



Railroad Manual

2023

Version 02, June 30, 2023



COLORADO
Department of Transportation

Overview of Contents

Emergency Contacts

1. Introduction and Rail Overview
2. Regulatory Requirements and CDOT Roles and Responsibilities
3. Railroad Project Development and Process Overview
4. Highway-Rail At-grade Crossings
5. Grade Separation and Other Specialized Projects
6. Highway and Railroad Crossing Maintenance
7. Agreements
8. Public Utilities Commission Authority
9. CDOT Railroad Billings, Payment Process, and Audits

Appendices

- | | |
|-------------|----------------------------------------|
| Appendix A. | Sample Documents for Railroad Projects |
| Appendix B. | Definitions of Terms and Acronyms |
| Appendix C. | References |
| Appendix D. | Figures |



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Emergency Contacts

Colorado Department of Transportation (CDOT)

Headquarters (Denver): 303-757-9011
Region 1 Office (Denver): 303-759-2368
Region 2 Office (Pueblo): 719-562-5568
Region 3 Office (Grand Junction): 970-683-6284
Region 4 Office (Greeley): 970-350-2368
Region 5 Office (Durango): 970-385-1423

For Emergencies: 9-1-1

BNSF Railway (BNSF)

For Emergencies: 1-800-832-5452

Union Pacific Railroad (UPRR)

For Emergencies: 1-888-877-7267

OmniTRAX / Great Western Railway of Colorado (GWR)

For Emergencies: 1-800-533-9416

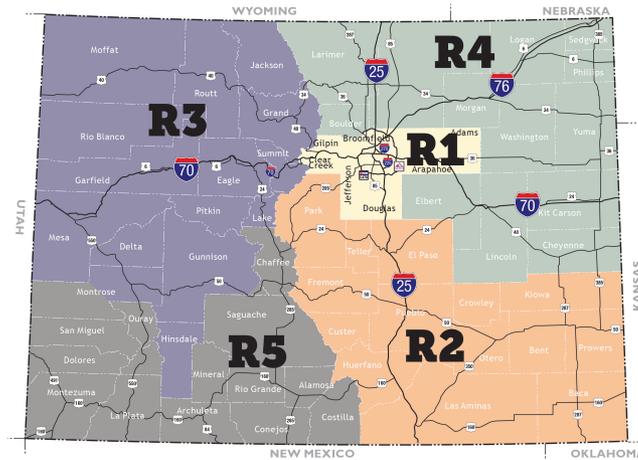
Regional Transportation District (RTD)

For Emergencies: 9-1-1

Transit Watch (Safety and Security Concerns): 303-299-2911

Other Railroads

For Emergencies: 9-1-1



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Detailed Table of Contents

	Page
1. Introduction and Rail Overview	1
1.1 Colorado Rail System Overview	1
1.2 Class 1 Freight Railroads	1
1.3 Shortline Railroads	1
1.4 Tourist Railroads	2
1.5 Passenger, Commuter, and Light Rail	2
2. Regulatory Requirements and CDOT Roles and Responsibilities.....	3
2.1 Authority and Policy	3
2.2 Applicability	3
2.3 Statewide Railroad Program Manager	4
2.4 CDOT Staff Roles and Responsibilities.....	4
3. Railroad Project Development and Process Overview.....	5
3.1 Long Range Plan	5
3.2 Statewide Transportation Improvement Program	5
3.3 Transportation Improvement Program Development in MPO Areas	5
3.4 STIP Development in TPR Areas	6
3.5 STIP Amendment	6
3.6 STIP Amendment in MPO Areas.....	6
3.7 STIP Amendment in TPR Areas	6
3.8 Programming and Budget Actions.....	6
3.9 Section 130 Prioritization and Selection	7
3.10 CDOT Regional Priority Projects	8
3.11 Diagnostic Review.....	8
3.12 Railroad Alternative Project Delivery Methods	8
3.13 Railroad Cost Estimate	9
3.14 Monthly Status Sheet	9
3.15 Submittal of CDOT Forms 463 and 1180.....	9
3.16 Obligation of Construction Funds	10
3.17 PUC Application	10
3.18 Railroad Contracts	10
3.19 Right-of-Way, Utilities and Environmental Clearances	11
3.20 Notice to Proceed.....	11
3.21 Right-of-Entry.....	11
3.22 Traffic Control.....	12
3.23 Project Final Inspection and Closure	13
3.24 Audit	13
3.25 Project Files Maintained by Statewide Railroad Program Manager	13
4. Highway-Rail At-grade Crossings.....	15
4.1 Grade Crossing Data Resources	15
4.2 Emergency Notification Information	16



