

TR-120841



City of Vancouver • P.O. Box 1995 • Vancouver, WA 98668-1995
www.cityofvancouver.us

August 24, 2012

Associate Administrator for Safety
Federal Railroad Administration
Office of Safety, RRS-23
1200 New Jersey Ave, MS25
Washington DC, 20590

RECEIVED
REGIONS MANAGEMENT
2012 SEP -4 AM 11:40
STATE OF WASH
UTIL AND TRANS
COMMISSION

RE: Proposed Quiet Zone; East Vancouver Washington Quiet Zone
Subject: Responses to questions posed during public comment period

On June 1, 2012, the City of Vancouver filed a Notice of Intent (NOI) for the creation of a quiet zone in east Vancouver with the Federal Railroad Administration (FRA). The 60-day public comment period for the NOI ended July 31, 2012. Comments were received from three parties: the Washington Utilities and Transportation Commission (WUTC), BNSF Railway Company (BNSF), and a resident that uses the private crossing at SE 144th Avenue (Resident 144th). Copies of those letters are attached. In addition, a question of clarification was posed by FRA staff concerning the length of the proposed southern median at the SE 139th Avenue crossing.

Provided below are responses to the comments and questions received.

FRA: Response to question posed by FRA staff.

- FRA staff posed a question as to the overall effective length of the proposed southerly median at the SE 139th Avenue crossing. Is it 56 feet or 47 feet? Some places in the materials submitted in support of the NOI indicated 47 feet of median and others indicated 56 feet of median. Answer: The effective length of the median will be 56 feet and this is what was used in the calculations for the Risk Index. There is already an existing 9 foot median on the south side of the tracks and to this the City will be installing an additional 47 feet of new median. When the new median is tied into the existing median the effective total median length will be 56 feet. Please see attached amended figure 3 which should help in this clarification.

WUTC: Responses to comments submitted by WUTC (letter dated July 31, 2012).

- City staff has reviewed FRA's publication "Guidance on the Use of Traffic Channelization Devices at Highway Rail Grade Crossings" and is proposing to use devices that meet FRA requirements.
- Re: the private crossing at SE 144th Avenue, WUTC makes recommendations for the installation of crossing signals, grade modifications, road widening and sight obstruction

removal at this private crossing. While the City acknowledges WUTC's recommendations, they are far in excess of what was required by FRA in their public crossing waiver dated April 12, 2011 (docket # FRA-2010-0170). The fact is that this crossing is a private crossing with extremely low usage. While the City would be supportive of private and/or BNSF-led and -financed efforts to further upgrade this crossing we do not endorse the costly modifications proposed being made part of the requirements for the implementation of the proposed quiet zone particularly given its status as a private and not a public crossing/road and extremely low traffic volume. At the SE 144th Avenue crossing, the City will replace the existing standard stop signs with enhanced LED flashing stop signs and have a sight obstruction on the southeast side of the crossing removed per the waiver granted in docket # FRA-2010-0170.

BNSF: Responses to comments submitted by BNSF (undated letter received August 6, 2012).

- BNSF reports that the medians at SE 164th Avenue shown in figure 1 of the NOI do not show the proposed medians extending 100 feet away from the existing crossing gates. This was a drafting oversight. The City's proposal is to install the medians for the full 100 feet as shown in the amended figure 1 (attached).
- BNSF did provide construction estimates for the installation of new gates and related equipment at the crossings of SE 139th, 144th, 147th and 164th Avenues. Those estimates, which were not firm quotes but variable estimates, were found to be prohibitively expensive both in terms of initial installation and ongoing maintenance costs proposed to be passed on by BNSF to the City. This option for establishing the quiet zones was dismissed when far less costly alternatives that were acceptable to the FRA were identified and considered. While the City does acknowledge that the lesser cost of the treatments being proposed is a driving factor for their selection and use by the City (estimated construction costs of approximately \$550,000 as compared to the approximate \$2,500,000 for the BNSF proposed treatments), we strongly disagree that they are inadequate treatment.
- BNSF states that "in order for BNSF to recognize the establishment of the Eastside Quiet Zone" that they will require extensive improvements to be made at the private SE 144th Avenue crossing. It is our understanding that mandating requirements of this type would fall under the authority and purview of the FRA. We find nothing in the train horn rule under which BNSF can unilaterally dictate and mandate certain improvements be made in order for them to recognize a quiet zone that has otherwise been approved by the FRA. We also understand that the FRA has already considered and has made an initial determination as to the appropriate treatment at this crossing pursuant to waiver that was issued on April 12, 2011 (docket # FRA-2010-0170). While the City would be supportive of private and/or BNSF-led and -financed efforts to further upgrade this crossing we do not endorse the costly modifications proposed being made part of the requirements for the implementation of the proposed quiet zone particularly given its status as a private and not a public crossing/road and extremely low traffic volume.

