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Subject: Petition to Close At Grade Railway Crossing
TR-140382 USDOT 104526P - Barnhart Road MP 62.40
TR-140383 USDOT 104516J - North Stevens Road MP 68.40

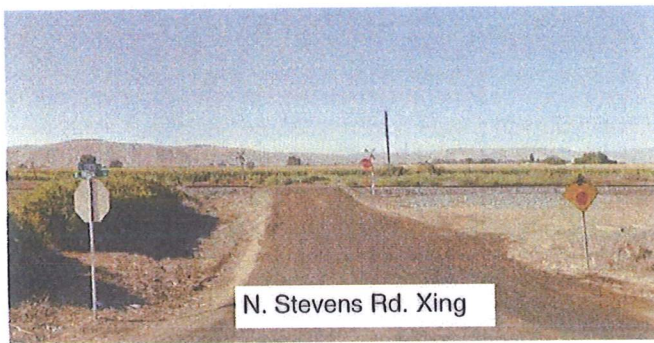
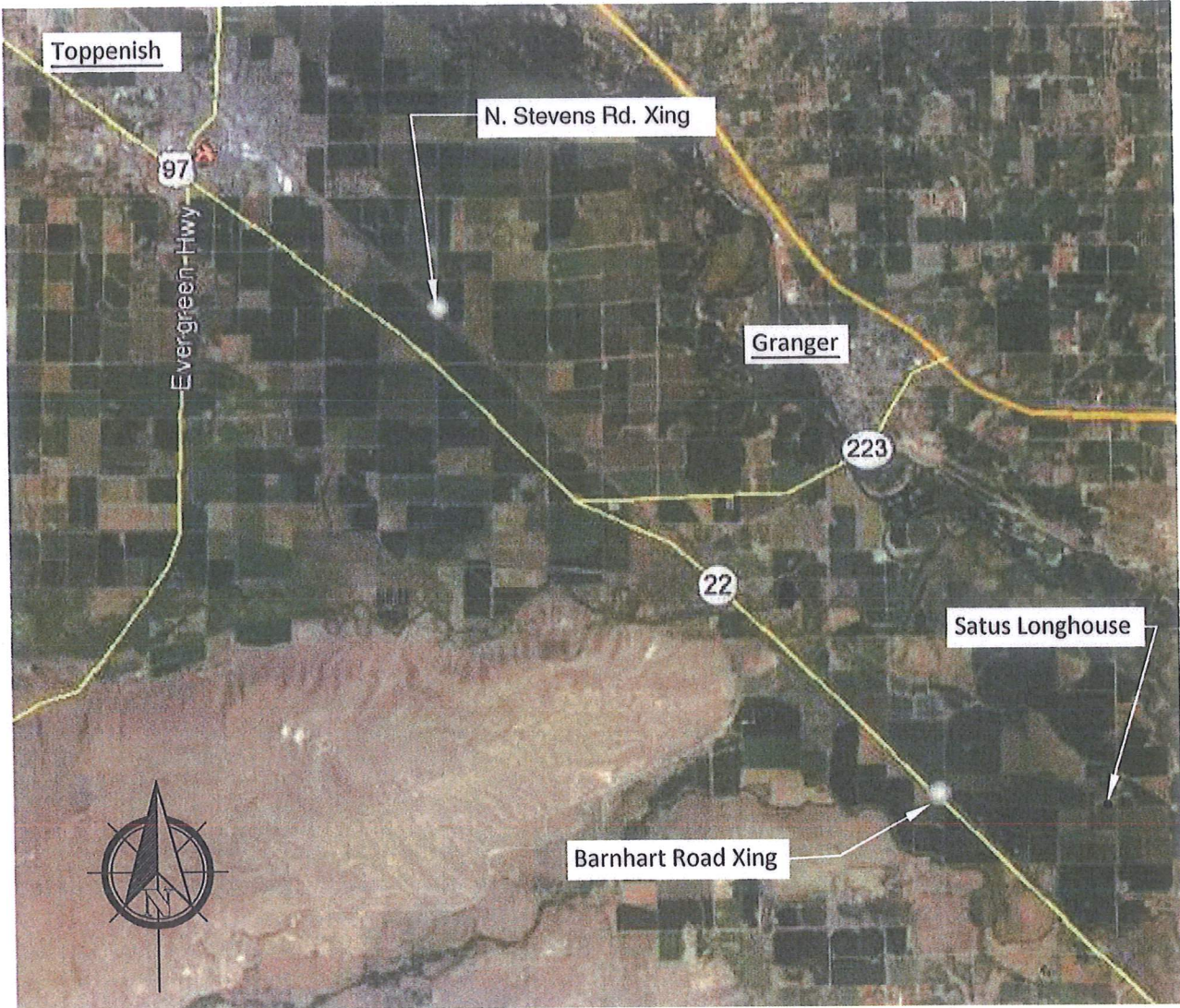
The following technical memorandum summarizes the traffic related issues of the proposed closure of two at-grade railway crossings on the Yakima Nation Reservation in the vicinity of Toppenish, Washington. The memo summarizes impacts to traffic and access including traffic volumes, emergency access, and school bus routing and accident history. In addition, the memo summarizes impacts to access to community facilities and farmlands.

