WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

City of Spokane Valley Petitioner, vs. Union Pacific Railroad Respondent	DOCKET NO. TR- PETITION TO MODIFY WARNING DEVICES AT A HIGHWAY-RAILROAD GRADE CROSSING USDOT: 662526C

The Petitioner asks the Washington Utilities and Transportation Commission to approve modification of warning devices at a highway-rail grade crossing.

Section 1 – Petitioner's Information

City of Spokane Valley, WA
Petitioner

Signature

10210 E. Sprague Avenue
Street Address

Spokane Valley, WA 99206
City, State and Zip Code

Same as above
Mailing Address, if different than the street address

Rob Lochmiller
Contact Person Name & Signature

509-720-5010, rlochmiller@spokanevalley.org
Contact Phone Number and Email Address

Section 2 – Respondent's Information

Union Pacific Railroad
Respondent

9451 Atkinson St
Street Address

Roseville, CA 95747
City, State and Zip Code

Mailing Address, if different than the street address

Mary Schroll
Contact Person Name

(916) 789-6111 / mrschrol@up.com
Contact Phone Number and Email Address

Section 3 – Crossing Location

1. Existing highway/roadway: Barker Road

2. Existing railroad: Union Pacific

3. USDOT Crossing No.: 662526C

4. GPS location: Lat. 47.6864630 Long. -117.1544352

5. Railroad mile post (nearest tenth) 12.99

6. City: Spokane Valley County: Spokane

Section 4 – Vehicle Traffic

1. Name of highway: Barker Road

2. Road authority City of Spokane Valley

3. Average annual daily traffic (AADT) 8,600

4. Number of lanes: 2 lanes

5. Roadway speed: 35 mph

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

7. If so, trucks are what percent of total daily traffic? 15%

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? 5

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

The traffic volumes will increase as the vacant land to the north is developed.

Section 5 – Current Crossing Information

1. Railroad company Union Pacific Railroad

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

□ Passenger □ Excursion

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

4. Number of tracks at crossing 1

5. Average daily train traffic, freight 9

Authorized freight train speed 49 Operated freight train speed 24-49

6. Average daily train traffic, passenger 0

Authorized passenger train speed 0 Operated passenger train speed 0

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

Unknown

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?

> 400 ft

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.

Section 6 – Current Warning Devices

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

One cantilever and one quad gate/flasher for each direction of travel. Southbound gate/flasher has side flashers for eastbound Euclid Avenue travel. One (1) driving lane southbound and one (1) driving lane northbound - Nine (9) flasher sets and two (2) bells total.

Two stop bars, two W10-1 approach signs, and two RR Xing pavement markings and W10-4 on the parallel roads, Euclid Avenue north and south sides of the tracks.

Section 7 – Description of Proposed Changes

Describe in detail the number and type of proposed automatic signals (vehicle and pedestrian), gates or other warning devices, and/or changes to train detection circuitry. Please describe any other proposed changes at the crossing, including changes to the crossing surface, signage, pavement markings, etc. If sidewalks are being installed, please provide information on who will maintain them. (Attach additional information sheets, if needed.)

One cantilever, and one quad gate/flasher for each direction of travel. Northbound cantilever provides flasher for both lanes. Southbound cantilever also has 2 sidelights for eastbound Euclid Avenue and westbound access road travel. Two (2) driving lanes northbound, one (1) driving lane southbound and one (1) multi-use path on east side to be maintained by City - Nine (9) flashers and three (3) bells total.

Two stop bars, two W10-1 approach signs, two W10-4 approach signs, two RR Xing pavement markings and other signage in accordance with the MUTCD.

Replace concrete crossing surface with new wider 81ft (10 panels) concrete crossing surface in order to accommodate traffic lanes and multi-use path.

Section 8 – Illustration of Proposed Warning Devices

Attach a detailed design diagram, drawing, map or other illustration showing all proposed modifications, including signals, signage, pavement markings, sidewalks, etc.

Section 9 – Waiver of Hearing by Respondent

Waiver of Hearing

The undersigned represents the Respondent in the petition to modify highway-rail grade crossing warning signal system at the following crossing.

USDOT Crossing No. 662526C

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 signal system should be modified and consent to a decision by the commission without a hearing.

Dated at _____ , _____, on the _____ day of

_____, 20 ____.

_____
Printed name of Respondent

_____
Signature of Respondent's Representative

_____
Title

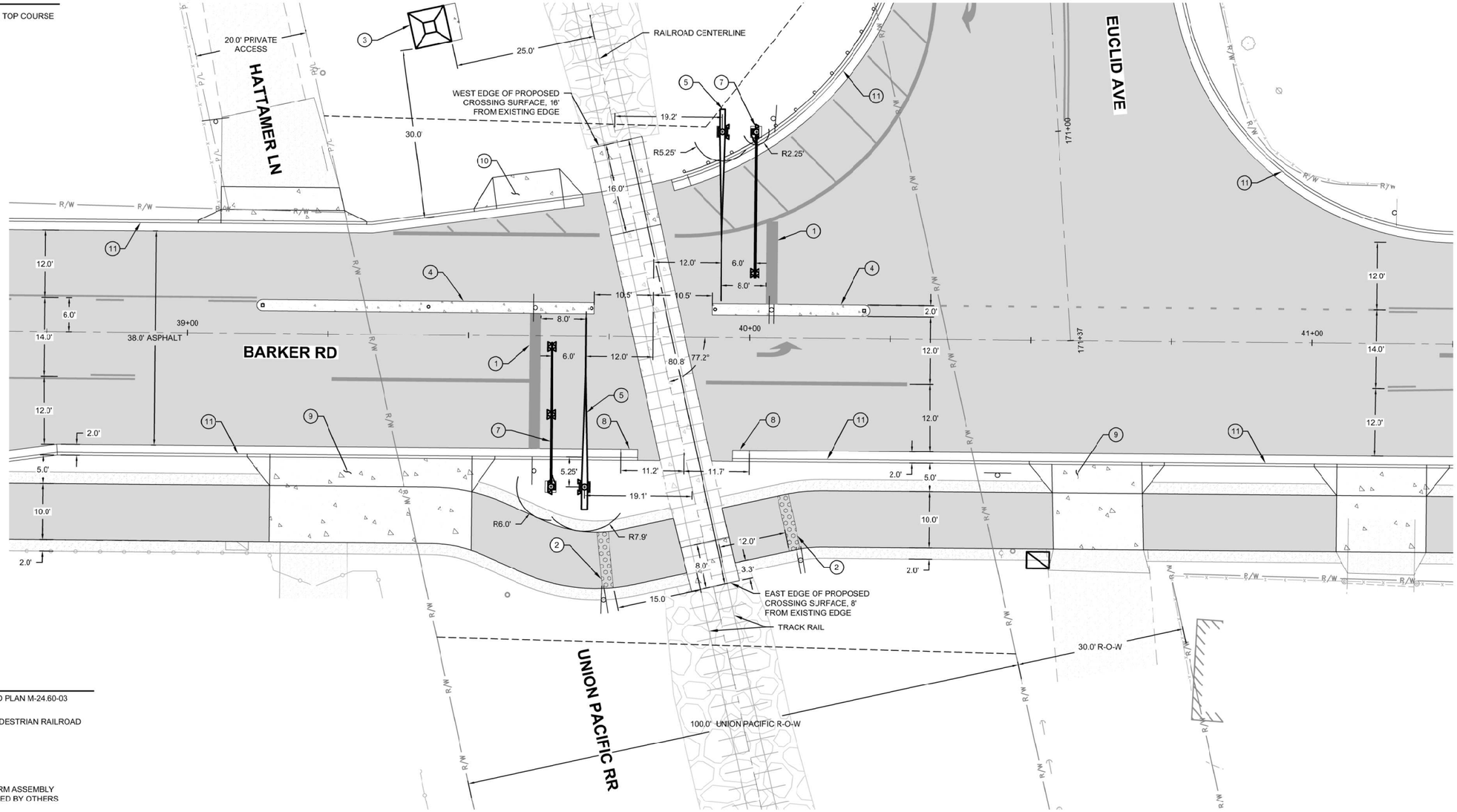
_____
Phone number and e-mail address

_____

_____
Mailing address

LEGEND

- CRUSHED SURFACE TOP COURSE
- CONCRETE
- ARTERIAL HMA



KEYNOTES

1. PLASTIC - STOP BAR, PER WSDOT STANDARD PLAN M-24.60-03 W: 2.0'
2. 2' x 10' DETECTABLE WARNING SURFACE, PEDESTRIAN RAILROAD CROSSING, WSDOT STD PLAN F-45.10-02
3. SIGNAL CABINET
4. 8" HIGH CEMENT CONCRETE MEDIAN
5. ACTIVE TRAFFIC CONTROL DEVISE - GATE ARM ASSEMBLY (ARM LENGTH = 30'), PROVIDED AND INSTALLED BY OTHERS
6. NOT USED
7. ACTIVE TRAFFIC CONTROL DEVICE - CANTILEVER ASSEMBLY WITH FLASHERS, PROVIDED AND INSTALLED BY OTHERS
8. CURB TERMINATION, CITY STD PLAN S-R02
9. TYPE 1 CONCRETE APPROACH SEPARATED SIDEWALK, SPOKANE VALLEY STD PLAN R-110 RAMP DEPTH = 5' SIDEWALK DEPTH = 10'
10. CEMENT CONCRETE DRIVEWAY TYPE 4, WSDOT STD PLAN F-80.10-04 AND 4" CSTC DEPTH = 5'
11. CURB & GUTTER TYPE B, SPOKANE VALLEY STD PLAN R-102

0 5 10 20

Know what's below **Call** before you dig.

REVISIONS			
NO.	DATE	DESCRIPTION	BY

CITY OF SPOKANE VALLEY
COMMUNITY & PUBLIC WORKS DEPARTMENT
10210 EAST SPRAGUE AVENUE
SPOKANE VALLEY, WA. 99206
(509) 720-5000

DRAWN BY JAM
DESIGNED BY JAM

EXHIBIT
JULY 1, 2020

0313 BARKER - UNION PACIFIC CROSSING

UNION PACIFIC RR CROSSING LAYOUT
BARKER RD / UNION PACIFIC CROSSING, SPOKANE VALLEY, WA
MP 0012.99, DOT 662526C

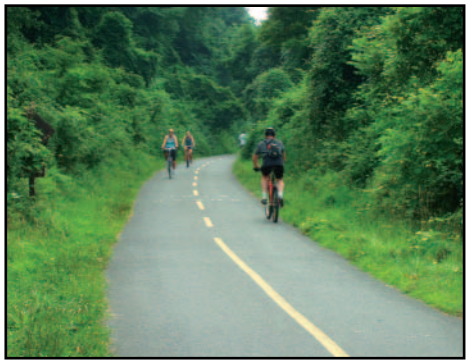
SHEET 1

Manual on Uniform Traffic Control Devices

for Streets and Highways

2003 EDITION

Part 1
General



U.S. Department of Transportation
Federal Highway Administration

PART 1. GENERAL

TABLE OF CONTENTS

CHAPTER 1A. GENERAL

Section 1A.01 Purpose of Traffic Control Devices

Support:

The purpose of traffic control devices, as well as the principles for their use, is to promote highway safety and efficiency by providing for the orderly movement of all road users on streets and highways throughout the Nation.

Traffic control devices notify road users of regulations and provide warning and guidance needed for the reasonably safe, uniform, and efficient operation of all elements of the traffic stream.

Standard:

Traffic control devices or their supports shall not bear any advertising message or any other message that is not related to traffic control.

Support:

Tourist-oriented directional signs and Specific Service signs are not considered advertising; rather, they are classified as motorist service signs.

Section 1A.02 Principles of Traffic Control Devices

Support:

This Manual contains the basic principles that govern the design and use of traffic control devices for all streets and highways open to public travel regardless of type or class or the public agency having jurisdiction. This Manual's text specifies the restriction on the use of a device if it is intended for limited application or for a specific system. It is important that these principles be given primary consideration in the selection and application of each device.

Guidance:

To be effective, a traffic control device should meet five basic requirements:

A. Fulfill a need;
B. Command attention;
C. Convey a clear, simple meaning;
D. Command respect from road users; and
E. Give adequate time for proper response.

Design, placement, operation, maintenance, and uniformity are aspects that should be carefully considered in order to maximize the ability of a traffic control device to meet the five requirements listed in the previous paragraph. Vehicle speed should be carefully considered as an element that governs the design, operation, placement, and location of various traffic control devices.

Support:

The definition of the word "speed" varies depending on its use. The definitions of specific speed terms are contained in Section 1A.13.

Guidance:

The actions required of road users to obey regulatory devices should be specified by State statute, or in cases not covered by State statute, by local ordinance or resolution consistent with the "Uniform Vehicle Code."

