



NEW APPLICATION  
ORIGINAL



RECEIVED

2009 FEB 19 P 4:37

AZ CORP COMMISSION  
DOCKET CONTROL

February 17, 2009

Arizona Corporation Commission  
Attn: Chris Watson  
2200 North Central Avenue  
Suite #300  
Phoenix, AZ 85004

RR-02635B-09-0075

Re: Applicant for Existing Rail Crossing Changes, DOT #'s 025099J & 025129Y

Mr. Watson,

This application is to install additional warning devices at the Steves and Fanning railroads crossings. The existing lights and gates will not be altered but wayside horns will be installed at each crossing. The following historic information is in the context of creating a quiet zone that the wayside horns are a part of. There are other crossings in the quiet zone but no changes will be made to the warning devices, roadway configuration or pavement marking at these crossings.

In accordance with the Federal Railroad Administrations Quiet Zone ruling 49 CFR Parts 222 and 229, the City of Flagstaff, Arizona intends to create a New Quiet Zone. The intent of this action is the elimination of train horn noise at railroad crossings within the limits of the City.

**Crossings Contained Within the Quiet Zone:**

- |                        |                        |
|------------------------|------------------------|
| • Beaver Street        | DOT Crossing # 025133N |
| • San Francisco Street | DOT Crossing # 025132G |
| • Enterprise Avenue    | DOT Crossing # 025131A |
| • Steves Boulevard     | DOT Crossing # 025099J |
| • Fanning Drive        | DOT Crossing # 025129Y |

Arizona Corporation Commission  
**DOCKETED**  
FEB 19 2009

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An on-site meeting was held on May 2, 2006 with the following attendance:

Kurt Anderson, Railroad Controls

Barry Gondron, Gannett Fleming

Chris Watson, Arizona Corporation Commission

Stu Seubert, City of Flagstaff (part time)

Randy Whitaker, City of Flagstaff

Debbie Jo Maust, City of Flagstaff

Gerry Craig, City of Flagstaff (part time)

Megan McIntyre, BNSF

Tom Chilcoat, BNSF

Note: FRA representatives could not attend due to financial situation.

At this field meeting the various safety measures were discussed that could occur at each of the crossing and a report "Quiet Zone/Wayside Horn Update December 2006, Revision 1-22-07 was issued to each participant.

In accordance with 29 CFR Part 222.43, on March 14, 2008 a Notice of Intent which included 60% drawings was provided by means of Certified Mail, Return Receipt Requested to:

- All railroads operating over the public highway rail – grade crossings within the Quiet Zone (BNSF Railroad);
- The State Agency responsible for highway and road safety (Arizona Department of Transportation)
- The State Agency responsible for grade crossing safety (Arizona Corporation Commission)

There is a statutory 60-day comment period after the date this Notice of Intent is mailed. BNSF did have several comments that have been addressed in the 100% drawings.

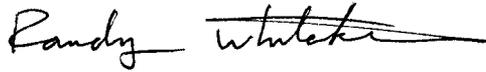
There are currently lights and gates at all five crossing within the project and these devices will not be changed as part of this project. Per the FRA Ruling to create the Quiet Zone, Beaver, San Francisco and Enterprise crossings will only require additional signage and fencing. Additional warning devices in the form of wayside horns will be installed at the Steves and Fanning crossings.

The City is funding the project and will be responsible for maintaining all signage, fencing and equipment installed as part of the project. The exception is the new electronic equipment inside the BNSF cabinet that sends a signal to the wayside horns will be maintained by BNSF.

There is not an overall agreement required to create the quiet zone but a Wayside Horn Agreement was required by BNSF.

Please do not hesitate to call or Email me at 928-226-4844 or  
rwhitaker@ci.flagstaff.az.us

Thank You,

A handwritten signature in cursive script that reads "Randy Whitaker". The signature is written in black ink and is positioned above the typed name.

Randy Whitaker  
Senior Project Manager  
City of Flagstaff

Exhibits:

A - Site Maps

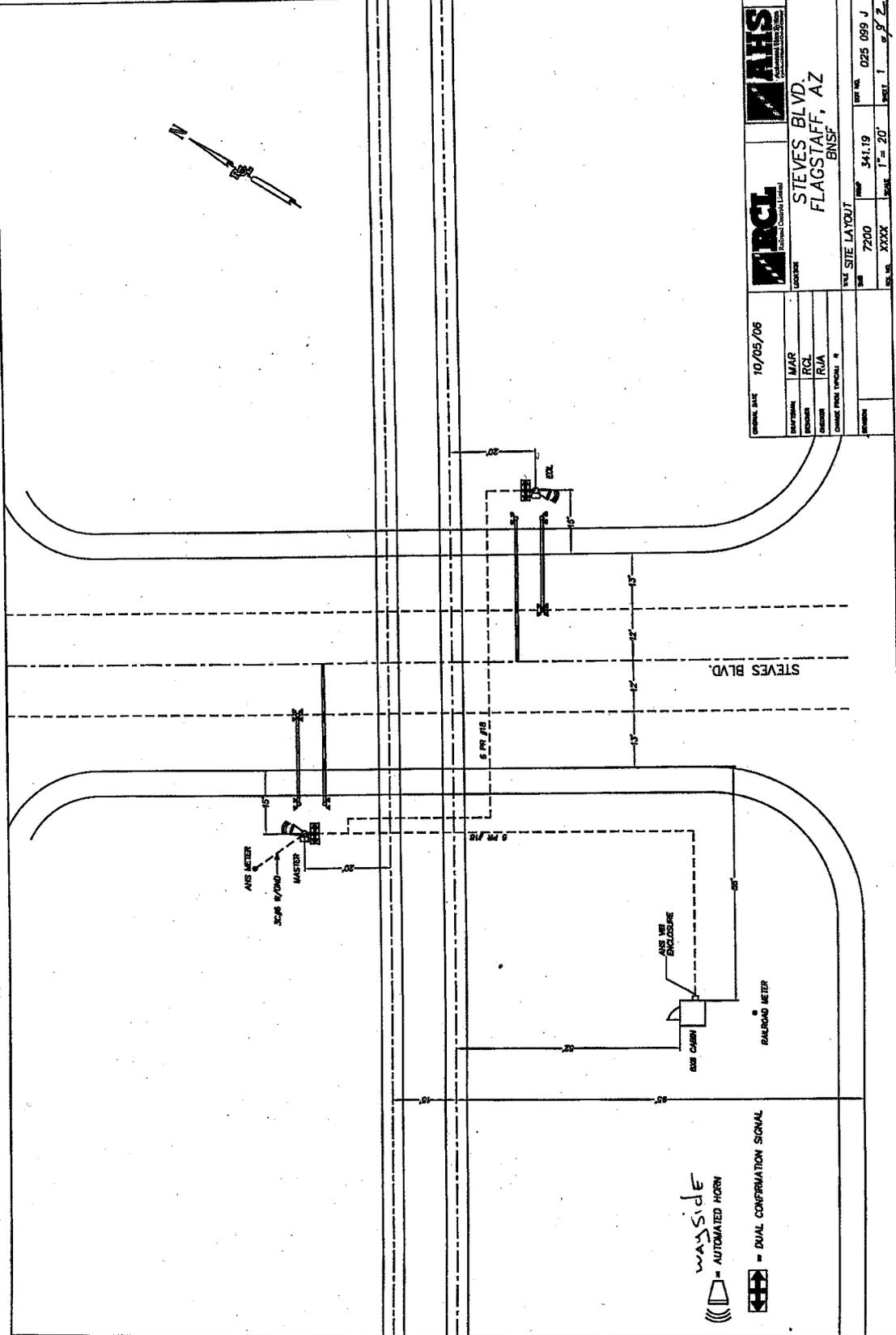
B - U.S.DOT - Crossing Inventory Information

