

Section 10 – Description of Public Safety Need

The existing intersection of Tapteal Drive with Steptoe Street is currently a T-intersection 170 feet north of the railroad tracks. It is difficult to make left-turns from the intersection today despite relatively low development and low turning traffic. The intersection is operating at level-of-service (LOS) E, up to 55 seconds of average delay, today with two-way stop control. The challenges are further demonstrated based on having 35 crashes over the past five years with 5 injury crashes and one fatality. With future growth potential along Tapteal Drive, the intersection will operate at LOS F, greater than 55 seconds of average delay, in the near future depending on the rate of growth. A traffic signal would ultimately be required to mitigate the LOS failure to meet traffic signal warrants. By just adding a traffic signal without the other proposed changes, this would need to be interconnected with the railroad and have the potential to queue northbound drivers across the tracks. Greater volumes and delay results in increased congestion and driver impatience creating the likelihood for increased crashes.

With development planned on the property east of Steptoe an access point would be required south of the tracks. Without the proposed improvements, this new T-intersection would operate at LOS F, even if developed to only one quarter of its planned potential. Therefore, a signal would be required here as well with the similar potential for southbound drivers being stopped and potentially queueing across the railroad tracks. The new intersection for the development would have to skew closer to the tracks, probably about 125-150 feet south of the tracks, to avoid traffic queues from impacting the intersection of Canyon Street which is an unsignalized Major Collector just 500 feet south of the tracks. The two new signalized intersections would both have to be interconnected with the rail and have drivers try to clear both intersection on red with the possibility of some drivers being stopped between the intersections. This further complicates the interconnection and safe operation with the railroad.

Both intersections require signalization to operate safely and within Level of Service standards for concurrency. Combining the two T-intersections into one signalized location as the current design proposes allows the single intersection to operate as efficiently and safely as possible. It has no detrimental safety effects over the current operation of the railroad crossing. This includes for motorcycles or bicycles. Motorcycle operations are effectively the same while some turning movements will actually cross at near 90 degrees where any other design forces all motorcyclists to cross at the existing roughly 45-degree angle. Bicycles are also directed off of the roadway to a 90 degree crossing of the tracks and then directed back onto the roadway back into the bicycle lanes after the tracks. The new design has gates on all approaches with medians on all four approaches to discourage traffic dodging around the gates. Since the railroad goes through the middle of the intersection, it eliminates the potential of any queued traffic across the railroad tracks. This means the gates can go down immediately (or almost immediately if there is a pedestrian phase active) which will also reduce the likelihood of any gate damage.