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

4.3	Highway-Rail Grade Crossing Traffic Warning Devices.....	16
4.4	Passive Warning Grade Crossings	17
4.5	Active Warning Grade Crossings.....	17
4.6	PUC Rail Crossing Jurisdiction.....	19
4.7	Strategies for Enhancing Safety at Grade Crossings.....	19
4.8	Crossings within Limits of a Planned Highway Project.....	19
4.9	Crossings in Proximity to a Signalized Intersection Project.....	20
4.10	Crossings in Proximity to a Planned Highway Project.....	20
4.11	Closure of Unnecessary Crossings	20
4.12	Overview of Federal Section 130 Program.....	21
4.13	Ranking, Selection, and Prioritization of Projects	21
4.14	Traffic Signal Preemption.....	22
4.15	On-Site Diagnostic Review Meeting.....	23
4.16	Plans, Specifications & Estimate (PS&E).....	24
4.17	Work Coordination	25
5.	Grade Separation and Other Specialized Projects.....	26
5.1	Planning, Programming, and Funding	26
5.2	Selection of Grade Separation Projects.....	26
5.3	Scoping	27
5.4	Statewide Railroad Program Manager’s Role	27
5.5	Railroad’s Role	28
5.6	Preliminary Engineering (PE)	28
5.7	Cost Sharing for Construction	29
5.8	Railroad Force Account Work.....	29
5.9	Railroad Flagging.....	29
5.10	Plans, Specifications & Estimate (PS&E).....	30
5.11	Railroad Right-of-Entry.....	31
5.12	PUC Approval	31
5.13	Design Standards for Grade Separation Structures.....	31
5.14	Vertical Clearances for Overhead Structures	32
5.15	Vertical Clearances for Underpass Structures.....	32
5.16	Horizontal Clearances for Overhead Structures	32
5.17	Construction Traffic Control at or near Highway-Rail Crossings.....	33
5.18	Projects with Regional Transportation District	34
6.	Highway and Railroad Crossing Maintenance	35
6.1	Crossing Surface Maintenance and Replacement	35
6.2	Maintenance of Railroad Crossing Warning Devices	35
6.3	Crossing Surface Materials	35
6.4	PUC Adjudication.....	36
6.5	Highway Overlay Projects.....	36
6.6	Traffic Control during Maintenance Operations	36



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

7. Agreements	37
7.1 Types of Contracts/Agreements	37
7.2 CDOT Maintenance Projects with Class 1 Railroads - Initial Information.....	37
7.3 CDOT Construction Projects with Class 1 Railroads - Initial Information.....	38
7.4 CDOT Projects with Other Freight Railroads/ Local Agency Projects	38
7.5 CDOT and Local Agency Projects with Tourist Railroads	38
7.6 CDOT and Local Agency Projects with RTD.....	38
7.7 Data Requirements for CDOT - Railroad Agreements	38
7.8 Data Requirements for Local Agency - Railroad Agreements	39
7.9 Contract Preparation for CDOT - Railroad Agreements.....	40
7.10 Contract Preparation for Local Agency - Railroad Agreements.....	40
7.11 Standard Contract Exhibits	40
7.12 Distribution of Executed Contracts.....	41
7.13 Railroad Utility Permits, Design & Construction.....	41
7.14 Other Railroad Agreements / Licenses.....	43
8. Public Utilities Commission Authority	44
8.1 PUC Applications	44
8.2 Statewide Railroad Program Manager Responsibilities.....	44
8.3 PUC Application Requirements.....	44
8.4 Timing of Application Filing	45
8.5 PUC Notice of Application Filed.....	45
8.6 Entry of Appearance and Notice of Intervention	45
8.7 PUC Hearings	46
8.8 PUC Order Granting Application	46
9. CDOT Railroad Billings, Payment Process, and Audits	47
9.1 CDOT Central Point of Contact.....	47
9.2 Time Frame for CDOT Billing Submittal.....	47
9.3 CDOT Billing Review and Approval.....	47
9.4 Local Agency Billing Review and Approval.....	48
9.5 CDOT Payment Processing	48
9.6 Audit and Follow Up	48

Appendices

Appendix A.	Sample Documents for Railroad Projects
Appendix B.	Definitions of Terms and Acronyms
Appendix C.	References
Appendix D.	Figures



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

1. Introduction and Rail Overview

The State of Colorado is rich with a variety of transportation elements, including numerous rail lines. The rail lines transport passengers and freight throughout the state as they go over, under, and through vehicular, bike, and pedestrian travel ways. Because the Colorado Department of Transportation (CDOT) realizes the need to efficiently facilitate a wide variety of rail projects involving railroads, CDOT has published this rail-project focused manual to detail the processes and procedures involved for successful project delivery through construction.

CDOT developed this Manual in partnership with rail owners, operators, and regulatory agencies to provide clear and consistent guidance in carrying out program goals more efficiently and to streamline the process for rail projects throughout the state. The CDOT Railroad Manual, as well as many of the manuals referenced herein, are available at <https://www.codot.gov>.