C - BNSF Wayside Horn Agreement

D - Quiet Zone/Wayside Horn Update December 2006, Revision 1-22-07

E - Notice of Intent & 60% Design Narrative

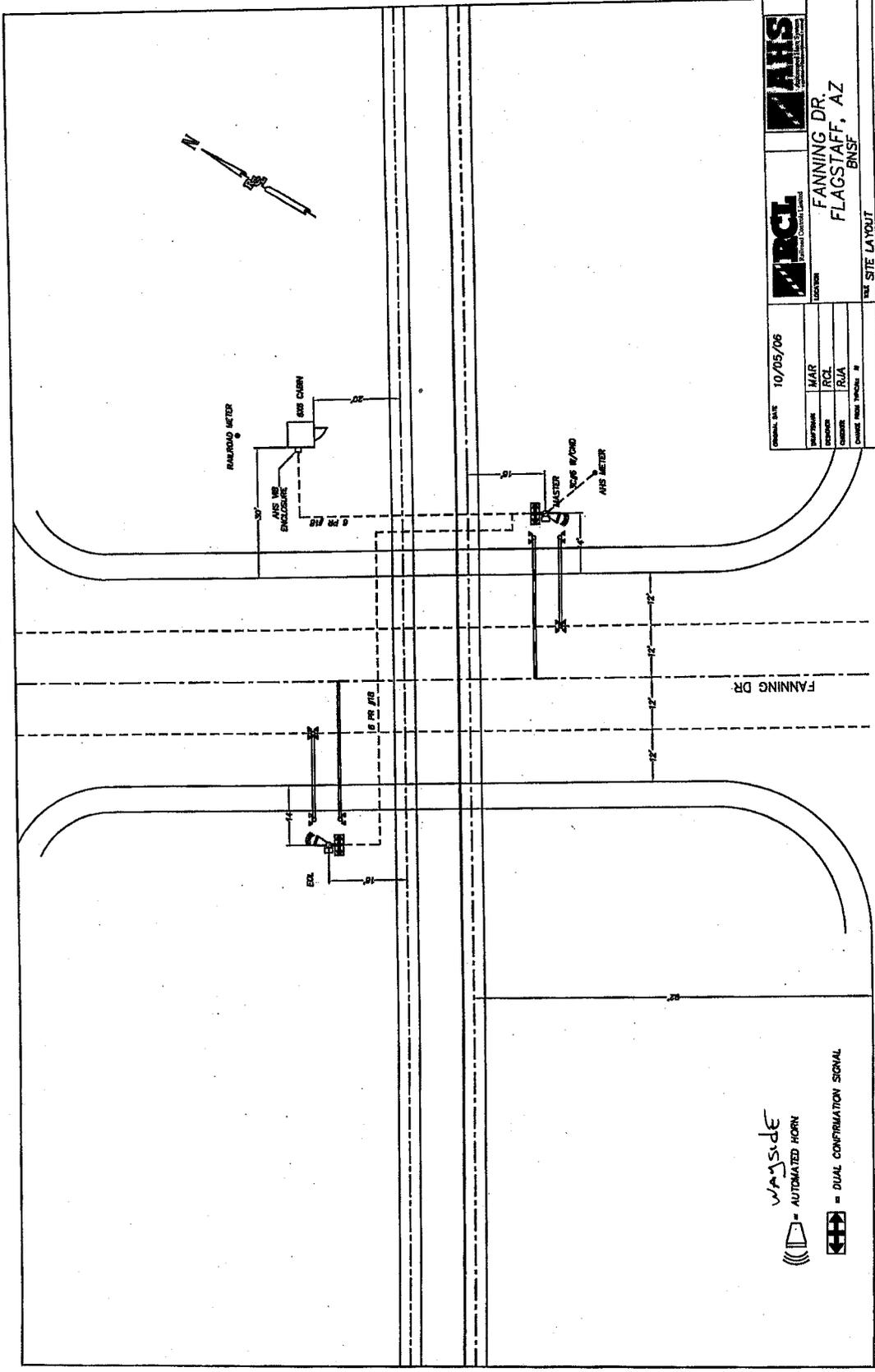
# Exhibit A



ISSUING DATE	10/03/06	PROJECT	STEVES BLVD FLAGSTAFF, AZ BNSF
DESIGNER	MAH	DATE	025 099 J
CHECKER	RCL	SCALE	1" = 20'
APPROVER	RJA	SHEET	1 of 2
CADWALK SYMBOL NO.			
PROJECT NO.		7200	341.19
JOB NO.		XXXX	
SHEET NO.			

w/aside  
= AUTOMATED HORN

[Symbol] = DUAL CONFIRMATION SIGNAL



DATE	10/05/06	FANNING DR. FLAGSTAFF, AZ BNSF	
PROJECT	MAR	DATE	025 129 Y
DESIGNER	RCL	SCALE	1" = 20'
CHECKER	RJA	NO.	7200
DATE	10/05/06	REV.	XXXX
SHEET TITLE: SITE LAYOUT		SHEET NO.: 025 129 Y	SHEET TOTAL: 2 of 2

# Exhibit B



# U.S. DOT - CROSSING INVENTORY INFORMATION

Crossing **025099J**

Continued

Effective Begin-Date of Record: **08/01/07**

End-Date of Record:

## Part III: Traffic Control Device Information

### Signs:

Crossbucks:	<b>2</b>	Highway Stop Signs:	<b>0</b>
Advanced Warning:	<b>Yes</b>	Hump Crossing Sign:	<b>No</b>
Pavement Markings:	<b>RR Xing Symbols</b>	Other Signs:	<b>1</b>
		Specify:	<b>W/O 2</b>
		<b>1</b>	<b>DIRECTIONA</b>

### Train Activated Devices:

Gates:	<b>2</b>	4 Quad or Full Barrier:	<b>No</b>
Mast Mounted FL:	<b>2</b>	Total Number FL Pairs:	<b>8</b>
Cantilevered FL (Over):	<b>2</b>	Cantilevered FL (Not over):	<b>0</b>
Other Flashing Lights:	<b>0</b>	Specify Other Flashing Lights:	
Highway Traffic Signals:	<b>0</b>	Wigwags:	<b>0</b>
Other Train Activated Warning Devices:		Bells:	<b>2</b>
Channelization:		Special Warning Devices Not Train Activated:	
Track Equipped with Train Signals?	<b>Yes</b>	Type of Train Detection:	<b>DC/AFO</b>
		Traffic Light Interconnection/Preemption:	<b>Simultaneous Preemption</b>

## Part IV: Physical Characteristics

Type of Development:	<b>Commercial</b>	Smallest Crossing Angle:	<b>60 to 90 Degrees</b>
Number of Traffic Lanes Crossing Railroad:	<b>4</b>	Are Truck Pullout Lanes Present?	<b>No</b>
Is Highway Paved?	<b>Yes</b>	If Other:	
Crossing Surface:	<b>Concrete</b>	Is it Signalized?	<b>Yes</b>
Nearby Intersecting Highway?	<b>76 to 200 feet</b>	Is Crossing Illuminated?	<b>No</b>
Does Track Run Down a Street?	<b>No</b>		
Is Commercial Power	<b>Yes</b>		

## Part V: Highway Information

Highway System:	<b>Other FA Highway - Not NHS</b>	Functional Classification of Road at Crossing:	<b>Urban Collector</b>
Is Crossing on State Highway System:	<b>No</b>	AADT Year:	<b>2002</b>
Annual Average Daily Traffic (AADT):	<b>011028</b>	Avg. No of School Buses per Day:	<b>0</b>
Estimated Percent Trucks:	<b>05</b>		
Posted Highway Speed:	<b>0</b>		

**U.S. DOT - CROSSING INVENTORY INFORMATION  
AS OF 2/13/2009**

Crossing No.: **025129Y**      Update Reason: **Changed Crossing**      Effective Begin-Date of Record: **08/01/07**  
 Railroad: **BNSF BNSF Rwy Co. [BNSF]**      End-Date of Record:  
 Initiating Agency **Railroad**      Type and Position: **Public At Grade**

**Part I Location and Classification of Crossing**

Division:	<b>SOUTHWEST</b>	State:	<b>AZ</b>
Subdivision:	<b>SELIGMAN</b>	County:	<b>COCONINO</b>
Branch or Line Name:	<b>E WINSL-NEEDLES</b>	City:	<b>In FLAGSTAFF</b>
Railroad Milepost:	<b>0340.55</b>	Street or Road Name:	<b>FANNING DRIVE</b>
RailRoad I.D. No.:	<b>7200</b>	Highway Type & No.:	
Nearest RR Timetable Stn:	<b>FLAGSTAFF</b>	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	<b>38</b>
Crossing Owner:		Latitude:	<b>35.2153902</b>
ENS Sign Installed:		Longitude:	<b>-111.5952922</b>
Passenger Service:	<b>AMTRAK</b>	Lat/Long Source:	<b>Actual</b>
Avg Passenger Train Count:	<b>2</b>	Quiet Zone:	<b>No</b>
Adjacent Crossing with Separate Number:			

**Private Crossing Information:**

Category:	Public Access:	<b>Unknown</b>
Specify Signs:	Specify Signals:	

	ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:				
State Use:				
Narrative:				

Emergency Contact: **(800)832-5452**      Railroad Contact: **(913)551-4540**      State Contact:

**Part II Railroad Information**

<b>Number of Daily Train Movements:</b>	Less Than One Movement Per Day:	<b>No</b>
Total Trains: <b>93</b> Total Switching: <b>0</b>	Day Thru:	<b>47</b>
Typical Speed Range Over Crossing: From <b>1</b> to <b>55</b> mph	Maximum Time Table Speed:	<b>55</b>
Type and Number of Tracks:      Main: <b>2</b> Other: <b>0</b>	Specify:	
Does Another RR Operate a Separate Track at Crossing?	<b>No</b>	
Does Another RR Operate Over Your Track at Crossing?	<b>Yes: ATK</b>	

**U.S. DOT - CROSSING INVENTORY INFORMATION**

Crossing **025129Y**

**Continued**

Effective Begin-Date of Record: **08/01/07**

End-Date of Record:

**Part III: Traffic Control Device Information**

**Signs:**

Crossbucks:	<b>2</b>	Highway Stop Signs:	<b>0</b>
Advanced Warning:	<b>Yes</b>	Hump Crossing Sign:	
Pavement Markings:	<b>Stop Lines and RR Xing Symbols</b>	Other Signs:	<b>1</b> Specify: <b>W/O 2 DIRECTIONA</b>
			<b>1</b>

**Train Activated Devices:**

Gates:	<b>2</b>	4 Quad or Full Barrier:	<b>No</b>
Mast Mounted FL:	<b>2</b>	Total Number FL Pairs:	<b>6</b>
Cantilevered FL (Over):	<b>2</b>	Cantilevered FL (Not over):	<b>0</b>
Other Flashing Lights:	<b>0</b>	Specify Other Flashing Lights:	
Highway Traffic Signals:	<b>0</b>	Wigwags:	<b>0</b> Bells: <b>2</b>
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	<b>DC/AFO</b>
Track Equipped with Train Signals?	<b>Yes</b>	Traffic Light Interconnection/Preemption:	<b>Advance Preemption</b>

**Part IV: Physical Characteristics**

Type of Development:	<b>Commercial</b>	Smallest Crossing Angle:	<b>60 to 90 Degrees</b>
Number of Traffic Lanes Crossing Railroad:	<b>4</b>	Are Truck Pullout Lanes Present?	<b>No</b>
Is Highway Paved?	<b>Yes</b>	If Other:	
Crossing Surface:	<b>Concrete</b>	Is it Signalized?	<b>Yes</b>
Nearby Intersecting Highway?	<b>76 to 200 feet</b>	Is Crossing Illuminated?	<b>No</b>
Does Track Run Down a Street?	<b>No</b>		
Is Commercial Power	<b>Yes</b>		

**Part V: Highway Information**

Highway System:	<b>Non-Federal-aid</b>	Functional Classification of Road at Crossing:	<b>Urban Local</b>
Is Crossing on State Highway System:	<b>No</b>	AADT Year:	<b>2003</b>
Annual Average Daily Traffic (AADT):	<b>008101</b>	Avg. No of School Buses per Day:	<b>0</b>
Estimated Percent Trucks:	<b>40</b>		
Posted Highway Speed:	<b>0</b>		

# Exhibit C

## WAYSIDE HORN AGREEMENT

THIS WAYSIDE HORN AGREEMENT (hereinafter called, this "Agreement"), is entered into effective as of December 1, 2008, by and between BNSF Railway Company, a Delaware Corporation (hereinafter called, "BNSF"), and the City of Flagstaff, a municipal corporation, (hereinafter called, the "Agency").

