

MEMORANDUM

Date: October 12, 2017 Project #: 20567

To: Jabra Khasho, PE & Ken Rencher, City of Beaverton
cc: Dan Grimberg, West Hills Land Development
Mike Peebles, PE and Li Alligood, OTAK

From: Julia Kuhn, PE, Chris Brehmer, PE and Zachary Bugg

Project: Scholls Heights at South Cooper Mountain

Subject: Response to City Comments

Per comments received from City of Beaverton staff, we have provided the enclosed supplemental memorandum for the Scholls Heights at South Cooper Mountain. We submitted the original Access Report/Traffic Impact Analysis in May 2017 (herein referred to as the “TIA”) to the City and County documenting the transportation-related impacts of full build-out of the neighborhood. In response to comments received on the TIA, we submitted a supplemental memo on August 22, 2017 regarding a phasing analysis (herein referred to as the “August memo”). The enclosed memo provides a second set of supplemental analyses to assist in the City’s review of the traffic impacts. In particular, this memorandum addresses:

- Year 2035 traffic conditions; and,
- Year 2022 queues at study intersections “internal” to the neighborhood.

Year 2035 Conditions

In June 2014, DKS Associates prepared a report for the South Cooper Mountain Concept Plan on behalf of the City of Beaverton (herein referred to as the “June 2014 report”). This report analyzed the impacts of 7,430 housing units, 46 retail employees and 436 “other” employees within South Cooper Mountain in the year 2035. Per the June 2014 report, this level of development would generate 3,790 weekday PM peak hour trips and would require a series of roadway widenings, intersection improvements, and new streets. This report also summarized the year 2035 traffic operations at 26 intersections (as shown in Figures 2a and 2b of the report). Both the SW Scholls Ferry Road/SW 175th Avenue/SW Roy Rogers Road and the SW Scholls Ferry Road/SW Tile Flat Road were analyzed as part of this report.

The Scholls Heights at South Cooper Mountain Development is accounted for in the modeling performed for the June 2014 report. Additionally, the collector streets and neighborhood routes

proposed to serve the Scholls Heights neighborhood are consistent with the street network adopted as part of the overall Concept Plan. As such, the long-term impact of this neighborhood's development is consistent with the land use assumptions and resulting transportation system needs for the overall South Cooper Mountain area. No unanticipated impacts on the transportation system in 2035 will result from the Scholls Heights at South Cooper Mountain development.

Factors Impacting Traffic Volume Forecast

In specific response to City comments, we reviewed the 2035 traffic forecasts at the SW Scholls Ferry Road/SW 175th Avenue/SW Roy Rogers Road and the SW Scholls Ferry Road/SW Tile Flat Road intersections and found that the year 2022 traffic volumes reported in our TIA and the August memo significantly exceed the year 2035 volumes reported in the June 2014 report. This is due to four primary factors:

- The year 2035 volumes presented in the June 2014 report account for changes in travel patterns associated with the transportation system improvements in the long-range financially constrained scenario as well as the adopted South Cooper Mountain concept plan. These improvements (such as the extension of SW Tile Flat Road to the south of SW Scholls Ferry Road) result in the rerouting of existing travel patterns and traffic volumes that is not accounted for in our year 2022 analyses.
- The June 2014 report relies on the use of the Washington County travel demand forecasting model that implicitly accounts for the interaction of vehicular trips within the South Cooper Mountain area as well as a reduced single occupancy vehicle mode split in the future (consistent with City and Metro goals).
- Our TIA and August memo use ITE trip generation rates, reflect an assignment of the trips to the existing street system, and are assigned to the study intersections consistent with existing travel patterns (not the 2035 transportation system). Further, our analyses assume that all of the trips generated are destined to locations outside of the South Cooper Mountain area and don't account for any trip interactions between other homes, retail, schools, parks, etc. that are planned for the area.
- Finally, our TIA and August memo do not account for any of the other South Cooper Mountain neighborhood routes or collector streets that will be constructed by 2035 to serve overall Concept Area buildout. With the inclusion of these streets and the buildout of the properties to the east of SW Tile Flat Road, to the north SW Scholls Ferry Road, and to the west of SW 175th within the Urban Growth Boundary, the traffic patterns within the Concept Area will redistribute and no longer depend exclusively on the SW Vandermost Road, Road 6A and Street K connections to the adjacent arterials.