This Manual establishes procedures for the preparation and processing of Colorado Department of Transportation (CDOT) (also known as “Department”), Railroad Company (or railroad), and Local Agency contracts and the development of CDOT construction projects involving railroads. This Manual also guides the Department and Local Agencies in the planning and administration of highway-rail crossing safety projects funded under Title 23 of the United States Code (U.S.C.) Section 130 and other CDOT projects involving railroads. Information contained herein represents a compilation of currently available procedures and guidelines, as of this publication, but is not all inclusive. Users are encouraged to review website links and resources provided within this Manual to obtain updates as they become available. This Manual is provided as a guide to assist users in the tasks associated with projects involving railroads.

1.1 Colorado Rail System Overview

The role of the railroads and rail transportation in Colorado is to provide efficient transportation choices for the movement of goods and people while connecting effectively to other transportation modes. The rail system in the

state is an interconnected component of much larger regional, national, and global multimodal transportation systems and economies. There are four main types of railways in the state: freight, shortline, tourist, and passenger.

Currently, 17 privately owned freight railroads operate in Colorado (see **Appendix D, Figure 1-1: Colorado Statewide Rail System Map**). These railroads own more than 2,452 miles of track in the state, representing about 1.8 percent of the nation's 137,000 miles of freight network track. The extent of this network is also reflected in the fact that 49 of Colorado's 64 counties are directly served by the freight rail network.

1.2 Class 1 Freight Railroads

There are two Class 1 railroads in Colorado:

- BNSF Railway (BNSF)
- Union Pacific Railroad (UPRR)

Combined, they operate over 80 percent of the freight track miles and carry the majority of freight in the state. The capacity of the freight rail network in the Front Range varies as supply and demand increases or decreases.



1.3 Shortline Railroads

Fifteen shortline railroads in Colorado provide local service with connections to the Class 1 railroads. Shortline railroads principally serve the agricultural industry and are valuable assets to both local and statewide economies. Colorado's shortline railroads are:

- Cimarron Valley Railroad
- Colorado and Wyoming Railway
- Denver Rock Island Railroad
- Deseret Power Railroad
- Great Western Railway of Colorado (GWR)



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

- Kansas and Oklahoma Railroad
- Kyle Railroad
- Nebraska Kansas Colorado Railway
- Rock and Rail LLC
- Colorado Pacific Rio Grande Railroad
- San Luis Central Railroad Company
- Utah Railway
- Victoria & Southern Railway

Additionally, the Leadville-Climax Shortline Railway Company and Titan Terminal Railway Company operate on short distances of rail in Colorado.



1.4 Tourist Railroads

Colorado has nine tourist railroad lines, showcasing Colorado's history and offering trips through Colorado's scenic outdoors. Scenic and tourist lines include:

- Cripple Creek and Victor Narrow Gauge Railroad
- Durango and Silverton Narrow Gauge Railroad
- Georgetown Loop Railroad
- Manitou and Pike's Peak Cog Railway
- Royal Gorge Route Railroad
- Rio Grande Scenic Railroad
- Leadville Scenic Railroad
- Cumbres and Toltec Railroad
- Winter Park Ski Train



1.5 Passenger, Commuter, and Light Rail

The passenger rail system in Colorado is currently growing, with service provided by the Regional Transportation District (RTD) and Amtrak. In the greater Denver area, RTD provides both light rail and commuter service (see [Rail System Map](#)). In addition, Amtrak passenger service is provided on two routes in the state and runs on freight tracks (see [Amtrak Stations in Colorado](#)):

- The California Zephyr runs daily between Chicago and San Francisco. Colorado stops include Fort Morgan, Denver, Fraser/Winter Park, Granby, Glenwood Springs, and Grand Junction.
- The Southwest Chief runs daily between Chicago and Los Angeles. Colorado stops include Lamar, La Junta, and Trinidad.



Across Colorado, there are approximately 1,730 public railroad crossings. **Figure 1-2 (Appendix D)** shows that Denver, Weld, and Adams counties each have more than 100 public crossings. Larimer, Boulder, Jefferson, Logan, and Las Animas counties are in the second category, with 50 to 100 crossings each.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

2. Regulatory Requirements and CDOT Roles and Responsibilities

2.1 Authority and Policy

Federal and State statutes in effect at the release date of this Manual pertaining to contracts involving railroad projects are as follows:

[Code of Federal Regulations \(C.F.R.\) Part 646-Railroads](#) - Federal regulations relating to railroad projects.

§43-1-110, Colorado Revised Statutes (C.R.S.) - As amended, gives CDOT (Department) responsibility and authority. Paragraph (3) of the statute gives the Chief Engineer authority to accept Federal-aid money for highway-rail projects.

§43-2-102, C.R.S. - As amended, gives the Department the authority and responsibility to design, construct, improve, maintain, and manage the State Highway System.

§43-2-144, C.R.S. - As amended, authorizes towns, cities, and counties to contract with the Transportation Commission for Construction & Maintenance (C&M) Agreements.

