OFFICE OF COUNTY MANAGER

TR-160237

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CLARK COUNTY
WASHINGTON

February 17, 2016

Associated Administrator for Safety
Federal Railroad Administration
Office of Safety, RRS-23
120 Vermont Avenue, NW
Washington, DC 20590

Regarding: **Proposed Quiet Zone NW 122nd Street Railroad Grade Crossing (Crossing 092421N)**
A) Notice of Intent
B) Public Authority Application to FRA for Quiet Zone Under 49 CFR 222.39 (b)

The County has been working with citizens and members of a Diagnostic Team to address the train horn noise through the process established in the train horn rules since 2011. The proposed quiet zone pertains to only one highway-rail grade crossing (092421N) at NW 122nd Street in Clark County, Washington and is proposed a half mile in length. The use of Supplemental Safety Measures (SSM) were given careful consideration but based on available funding and feasibility concerns, Alternative Safety Measures (ASM) are proposed in the form of a modified SSM, traffic channelization device (Qwick Kurb) 50 feet long on east side of the tracks with 75 feet on the west side of the tracks.

Clark County submits the following Notice of Intent and the Public Authority Application requesting approval of the proposed quiet zone.

A) Notice of Intent to Establish a Railroad Quiet Zone Under 49 CFR 222.43

This letter and the attachments are a Notice of Intent for the creation of a quiet zone. As required under 49 CFR 222.43, the following information is provided to you and other parties. This application follows the criteria listed in Section 222.43 (b) (2):

i. The proposed quiet zone includes the highway-rail grade crossing at NW 122nd Street in Clark County Washington, Crossing Identification number 092421N.
ii. The quiet zone proposes to restrict routine sounding of locomotive horns 24 hours a day.
iii. Clark County plans to implement the quiet zone by installing 75 feet of Qwick Kurb mountable median with channelization device on the west side of the tracks and 50 feet of Qwick Kurb mountable median with channelization devices on the east side of the tracks. *See Appendix A for figures showing the proposed quiet zone improvements.*
iv. The Clark County contact person during the quiet zone development process will be Tom Grange, Engineering & Construction Division Manager, 1300 Franklin Street, PO Box 9810, Vancouver, WA 98666-9810, Tom.Grange@clark.wa.gov, (360) 397-6118, ext 4449.
v. *See Appendix B for a list of names and addresses of each party that will receive notification in accordance with 222.39 (a) (1).*

Please consider this notice as the beginning date of the required 60-day comment period in the quiet zone process. The 60-day comment period for this quiet zone will end on April 18, 2016 or when written comments or a "no comment" statement is received from each recipient of this notice.

1300 Franklin Street • P.O. Box 5000 • Vancouver, WA 98666-5000 • tel: [360] 397-2232 • fax: [360] 397-6058 • www.clark.wa.gov

B) Public Authority Application to FRA for Quiet Zone under 49 CRF222.39 (b)

Pursuant to Section 222.39(b) of 49 CFR Parts 222 and 229 *Use of Locomotive Horns at Highway-Rail Grade Crossing; Final Rule,* Clark County requests approval of this application for quiet zone. This application follows the criteria listed in Section 222.39(b):

i. *Appendix C contains an updated, accurate and complete Grade Crossing Inventory form for the proposed crossing*. The form was updated with the latest traffic count and truck classification and circulated to BNSF for comment on the blank fields in the new inventory form. BNSF agreed to submit the form to FRA for updating.

ii. The crossing presently is equipped with automatic gates as a traffic control device that includes flashing-lights and signals on each approach of NW 122nd Street. The train detection system is a DC Track Circuit. Each NW 122nd Street approach has advanced highway-rail grade crossing warning signs. The eastbound approach is missing highway-rail grade crossing pavement markings. The missing pavement marking is in-process of being installed.

