WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Cascade & Columbia River Railroad Petitioner, vs. Respondent Washington State Dept. of Transportation	)	DOCKET NO. TR- 140758-AF PETITION TO MODIFY HIGHWAY-RAIL GRADE CROSSING ACTIVE WARNING DEVICES AND DISBURSEMENT OF FUNDS FROM THE GRADE CROSSING PROTECTIVE FUND USDOT CROSSING # 096305N

The Petitioner asks the Washington Utilities and Transportation Commission to approve the modification of highway-rail grade crossing warning signals and disburse funds from the Grade Crossing Protective Fund.

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Section 1 – Petitioner's Information

Cascade & Columbia River Railroad
Petitioner

1710 Midway Court
Street Address

Centralia, WA 98531
City, State and Zip Code

Mailing Address, if different than the street address

Larry Sorensen
Contact Person Name

Contact Person's Signature

904-999-5031 larry.sorensen@gwrr.com
Contact Phone Number and Email Address

Section 2 – Respondent's Information

Washington State Department of Transportation
Respondent

310 Maple Park Ave SE
Street Address

Olympia, WA 98504-7329
City, State and Zip Code

PO Box 47329
Mailing Address, if different than the street address

Ahmer Nizam
Contact Person Name

360-705-7271 nizama@wsdot.wa.gov
Contact Phone Number and Email Address

Section 3 – Crossing Location

1. Existing highway/roadway Highway 155 (Omak Ave)

2. Existing railroad CSCD

3. USDOT Crossing No. 096305N

4. Located in the SW 1/4 of the NW 1/4 of Sec. 36 , Twp. T34N Range R26E W.M.

5. GPS location, if known 48.4040500, -1195132400

6. Railroad mile post (nearest tenth) 95.67

7. City Omak County Okanogan

Section 4 – Current Highway Traffic Information

1. Name of highway Hwy 155

2. Road authority WSDOT

3. Average annual daily traffic (AADT) (2012) 4000

4. Number of lanes 2

5. Roadway speed 35 MPH

6. Is the crossing part of an established truck route? Yes X No _____

7. If so, trucks are what percent of total daily traffic? 10 %

8. Is the crossing part of an established school bus route? Yes X No _____

9. If so, how many school buses travel over the crossing each day? 25

10. Describe any changes to the information in 1 through 7, above, expected within ten years:

_____

_____

_____

Section 5 – Current Crossing Information

1. Railroad company Cascade & Columbia River Railroad

2. Type of railroad at crossing X Common Carrier ☐ Logging ☐ Industrial

☐ Passenger ☐ Excursion

3. Type of tracks at crossing X Main Line X Siding or Spur

4. Number of tracks at crossing 3

5. Average daily train traffic, freight 12

Authorized freight train speed 20 MPH Operated freight train speed 5 – 20 MPH

6. Average daily train traffic, passenger None

Authorized passenger train speed _____ Operated passenger train speed _____

7. Describe any changes to the information in 1 through 4, above, expected within ten years:

Train traffic is expected to increase, but do not know by how much.

8. What is the available sight distance from the stop bar (or 25 feet from the tracks if no stop bar) on both approaches to the crossing?

N/A

9. If the sight distance is less than 400 feet, describe the structures, roadway or track curvature, visual obstacles or other characteristics that limit sight distance.

N/A

Section 6 – Current Warning Devices

1. Provide a complete description of the warning devices currently located at the crossing, including signs, gates, lights, train detection circuitry and any other warning devices.

Crossing has two Cantilevers with three sets of flashing lights each, two gate arms with flashing lights, and one bell. Each mast has a Crossbuck sign and 3 Track sign.

Train detection is Motion Sensor on Main Track and Island DC Presence Detection on two Siding tracks.