### WITNESSETH

WHEREAS, BNSF has grade crossings warning devices located at the intersections of Steves Boulevard and Fanning Drive, as indicated on Exhibit "A" attached hereto and made a part hereof; and

WHEREAS, the Agency is installing within the BNSF right-of-way property its automated horn system pursuant to the requirements of 49 CFR Part 222, (hereinafter called, "Wayside Horn System") with the existing automatic grade crossing warning devices shown on Exhibit "A" subject to the mutual covenants contained in this Agreement;

NOW, THEREFORE, in consideration of the premises and of the mutual covenants and agreements of the parties contained herein, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

### AGREEMENT

1. PURPOSE

The purpose of this Agreement is as follows: provide for the ownership, installation and maintenance by Agency or its contractor of the Wayside Horn System and other related improvements at the Steves Blvd (DOT #025099J) and Fanning Drive (DOT #025129Y) at-grade crossings.

2. SCOPE OF WORK

- a. The Agency must provide BNSF in writing with the total preempt cycle time required from the start of the preempt cycle of Wayside Horn until the arrival of the train at the highway-rail crossing.
- b. BNSF will provide an interface box with contact terminals, at Agency's expense on the side of the railroad instrument cabin.
- c. Agency or its contractor will place all necessary cable and conduit and horn confirmation signage ("Confirmation X") on Railroad property in accordance with Exhibit "A", attached to and made a part of this Agreement.
- d. The Agency or its contractor will connect the Wayside Horn System control signals to the contact terminals in the interface box including all necessary cable and conduit.
- e. BNSF will provide flagging services, at Agency's sole expense, necessary to protect BNSF train operations or BNSF property as set forth in more detail on Exhibit "C" attached to and made a part of this Agreement.
- f. The Agency or its contractor must install the new Wayside Horn System.
- g. An estimate of the actual costs for BNSF work (excluding flagging, which will depend upon contractor's activities) is shown on Exhibit "B" attached to and made a part of this Agreement. In the event installation of the improvements has not commenced within six (6) months following the effective date of this Agreement, BNSF may, in its sole and absolute discretion, revise the cost estimates set forth on Exhibit B. If the cost estimates are revised, the revised cost estimates will become a part of this Agreement as though originally set forth herein. Any item of work incidental to the items listed on Exhibit B not specifically mentioned therein may be

included as a part of this Agreement upon written approval of the Agency, which approval will not be unreasonably withheld.

- h. The Agency must pay BNSF for the actual costs of any work performed by BNSF under this Agreement within thirty (30) days of the date of the invoice for such work, including flagging costs. During the construction of the improvements, BNSF may send Agency progressive invoices detailing the costs of the railroad work performed by BNSF under this Agreement. Upon completion of the improvements and all associated work, BNSF will send Agency a detailed invoice of final costs including flagging costs, segregated as to labor and materials for each item in the recapitulation shown on Exhibit B. Agency must pay the final invoice within ninety (90) days of the date of the final invoice. BNSF will assess a finance charge of .033% per day (12% per annum) on any unpaid sums or other charges due under this Agreement which are past our credit terms. The finance charge continues to accrue daily until the date payment is received by BNSF, not the date payment is made or the date postmarked on the payment. Finance charges will be assessed on delinquent sums and other charges as of the end of the month and will be reduced by amounts in dispute and any unposted payments received by the month's end. Finance charges will be noted on invoices sent to Agency under this section.

### 3. CONSTRUCTION AND MAINTENANCE

- a. BNSF will operate and maintain, at its expense, the necessary relays and the other materials required to preempt the Wayside Horn System with the grade crossing warning devices.
- b. BNSF will operate and maintain, at its expense, the grade crossing warning devices up to the contact terminals in the interface box.
- c. The Agency or its contractor must, at the Agency's expense, install the Way-Side Horn System up to and including connection to the contact terminals in the interface box including all necessary cable and conduit.
- d. Following installation of the Wayside Horn System, the Agency will own, operate and maintain, at its expense, the Wayside Horn System up to and including connection to the contact terminals in the in the interface box including all necessary cable and conduit. When any such maintenance requires BNSF flagging or changes to BNSF contact terminals, Agency or its designate shall pay BNSF for all costs associated with such work
- e. The Agency shall maintain the Wayside Horn System in a good and operative condition and in accordance with all applicable laws and regulations, including without limitation Appendix E of 49 CFR Part 222.
- f. Through this Agreement, BNSF does not waive any rights it may have under existing federal law to sound the locomotive horn in case of emergency, when the Wayside Horn System is malfunctioning, when active grade crossing warning devices have malfunctioned, when roadway workers are present or when grade crossing warning systems are temporarily out of service during inspection, maintenance, or testing of the system or as is otherwise necessary in the sole opinion of BNSF.
- g. In the event Agency defaults on any of its obligations hereunder, including without limitation, Agency's obligation to maintain the Wayside Horn System in good and operative condition, BNSF, may, at its option, remove the Wayside Horn System at the sole cost and expense of Agency. Upon removal of the Wayside Horn System, BNSF shall resume sounding the locomotive horn at the Steves Blvd (DOT #025099J) and the Fanning Drive (DOT #025129Y) at-grade crossings.

### 4. PROTECTION OF UNDERGROUND SYSTEMS

- a. Agency and its contractor is placed on notice that fiber optic, communication and other cable lines and systems (collectively, the "Lines") owned by various telecommunications or utility companies may be buried on BNSF's property or right-of-way. The Agency or its contractor must contact appropriate personnel to have the Lines located and make arrangements with the

owner of the Lines regarding protective measures that must be followed prior to the commencement of any work on BNSF's property. The Agency or its contractor will be responsible for contacting BNSF's Engineering Representative (Richard Barnitz at 505-767-6826) and the telecommunications or utility companies and notifying them of any work that may damage these Lines or facilities and/or interfere with their service. The Agency or its contractor must also mark all Lines in order to verify their locations. Agency or its contractor must also use all reasonable methods when working in the BNSF right-of-way or on BNSF property to determine if any other Lines (fiber optic, cable, communication or otherwise) may exist.

- b. Failure to mark or identify Lines will be sufficient cause for BNSF's Engineering Representative to stop construction at no cost to BNSF until these items are completed.
- c. In addition to the liability terms contained elsewhere in this Agreement and to the fullest extent provided by law, Agency and its contractor hereby indemnify, defend and hold harmless BNSF for, from and against all cost, liability, and expense whatsoever (including, without limitation, attorney's fees and court costs and expenses) arising out of or in any way contributed to by any act or omission of Agency or its contractor, subcontractors, agents and/or employees that cause or in any way or degree contribute to: (1) any damage to or destruction of any Lines on BNSF's property or within BNSF's right-of-way; (2) any injury to or death of any person employed by or on behalf of (a) any telecommunications or utility company, (b) Agency's contractor or subcontractors, or (c) Agency, and (3) any claim or cause of action for alleged loss of profits or revenue by, or loss of service by a customer or user of such telecommunications or utility company(ies). **THE LIABILITY ASSUMED BY AGENCY OR ITS CONTRACTOR WILL NOT BE AFFECTED BY THE FACT, IF IT IS A FACT, THAT THE DAMAGE, DESTRUCTION, INJURY, DEATH, CAUSE OF ACTION OR CLAIM WAS OCCASIONED BY OR CONTRIBUTED TO BY THE NEGLIGENCE OF BNSF, ITS AGENTS, SERVANTS, EMPLOYEES OR OTHERWISE, EXCEPT TO THE EXTENT THAT SUCH CLAIMS ARE PROXIMATELY CAUSED BY THE INTENTIONAL MISCONDUCT OR GROSS NEGLIGENCE OF BNSF.**
- d. Agency or its contractor will be responsible for the rearrangement of any facilities or Lines determined to interfere with the installation or construction of the improvements. Agency and/or its Contractor must cooperate fully with any telecommunications or utility company(ies) in performing such rearrangements.

5. INDEMNIFICATION

Agency hereby indemnifies, defends and holds harmless BNSF for, from and against any and all claims, suits, losses, damages, costs and expenses for injury to or death to third parties or BNSF's officers and employees, and for loss and damage to property belonging to any third parties (including damage to the property of BNSF officers and employees), to the extent caused by the negligence of the Agency or any of its employees, agents or contractors. The Agency also releases BNSF from and waives any claims for injury or damage to the Agency's highway traffic control signals, the Wayside Horn System, or other equipment which may occur as a result of any of the work provided for in this Agreement or the operation or the maintenance thereafter of any of the Agency's highway Wayside Horn System, the traffic control signals, cables, connections at and about the grade crossing.

- b. To the fullest extent permitted by law, Agency hereby releases, indemnifies, defends and holds harmless BNSF and BNSF's affiliated companies, partners, successors, assigns, legal representatives, officers, directors, employees and agents for, from and against any and all claims, suits, liabilities, losses, damages, costs and expenses (including, without limitation, attorneys fees and court costs) for injury to or death to Agency employees, agents or representatives arising out of, resulting from or related to any act or omission of Agency or any work performed on or about BNSF's property or right-of-way, including without limitation, the installation and maintenance of the Wayside Horn System by the Agency. **THE LIABILITY ASSUMED BY THE AGENCY IN THIS PROVISION WILL NOT BE AFFECTED BY THE FACT, IF IT IS A FACT, THAT THE DESTRUCTION, DAMAGE, DEATH OR INJURY WAS OCCASIONED BY OR CONTRIBUTED TO BY THE NEGLIGENCE OF RAILROAD, ITS AGENTS, SERVANTS, EMPLOYEES OR OTHERWISE, EXCEPT**

**TO THE EXTENT THAT SUCH CLAIMS ARE PROXIMATELY CAUSED BY THE GROSS NEGLIGENCE OR INTENTIONAL MISCONDUCT OF BNSF.**

- c. "Agency further agrees to release, indemnify and hold harmless BNSF for damages resulting from any labor claims under BNSF's collective bargaining agreements (and including attorneys' fees and court costs and expenses, if the subject of litigation) brought as a consequence of Agency's installation or maintenance of the Horn System, or otherwise from implementation of the terms of this Agreement."
- d. The Agency further agrees, at its expense, in the name and on behalf of BNSF, that it will adjust and settle any claims made against BNSF and will appear and defend any suits or actions at law or in equity brought against BNSF on any claim or cause of action arising or growing out of or in any manner connected with any liability assumed by the Agency under this Agreement for which BNSF is alleged to be liable. BNSF will give notice to the Agency in writing of the receipt of pendency of such claims and thereupon the Agency must proceed to adjust and handle to a conclusion such claims, and in the event of a suit being brought against BNSF, BNSF may forward the summons and complaint or process in connection therewith to the Agency, and the Agency must defend, adjust or settle such suits and protect, indemnify, and save harmless BNSF from and against all damages, judgments, decrees, attorney's fees, costs, and expenses growing out of or resulting from or incident to any such claims or suits.