iii. The County organized the meeting of a diagnostic team which convened on October 23, 2012, from 1:00 to 3:00 PM. It was attended by John Shurson and Richard Wagner of BNSF, Christine Adams of FRA, Kathy Hunter and Bob Boston of UTC, and Axel Swanson, Chris Horn, Steve Hanson of Clark County staff. Prior to the diagnostic team meeting, comments were submitted to the County based on a Notice of Intent submitted for a quiet zone based on an SSM proposal using Qwick Kurb as channelization devices 100 feet long on each side of the tracks. Later this proposal proved infeasible but the scope of work is similar and the comments and recommendations from the diagnostic team were similar. *See memo dated January 6, 2016 in Appendix D for the comments and recommendations from the diagnostic team members.*

iv. The memo dated February 11, 2016, in Appendix D, provides responses to the comments from the diagnostic team. This memo contains comments from BNSF and UTC in response to the County issuing a Notice of Intent and response to each.

v. At the highway-rail grade crossing, traffic channelization devices are proposed for each side. On the west side, it is proposed to install 75 feet of Qwick Kurb with 3-foot high markers to prevent motor vehicle traffic from driving around the automatic gates. On the east side, it is proposed to install 50 feet of Qwick Kurb markers to match the west side to prevent motor vehicles from driving around the automatic gates. *See Appendix A for improvement plans.*

vi. Clark County is committed to implement all ASM described above and shown in the attached plans.

vii. The Quiet Zone Calculator was used to demonstrate with data that the proposed ASM will be below the RIWH. The County will install 50 feet of center median curbing on the east side and 75 feet on the west side.

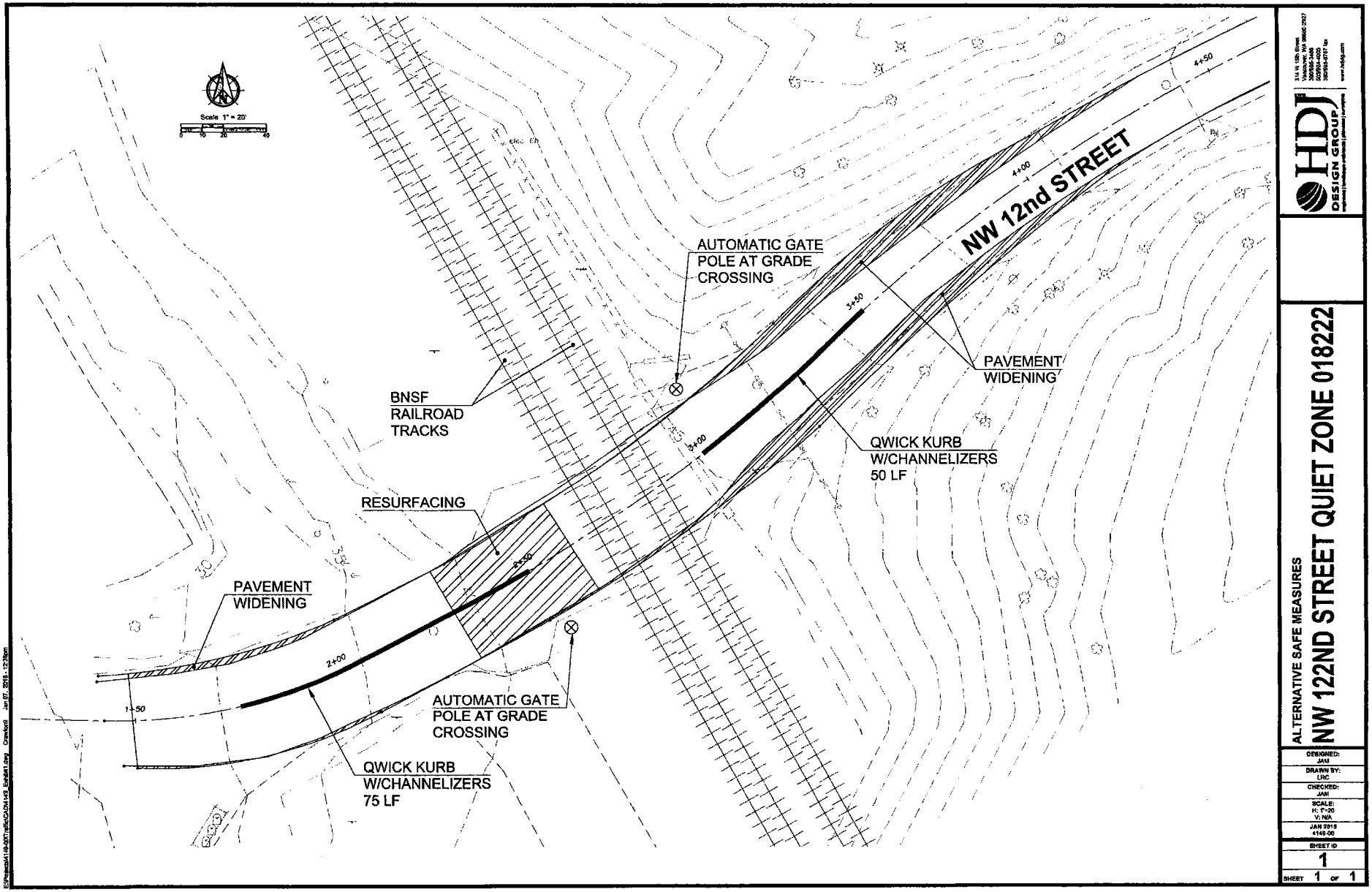
If you have any question, please contact Tom Grange at (360) 397-6118, ext. 4449.