Section 7 – Description of Proposed Changes

1. Describe in detail the number and type of proposed automatic signals, gates or other warning devices, including proposed circuitry. Include the funding source for the proposed modification.

a) Upgrade existing Standby Power so crossing will operate safely in the event of an extended power outage. This will be accomplished by installing new batteries.

b) Replace the Gate arms and gate arm lights to LED for better visibility.

c) Upgrade Train presence detection on Siding tracks by replacing the exiting DC track circuit with an AC/DC track circuit which offers better train detection on low density track.

d) Upgrade the signal plans to reflect circuitry changes to comply with **FRA Rule 234.201, Location of plans.** *"This rule requires that plans be kept at each highway-Rail grade crossing warning system location. Plans shall be legible and correct."* This will require a signal engineering firm to design new circuit plans. CSCD has an existing service contract with XO Rail located in Walnut Creek, California. See attached Quote.

Funding to come from the GCPF. Railroad to pay for labor.

Section 8 – Illustration of Proposed Warning Devices

Attach a detailed diagram, drawing, map or other illustration showing the proposed modification.

Section 9 – Use of Surplus Equipment

If surplus or used equipment is being installed as part of the project, please review the following statement and sign, accepting the terms and conditions.

"The recipient of surplus equipment voluntarily accepts the equipment as is. Proper installation and testing is required per Code of Federal Regulations 49, prior to activating the signal equipment. The recipient assumes full responsibility for functionality of the equipment."

Name (print): N/A
Title: _____
Company: _____
Signature: _____
Date: _____

Section 10 – Project Cost Information

1. Breakdown of estimated total cost.
   Batteries: 10 cells SPL340 $3,300.00, 9 cells SPL250 $2,205.00
   Battery Chargers: 40ETC-12V 590.00, 20ETC-12V $455.00
   Electronics on Siding Track: TD-4 $784.00, Ring 10 Rectifier $119.00
   2 - Gates w/LED lights $1,706.00 Engineering services $9,539.33
   7.7% SalesTax: $736.00, 5% Shipping, $478.00 **Project Total Cost: $19,912.33**
2. Names of the parties contributing to the project and the amount each is contributing.

   WUTC GCPF grant award to pay full cost of materials and design services. Cascade & Columbia River Railroad will pay for all labor to install and test.

3. Provide the amount the applicant is requesting from the GCPF grant program.

   $20,000.00 is requested.

Section 11 – Project Completion Date

Project completion date: June 30, 2015

Section 12 – Waiver of Hearing by Respondent

Waiver of Hearing

The undersigned represents the Respondent in the petition to modify highway-rail grade crossing warning signals at the following crossing:

USDOT Crossing No. 096305N

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 warning signals should be modified and consent to a decision by the commission without a hearing.

Dated at Olympia, Washington, on the 24th day of April, 2014.

Ahmer Nizam
Printed name of Respondent

Signature of Respondent's Representative

Manager- Utilities and Railroad
Title

(360) 705-7271 nizama@wsdot.wa.gov
Phone number and e-mail address

310 Maple Park Ave. SE

Olympia, WA 98504-7329
Mailing address

Xorail
A Wabtec Company

April 25, 2014

Mr. Jon Rolufs
Manager of Signals, North Pacific Region
Genesee & Wyoming Co.
200 Hawthorne Ave. SE, #c-320
Salem, OR 97301

Subject: DOT# 096305N Highway 155 (Omak Street)

Mr. Rolufs:

Xorail, Inc. is pleased to submit this cost estimate for Highway 155 (Omak Street) redraw and re-design.

Xorail's scope of work for this effort is outlined below.

A. Engineering Design
   - Provide detailed circuit design
   - Provide engineers construction estimate
   - Provide material list
   - Prepare As-built drawings
   - Circuit plans will not include details and reflect design only

Our lump sum price proposal for this effort is provided below. This price is valid for 90 days.

Total:	**$ 9539.33**

We appreciate the opportunity to work with your company and look forward to hearing from you.

Sincerely,

Aaron Marx
Manager of Engineering
Xorail – Walnut Creek
2890 North Main Street, STE 306
Walnut Creek, CA 94591

ElectroLogIXS XP4 Physical Description

The ElectroLogIXS XP4 may be received as a separate assembly or as part of a pre-assembled rack. It is designed for mounting in a standard 19-inch rack, wall mounting, or installation on a shelf. Operating power is supplied from a standard 12 volt battery. The battery terminals are conveniently located in the upper right corner of the ElectroLogIXS XP4 chassis, and are labeled N (negative) and B (battery positive).