§29-1-203, C.R.S. - As amended, allows local governments to contract with other governmental units for projects or services that are mutually beneficial.

§43-4-204, C.R.S. - As amended, establishes what the highway users tax can be used for.

The following CDOT Procedural Directives (PD) pertain to projects and contracts involving railroads:

- PD 400.5** General Contract Procedures
- PD 512.1** Project Scoping and the Design Scoping Review (DSR)
- PD 548.1** Safety Considerations on Resurfacing and 3R Type Projects
- PD 1700.5** Local Entity/State Contracts, Local Entity/Consultant Contracts, and Local Entity/Railroad Contracts

2.2 Applicability

The procedures established by this Manual apply to all transportation projects involving work on or near railroad property. These projects may be broadly classified as follows (not all inclusive):

- Section 130 Highway-Rail Grade Crossing Safety Improvement Projects
- Projects that eliminate existing grade crossings (crossing closure, grade separation)
- Projects that involve reconstruction or rehabilitation of existing grade separation structures
- Projects (other than Section 130 safety projects) that require the alteration of existing grade crossings as incidental to other planned improvements
- Other transportation projects involving work by railroad forces, adjustments to railroad facilities, railroad flagging, construction easements, and/or other work on or near railroad property
- Access permitting development
- Local Agency permitting development
- Local Agency projects
- Division of Transit and Rail (DTR) projects



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

2.3 Statewide Railroad Program Manager

The Statewide Railroad Program Manager within CDOT's Project Development Branch has the following responsibilities and work products:

- Manage the Federal Section 130 Program, which includes:
 - Solicit, evaluate, and prioritize candidate projects for Section 130 Grade Crossing Safety Improvement Projects
 - Periodically coordinate (through executive management) the selection of appropriate Section 130 Grade Separation Projects
 - Install warning devices and safety improvements at highway-rail grade crossings
 - Eliminate at-grade crossings by closure, consolidation, or construction of grade separation structures
 - Prepare/coordinate issuance of plans for Section 130 Grade Crossing Projects
- Facilitate work tasks involving railroads with Local Agencies and CDOT staff
- Provide liaison between railroad and Region designers on CDOT construction projects that involve construction on or near railroad right-of-way (ROW)
- Prepare and coordinate the execution of contracts among CDOT and involved railroads and/or Local Agencies
- Prepare (or coordinate preparation of, if on local streets or roads) Public Utilities Commission (PUC) applications covering proposed changes to an existing grade crossing
- Schedule and conduct periodic coordination meetings among CDOT staff, executive management, PUC, Class 1 railroads, shortline railroads, tourist railroads, Federal Highway Administration (FHWA), and Federal Railroad Administration (FRA)
- Coordinate work by railroad forces on CDOT construction projects
- Coordinate with railroad planning activities such as mobility studies, abandonment/corridor acquisition, intermodal connections, and passenger rail

- Monitor grade crossing project construction and coordinate change order activities
- Review and forward contract billings to CDOT Regions and Local Agencies

2.4 CDOT Staff Roles and Responsibilities

CDOT Headquarters staff and Region staff who have projects involving railroads within their Regions or associated with another project have the following responsibilities:

- Notify the Statewide Railroad Program Manager of projects involving railroads
- Identify the railroad, anticipated work to be completed by railroad forces and/or within railroad ROW, and project timeline
- Participate in the Field Diagnostic Review Meeting (if needed) with railroad and PUC staff
- Prepare/coordinate issuance of plan sheets needed for railroad review submittals
- Address railroad review comments in plans and documents
- Assist the Statewide Railroad Program Manager with project details and exhibits for the PUC application
- Assist the Statewide Railroad Program Manager with details for the C&M Agreement
- Compile necessary clearance documents for ROW, environmental, and utilities
- Compile project specifications for the project

Chapter 3 of this Manual provides additional detail regarding roles and responsibilities for CDOT staff.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

3. Railroad Project Development and Process Overview

3.1 Long Range Plan

CDOT is required to develop and adopt a long-range plan outlining transportation goals and improvements throughout the state. This plan must identify potential projects and funding requirements for Statewide Transportation Improvement Program (STIP) development.

3.2 Statewide Transportation Improvement Program

The STIP must identify all projects receiving Federal funds. The Fixing America's Surface Transportation (FAST) Act requires each state to develop a STIP containing at least four years of projects. The STIP is developed in cooperation with Metropolitan Planning Organizations (MPOs), local officials, and tribal governments with responsibility for transportation. The STIP development process is where Local Agency projects are "selected" or "approved" for Federal funding. During STIP development, the Governor is required to provide citizens, affected public agencies, transportation agency representatives, freight shippers, private transportation providers, freight transportation service providers, public transit user representatives, and other interested parties with a reasonable opportunity to comment on the proposed STIP.

A STIP, by law, must be financially constrained. This means all funding sources must be identified for each project.