Respectfully submitted,

Mark McCauley
Acting County Manager

Attachments
Appendix A - Figure showing the proposed quiet zone improvements
Appendix B - List of names and addresses of each party that will received notification in accordance with 222.39 (a) (1).
Appendix C - Updated Grade Crossing Inventory
Appendix D - Memo dated February 11, 2016

Appendix A



HDJ DESIGN GROUP

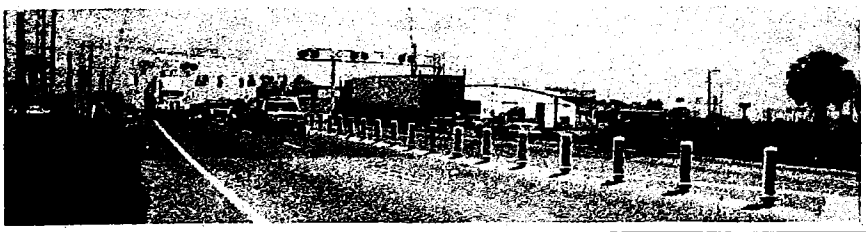
ALTERNATIVE SAFE MEASURES

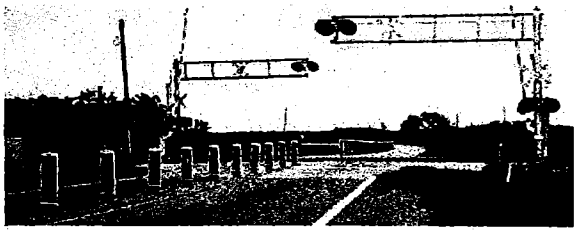
NW 122ND STREET QUIET ZONE 018222

DESIGNED:	JAM
DRAWN BY:	LRC
CHECKED:	JAM
SCALE:	H: 1"=20 V: N/A
	JAN 2015 4149-00
SHEET ID	1
SHEET	1 OF 1

RAILROAD SAFETY

Proclaimed the least expensive safety measure to significantly improve grade crossing safety. QWICK KURB® is the only median separator system that has been involved in a FRA sponsored test. Proven to reduce motorist drive arounds over 75%. Combination of formidable markers and raised mountable separator deters drive-arounds, and still allows emergency vehicles a way out. Average installation time per crossing is just three hours. The raised separator is the most cost efficient Supplemental Safety Measure available for proposed Quiet Zones.





