Exhibit No. ___ (PC-6)
Docket TR-150189
Witness: Paul Curl

BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

BNSF RAILWAY COMPANY Petitioner v. WHATCOM COUNTY Respondent.	DOCKET TR-150189

EXHIBIT TO
TESTIMONY OF

PAUL CURL

STAFF OF
WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION

USDOT "Guidance on Traffic Control Devices at Highway-Rail Grade Crossings (Nov. 2002), pp. 32-33

September 21, 2015

GUIDANCE ON TRAFFIC CONTROL DEVICES AT HIGHWAY-RAIL GRADE CROSSINGS

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

HIGHWAY/RAIL GRADE CROSSING TECHNICAL WORKING GROUP (TWG)

NOVEMBER 2002

U.S. Department of Transportation
Highway-Railroad Grade Crossing Technical Working Group

B. Active devices, with automatic gates should be considered *as an option* at public highway-rail grade crossings whenever they can be economically justified based on fully allocated life cycle costs *and* one or more of the following conditions exist:
   1) Multiple tracks exist at or in the immediate crossing vicinity where the presence of a moving or standing train on one track effectively reduces the clearing sight distance below the minimum relative to a train approaching the crossing on an adjacent track (absent some other acceptable means of warning drivers to be alert for the possibility of a 2nd train); [See Figure 1.]
   2) An average of 20 or more trains per day;
   3) Posted highway speed exceeds 64 km/h (40mph) in urban areas, or exceeds 88 km/h (55 mph) in rural areas;
   4) Annual Average Daily Traffic (AADT) exceeds 2000 in urban areas, or 500 in rural areas;
   5) Multiple lanes of traffic in the same direction of travel (usually this will include cantilevered signals);
   6) The crossing exposure (the product of the number of trains per day and AADT) exceeds 5,000 in urban areas, or 4,000 in rural areas;
   7) The expected accident frequency (EAF) as calculated by the USDOT Accident Prediction formula, including 5-year accident history, exceeds 0.075;
   8) An engineering study indicates that the absence of active devices would result in the highway facility performing at a level of service below Level C;
   9) Any new project or installation of active devices to significantly replace or upgrade existing non-gated active devices. For purposes of this item, replacements or upgrades should be considered "significant" whenever the cost of the otherwise intended improvement (without gates) equals or exceeds one-half the cost of a comparable new installation, and should exclude maintenance replacement of individual system components and/or emergency replacement of damaged units; or
   10) As otherwise recommended by an engineering study or diagnostic team.

C. Warning/Barrier Gate Systems should be considered as supplemental safety devices at:
   1) Crossings with passenger trains;
   2) Crossings with high-speed trains;
   3) Crossings in quiet zones; or
   4) As otherwise recommended by an engineering study or diagnostic team.

D. Enhancements for Pedestrian Treatments
   1) Design to avoid stranding pedestrians between sets of tracks;
   2) Add audible devices, based on an engineering study;
   3) Consider swing gates carefully; the operation of the swing gate should be consistent with the requirements of Americans with Disability Act. The gate should be checked for pedestrian safety within the limits of its operation;
   4) Provide for crossing control at pedestrian crossings where a station is located within the proximity of a crossing or within crossing approach track circuit for the highway-rail crossing;
   5) Utilize a Train to Wayside Controller to reduce traffic delays in areas of stations; and
   6) Delay the activation of the gates, flashers and bells for a period of time at the highway-rail grade crossing in station areas, based on an engineering study.

5. ***CLOSURE*** - Highway-rail grade crossings should be considered for closure and vacated across the railroad right-of-way whenever one or more of the following apply:

A. An engineering study determines a nearby crossing otherwise required to be improved or grade separated already has acceptable alternate vehicular access, and pedestrian access can continue at the subject crossing, if existing;

B. On a life cycle cost basis, the cost of implementing the recommended improvement would exceed the cost of providing an acceptable alternate access;

C. If an engineering study determines any of the following apply:
   1) FRA Class 1,2 or 3 track with daily train movements:
      a. AADT less than 500 in urban areas, acceptable alternate access across the rail line exists within .4 km (1/4 mi) and the median trip length normally made over the subject crossing would not increase by more than .8 km (1/2 mi);
      b. AADT less than 50 in rural areas, acceptable alternate access across the rail line exists within .8 km (1/2 mi) and the median trip length normally made over the subject crossing would not increase by more than 2.4 km (1-1/2 mi).
   2) FRA Class 4 or 5 track with active rail traffic:
      a. AADT less than 1000 in urban areas, acceptable alternate access across the rail line exists within .4 km (1/4 mi) and the median trip length normally made over the subject crossing would not increase by more than 1.2 km (3/4 mi);
      b. AADT less than 100 in rural areas, acceptable alternate access across the rail line exists within 1.61 km (1 mi) and the median trip length normally made over the subject crossing would not increase by more than 4.8 km (3 mi).
   3) FRA Class 6 or higher track with active rail traffic, AADT less than 250 in rural areas, an acceptable alternate access across the rail line exists within 2.4 km (1-1/2 mi) and the median trip length normally made over the subject crossing would not increase by more than 6.4 km (4 mi); and

D. An engineering study determines the crossing should be closed to vehicular and pedestrian traffic when railroad operations will occupy or block the crossing for extended periods of time on a routine basis and it is determined that it is not physically or economically feasible to either construct a grade separation or shift the train operation to another location. Such locations would typically include:
   1) Rail yards;
   2) Passing tracks primarily used for holding trains while waiting to meet or be passed by other trains;
   3) Locations where train crews are routinely required to stop their trains because of cross-traffic on intersecting rail lines or to pick up or set out blocks of cars or switch local industries en route;
   4) Switching leads at the ends of classification yards;
   5) Where trains are required to "double" in or out of yards and terminals;
   6) In the proximity of stations where long distance passenger trains are required to make extended stops to transfer baggage, pick up or set out equipment or be serviced en route; and
   7) Locations where trains must stop or wait for crew changes.

6. ***GRADE SEPARATION***
   A. Highway-rail grade crossings should be considered for grade separation or otherwise eliminated across the railroad right-of-way whenever one or more of the following conditions exist:
      1) The highway is a part of the designated Interstate Highway System;
      2) The highway is otherwise designed to have full controlled access;