Resident 144th: Responses to comments submitted from a resident accessing the private crossing at SE 144th Avenue (letter dated June 8, 2012 from Kathy J. Marshack).

- The resident indicates that the anticipated costs for the project have doubled since the latest information she received in 2009. This is not correct. The total estimated cost of implementing the quiet zone is now approximately 65% of that which was proposed in 2009 (an approximate 35% cost decrease). The project approach has changed since the

2009 proposal primarily the result of significant cost increases by BNSF for the quadrant gate approach (an increase in estimated construction costs for the three public crossings from \$1.1 million to \$1.8 million). The significant increase in the construction estimates as well as unresolved and undefined cost exposure to the City related to ongoing maintenance and future replacement of BNSF equipment prompted the City to consider other acceptable and effective alternatives available under the train horn rule that would be far less costly to implement and maintain.

- The resident indicates that there hasn't been another vote by the proposed Local Improvement District (LID) participants since 2009. It needs to be clarified that there was no public "vote" in 2009. In 2009 the City distributed an informational packet with details as to the proposed improvements and estimated costs for a suggested LID to fund the improvements. The 2009 packet included a postcard survey that allowed property owners within the proposed LID boundary to indicate their opinion (support/do not support/undecided) as a way for the City to gauge the level of support for the creation of a LID. It was not a vote as to actually form a LID. As a result of a change in the proposed approach and project costs and that three years have elapsed since the August 2009 survey, the City will be undertaking another polling of the proposed LID participants, based upon the newest information. Currently this is planned for this fall. All of the information materials are being prepared now, but we have delayed the re-polling until the FRA makes a final determination about the acceptability of the quiet zone and associated improvements. This delay has been necessary in order to make the cost estimates as accurate as possible so that the proposed LID participants can make their decision based upon the best, most current information.
- The resident commented on the location shown by the City of the proposed enhanced LED flashing stop signs at SE 144th Avenue as required under the FRA waiver (docket # FRA-2010-0170). The resident indicated that the location shown by the City (replacement of the existing stop signs with enhanced LED stop signs at their current location) was not in accordance with the FRA-approved waiver. City staff has confirmed with FRA staff that the location proposed by the City is in accordance with the approved waiver.

We hope that these responses will help the FRA in a favorable evaluation and approval of the Eastside Vancouver Quiet Zone project. Please do not hesitate to contact us if there is further clarification needed.