THE ONLY SYSTEM SPONSORED FOR TEST BY STATE & FRA

Appendix B

V. Written Notice Recipients:

1. **Railroads:**
   John Shurson
   Assistant Director of Public Projects
   BNSF Railway
   740 E. Carnegie Dr
   San Bernardino, CA 92408

   Richard Wagner
   Manager of Public Projects
   BNSF Railway
   2454 Occidental Ave. South, Suite 1A
   Seattle, WA 98134-1451

   Kurt Laird
   Amtrak Senior Safety Coordinator
   1875 South Holgate St
   Seattle, WA 98134

2. **State Agencies:**
   Ahmer Nizam
   Railroad Specialist
   Washington DOT
   PO Box 47329
   Olympia, WA 98504-7329

   Katherine Hunter
   Transportation Compliance Manager
   Washington Utilities and Transportation Commission
   1300 S. Evergreen Park Dr. SW
   PO Box 47250
   Olympia, WA 98504-7250

3. **Federal Railroad Administration:**
   Associate Administrator for Safety
   Federal Railroad Administration
   1200 New Jersey Ave. SE, MS-25
   Washington, DC 20590

   Christine Adams
   Regional Manager for Grade Crossing Safety
   Federal Railroad Administration
   4106 NE 47th Ave
   Vancouver, WA 98661

Appendix C

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY)	B. Reporting Agency	C. Reason for Update (Select only one)	D. DOT Crossing Inventory Number
06 / 24 / 2013	☒ Railroad ☐ Transit ☐ State ☒ Other (X)	☒ Change in Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction	092421N

Part I: Location and Classification Information

1. Primary Operating Railroad	2. State	3. County
BNSF Railway Company [BNSF]	WASHINGTON	CLARK

4. City / Municipality	5. Street/Road Name & Block Number	6. Highway Type & No.
☐ In ☒ Near VANCOUVER	122ND ST. NW (Street/Road Name) | * (Block Number)	CO14240

7. Do Other Railroads Operate a Separate Track at Crossing?	8. Do Other Railroads Operate Over Your Track at Crossing?
☐ Yes ☒ No If Yes, Specify RR	☒ Yes ☐ No If Yes, Specify RR UP, ATK

9. Railroad Division or Region	10. Railroad Subdivision or District	11. Branch or Line Name	12. RR Milepost
☐ None NORTHWEST	☐ None SEATTLE	☐ None SEATTLE-VANC WA	(prefix) | 0130.46 (nnnn.nnn) | (suffix)

13. Line Segment *	14. Nearest RR Timetable Station *	15. Parent RR (If applicable)	16. Crossing Owner (If applicable)
0052	VANCOUVER	☐ N/A	☐ N/A

17. Crossing Type	18. Crossing Purpose	19. Crossing Position	20. Public Access (If Private Crossing)	X	Type of Train		22. Average Passenger Train Count Per Day
☒ Public ☐ Private	☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.	☒ At Grade ☐ RR Under ☐ RR Over	☐ Yes ☐ No		☐ Freight ☒ Intercity Passenger ☐ Commuter	☐ Transit ☐ Shared Use Transit ☐ Tourist/Other	☐ Less Than One Per Day ☒ Number Per Day 1

23. Type of Land Use
☒ Open Space ☐ Farm (X) Residential ☐ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?	25. Quiet Zone (FRA provided)
☐ Yes (X) No If Yes, Provide Crossing Number	☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID	27. Latitude in decimal degrees	28. Longitude in decimal degrees	29. Lat/Long Source
☐ N/A	(WGS84 std: nn.nnnnnnn) 45.7076286	(WGS84 std: -nnn.nnnnnnn) -122.7209676	☒ Actual ☐ Estimated

30.A. Railroad Use *	31.A. State Use *
30.B. Railroad Use *	31.B. State Use *
30.C. Railroad Use *	31.C. State Use *
30.D. Railroad Use *	31.D. State Use *
32.A. Narrative (Railroad Use) *	32.B. Narrative (State Use) *

33. Emergency Notification Telephone No. (posted)	34. Railroad Contact (Telephone No.)	35. State Contact (Telephone No.)
800-832-5452	817-352-1549	360-664-1262

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains (6 AM to 6 PM)	1.B. Total Night Thru Trains (6 PM to 6 AM)	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?
29	28	0		

2. Year of Train Count Data (YYYY)	3. Speed of Train at Crossing
2015	3.A. Maximum Timetable Speed (mph) 79 3.B. Typical Speed Range Over Crossing (mph) From 1 to 79

