## Washington State <br> Department of Transportation

Lyrm Peterson
Secretary of Transportation

Tanspartation zuldiog 310 Maple Park Avanue S.E. PO. Bak 47300

360-705-7000

whan. wetot wa.gov

April 1, 2015

Kathy Hunter
Deputy Assistant Director, Trans. Safety
Washington Utilities and Transportation Commission
1300 S Evergreen Park Dr. SW
Olympia, WA 98504-7250
Re: Petition for Reconstruction and Installation of an Inter-Tie at the North Thorne Lane SW Crossing (085828M) in Lakewood within Pierce County, WA

Dear Ms. Hunter,
This letter is in support of the aforementioned WUTC petition on behalf of WSDOT for the highway-rail grade crossing upgrades at North Thorne Lane SW (USDOT Crossing \#085828M) within Pierce County, WA. The following supplemental information is a summary of the proposed improvements to the highway-rail grade crossing at North Thorne Lane SW.

The Washington State Department of Transportation (WSDOT) is implementing a program of infrastructure improvement projects along the Pacific Northwest Rail Corridor (PNWRC) also known as the PNWRC Improvement Program. This program is comprised of approximately 17 component projects that when combined will: provide two additional roundtrips for the Cascades intercity passenger rail service between Seattle, WA and Portland, OR; improve on time reliability to $88 \%$; and provide a 10 minute reduction in travel time between the aforementioned termini. One of the 17 PNWRC Improvement projects is the Point Defiance Bypass project. In addition to the Cascades service, the Amtrak long distance service, the Coast Starlight, will also utilize the Point Defiance Bypass alignment.

The Point Defiance Bypass project includes five highway-rail grade crossings that will be reconstructed to support the above mentioned passenger rail services between Lakewood, WA and DuPont, WA. Those highway-rail grade crossings are Clover Creek Drive SW, North Thorne Lane SW, Berkeley Street SW, $41^{51}$ Division Drive, and Barksdale Avenue. The Berkeley Street SW highway-rail grade crossing improvements are being constructed by the city of Lakewood as part of their Madigan Access Improvement project. The city of Lakewood project will incorporate the necessary highway-rail grade crossing improvements to support the intercity and long distance passenger rail services.

The improvements at the North Thorne Lane SW highway-rail grade crossing include new flashing light masts and gates, a constant warning-time grade crossing warning
device with an automatic horn system consisting of stationary horns and a new concrete crossing panel with rubber flange way fillers. The southbound right turn lane onto Interstate 5 is being widened to better accommodate turning vehicles. Sidewalk will be installed on the east side of the crossing connecting, southward, to existing pedestrian crossing paths at the Interstate 5 interchange, and northward, to new sidewalk connecting to the Union Avenue intersection. The crosswalk parallel to the tracks on the south side of the crossing will be removed as pedestrians at the Union Avenue intersection are rerouted across North Thorne Lane to the north side's new sidewalk. Pedestrian gates will also be installed on this sidewalk at the rail crossing. The Interstate 5 interchange northbound and southbound ramp termini along with the Union Avenue to North Thorne Lane highway traffic controllers will be replaced with a single controller to eliminate operational conflict when switching to preemption.

In conjunction with the attached petition, WSDOT is working closely with the city of Lakewood, Sound Transit, BNSF, and Tacoma Rail on the proposed improvements for Clover Creek Drive SW. In addition, please find the signed Waiver of Hearing by Respondent found in Section 13 of this petition from each of the applicable project stakeholders as consent without a hearing.

If you should have any questions, please contact myself at (360)905-1578.
Sincerely,


Casey Liles, PE
WSDOT Rail Division
Point Defiance Bypass Project Lead

CL:ts

Enclosure: WUTC Petition for Reconstruction and Installation of an Inter-Tie at the North Thorne Lane SW Highway-Rail Grade Crossing, No. 085828M

cc: David Smelser<br>Mike Coward<br>Chris Dunster<br>Devin Reck<br>Jason Dao<br>Thomas Slimak<br>Document Controls

UTC

## WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION



Prior to submitting a Petition to Reconstruct a highway-rail grade crossing and install an inter-tie between a Highway Signal and a Railroad Crossing Signal System to the Washington Utilities and Transportation Commission (UTC), State Environmental Protection Act (SEPA) requirements must be met. Washington Administrative Code (WAC) 197-11-865 (2) requires:

All actions of the utilities and transportation commission under statutes administered as of December 12, 1975, are exempted, except the following:
(2) Authorization of the openings or closing of any highway/railroad grade crossing, or the direction of physical connection of the line of one railroad with that of another;

Please attach sufficient documentation to demonstrate that the SEPA requirement has been fulfilled. For additional information on SEPA requirements contact the Department of Ecology.