An ElectroLogIXS XP4 system consists of a chassis assembly with plug-in modules. The lower portion of the chassis contains card slots that are dedicated for the Central Power Supply (CPS-2 or CPS-3), Vital Peripheral Master (VPM-2+ or VPM-3) Module, NSM-1 (Normal Standby Module), Crossing Chassis Information Module (XCI-1 or XCI-2), GFD-1 (Ground Fault Detector), and the CIO-1A (Communication Input/Out) Module. Two additional slots are available and each will accommodate a CIO-2A, CIO-2AB or CIO-MDA module.

The ElectroLogIXS XP4 is available in 9-slot, 4-slot or 1-slot configurations, providing flexibility and scalability depending on the application. Both configurations support the same number of system modules, but have the capability for nine (9) I/O modules (9-slot), four (4) I/O modules (4-Slot), or one (1) I/O module (1-Slot) respectively.

The following modules may be installed in the I/O slots: XTI-1S (Crossing Track Interface), VIO-44S (Vital Input/Output), VIO-44R (Vital Input/Output), VIO-86S (Vital Input/Output), IXC-20S (Integrated Crossing Controller). The ElectroLogIXS XP4 will support a maximum of four XTI-1S modules or eight XTI-1Ss if in N/S (Normal/Standby) pairs.

Personality modules are installed in the upper portion of the I/O slots. The type of personality module installed in a slot will depend on the type of I/O module installed in the chassis and whether the I/O module is part of a Normal/Standby module pair.

ElectroLogIXS XP4 Chassis

The open-frame ElectroLogIXS XP4 chassis allows easy access to all modules and plug in connections. Mounted in the back of the chassis is a one-piece backplane that provides interconnections to all the modules of the ElectroLogIXS XP4 system. Personality modules (Figure 1-3) attach to the backplane and connect the modules to the field wiring connections. Quick disconnect clips secure modules to the chassis and all personality module connectors are keyed to insure that modules are placed into the correct slot. In addition, the personality module field wiring connectors are keyed.

I/O module slots can include:

- XTI-1S modules
- VIO-44S modules
- VIO-44R modules
- IXC-20S modules
- VTI-1S modules
- VIO-1010S modules
- VIO-86S modules
- VLD-C6S modules
- VLD-R16S modules

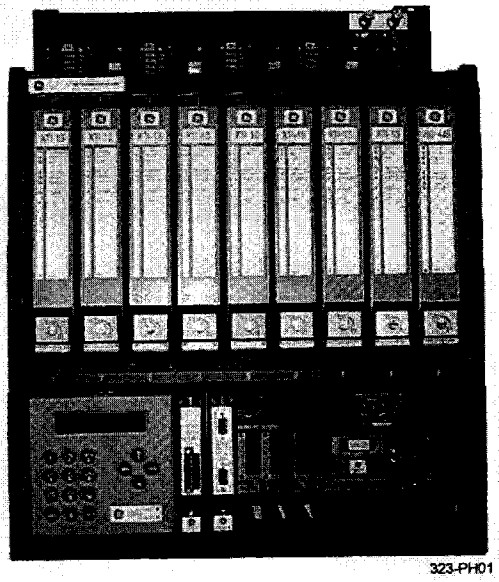

Figure 1-1, ElectroLogIXS XP4 9-Slot.

System module slots can include:

- CPS-2 or CPS-3 module
- NSM-1 module
- VPM-2+ or VPM-3 module
- GFD-1 module
- CIO-1A module
- CIO-2A module, CIO-2AB module or
- CIO-MDA module
- XCI module

CPS, NSM-1, and VPM modules are located behind the CDU-1 module (Figure 1-2).