BNSF has been working aggressively to improve safety at at-grade crossings. Since 2000 the BNSF closure program has closed 5,000 crossings across its 28-state network. Closing at-grade railway crossings is one of the most effective ways to address grade crossing safety. Good candidates for closure are those that are redundant, have low crossing volumes, are not emergency routes or are private crossings no longer needed.

Based on the public necessity, convenience, and safety impacts of the proposed closures, the technical memorandum provides a recommendation regarding the proposed closures.

Project Description

Burlington Northern Santa Fe Railway (BNSF) Company has petitioned the Washington Utilities and Transportation Commission for closure of two at-grade railway crossings in central Washington. The two at-grade railway crossings of the Burlington Northern Santa Fe Railway, Barnhart Road and North Stevens Road, are located on the Yakima Indian Reservation near Toppenish, Washington. A vicinity map illustrating the location of the two crossings and their proximity to the cities of Toppenish and Granger is presented in Figure 1.



N. Stevens Rd. Xing



Barnhart Road Xing

VICINITY & SITE MAP

Petition to close Barnhart Road & North Stevens Road At-grade crossings

The Barnhart Road Railway Crossing, part of Tribal Trust Allotment #T-614, is located approximately three miles south of the town of Granger, Washington and 200 feet north of SR 22. Existing train volumes include 12 -14 freight trains per day. The approved and existing operational train speed is 49 miles per hour. At the crossing, Barnhart Road is a two lane paved roadway. On the north side, Barnhart Road becomes a gravel roadway. The Barnhart Road railway crossing control includes cross-bucks, pavement markings, and stop signs.

The North Stevens Road Railway Crossing is located approximately one mile southwest of the town of Toppenish and 150 feet south of South Track Road. Existing train volumes include 12 -14 freight trains per day. The approved and existing train operation speed is 49 miles per hour. North Stevens Road at the railway crossing is a gravel road. The North Stevens Road railway crossing control includes cross-bucks and stop signs.

In the vicinity of the proposed railway crossing closures, the Burlington Northern Santa Fe Railway runs generally east/west between the city of Yakima and the Tri-Cities of Richland, Kennewick and Pasco in central Washington. The railway is a mainline, common carrier with no passenger trains. The Barnhart Road crossing is located at railroad mile post 62.40 on the Burlington Northern railway and the North Stevens Crossing is at railroad mile post 68.40.