The STIP is updated every other year through a comprehensive and cooperative process involving the FHWA, Federal Transit Administration (FTA), MPOs, Transportation Planning Regions (TPRs), and city and county governments (Local Agencies). The STIP development process varies depending on whether projects are located in MPOs or TPRs.

As noted previously, the FAST Act requires only four years of projects in the STIP; however, the Colorado Transportation Commission passed a

resolution requiring that the STIP include a full six years of projects. The Transportation Commission also passed a resolution requiring that all state and Federally funded transportation projects, even those receiving only state funds, be included in the STIP.

The FAST Act also requires that the STIP be made available for public review and comment. Copies of the STIP are mailed to public agencies, transportation agencies, private transportation providers, and other interested parties. A public meeting on the STIP is conducted biennially with the Transportation Commission, typically at its April meeting. Comments are considered before the Transportation Commission approves the STIP. Once the Transportation Commission approves the STIP, it is forwarded to FHWA and FTA for final approval.

3.3 Transportation Improvement Program Development in MPO Areas

For each metropolitan area exceeding 50,000 in population, the FAST Act requires a Transportation Improvement Program (TIP), which identifies locally significant projects. MPOs are responsible for preparing the TIP. In Colorado, MPOs include the Denver Regional Council of Governments (DRCOG), Pikes Peak Area Council of Governments (PPACG), North Front Range Transportation & Air Quality Planning Council (NFRT & AQPC), Pueblo Area Council of Governments (PACOG), and Grand Valley MPO.

MPOs are responsible for the development and approval processes of financially constrained TIPs. The appropriate MPO should be contacted to determine the procedures for establishing a project in a TIP.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Once the MPO approves a TIP, it is forwarded to the Governor for final approval. TIPs and the STIP are developed concurrently. An approved TIP is incorporated into the STIP verbatim.

The Federal government considers DRCOG, PPACG, and NFRT & AQPC Air Quality Non-Attainment Areas. In these areas, the projects in the TIP must be modeled to demonstrate that project implementation will not degrade air quality below the Environmental Protection Agency (EPA) health standards as set forth in the Clean Air Act Amendment of 1990.

3.4 STIP Development in TPR Areas

In areas outside the MPOs, referred to as TPRs, TIPs are not required. To develop the STIP, TPR representatives meet with the appropriate CDOT Engineering Region and State Highway Transportation Commissioners to cooperate in the project prioritization process. A CDOT Engineering Region can contain multiple TPRs and/or Transportation Commissioners. Public meetings are conducted in each TPR to solicit requests for projects and comments on state-selected projects. To establish a project in the STIP, contact the appropriate TPR. A list of TPR representatives is available from the CDOT Division of Transportation Development (DTD).

3.5 STIP Amendment

Because of the dynamic nature of transportation programs, changes may be necessary. The process for amending the STIP varies depending on the project type, funding source, and whether the project to be amended is in an MPO or a TPR. STIP amendments will not be approved unless they are financially constrained.

If the project scope significantly changes or additional funds are needed, the STIP must be amended before a budget action can be processed.

3.6 STIP Amendment in MPO Areas

The MPO must approve TIP amendments before the corresponding STIP amendments can be approved.

3.7 STIP Amendment in TPR Areas

The CDOT Engineering Regional Manager is responsible for coordinating with the appropriate TPRs to reach consensus on STIP amendments.

3.8 Programming and Budget Actions

CDOT's Railroad Program includes both CDOT Regional priority projects and the Federally Administered Section 130 Crossing Hazard Elimination Program.

CDOT's Regional priority projects contain several funding sources (Federal, State, and Local) and are contained within a four-year project priority list. Railroad projects identified within the four-year project list move forward with a scoping, schedule, and budget meeting between the Region Utility Engineering Program Manager and the Statewide Railroad Program Manager.

Section 130 Federal-aid funds become available in October at the start of the Federal fiscal year. From the priority list of at-grade safety improvement projects developed by CDOT's Project Development Branch, Federal-aid funds are appropriated and budgeted to specific projects. Starting in July, the responsible region gets a project number assigned and budgets each project for about 10 percent of the approved amount for preliminary engineering (PE) and the project becomes part of the STIP. (Proposals under consideration include advancing the projects even further by setting up the projects in January, ahead of the October funding availability, and budgeting the projects for the entire approved amount rather than for PE only.)

After a project has been entered into the STIP, the Region Business Office shall:

- Confirm the project number and location description and assign the project subaccount code.
- Take initial budget action (in coordination with the Statewide Railroad Program Manager).



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

- For CDOT priority projects, obtain program approval and design (D) phase authorization from FHWA via the Office of Financial Management and Budget (OFMB).
- For Section 130 projects, obtain the required design (C) phase authorization from FHWA via the OFMB.