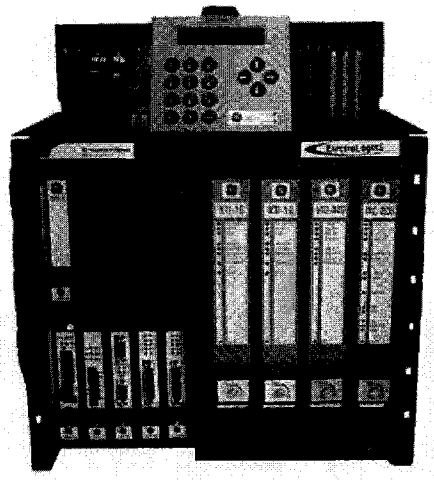

Figure 1-1a, ElectroLogIXS XP4 4-Slot.

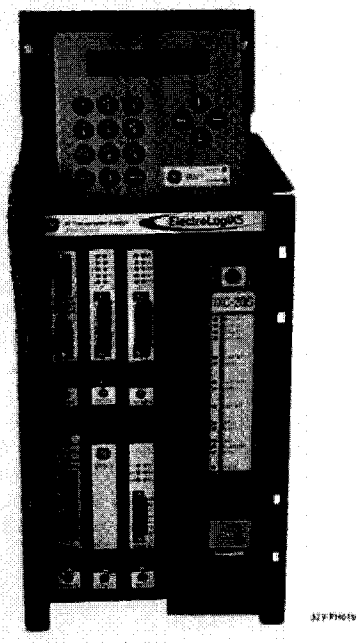

Figure 1-1b, ElectroLogIXS XP4 1-Slot.

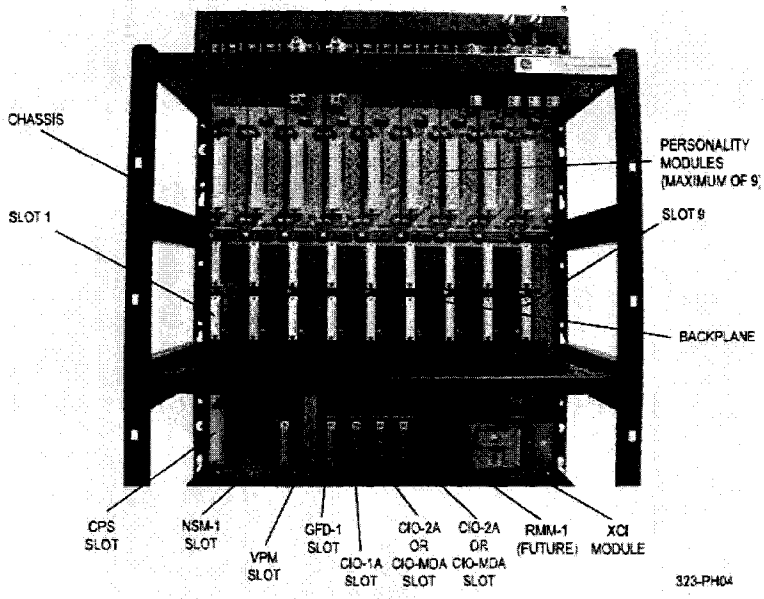

Figure 1-4, ElectroLogIXS XP4 9-Slot Chassis and Backplane (P/N 300752-000)