The proper use of traffic control devices should provide the reasonable and prudent road user with the information necessary to reasonably safely and lawfully use the streets, highways, pedestrian facilities, and bikeways.

Support:

Uniformity of the meaning of traffic control devices is vital to their effectiveness. The meanings ascribed to devices in this Manual are in general accord with the publications mentioned in Section 1A.11.

Section 1A.03 Design of Traffic Control Devices

Guidance:

Devices should be designed so that features such as size, shape, color, composition, lighting or retroreflection, and contrast are combined to draw attention to the devices; that size, shape, color, and simplicity of message combine to produce a clear meaning; that legibility and size combine with placement to permit adequate time for response; and that uniformity, size, legibility, and reasonableness of the message combine to command respect.

Standard:

All symbols shall be unmistakably similar to or mirror images of the adopted symbol signs, all of which are shown in the "Standard Highway Signs" book (see Section 1A.11). Symbols and colors shall not be modified unless otherwise stated herein. All symbols and colors for signs not shown in the "Standard Highway Signs" book shall follow the procedures for experimentation and change described in Section 1A.10.

Guidance:

Aspects of a device's design should be modified only if there is a demonstrated need.

Support:

An example of modifying a device's design would be to modify the Side Road (W2-2) sign to show a second offset intersecting road.

Option:

Highway agencies may develop word message signs to notify road users of special regulations or to warn road users of a situation that might not be readily apparent. Unlike symbol signs and colors, new word message signs may be used without the need for experimentation. With the exception of symbols and colors, minor modifications in the specific design elements of a device may be made provided the essential appearance characteristics are preserved. Although the standard design of symbol signs cannot be modified, it may be appropriate to change the orientation of the symbol to better reflect the direction of travel.

Section 1A.04 Placement and Operation of Traffic Control Devices

Guidance:

Placement of a traffic control device should be within the road user's view so that adequate visibility is provided. To aid in conveying the proper meaning, the traffic control device should be appropriately positioned with respect to the location, object, or situation to which it applies. The location and legibility of the traffic control device should be such that a road user has adequate time to make the proper response in both day and night conditions.

Traffic control devices should be placed and operated in a uniform and consistent manner.

Unnecessary traffic control devices should be removed. The fact that a device is in good physical condition should not be a basis for deferring needed removal or change.

Section 1A.05 Maintenance of Traffic Control Devices

Guidance:

Functional maintenance of traffic control devices should be used to determine if certain devices need to be changed to meet current traffic conditions.

Physical maintenance of traffic control devices should be performed to retain the legibility and visibility of the device, and to retain the proper functioning of the device.

Support:

Clean, legible, properly mounted devices in good working condition command the respect of road users.

Section 1A.06 Uniformity of Traffic Control Devices

Support:

Uniformity of devices simplifies the task of the road user because it aids in recognition and understanding, thereby reducing perception/reaction time. Uniformity assists road users, law enforcement officers, and traffic courts by giving everyone the same interpretation. Uniformity assists public highway officials through efficiency in manufacture, installation, maintenance, and administration. Uniformity means treating similar situations in a similar way. The use of uniform traffic control devices does not, in itself, constitute uniformity. A standard device used where it is not appropriate is as objectionable as a nonstandard device; in fact, this might be worse, because such misuse might result in disrespect at those locations where the device is needed and appropriate.

Section 1A.07 Responsibility for Traffic Control Devices

Standard:

The responsibility for the design, placement, operation, maintenance, and uniformity of traffic control devices shall rest with the public agency or the official having jurisdiction. 23 CFR 655.603 adopts the Manual on Uniform Traffic Control Devices as the national standard for all traffic control devices installed on any street, highway, or bicycle trail open to public travel. When a State or other Federal agency

manual or supplement is required, that manual or supplement shall be in substantial conformance with the national Manual on Uniform Traffic Control Devices.

23 CFR 655.603 also states that traffic control devices on all streets and highways open to public travel in each State shall be in substantial conformance with standards issued or endorsed by the Federal Highway Administrator.

Support:

The "Uniform Vehicle Code" (see Section 1A.11) has the following provision in Section 15-104 for the adoption of a uniform Manual:

> "(a)The [State Highway Agency] shall adopt a manual and specification for a uniform system of traffic control devices consistent with the provisions of this code for use upon highways within this State. Such uniform system shall correlate with and so far as possible conform to the system set forth in the most recent edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, and other standards issued or endorsed by the Federal Highway Administrator."
>
> "(b) The Manual adopted pursuant to subsection (a) shall have the force and effect of law."

Additionally, States are encouraged to adopt Section 15-116 of the "Uniform Vehicle Code," which states that, "No person shall install or maintain in any area of private property used by the public any sign, signal, marking or other device intended to regulate, warn, or guide traffic unless it conforms with the State manual and specifications adopted under Section 15-104."

Section 1A.08 Authority for Placement of Traffic Control Devices

Standard:

Traffic control devices, advertisements, announcements, and other signs or messages within the highway right-of-way shall be placed only as authorized by a public authority or the official having jurisdiction, for the purpose of regulating, warning, or guiding traffic.

When the public agency or the official having jurisdiction over a street or highway has granted proper authority, others such as contractors and public utility companies shall be permitted to install temporary traffic control devices in temporary traffic control zones. Such traffic control devices shall conform with the Standards of this Manual.

Guidance:

Any unauthorized traffic control device or other sign or message placed on the highway right-of-way by a private organization or individual constitutes a public nuisance and should be removed. All unofficial or nonessential traffic control devices, signs, or messages should be removed.

Standard:

All regulatory traffic control devices shall be supported by laws, ordinances, or regulations.

Support:

Provisions of this Manual are based upon the concept that effective traffic control depends upon both appropriate application of the devices and reasonable enforcement of the regulations.

Section 1A.09 Engineering Study and Engineering Judgment

Standard:

This Manual describes the application of traffic control devices, but shall not be a legal requirement for their installation.

Guidance:

The decision to use a particular device at a particular location should be made on the basis of either an engineering study or the application of engineering judgment. Thus, while this Manual provides Standards, Guidance, and Options for design and application of traffic control devices, this Manual should not be considered a substitute for engineering judgment.

Engineering judgment should be exercised in the selection and application of traffic control devices, as well as in the location and design of the roads and streets that the devices complement. Jurisdictions with responsibility for traffic control that do not have engineers on their staffs should seek engineering assistance from others, such as the State transportation agency, their County, a nearby large City, or a traffic engineering consultant.

Section 1A.10 Interpretations, Experimentations, Changes, and Interim Approvals

Standard:

Design, application, and placement of traffic control devices other than those adopted in this Manual shall be prohibited unless the provisions of this Section are followed.

Support:

Continuing advances in technology will produce changes in the highway, vehicle, and road user proficiency; therefore, portions of the system of traffic control devices in this Manual will require updating. In addition, unique situations often arise for device applications that might require interpretation or clarification of this Manual. It is important to have a procedure for recognizing these developments and for introducing new ideas and modifications into the system.

Standard:

Requests for any interpretation, permission to experiment, interim approval, or change shall be sent to the Federal Highway Administration (FHWA), Office of Transportation Operations, 400 Seventh Street, SW, HOTO, Washington, DC 20590.

Support:

An interpretation includes a consideration of the application and operation of standard traffic control devices, official meanings of standard traffic control devices, or the variations from standard device designs.

Guidance:

Requests for an interpretation of this Manual should contain the following information:

A. A concise statement of the interpretation being sought;
B. A description of the condition that provoked the need for an interpretation;
C. Any illustration that would be helpful to understand the request; and
D. Any supporting research data that is pertinent to the item to be interpreted.

Support:

Requests to experiment include consideration of field deployment for the purpose of testing or evaluating a new traffic control device, its application or manner of use, or a provision not specifically described in this Manual.

A request for permission to experiment will be considered only when submitted by the public agency or private toll facility responsible for the operation of the road or street on which the experiment is to take place.

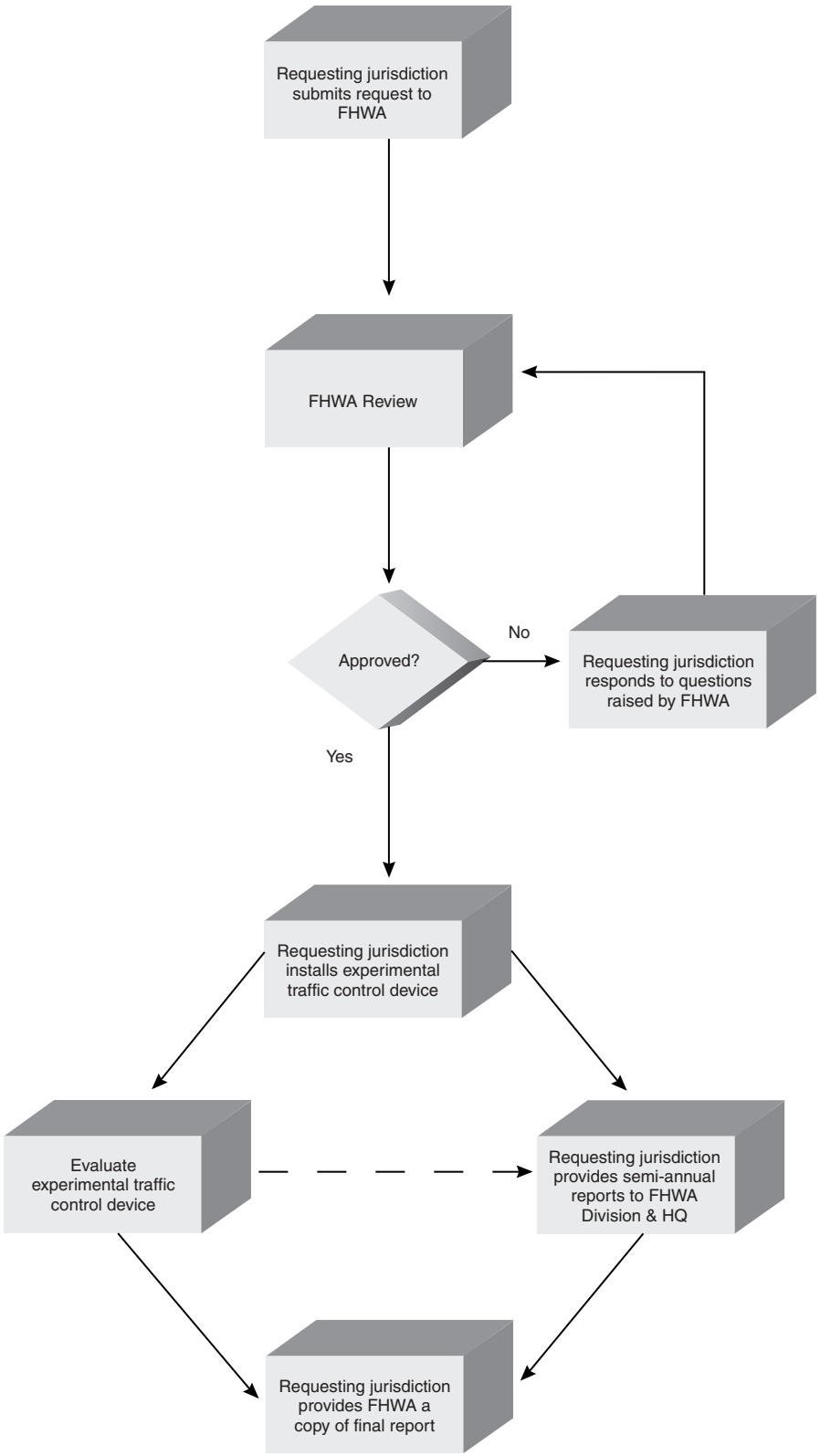
A diagram indicating the process for experimenting with traffic control devices is shown in Figure 1A-1.

Guidance:

The request for permission to experiment should contain the following:

A. A statement indicating the nature of the problem.
B. A description of the proposed change to the traffic control device or application of the traffic control device, how it was developed, the manner in which it deviates from the standard, and how it is expected to be an improvement over existing standards.
C. Any illustration that would be helpful to understand the traffic control device or use of the traffic control device.
D. Any supporting data explaining how the traffic control device was developed, if it has been tried, in what ways it was found to be adequate or inadequate, and how this choice of device or application was derived.
E. A legally binding statement certifying that the concept of the traffic control device is not protected by a patent or copyright. (An example of a traffic control device concept would be countdown pedestrian signals in general. Ordinarily an entire general concept would not be patented or copyrighted, but if it were it would not be acceptable for experimentation unless the patent or copyright owner signs a waiver of rights acceptable to the FHWA. An example of a patented or copyrighted specific device within the general concept of countdown pedestrian signals would be a manufacturer's design for its specific brand of countdown signal, including the design details of the housing or electronics that are unique to that manufacturer's product. As long as the general concept is not patented or copyrighted, it is acceptable for experimentation to incorporate the use of one or more patented devices of one or several manufacturers.)
F. The time period and location(s) of the experiment.
G. A detailed research or evaluation plan that must provide for close monitoring of the experimentation, especially in the early stages of its field implementation. The evaluation plan should include before and after studies as well as quantitative data describing the performance of the experimental device.