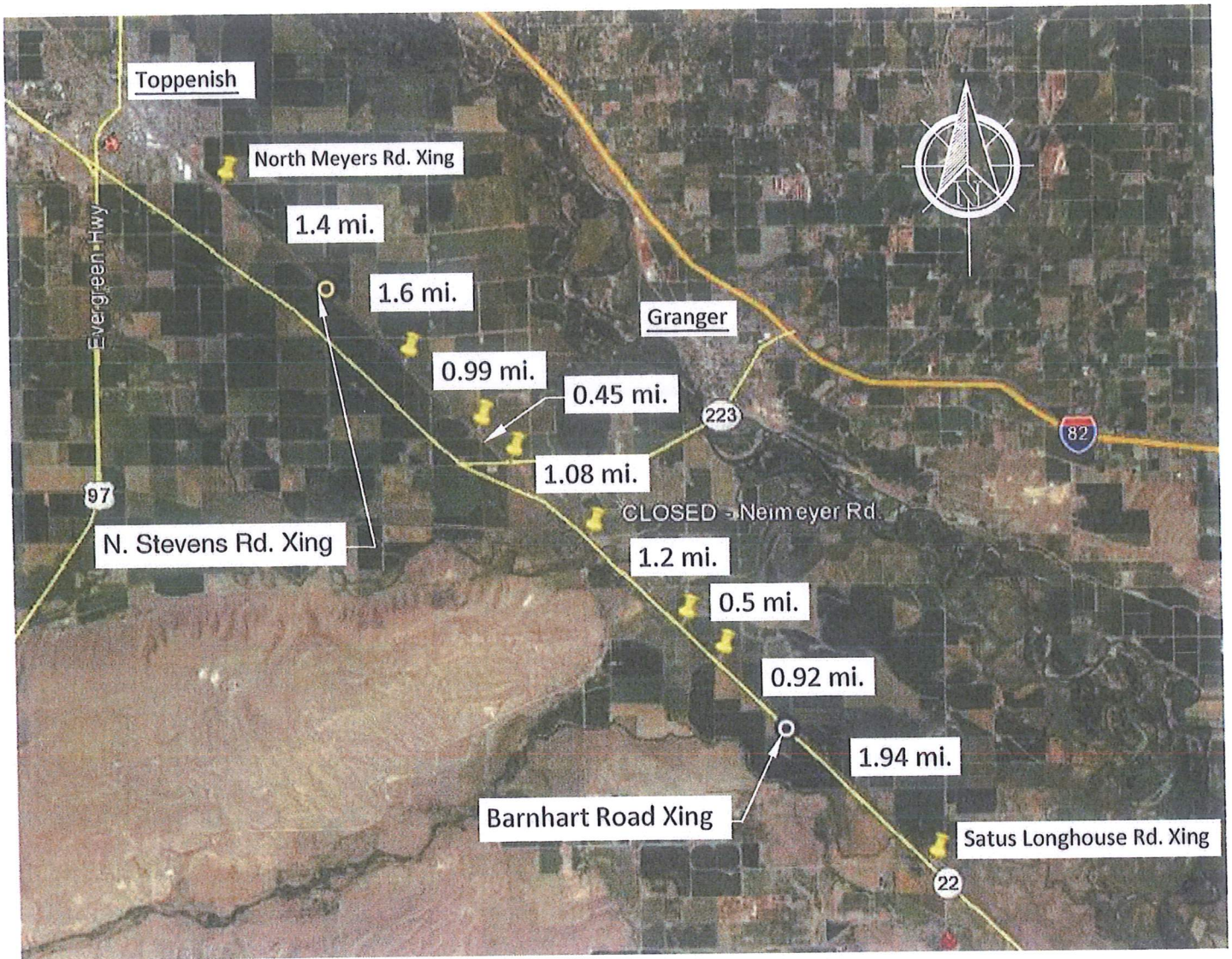
The project will result in the closure of both crossings such that vehicular traffic will be prevented from crossing the railway. Under the original proposed action, a gravel hammerhead would be constructed at each crossing to allow vehicles to turn around at the railway crossing.