4. Type and Count of Tracks
Main 2 Siding ____ Yard ____ Transit ____ Industry ____

5. Train Detection (Main Track only)
☐ Constant Warning Time ☐ Motion Detection ☐ AFO ☐ PTC ☒ DC ☐ Other ☐ None

6. Is Track Signaled?	7.A. Event Recorder	7.B. Remote Health Monitoring
☒ Yes ☐ No	☐ Yes (X) No	☐ Yes (X) No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)* 06/24/2013	PAGE 2	D. Crossing Inventory Number *(7 char.)* 092421N

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)*	2.B. STOP Signs *(R1-1) (count)*	2.C. YIELD Signs *(R1-2) (count)*	2.D. Advance Warning Signs *(Check all that apply; include count)*
2	0	0	☒ W10-1 1 ☐ W10-2 ☐ W10-3 ☐ W10-4 ☐ W10-11 ☐ W10-12 ☐ None

2.E. Low Ground Clearance Sign *(W10-5)*	2.F. Pavement Markings	2.G. Channelization Devices/Medians	2.H. EXEMPT Sign *(R15-3)*	2.I. ENS Sign *(I-13)* Displayed
☐ Yes *(count ____)* ☐ No	☒ Stop Lines ☐ Dynamic Envelope ☒ RR Xing Symbols ☐ None	☐ All Approaches ☐ Median ☐ One Approach ☐ None	☐ Yes ☒ No	☐ Yes ☒ No

2.J. Other MUTCD Signs ☐ Yes ☒ No

Specify Type ____ Count ____
Specify Type ____ Count ____
Specify Type ____ Count ____

2.K. Private Crossing Signs *(if private)* ☐ Yes ☐ No

2.L. LED Enhanced Signs *(List types)* ☒ No

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*	3.B. Gate Configuration	3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*	3.D. Mast Mounted Flashing Lights *(count of masts)* 2	3.E. Total Count of Flashing Light Pairs
Roadway 2 Pedestrian ____	☒ 2 Quad ☐ 3 Quad ☐ 4 Quad ☐ Full *(Barrier)* Resistance ☐ Median Gates	Over Traffic Lane 0 ☐ Incandescent Not Over Traffic Lane 0 ☐ LED	☐ Incandescent ☐ LED ☐ Back Lights Included ☐ Side Lights Included	0 3

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*	3.G. Wayside Horn	3.H. Highway Traffic Signals Controlling Crossing	3.I. Bells *(count)*
____/____ ☒ Not Required	☐ Yes ☒ No Installed on *(MM/YYYY)* ____/____	☐ Yes ☒ No	1

3.J. Non-Train Active Warning ☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☐ None

3.K. Other Flashing Lights or Warning Devices Count 0 Specify type ____

4.A. Does nearby Hwy Intersection have Traffic Signals?	4.B. Hwy Traffic Signal Interconnection	4.C. Hwy Traffic Signal Preemption	5. Highway Traffic Pre-Signals	6. Highway Monitoring Devices *(Check all that apply)*
☐ Yes ☒ No	☐ Not Interconnected ☐ For Traffic Signals ☐ For Warning Signs	☐ Simultaneous ☐ Advance	☐ Yes ☒ No Storage Distance * ____ Stop Line Distance * ____	☐ Yes - Photo/Video Recording ☐ Yes – Vehicle Presence Detection ☒ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad	2. Is Roadway/Pathway Paved?	3. Does Track Run Down a Street?	4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)*
Number of Lanes 2 ☒ One-way Traffic ☐ Two-way Traffic ☐ Divided Traffic	☒ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☒ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* ____/____ Width * ____ Length * ____

☐ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☒ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal
☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* ____

6. Intersecting Roadway within 500 feet?	7. Smallest Crossing Angle	8. Is Commercial Power Available? *
☐ Yes ☒ No If Yes, Approximate Distance *(feet)* ____	☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°	☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System	2. Functional Classification of Road at Crossing	3. Is Crossing on State Highway System?	Posted Speed Limit
☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☐ (03) Federal AID, Not NHS ☒ (08) Non-Federal Aid	☐ (0) Rural ☒ (1) Urban ☐ (1) Interstate ☐ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☐ (4) Minor Arterial ☒ (7) Local	☐ Yes ☒ No	25 MPH ☐ Posted ☐ Statutory