Figure 1A-1. Example of Process for Requesting and Conducting Experimentations for New Traffic Control Devices



H. An agreement to restore the site of the experiment to a condition that complies with the provisions of this Manual within 3 months following the end of the time period of the experiment. This agreement must also provide that the agency sponsoring the experimentation will terminate the experimentation at any time that it determines significant safety concerns are directly or indirectly attributable to the experimentation. The FHWA's Office of Transportation Operations has the right to terminate approval of the experimentation at any time if there is an indication of safety concerns. If, as a result of the experimentation, a request is made that this Manual be changed to include the device or application being experimented with, the device or application will be permitted to remain in place until an official rulemaking action has occurred.

I. An agreement to provide semiannual progress reports for the duration of the experimentation, and an agreement to provide a copy of the final results of the experimentation to the FHWA's Office of Transportation Operations within 3 months following completion of the experimentation. The FHWA's Office of Transportation Operations has the right to terminate approval of the experimentation if reports are not provided in accordance with this schedule.

Support:

A change includes consideration of a new device to replace a present standard device, an additional device to be added to the list of standard devices, or a revision to a traffic control device application or placement criteria.

Guidance:

Requests for a change to this Manual should contain the following information:

A. A statement indicating what change is proposed;
B. Any illustration that would be helpful to understand the request; and
C. Any supporting research data that is pertinent to the item to be reviewed.

Support:

Requests for interim approval include consideration of allowing interim use, pending official rulemaking, of a new traffic control device, a revision to the application or manner of use of an existing traffic control device, or a provision not specifically described in this Manual. If granted, interim approval will result in the traffic control device or application being placed into the next scheduled rulemaking process for revisions to this Manual. The device or application will be permitted to remain in place, under any conditions established in the interim approval, until an official rulemaking action has occurred.

Interim approval is considered based on the results of successful experimentation, results of analytical or laboratory studies, and/or review of non-U.S. experience with a traffic control device or application. Interim approval considerations include an assessment of relative risks, benefits, and costs. Interim approval includes conditions that jurisdictions agree to comply with in order to use the traffic control device or application until an official rulemaking action has occurred.

Guidance:

The request for permission to place a traffic control device under interim approval should contain the following:

A. A statement indicating the nature of the problem.
B. A description of the proposed change to the traffic control device or application of the traffic control device, how it was developed, the manner in which it deviates from the standard, and how it is expected to be an improvement over existing standards.
C. The location(s) where it will be used and any illustration that would be helpful to understand the traffic control device or use of the traffic control device.
D. A legally-binding statement certifying that the concept of the traffic control device is not protected by a patent or copyright. (An example of a traffic control device concept would be countdown pedestrian signals in general. Ordinarily an entire general concept would not be patented or copyrighted, but if it were it would not be acceptable for interim approval unless the patent or copyright owner signs a waiver of rights acceptable to the FHWA. An example of a patented or copyrighted specific device within the general concept of countdown pedestrian signals would be a manufacturer's design for its specific brand of countdown signal, including the design details of the housing or electronics that are unique to that manufacturer's product. Interim approval of a specific patented or copyrighted product is not acceptable.)
E. A detailed completed research or evaluation on this traffic control device.
F. An agreement to restore the site(s) of the interim approval to a condition that complies with the provisions in this Manual within 3 months following the issuance of a final rule on this traffic control device. This agreement must also provide that the agency sponsoring the interim approval will terminate use of the device or application installed under the interim approval at any time that it determines significant safety concerns are directly or indirectly attributable to the device or application. The FHWA's Office of Transportation Operations has the right to terminate the interim approval at any time if there is an indication of safety concerns.

Option:

A State may submit a request for interim approval for all jurisdictions in that State, as long as the request contains the information listed in the Guidance above.

Standard:

Once an interim approval is granted to any jurisdiction for a particular traffic control device or application, subsequent jurisdictions shall be granted interim approval for that device or application by submitting a letter to the FHWA Office of Transportation Operations indicating they will abide by Item F above and the specific conditions contained in the original interim approval.

A local jurisdiction using a traffic control device or application under an interim approval that was granted either directly to that jurisdiction or on a statewide basis based on the State's request shall inform the State of the locations of such use.

Support:

A diagram indicating the process for incorporating new traffic control devices into this Manual is shown in Figure 1A-2.

Procedures for revising this Manual are set out in the Federal Register of June 30, 1983 (48 FR 30145).

For additional information concerning interpretations, experimentation, changes, or interim approvals, write to the FHWA, 400 Seventh Street, SW, HOTO, Washington, DC 20590, or visit the MUTCD website at http://mutcd.fhwa.dot.gov.

Section 1A.11 Relation to Other Publications

Standard:

To the extent that they are incorporated by specific reference, the latest editions of the following publications, or those editions specifically noted, shall be a part of this Manual: "Standard Highway Signs" book (FHWA); and "Color Specifications for Retroreflective Sign and Pavement Marking Materials" (appendix to subpart F of Part 655 of Title 23 of the Code of Federal Regulations).

Support:

The "Standard Highway Signs" book includes standard alphabets and symbols for highway signs and pavement markings.

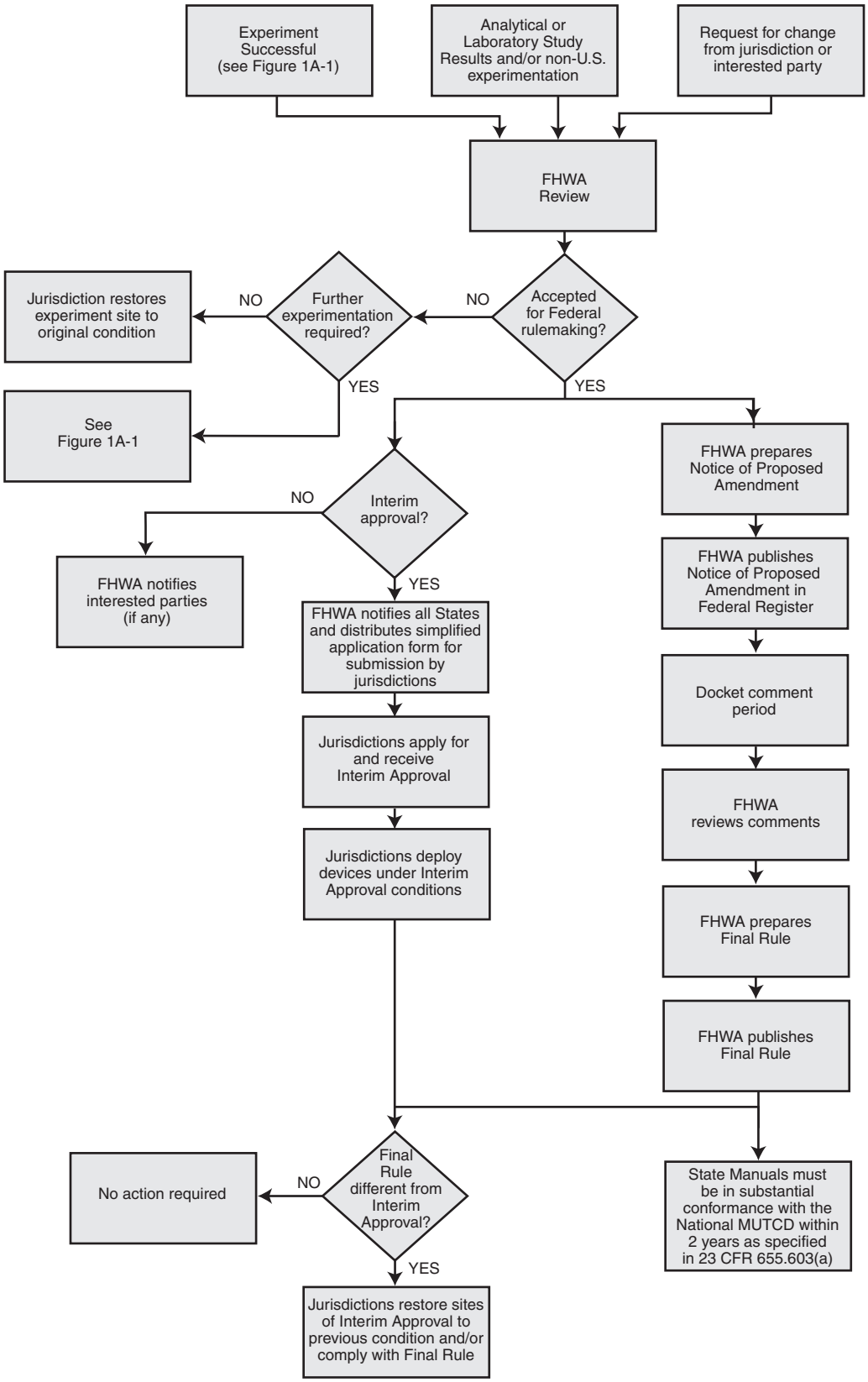
For information about the above publications, visit the Federal Highway Administration's MUTCD website at http://mutcd.fhwa.dot.gov, or write to the FHWA, 400 Seventh Street, SW, HOTO, Washington, DC 20590.

The publication entitled "Federal-Aid Highway Program Guidance on High Occupancy Vehicle (HOV) Lanes" is available at http://www.fhwa.dot.gov/operations/hovguide01.htm, or write to the FHWA, 400 Seventh Street, SW, HOTM, Washington, DC 20590.

Other publications that are useful sources of information with respect to use of this Manual are listed below. See Page i of this Manual for ordering information for the following publications:

1. "A Policy on Geometric Design of Highways and Streets," 2001 Edition (American Association of State Highway and Transportation Officials—AASHTO)
2. "Guide for the Development of Bicycle Facilities," 1999 Edition (AASHTO)
3. "Guide to Metric Conversion," 1993 Edition (AASHTO)
4. "Guidelines for the Selection of Supplemental Guide Signs for Traffic Generators Adjacent to Freeways," 2001 Edition (AASHTO)
5. "List of Control Cities for Use in Guide Signs on Interstate Highways," 2001 Edition (AASHTO)
6. "Roadside Design Guide," 2001 Edition (AASHTO)
7. "Standard Specifications for Movable Highway Bridges," 1988 Edition (AASHTO)
8. "Traffic Engineering Metric Conversion Folders— Addendum to the Guide to Metric Conversion," 1993 Edition (AASHTO)
9. "2000 AREMA Communications & Signals Manual," American Railway Engineering & Maintenance-of-Way Association (AREMA)
10. "Designing Sidewalks and Trails for Access—Part 2—Best Practices Design Guide," 2001 Edition (FHWA) [Publication No. FHWA-EP-01-027]
11. "Practice for Roadway Lighting," RP-8, 2001, Illuminating Engineering Society (IES)
12. "Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators (Blasting Caps)," Safety Library Publication No. 20, Institute of Makers of Explosives
13. "American National Standard for High-Visibility Safety Apparel," (ANSI/ISEA 107-1999), 1999 Edition, ISEA - The Safety Equipment Association.
14. "Manual of Traffic Signal Design," 1998 Edition (Institute of Transportation Engineers—ITE)

Figure 1A-2. Example of Process for Incorporating New Traffic Control Devices into the MUTCD



15. "Manual of Transportation Engineering Studies," 1994 Edition (ITE)
16. "Pedestrian Traffic Control Signal Indications," 1985 Edition (ITE)
17. "Preemption of Traffic Signals at or Near Railroad Grade Crossings with Active Warning Devices," (ITE)
18. "Purchase Specification for Flashing and Steady Burn Warning Lights," 1981 Edition (ITE)
19. "School Trip Safety Program Guidelines," 1984 Edition (ITE)
20. "Traffic Detector Handbook," 1991 Edition (ITE)
21. "Traffic Engineering Handbook," 1999 Edition (ITE)
22. "Traffic Signal Lamps," 1980 Edition (ITE)
23. "Traffic Control Devices Handbook," 2001 Edition (ITE)
24. "Vehicle Traffic Control Signal Heads," Part 1—1985 Edition; Part 2—1998 Edition (ITE)
25. "Uniform Vehicle Code (UVC) and Model Traffic Ordinance," 2000 Edition (National Committee on Uniform Traffic Laws and Ordinances)
26. "Occupational Safety and Health Administration Regulations (Standards - 29 CFR), General Safety and Health Provisions - 1926.20," amended June 30, 1993, Occupational Safety and Health Administration (OSHA)
27. "Highway Capacity Manual," 2000 Edition (Transportation Research Board—TRB)
28. "Recommended Procedures for the Safety Performance Evaluation of Highway Features," (NCHRP Report 350), 1993 Edition (Transportation Research Board - TRB)
29. "Accessible Pedestrian Signals," A-37, 1998 Edition, U.S. Architectural and Transportation Barriers Compliance Board (The U.S. Access Board)
30. "Building a True Community—Final Report—Public Rights-of-Way Access Advisory Committee (PRWAAC)," 2001 Edition (The U.S. Access Board)
31. "The Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)," July 1998 Edition (The U.S. Access Board)
32. "Highway-Rail Intersection Architecture," U.S. Department of Transportation, Federal Railroad Administration (USDOT/FRA)

Section 1A.12 Color Code

Support:

The following color code establishes general meanings for 10 colors of a total of 13 colors that have been identified as being appropriate for use in conveying traffic control information. Central values and tolerance limits for each color are available from the Federal Highway Administration, 400 Seventh Street, SW, HOTO, Washington, DC 20590, and at FHWA's MUTCD website at http://mutcd.fhwa.dot.gov.