As such, our 2022 analyses reflect an overly conservative estimate of conditions at the study intersection for traffic impact analysis purposes and are unlikely to be realized. For planning purposes, we conclude that the operations and queuing presented in the August memo can be appropriately relied upon to ensure adequate facilities are provided to serve the 2035 conditions.

Washington County 2035 Model Comparison

For sensitivity purposes, we have obtained the travel demand forecasts from Washington County staff, post-processed those and arrived upon similar volumes to those included in the June 2014 report (including all key sections of SW Scholls Ferry Road and SW Tile Flat Road). Comparing the post processed County model volumes with the 2022 TIA volumes revealed:

- the volumes projected in the TIA on SW Scholls Ferry Road between SW Tile Flat Road and SW Vandermost Road in 2022 are 2.7 times higher (i.e., approximately 900 vehicles per hour in the 2014 report versus more than 2,400 in our analyses) than projected in the year 2035.
- to the west of the SW 175th Avenue/SW Roy Rogers Road intersection, the 2022 volumes on SW Scholls Ferry Road are 2.4 times higher (approximately 3,200 versus 1,300).

The significant differences between the 2022 TIA volumes and the 2035 County model are attributable to the four previously cited factors and lead us to also conclude that the queuing presented in the year 2022 analyses are conservatively high.

Fox Hollow Forecast Volume Development Methodology

As part of the Fox Hollow development application, we are preparing an analysis that applies a growth factor to the intersection volumes for sensitivity purposes as post-processing the travel forecasting volumes reveals significantly reduced volumes from year 2022. This analysis estimates year 2035 traffic volumes by:

1. applying a two percent annual growth rate to existing traffic volumes to 2022,
2. applying a one percent annual growth rate to existing traffic volumes to 2035 (for a combined total growth rate of 23 percent), and then
3. adding in site-trip generation from all of the in-process as well as pending land use applications within the study area (beyond just the Scholls Heights at South Cooper Mountain development).

We are enclosing the year 2035 traffic volumes from that analysis in the attached appendix. As shown, the 2035 volumes at the SW Tile Flat Road/SW Scholls Ferry Road are nearly identical to the year 2022 volumes in our report. Therefore, we continue to conclude that the year 2022 analyses represent a conservative evaluation of year 2035 conditions. As such, no additional analyses are needed to ensure the transportation system can support the neighborhood.

Queuing Analysis

City staff has requested additional information regarding year 2022 queuing analyses at intersections 1, 2, 4 and 5 from our August memo. Table 7 from the August memo identified projected 95th percentile queuing at intersections 6 – 11. The queuing results for intersections 1, 2, 4 and 5 were presented in the appendix of our August memo but we did not provide a summary table in the memo. For ease of review, Table 1 below presents the 95th percentile queues during the weekday AM and PM peak

periods at these intersections. Queues are rounded to the nearest 25 feet (approximately one vehicle length). As shown in the table, the projected queues can be adequately accommodated at the study intersections.

