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**Date:** February 22, 2019

**To:** Mayor Malchow and City Councilors

**From:** Larry Patterson, Interim City Manager

**Subject:** Executive Summary of Issaquah-Pine Lake Road Project, Ph 1 Traffic Analysis

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The City's engineering design consultant David Evans and Associates, Inc, performed the Issaquah-Pine Lake Road Project, Ph 1 Traffic Analysis dated January 29, 2019. This Executive Summary discusses the scope of the traffic analysis, how it compares with the City's updated Concurrency Program, and recommendations and conclusions resulting from the traffic analysis. The complete traffic analysis is available on the City's project webpage located: [www.sammamish.us/pw-iplrw](http://www.sammamish.us/pw-iplrw)

## PROJECT PURPOSE

The Issaquah-Pine Lake Road Project, Ph 1 will resolve the existing intersection concurrency failure and increase the safety of all users by constructing improvements that solve increases in traffic volumes and related congestion, delays, lack of mobility, and safety issues in the area. The project limits include the segment of the Issaquah-Pine Lake Road corridor between SE 32<sup>nd</sup> Way and SE Klahanie Boulevard, coinciding with segment 31 of the Concurrency Program. Phase 2 of the corridor improvements will address segments 32 and 33 between SE Klahanie Boulevard and SE 48<sup>th</sup> Street as part of a future project.

## SCOPE OF THE TRAFFIC ANALYSIS

The traffic analysis is a part of the preliminary engineering design that helps define the scope of the project before continuing with engineering design. The traffic analysis determined whether the project's scope is enough to meet future road capacity needs and increase the safety of motorized and nonmotorized users. It also makes specific recommendations for intersection improvements. The analysis looked at predicted traffic volumes coupled with existing and proposed intersection and roadway geometry revisions.

The initial project scope was defined to be a 3-lane cross section under the City's Comprehensive Plan. The analysis confirmed that three lanes is an appropriate cross section for this segment. A 3-lane cross section meets the City's design standards and includes a through travel lane for each direction, a center turn lane or traffic island, bike lanes, planter strip and sidewalks on both sides.

### **RELATIONSHIP TO NEW CONCURRENCY PROGRAM**

The traffic analysis is project specific and far more detailed than the analysis performed for the Concurrency Program, but it uses the current roadway volume to capacity ratio and intersection Level of Service (LOS) concurrency standards as the basis for the recommendations. It is assumed that the roadway segment and corridor standards that were adopted via emergency ordinance last fall will be made permanent in the coming months.

The Concurrency Program analysis looks ahead six years consistent with the Six-year Transportation Plan, whereas this traffic analysis looks beyond the six-year concurrency timeframe to year 2035. It does this by post-processing the results of the current 2035 Traffic Demand Model, which is based on the 2012 traffic model, with newly collected year 2018 traffic along the Issaquah-Pine Lake Corridor throughout the study area. Further, the traffic analysis utilizes a traffic simulation to replicate local traffic volumes, driver behaviors, queuing, and field collected travel time observations.

### **ROAD WIDTH RECOMMENDATION**

This analysis confirms that three lanes is an appropriate cross section for this segment, consistent with the project envisioned in the Comprehensive Plan. A 3-lane cross section meeting the City's design standards includes a travel lane for each direction, a center turn lane or traffic island, plus bike lanes, planter strip and sidewalks on both sides. It will also meet the City's concurrency road segment standards in 2035.

Phase 2 will extend corridor improvements further south and will require widening to 5-lanes (four travel lanes plus median) to prevent a capacity failure identified by year 2035.

### **INTERSECTION RECOMMENDATIONS**

While a 3-lane cross section of segment 31 will meet the City's standard for volume to capacity, the performance of the intersections needs to be addressed as intersection level of service (LOS) is the second part of the City's performance standard and is discussed below.

#### **SE Klahanie Boulevard**

The signal at SE Klahanie Boulevard will fall to LOS E in the AM by year 2035, which fails the City's LOS standard of D. While either a re-designed signal or roundabout would meet the City standards, a roundabout is expected to operate more efficiently. Table 9 of the Traffic Analysis shows a roundabout would operate at LOS A in the AM and PM, while a redesigned signal operates at LOS D and C for the AM

and PM, respectively. Clearly, a roundabout is advantageous from a LOS perspective. However, the Issaquah School District will submit plans for a new elementary school opposite SE Klahanie Boulevard early this year, so both signal and roundabout options should remain in consideration pending further coordination with this new school plan. The new school may also require extending the City's corridor improvements further south to SE 44<sup>th</sup> Street, therefore staff recommends this analysis be included in the engineering design scope going forward.

### **SE 32<sup>nd</sup> Way**

The roundabout at SE 32<sup>nd</sup> Way is recommended to be redesigned as a signalized intersection. The roundabout did not fail the City's LOS standard, but further analysis and VISSIM traffic simulation shows significant queuing and delay resulting from the roundabout's operation. The simulation shows the intersection operation can be improved with either an updated roundabout or signalized intersection design. However, an updated roundabout design is limited by right-of-way constraints and cannot be constructed to have the same operational capacity as a signalized intersection. A signal is recommended here because it better handles peak traffic and pedestrian patterns of Sunny Hills Elementary, including northbound queuing into the school parking lot.

### **SE 37<sup>th</sup> Place**

The intersection of IPLR at SE 37<sup>th</sup> Place is recommended as an ideal location for the installation of a traffic signal to facilitate safe vehicular turning movements onto and off IPLR. The signal will also provide for a protected pedestrian crossing of IPLR.

### **SE 42<sup>nd</sup> Street**

The temporary signal at the intersection of IPLR at SE 42<sup>nd</sup> Street is recommended to be replaced with a permanent signal and the eastbound approach should be widened to provide for a dedicated left-turn lane and a dedicated right-turn lane.

## **CONCLUSIONS**

With the conclusion of the traffic analysis portion of the preliminary design, staff recommends that the Issaquah-Pine Lake Road project is ready to go forward to engineering design as a 3-lane cross section and with these specific intersection recommendations. Staff proposes to return to Council with a detailed scope to complete the engineering design.