The three colors for which general meanings have not yet been assigned are being reserved for future applications that will be determined only by FHWA after consultation with the States, the engineering community, and the general public. The meanings described in this Section are of a general nature. More specific assignments of colors are given in the individual Parts of this Manual relating to each class of devices.

Standard:

The general meaning of the 13 colors shall be as follows:

A. Black—regulation
B. Blue—road user services guidance, tourist information, and evacuation route
C. Brown—recreational and cultural interest area guidance
D. Coral—unassigned
E. Fluorescent Pink—incident management
F. Fluorescent Yellow-Green—pedestrian warning, bicycle warning, playground warning, school bus and school warning
G. Green—indicated movements permitted, direction guidance
H. Light Blue—unassigned
I. Orange—temporary traffic control
J. Purple—unassigned
K. Red—stop or prohibition
L. White—regulation
M. Yellow—warning

Section 1A.13 Definitions of Words and Phrases in This Manual

Standard:

Unless otherwise defined herein, or in the other Parts of this Manual, definitions contained in the most recent edition of the "Uniform Vehicle Code," "AASHTO Transportation Glossary (Highway Definitions)," and other publications specified in Section 1A.11 are also incorporated and adopted by reference.

The following words and phrases, when used in this Manual, shall have the following meanings:

1. **Active Grade Crossing Warning System—the flashing-light signals, with or without warning gates, together with the necessary control equipment used to inform road users of the approach or presence of trains at highway-rail or highway-light rail transit grade crossings.**
2. **Approach—all lanes of traffic moving towards an intersection or a midblock location from one direction, including any adjacent parking lane(s).**
3. **Arterial Highway (Street)—a general term denoting a highway primarily used by through traffic, usually on a continuous route or a highway designated as part of an arterial system.**
4. **Average Day—a day representing traffic volumes normally and repeatedly found at a location. Where volumes are primarily influenced by employment, the average day is typically a weekday. When volumes are primarily influenced by entertainment or recreation, the average day is typically a weekend day.**
5. **Beacon—a highway traffic signal with one or more signal sections that operates in a flashing mode.**
6. **Bicycle—a pedal-powered vehicle upon which the human operator sits.**
7. **Bicycle Lane—a portion of a roadway that has been designated by signs and pavement markings for preferential or exclusive use by bicyclists.**
8. **Centerline Markings—the yellow pavement marking line(s) that delineates the separation of traffic lanes that have opposite directions of travel on a roadway. These markings need not be at the geometrical center of the pavement.**
9. **Changeable Message Sign—a sign that is capable of displaying more than one message, changeable manually, by remote control, or by automatic control. These signs are referred to as Dynamic Message Signs in the National Intelligent Transportation Systems (ITS) Architecture.**
10. **Channelizing Line Marking—a wide or double solid white line used to form islands where traffic in the same direction of travel is permitted on both sides of the island.**
11. **Circular Intersection—an intersection that has an island, generally circular in design, located in the center of the intersection where traffic passes to the right of the island. Circular intersections include roundabouts, rotaries, and traffic circles.**
12. **Clear Zone—the total roadside border area, starting at the edge of the traveled way, that is available for an errant driver to stop or regain control of a vehicle. This area might consist of a shoulder, a recoverable slope, and/or a nonrecoverable, traversable slope with a clear run-out area at its toe.**
13. **Concurrent Flow HOV Lane—an HOV lane that is operated in the same direction as the adjacent mixed flow lanes, separated from the adjacent general purpose freeway lanes by a standard lane stripe, painted buffer, or barrier.**
14. **Contraflow Lane—a lane operating in a direction opposite to the normal flow of traffic designated for peak direction of travel during at least a portion of the day. Contraflow lanes are usually separated from the off-peak direction lanes by plastic pylons, or by moveable or permanent barrier.**
15. **Conventional Road—a street or highway other than a low-volume road (as defined in Section 5A.01), expressway, or freeway.**
16. **Collector Highway—a term denoting a highway that in rural areas connects small towns and local highways to arterial highways, and in urban areas provides land access and traffic circulation within residential, commercial, and business areas and connects local highways to the arterial highways.**
17. **Crashworthy—a characteristic of a roadside appurtenance that has been successfully crash tested in accordance with a national standard such as the National Cooperative Highway Research Program Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features."**

18. **Crosswalk—(a) that part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs or in the absence of curbs, from the edges of the traversable roadway, and in the absence of a sidewalk on one side of the roadway, the part of a roadway included within the extension of the lateral lines of the sidewalk at right angles to the centerline; (b) any portion of a roadway at an intersection or elsewhere distinctly indicated as a pedestrian crossing by lines on the surface, which may be supplemented by contrasting pavement texture, style, or color.**
19. **Crosswalk Lines—white pavement marking lines that identify a crosswalk.**
20. **Delineator—a retroreflective device mounted on the roadway surface or at the side of the roadway in a series to indicate the alignment of the roadway, especially at night or in adverse weather.**
21. **Detectable—having a continuous edge within 150 mm (6 in) of the surface so that pedestrians who have visual disabilities can sense its presence and receive usable guidance information.**
22. **Dynamic Envelope—the clearance required for the train and its cargo overhang due to any combination of loading, lateral motion, or suspension failure.**
23. **Edge Line Markings—white or yellow pavement marking lines that delineate the right or left edge(s) of a traveled way.**
24. **End-of-Roadway Marker—a device used to warn and alert road users of the end of a roadway in other than temporary traffic control zones.**
25. **Engineering Judgment—the evaluation of available pertinent information, and the application of appropriate principles, Standards, Guidance, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgment is not required.**
26. **Engineering Study—the comprehensive analysis and evaluation of available pertinent information, and the application of appropriate principles, Standards, Guidance, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. An engineering study shall be performed by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. An engineering study shall be documented.**
27. **Expressway—a divided highway with partial control of access.**
28. **Flashing—an operation in which a signal indication is turned on and off repetitively.**
29. **Freeway—a divided highway with full control of access.**
30. **Guide Sign—a sign that shows route designations, destinations, directions, distances, services, points of interest, or other geographical, recreational, or cultural information.**
31. **High Occupancy Vehicle (HOV)—a motor vehicle carrying at least two or more persons, including carpools, vanpools, and buses.**
32. **Highway—a general term for denoting a public way for purposes of travel by vehicular travel, including the entire area within the right-of-way.**
33. **Highway-Rail Grade Crossing—the general area where a highway and a railroad's right-of-way cross at the same level, within which are included the railroad tracks, highway, and traffic control devices for highway traffic traversing that area.**
34. **Highway Traffic Signal—a power-operated traffic control device by which traffic is warned or directed to take some specific action. These devices do not include signals at toll plazas, power-operated signs, illuminated pavement markers, warning lights (see Section 6F.78), or steady burning electric lamps.**
35. **HOV Lane—any preferential lane designated for exclusive use by high-occupancy vehicles for all or part of a day—including a designated lane on a freeway, other highway, street, or independent roadway on a separate right-of-way.**
36. **Inherently Low Emission Vehicle (ILEV)—any kind of vehicle that is certified by the U.S. Environmental Protection Agency and that because of inherent properties of the fuel system design, will not have significant evaporative emissions, even if its evaporative emission control system has failed.**
37. **Interchange—a system of interconnecting roadways providing for traffic movement between two or more highways that do not intersect at grade.**
38. **Intermediate Interchange—an interchange with an urban or rural route that is not a major or minor interchange as defined herein.**

39. **Intersection—(a) the area embraced within the prolongation or connection of the lateral curb lines, or if none, the lateral boundary lines of the roadways of two highways that join one another at, or approximately at, right angles, or the area within which vehicles traveling on different highways that join at any other angle might come into conflict; (b) the junction of an alley or driveway with a roadway or highway shall not constitute an intersection.**
40. **Island—a defined area between traffic lanes for control of vehicular movements or for pedestrian refuge. It includes all end protection and approach treatments. Within an intersection area, a median or an outer separation is considered to be an island.**
41. **Lane Line Markings—white pavement marking lines that delineate the separation of traffic lanes that have the same direction of travel on a roadway.**
42. **Lane-Use Control Signal—a signal face displaying indications to permit or prohibit the use of specific lanes of a roadway or to indicate the impending prohibition of such use.**
43. **Legend—see Sign Legend.**
44. **Logo—a distinctive emblem, symbol, or trademark that identifies a product or service.**
45. **Longitudinal Markings—pavement markings that are generally placed parallel and adjacent to the flow of traffic such as lane lines, centerlines, edge lines, channelizing lines, and others.**
46. **Major Interchange—an interchange with another freeway or expressway, or an interchange with a high-volume multi-lane highway, principal urban arterial, or major rural route where the interchanging traffic is heavy or includes many road users unfamiliar with the area.**
47. **Major Street—the street normally carrying the higher volume of vehicular traffic.**
48. **Median—the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges, and at opposite approaches of the same intersection.**
49. **Minor Interchange—an interchange where traffic is local and very light, such as interchanges with land service access roads. Where the sum of the exit volumes is estimated to be lower than 100 vehicles per day in the design year, the interchange is classified as local.**
50. **Minor Street—the street normally carrying the lower volume of vehicular traffic.**
51. **Object Marker—a device used to mark obstructions within or adjacent to the roadway.**
52. **Occupancy Requirement—any restriction that regulates the use of a facility for any period of the day based on a specified number of persons in a vehicle.**
53. **Occupant—a person driving or riding in a car, truck, bus, or other vehicle.**
54. **Paved—a bituminous surface treatment, mixed bituminous concrete, or Portland cement concrete roadway surface that has both a structural (weight bearing) and a sealing purpose for the roadway.**
55. **Pedestrian—a person afoot, in a wheelchair, on skates, or on a skateboard.**
56. **Pedestrian Facilities—a general term denoting improvements and provisions made to accommodate or encourage walking.**
57. **Platoon—a group of vehicles or pedestrians traveling together as a group, either voluntarily or involuntarily, because of traffic signal controls, geometrics, or other factors.**
58. **Principal Legend—place names, street names, and route numbers placed on guide signs.**
59. **Public Road—any road or street under the jurisdiction of and maintained by a public agency and open to public travel.**
60. **Raised Pavement Marker—a device with a height of at least 10 mm (0.4 in) mounted on or in a road surface that is intended to be used as a positioning guide or to supplement or substitute for pavement markings or to mark the position of a fire hydrant.**
61. **Regulatory Sign—a sign that gives notice to road users of traffic laws or regulations.**
62. **Retroreflectivity—a property of a surface that allows a large portion of the light coming from a point source to be returned directly back to a point near its origin.**
63. **Right-of-Way [Assignment]—the permitting of vehicles and/or pedestrians to proceed in a lawful manner in preference to other vehicles or pedestrians by the display of sign or signal indications.**
64. **Road—see Roadway.**
65. **Roadway—that portion of a highway improved, designed, or ordinarily used for vehicular travel and parking lanes, but exclusive of the sidewalk, berm, or shoulder even though such sidewalk, berm, or shoulder is used by persons riding bicycles or other human-powered vehicles. In the event a highway includes two or more separate roadways, the term roadway as used herein shall refer to any such roadway separately, but not to all such roadways collectively.**
66. **Roadway Network—a geographical arrangement of intersecting roadways.**
67. **Road User—a vehicle operator, bicyclist, or pedestrian within the highway, including persons with disabilities.**