5. Linear Referencing System *(LRS Route ID)* * ____

6. LRS Milepost * ____

7. Annual Average Daily Traffic *(AADT)*	8. Estimated Percent Trucks	9. Regularly Used by School Buses?	10. Emergency Services Route
Year 2015 AADT 210	2% %	☐ Yes ☒ No Average Number per Day 0	☐ Yes ☒ No

Submission Information – *This information is used for administrative purposes and is not available on the public website.*

Submitted by ____ Organization ____ Phone ____ Date ____

Appendix D

HDJ DESIGN GROUP PLLC
engineers | landscape architects | planners | surveyors

Date: February 11, 2016

To: Tom Grange, PE

From: John Manix, PE, Senior Traffic Engineer

Re: NW 122nd Street Quiet Zone

2/11/16

I have completed our review of the proposed quiet zone at the NW 122nd Street crossing of Burlington Northern Santa Fe (BNSF) railroad tracks. This memo addresses questions and comments from stakeholders and offers the following recommendations:

Recommendations:

Submit the application to the Federal Railroad Administration in Appendix A, requesting approval of the Alternative Safety Measure as an alternative use for routine train horns.

Circulate a Notice of Intent for the proposed quiet zone to the stakeholders in Appendix A.

Install NO HORN signs at the approach to the NW 122nd Street railroad crossing.

Background:

The County's work on the proposed quiet zone has a long history and can be summarized as follows:

The request was originally taken in 2011.

The County conducted Diagnostic Team meetings with BNSF, Federal Railroad Administration (FRA) and Washington State Utility and Transportation Commission (UTC).

The County circulated a Notice of Intent to form a quiet zone and received feedback from BNSF and UTC.

The Supplemental Safety Measures (SSM) proposed for the quiet zone proved to be too challenging to implement due to conflicts with unstable slopes on each side of NW 122nd Street, approximately 100 feet west of the tracks.

After a long delay, the County directed the citizens who were requesting the quiet zone to find a consultant to assist in the process of applying for an Alternative Safety Measure (ASM).

Technical Concerns:

There have been several comments expressed by stakeholders. These are presented and addressed here to provide closure and document responses.

Comment: A quiet zone might increase liability exposure to the County. The underlining assumption is that restricting the use of train horns as "livability" improvements will compromise safety.

This is not true because train horns are not the safest alternative for an at-grade crossing. BNSF would acknowledge there are safer alternatives, such as an expensive quad-gate system. To assist with the alternative selection, FRA provides a Quiet Zone calculator as part of the Federal regulations associated

with the Train Horn Rules to compare one alternative to another. The quiet zone calculator is based on the collision history of thousands of crossings nationwide. It was developed before the quiet zones were first proposed as a method to improve safety at at-grade railroad crossings and has a long history of use. It is important to note that train horns, as a safety tool, has limited effectiveness. We know that many people are killed at crossings while train horns are in use. Thus, the quiet zone calculator provides a time proven method to verify the effectiveness of various supplemental or alternative safety measures compared to train horns. *See Appendix B for the Quiet Zone Calculations for the proposed alternative safety measure.*

Comment: The crossing has a substantial sight restriction associated with westbound traffic approaching the tracks. This might be a problem if the gates fail to deploy and the train does not blow its horn.

Sight distance is primarily a concern at uncontrolled crossings or crossings with passive controls[1]. At some at-grade crossings with low volume of trains, STOP or YIELD signs may be the only safety measure in place and both train horns and sight distance is extremely important. But this crossing has gates with a train detection system to activate the gates as a train approaches. The crossing gates are designed to fail in a down position. So if there is a malfunction of the control system, the gates come down to block passage until the malfunction is corrected.

With the existing gates, the proposed medians are very good deterrents of this risky behavior when drivers try to drive around the gates. The medians prevent vehicles near the tracks or deter vehicles approaching the tracks from driving around the gate. Thus, the sight distance is not a significant issue for at-grade crossings with the gate system and is made substantially safer with median barriers that prevent risky behavior of driving around the gates.