A summary of the proposed at-grade crossing closures, adjacent SR 22 crossings, and traffic control at the adjacent crossing is presented in the following table.

Table - Adjacent Crossings

Proposed Closure	Adjacent Crossing	Distance	Travel Time	Traffic Control
Barnhart Road	Satus Longhouse Road	1.97 miles	2 minutes	Paved Road Cross Bucks Stop Signs
	Indian Church Road	1.4 miles	2 minutes	Paved Road Cross Bucks Gates/Flashing Beacons Pavement Markings
North Stevens Road	Meyers Road	1.4 miles	2 minutes	Paved Road Cross Bucks Gates/Flashing Beacons
	South Track Road	1.1 miles	2 minutes	Paved Road Cross Bucks Flashing Beacons

Figure 2, on the next page, shows the location of the two crossings that are addressed in this petition, and the multiple railway crossings between them. The figure also shows the distance between all crossings and the crossing immediately to the northwest of the North Stevens Road crossing and the crossing immediately to the southeast of the Barnhart Road crossing: Meyers Road and Satus Longhouse Road respectively.



Distance between existing crossings between Barnhart Rd and N Stevens Rd
Petition to close Barnhart Road & North Stevens Road At-grade crossings

Petition Background and History

The proposed closure of the two railway crossings has a significant history which is important to consider as part of the current deliberations. The following is a listing of the chronological order of events related to this action:

- October 12, 2012 - Yakima County Department of Public Works filed a petition with the Washington Utilities and Transportation Commission to close both the North Stevens Road¹ and Barnhart Road² Burlington Northern Santa Fe Railway Crossings;
- December 21, 2012 - Yakima County issued a Declaration of Non Significance (DNS) for the County's requested closure of the Barnhart Road railway crossing³;
- December 21, 2012 - Yakima County issued a Declaration of Non Significance (DNS) in regards for the County's proposed closing of North Stevens Road railway crossing⁴;
- February 15, 2013 – after the SEPA appeal period, Yakima Nation sent a letter to the UTC requesting the crossing remain open⁵;
- March 20, 2013 - Yakima County Commissioners issue a letter to the Utilities and Transportation Commission requesting withdrawal of the petition to close the Barnhart Road and North Stevens Road railway crossings⁶
- March 10, 2014 - BNSF petitions Washington Utilities and Transportation Commission to close Barnhart Road and North Stevens Road⁷

Of particular interest in the above documents is the issuance of a DNS by Yakima County in accordance with SEPA for the proposed closures. The conclusion of this action implies Yakima County in their environmental review process including consideration of public comments determined there were no significant adverse impacts associated with the proposed closures.

Adverse Impact of At-Grade Crossings

The adverse impacts of at-grade railway crossings are so significant that the state of Washington has stated, "All railroads and extensions of railroads hereafter constructed shall cross existing railroads and highways by passing either over or under the same⁸ . . . ". No new at grade crossings are to be added.

The Federal Highway Administration has stated, "Eliminating redundant and unneeded (railway) crossing(s) should be a high priority".⁹ This is based on the fact that " . . . Numerous crossings were built when railroads first began operating when safety was not a serious concern because horse-drawn carriages could easily stop and train speeds were low."¹⁰ Today, vehicles aren't able to stop in the same time frame as the horse and buggy and train speeds are considerably higher

¹ UTC Reference TR-121647. Closure of North Stevens Road Railway Crossing

² UTC Reference TR - 121648 -Closure of Barnhart Road Railway Crossing

³ Yakima County Reference SEP 2012-00034

⁴ Yakima County Reference SEP 2012-00035

⁵ Letter from Yakima Nation to UTC requesting crossing remain open

⁶ Letter from Yakima County to UTC withdrawing petition

⁷ UTC Reference TR -140382 and TR -140383

⁸ RCW 81.53.020 - Grade Separation Required

⁹ Railroad Highway Grade Crossing Handbook; Revised Second Edition; Federal Highway Administration; August 2007; Section 4 - Identification of Alternatives

¹⁰ Ibid.

requiring at least a mile to make an emergency stop At the Barnhart Road and North Stevens Road railway crossings, the current train speed is 49 miles per hour.