68. Roundabout Intersection—a circular intersection with yield control of all entering traffic, channelized approaches, and appropriate geometric curvature, such that travel speeds on the circulatory roadway are typically less than 50 km/h (30 mph).
69. Rumble Strip—a series of intermittent, narrow, transverse areas of rough-textured, slightly raised, or depressed road surface that is installed to alert road users to unusual traffic conditions.
70. Rural Highway—a type of roadway normally characterized by lower volumes, higher speeds, fewer turning conflicts, and less conflict with pedestrians.
71. Shared Roadway—a roadway that is officially designated and marked as a bicycle route, but which is open to motor vehicle travel and upon which no bicycle lane is designated.
72. Shared-Use Path—a bikeway outside the traveled way and physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent alignment. Shared-use paths are also used by pedestrians (including skaters, users of manual and motorized wheelchairs, and joggers) and other authorized motorized and non-motorized users.
73. Sidewalk—that portion of a street between the curb line, or the lateral line of a roadway, and the adjacent property line or on easements of private property that is paved or improved and intended for use by pedestrians.
74. Sign—any traffic control device that is intended to communicate specific information to road users through a word or symbol legend. Signs do not include traffic control signals, pavement markings, delineators, or channelization devices.
75. Sign Assembly—a group of signs, located on the same support(s), that supplement one another in conveying information to road users.
76. Sign Illumination—either internal or external lighting that shows similar color by day or night. Street or highway lighting shall not be considered as meeting this definition.
77. Sign Legend—all word messages, logos, and symbol designs that are intended to convey specific meanings.
78. Sign Panel—a separate panel or piece of material containing a word or symbol legend that is affixed to the face of a sign.
79. Speed—speed is defined based on the following classifications:
- **(a) Advisory Speed—a recommended speed for all vehicles operating on a section of highway and based on the highway design, operating characteristics, and conditions.**
- **(b) Average Speed—the summation of the instantaneous or spot-measured speeds at a specific location of vehicles divided by the number of vehicles observed.**
- **(c) Design Speed—a selected speed used to determine the various geometric design features of a roadway.**
- **(d) 85th-Percentile Speed—The speed at or below which 85 percent of the motor vehicles travel.**
- **(e) Operating Speed—a speed at which a typical vehicle or the overall traffic operates. Operating speed might be defined with speed values such as the average, pace, or 85th-percentile speeds.**
- **(f) Pace Speed—the highest speed within a specific range of speeds that represents more vehicles than in any other like range of speed. The range of speeds typically used is 10 km/h or 10 mph.**
- **(g) Posted Speed—the speed limit determined by law and shown on Speed Limit signs.**
- **(h) Statutory Speed—a speed limit established by legislative action that typically is applicable for highways with specified design, functional, jurisdictional and/or location characteristic and is not necessarily shown on Speed Limit signs.**

80. Speed Limit—the maximum (or minimum) speed applicable to a section of highway as established by law.
81. Speed Measurement Marking—a white transverse pavement marking placed on the roadway to assist the enforcement of speed regulations.
82. Speed Zone—a section of highway with a speed limit that is established by law but which might be different from a legislatively specified statutory speed limit.
83. Stop Line—a solid white pavement marking line extending across approach lanes to indicate the point at which a stop is intended or required to be made.
84. Street—see Highway.
85. Temporary Traffic Control Zone—an area of a highway where road user conditions are changed because of a work zone or incident by the use of temporary traffic control devices, flaggers, uniformed law enforcement officers, or other authorized personnel.
86. Traffic—pedestrians, bicyclists, ridden or herded animals, vehicles, streetcars, and other conveyances either singularly or together while using any highway for purposes of travel.

87. **Traffic Control Device—a sign, signal, marking, or other device used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, or shared-use path by authority of a public agency having jurisdiction.**
88. **Traffic Control Signal (Traffic Signal)—any highway traffic signal by which traffic is alternately directed to stop and permitted to proceed.**
89. **Train—one or more locomotives coupled, with or without cars, that operates on rails or tracks and to which all other traffic must yield the right-of-way by law at highway-rail grade crossings.**
90. **Transverse Markings—pavement markings that are generally placed perpendicular and across the flow of traffic such as shoulder markings, word and symbol markings, stop lines, crosswalk lines, speed measurement markings, parking space markings, and others.**
91. **Traveled Way—the portion of the roadway for the movement of vehicles, exclusive of the shoulders, berms, sidewalks, and parking lanes.**
92. **Urban Street—a type of street normally characterized by relatively low speeds, wide ranges of traffic volumes, narrower lanes, frequent intersections and driveways, significant pedestrian traffic, and more businesses and houses.**
93. **Vehicle—every device in, upon, or by which any person or property can be transported or drawn upon a highway, except trains and light rail transit operating in exclusive or semiexclusive alignments. Light rail transit operating in a mixed-use alignment, to which other traffic is not required to yield the right-of-way by law, is a vehicle.**
94. **Warning Sign—a sign that gives notice to road users of a situation that might not be readily apparent.**
95. **Warrant—a warrant describes threshold conditions to the engineer in evaluating the potential safety and operational benefits of traffic control devices and is based upon average or normal conditions. Warrants are not a substitute for engineering judgment. The fact that a warrant for a particular traffic control device is met is not conclusive justification for the installation of the device.**
95. **Wrong-Way Arrow—a slender, elongated, white pavement marking arrow placed upstream from the ramp terminus to indicate the correct direction of traffic flow. Wrong-way arrows are intended primarily to warn wrong-way road users that they are going in the wrong direction.**

Section 1A.14 Abbreviations Used on Traffic Control Devices

Standard:

When the word messages shown in Table 1A-1 need to be abbreviated in connection with traffic control devices, the abbreviations shown in Table 1A-1 shall be used.

Guidance:

The abbreviations for the words listed in Table 1A-2 should not be used in connection with traffic control devices unless the prompt word shown in Table 1A-2 either precedes or follows the abbreviation.

Standard:

The abbreviations shown in Table 1A-3 shall not be used in connection with traffic control devices because of their potential to be misinterpreted by road users.

Guidance:

Where multiple abbreviations are permitted in Tables 1A-1 or 1A-2, the same abbreviation should be used throughout a single jurisdiction.

Table 1A-1. Acceptable Abbreviations

Word Message	Standard Abbreviation
Afternoon / Evening	PM
Alternate	ALT
Avenue	AVE, AV
Bicycle	BIKE
Boulevard	BLVD
Cannot	CANT
CB Radio	CB
Center	CNTR
Circle	CIR
Civil Defense	CD
Compressed Natural Gas	CNG
Court	CT
Crossing (other than highway-rail)	XING
Diesel Fuel	D
Do Not	DONT
Drive	DR
East	E
Eastbound	E-BND
Electric Vehicle	EV
Emergency	EMER
Entrance, Enter	ENT
Expressway	EXPWY
Feet	FT
FM Radio	FM
Freeway	FRWY, FWY
Friday	FRI
Hazardous Material	HAZMAT
High Occupancy Vehicle	HOV
Highway	HWY
Highway-Rail Grade Crossing Pavement Marking	RXR
Hospital	H
Hour(s)	HR
Information	INFO
Inherently Low Emission Vehicle	ILEV
It Is	ITS
Junction / Intersection	JCT
Kilogram	kg
Kilometer(s)	km
Kilometers Per Hour	km/h
Lane	LN
Left	LFT
Liquid Propane Gas	LP-GAS

Word Message	Standard Abbreviation
Maintenance	MAINT
Meter(s)	m
Metric Ton	t
Mile(s)	MI
Miles Per Hour	MPH
Minute(s)	MIN
Monday	MON
Morning / Late Night	AM
Normal	NORM
North	N
Northbound	N-BND
Parking	PKING
Parkway	PKWY
Pedestrian	PED
Place	PL
Pounds	LBS
Right	RHT
Road	RD
Saturday	SAT
Service	SERV
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	S-BND
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Terrace	TER
Thursday	THURS
Tires With Lugs	LUGS
Tons of Weight	T
Traffic	TRAF
Trail	TR
Travelers	TRAVLRS
Tuesday	TUES
Two-Way Intersection	2-WAY
Two-Wheeled Vehicles	CYCLES
US Numbered Route	US
Vehicle(s)	VEH
Warning	WARN
Wednesday	WED
West	W
Westbound	W-BND
Will Not	WONT

Table 1A-2. Abbreviations That Are Acceptable Only with a Prompt Word

Word	Abbreviation	Prompt Word
Access	ACCS	Road
Ahead	AHD	Fog*
Blocked	BLKD	Lane*
Bridge	BRDG	[Name]*
Chemical	CHEM	Spill
Condition	COND	Traffic*
Congested	CONG	Traffic*
Construction	CONST	Ahead
Downtown	DWNTN	Traffic
Exit	EX, EXT	Next*
Express	EXP	Lane
Frontage	FRNTG	Road
Hazardous	HAZ	Driving
Interstate	I	[Number]
Local	LOC	Traffic
Lower	LWR	Level
Major	MAJ	Accident
Minor	MNR	Accident
Oversized	OVRSZ	Load
Prepare	PREP	To Stop
Pavement	PVMT	Wet*
Quality	QLTY	Air*
Roadwork	RDWK	Ahead [Distance]
Route	RT, RTE	Best*
Township	TWNSHP	Limits
Turnpike	TRNPK	[Name]*
Upper	UPR	Level

* These prompt words should precede the abbreviation

Table 1A-3. Unacceptable Abbreviations

Abbreviation	Intended Word	Common Misinterpretations
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (Merge)
LT	Light (Traffic)	Left
PARK	Parking	Park
POLL	Pollution (Index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
WRNG	Warning	Wrong

Exh. EM-2

Barker Road Corridor Transportation Projects

The City of Spokane Valley is making progress with street improvements designed to make the 3.5-mile Barker Road corridor safer and more efficient. View our video or read more below.

Barker Road parallels the city's eastern boundary, connecting the city's north boundary at State Route 290, or Trent Avenue, to its south boundary near 8th Avenue. Within the corridor, Barker Road intersects Interstate 90, Sprague Avenue and Appleway Avenue, all busy east-west transportation routes serving the greater Spokane region.

Traffic congestion in the Barker Road corridor has increased rapidly. North Barker Road is heavily traveled by industrial and commercial vehicles using I-90 and State Route 290 (Trent Avenue) to transport goods between Idaho, Canada and the greater Pacific Northwest. In addition, the city's **planned action ordinance**
(https://www.spokanevalley.org/PlannedAction)
has streamlined the permitting process in the northeast industrial area, leading to swift industrial growth along north Barker Road.

In the southern part of the corridor, rapid growth within the city and in neighboring Liberty Lake is generating additional residential traffic and congestion. The city has been planning for many years to improve the capacity of the corridor to handle this emerging growth. Several projects have been completed or are underway.

Barker Road/BNSF grade separation project

Construction started March 2021 on the $26 million **Barker Road/BNSF Railway grade separation project**
(https://www.spokanevalley.org/BarkerBNSF)
. This project is estimated for completion in August 2022.

An overpass will be built at the BNSF Railway track adjacent to Trent Avenue to separate vehicle and train traffic at that location. The BNSF mainline serves an average of 60 freight trains and two passenger trains daily, closing Barker Road to traffic for nearly four hours each day. The overpass will reduce traffic congestion, improve vehicle and rail safety, and provide increased access to emergency services.

At the adjacent intersection of Barker Road and Trent Avenue, a two-lane roundabout will be constructed to improve safety at the intersection. The Washington State Department of Transportation will provide construction oversight of both the grade separation and intersection work.

This project is part of the 'bridging-the-valley' initiative, a multi-agency plan established in 2006 with the goal to separate vehicle and train traffic, and improve safety along a 42-mile freight corridor between Athol, Idaho, and Spokane. The project is funded with a combination of city, state, federal and private monies.

LEARN MORE ABOUT THE BARKER ROAD GRADE SEPARATION PROJECT (https://www.spokanevalley.org/BarkerBNSF)

Barker Road reconstruction and widening

The Barker Road widening project is a multi-year, estimated $7.7 million project that involves three phases of construction between the Spokane River Bridge and grade separation project area.

- Phase 1 - The city began the widening project in 2019 with the widening and reconstruction of 1.5 miles of Barker Road from E. Euclid Ave. north to the south side of the BNSF train tracks. The project included road widening to create an additional center turn lane, curb and gutter work, storm water improvements, and sewer installation (note: all sewer installation on this project is in partnership with Spokane County and the Consolidated Irrigation District No. 19).

- Phase 2 - Construction on widening the section of Barker Road from the Spokane River north to just south of E. Euclid Ave. (where the UP Railway track is) began in July 2020 and continued through the summer 2020, and picked up again in March 2021 and was completed at the end of May. The improvements in this section also included road widening to create an additional center turn lane, curb and gutter work, storm water improvements, and sewer installation.