Respectfully submitted,

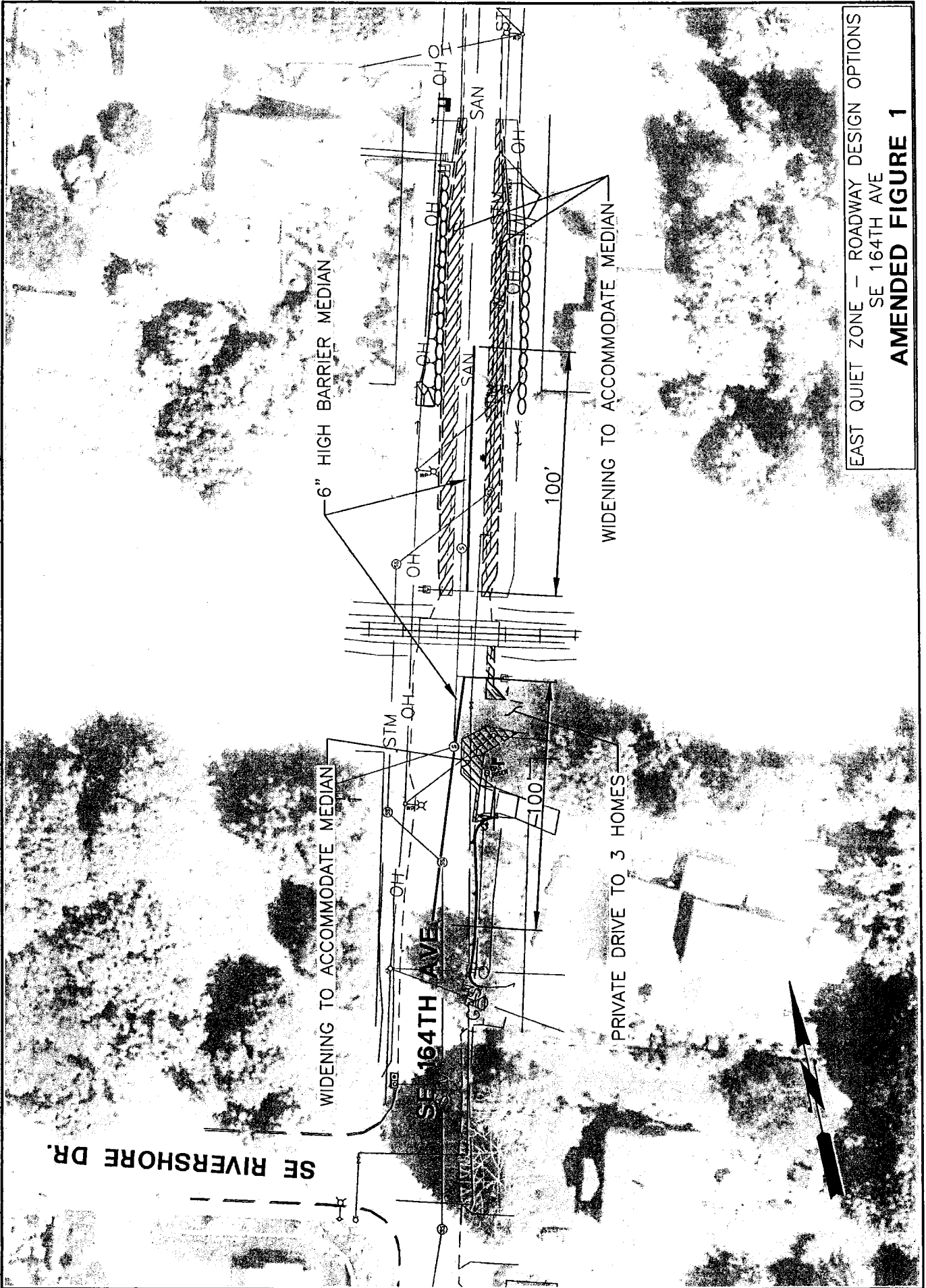


Brian K. Carlson, P.E.
Director of Public Works

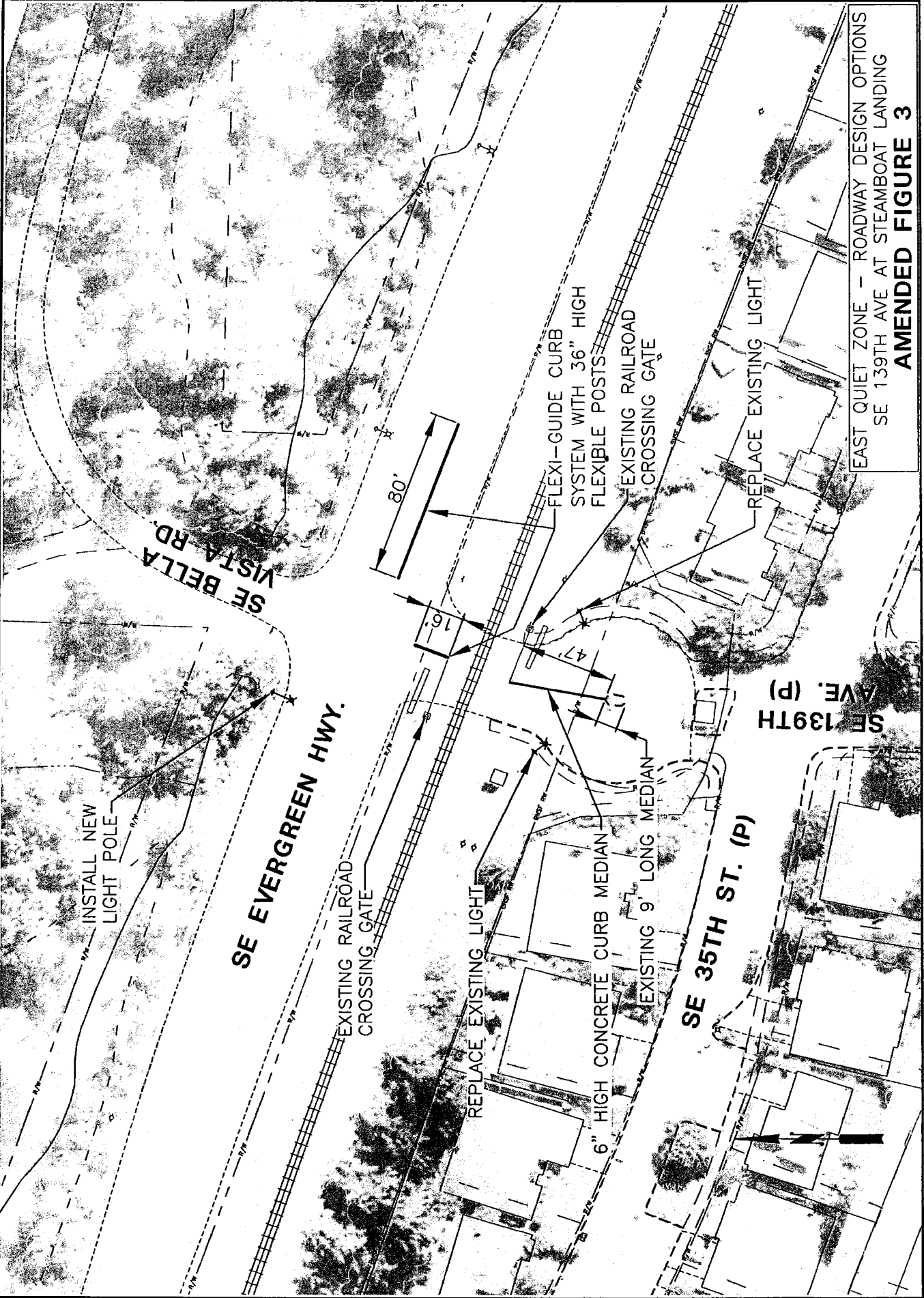
Attachments: Amended Figures 1 and 3; WUTC, BNSF and Resident 144th letters
cc: see attached list



E:\PROJECTS\ACTIVE PROJECTS\710024 - RAILROAD QUIET ZONE PLANNING\PS&E\DESIGN\164TH_PBASE_32 FOOT WIDTH.DWG 8/14/2012



EAST QUIET ZONE - ROADWAY DESIGN OPTIONS
SE 164TH AVE
AMENDED FIGURE 1



EAST QUIET ZONE - ROADWAY DESIGN OPTIONS
SE 139TH AVE AT STEAMBOAT LANDING
AMENDED FIGURE 3

**East Vancouver Washington Quiet Zone
Public Comment Response Recipients**

August 24, 2012

1. Railroads operating over the grade crossings:

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 agency responsible for highway and road safety, and State agency responsible for grade crossing safety:

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
Office of Safety, RRS-23
1200 New Jersey Ave, MS 25
Washington, DC 20590

Christine Adams
Regional Manager for Grade Crossing Safety
Federal Railroad Administration
PO Box 2744
Vancouver, WA 98668

4. Property owners of Private crossing (DOT #090091D) near the intersection of SE
144th Ave/Evergreen Hwy

Joseph Leas and Julianne Ament-Leas
14209 SE Evergreen Highway
Vancouver, WA 98683

Mary A Kellogg, Trustee
14301 SE Evergreen Highway
Vancouver, WA 98683

Ralph and Mary Jacob
14317 SE Evergreen Highway
C/O RL Jacob Trustee
PO Box 206
Government Camp, OR. 97208-0206