As a result of the changes in vehicular and train operating characteristics, at-grade railway crossings have become unsafe. Using the U.S. Department of Transportation Accident Prediction Model¹¹, the Barnhart Road railway crossing has a predicted accident rate of 0.1073 which means one (1) train/vehicle accident every ten years. The North Stevens Road railway crossing has a predicted accident rate of 0.0524 which translates into one (1) train/vehicle accident every 20 years. While these percentages do not appear high, the impact of a train/vehicle collision is catastrophic generally resulting in fatalities.

Decisions on closure of existing at grade railway crossings should be based on balancing public necessity, convenience and safety¹². To address these issues, this analysis considered existing traffic volumes at the railway crossings and the surrounding roadway network; crash history at the railway crossings and adjacent roadway intersections; emergency vehicle access, school bus accessibility; access to Yakima Nation tribal activities, and farm equipment access.

Existing Traffic Volumes

Current traffic volume data was collected for each of the two crossings. The location for the counts at Barnhart Road was on Barnhart Road between SR-22 and the BNSF railway crossing. The AM peak hour volume ranged from 8 to 11 vehicles per hour (vph) and the PM peak hour ranged from 9 to 13 vph over a three day period. The North Stevens Road 24 hour traffic counts were collected between South Track Rd and the BNSF crossing. The AM peak hour volume ranged from 7 to 12 vph and the PM peak hour from 10 to 12 vph over a three day period. The 24 hour traffic volume ranged from 64 to 74 vehicles at the North Stevens Road railway crossing and from 84 to 102 vehicles at the Barnhart Road railway crossing. These peak hour and daily volumes are extremely low and the closure of these two crossings would not result in the diversion of enough vehicles to affect traffic operations or capacity at adjacent crossings and roadways.

Existing traffic volumes on SR 22 in the vicinity of the at-grade crossing locations is estimated to be 1600 vehicles per day¹³.

The closure of the Barnhart Road and North Stevens Road railway crossings will require that some vehicular traffic be rerouted to other roadway facilities in the adjacent roadway network. Counts completed in the last six months on these roadways show that reassignment of vehicles from the two crossings will not affect the capacity of the surrounding roadway network. This is supported by the recent volume counts. For example, the 24 hour volume on North Stevens Road northbound, 0.35 miles north of SR 22, is only 36 vehicles and the 24-hour volume on northbound Barnhart Road, 0.14 miles north of Drainbank Road, is only 33 vehicles. These low volumes are consistent throughout the adjacent roadway network and therefore rerouting vehicles currently crossing at Barnhart Road and North Stevens Road (see recent volume counts above) to the adjacent roadway will not adversely impact the operations of the adjacent roadways and will continue to keep the volumes far below the capacity of these two lane roads.

¹¹ Ibid; Section 3- Assessment of Crossing Safety and Operations

¹² Ibid; Section 4 - Identification of Alternatives

¹³ Washington State Annual Traffic Report; 2013.

Crash History

A review of the latest three year crash history included data from the Federal Railroad Administration (FRA) for the two crossings, the Washington State Department of Transportation for SR 22, and the Yakima County Sheriff's office for County roads. None of the data sources--the FRA database, the Washington State Department of Transportation, or the Yakima County Sheriff's office indicated there were any collisions related to these crossing during the latest three year analysis period.