- Phase 3 - Includes improvements to the UP railroad crossing just south of E. Euclid Ave and the intersection of Barker and Euclid. This work includes widening, installing new curbs, pedestrian ramps, and sewer installation. In addition, a 10-foot-wide paved multi-use path from the Spokane River to just south of Trent Avenue will also be

constructed in this phase. The path will connect to the Centennial Trail at the River. This work is slated for fall 2021 or summer 2022.

Barker Road and Sprague Avenue intersection

The city is also focused on improving the Barker Road and Sprague Avenue intersection in the south corridor.

The city plans to replace the four-way-stop controlled intersection with a single lane roundabout, which will improve efficiency and safety. The project will cost $2.3 million and will be funded with $2.1 million in federal grants and nearly $200,000 in city funds. The city is hoping to be ready for construction in 2022.

The remaining four projects in the south Barker Road corridor focus on road widening and intersection improvements, all designed to improve safety and mobility. The city will consider those projects in coming years as funding becomes available.

Additional information and comments

Contact:

Erica Amsden
(mailto:eamsden@spokanevalley.org)
(Barker Road & Sprague Avenue intersection project)
Senior Engineer, City of Spokane Valley
509-720-5012

Rob Lochmiller
(mailto:rlochmiller@spokanevalley.org)
(Barker Road/BNSF Grade Separation Project/Barker Road reconstruction & widening projects)
Senior Engineer, City of Spokane Valley
509-720-5010

Exh. EM-3

On-site Diagnostic Meeting Notes

Spokane Sub

Barker Road / Union Pacific Railroad crossing, Spokane Valley, Washington - MP 12.99, DOT 662526C

June 30th, 2020

Overcast and slightly raining, high 60's

Attendance:

Jerremy Clark – City of Spokane Valley

Ryan Kipp – City of Spokane Valley

Rob Lochmiller – City of Spokane Valley

Ellis Mays – Alfred Benesch & Company, on behalf of Union Pacific (UPRR)

Betty Young – Washington State Utilities and Transportation Commission (UTC)

Mike Turcott – Washington State Utilities and Transportation Commission (UTC)

~~Josh Johnson – Union Pacific RR, track maintenance~~ Joshua Johnson - Union Pacific, Manager Track Maint.

~~Leroy _____ - Union Pacific RR, track maintenance~~ Leroy Colotti - Union Pacific, Signal Maint. Foreman

2:10 pm – Meeting start.

Ellis Mays read MUTCD section 8A.01 to the diagnostic team

General discussion of field concerns and observations

- Safety briefing led by Ellis M. and Joshua J.
- Address background and general planned improvements to include phase 1 widening to the South
- ~~Discuss field concerns~~ – pedestrian counts, turning maneuver for both intersections, proximity of private driveways and access points, and non-conforming approach signage
- Ellis M. referenced ~~broken gates and track statistics~~ current incident data to include 9 blocked crossings, 18 unsafe motorists, and 1 vehicle on track reported
- Jeff M. presented overview of design

~~Ellis M.~~ discussed current exhibit/20% plan comments by quadrant.

Diagnostic team

Leroy C. discussed damage to guiderail in NW quadrant due to existing turning radius

SE Quadrant:

1. Verify City maintenance truck has enough queuing area to clear street and open gate to stormwater pond access.
2. Combine ~~access driveways~~ for track access and City stormwater pond maintenance access. One large access.
3. Reduce pedestrian warning sign cluster. Eliminate W10-1, remove stop bars on path.
4. Ballast around signal ~~arms~~ by contractor.
5. Signal arm length of 32' is max, shorten if possible. Only need to cover 90% of lane (both directions).
6. Cantilever needed over both north and south lanes. ~~Use two poles. (both directions)~~
7. Add "Do not stop on tracks" sign on back of Grade crossing sign on center island. Sign to face south for northbound left turn lane traffic.

curb ramp

as DWS serves as stop bar per MUTCD

masts

on seperate masts from gates. Median gates not feasible due to road approach geometry

8. Existing guardrail in this area does not need to be replaced due to new approaches. ~~UPRR staff~~ agreed.

Diagnostic team

NE Quadrant:

as DWS serves as stop bar per MUTCD

1. Reduce pedestrian warning sign clutter. Eliminate W10-1, remove stop bars on path.
2. Ballast around signal arms by contractor.
3. Side flashers on southbound pole for public right of way access to the east. Call out for what traffic on plans.

It was agreed by diagnostic team that a pedestrian flasher is not warranted due to pedestrian traffic at this time, however, to provide flasher visibility from EB Euclid stop bar one MAY be installed with sidelights for that traffic IF stop bar can not be adjusted to provide visibility of side flasher on SB gate mast

NW Quadrant:

cantilever or gate mast

1. Side flashers on southbound ~~pole~~ for public right of way access to the east. Call out for what traffic on plans.

WB traffic on

2. Review site distance at Euclid Ave (West) and Barker intersection, check stop bar location.
3. Replace guardrail in new location behind curb, face of guardrail at back of curb.
4. Side flashers on southbound ~~pole~~ for Euclid Ave traffic.

gate mast

EB

SW Quadrant:

UPRR

1. Hattamer Lane – Look at making this a right in/right out only. ~~Ellis~~ would like to see this happen due to safety with regards to the proximity of the tracks when making a left turn onto Barker. City to discuss if feasible.

If not side flasher should be placed on NB gate or cantilever mast

2. New signal building to be 30' from tracks and 25' from curb.

My error - 25ft from tracks, 30 from edge of roadway

~~Immediate Action Items:~~

with all flasher and device placement

advance approach

1. Ellis needs to have 60% plan set to start signal design.
2. Provide overlay of existing and proposed for reference.

crossing surface

RR related sections of UTC (we will need more final plans first)

3. City to install ~~side crossing~~ signs, W10-4 on both Euclid Avenues (East and West).
4. Ellis to update/edit ~~petition~~ and resend to City for signature.
5. Real Estate may need color coded map showing existing and new easement for crossing.
6. Ellis to look for existing crossing easement document.

"UTC"

7. Provide 60% plans and signed UC Petition to modify warning devises to UTC.
8. Distribute field notes and comments to City project team/staff.

3:25 pm - Meeting end.

Exh. EM-5

For new public project requests: Union Pacific Public Project Request [up.com] [nam12.safelinks.protection.outlook.com] [nam12.safelinks.protection.outlook.com]
For new utility crossing/permit: Union Pacific Utility Crossing/Permit [up.com] [nam12.safelinks.protection.outlook.com] [nam12.safelinks.protection.outlook.com]

---

75 years benesch [protect2.fireeye.com] [nam12.safelinks.protection.outlook.com] [nam12.safelinks.protection.outlook.com]

From: Robert Lochmiller <rlochmiller@spokanevalley.org>
Sent: Tuesday, December 8, 2020 2:04 PM
To: Mays, Ellis <EMays@benesch.com>; Jeff Morse <jmorse@spokanevalley.org>
Cc: Gloria Mantz <gmantz@spokanevalley.org>; Mary R. Schroll <MRSCHROL@up.com>; Morgan Bishop <morgan@csrow.com>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis,

City is OK with this and would like to proceed with the agreement. City will likely need some RR flagging for the City's contractor to complete the road improvements within the UPRR ROW too. So, if the City's contractor isn't able to work within the UPRR ROW at the same time of the UPRR construction work, then we should probably add another 15 days to the flagging.

Let us know, if there is anything is needed from us to proceed with the ROW/permanent easement needed for the project.

Thanks,
Rob

Robert Lochmiller, PE | Senior Engineer
10210 E. Sprague Avenue | Spokane Valley, WA 99206
(509) 720-5010 | rlochmiller@spokanevalley.org

City of Spokane Valley

From: Mays, Ellis <EMays@benesch.com>
Sent: Monday, December 7, 2020 3:56 PM
To: Jeff Morse <jmorse@spokanevalley.org>
Cc: Gloria Mantz <gmantz@spokanevalley.org>; Robert Lochmiller <rlochmiller@spokanevalley.org>;

Mary R. Schroll <MRSCHROL@up.com>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Jeff,

Please see attached for reference.

I have attached the following, with explanation:

1. Exhibit C – Exhibit to the agreement which includes the total cost of UPRR work to include construction management, flagging, track, and signal work. I have estimated the work on UPRR ROW to be 15 days or less (please advise if otherwise).
2. Detailed Surface Estimate
3. Detailed Signal Estimate
4. Signal Design Front Sheet
5. AREMA Annual Maintenance Costs – Annual maintenance cost that the City will be billed for on a yearly basis for the maintenance of traffic control devices at this location

With your concurrence I will proceed with a draft agreement using the ROW exhibits previously sent by the City.

Thanks,

Ellis A. Mays | Project Manager

Alfred Benesch & Company | 3017 Douglas Blvd, Ste 300, Roseville, CA 95661
C 402-427-4231 | **E** emays@benesch.com | **W** www.benesch.com [linkprotect.cudasvc.com] [nam12.safelinks.protection.outlook.com] [nam12.safelinks.protection.outlook.com] [nam12.safelinks.protection.outlook.com]

From: Mays, Ellis
Sent: Tuesday, December 1, 2020 8:19 AM
To: Jeff Morse <jmorse@spokanevalley.org>
Cc: Gloria Mantz <gmantz@spokanevalley.org>; Robert Lochmiller <rlochmiller@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Jeff,

I do know that the signal design is not yet complete, however, I spoke with the design consultant yesterday and I believe it will be forthcoming very shortly. As soon as I get it I will forward it to you for your approval.

Thanks,

Ellis A. Mays | Project Manager

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[nam12.safelinks.protection.outlook.com]

From: Jeff Morse <jmorse@spokanevalley.org>
Sent: Tuesday, December 1, 2020 7:26 AM
To: Mays, Ellis <EMays@benesch.com>
Cc: Gloria Mantz <gmantz@spokanevalley.org>; Robert Lochmiller <rlochmiller@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis

Do we have an update on the signal design process? It's been a few weeks and I want to stay on top of this and keep it moving forward as much as possible.

Thanks you.

JEFF MORSE

Jeff Morse | Engineering Technician – CAD Administrator
10210 E. Sprague Avenue | Spokane Valley, WA 99206
Phone: (509) 720-5022 | jmorse@spokanevalley.org

From: Mays, Ellis <EMays@benesch.com>
Sent: Wednesday, November 4, 2020 9:37 AM
To: Robert Lochmiller <rlochmiller@spokanevalley.org>; Jeff Morse <jmorse@spokanevalley.org>
Cc: Gloria Mantz <gmantz@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Understood – we will continue to work towards that!

Thanks,

Ellis A. Mays | Project Manager

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From: Robert Lochmiller <rlochmiller@spokanevalley.org>
Sent: Wednesday, November 4, 2020 9:28 AM
To: Mays, Ellis <EMays@benesch.com>; Jeff Morse <jmorse@spokanevalley.org>
Cc: Gloria Mantz <gmantz@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis,

It usually takes 4 to 5 weeks for FHWA to certify the ROW. With that, we would like to see the C&M agreement by the first week of January to review it. Then typically takes us two weeks to get Council approval, so our manager could sign it.

Thanks,
Rob

From: Mays, Ellis <EMays@benesch.com>
Sent: Tuesday, October 27, 2020 5:41 PM
To: Robert Lochmiller <rlochmiller@spokanevalley.org>; Jeff Morse <jmorse@spokanevalley.org>
Cc: Gloria Mantz <gmantz@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Rob,

How long will it take to certify after the agreement? What is the hard date for the City to have an agreement in their hands for review?

Thanks,

Ellis A. Mays | Project Manager

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From: Robert Lochmiller <rlochmiller@spokanevalley.org>
Sent: Tuesday, October 27, 2020 4:26 PM
To: Mays, Ellis <EMays@benesch.com>; Jeff Morse <jmorse@spokanevalley.org>
Cc: Gloria Mantz <gmantz@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis,

City prefers to bid our projects in the winter season (Nov.-Feb), prior to the following construction season, for the best bid results. We like to advertise this project by February at the latest, for construction in Summer 2021. With federal funds on this project, we need the C&M agreement executed, so the feds can certify our right-of-way. Without right-of-way certification, the feds will not let us obligate the construction funds and we cannot proceed to bid advertisement.

Thanks,
Rob

From: Mays, Ellis <EMays@benesch.com>
Sent: Monday, October 26, 2020 5:38 PM
To: Jeff Morse <jmorse@spokanevalley.org>
Cc: Robert Lochmiller <rlochmiller@spokanevalley.org>; Gloria Mantz <gmantz@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Jeff,

Can you remind me your optimal bid date? What's the date all contracts will be need to be executed?