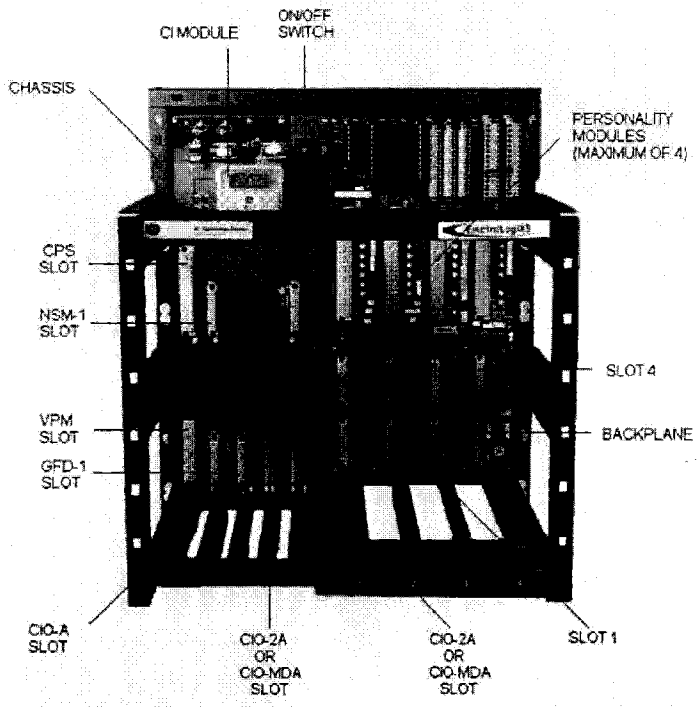

Figure 1-4a, ElectroLogIXS XP4 4-Slot Chassis and Backplane (P/N 251464-000)

Theory of Operation

The ElectroLogIXS XP4 Crossing configuration provides constant warning times by calculating the speed of the train and its arrival time at the crossing by transmitting and receiving an AC signal on the track. Two sets of leads are required to complete the track circuit. One set of leads is used to transmit the signal onto the track and another set of leads is used to monitor/receive the signal on the rail. The transmitter and receiver leads are spaced apart and the track between the leads is called the Island. Both the voltage (RX) and phase angle of the received signal are measured. RX is used to determine train speed and distance. Phase angle is used to determine ballast conditions.

The distance that a train can be detected on each side of the island is called the approach. The length of the approach is a function of the maximum allowable train speed at that location per railroad operating rules and the minimum acceptable warning time. For an unoccupied approach, RX is adjusted to 100. When a train moves inbound on the approach, RX decreases linearly in relation to the train's lead axle location relative to the crossing. For example, when the train has moved one quarter of the way into the approach the RX will equal 75. Figure below depicts a train moving through a crossing and following table describes the sequence of events that occur in response to train movement.

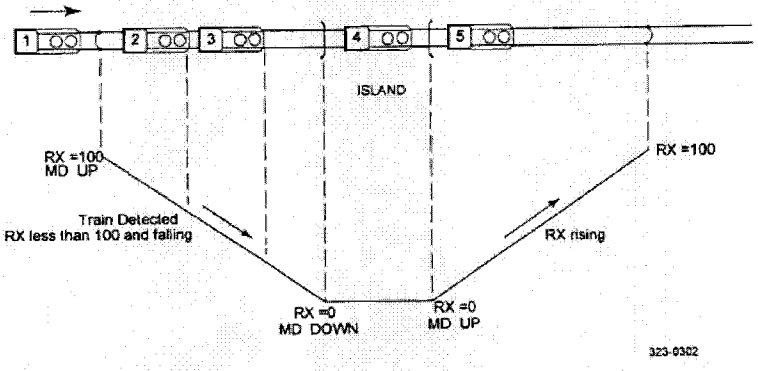

Figure 1-6, Train Movement Through a Crossing

TRAIN POSITION	ElectroLogIXS XP4 Crossing Subsystem RESPONSE
Position 1 - Inbound train outside the approach (RX = 100)	Train not detected, no response.
Position 2 - Train detection (RX falling)	A train moving in on the approach causes a change in the received voltage level and phase. The rate at which the received signal changes, is used to determine train speed and anticipated arrival time at the crossing.
Position 3 - Crossing activated	When the calculated arrival time to the crossing equals the selected warning time, ElectroLogIXS XP4 Crossing Subsystem activates the crossing warning system.
Position 4 - Train in Island (RX = 0)	Random Signature Island (RSI) function of the ElectroLogIXS XP4 Crossing Subsystem monitors train presence in the Island.
Position 5 - Train leaves Island (RX rising)	As last set of wheels leave the Island, the ElectroLogIXS XP4 Crossing Subsystem de-activates the crossing warning system after the selected delay time.