A review of the State of Washington Collision History for SR 22 in the section from Meyers Road to Satus Longhouse Road was completed to determine whether there has been any history of farm vehicle or railroad crossing related accidents in the last three years. The data does not show any recorded accidents with farm tractors or farm equipment. In addition, there are no accidents that are described as being related to the crossings of the BNSF railroad which runs parallel to SR 22. The majority of accidents involve passenger cars or pick-up trucks. The most common type of accidents involves hitting animals, roadside objects or vehicles entering from driveways or intersecting streets¹⁴.

Emergency Vehicle Access

The City of Toppenish fire department is located in downtown Toppenish 2.3 miles from the North Stevens Road railway crossing and 8.6 miles from the Barnhart Road railway crossing. The nearest crossing to the west of North Steven's Road is 1.4 miles and to the east 1.1 miles. The nearest crossing to the west of Barnhart Road railway crossing is 1.4 miles and to the south, 1.97 miles. None of these distances are significant enough to impact emergency vehicle response times given the rural nature of the area. Figure 3, "Emergency Services" on the next page shows the location of closest emergency service providers to the crossings being petitioned for closure. Emergency service providers, City of Granger and Toppenish Fire Departments and Fire District 5 locations are located to the north, east and south of the two railway crossings, Barnhart Road and North Stevens Road. Each of these locations provides fire and emergency medical services and demonstrates that emergency service response will not be adversely affected by the closure of the two crossings.

According to Yakima County Public Services Department, there have been no documented uses of either the North Stevens Road or Barnhart Road railway crossing for emergency fire or medical response services during the last five years¹⁵.

School Bus Impact

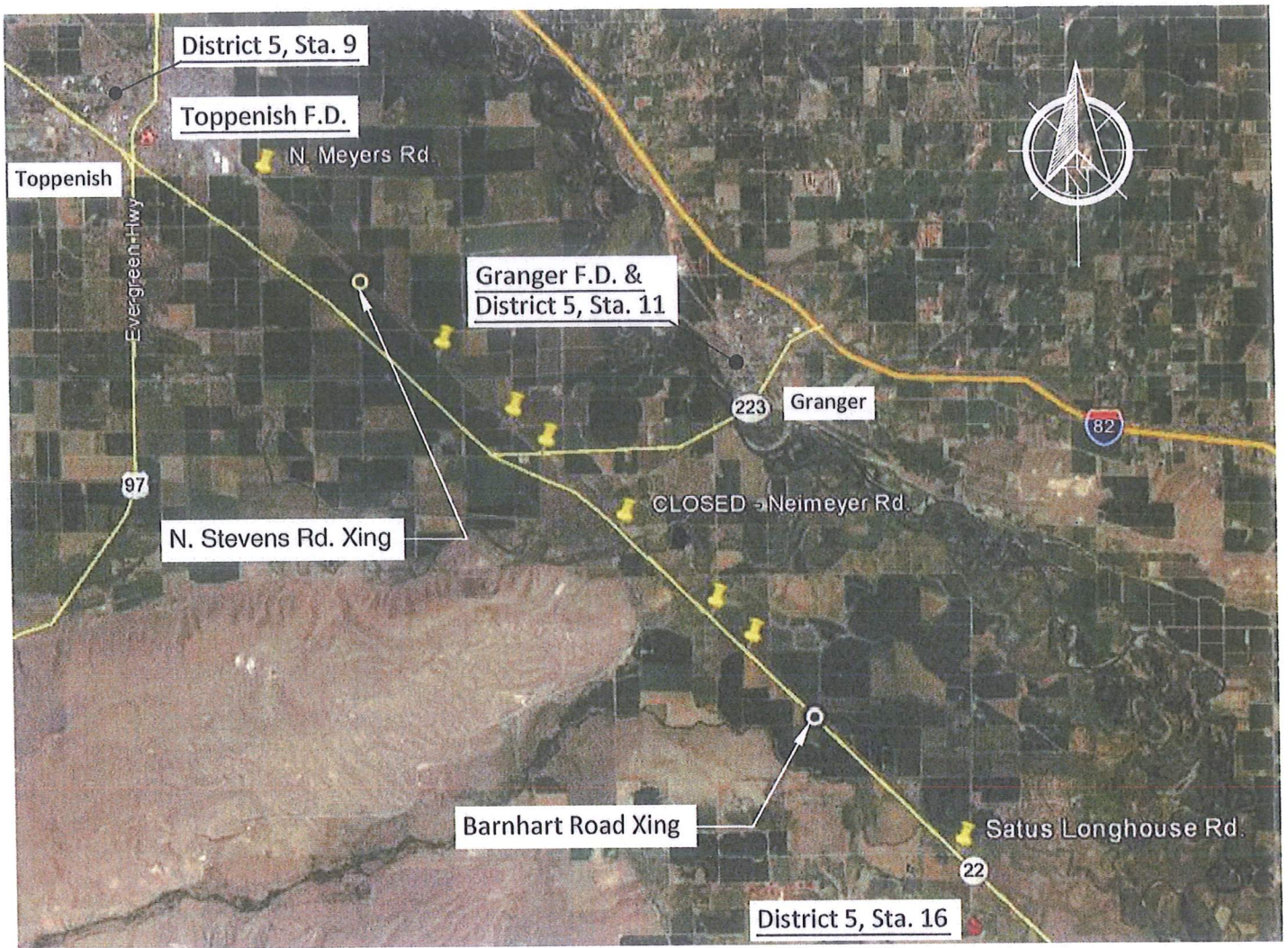
As part of the thorough review process required for crossing closures, all area school districts were asked to comment on impacts to their bussing programs. Three agencies: Granger School District, Toppenish School District, and the Yakima Nation Transit were asked if their routes used any of the crossings, how many routes and the number of daily crossings. Toppenish School District responded they do not currently use either crossing¹⁶. The Granger School District stated they occasionally use the Barnhart Road crossing, but expressed no concern about the proposed closure¹⁷. There was no response from Yakima Nation Transit.