Kathy Marshack
PO Box 873429
Vancouver, WA 98687



RECEIVED

AUG 03 2012

Engineering Division

STATE OF WASHINGTON
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION
1300 S. Evergreen Park Dr. S.W., P.O. Box 47250 • Olympia, Washington 98504-7250
(360) 664-1160 • TTY (360) 586-8203

July 31, 2012

Brian Carlson, PE, Director of Public Works
City of Vancouver
P.O. Box 1995
Vancouver, Washington 98668-1995

Re: TR-120841 – East Vancouver Proposed Quiet Zone

Dear Mr. Carlson:

The Washington Utilities and Transportation Commission (UTC) received notice on June 4, 2012, from the City of Vancouver (City) of its intent to establish a railroad quiet zone at the following crossings:

<u>USDOT No.</u>	<u>Street Name</u>	<u>Crossing Classification</u>
090093S	SE 164 th Avenue	Public
090092K	SE 147 th Avenue	Public
090090W	SE 139 th Avenue	Public
090091D	SE 144 th Avenue	Private

The City is proposing a quiet zone along this corridor of crossings which will be in effect 24 hours, seven day per week.

Thank you for the opportunity to comment on the East Vancouver proposed quiet zone, as described in Docket TR-120841.

UTC staff entered data about these crossings into the Federal Railroad Administration (FRA) Quiet Zone Calculator and received similar results as outlined by the City in this notice. The Quiet Zone Risk Index (QZRI) is 25,175.56, which qualifies the corridor for a quiet zone because the Risk Index with Horns (RIWH) of 27,695.67 is higher. The calculated QZRI assumes installation of a combination of supplemental and alternative safety measures which the city will need to implement prior to implementation of the quiet zone.

UTC staff recommends that the City review FRA's publication, "Guidance on the Use of Traffic Channelization Devices at Highway-Rail Grade Crossings," prior to installing the median barriers. The devices selected should meet all FRA requirements in order to

receive the full effectiveness rating as a supplemental safety device.

When using the FRA Quiet Zone Calculator UTC staff noted that several data points in the FRA inventories for these crossings is inaccurate. The inventories needed to be updated per CFR 49 §222.39(b)(1)(i) which requires that the quiet zone application to the FRA, "Contains an accurate, complete and current Grade Crossing Inventory Form for each public, private and pedestrian grade crossing within the quiet zone." UTC staff manually updated the data to get an accurate risk assessment but strongly recommends the City follow-up with BNSF to get Parts II and Part III (3) of the inventory data up-to-date. UTC staff will initiate updates to the other appropriate fields.

Based on staff's on-site evaluation of the crossings, UTC staff is concerned about the level of protection at the private crossing located at Southeast 144th Avenue. UTC staff participated in several on site meetings at this crossing and recommended that shoulder mounted lights and gates be installed, the roadway expanded to two vehicle travel lanes, the "hump" or steep grade be reduced, and the sight obstruction removed from the south side of the tracks. The City is proposing to replace the standard stop signs with LED flashing stop signs. UTC staff acknowledges that this is an improvement from the current warning devices but given the frequency of up to 64 trains per day, traveling up to 79 miles per hour over the crossing and the two accidents since 2009, UTC staff recommends a higher level of protection. Currently, users of the Southeast 144th Avenue crossing have the benefit of hearing residual train horn warnings from the two nearby public crossings located at Southeast 139th Avenue and Southeast 147th Avenue. Once the quiet zone is enacted along this corridor, the blowing of train horns will be discontinued. Users of the crossing will no longer have an audible warning of approaching trains. Installing signals at this crossing would replace the train horn warning with audible and physical warnings (flashing lights/bell and a downed gate).

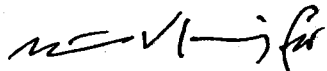
Both Southeast 147th Avenue and Southeast 139th Avenue are intersecting roadways to Southeast Evergreen Highway. The approaches to the crossings are limited in length and thus the standard 100 feet of median barriers cannot be installed. The City proposes to install significantly shorter medians which will qualify as alternative safety measures. UTC staff acknowledges that the FRA has provided the City with favorable feedback on the calculating the effectiveness of the shorter medians. However, parallel roadways to railroad tracks do present unique challenges to drivers when there is reduced reaction time to the crossing when turning off of a parallel roadway.