Thanks,

Ellis A. Mays | Project Manager

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[nam12.safelinks.protection.outlook.com] [nam12.safelinks.protection.outlook.com]
[nam12.safelinks.protection.outlook.com]

From: Jeff Morse <jmorse@spokanevalley.org>
Sent: Monday, October 26, 2020 6:56 AM
To: Mays, Ellis <EMays@benesch.com>
Cc: Robert Lochmiller <rlochmiller@spokanevalley.org>; Gloria Mantz <gmantz@spokanevalley.org>
Subject: FW: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis I have not heard back from you regarding the estimated time line for completion of the signal design. We are coming up on the end of the year fast and I am concerned about making our optimal bid time for the 2021 construction season.

Sincerely.

JEFF MORSE

Jeff Morse | Engineering Technician – CAD Administrator
10210 E. Sprague Avenue | Spokane Valley, WA 99206
Phone: (509) 720-5022 | jmorse@spokanevalley.org

From: Jeff Morse
Sent: Monday, October 19, 2020 2:35 PM
To: 'Mays, Ellis' <EMays@benesch.com>
Cc: Robert Lochmiller <rlochmiller@spokanevalley.org>; Gloria Mantz <gmantz@spokanevalley.org>; Mary R. Schroll <MRSCHROL@up.com>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis

Thanks you for the information on what to expect next. Do you have a time line on when the design will be completed?

Thanks

JEFF MORSE

Jeff Morse | Engineering Technician – CAD Administrator
10210 E. Sprague Avenue | Spokane Valley, WA 99206
Phone: (509) 720-5022 | jmorse@spokanevalley.org

From: Mays, Ellis <EMays@benesch.com>
Sent: Monday, October 19, 2020 12:13 PM
To: Jeff Morse <jmorse@spokanevalley.org>
Cc: Robert Lochmiller <rlochmiller@spokanevalley.org>; Gloria Mantz <gmantz@spokanevalley.org>; Mary R. Schroll <MRSCHROL@up.com>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Jeff,

The estimate has not been completed yet, however, I can provide the after steps.

When the estimate is received I will create a project estimate which will include the signal estimate, surface estimate, flagging costs, and other construction related cost. Pending your approval of that estimate and the new annual signal maintenance free UPRR will draft the construction agreement for the city to review and execution.

Thanks,

Ellis A. Mays | Project Manager

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From: Jeff Morse <jmorse@spokanevalley.org>
Sent: Monday, October 19, 2020 11:17 AM
To: Mays, Ellis <EMays@benesch.com>
Cc: Robert Lochmiller <rlochmiller@spokanevalley.org>; Gloria Mantz <gmantz@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis

I hope all has been going well for you. I am checking the status of the signal design. It has been about 3 months since we finalized the layout around the tracks. What is the status of the design and if it is completed what is our next step?

Sincerely.

JEFF MORSE

Jeff Morse | Engineering Technician – CAD Administrator
10210 E. Sprague Avenue | Spokane Valley, WA 99206
Phone: (509) 720-5022 | jmorse@spokanevalley.org

From: Mays, Ellis <EMays@benesch.com>
Sent: Monday, September 28, 2020 11:58 AM
To: Jeff Morse <jmorse@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Jeff,

I do not have an exact measurement of the process, however typical estimates are 3 months. I will let you know if I hear any new information.

Thanks,

Ellis A. Mays | Project Manager

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From: Jeff Morse <jmorse@spokanevalley.org>
Sent: Monday, September 28, 2020 11:50 AM
To: Mays, Ellis <EMays@benesch.com>
Cc: Robert Lochmiller <rlochmiller@spokanevalley.org>; Gloria Mantz <gmantz@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis

This email is in regards to the signal design. I am checking the status and to see if you have an ETA for the signal design.

Sincerely.

JEFF MORSE

Jeff Morse | Engineering Technician – CAD Administrator
10210 E. Sprague Avenue | Spokane Valley, WA 99206
Phone: (509) 720-5022 | jmorse@spokanevalley.org

From: Mays, Ellis <EMays@benesch.com>
Sent: Sunday, September 6, 2020 3:28 PM
To: Jeff Morse <jmorse@spokanevalley.org>
Cc: Robert Lochmiller <rlochmiller@spokanevalley.org>; Gloria Mantz <gmantz@spokanevalley.org>; Betty Young - Utilities and Transportation Commission (UTC)/Rail Safety (betty.young@utc.wa.gov)

<betty.young@utc.wa.gov>; Turcott, Mike (UTC) <mike.turcott@utc.wa.gov>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Jeff,

I will pass this on to UPRR, however, it is typical that they do not sign until the agreement is circulating. I am hopeful that I will receive the signal estimate soon so that I can provide it to the city for concurrence and subsequently I can ask UPRR to draft that agreement.

Thanks,

Ellis A. Mays | Project Manager

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From: Jeff Morse <jmorse@spokanevalley.org>
Sent: Thursday, September 3, 2020 11:07 AM
To: Mays, Ellis <EMays@benesch.com>
Cc: Robert Lochmiller <rlochmiller@spokanevalley.org>; Gloria Mantz <gmantz@spokanevalley.org>; Betty Young - Utilities and Transportation Commission (UTC)/Rail Safety (betty.young@utc.wa.gov) <betty.young@utc.wa.gov>; Turcott, Mike (UTC) <mike.turcott@utc.wa.gov>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis

Attached is the UTC petition document. Rob has signed for the City and I added the crossing exhibit for reference. Once Mary Schroll has signed, please return and I will forward onto Betty and Mike at UTC.

Thank you for your work on this project.

Sincerely.

JEFF MORSE

Jeff Morse | Engineering Technician – CAD Administrator
10210 E. Sprague Avenue | Spokane Valley, WA 99206

Phone: (509) 720-5022 | jmorse@spokanevalley.org

From: Mays, Ellis <EMays@benesch.com>
Sent: Thursday, September 3, 2020 7:14 AM
To: Jeff Morse <jmorse@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Jeff,

Good catch – it should be 81 ft (10 panels) – that is how I requested the estimate.

Thanks,

Ellis A. Mays | Project Manager

Alfred Benesch & Company | 3017 Douglas Blvd, Ste 300, Roseville, CA 95661
C 402-427-4231 | **E** emays@benesch.com | **W** www.benesch.com [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [nam12.safelinks.protection.outlook.com] [nam12.safelinks.protection.outlook.com] [nam12.safelinks.protection.outlook.com]

From: Jeff Morse <jmorse@spokanevalley.org>
Sent: Thursday, September 3, 2020 7:07 AM
To: Mays, Ellis <EMays@benesch.com>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis

I just noticed the distance for the new crossing surface seems short. The plans dimension it at almost 81' and the description in section 7 is 64'. I will change to 81' unless you say otherwise.

Take Care.

JEFF MORSE

Jeff Morse | Engineering Technician – CAD Administrator
10210 E. Sprague Avenue | Spokane Valley, WA 99206
Phone: (509) 720-5022 | jmorse@spokanevalley.org

From: Mays, Ellis <EMays@benesch.com>
Sent: Wednesday, September 2, 2020 4:35 PM
To: Jeff Morse <jmorse@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Jeff,

My intent was simply to provide the roadway configuration. It can probably be removed from the parenthesis. Other than that it looks good.

Thanks,

Ellis A. Mays | Project Manager

Alfred Benesch & Company | 3017 Douglas Blvd, Ste 300, Roseville, CA 95661
C 402-427-4231 | **E** emays@benesch.com | **W** www.benesch.com [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [linkprotect.cudasvc.com] [nam12.safelinks.protection.outlook.com] [nam12.safelinks.protection.outlook.com] [nam12.safelinks.protection.outlook.com]

From: Jeff Morse <jmorse@spokanevalley.org>
Sent: Wednesday, September 2, 2020 2:03 PM
To: Mays, Ellis <EMays@benesch.com>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C

Ellis

Here is a snap shot of the narrative in Sections 6 and 7. I was a little confused about what you intended in Section 6 with regards to the travel lanes. I think I captured your intent. Please review and let me know.

Section 6 – Current Warning Devices

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

One cantilever and one quad gate/flasher for each direction of travel. Southbound gate/flasher has side flashers for eastbound Euclid Avenue travel. (1 driving lane southbound and 1 driving lane northbound) Nine (9) flasher sets and two (2) bells total.

Two stop bars, two W10-1 approach signs, and two RR Xing pavement markings and W10-4 on the parallel roads, Euclid Avenue north and south sides of the tracks.

Section 7 – Description of Proposed Changes

Describe in detail the number and type of proposed automatic signals (vehicle and pedestrian), gates or other warning devices, and/or changes to train detection circuitry. Please describe any other proposed changes at the crossing, including changes to the crossing surface, signage, pavement markings, etc. If sidewalks are being installed, please provide information on who will maintain them. (Attach additional information sheets, if needed.)

One cantilever, and one quad gate/flasher for each direction of travel. Northbound cantilever provides flasher for both lanes. Southbound cantilever also has 2 sidelights for eastbound Euclid Avenue and westbound access road travel. (2 driving lanes northbound, 1 driving lane southbound and 1 multi-use path on east side to be maintained by City). Nine (9) flashers and three (3) bells total.

Two stop bars, two W10-1 approach signs, two W10-4 approach signs, two RR Xing pavement markings and other signage in accordance with the MUTCD.

Replace concrete crossing surface with new wider 64 ft concrete crossing surface in order to accommodate traffic lanes and multi-use path.

Thanks

JEFF MORSE

Jeff Morse | Engineering Technician – CAD Administrator
10210 E. Sprague Avenue | Spokane Valley, WA 99206
Phone: (509) 720-5022 | jmorse@spokanevalley.org

From: Mays, Ellis <EMays@benesch.com>
Sent: Wednesday, September 2, 2020 9:11 AM
To: Jeff Morse <jmorse@spokanevalley.org>
Subject: RE: 0313 Barker Rd UP crossing - Spokane Valley, WA, MP 0012.990, DOT 662526C
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Exh. PY-2

Community & Public Works Department

10210 E Sprague Avenue ♦ Spokane Valley WA 99206
Phone: (509) 720-5000 ♦ Fax: (509) 720-5075 ♦ www.spokanevalley.org

UPRR REMS
Folder 303486

Date_____

AGREEMENT FOR PRELIMINARY ENGINEERING SERVICES AND SUBMITTAL OF EXHIBIT "A" FOR RAILROAD APPROVAL

Crossing: Public
WA, Spokane Valley
MP 12.99, Spokane Sub
Barker RD / DOT #662526C
Spokane County

Peggy J. Ygbuhay
Union Pacific Railroad Company
Engineering-Public Projects
10031 Foothills Boulevard
Roseville, CA 95747

Dear Ms. Ygbuhay:

Plans are being prepared to widen Barker Road at the location referenced above. The proposed work includes reconstructs Barker Road from the Spokane River to Euclid Road to a three lane, 40ft wide road with curb and gutter. The project also constructs a 10ft asphalt shared use path on the east side of the roadway. In connection with the project, the Agency considers it necessary for the successful advancement of the project for your company to collaborate in the development of the project by performing the following:

- preliminary engineering and other related services
- development of cost estimates
- review of the project's preliminary layouts
- submit current train and switching moves

The Agency authorizes and agrees to reimburse the Railroad for its expenses and actual costs that are incurred for collaborating in the development of the project's preliminary engineering and other preliminary activities. The Railroad has estimated that these preliminary engineering and other preliminary costs will be $25,000.00. Payment will be made within thirty (30) days from the Agency's receipt and approval of the Railroad's request for reimbursement. Railroad will refer to Agency's Project Number 0275 and forward Invoices to:

Robert Lochmiller
10210 E. Sprague Avenue
Spokane Valley, WA 99206

The project may require the Railroad to incur costs for force account activities. Please prepare the railroad force account cost estimate for work activities to be provided by your company, as identified in **Exhibit A** and submit them at your earliest convenience so that they may be attached to the railroad

generated Construction & Maintenance (C&M) agreement.

Please verify the number of current regular train (9) and switching movements (0) with a Maximum Speed of (40) at this location as currently shown in our inventory records. This information will be used by the Agency's Contractor to obtain Railroad Protective Liability Insurance.

This agreement is intended to address Preliminary Engineering. It is understood by both parties that railroad may withhold its approval for any reason directly or indirectly related to safety or its operations, property issues or effect to its facilities. If the Project is approved, Union Pacific will continue to work with the Agency to develop Final Plans, Specifications and prepare Material and Cost Estimates for Railroad Construction Work associated with the project. It is also understood that if the project is constructed, if at all, at no cost to the railroad.

The Agency and the Railroad will enter into separate License, Right of Entry, Construction and Maintenance Agreements associated with the actual construction of the project if the project is accepted and approved by the railroad. The Agreements will be drafted by Union Pacific and forwarded to the Agency after the **Exhibit A** and cost estimates have been approved.

Please feel free to contact the City's project manager Robert Lochmiller at telephone number (509)720-5010 via email at rlochmiller@spokanevalley.org if you have any questions. Your assistance in this matter is appreciated.