¹⁴ State of Washington Department of Transportation Standard Collision History Detail Report for SR 22

¹⁵ Response to BNSF Data Request 9

¹⁶ Email from Blaine Thorington, Toppenish School District to Alan Adolf, Yakima County 8/1/2014

¹⁷ Email from Margarita Lopez, Granger School District to Alan Adolf, Yakima County 8/12/2014



EMERGENCY SERVICES

Petition to close Barnhart Road & North Stevens Road At-grade crossings

Tribal Access

The Yakima Nation expressed concern regarding the closure of the Barnhart Road railway crossing as it was vital for access to tribal activities to the Satus Longhouse. The Yakima Nation Satus Longhouse is located on Drainbank Road west of Satus Longhouse Road. It is important to demonstrate that the closure of the two crossings will not significantly affect access to the Satus Longhouse. The nearest alternative crossings to Barnhart Road is the Indian Church Road railway crossing 1.4 miles to the west and the Satus Longhouse Road railway crossing 1.97 miles to the south. These two adjacent crossings provide adequate alternate access from the north and the south.

With closure of the Barnhart Road railway crossing, the Indian Church Road or Satus Longhouse Road railway crossings will be used as alternate routes to the Satus Longhouse from the west via SR 22. The driving distance to the Satus Longhouse using the Barnhart Road railway crossing is 1.6 miles. Using the Indian Church Road and Satus Longhouse Road railway crossings, the driving distances are 3.1 and 3.6 miles respectively. Using prevailing or posted speeds on each route, the driving time using the Barnhart Road railway crossing route to the Satus Longhouse is 3 minutes and the routes using the Indian Church Road and Satus Longhouse Road crossings are four (4) minutes. Therefore, the additional travel time required to use the alternate routes, as a result of the closure of the Barnhart Road railway crossing, is one (1) minute. This is not a significant increase in travel time and won't significantly affect access to the Satus Longhouse facility.