6. AGENCY CONTRACTOR REQUIREMENTS

- a. While on or about BNSF property, Agency and its contractors must fully comply with BNSF's "Contractor Requirements" set forth in Exhibit "C" attached to and made a part of this Agreement. The "Contractor Requirements" include clearance requirements and personal protective equipment requirements. Agency and its contractors will be responsible for becoming familiar with BNSF's "Contractor Requirements". Prior to entering BNSF property, Agency's Contractor must execute Exhibit C-1 attached to and made a part of this Agreement.
- b. Prior to entering BNSF property, each person providing labor, material, supervision or services connected with the work to be performed on or about BNSF property must complete the safety training program (hereinafter called "BNSF Contractor Safety Orientation") at the following internet website: "contractororientation.com". Agency must ensure that each of its contractors, employees, subcontractors, agents or invitees completes the BNSF Contractor Safety Orientation before any work is performed under this Agreement. Additionally, Agency must ensure that each and every contractor, employee, subcontractor, agent or invitee possesses a card certifying completion of the BNSF Contractor Safety Orientation prior to entering BNSF property. Agency must renew the BNSF Contractor Safety Orientation annually.
- c. Prior to entering BNSF property, Agency or its contractors must prepare and implement a safety action plan acceptable to BSNF. Agency must audit compliance with the plan during the course of Agency's work. A copy of the plan and audit results must be kept at the work site and will be available for inspection by BNSF at all reasonable times.

7. INSURANCE

Agency and/or its contractor must, at Agency and contractor's sole cost and expense, procure and maintain during the life of this Agreement the following insurance coverage:

- a. Commercial General Liability insurance. This insurance must contain broad form contractual liability with a combined single limit of a minimum of \$2,000,000 each occurrence and an aggregate limit of at least \$4,000,000. Coverage must be purchased on a post 1998 ISO occurrence form or equivalent and include coverage for, but not limited to the following:
- ◆ Bodily Injury and Property Damage
  - ◆ Personal Injury and Advertising Injury
  - ◆ Fire legal liability
  - ◆ Products and completed operations

This policy must also contain the following endorsements, which must be indicated on the certificate of insurance:

- ◆ It is agreed that any workers' compensation exclusion does not apply to **Railroad** payments related to the Federal Employers Liability Act or a **Railroad** Wage Continuation Program or similar programs and any payments made are deemed not to be either payments made or obligations assumed under any Workers Compensation, disability benefits, or unemployment compensation law or similar law.
- ◆ The definition of insured contract must be amended to remove any exclusion or other limitation for any work being done within 50 feet of railroad property.
- ◆ Any exclusions related to the explosion, collapse and underground hazards must be removed.

No other endorsements limiting coverage as respects obligations under this Agreement may be included on the policy.

- b. Business Automobile Insurance. This insurance must contain a combined single limit of at least \$1,000,000 per occurrence, and include coverage for, but not limited to the following:
- ◆ Bodily injury and property damage
  - ◆ Any and all vehicles owned, used or hired
- c. Workers Compensation and Employers Liability insurance including coverage for, but not limited to:
- ◆ Statutory liability under the worker's compensation laws of the state(s) in which the work is to be performed. If optional under State law, the insurance must cover all employees anyway.
  - ◆ Employers' Liability (Part B) with limits of at least \$500,000 each accident, \$500,000 by disease policy limit, \$500,000 by disease each employee.
- d. Railroad Protective Liability insurance naming only the **Railroad** as the Insured with coverage of at least \$2,000,000 per occurrence and \$6,000,000 in the aggregate. The policy must be issued on a standard ISO form CG 00 35 10 93 and include the following:
- ◆ Endorsed to include the Pollution Exclusion Amendment (ISO form CG 28 31 10 93)
  - ◆ Endorsed to include the Limited Seepage and Pollution Endorsement.
  - ◆ Endorsed to remove any exclusion for punitive damages.
  - ◆ No other endorsements restricting coverage may be added.
  - ◆ The original policy must be provided to the **Railroad** prior to performing any work or services under this Agreement
- e. Other Requirements:

All policies (applying to coverage listed above) must not contain an exclusion for punitive damages and certification of insurance must reflect that no exclusion exists.

Agency agrees to waive its right of recovery against Railroad for all claims and suits against Railroad. In addition, its insurers, through the terms of the policy or policy endorsement, waive their right of subrogation against Railroad for all claims and suits. The certificate of insurance must reflect the waiver of subrogation endorsement. Agency further waives its right of recovery, and its insurers also waive their right of subrogation against Railroad for loss of its owned or leased property or property under Agency's care, custody or control.

Agency's insurance policies through policy endorsement, must include wording which states that the policy will be primary and non-contributing with respect to any insurance carried by Railroad. The certificate of insurance must reflect that the above wording is included in evidenced policies.

All policy(ies) required above (excluding Workers Compensation and if applicable, Railroad Protective) must include a severability of interest endorsement and Railroad must be named as an additional insured with respect to work performed under this agreement. Severability of interest and naming Railroad as additional insured must be indicated on the certificate of insurance.

Agency is not allowed to self-insure without the prior written consent of Railroad. If granted by Railroad, any deductible, self-insured retention retention or other financial responsibility for claims must be covered directly by Agency in lieu of insurance. Any and all Railroad liabilities that would otherwise, in accordance with the provisions of this *Agreement*, be covered by Agency's insurance will be covered as if Agency elected not to include a deductible, self-insured retention or other financial responsibility for claims.

Prior to commencing the Work, Agency must furnish to *Railroad* an acceptable certificate(s) of insurance including an original signature of the authorized representative evidencing the required coverage, endorsements, and amendments and referencing the contract audit/folder number if available. The policy(ies) must contain a provision that obligates the insurance company(ies) issuing such policy(ies) to notify *Railroad* in writing at least 30 days prior to any cancellation, non-renewal, substitution or material alteration. This cancellation provision must be indicated on the certificate of insurance. Upon request from *Railroad*, a certified duplicate original of any required policy must be furnished.

Ebix BPO  
PO Box 12010-BN  
Hemet, CA 92546-8010  
Fax number: 951-766-2299

Any insurance policy must be written by a reputable insurance company acceptable to *Railroad* or with a current Best's Guide Rating of A- and Class VII or better, and authorized to do business in the state(s) in which the service is to be provided.

Agency represents that this *Agreement* has been thoroughly reviewed by Agency's insurance agent(s)/broker(s), who have been instructed by Agency to procure the insurance coverage required by this *Agreement*. Allocated Loss Expense must be in addition to all policy limits for coverages referenced above. The fact that insurance (including without limitation, self-insurance) is obtained by Agency will not be deemed to release or diminish the liability of Agency including, without limitation, liability under the indemnity provisions of this *Agreement*. Damages recoverable by Railroad will not be limited by the amount of the required insurance coverage."

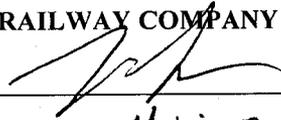
If any portion of the operation is to be subcontracted by Agency, Agency must require that the subcontractor provide and maintain the insurance coverages set forth herein, naming *Railroad* as an additional insured, and requiring that the subcontractor release, defend and indemnify *Railroad* to the same extent and under the same terms and conditions as Agency is required to release, defend and indemnify *Railroad* herein.

Failure to provide evidence as required by this section will entitle, but not require, *Railroad* to terminate this *Agreement* immediately. Acceptance of a certificate that does not comply with this section will not operate as a waiver of Agency's obligations hereunder.

For purposes of this section, *Railroad* means "Burlington Northern Santa Fe Corporation", "BNSF Railway Company" and the subsidiaries, successors, assigns and affiliates of each.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

**BNSF RAILWAY COMPANY**

By: 

Printed Name: Melvin Thomas

Title: Manager Public Projects

**CITY OF FLAGSTAFF**

By: 

Printed Name: Kevin Burke

Title: City Manager

ATTEST:

Laura Matthews for  
CITY CLERK

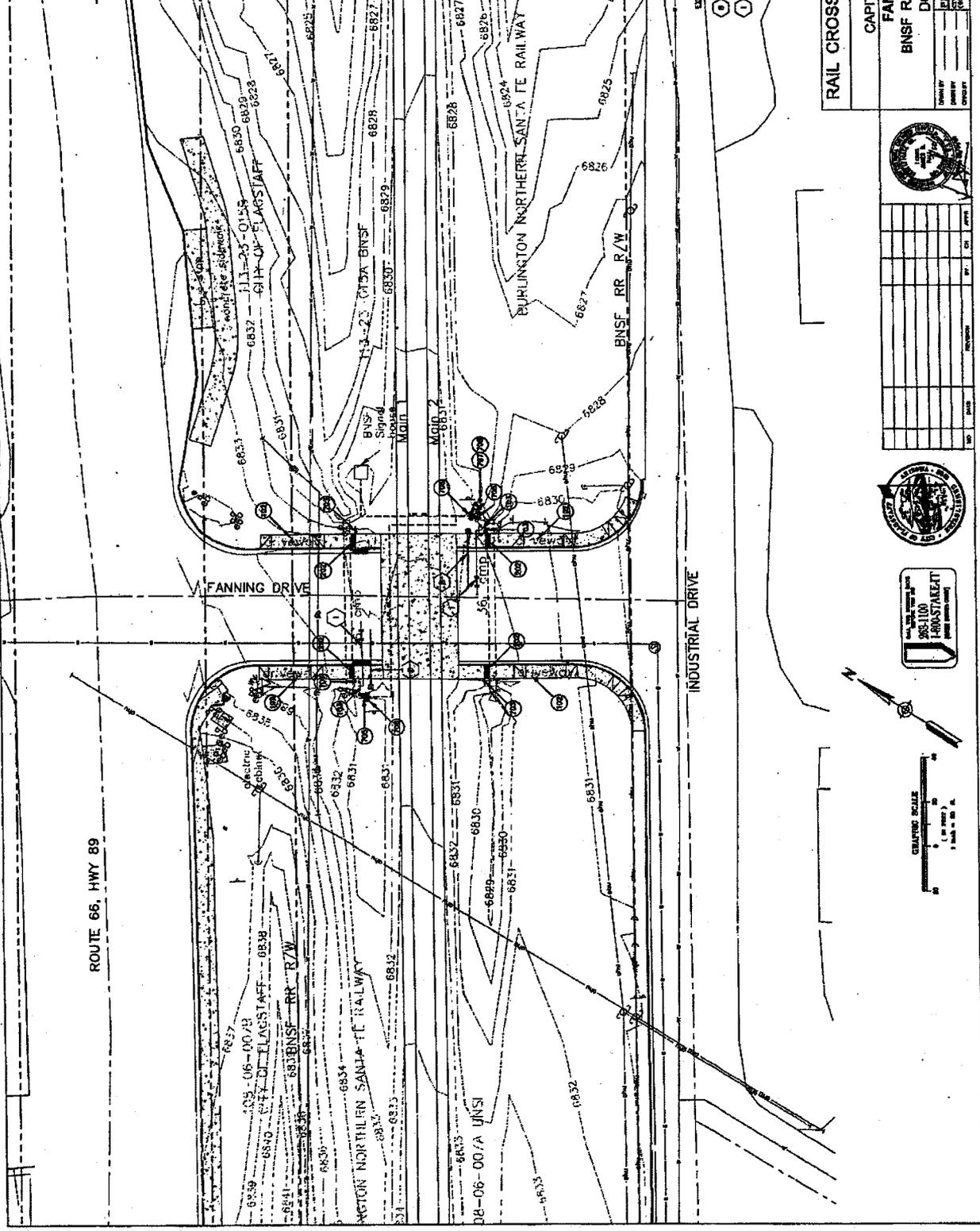
APPROVED AS TO FORM:

