to identify operations and queuing deficiencies for Staff's analysis and recommendation.

The DKS technical memo analyzed the following intersections for operations and queuing deficiencies in the 2015 horizon year. These intersections are as follows:

- NE 179th Street/NE 15th Avenue;
- NB I-5 off Ramp/NE 10th Avenue/NE 179th Street;
- SB I-5 Ramp Terminal/NE 179th Street;
- NE Delfel Road/NE 179th Street (S);
- NE Union Road/NE 179th Street;
- NB I-5 on Ramp/NE 179th Street;
- NE Delfel Road/NE 179th Street (N); and,
- NW 11th Avenue/NE 179th Street.

The DKS Technical Memorandum #3 concluded that in the 2015 horizon year all intersections, listed above, operate at acceptable levels of service for both County and State during the PM peak hour. Even though the technical memo indicated acceptable levels of service, the queuing analysis indicated that there were some existing deficiencies that may contribute to a rapid level of service degradation. These queuing deficiencies were identified at the intersections of NB I-5 off Ramp/NE 10th Avenue/NE 179th Street (westbound direction), SB I-5 Ramp Terminal/NE 179th Street (eastbound direction), NB I-5 on Ramp/NE 179th Street (eastbound to southbound) and NE Delfel Road/NE 179th Street (N) (westbound direction). The DKS analysis also reports that some

of these queuing deficiencies that exceed the existing vehicle storage area may also be reported as queuing in upstream intersections.

Although these queuing deficiencies have been identified, it should be noted that the technical memo reports that the 2015 queues are only slightly longer than the existing queue lengths in 2010. Because the 2015 queue lengths may only be one, or two vehicles longer than queue lengths that exist in 2010, Staff believes that the vehicle volumes forecast for 2015 will not materially aggravate the existing queuing deficiency.

Conclusion

Staff's analysis evaluated traffic volume for a 0.47 square mile urban holding area north of NE 199th Street and a 0.06 square mile area east of I-5 and south of NE 199th Street. Staff's analysis of data from the regional model (EMME/2), *ITE Trip Generation Manual, 8th Edition* and the County's Concurrency Model indicates that volumes associated with the urban holding area, north and south of NE 199th Street, would not have significant negative impacts to level of service on the road network in this area. However, existing queuing deficiencies at the NE 179th Street/I-5 interchange should continue to be monitored.

Therefore, based on the best information available, and Staff's analysis, Staff could support a release of urban holding of the area north of NE 199th Street, east of I-5, south of NE 209th Street and west of NE 22nd Avenue. This area would also include parcels south of NE 199th Street. This area is bounded by NE 199th Street on the north, NE 10th Street on the east, NE 194th Street on the south and Interstate 5 on the west.

If these urban holding areas are released for development, Staff recommends that as development is proposed, an extensive traffic study analysis be performed. These traffic studies would analyze operations and performance of the NE 179th Street and NE 10th Avenue corridors. These studies would also include an extensive queuing and safety analysis and may require some level of roadway and intersection improvements. This analysis shall also comply with requirements of the Concurrency Ordinance.