Before any budget action, the following must have occurred (responsible parties indicated in parentheses):

- Inclusion in the Integrated Safety Plan (Transportation Systems Maintenance and Operation)
- Inclusion in an appropriate TIP as applicable (region coordinate with TPR)
- Inclusion in an appropriate STIP as signified by approved STIP number (HQ Business Office)
- Project setup to establish project number, location, and project code (Region Business Office)

Individual project budgets are funded by transferring funds from the appropriate component(s) of the Design (D), Utility (U), and Construction (C) phases. The Statewide Railroad Program Manager will coordinate with the Region Business Office, via email or Systems, Applications, and Products software (SAP), to initiate the transfer of funds. The region will follow up with a SAP “R” (“requested”) action. The OFMB will complete the transaction, subject to available obligation authority.

The project must be budgeted for all phase(s) if applicable:

- The “D” phase will cover the railroad’s eligible incurred PE costs.
- The “U” phase will cover any C&M Agreement estimated costs.
- The “C” phase will cover the railroad’s eligible incurred labor, materials, equipment, overhead, and indirect costs related to Section 130 projects.

The “D” phase budget amount for PE review on a typical project varies by railroad. Higher amounts should be substantiated and documented for larger scoped projects. Contact the Statewide Railroad Program Manager for an estimate.

If budgeted at the time of project inception, the “C” phase budget amount will be the total planning budget (as shown in the Integrated Safety Plan) less the amount budgeted for the “D” phase.

If budgeted at the time of “C” phase authorization, the “C” phase budget amount will be equal to, or approximately equal to (e.g., next higher hundred-dollar increment), the amount of the railroad’s force account cost estimate.

For Section 130 projects, the BNSF and others may include their estimated PE costs in the “C” phase estimate. The UPRR and others may separate out “D” phase PE costs and include only “C” phase estimated items.

For CDOT Regional Priority Projects, the “U” phase is used, and budgets are set according to work to be completed by railroad employees or contractors.

3.9 Section 130 Prioritization and Selection

Section 130(d) of 23 U.S.C. requires that each state develop a prioritized list of annual highway-rail crossings that will need safety improvements. The CDOT Division of Project Support, Project Development Branch, in collaboration with FHWA, FRA, CDOT regions, and the PUC, uses a hazard index for each public highway-rail crossing in the state. It is calculated annually using a formula derived from FRA formulas and guidelines. The hazard index is the primary initial factor used to rank and select Section 130 projects. The final ranking is based on the combination of the hazard index, recent accident history, and input received.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

3.10 CDOT Regional Priority Projects

Sections 3.3, 3.4, 3.6, and 3.7 describe the project selection process through MPO, TIP, and STIP perspectives. Once projects move into the regions, CDOT will identify a four-year list of priority projects. CDOT Regional staff will review the project priority list that also includes a comprehensive regional list of railroad projects.

Each Region contains Engineering Program Areas that identify the locations of the railroad projects contained within their individual engineering residencies. The Resident Engineer will coordinate the selected railroad project with a project delivery team that includes a Project Manager and each Specialty Unit Lead.

The Specialty Unit Leads include Right-of-Way, Utilities, and Environmental Design. The Region Utility Engineering Program Manager also serves as the Statewide Railroad Program Manager. Each identified railroad project shall coordinate with the Region Utility Engineering Program Manager before moving forward with the Statewide Railroad Program Manager.

3.11 Diagnostic Review

Once a priority list of the funded projects is created, the next step in the process is to hold an on-site Diagnostic Review meeting for every crossing considered for funding. The CDOT Project Development Branch, in collaboration with a Diagnostic Review Team, which includes Federal, state, Local Agencies, and railroad company representatives, conducts the Diagnostic Review to determine appropriate crossing safety improvement recommendations (see Chapter 4 for detailed information).

3.12 Railroad Alternative Project Delivery Methods

Timing of request for railroad cost estimates and contracting should be:

- After the Field Diagnostic Review is held
- When the railroad elements of a project have been designed to a minimum of 30% and the railroad has reviewed and approved them
- When no substantive changes to design involving railroad elements are anticipated

For standard Design-Bid-Build (DBB) projects and Construction Manager General Contractor (CMGC) projects, wherein design progresses allowing for submittals, review by agencies and railroads, approvals, and development of agreements, requests to the railroad for railroad cost estimates should follow the 30% design. This can occur after it is reviewed by the railroad and provided there are no substantive changes anticipated to the design of railroad elements. The Railroad Cost Estimate can be requested later than 30% design if there is reason to believe the design involving the railroad elements may be revised. Railroad estimates can take up to 180 days depending on the complexity of the project. This timeline should be updated monthly and accounted for in the project schedule.

For Design-Build (DB) or Public Private Partnership (P3) projects, where the traditional sequencing of a project is not used, and the contractor or project team provides both design and construction at an accelerated pace, the need for early action on the railroad elements is critical.