David Womack for  
CITY ATTORNEY



**CONSTRUCTION NOTES:**

- 101. All construction shall be in accordance with the City of Flagstaff, Arizona, Standard Specifications for Road and Bridge Construction.
- 102. All construction shall be in accordance with the City of Flagstaff, Arizona, Standard Specifications for Road and Bridge Construction.
- 103. All construction shall be in accordance with the City of Flagstaff, Arizona, Standard Specifications for Road and Bridge Construction.
- 104. All construction shall be in accordance with the City of Flagstaff, Arizona, Standard Specifications for Road and Bridge Construction.
- 105. All construction shall be in accordance with the City of Flagstaff, Arizona, Standard Specifications for Road and Bridge Construction.
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- 111. All construction shall be in accordance with the City of Flagstaff, Arizona, Standard Specifications for Road and Bridge Construction.
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- 117. All construction shall be in accordance with the City of Flagstaff, Arizona, Standard Specifications for Road and Bridge Construction.
- 118. All construction shall be in accordance with the City of Flagstaff, Arizona, Standard Specifications for Road and Bridge Construction.
- 119. All construction shall be in accordance with the City of Flagstaff, Arizona, Standard Specifications for Road and Bridge Construction.
- 120. All construction shall be in accordance with the City of Flagstaff, Arizona, Standard Specifications for Road and Bridge Construction.



Graphic scale: 1" = 40' (0, 40, 80, 120, 160, 200)  
 North arrow pointing up.

**RAIL CROSSING MODIFICATION PROJECT**  
 FLAGSTAFF, ARIZONA

CITY OF FLAGSTAFF  
 CAPITAL IMPROVEMENTS DIVISION  
 FANNING DRIVE - PLAN VIEW  
 BNSF RAILROAD SOUTHWEST DIVISION  
 DOT 026128Y MP 340.6

DATE: 08/08/89  
 DRAWN BY: J. STALEY  
 CHECKED BY: J. STALEY  
 SCALE: AS SHOWN  
 SHEET NO. 12 OF 12

EXHIBIT A

# EXHIBIT B - SIGNAL

\*\*\*\*\* MAINTAIN PROPRIETARY CONFIDENTIALITY \*\*\*\*\*

BNSF RAILWAY COMPANY  
FHPM ESTIMATE FOR  
FLAGSTAFF, AZ.

LOCATION COSNINO TO EAST FLAGSTAFF

DETAILS OF ESTIMATE

PLAN ITEM: PSI025129Y

VERSION: 1

PURPOSE, JUSTIFICATION AND DESCRIPTION

REVISED TO NEW PRICING LIST 09/04/03

2008 INSTALL WAYSIDE HORN AT FANNING DR IN FLAGSTAFF, AZ. SOUTHWEST DIV., SELIGMAN SUBDIV., L/S 7200, M.P. 340.55, DOT # 025129Y  
MONTHLY POWER UTILITY COST CENTER:

THE MATERIAL LIST BELOW REFLECTS TYPICAL REPRESENTATIVE PACKAGES USED FOR ESTIMATING PURPOSE ONLY. THEY CAN BE EXPECTED TO CHANGE AFTER THE ENGINEERING PROCESS, DETAILED AND ACCURATE MATERIAL LISTS WILL BE FURNISHED WHEN ENGINEERING IS COMPLETED.  
CONTINUING CONTRACTS HAVE BEEN ESTABLISHED FOR PORTIONS OF SIGNAL WORK ON THE BNSF RAILROAD.  
THIS ESTIMATE GOOD FOR 90 DAYS. THEREAFTER THE ESTIMATE IS SUBJECT TO CHANGE IN COST FOR MATERIAL, LABOR, AND OVERHEADS.

\*\*\*\*\* SIGNAL WORK ONLY \*\*\*\*\*

THE CITY OF FLAGSTAFF IS FUNDING 100% OF THIS PROJECT.

MAINTAIN PROPRIETARY CONFIDENTIALITY

DESCRIPTION	QUANTITY U/M	COST	TOTAL \$
*****			
LABOR			
*****			
SIGNAL FIELD LABOR - CAP	80.0 MH	1,929	
PAYROLL ASSOCIATED COSTS		1,327	
EQUIPMENT EXPENSES		501	
DA LABOR OVERHEADS		2,064	
INSURANCE EXPENSES		308	
TOTAL LABOR COST		6,129	6,129
*****			
MATERIAL			
*****			
INTERFACE BOX	1.0 EA N	260	
RELAY W/ BASE	2.0 EA N	1,000	
SHUNT	2.0 LS N	1,696	
WIRING MATERIAL	1.0 LS N	600	
USE TAX		237	
OFFLINE TRANSPORTATION		43	
TOTAL MATERIAL COST		3,836	3,836
*****			
OTHER			
*****			
CONTRACT ENGR.	1.0 EA N	3,500	
TOTAL OTHER ITEMS COST		3,500	3,500
PROJECT SUBTOTAL			13,465
CONTINGENCIES			1,346
BILL PREPARATION FEE			75
GROSS PROJECT COST			14,886
LESS COST PAID BY BNSF			0
TOTAL BILLABLE COST			14,886

# EXHIBIT B – SIGNAL

\*\*\*\*\* MAINTAIN PROPRIETARY CONFIDENTIALITY \*\*\*\*\*

BNSF RAILWAY COMPANY  
FHPM ESTIMATE FOR  
FLAFSTAFF, AZ.

LOCATION MCPHETRIDGE TO EAST FLAGSTAFF      DETAILS OF ESTIMATE      PLAN ITEM : PSI025099J      VERSION : 1

PURPOSE, JUSTIFICATION AND DESCRIPTION

REVISED TO NEW PRICING LIST 09/04/03

2008 PX ADD WAYSIDE HORN AT STEVES BLVD IN FLAGSTAFF, AZ. SOUTHWEST DIV., SELIGMAN SUBDIV., L/S 7200, M.P. 341.19, DOT # 025099J  
MONTHLY POWER UTILITY COST CENTER:

THE MATERIAL LIST BELOW REFLECTS TYPICAL REPRESENTIVE PACKAGES USED FOR ESTIMATING PURPOSE ONLY. THEY CAN BE EXPECTED TO CHANGE AFTER THE ENGINEERING PROCESS, DETAILED AND ACCURATE MATERIAL LISTS WILL BE FURNISHED WHEN ENGINEERING IS COMPLETED.  
CONTINUING CONTRACTS HAVE BEEN ESTABLISHED FOR PORTIONS OF SIGNAL WORK ON THE BNSF RAILROAD. THIS ESTIMATE GOOD FOR 90 DAYS. THEREAFTER THE ESTIMATE IS SUBJECT TO CHANGE IN COST FOR MATERIAL, LABOR, AND OVERHEADS.

\*\*\*\*\* SIGNAL WORK ONLY \*\*\*\*\*

THE CITY OF FLAGSTAFF IS FUNDING 100% OF THIS PROJECT.

MAINTAIN PROPRIETARY CONFIDENTIALITY

DESCRIPTION	QUANTITY U/M	COST	TOTAL \$
*****			
LABOR			
*****			
SIGNAL FIELD LABOR - CAP	80.0 MH	1,929	
PAYROLL ASSOCIATED COSTS		1,327	
EQUIPMENT EXPENSES		501	
DA LABOR OVERHEADS		2,064	
INSURANCE EXPENSES		308	
TOTAL LABOR COST		6,129	6,129
*****			
MATERIAL			
*****			
INTERFACE BOX	1.0 EA	260	
RELAY W/ BASE	2.0 EA	1,000	
SHUNT	2.0 EA	1,696	
WIRING MATERIAL	1.0 EA	600	
MATERIAL HANDLING		177	
USE TAX		237	
OFFLINE TRANSPORTATION		43	
TOTAL MATERIAL COST		4,013	4,013
*****			
OTHER			
*****			
CONTRACT ENGR.	1.0 EA	3,500	
TOTAL OTHER ITEMS COST		3,500	3,500
PROJECT SUBTOTAL			13,642
CONTINGENCIES			1,364
BILL PREPARATION FEE			76
GROSS PROJECT COST			15,082
LESS COST PAID BY BNSF			0
TOTAL BILLABLE COST			15,082



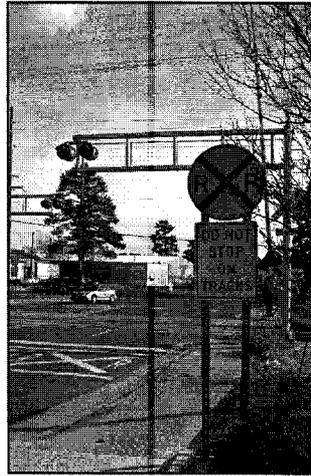
# Exhibit D



*City of Flagstaff*  
*Capital Improvements Division*

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## Quiet Zone/Wayside Horn Update December 2006