Sincerely,

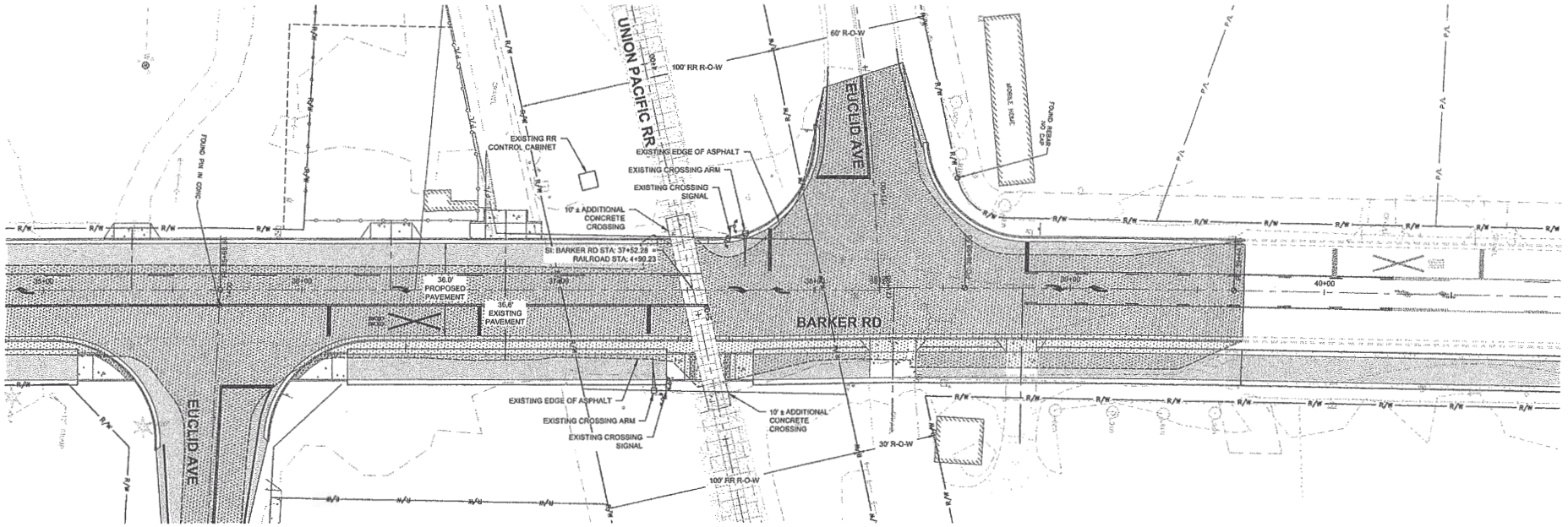
Mark Calhoun
City Manager

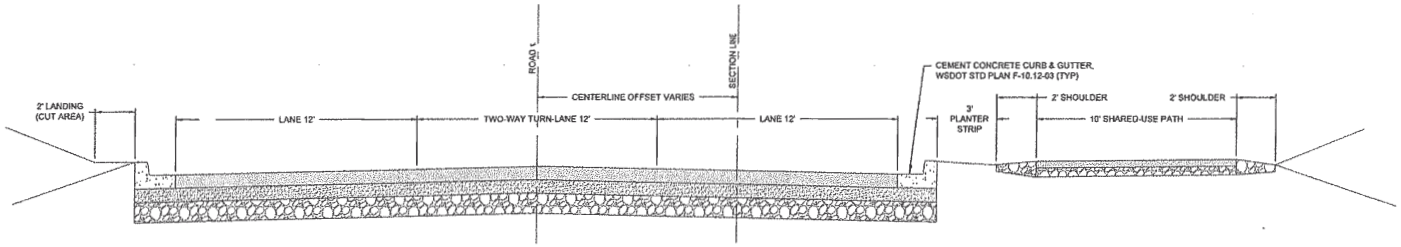
UNION PACIFIC RAILROAD COMPANY

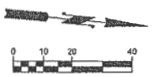
By _____ Date Aug. 29, 2019

Peggy L. Ygbuhay
Engineering-Public Works

Encl: Exhibit A







811 Know what's below Call before you dig.

REVISIONS			
NO.	DATE	DESCRIPTION	BY

CITY OF Spokane Valley

CITY OF SPOKANE VALLEY
COMMUNITY & PUBLIC WORKS DEPARTMENT
10210 EAST SPRAGUE AVENUE
SPOKANE VALLEY, WA. 99206
(509) 720-5000

		DATE
DRAWN	JAM	07/18/19
DESIGNED	JAM	07/18/19
CHECKED BY	RAL	07/18/19

0275 BARKER RD WIDENING PROJECT

UNION PACIFIC RR
(SPOKANE INTERNATIONAL RR)
CROSSING MODIFICATIONS

SHEET

EX-A

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY)	B. Reporting Agency	C. Reason for Update (Select only one)	D. DOT Crossing Inventory Number
11 / 05 / 2018	☒ Railroad ☐ Transit ☐ State ☐ Other	☒ Change In Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction	662526C

Part I: Location and Classification Information

1. Primary Operating Railroad	2. State	3. County
Union Pacific Railroad Company [UP]	WASHINGTON	SPOKANE

4. City / Municipality	5. Street/Road Name & Block Number	6. Highway Type & No.
☐ In ☒ Near SPOKANE	BARKER ROAD (Street/Road Name) | * (Block Number)	CO97410

7. Do Other Railroads Operate a Separate Track at Crossing?	8. Do Other Railroads Operate Over Your Track at Crossing?
☐ Yes ☒ No If Yes, Specify RR	☐ Yes ☒ No If Yes, Specify RR

9. Railroad Division or Region	10. Railroad Subdivision or District	11. Branch or Line Name	12. RR Milepost
☐ None Pacific Northwest	☐ None Spokane Sub	☒ None	| 0012.990 | (prefix) | (nnnn.nnn) | (suffix)

13. Line Segment *	14. Nearest RR Timetable Station *	15. Parent RR (if applicable)	16. Crossing Owner (if applicable)
		☒ N/A	☐ N/A UP

17. Crossing Type	18. Crossing Purpose	19. Crossing Position	20. Public Access (if Private Crossing)	21. Type of Train	22. Average Passenger Train Count Per Day
☒ Public ☐ Private	☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.	☒ At Grade ☐ RR Under ☐ RR Over	☐ Yes ☐ No	☒ Freight ☐ Intercity Passenger ☐ Commuter ☐ Transit ☐ Shared Use Transit ☐ Tourist/Other	☐ Less Than One Per Day ☐ Number Per Day 0

23. Type of Land Use
☐ Open Space ☐ Farm ☒ Residential ☐ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?	25. Quiet Zone (FRA provided)
☐ Yes ☒ No If Yes, Provide Crossing Number	☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID	27. Latitude in decimal degrees	28. Longitude in decimal degrees	29. Lat/Long Source
☒ N/A	(WGS84 std: nn.nnnnnnn) 47.6864630	(WGS84 std: -nnn.nnnnnnn) -117.1544352	☒ Actual ☐ Estimated

30.A. Railroad Use *	31.A. State Use *
30.B. Railroad Use *	31.B. State Use *
30.C. Railroad Use *	31.C. State Use *
30.D. Railroad Use *	31.D. State Use *
32.A. Narrative (Railroad Use) *	32.B. Narrative (State Use) *

33. Emergency Notification Telephone No. (posted)	34. Railroad Contact (Telephone No.)	35. State Contact (Telephone No.)
800-848-8715	402-544-3721	360-664-1262

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains (6 AM to 6 PM)	1.B. Total Night Thru Trains (6 PM to 6 AM)	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?
4	3	2	0	

2. Year of Train Count Data (YYYY)	3. Speed of Train at Crossing
2016	3.A. Maximum Timetable Speed (mph) 49 3.B. Typical Speed Range Over Crossing (mph) From 24 to 49

4. Type and Count of Tracks
Main 1 Siding 0 Yard 0 Transit 0 Industry 0

5. Train Detection (Main Track only)
☒ Constant Warning Time ☐ Motion Detection ☐ AFO ☐ PTC ☐ DC ☐ Other ☐ None

6. Is Track Signaled?	7.A. Event Recorder	7.B. Remote Health Monitoring
☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)*	PAGE 2	D. Crossing Inventory Number *(7 char.)*
11/05/2018		662526C

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)*	2.B. STOP Signs *(R1-1)* *(count)*	2.C. YIELD Signs *(R1-2)* *(count)*
0	0	0

2.D. Advance Warning Signs *(Check all that apply; include count)* ☒ None
☐ W10-1 ____ ☐ W10-3 ____ ☐ W10-11 ____
☐ W10-2 ____ ☐ W10-4 ____ ☐ W10-12 ____

2.E. Low Ground Clearance Sign *(W10-5)*
☐ Yes *(count* 0 *)*
☒ No

2.F. Pavement Markings
☒ Stop Lines ☐ Dynamic Envelope
☒ RR Xing Symbols ☐ None

2.G. Channelization Devices/Medians
☐ All Approaches ☐ Median
☐ One Approach ☒ None

2.H. EXEMPT Sign *(R15-3)*
☐ Yes
☒ No

2.I. ENS Sign *(I-13)* Displayed
☒ Yes
☐ No

2.J. Other MUTCD Signs ☐ Yes ☒ No
Specify Type ____ Count 0
Specify Type ____ Count 0
Specify Type ____ Count ____

2.K. Private Crossing Signs *(if private)*
☐ Yes ☐ No

2.L. LED Enhanced Signs *(List types)*

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*
Roadway 2
Pedestrian ____

3.B. Gate Configuration
☒ 2 Quad ☐ Full *(Barrier)* Resistance
☐ 3 Quad ☐ Median Gates
☐ 4 Quad

3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*
Over Traffic Lane 2 ☐ Incandescent
Not Over Traffic Lane 0 ☐ LED

3.D. Mast Mounted Flashing Lights *(count of masts)* 2
☐ Incandescent ☒ LED
☒ Back Lights Included ☒ Side Lights Included

3.E. Total Count of Flashing Light Pairs
9

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*
____/____ ☒ Not Required

3.G. Wayside Horn
☐ Yes Installed on *(MM/YYYY)* ____/____
☒ No

3.H. Highway Traffic Signals Controlling Crossing
☐ Yes ☒ No

3.I. Bells *(count)*
2

3.J. Non-Train Active Warning
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☐ None

3.K. Other Flashing Lights or Warning Devices
Count 0 Specify type ____

4.A. Does nearby Hwy Intersection have Traffic Signals?
☐ Yes ☐ No

4.B. Hwy Traffic Signal Interconnection
☐ Not Interconnected
☐ For Traffic Signals
☐ For Warning Signs

4.C. Hwy Traffic Signal Preemption
☐ Simultaneous
☐ Advance

5. Highway Traffic Pre-Signals
☐ Yes ☒ No
Storage Distance * ____
Stop Line Distance * ____

6. Highway Monitoring Devices *(Check all that apply)*
☐ Yes - Photo/Video Recording
☐ Yes -- Vehicle Presence Detection
☐ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad
Number of Lanes 2
☐ One-way Traffic
☒ Two-way Traffic
☐ Divided Traffic

2. Is Roadway/Pathway Paved?
☒ Yes ☐ No

3. Does Track Run Down a Street?
☐ Yes ☒ No

4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)*
☐ Yes ☒ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* ____/____ Width * ____ Length * ____
☐ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☒ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal
☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* ____

6. Intersecting Roadway within 500 feet?
☒ Yes ☐ No If Yes, Approximate Distance *(feet)* 30

7. Smallest Crossing Angle
☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°

8. Is Commercial Power Available? *
☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System
☐ (01) Interstate Highway System
☐ (02) Other Nat Hwy System (NHS)
☒ (03) Federal AID, Not NHS
☐ (08) Non-Federal Aid

2. Functional Classification of Road at Crossing
☐ (0) Rural ☒ (1) Urban
☐ (1) Interstate ☐ (5) Major Collector
☐ (2) Other Freeways and Expressways
☐ (3) Other Principal Arterial ☐ (6) Minor Collector
☒ (4) Minor Arterial ☐ (7) Local

3. Is Crossing on State Highway System?
☐ Yes ☒ No

4. Highway Speed Limit
____ MPH
☐ Posted ☐ Statutory

5. Linear Referencing System *(LRS Route ID)* *

6. LRS Milepost *

7. Annual Average Daily Traffic *(AADT)*
Year 1988 AADT 2309

8. Estimated Percent Trucks
09 %

9. Regularly Used by School Buses?
☐ Yes ☒ No Average Number per Day 0

10. Emergency Services Route
☐ Yes ☐ No

Submission Information - *This information is used for administrative purposes and is not available on the public website.*

Submitted by ____ Organization ____ Phone ____ Date ____