

Technical Memorandum

To: Russ Blount, PE, Public Works Director, City of Fife
From: Michael Lapham, KPG
Date: October 25, 2013
Re: Summary Findings for Reopening 54th Avenue E at the Union Pacific Railroad Crossing

The City of Fife is studying options to reopen 54th Avenue E at the intersection with the Union Pacific Railroad (UPRR) crossing to vehicle and pedestrian traffic. KPG and Fehr & Peers analyzed the safety, traffic operations and access, connectivity, emergency vehicle response times, and traffic volumes that would occur with the reopening of the UPRR crossing. David Evans and Associates, Inc. (DEA) analyzed the potential safety issues of a 54th Avenue E at-grade crossing of the UPRR line if 54th Avenue E was reopened. This memo summarizes the findings from both analyses, which are described in detail in the following two technical memos:

- *Transportation Analysis for Reopening 54th Avenue E at Union Pacific Railroad Crossing*, KPG and Fehr & Peers, October 24, 2013
- *54th Avenue East Crossing Safety Memorandum*, David Evans and Associates Inc., September 24, 2013

KPG and Fehr & Peers are assisting the City of Fife to update the citywide Transportation Plan and Six Year Transportation Improvement Program (2014-2019). As part of these efforts, we are analyzing safety, traffic operations, and connectivity throughout the City. Based on this analysis and a detailed study of the 54th Avenue E corridor, we recommend reopening 54th Avenue E at the intersection with the UPRR to motorized and non-motorized traffic to improve connectivity, provide more route options, enhance overall system safety, and reduce travel distances and emergency vehicle response times. Our analysis could apply to either an at-grade crossing or a grade-separated crossing of the railroad tracks.

We used the City's travel demand model to forecast traffic volumes with the reopening of 54th Avenue E crossing. The results showed that reopening the 54th Avenue E crossing may increase daily travel volumes to 4,800 vehicles a day at the crossing. This volume would decrease to an estimated 2,800 vehicles per day if the following improvement projects were constructed: SR 167 Extension, 54th Avenue E/I-5 City Center Interchange and the proposed Canyon Road Extension.

Emergency vehicle response time is affected by street connectivity and the closure of 54th Avenue E, which means the Fife Police and Fire Departments have to travel longer distances to developments south of the UPRR tracks. The travel time from the Fire Department to the Radiance Community and Puyallup Tribe's youth and community center would be reduced by approximately 1.5 minutes to just over 3 minutes with the reopening of the street.

Recommendations

We recommend reopening 54th Avenue E to improve connectivity, provide more route options, encourage walking and biking, and reduce travel distances and emergency vehicle response times.

Reopening 54th Avenue E at the railroad crossing will increase traffic volumes on 54th Avenue E. We recommend the following improvements to mitigate the impacts to the corridor and to ensure 54th Avenue E functions as a residential type street:

- Keep 54th Avenue E as a 2-lane roadway from N Levee Road E to Valley Avenue E.
- Reduce the speed limit along 54th Avenue E from N Levee Road E to Valley Avenue from 30 miles per hour to 25 miles per hour.
- Restrict trucks on 54th Avenue E from N Levee Road E to Valley Avenue E.
- Construct two single lane roundabouts on 54th Avenue E at Radiance Boulevard E and David Court E. The roundabouts would improve access to Radiance Boulevard E and David Court E, reduce travel speeds along 54th Avenue E, and discourage trucks from using this segment of 54th Avenue E. The roundabouts would be designed to allow school buses to access the Junior High School, but make it difficult for trucks to use 54th Avenue E.
- Install a rectangular rapid flash beacon (RRFB) system on 54th Avenue E at the Columbia Junior High School to assist the pedestrian crossing between the School and the playfields on the west side of 54th Avenue E. RRFBs are pedestrian activated supplemental warning signs at unsignalized crosswalks that emit a bright rapid flashing light similar to emergency flashers on police vehicles. RRFBs are lower cost alternatives to traffic signals and are shown to significantly increase driver yielding rates compared to traditional overhead beacons. The Federal Highway Administration has additional information on RRFBs at: <http://safety.fhwa.dot.gov/intersection/resources/techsum/fhwas09009/>
- Enhance school zone signage by installing flashing beacons that are activated during school hours. If vehicles on 54th Avenue E are regularly exceeding the 20 mile per hour speed limit during school hours, install BEGIN HIGHER FINE ZONE signs and consider installing a real time speed warning sign assembly. If this does not reduce vehicle speeds, consider the use of speed enforcement cameras.

Safety Analysis for an At-Grade Crossing of 54th Avenue E at UPRR

DEA examined the safety conditions of a UPRR at-grade crossing and used available research to examine the potential of a train-vehicle collision, train-pedestrian collision and train derailment. The analysis reviewed other UPRR at-grade crossings in the area, including the 70th Avenue E crossing in Fife, which has approximately twice the vehicle traffic, faster train speeds and less sight distance compared to the 54th Avenue E crossing. Using a standard data-driven method, DEA estimated the probability of a train-vehicle accident at the UPRR crossing to be 0.0053 accidents per year. This is typical for a low volume roadway with flashing lights and gates.

DEA concluded that reopening the at-grade 54th Avenue E crossing to general traffic will not result in unusual safety issues based on their analysis, historical data, and the impeccable safety history at the similar 70th Avenue E crossing. Other crossings within the City of Fife are open to vehicle and pedestrian traffic and have not experienced any reported accidents. Pedestrian safety at the 54th Avenue E crossing can be enhanced with the widening of the crossing and construction of sidewalks. The opening of the crossing to vehicular traffic will not have an appreciable effect on the likelihood of a derailment in the vicinity of the 54th Avenue East crossing.