The Petitioner asks the Washington Utilities and Transportation Commission to approve installation of an inter-tie between a highway signal and a railroad crossing signal system.


## Project Summary:

The N Thorne Lane SW highway-rail grade crossing is part of the Point Defiance Bypass Project that has been proposed to respond to deficiencies in the existing rail operations around Point Defiance between Tacoma and Nisqually in Washington State. As part of the Pacific Northwest Rail Corridor (PNWRC) Improvement Program, when combined with the other component projects, this Project would allow for two additional round trips of the Amtrak Cascades service between Seattle, Washington, and Portland, Oregon with improved reliability and reduced travel time. This Project would also support Amtrak's longer-distance Pacific Northwest passenger rail service, the Coast Starlight.

The improvements at the North Thorne Lane SW highway-rail grade crossing include:

- Flashing light masts and gates are set between 5 feet and 7 feet from face of curb. A barrier mechanism (concrete barrier, guardrail, etc.) is incorporated at the N Thorne Ln crossing to protect the crossing arm from turning vehicles.
- The crossing will have a constant warning-time grade crossing warning device with an automatic horn system consisting of stationary horns.
- Crossing surface will be concrete panels with attached rubber flange way fillers.
- The southbound right turn lane onto southbound Interstate 5 is being widened to better accommodate turning vehicles (the current lane is 8 feet wide).
- The sidewalk on the west side of N Thorne Ln will end at the N Thorne/Union Avenue intersection about 150 feet west of the railroad crossing, near the Tillicum Park pathway, with a new crosswalk at that location. A new sidewalk, leading (compass) southward across the tracks, will be established on the east side of the roadway to replace the existing dirt walking area. Approximate locations of theses improvements are shown in the attached exhibit.
- Automatic pedestrian crossing gates will be installed on the north side of Thorne Lane on either side of the tracks to provide separation between passing trains and pedestrians using the sidewalk. Fencing to deter/prevent pedestrians from going around the gates arms will be installed and emergency one-way gates will be placed between the fence and crossing gate locations to allow pedestrians to exit if the gate arm comes down behind them.
- All three traffic signals are run off one traffic signal controller to eliminate operational conflict when going to preemption.
- A new traffic signal will be provided at the N Thorne/Union Avenue intersection. The signal at Union will be coordinated with the light at the Interstate 5 ramp terminal just south of the tracks to help control the amount of traffic that enters the area between Union Avenue and the tracks. The new signal will allow for a "No right turn on red" condition for eastbound traffic on Union to assist in mitigating the potential for vehicles queuing between Union and the railroad crossing.

| $\frac{\text { WSDOT Rail Division }}{\text { Petitioner }}$ |
| :--- |
| $\frac{\text { P.O. Box 47407 }}{\text { Street Address }}$ |
| $\frac{\text { Olympia, WA 98504 }}{\text { City, State and Zip Code }}$ |
| $\frac{\text { Mailing Address, if different than the street address }}{}$ |
| $\frac{\text { David Smelser }}{\text { Contact Person Name }}$ |
| Contact Phone Number and E-mail Address |

Section 2 - Respondent's Information

| $\frac{\text { Central Puget Sound Regional Transportation Authority ("Sound Transit") }}{\text { Respondent }}$ |
| :--- |
| $\frac{\text { 401 South Jackson Street }}{\text { Street Address }}$ |
| $\frac{\text { Seattle, WA 98104-2826 }}{\text { City, State and Zip Code }}$ |
| $\frac{\text { Mailing Address, if different than the street address }}{\text { Jodi Mitchell }}$ |
| $\frac{\text { 206-398-5080; Jodi.Mitchell@SoundTransit.org }}{\text { Contact Person Name }}$ |
| Contact Phone Number and E-mail Address |