As you know, the UTC may comment on the quiet zone proposal, but does not approve or disapprove it because states have been preempted in this area by federal rule. The UTC acknowledges that the East Vancouver corridor qualifies for designation as a quiet zone under the RIWH and QZRI calculations and offers these comments.

Brian Carlson
July 31, 2012
Page 3

Thank you for the opportunity to provide comments. Please feel free to contact Kathy Hunter at (360) 664-1257 or by email at khunter@utc.wa.gov if you have any questions or would like additional information.

Sincerely,



David W. Danner
Executive Director and Secretary

cc: John Shurson and Richard Wagner, BNSF Railway
FRA Associate Administrator for Safety
Kurt Laird, AMTRAK
Ahmer Nizam, WSDOT
Christine Adams, FRA





Richard (Rick) W Wagner
Manager Public Projects

BNSF Railway Company
2454 Occidental Avenue South
Suite 2D
Seattle, WA 98134
Tel (206) 625-6152
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Richard.Wagner@bnsf.com
Mobile (206) 604-8290

RECEIVED

AUG 06 2012

Engineering Division

Brian Carlson, PE
Director Public Works
City of Vancouver, WA

Re: Vancouver, WA – Eastside Quiet Zone Notice of Intent, 139th, 144th/Marshack Crossing, 147th & 164th Sts At-Grade Crossings

Mr Carlson:

BNSF is writing this letter to inform the FRA and the City of Vancouver ("City") of our concerns regarding proposed treatment at crossings within the proposed Eastside Quiet Zone. At the outset of this letter, BNSF would like to be clear that we believe that if not properly accounted for with appropriate safety enhancements, the elimination of the train horn can be detrimental to safety.

The train horn is intended to alert the motoring and pedestrian public of train movement. BNSF believes the City's use of the Rule should be used as a minimum guideline in its approach to creating a situation where the train horn is eliminated as a safety measure. BNSF understands the following crossings are included as part of the proposed quiet zone:

Crossing Name	DOT Number	Crossing Type
144th/Marshack	090091D	Private
139 th Ave	090090W	Public
147 th Ave	090092K	Public
164 th Ave	090094Y	Public

BNSF views the general location of the proposed Eastside Vancouver Quiet Zone along SE Evergreen Hwy as problematic. This proposed QZ location does not support qualifying SSM treatments needed to replace the train horn at the crossings at SE 139th St, 144th/Marshack and SE 147th due to very short north approaches to the crossings and the current posted speed limit of SE Evergreen Hwy. BNSF does not believe the Alternative Safety Measures to treat the public crossings within the proposed quiet zone, as proposed in the City's NOI of June 01, 2012, sufficiently compensate for the loss of the horn.

The City's NOI does not propose Engineered ASM's for the crossings at SE 139th and SE 147th Avenues that will replace the loss of the train as they do not meet the required lengths and will require FRA waivers, nor BNSF's suggested non-mountable attributes which we find to be effective. Furthermore, previously after diagnostic team & field reviews attended by City Staff & Consultants, FRA,



WUTC, BNSF in 2004, 2007 & 2008 BNSF supplied signal estimates (2009, 2010, 2011 & 2012) for three quadrant flashing lights and gates to the City. These treatments to replace the horn are not now being considered for obviously less expensive and inadequate treatments.

The City's proposed treatment in the NOI for the crossing at SE 164th Avenue with barrier median SSM's that are 100 feet in length for both approaches does not meet the required length of 100 feet in length from the crossing gate. It also bears noting that the City requested, after the same diagnostic team and field meetings, signal estimates (dates referenced above) from BNSF including four-quadrant gates which are omitted from the City's NOI proposed treatment of this crossing.