**Revision 1-22-07**

K:\Users\CID\Quiet Zones\Design\100 Project Development\GF012207Project Report.doc

5.0 GENERAL SCHEDULES..... 16

6.0 CONCLUSION ..... 17

APPENDIX..... A-1

**TABLE OF EXHIBITS**

<b>Beaver Street W/Wayside Horns</b>	<b>(Exhibit W-1)</b>
<b>Beaver Street Quiet Zone W/Pedestrian Barriers</b>	<b>(Exhibit QZPB-1)</b>
<b>Beaver Street Quiet Zone W/4-Quad Gates</b>	<b>(Exhibit QZ-1)</b>
<b>San Francisco Street W/Wayside Horns</b>	<b>(Exhibit W-2)</b>
<b>San Francisco Street Quiet Zone W/Pedestrian Barriers</b>	<b>(Exhibit QZPB-2)</b>
<b>San Francisco Street Quiet Zone W/4-Quad Gates</b>	<b>(Exhibit QZ-2)</b>
<b>N Enterprise Rd W/Wayside Horns</b>	<b>(Exhibit W-3)</b>
<b>N Enterprise Rd Quiet Zone W/Reflecting Paddles</b>	<b>(Exhibit QZ-3)</b>
<b>Steves Blvd. W/Wayside Horns</b>	<b>(Exhibit W-4)</b>
<b>Steves Blvd. Quiet Zone W/4-Quad Gates</b>	<b>(Exhibit QZ-4)</b>
<b>Fanning Drive W/Wayside Horns</b>	<b>(Exhibit W-5)</b>
<b>Fanning Drive Quiet Zone W/4-Quad Gates</b>	<b>(Exhibit QZ-5)</b>
<b>Pedestrian Barrier</b>	<b>(Exhibit PB)</b>

Each Crossing was looked at under two options:

1. Use of wayside horns.
2. Creation of a Quiet Zone.

**Wayside Horns:** The use of wayside horns does not create a Quiet Zone as the sounding of the locomotive horns is mimicked by the wayside horns. However the decibel levels and positioning of the horns allows for a more controlled displacement of noise. The use of wayside horns would be considered more as a Noise Reduction Zone than a Quiet Zone.

Wayside horns have been classified by the FHWA as a traffic control device for inclusion in the Manual on Uniform Traffic Control Devices (MUTCD).

**Quiet Zone:** The placement of a Quiet Zone within the five railroad at-grade crossings would require the use of Supplementary Safety Measures (SSM) in order for the five railroad at-grade crossings to qualify. The approved SSM's include:

- Temporary Closure of a Public Highway-Rail Grade Crossing.
- Permanent Closure of a Public Highway-Rail Grade Crossing.
- Grade Separation of a Public Highway-Rail Grade Crossing.
- Four-Quadrant Gates upgraded from Two-Quadrant gates, No Vehicle Presence Detection.
- Four-Quadrant Gates with Vehicle Presence Detection.
- Two-Quadrant Gates, with medians of at least 60 feet, with or without Presence Detection.
- Non-traversable Curb Medians with or without Channelization Devices.
- One Way Streets with gates.

Wayside horns can be used in a Quiet Zone area but are not considered a SSM. They are considered a one-for-one substitute for the train horns but are not considered in the Risk Index calculated for the Quiet Zone.

### **Closing Statement**

On May 2, 2006, the Diagnostic Team met to review and develop recommendations. It was the intent of the Diagnostic Team to develop the best available options in order for the City of Flagstaff to decide the direction they would like to take this project to final design. Conclusions of this study can be found in Section 6.0.

## 1.3 LIABILITY

No one with BNSF, Corporation Commission, or the FRA has indicated there is any quantified liability comparison between the Risk Index of a crossing, pedestrian safety and wayside horns.

## 1.4 PROCESS

### General process for:

- **Signing direct agreement with BNSF for wayside horn use.**

The BNSF currently has in possession agreements for installation of wayside horns. The city would be required to execute these agreements at minimum administrative costs. An 11-month schedule is anticipated at this time for implementation. Unless otherwise noted the duration for the schedule starts when the City chooses the desired safety equipment.

- **Creating Quiet Zone without BNSF ordering and installing four-quadrant gates.**

Agreements would be required for installation of Safety measures placed on existing BNSF right of way for the activation of the quiet zone. The cost would vary from minimum administration cost to improvement easements with yearly fees depending on the option chosen per crossing. A 19-month schedule is anticipated at this time for implementation.

- **Creating Quiet Zone with BNSF ordering and installing four-quadrant gates.**

Construction and maintenance agreements would be required for the installation of the additional gates. At present BNSF has not identified what these would include as not many agreements of this type has been implemented. A 29-month schedule is anticipated at this time for implementation.

- **Creating Quite Zone - Notice of Intent.**

The City must provide a Notice of Intent to create a Quiet Zone. This notification must be sent via certified mail, return receipt request, to all railroads operating over the crossings in the proposed Quiet Zone, to the State Agency responsible for roadway safety and the agency responsible for grade crossing safety (Arizona Corporation Commission). The purpose of this Notice of Intent is to provide an opportunity for the railroads and State agency to provide comments and recommendations to the public authority as it plans the Quiet Zone. The railroad and State agency will have 60 days to provide these comments to the public authority.

## **2.2 SAN FRANCISCO STREET**

Options are the same as Beaver Street except north and south treatments are reversed.

### **2.2.1 Wayside Horns (Exhibit W-2)**

- Place a horn at the north/west and south/east corners of the crossing. One horn facing north and one facing south.
- Fencing going along BNSF right-of-way to channel people to the crossing in front of the horn.
- A third horn will be added facing the Amtrak area.
- ADA sidewalk treatment.
- Place "No Train Horn" signs.

### **2.2.2 Quiet Zone with Pedestrian Barriers (Exhibit QZPB-2)**

- Fencing along BNSF right-of-way to channel people to crossing.
- Pedestrian barriers at San Francisco Street on north side of crossing to channel people to one location where signage is located. Signage would indicate that there are no horns and second train may be coming. This in theory would function as a staging area much as at theme parks (Exhibit PB).
- Driveway for Amtrak will not be closed but improvement will be made to emphasis that only left turns are allowed.
- Add larger left turn arrow on Amtrak drive.
- Add left turn sign across from Amtrak drive.
- ADA sidewalk treatment.
- Place "No Train Horn" signs.

### **2.2.3 Quiet Zone with 4-Quad Gates (Exhibit QZ-2)**

- Fencing along BNSF right-of-way to channel people to crossing.
- Install Four Quadrant Gates with vehicle detection between gates.
- Add larger left turn arrow on Amtrak drive.
- Add left turn sign across from Amtrak drive.
- ADA sidewalk treatment.
- Place "No Train Horn" signs.

## **2.5 FANNING DRIVE**

### **2.5.1 Wayside Horns (Exhibit W-5)**

- Horns will be placed at the northwest and southeast corners of crossings.
- ADA sidewalk treatment.
- Place "No Train Horn" signs.

### **2.5.2 Quiet Zone with 4-Quad Gates (Exhibit QZ-5)**

- Four Quadrant Gates installed.
- Close Driveways at BNSF ROW.
- ADA sidewalk treatment.
- Place "No Train Horn" signs.

### 3.1 SCENARIO A

**Scenario A - Recommendation by the Diagnostic Team for use of wayside horns:  
Install wayside horns at all locations.**

<b>Wayside Horns (Exhibits W-1, 2, 3, 4, 5):</b>	
City Staff	56,000
Design	88,000
BNSF Agreement (est.)	50,000
City of Flagstaff Construction	
-Beaver	157,000
-San Francisco	135,000
-Enterprise	145,000
-Steves	115,000
-Fanning	115,000
<b>SUBTOTAL</b>	<b>\$861,000.</b>
Contingency 15%	\$129,150
<b>TOTAL COST</b>	<b>\$990,150.</b>
<b>Advantages:</b>	
-Simplest and quickest implementation.	
-Audible warning second train is coming.	
-Cost (Installation and yearly maintenance).	
-BNSF already has a standard agreement.	
-BNSF has experience with use of wayside horns.	
-Considered by FRA and BNSF as acceptable and equivalent for train horns.	
<b>Disadvantages:</b>	
-Presence of wayside horn noise.	
-No physical barrier for vehicles going wrong direction on one-way streets.	
<b>Schedule:</b>	<b>Months</b>
Design	4
Agreements	2
Material	2
Construction	3
<b>TOTAL</b>	<b>11</b>

### 3.3 SCENARIO C

**Scenario C - Creates a true quiet zone using Four-Quadrant gates at Beaver and San Francisco in-lieu of Pedestrian barriers.**

Four-Quadrant Gates at Beaver and San Francisco; Median used as Alternative Safety Measure at Enterprise; Four-Quadrant Gates at Steves and Fanning.

<b>Quiet Zone (Exhibits QZ-1, 2, 3, 4, 5):</b>	
City Staff	100,000
Design	110,000
BNSF Agreement (est.)	50,000
City of Flagstaff Construction	
-Beaver	255,000
-San Francisco	255,000
-Enterprise	115,000
-Steves	295,000
-Fanning	295,000
BNSF Construction	
-Beaver	557,500
-San Francisco	402,500
-Enterprise	-0-
-Steves	382,500
-Fanning	557,500
<b>SUBTOTAL</b>	<b>\$3,375,000.</b>
Contingency 15%	\$506,250
<b>TOTAL COST</b>	<b>\$3,881,250.</b>
<b>Advantages:</b>	
-Eliminates all horn noise at all locations	
-Provides wrong way vehicle protection at one-way streets	
<b>Disadvantages:</b>	
-Cost (Installation and yearly maintenance)	
-Construction and installation time	
-No audible warning of first train other than bell chimes at gate crossing.	
-No audible warning of second train.	
-Longest implementation period.	
<b>Schedule:</b>	<b>Months</b>
Design	6
FRA Agreement	2
BNSF Agreement	6
Material	9
Construction	6
<b>TOTAL</b>	<b>29</b>

### 3.5 SCENARIO E

**Scenario E - Creates a quiet zone with wayside horns at Steves and Fanning with Four-Quadrant gates at Beaver and San Francisco for added vehicle safety on the one-way streets.**

Four-Quadrant Gates at Beaver and San Francisco; Median used as Alternative Safety Measure at Enterprise; Wayside Horns at Steves and Fanning.