## Tacoma Rail

Respondent
2601 SR 509 North Frontage Road
Street Address
Tacoma, WA 98421
City, State and Zip Code

Mailing Address, if different than the street address
Kyle Kellem
Contact Person Name
253-377-3554; kkellem@cityoftacoma.org
Contact Phone Number and E-mail Address

## Section 3 - Crossing Location

1. Existing highway/roadway N Thorne Ln SW
2. Existing railroad Tacoma Municipal Belt Line
3. USDOT Crossing No. $\qquad$ 085828 M
4. Located in the $\qquad$ $1 / 4$ of the $\qquad$ $1 / 4$ of Sec. 14 , Twp. $\mathbf{1 9 N}$, Range 2E W.M.
5. GPS location, if known 47.127443, -122.54291
6. Railroad mile post (nearest tenth) $\mathbf{3 . 1}$
7. City

Lakewood
County $\qquad$

1. Railroad company Sound Transit

Note: Sound Transit owns crossing property while Tacoma Rail and BNSF Railway Company share a franchising agreement of the rail.
2. Type of railroad at crossing $\square$ Common Carrier $\square$ Logging $\square$ Industrial
$\checkmark$ Passenger
$\square$ Excursion
3. Type of tracks at crossing $\square$ Main Line $\square$ Siding or Spur
4. Number of tracks at crossing $\qquad$
5. Average daily train traffic, freight $\qquad$
Authorized freight train speed $\mathbf{4 0} \mathbf{~ m p h}$ Operated freight train speed $\mathbf{4 0 \mathrm { mph }}$
6. Average daily train traffic, passenger $\mathbf{1 6}$

Authorized passenger train speed $\quad \mathbf{7 9} \mathbf{~ m p h}$ Operated passenger train speed $\quad \mathbf{7 9 \mathrm { mph }}$
7. Will the proposed crossing eliminate the need for one or more existing crossings?

8. If so, state the distance and direction from the proposed crossing.
$\qquad$
$\qquad$
9. Does the petitioner propose to close any existing crossings?

Yes $\quad$ No $\quad \checkmark$
Section 5 - Temporary Crossing

1. Is the crossing proposed to be temporary? $\quad$ Yes $\quad$ No $\quad \checkmark$
2. If so, describe the purpose of the crossing and the estimated time it will be needed
3. Will the petitioner remove the crossing at completion of the activity requiring the temporary crossing? Yes _$\quad$ No __ N/A

Approximate date of removal

1. Name of roadway/highway N Thorne Ln SW
2. Roadway classification $\qquad$ Minor Arterial
3. Road authority $\qquad$
4. Average annual daily traffic (AADT) $\qquad$
5. Number of lanes 1 NB lane, 2 SB lanes
6. Roadway speed $\qquad$ 25 mph
7. Is the crossing part of an established truck route?

Yes $\qquad$ No $\qquad$
8. If so, trucks are what percent of total daily traffic? $\qquad$
9. Is the crossing part of an established school bus route? Yes $\qquad$ No $\qquad$
10. If so, how many school buses travel over the crossing each day? 4
11. Describe any changes to the information in 1 through 7, above, expected within ten years:

The AADT is expected to increase by approximately $\mathbf{4 0 \%}$ to 11270 . Traffic data was collected in 2010 and the traffic analysis was completed in 2011.

1. Does a safer location for a crossing exist within a reasonable distance of the proposed location? Yes $\qquad$ No $\qquad$
2. If a safer location exists, explain why the crossing should not be located at that site.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
3. Are there any hillsides, embankments, buildings, trees, railroad loading platforms or other barriers in the vicinity which may obstruct a motorist's view of the crossing?

Yes $\checkmark$ No
4. If a barrier exists, describe:

- Whether petitioner can relocate the crossing to avoid the obstruction and if not, why not.
- How the barrier can be removed.
- How the petitioner or another party can mitigate the hazard caused by the barrier.