Finally, In order for BNSF to recognize the establishment of the Eastside Quiet Zone we require the private at-grade crossing at 144th/Marshack (090091D) be upgraded with two-quadrant flashing lights and gates as well as non-mountable concrete medians. The crossing surface needs to be widened and the civil construction completed to accommodate the required improvements. A 144th/Marshack (090091D) preliminary signal estimate was supplied to the City on January 6, 2012, including updated preliminary signal estimates for the public crossings in the proposed quiet zone.

If BNSF can be of further assistance, please feel free to contact me or Lyn Hartley, Public Projects Director for BNSF, 4515 Kansas Avenue, Kansas City, KS 66106 (Office phone 913-551-4540).

Regards,

A handwritten signature in black ink, appearing to read "Richard Wagner".

Richard Wagner
Manager Public Projects, BNSF

cc:

FRA

1200 New Jersey Ave, SE
Washington, DC 20590

electronic copy:

Lyn Hartley, BNSF Railway
John Shurson, BNSF Railway
Ryan Ringelman, BNSF Railway
Nicole Hightower, BNSF Railway



Kathy J. Marshack, Ph.D., P.S.

Licensed Psychologist and Family/Business Coach

June 8, 2012

Associate Administrator for Safety

Federal Railroad Administration
Office of Safety, RRS-23
1200 New Jersey, Ave. MS 25
Washington DC 20590

Re: Proposed Quiet Zone: East Vancouver Quiet Zone; Private Crossing #90091D

Dear Administrator:

Last week you received a proposal from the city of Vancouver Washington to create a Train Horn Noise Quiet Zone in the vicinity of my home (14237 SE Evergreen Highway, Vancouver WA 98683). I am writing to insure that safety is the number one consideration with this project. Thankfully this appears to be the case, in part. But I do have another concern. . . cost.

This project has been underway since 2004. After numerous studies, lobbying efforts and citizen meetings, the city of Vancouver proposed an LID for this project and sent it to a vote of the citizens. The costs to the property owners were detailed in a proposal sent out to all of us along the train tracks in 2009. The citizens voted on this proposal with these costs in mind. I have attached the estimate of costs proposed to us at the time.

Since the original proposal the costs have doubled. This fact was reported to us at a neighborhood meeting a few months ago by a citizen, Roger Parsons. I am alarmed that the city staff have not informed us of these cost increases but are still moving ahead with the proposal. It seems to me that the proposal needs to be presented to the citizens who will bear the burden of the costs. It is unconstitutional to move ahead with this project and taxing all of us without our having a voice in the project.

Lastly with regard to safety, the proposal does reconsider safety at the private crossing that I use to get to my house (#90091D). (By the way this narrow 1908 train crossing is the only access I have to my house as I am blocked from getting to the public train crossings). The FRA advised the city of

When you need the best...caring solutions for results that last.

Kathy J. Marshack, Ph.D., P.S., D.A.B.P.S., M.S.W., B.C.D.

www.kmarshack.com www.executivecouples.com

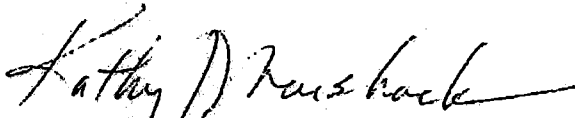
PO Box 873429 Vancouver, WA 98687-3429

•(360) 256-0448 •(503) 222-6678 •info@kmarshack.com

Vancouver to install stop signs with flashing LED lights on the city streets approaching the crossing. While I am concerned that this is insufficient safety equipment for a crossing that has 50 trains a day going 60 mph, I have to accept this compromise proposed by the FRA. However, I want to point out that the city of Vancouver does not have any plans to install the new stop signs on the public road approach as required by the FRA. Rather they are hoping to install the stop signs on the BNSF property. This location simply does not give enough warning to motorists. By the time the motorist has exited the city street and drives onto the BNSF right of way, they are nearly on the train tracks. This is not the proper location of the new LED Stop signs. When you consider that the neighboring crossings will have significant safety equipment such as quad gates, does it make sense to you that a couple of lighted Stop signs posted next to the train tracks will protect motorists?

I would like you to reconsider this proposal in light of my concerns. I should not have to pay for improvements to the public train crossings when the price has doubled and I have not been afforded my American right to vote on this increased tax. Secondly, the city of Vancouver should be required to meet the standards as set forth by the FRA instead of trying to "fudge" safety standards.