Comment: The crossing serves the Fielda Moorage where drivers sometimes pull boats and other recreational vehicles to cross the tracks to reach the facilities and exit. The vehicles are slow to cross due to the grade of NW 122nd Street and may not have adequate crossing time to clear the crossing.

By installing traffic counting equipment on the NW 122nd Street, the County counted vehicles, including the number of long vehicles and the speed of vehicles. Because NW 122nd Street is a dead-end street, few, if any, trucks use it. All long vehicles are trucks or passenger vehicles towing trailers. Of the approximate 100 vehicles per day in each direction, 2% are long vehicles. About 85 percent of the traffic travel at 30 MPH in both directions. Thus, the volume of vehicles towing boats or other recreational vehicles are low and based on the speed of traffic, the grade on NW 122nd Street does not significantly hinders vehicles. For the two vehicles per day towing a trailer up hill (eastbound) exiting the facility, they have good sight distance to see trains approaching. The train detection system shall operate the flashing warning lights on the gates 20 seconds prior to the arrival of a train. The gates shall deploy 3 seconds after the warning lights start flashing[2]. A 40-foot long vehicle traveling at 5 MPH will

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[1] Federal Railroad Administration, *Model State Law to Address Sight Restrictions at Passive Highway – Rail Grade Crossing.*

[2] Federal Highway Administration, *Manual on Uniform Traffic Control Devices, 2009 Edition.*

clear the tracks in less than 10 seconds. Thus, the proposed quiet zone does not increase the risk because vehicles towing boats or other recreational vehicles uphill have adequate sight distance to see approaching trains, and ample clearance time is provided to clear the tracks at a slow speed.

Comment: The medians proposed as an ASM are traversable and will not adequately discourage vehicles from attempting to drive around the gates. BNSF does not support the use of Tuff Curb and requests the County use a curb six inches high.

The train horn rules allow the use of medians or channelization devices, such as the proposed Qwick Kurb product, that has a marker (channelization device) built into the curb system. The curbing is approximately four inches tall and the markers are approximately 34 inches tall and can be spaced from 28 to 43 inches apart. FRA established an effectiveness rating for this type of quiet zone safety measure of 75%.

BNSF recommends the use of a curb at a minimum of six inches high. This type of Non-traversable curb has an effectiveness rating of 0.80. It is certainly more effective as a safety measure, but not dramatically safer, and has a significant safety issue because drivers tend to need a greater shy distance from higher curbing. On a narrow road such as NW 122nd Street, this could increase the need for additional widening or number of collisions with roadside objects. Medians are often hit by vehicles and the proposed Qwick Kurb product is designed to minimize vehicle damage if struck. It also has a long history of use in quiet zone applications and has a proven effective rating.

Due to the narrow road and the extremely low volume on the NW 122nd Street, the use of Qwick Kurb is recommended as the quiet zone safety measure.

Comment: The quiet zone calculation should be completed after the crossing inventory has been updated. The Quiet Zone Calculator uses the data from the inventory to establish Quiet Zone Risk Index.

I updated the inventory form and forwarded it to BNSF for comments. Richard Wagner of BNSF agreed to forward the inventory update with any changes necessary. He also commented that the train volumes have not changed from the last crossing inventory update. The attached edited inventory form should be included with the application.

Quiet Zone Calculations:

I prepared the quiet zone calculation to verify that alternative safety measures are adequate to make an at-grade railroad crossing as safe or safer than with train horns. Tthe Federal Railroad Administration's (FRA) Quiet Zone Calculator was used to compare the Quiet Zone Risk Index (QZRI) to the Train Horn Risk Index (RHRI). The Quiet Zone Calculator used the latest inventory information of the current crossing gates, collision data, traffic data and train data to estimate the Quiet Zone Risk Index of the crossing depending on the Supplemental Safety Measure (SSM), the Risk Index with Train Horns (RIWH) and the National Significant Risk Threshold (NSRT). The intent is to choose a Supplemental Safety Measure which lowers the Quiet Zone Risk Index below the Risk Index with Train Horns.

Because an Alternative Safety Measure (ASM) is proposed, we need to use an Excel table to post process the Quiet Zone Calculator output. These calculation verify the Quiet Zone Risk Index for the proposed ASM is less than the Risk Index with Train Horns.