Stopping sight distances are maintained but due to curves in N Thorne Ln SW views of the crossing are obstructed further away by trees and shrubs in both directions. See Section 8.
5. Is it feasible to construct an over-crossing or under-crossing at the proposed location as an alternative to an at-grade crossing?

Yes __ No $\checkmark$
6. If an over-crossing or under-crossing is not feasible, explain why.

The existing site is surrounded by Interstate 5, on-ramps and off-ramps, and local roads. Constructing an overcrossing or undercrossing would require elimination, reconstruction and/or relocation of these facilities.
7. Does the railway line, at any point in the vicinity of the proposed crossing, pass over a fill area or trestle or through a cut where it is feasible to construct an over-crossing or an under-crossing, even though it may be necessary to relocate a portion of the roadway to reach that point?

Yes _No $\checkmark$
8. If such a location exists, state:

- The distance and direction from the proposed crossing.
- The approximate cost of construction.
- Any reasons that exist to prevent locating the crossing at this site.

9. Is there an existing public or private crossing in the vicinity of the proposed crossing?

Yes $\qquad$ No $\quad \checkmark$
10. If a crossing exists, state:

- The distance and direction from the proposed crossing.
- Whether it is feasible to divert traffic from the proposed to the existing crossing.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$

1. Complete the following table, describing the sight distance for motorists when approaching the tracks from either direction. "Number of feet from proposed crossing" is measured from the outside track along the centerline of the "outside" lane. Sight distance is measured from the driver's position within the lane facing the crossing with the front of the vehicle the number of feet from the proposed crossing.
Note that sight distances from the I-5 Southbound Off Ramps are NOT reflected in the tables below. The I-5 Off Ramps are both parallel and very close to the tracks. Motorists on the OffRamp may have their forward visibility along the track, at certain angles, obstructed somewhat by the railroad crossing cantilever mast and gate mechanism. Since the tracks also extend behind motorists on the Off-Ramp, rearward visibility, though unlimited by obstacles, is likely to be zero, based on motorists' tendency to not look behind them.

a. Approaching the crossing from the NORTHWEST , the current approach provides an unobstructed view as follows:
(North, South, East, West)

| Direction of sight (left or right) | Number of feet from <br> proposed crossing | Provides an unobstructed <br> view for how many feet |
| :--- | :--- | :--- |
| Right | 300 | 310 (obscured by trees) |
| Right | 200 | 2560 |
| Right | 100 | 2560 |
| Right | 50 | 2560 |
| Right | 25 | 2560 |
| Left | 300 | 180 (obscured by trees) |
| Left | 200 | 1550 |


| Left | 100 | 1550 |
| :--- | :--- | :--- |
| Left | 50 | 1550 |
| Left | 25 | 1550 |

b. Approaching the crossing from SOUTHEAST, the current approach provides an unobstructed view as follows: (Opposite direction-North, South, East, West)

| Direction of sight (left or right) | Number of feet from <br> proposed crossing | Provides an unobstructed <br> view for how many feet |
| :--- | :--- | :--- |
| Right | 300 | 0 (obscured by trees) |
| Right | 200 | 15 (obscured by trees) |
| Right | 100 | 20 (obscured by trees) |
| Right | 50 | 25 (obscured by trees) |
| Right | 25 | 310 (obscured by trees) |
| Left | 300 | 20 (obscured by trees) |
| Left | 200 | 30 (obscured by trees) |
| Left | 100 | 140 (obscured by trees) |
| Left | 50 | 250 (obscured by trees) |
| Left | 25 | 350 (obscured by trees) |

2. Will the new crossing provide a level approach measuring 25 feet from the center of the railway on both approaches to the crossing?

Yes $\quad$ No $\checkmark$
3. If not, state in feet the length of level grade from the center of the railway on both approaches to the crossing. Looking north along the track: Right $\mathbf{0 . 6 7 \%}$ for 20 'and then $\mathbf{3 . 7 3 \%}$ for $\mathbf{3 0}$ '; Left $\mathbf{1 . 0 0 \%}$ for $\mathbf{2 8}^{\prime}$.
4. Will the new crossing provide an approach grade of not more than five percent prior to the level grade?