Table 1. 95th Percentile Queue Estimates with Full Buildout of the Neighborhood

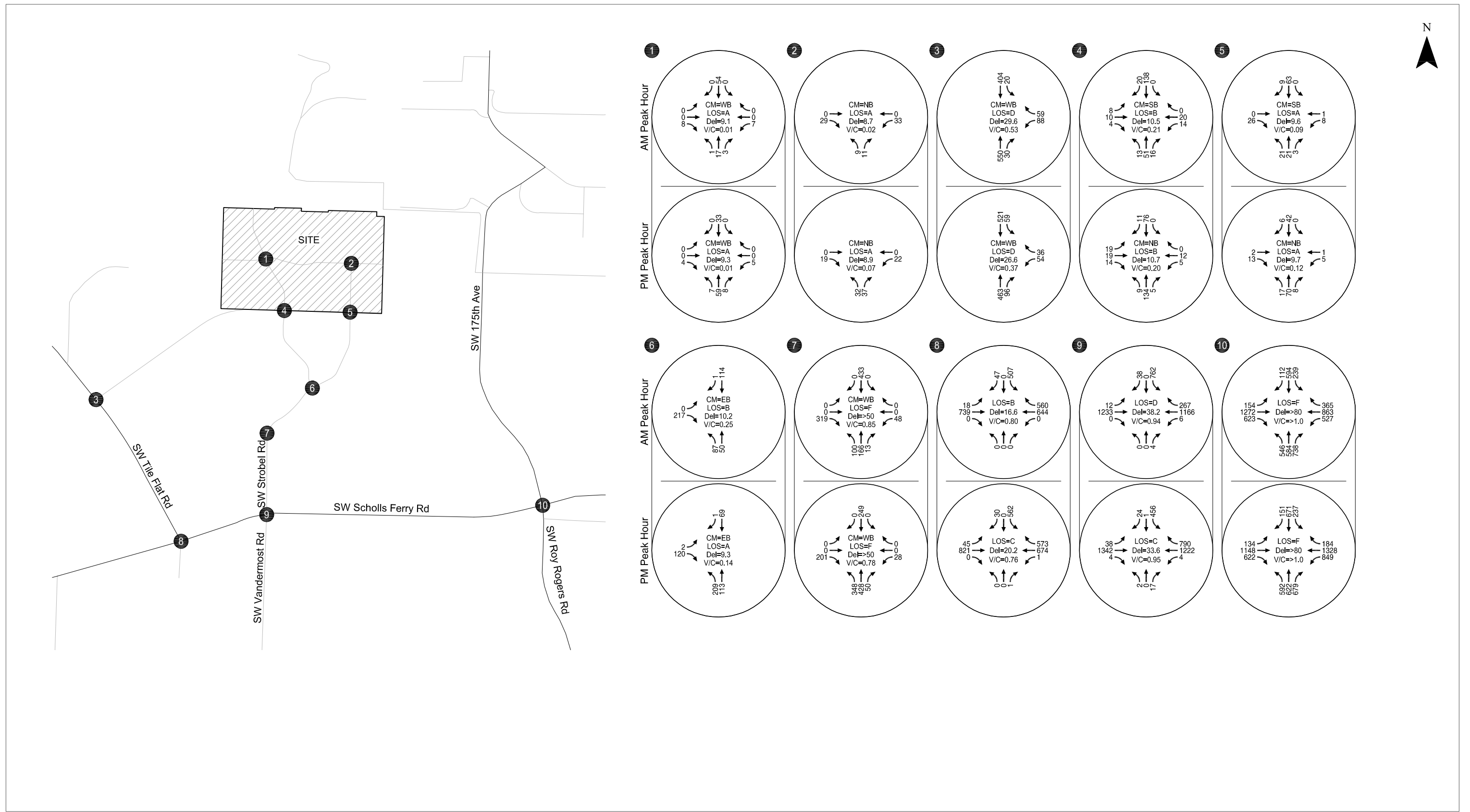
Movement	95th-percentile Queue (feet)		Storage Provided (feet)?	Adequate Storage?
	Total AM	Total PM		
<i>Intersection #1 – Street A/Road 8B</i>				
Northbound left/right	<25	<25	> 100	Yes
Westbound left	<25	<25	75	Yes
<i>Intersection #2 – Road 6A/SW Tile Flat Road</i>				
Northbound right-turn	<25	<25	100	Yes
Southbound left-turn	<25	<25	100	Yes
Westbound left/right	50	<25	> 100	Yes
<i>Intersection #4 – Street A/Road 6A</i>				
Northbound left/through/right	<25	<25	> 100	Yes
Southbound left/through/right	<25	<25	> 100	Yes
Eastbound left turn	<25	<25	75	Yes
Westbound left turn	<25	<25	75	Yes
<i>Intersection #5 – Road 8B/Road 6A</i>				
Northbound left	<25	<25	75	Yes
Northbound through/right	<25	<25	> 100	Yes
Southbound left	<25	<25	75	Yes
Southbound through/right	<25	<25	> 100	Yes
Eastbound left turn	<25	<25	75	Yes
Westbound left turn	<25	<25	75	Yes

Please let us know if you need any additional information as part of your review.

APPENDICES

A. Year 2035 Sensitivity Analysis Volumes

Appendix A Year 2035 Sensitivity Analysis Volumes



Year 2035 Total Traffic Conditions
Weekday AM and PM Peak Hours
Beaverton, Oregon

Figure
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