Sincerely,



Kathy J. Marshack, Ph.D., P.S.

PO Box 873429

Vancouver WA 98687-3429

East Side Train Horn Quiet Zone

LID Assessment Per-Lot - Preliminary*****

Total Project Cost Estimate = \$1,168,000*
Lot Inventory = 469**

Payment

The LID will include construction costs.

Construction Cost

Annual Payment (for 20 years)			
	Tier***	Lots**	Yearly Cost
	1	219	\$295
	2	99	\$206
	3	151	\$89

Preliminary Estimate

OTE:

The Local Improvement District will include construction costs. The City of Vancouver will assume responsibility for increased maintenance costs for the new supplemental safety measures.

Residents will have the option to pay the CONSTRUCTION costs in a one-time lump-sum payment if desired. Those one-time costs are estimated as follows (rounded):

- Tier 1 = \$3,500
- Tier 2 = \$2,450
- Tier 3 = \$1,050

General References:

This is a rounded figure. Refer to LID - Detail of Costs outline for detailed cost breakdown.

Lots include Condo units; based on YR 2008 County Assessor Inventory.

* Tier allocation based on 2005 Sound Study.

** Annual Cost based on a 20-year amortization schedule for financing of project costs (rounded). This figure includes finance interest costs which are subject to change based on market conditions at the time of bond sale.

*** Any LID Assessment will be subject to Vancouver City Council approval and neighborhood support.

Note: Costs and assumptions are subject to refinement / quality review, preparation of final LID Assessment Roll and approval at Vancouver City Council public hearing.

LID - Detail of Costs

PRELIMINARY Estimates

updated 7-30-09

The purpose of this outline of project costs is to estimate the full cost that will be calculated upon establishment of an assessment roll and corresponding fee for the implementation of the proposed train horn quiet zone in East Vancouver. A final "per-lot cost" and corresponding "assessment roll" will be based on actual costs incurred and will be established and subject to a public hearing upon substantial completion of hard construction activities.

	Assumed Costs
Construction Costs	
- 139th Avenue	\$365,000
- 147th Avenue	\$360,000
- 164th Avenue	\$371,000
Special Benefit Analysis (supportive studies)	
- Appraiser	\$10,000
- Sound Study	\$10,000
- Environmental Documentation	\$5,000
Administrative Costs	
- Bond Counsel	\$25,000
- Administrative	\$22,000
<i>Sub Total of BASE Costs</i>	\$1,168,000
Finance / Interest Costs	
- Bond Finance Interest	\$800,000
<i>Total of BASE Costs and Finance Costs</i>	\$1,968,000

General Notes:

ALL Costs are estimates only and are subject to revision based on actual costs incurred and the conditions of the financial marketplace.

- **Construction Costs** are PRELIMINARY. This is a rounded figure. Costs are based on those submitted by BNSF in March 2009 and adjusted by City Transportation Services staff. Final costs to be included in LID Assessment will be actual costs incurred for materials and labor during construction.

- **Individual Cost Estimates Per Location** per BNSF March 2009 cost estimate for Train Crossing Gated Systems:

- 139th Avenue: \$365,000
- 147th Avenue: \$360,095
- 164th Avenue: \$370,867

- **Special Benefit Analysis** are those studies that may need to be updated or completed to support the LID method and preparation of final assessment roll. Final costs to be included in LID Assessment will be actual costs incurred for labor and materials in preparation of the special studies.

- **Administrative Costs** are those costs incurred by County Assessor over 20-year term to add annual assessment to affected property owner tax billings. Assumed to be \$100 per/year to process the tax billings and \$1,000 per/year in related customer service costs.

- **Finance / Interest Costs:** This is a rounded figure. Estimated at a 20-year bond repayment term at a 5.7% average coupon rate. Rates and terms subject to change based on market pricing at time of bond sale. Each parcel owner will be assessed a finance cost at the bond rate of interest and will be applied assuming a 20-year amortization period if the "assessment" is not paid-in-full at origination. If parcel owner pays off per-lot cost before 20 years, then their "finance" costs will be lower, in the same manner as a personal mortgage loan amortization schedule.

Preliminary Estimate