5. If not, state the percentage of grade prior to the level grade and explain why the grade exceeds five percent.
$\qquad$
$\qquad$
$\qquad$

Section 9 - Illustration of Proposed Crossing Configuration

Attach a detailed diagram, drawing, map or other illustration showing the following:

- The vicinity of the proposed crossing.
- Layout of the railway and highway 500 feet adjacent to the crossing in all directions.
- Percent of grade.
- Obstructions of view as described in Section 7 or identified in Section 8.
- Traffic control layout showing the location of the existing and proposed signage.

1. Provide the following information:
a. Provide a description of the type of sidewalks proposed.
b. Describe who will maintain the sidewalks.
c. Attach a proposed diagram or design of the crossing including the sidewalks.

This project will construct a new sidewalk on the north side of North Thorne across the railroad crossing. A new ADA compliant ramp terminal will be constructed at the Union Ave/Thorne Lane intersection to direct pedestrians across Thorne Lane to the new sidewalk. At the railroad crossing the pedestrian sidewalks will contain a buffer strip between the sidewalk and the concrete curb that will be used for the railroad warning devices. In advance of the pedestrian track crossing, truncated domes will be installed on the sidewalk surface to delineate the boundary between sidewalk and travel way for visually impaired pedestrians. Automatic gates will be installed on either side of the tracks to provide separation between passing trains and pedestrians using the sidewalk. Fencing to deter/prevent pedestrians from going around the gates arms will be installed and emergency one-way swing gates will be placed between the fence and gate location to allow pedestrians to exit if the gate arm comes down behind them. Sidewalks will be maintained by WSDOT. The existing crosswalk located between the tracks and the southbound I-5 ramp terminal will be removed, requiring pedestrians to use the sidewalk along the northside of Thorne Lane and across the north side of the bridge over I-5.

Section 11-Proposed Warning Signals or Devices

1. Explain in detail the number and type of automatic signals or other warning devices planned at the proposed crossing, including a cost estimate for each. If requesting pre-emption include the type of train detection circuitry, sequencing and advanced preemption time, justification for the changes and its effects on current warning devices and warning times for drivers.

The crossing will have active warning devices, including crossing gates, controlled by constant motion predictors and an automatic horn system with stationary horns. The warning lights are mounted on cantilevers.

All three traffic signals are proposed to run by one traffic signal controller. The railroad control equipment for the crossing is interconnected with the traffic signal controller using a 6 -wire connection. Upon a preemption signal from the railroad control equipment the traffic signal controller will transfer right-of-way by stopping all vehicles moving towards the crossing and provide green lights for track clearance before the gates start to drop. Once the track clearance interval is complete and the gates are down, limited service will be provided for vehicles moving away from the crossing.

Blank-out signs with the symbol "No Right Turn" are proposed at the intersections of North Thorne Ln/Union Ave and the Southbound Off-Ramp from Interstate 5. This sign is illuminated when the railroad advanced pre-emption starts.

The I-5 ramp meters are independently connected to the railroad bungalow and preempted by the railroad.

The traffic signal system will have a generator for backup power.
2. Provide an estimate for maintaining the signals for 12 months.
3. Is the petitioner prepared to pay to the respondent railroad company its share of installing the warning devices as provided by law?
$\qquad$

Section 12 - Traffic Signal Preemption

Complete the attached Guide for Determining Time Requirements for Traffic Signal Preemption at Highway-Rail Grade Crossings.

1. Specify simultaneous or advance preemption requested.

Advance preemption
If advance preemption, what is the preemption time.
18 seconds

## Waiver of Hearing

The undersigned represents the Respondent in the petition to install an inter-tie between the highway signal and the railroad crossing signal system at the following crossing.

USDOT Crossing No. $\quad \underline{085828 \mathrm{M}}$

We have investigated the conditions at the crossing. We are satisfied the conditions are the same as described by the Petitioner in this docket. We agree the inter-tire should be installed and consent to a decision by the commission without a hearing.

Dated at $\qquad$ , Washington, on the ___ day of
$\qquad$ , 20 $\qquad$ _.