**Quiet Zone/Wayside Horns (Exhibits QZ-1, 2, 3 & W-4, 5):**

City Staff	100,000
Design	110,000
BNSF Agreement (est.)	50,000
City of Flagstaff Construction	
-Beaver	255,000
-San Francisco	255,000
-Enterprise	115,000
-Steves	115,000
-Fanning	115,000
BNSF Construction	
-Beaver	557,500
-San Francisco	402,500
-Steves	-0-
-Fanning	-0-
<b>SUBTOTAL</b>	<b>\$2,075,000.</b>
Contingency 15%	\$311,550
<b>TOTAL COST</b>	<b>\$2,386,250.</b>

**Advantages:**

- Less costly than Scenario B & C (Installation and yearly maintenance).
- Protects one way vehicle travel from wrong way movement.

**Disadvantages:**

- No full vehicle protection at Steves & Fanning.
- No audible warning of first train other than bell chimes at Beaver and San Francisco Streets.
- No audible warning of second train at Beaver and San Francisco Streets.
- Longest implementation period.

**Schedule:**

**Months**

Design	6
FRA Agreement	2
BNSF Agreement	6
Material	9
Construction	6
<b>TOTAL</b>	<b>29</b>

---

## 5.0 GENERAL SCHEDULES

---

From Date Scenario is Chosen:	
Wayside horns only	11 months
Quiet Zone without four-quadrant gates	19 months
Quiet Zone with four-quadrant gate	29 months

# APPENDIX

## CONCEPTUAL COST AND SCHEDULE

### BEAVER STREET

#### Beaver Street Wayside Horns (Exhibit W-1)

##### Cost (Staff, Agreement and Maintenance Costs not included):

Fencing (@400 feet):	10,000
Horns (2 poles, 2 horns):	72,000
Remote Indicator	25,000
BNSF Connection:	5,000
Sidewalk Treatment:	40,000
Misc. signage/striping	5,000
<b>TOTAL</b>	<b>\$157,000.</b>

##### Schedule:

##### Months

Design	4
Agreements	2
Material	2
Construction	3
<b>TOTAL</b>	<b>11</b>

#### Beaver Street Quiet Zone with Pedestrian Barriers (Exhibit QZPB-1)

##### Cost (Staff, Agreement and Maintenance Costs not included):

Fencing BNSF ROW:	10,000
Pedestrian Barriers Beaver:	20,000
Driveway Improvements:	30,000
Sidewalk Treatment:	40,000
Misc. signage/striping	5,000
<b>TOTAL</b>	<b>\$105,000.</b>

##### Schedule:

##### Months

Design	6
FRA Agreement	3
BNSF Agreement	4
Material	2
Construction	4
<b>TOTAL</b>	<b>19</b>

## SAN FRANCISCO STREET

### San Francisco Street Quiet Zone with Pedestrian Barriers (Exhibit QZPB-2) Cost (Staff, Agreement and Maintenance Costs not included):

Fencing BNSF ROW:	10,000
Pedestrian Barriers San Francisco:	20,000
Driveway Improvements:	10,000
Sidewalk Treatment:	40,000
Misc. signage/stripping	<u>5,000</u>
<b>TOTAL</b>	<b>\$85,000.</b>

<u>Schedule:</u>	<u>Months</u>
Design	6
FRA Agreement	3
BNSF Agreement	4
Material	2
Construction	4
<b>TOTAL</b>	<b>19</b>

### San Francisco Street Quiet Zone (Exhibit QZ-2) Cost: (Staff, Agreement and Maintenance Costs not included):

Fencing	10,000
Gates (upgrade to 4-quad)	382,500
Possible axial cable to Beaver St.	20,000
Loops	200,000
Sidewalk Treatment:	40,000
Misc. signage/stripping	<u>5,000</u>
<b>TOTAL</b>	<b>\$657,500.</b>

<u>Schedule:</u>	<u>Months</u>
Design	6
FRA Agreement	2
BNSF Agreement	6
Material	9
Construction	6
<b>TOTAL</b>	<b>29</b>

**STEVES BLVD.**

**Steves Blvd. Wayside Horns (Exhibit W-4)**

**Cost (Staff, Agreement and Maintenance Costs not included):**

Horns (2 poles, 2 horns):	65,000
BNSF Connection:	5,000
Sidewalk Treatment:	40,000
Misc. signage/stripping	5,000
<b>TOTAL</b>	<b>\$115,000.</b>

<b><u>Schedule:</u></b>	<b><u>Months</u></b>
Design	4
Agreements	2
Material	2
Construction	3
<b>TOTAL</b>	<b>11</b>

**Steves Blvd. Quiet Zone with 4-Quad Gates (Exhibit QZ-4)**

**Cost: (Staff, Agreement and Maintenance Costs not included):**

Gates (upgrade to 4-quad)	382,500
Loops	200,000
Driveway closures	50,000
Sidewalk Treatment	40,000
Misc. signage/stripping	5,000
<b>TOTAL</b>	<b>\$677,500.</b>

<b><u>Schedule:</u></b>	<b><u>Months</u></b>
Design	6
FRA Agreement	2
BNSF Agreement	6
Material	9
Construction	6
<b>TOTAL</b>	<b>29</b>

# Exhibit E

March 14, 2008

Burlington Northern Santa Fe Railroad  
740 East Carnegie Dr.  
San Bernardino, CA 92408  
Attention: Mr. Melvin Thomas  
Manager Public Projects

Arizona Corporation Commission  
2200 N. Central Ave., Suite #300  
Phoenix, Arizona 85004  
Attention: Mr. Chris Thomas  
Railroad Safety Section

Arizona Department of Transportation  
205 South 17<sup>th</sup> Ave, Room 357  
Mail Drop 618E  
Phoenix, Az 85007-3212  
Attention: Mr. Robert Travis, P.E.  
State Railroad Liaison

**NOTICE OF INTENT TO CREATE A NEW RAILROAD QUIET ZONE**

In accordance with 49 CFR Parts 222 and 229, the City of Flagstaff, Arizona intends to create a New Quiet Zone. The intent of this action is the elimination of train horn noise at railroad crossings within the limits of the City. In accordance with 29 CFR Part 222.43, this written notice is being provided by means of Certified Mail, Return Receipt Requested to:

- All railroads operating over the public highway rail – grade crossings withing the Quiet Zone (BNSF Railroad);
- The State Agency responsible for highway and road safety (Arizona Department of Transportation)
- The State Agency responsible for grade crossing safety (Arizona Corporation Commission)

There is a statutory 60-day comment period after the date this Notice of Intent is mailed. This comment period can be terminated prior to the end of the 60-day period if all of the above railroads and agencies provide either written comments, or written “no-comment” statements. The City of Flagstaff would request that all notified railroads and agencies respond appropriately to the Point of Contact listed below at their earliest convenience.

Notice of Intent to Create a New Railroad Quiet Zone

**Crossings Contained Within the Quiet Zone:**

- Beaver Street DOT Crossing # 025133N
- San Francisco Street DOT Crossing # 025132G
- Enterprise Avenue DOT Crossing # 025131A
- Steves Boulevard DOT Crossing # 025099J
- Fanning Drive DOT Crossing # 025129Y

**Time Period During Which Train Horn Restrictions Will be Imposed:**

Twenty-four hours.

**Tentative Plans For Implementing Improvements Within the Quiet Zone:**

Refer to the attached documents:

- *City of Flagstaff Rail Crossing Modification Project* Preliminary 60% plan set.
- *Rail Crossing Modification Project – “Flagstaff Quiet Zones” – City of Flagstaff, Arizona: 60% Design Narrative.* Narrative description of proposed improvements.

**Point of Contact During Development Process:**

Mr. Randy Whitaker  
City of Flagstaff, Arizona  
211 West Aspen Avenue  
Flagstaff, AZ 86001  
(928) 226-4844  
[rwhitaker@ci.flagstaff.az.us](mailto:rwhitaker@ci.flagstaff.az.us)

**Names and Addresses of Each Party Notified**

Mr. Melvin Thomas, Manager Public Projects  
Burlington Northern Santa Fe Railroad  
740 East Carnegie Dr.  
San Bernardino, CA 92408

Mr. Chris Thomas, Railroad Safety Section  
Arizona Corporation Commission  
2200 N. Central Ave., Suite #300

Mr. Robert Travis, P.E., State Railroad Liaison  
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205 South 17<sup>th</sup> Ave, Room 357  
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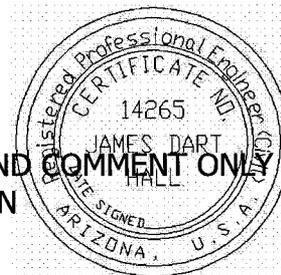
**RAIL CROSSING MODIFICATION PROJECT**

**"FLAGSTAFF QUIET ZONES"**

CITY OF FLAGSTAFF, ARIZONA

**60% DESIGN NARRATIVE**

DRAFT – FOR REVIEW AND COMMENT ONLY  
NOT FOR CONSTRUCTION



Plateau Engineering, Inc.  
202 East Birch Avenue  
Flagstaff, Arizona, 86001  
(928) 556-0311  
February 8, 2008

j1037

## **INTRODUCTION**

The City of Flagstaff desires to significantly eliminate train horn noise at major railroad crossings within the limits of the City. Pursuant to this objective, in 2004 the City initiated a process to design necessary improvements and process necessary paperwork with the U.S. Department of Transportation, Federal Railroad Administration (FRA) to establish a “Quiet Zone” i.e.: a segment of track traversing the City where train locomotives would be prohibited (except in case of emergency), from sounding otherwise-mandated train horns at railroad crossings. In addition to the FRA, proposed improvements and Quiet Zone establishment are subject to the review and approval of the Arizona Corporation Commission (ACC) and the BNSF Railway.

The project progressed through several phases. A vendor demonstration of “wayside horns” was conducted at each railroad crossing on May 2, 2006 in conjunction with a Diagnostic Team review of the five affected railroad crossings. Strictly speaking, wayside horns do not establish a Quiet Zone as they simply replace the train horn with trackside horns at each crossing. Because the wayside horns are directional, and can be precisely adjusted for sound intensity and focus, they produce much less noise impact than train-mounted horns. The Diagnostic Team included members from the City of Flagstaff, the Arizona Corporation Commission, Railroad Controls Inc (a wayside horn vendor), BNSF Railway and Gannett Fleming the City’s consultant at that time.