The ASM for the proposed quiet zone is a modified SSM. Because of physical constraints at the site, an SSM with a minimum 100 foot long Qwick Kurb on each side of the at-grade railroad crossing cannot be installed. The ASM proposed calls for 75 feet of Qwick Kurb on the west side of the tracks and 50 feet on the east side of the tracks. Qwick Kurb falls under the FRA description of a "mountable median with channelization devices" that has as effectiveness rating of 0.75 when combined with gates. Table 1 summarizes the risk indexes with the proposed ASM.

Table 1 - Quiet Zone Risk Index with ASM

Quiet Zone Risk Index with No SSM	Quiet Zone Risk Index with ASM	Risk Index with Train Horns	National Significant Risk Index
28,642	16,111	17,172	14,347

See Appendix B for Quiet Zone Calculator output and post process calculations for ASM

The Quiet Zone Calculator calculates the Risk Index with Train Horns, the Quiet Zone Risk Index with no SSM, and the National Significant Risk Index. The effectiveness rating of the Qwick Kurb is reduced in proportion to the length of curb used and applied to the Quiet Zone Risk Index with no SSM to calculate the Quiet Zone Risk Index with ASM. Because it is lower than the Risk Index with Train Horns, it qualifies as a Quiet Zone.

Conclusion:

The proposed Alternative Safety Measures of installing 75 feet on the west side and 50 feet on the east of Qwick Kurb as a median with the existing gates will qualify for quiet zone because the Quiet Zone Risk Index is lower than the Risk Index for Horns.

The concerns expressed by the stakeholders/diagnostic team have been addressed and no concern represents a fatal flaw to the proposed quiet zone.

The County should submit the Quiet Zone Application and the Notice of Intent. Assuming no new comments are received, the County should implement the quiet zone improvements and after the 60 days of install the NO HORN signs on the approaches to the NW 122nd Street at-grade railroad crossing should be installed.

FRA Quiet Zone Risk Indices

ZoneID	SenarioID	Crossing	Street	WarningDevice	SSM	PreSSM	RiskIndex	ASM Effectiveness Rate	QZRI	RIWH	NSRT
37425	46926	092421N	122ND ST. NW	Gates	0	0	28642.226	0.4688	16111.25	17171.6	14347
				Notes	1	2	3	4	5	6	7

Notes:

1 - Quiet zone Calculator code for Supplimental Safety Measure. In this calcualtion none was included.

2 - Not applicable, for pre-train horn quiet zones

3- Risk index without ASM

4- ASM Effectiveness Rating = 0.75(125/200) = 0.4688
0.75 = Effectiveness for an median SSM of full length
125 = proposed total median on west (75 feet) and east (50 feet) side of tracks
200 = full length median for SSM on south (100 feet) and north (100 feet) side.

5 - Quiet Zone Risk Index = Risk Index (1-ASM Effectiveness Rate)
QZRI = 28,242.226 (1-0.4688) = 16,111.25

6 - Risk Index with Horns calculated by the QZ calculator

7 - Not applicable, National Significant Risk Threshold calculated by QZ calculator.

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Cancel | Change Scenario: NW 122ND S_46931 | Continue

Create New Zone

Manage Existing Zones

Log Off

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
092421N	**122ND ST. NW**	**225**	**Gates**	0	0	28,642.23	MODIFY

* Only Public At Grade Crossings are listed.

Click for Supplementary Safety Measures [SSM]

Click for ASM spreadsheet: ASM * Note:The use of ASMs requires an application to and approval from the FRA.

Summary	
Proposed Quiet Zone:	NW 122ND ST
Type:	New 24-hour QZ
Scenario:	NW 122ND S_46931
Estimated Total Cost:	$0.00
Nationwide Significant Risk Threshold:	14347 .00
Risk Index with Horns:	17171.6
Quiet Zone Risk Index:	28642.23

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the MODIFY Button

Step 2: Select proposed warning device or SSM. Then click the UPDATE button.To generate a spreadsheet of the values on this page, click on ASM button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the SELECT button is shown at the bottom right side of this page. Note that the SELECT button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the SELECT button