Printed name of Respondent

Signature of Respondent's Representative

Title

Phone number and e-mail address
$\qquad$

Mailing address

UTC
UTILITIES AND TRANSPORTATION COMMISSION CROSSINGS

For Future Conditions

| Client | WSDOT R | Date | 11/17/2014 |
| :---: | :---: | :---: | :---: |
| City | Lakewood | Completed by | CPS |
| County | Pierce | Checked by | JJS |
| North Arrow |  | Parallel Street Name | Union Ave |
|  |  | Crossing Street Name | North Thorne Ln |
|  |  | Number of Tracks | 1 |



Railroad Contact


Train Crossing Speed $\qquad$
SECTION1: RIGHT-OF-WAY TRANSFER TIME CALCULATION Preempt verification and response time

1. Preemption delay time (seconds)
2. Controller response time to preempt (seconds)
3. Preempt verification and response time (seconds): add lines 1 and 2


## Worst-case conflicting vehicle time

4. Worst-case conflicting vehicle phase number
5. Minimum green time during right-of-way transfer (seconds)
6. Other green time during right-of-way transfer (seconds)
7. Yellow change time (seconds)
8. Red clearance time (seconds)
9. Worst-case conflicting vehicle time (seconds): add lines 5 through 8


## Remarks

$\qquad$
30.0


Worst-case conflicting pedestrian time

| 10. Worst-case conflicting pedestrian phase number | 10 | 2 |
| :--- | :--- | :---: |
| 11. Minimum walk time during right-of-way transfer (seconds) | 11 | 0.0 |
| 12. Pedestrian clearance time during right-of-way transfer (seconds) | 12 | 0.0 |
| 13. Vehicle yellow change time, if not included on line 12 (seconds) | 13 | 3.5 |
| 14. Vehicle red clearance time, if not included on line 12 (seconds) | 14 | 1.0 |


|  | Remarks <br> MUTCD allows zero |
| :--- | :--- |
|  |  |

## Worst-case conflicting vehicle or pedestrian time

16. Worst-case conflicting vehicle or pedestrian time (seconds): maximum of lines 9 and 15

17. Right-of-way transfer time (seconds): add lines 3 and 16

## SECTION 2: QUEUE CLEARANCE TIME CALCULATION




## Section 13 -Waiver of Hearing by Respondent

## Waiver of Hearing

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USDOT Crossing No, 085828 M

We have investigated the conditions at the crossing. We are satisfied the conditions are the same as described by the Petitioner in this docket. We agree the inter-tire should be installed and consent to a decision by the commission without a hearing.


- cyRil. , 2015.

John J (An/tidel
Printed name of Respondent


Signature of Respondent's Representative

(252) $589-2489$ jcaulfielde cityoflakewead. us

Phone number and e-mail address
6000 MAIN ST SW
LAKEWOOD, WA 98499
Mailing address

Waiver of Hearing
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USDOT Crossing No. $\qquad$ 085828M

We have investigated the conditions at the crossing. We are satisfied the conditions are the same as described by the Petitioner in this docket. We agree the inter-tire should be installed and consent to a decision by the commission without a hearing.


Printed name of Respondent


Signature of Respondent's Representative

$206903-7363$
Phone number and e-mail address


Sumter, Wat 9810t
Mailing address

Waiver of Hearing
The undersigned represents the Respondent in the petition to install an inter-tie between the highway signal and the railroad crossing signal system at the following crossing.

USDOT Crossing No. $\qquad$ 085828M

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Dated at SGCMLE , Washington, on the 329 day of Manet, 2015 .
Rectors W. Wacion

Printed name of Respondent


Mar Pubic Prayers NW Divisions
Title

$$
206.625 .6152
$$

Phone number and email address
$\qquad$

Mailing address

Waiver of Hearing
The undersigned represents the Respondent in the petition to install an inter-tie between the highway signal and the railroad crossing signal system at the following crossing.

USDOT Crossing No. $\qquad$ 085828M

We have investigated the conditions at the crossing. We are satisfied the conditions are the same as described by the Petitioner in this docket. We agree the inter-tire should be installed and consent to a decision by the commission without a hearing.

Dated at $\qquad$ Tacoma , Washington, on the $\qquad$ 23rd day of
$\qquad$ , 2015.


Printed name of Respondent


Roodmaster
Title

253-377-3554 Kkellemecity of tacoma.org
Phone number and e-mail address