Results of the Diagnostic Team meeting, together with preliminary design concepts were summarized in the Gannett Fleming report *Quiet Zone/Wayside Horn Update December, 2006*, revised 1-22-2007. Design concepts were further refined in the period from January through August 2007.

In September, 2007, the City of Flagstaff and Gannett Fleming mutually agreed to terminate their association on this project. The City then engaged the Flagstaff firm of Plateau Engineering, Inc. (Plateau) to design necessary improvements and process the proposed Quiet Zones to completion. Plateau had worked as a sub-consultant to Gannett Fleming for survey services, but was not a part of the Diagnostic Team and had not been a part of the development of design concepts prior to being engaged as a prime consultant.

This Design Narrative summarizes the proposed design of the Rail Crossing Modification Improvements necessary for the implementation of a Quiet Zone within the City of Flagstaff.

### **Rail Crossings Within the Proposed Quiet Zone**

Beaver Street	DOT Crossing # 025133N	BNSF Milepost 344.3
San Francisco Street	DOT Crossing # 025132G	BNSF Milepost 344.1
Enterprise Avenue	DOT Crossing # 025131A	BNSF Milepost 342.93

The following crossings propose the use of wayside horns as a one-for-one substitute for train horns within the proposed Quiet Zone.

Steves Boulevard	DOT Crossing # 025099J	BNSF Milepost 341.2
Fanning Drive	DOT Crossing # 025129Y	BNSF Milepost 340.6

### **Quiet Zone Calculator**

#### **Beaver Street and San Francisco Street**

Beaver Street (southbound) and San Francisco Street (northbound) constitute a one-way couplet in downtown Flagstaff. Average Daily Traffic (ADT) is somewhat under 8,000 vehicles per day on each street. Current railroad crossing inventory information indicates 93 daily train movements at this location. Maximum timetable speed is 45 miles per hour. In addition to vehicle traffic, the Beaver – San Francisco Street crossings experiences significant two-way pedestrian use. Much of this use is generated by Northern Arizona University (NAU) students going to and from the downtown area, and a significant percentage is after daylight hours.

The Amtrak railroad station is located north of the BNSF main lines between Beaver and San Francisco Streets. The platform for this station extends from west of Beaver Street, through the intervening city block, and terminates east of San Francisco Street.

FRA records indicate that the Beaver Street crossing has had 3 accidents within the past 10 years. Two of these incidents involved motor vehicles, with no injuries. There was one fatal pedestrian incident.

San Francisco Street had 5 accidents in the same time frame. Two of these incidents involved motor vehicles, with both injuries and fatalities. Of the remaining three, two incidents were pedestrian, with injuries, and one was a bicycle fatality.

Qualifying Supplemental Safety Measures proposed for both Beaver and San Francisco Streets are “One Way Streets with Gates”.

Current proposed improvements at Beaver Street and San Francisco Streets are shown on sheets C4.0 and C5.0 and include:

- New fencing along the railroad right of way lines to channel pedestrians to the crossing location. The style of proposed fencing will mimic existing fencing at the proposed locations.
- The north side of the railroad right of way between Beaver and San Francisco is the loading platform for the Amtrak station. Fencing will be configured and extended to separate Amtrak boarders from other pedestrians.
- ADA sidewalk treatment. This will consist of installation of truncated domes at hold short locations, and verification of proper slopes and grades.
- Some remedial concrete sidewalk repair and reconstruction will eliminate gaps in the current sidewalk, and allow for the proposed fence construction.
- “No Train Horn” signs.

Notes from the Diagnostic Team meeting (as included in the *Quiet Zone/Wayside Horn Update*), include the following paragraph:

*“Within the review of each crossing or option, it was further instructed that pedestrian safety would play a prime role. Supplemental Safety Measures indicated in the quiet zone ruling have no correlation with pedestrian accidents or safety. They address vehicles only. It was brought up that the MUTCD (ed: Manual for Uniform Traffic Control Devices) (Part 10 – Traffic Controls for Highway-Light Rail Transit Grade Crossing) section addresses the use of pedestrian barrier installations for light rail transit crossings and that these could possibly be used and modified to address pedestrian safety concerns at Beaver Street and San Francisco Street.”*

A MUTCD pedestrian barrier consists of a short fenced “maze” for pedestrians to navigate as they reach the crossing. The intent of this maze is to focus pedestrian attention toward both railroad approaches prior to crossing the tracks. The proposed design does *not* incorporate MUTCD pedestrian barriers, for the following reasons:

Construction of MUTCD pedestrian barriers is severely hampered by the need to maintain Amtrak access to the station platform, BNSF access to BNSF right of way, and local driveway access to the Chamber of Commerce building. In some quadrants there is simply no room for the barrier suggested, or any similar type of improvement. We do not think it appropriate to place MUTCD barriers in only those locations with adequate room to construct, as we feel that any pedestrian safety improvements should be reasonably uniform across all four quadrants of the rail crossing.

A great many of the pedestrians after dark are patrons of local dining (and drinking) establishments. Many are also NAU students, or are of similar age. They often travel in small groups between establishments, and to-and-from NAU. Existing sidewalk widths are narrow, and present an impediment to group passage – many pedestrians walk in the street after hours. The pedestrian barrier “mazes” we feel would be an additional barrier and easily and routinely bypassed.

Gannet Fleming also expressed similar concerns regarding this approach in a letter by Project Engineer Stewart S. Vaghti dated July 19, 2007:

*“During the weekend of July 6th and 7th, I spent time in the downtown Flagstaff area between the hours of 6:00 pm and midnight. I observed the following pedestrian behavior at this time:*

- *During the daylight hours when vehicular traffic was relatively active, pedestrian traffic primarily utilized the sidewalks with some walking in traffic lanes.*
- *Bicycle traffic primarily utilized bicycle lanes of the traffic lanes.*
- *After it became dark, and when vehicular traffic was reduced, pedestrian and bicycle traffic utilized more of the vehicular travel lanes of the streets and less of the sidewalks.*

*It appeared that several of these pedestrian and bicycle lane patterns were from patrons of the local businesses.*

*As this relates to the pedestrian barriers proposed on Beaver Street and San Francisco Street, **our concern is that the proposed channelization barriers would not be an effective means of controlling pedestrian traffic and could be a safety concern if a pedestrian needed to get out of the way of an oncoming vehicle.***” (bold added).

The City of Flagstaff concurs with the above assessments, and does not wish to pursue construction of MUTCD pedestrian barriers. The fencing proposed as a part of this project will direct pedestrian traffic to the proper crossing locations. Flashing lights and bell signals will provide audible and visual pedestrian warning.

### **Enterprise Road**

Enterprise Road is the most significant rail-highway crossing within the City of Flagstaff in terms of Average Daily Traffic. Current ADT is roughly 21,000 vehicles per day. The crossing was significantly upgraded in 2002-2003. It currently consists of three northbound lanes and two southbound lanes, separated by an eight-foot median. There are currently four tracks: two mainline and two siding or spur.

Current railroad crossing inventory information indicates 97 daily train movements at this location. Maximum timetable speed is 55 miles per hour. FRA records indicate that the Enterprise Rd. crossing has had 6 accidents within the past 10 years. There was one injury accident, but none involved fatalities. All were vehicle accidents, with all but one involving trucks or truck-trailer combinations. There appear to have been no accidents since the completion of the 2002 – 2003 work.

Current proposed improvements at Enterprise Road are shown on sheets C6.0 and include:

- ADA sidewalk treatment. This will consist of installation of truncated domes at hold short locations, and verification of proper slopes and grades.
- No Train Horn” signs.

No Qualifying Supplemental Safety Measures are proposed for the Enterprise Road Crossing. The Federal Railroad Administration *Quiet Zone Calculator* indicates that the Quiet Zone Qualifies because the Quiet Zone Risk Index (85146.78) is less than the Risk Index with Horns (114085.49).

Alternatively, the Enterprise Road crossing could be evaluated under “Gates with Medians or Channelization Devices”. However, the median length north of the crossing - between the crossing gate and Route 66 - less than the minimum 60 feet stipulated per the Supplemental Safety Measure standards. The current median length is slightly over 43 feet. It appears doubtful that the median length could be extended an additional 17 feet without creating a potential conflict for left-turning vehicles onto Enterprise Road from Route 66.

Because intersection does not strictly conform to the requirements of this classification, the intersection would need to receive approval as a “Modified Supplemental Safety Measure” (or “Alternative Safety Measure”). The intersection and rail crossing has functioned very well – with no accidents - since the 2002-2003 reconstruction, and ModSSM/ASM approval hopefully would not be difficult.

### **Steves Boulevard and Fanning Drive.**

Located in easterly Flagstaff, Steves Boulevard and Fanning Drive have very similar characteristics. Both crossings are approximately 300 feet long, and connect Route 66 to Industrial Drive – two roadways which parallel the railroad tracks. The rail track location is approximately centered between the curb lines of the parallel roadways.

Current ADT for Steves Boulevard is slightly in excess of 11,000 vehicles per day. The Fanning crossing has an ADT of roughly 8,100 vehicles per day. Both crossings are four lanes: two northbound and two southbound.

Current railroad crossing inventory information indicates 93 daily train movements at both locations. Maximum timetable speed is 79 miles per hour. FRA records indicate that the Steves crossing has had no accidents within the past 10 years. The Fanning crossing has experienced 3 accidents, with one injury and no fatalities.

The City has elected to use wayside horns at both the Steves and Fanning locations. This removes these intersections from the Quiet Zone category, and wayside horns are considered to be a one-for-one substitute for the silenced train horn.

Wayside horns may be used within a Quiet Zone, and we currently envision creating a Quiet Zone to encompass all the 5 mainline crossings within the City, including the crossings at Steves and Fanning.

Current proposed improvements at Steves Boulevard and Fanning Drive are shown on sheets C5 and C6 and include:

- Installation of wayside horns.
- ADA sidewalk treatment. This will consist of installation of truncated domes at hold short locations, and verification of proper slopes and grades.
- Proper construction of ADA improvements will require relocation of existing driveways at Steves Boulevard which provide access to the BNSF right of way. If BNSF prefers, these driveways can be eliminated instead.
- “No Train Horn” signs.