Design of railroad elements must occur early in the project process to allow the railroad's review to reduce the overall risk to the DB and P3 contractors. The "30% design and no substantive changes" philosophy, while still applicable, may constrain the project at the railroad project location for these types of delivery projects.

The DB, CDOT, and P3 project teams must prioritize the final railroad design elements as early as possible, and to a point of no substantive changes, to request a Railroad Cost Estimate and finalize the lengthy contracting process. The project schedule should account for the 180-day railroad estimate timeline.

Early engagement and coordination by CDOT will assist the DB and P3 project teams in reducing risk and achieving success with projects involving railroads.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

3.13 Railroad Cost Estimate

To proceed with the railroad cost estimate for crossing safety enhancements, the following steps must be completed:

- PE Agreement in place with railroad (if necessary, depending on railroad)
- Diagnostic review
- Recommendations for safety enhancements determined by PUC
- Concept plan prepared by railroad or Agency reviewed and approved by PUC and other involved parties

When these steps are completed, design and estimating services can be requested for safety enhancements from the railroad. Design and estimating services can take up to 180 days from the official request after the previous steps are in place. If the estimate is not received within 180 days, a follow-up to the railroad is recommended. Railroad estimates are actual cost estimates and can overrun for various reasons. Schedule changes, scope changes, and emergencies can cause cost overruns, which can be minimized by good coordination with railroads.

Once the estimate is received from the railroad, general review is recommended to make sure the schematic railroad design plan (front sheet) and material list reflect approved plans. The Statewide Railroad Program Manager shall distribute estimates to the region, Local Agency if involved, and OFMB.

If the railroad estimate is within budget estimates and funding is available on the authorized PE amount and project expenditure, the project can proceed with the necessary agreements. If additional funding is required, other funding sources may be necessary, such as other funding pools, projects with surplus funds, railroad participation, or local sources. Appropriate actions should be taken for required funding.

3.14 Monthly Status Sheet

In the first week of the month, the Project Manager shall update the status of highway-rail crossing projects. Status sheets are used to track the activities of Section 130 projects and other CDOT projects that involve railroads from project inception through notice to proceed. The railroad project status sheet includes the following milestone dates:

- Design Scoping Review (DSR)
- Diagnostic Review
- Field Inspection Review (FIR)
- Final Office Review (FOR)
- Estimates from railroad
- Forms 463 and 1180 Submittal

The Railroad Project Tracking Spreadsheet is maintained within CDOT's shared file platform. CDOT Regions with projects involving railroads shall contact the Statewide Railroad Program Manager for access to the Railroad Project Tracking Spreadsheet to provide project information and regular updates.

3.15 Submittal of CDOT Forms 463 and 1180

The Region shall prepare and submit to the Project Manager a preliminary CDOT Form 463 documenting the proceedings, including the Diagnostic Team's findings and recommendations. The Region may assist a Local Agency applicant in the completion of this step.

The Project Manager shall prepare a final Form 463 (including obtaining the environmental clearance required therein). The Region shall input the final Form 463 into the SAP system, approve the final Form 463, and furnish a signed copy to the Statewide Railroad Program Manager.

The Region shall complete and submit CDOT Form 1180, "Standards Certification and Project Plans, Specifications & Estimate Approval," to the OFMB.

The Region and/or the Local Agency are responsible for completing the CDOT Form 463, "Design Data," to get the project programmed in CDOT's system.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

3.16 Obligation of Construction Funds

CDOT Regional Priority Projects (Non-Section 130) Construction phase authorization of funds includes the following situations:

- Railroad Force Accounts used for Construction phase funding, including:
 - RR Flagging Force Account Number 700-70042

Section 130 Construction phase authorization is subject to the following conditions being met:

- Receipt of railroad estimate by OFMB (furnished by the Statewide Railroad Program Manager upon receipt of estimate from the railroad)
- Approved final CDOT Form 463, “Design Data,” as shown in SAP (Region)
- Environmental clearance as reflected on CDOT Form 463 (Region)
- Approved CDOT Form 1180, “Standards Certification and Project PS&E Approval” (Region)

Upon completion of CDOT Forms 463 and 1180, the Statewide Railroad Program Manager shall request the obligation of construction funds. This can be accomplished via email to OFMB. Once the obligation request is made, it is important to monitor the status of CDOT Form 418 for authorization information. The Statewide Railroad Program Manager shall be responsible for monitoring the Construction phase authorization of all Section 130 funded projects.

The obligation amount will be indicated in SAP by the planned transfer of funds, in the amount of the railroad cost estimate, from the source to the project. If the obligation of construction funds does not occur in the specified fiscal quarter, the parties shall coordinate moving the planned obligation date to an appropriate future quarter.

OFMB shall obtain Federal C phase authorization after final CDOT Form 463, railroad’s estimate, and CDOT Form 1180 are in place.

3.17 PUC Application

The Statewide Railroad Program Manager is responsible for making sure the Office of Attorney General (OAG) files an application with

the PUC on behalf of CDOT when CDOT is the applicant.