Farm Equipment Access

It is expected that with the closure of the two railway crossings that farm equipment will be required to use alternative routes. Local residents, farmers, and service providers have expressed concern the closure of the Barnhart Road and North Stevens Road railway crossings will force them to use SR 22 for farm equipment access to their fields. They believe the highway speeds will create a safety issue for the slower moving farm equipment.

However, based on the number of farm access points on SR 22 between the two proposed closures, it can be argued that SR 22 is already being used extensively for farm equipment access. Specifically, there are currently approximately 30 access points on SR 22 that provide access for farm vehicles in this section of the highway. This does not include intersecting streets or residential driveways. Therefore, it can be assumed that there are already many farm vehicles using SR 22 and the closure of the two crossings would not dramatically increase the number of access points to SR 22 or the number of farm vehicles using them. Furthermore, as discussed above, the current accident history does not indicate there has been any collision between farm equipment and motor vehicle traffic on SR 22 in the section of highway between Meyers Road and Satus Longhouse Road.

Responses to Comments

Public comments are a critical part of the petition process as crossing users have a unique perspective on the issues. The following is a summary of the public comments, the UTC Comment Sheet¹⁸, on the proposal to close these two crossings:

The majority of comments were related to the Barnhart Road crossing:

¹⁸ UTC Comment Sheet, Case 121648

- It was noted several times that the crossings are used frequently by farmers;
- There were concerns expressed about large trucks being able to maneuver adequately to use alternate crossings;
- Access to the Satus Longhouse will be affected;
- It was noted that crossing volumes during harvest time are higher;
- There was concern expressed about the distance to alternate crossings ;
- It was noted that the volume of trains is very low and doesn't affect the use of the crossings that are addressed in the petition.

The comments expressed to the UTC are helpful in understanding the issues. All of the issues and concerns that were documented have been addressed in sections of this memo and the response has demonstrated that an adverse impact to local residents, farmers, and crossing users has not been created. It appears that further meetings with the public to share the findings of this report would be helpful.

Conclusions

A review of the foregoing information in regards to the three requirements for closure of the two at-grade crossings of the BNSF railway; adverse impacts to public necessity, convenience and safety are not t significantly enough to warrant leaving the crossing open..

Public Necessity

The traffic volumes crossing the BNSF railway at the two proposed crossing closure locations are negligible. Existing volumes on the surrounding roadway can also be termed negligible. The volume on State Route 22 adjacent to these crossing is only 1600 vehicles per day which is approximately one vehicle every 23 seconds during the PM peak hour; again a volume that would be considered negligible. Therefore, diverting the volumes from the crossings to the surrounding roadways will not create an adverse impact. Based on responses from Emergency Service Providers, there does not appear to be the need to maintain these crossings. There are no documented records of the use of these crossing for emergency response during the last five years. The crossings are not significant for school bus service. Both school districts in the vicinity of these crossing indicated they were not important.

Public Convenience

With the proposed closure of the two at-grade railway crossing, some farmers will be required to use SR 22 to access their fields adjacent to the highway. As stated before, the number of individual accesses to the fields is sufficient evidence that farmers currently use SR 22 for access. With the closure, rerouting may be required but it is not expected to create a significant adverse condition.

It is recognized that access to the Satus Longhouse could be impacted by closure of Barnhart Road. The impact however is expected to be negligible.

Public Safety

This memorandum documents the predictability of a future train/vehicle crash at these two at-grade crossings. I don't believe any of the residents, farmers, or users of the crossing would suggest that it would be acceptable for a member of their family or friends to be involved in such an incident. The potential for a collision between a train and a vehicle is significant. The result of a crash would be horrific with train speeds of 49 mph. The result would be expected to be fatal.

Recommendation

Based on consideration of these factors, it is recommended the North Stevens Road and Barnhart Road BNSF railway crossings be closed.