The Local Agency Project Manager’s attorney is responsible for submitting a PUC application with the PUC for off-system projects. This process is further explained in **Chapter 8**.

3.18 Railroad Contracts

CDOT has approved Master Agreement Contracts for at-grade highway-rail work for each Class 1 railroad (BNSF, UPRR) that operates in Colorado. The Master Agreement Contract allows task orders to be written for each project. The proposal received by the railroad should be signed by the railroad and the task order is then signed only by a CDOT representative delegated with signature authority.

Chapter 7 of this Manual provides detailed information about contract requirements and agreements.

Adequate lead time to process the contract or task order is required, as a new contract or task order must be executed for each project. Plans should be initiated before the PUC applications and/or contracting begins. This process requires intensive communication with the affected railroad. The railroad also has requirements that must be fulfilled, such as a need for sufficient time for plan review and estimate preparation.

Region Staff should contact the Center of Procurement and Contract Services, Contracting Unit, annually to coordinate anticipated contracts to ensure contracting deadlines are met. It is strongly suggested that Regional staff work with the Statewide Railroad Program Manager to schedule an annual coordination meeting to develop an annual plan and conduct quarterly updates to the plan.

The development process of a typical contract is as follows:

- Provide contract/task order information to the Contracting Unit, such as railroad estimates and related correspondence.
- Coordinate any contract revisions with the Contracting Unit as early as possible. The Contracting Unit will use an approved template. The State Controller’s Office must approve any changes to the language, which can significantly increase the processing time.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

- The Contracting Unit will make an electronic copy of the fully executed contract available within CDOT's system. Contracts will be stored in a repository within the SAP (the state financial management system) workflow.
- The Statewide Railroad Program Manager will attach to the Notice to Proceed (NTP) letters to the railroad transmitting the fully executed contract.



3.19 Right-of-Way, Utilities and Environmental Clearances

The applicant shall be responsible for obtaining any additional ROW and/or easements and for coordinating any utility relocations or adjustments as may be necessitated by the project. The Region shall develop and issue utility, railroad, and ROW clearances for the project (in coordination with the Local Agency as needed), in accordance with 23 C.F.R. 635.309(b), and furnish copies thereof to the Statewide Railroad Program Manager.

The Region Utility Engineering Program Manager shall provide evidence of utility, railroad, environmental, and ROW clearances to the Statewide Railroad Program Manager prior to issuance of the NTP letter to the railroad.

3.20 Notice to Proceed

Upon receipt of NTP from the Statewide Railroad Program Manager, the railroad shall proceed with project construction. The railroad cannot commence work before receiving the NTP.

3.21 Right-of-Entry

There are two general types of right-of-entry for work within railroad ROWs that require authority from the railroad.

Right-of-entry during the planning or design phase of a project is obtained through each railroad for activities that include, but are not limited to:

- Survey
- Geotechnical investigations
- Environmental analysis
- Soil sampling
- Utility locates
- Other non-construction activities

Each railroad has a process by which the applicant identifies the location and type of work to be done and provides this information in the appropriate application. Applicants can be public or local and there is an associated fee.

- BNSF's Right-of-Entry process uses a Temporary Occupancy Permit and is administered through their external Real Estate Representative, Jones Lang LaSalle Brokerage, Inc.
- UPRR's Right-of-Entry uses a Right-of-Entry Permit for Temporary Use and is administered by UPRR's Real Estate Department.
- OmniTRAX uses a Right-of-Entry Permit application administered by OmniTRAX.
- Other shortline railroads, tourist railroads, and light rail/commuter rail may have similar requirements, for which the user is directed to the respective railroad's or transit agency's website for contact information.

Right-of-entry for construction activities for Class 1 Railroads is generated by the respective railroad following the railroad's review and approval of project plans or a maintenance request. Any time CDOT workers, Local Agency workers, or construction contractors require access to railroad ROW for the purposes of construction, or to have labor forces, equipment and materials onsite to complete maintenance activities, the railroad requires a right-of-entry agreement.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

- BNSF documents are referred to as Exhibit “C,” Contractor Requirements, and Exhibit “C-1,” Agreement between BNSF Railway Company and the Contractor.
- UPRR documents are identified as “Contractor’s Right-of-Entry.”

These documents provide the terms and conditions under which a construction or maintenance contractor has permission to conduct work within railroad ROWs. They also outline the necessary safety orientation and required insurance to be maintained by the contractor.

Note that the respective railroad generates the right-of-entry documents for each project specific to each project assignment and provides them to the project agency as part of the agreement process. These documents are then passed on to the construction or maintenance contractor for completion of the requirements and transmittal to the railroad.

Right-of-entry for construction activities to OmniTRAX, other shortline railroads, tourist railroads, or light rail/commuter rail transit agencies requires direct contact with the railroad or agency to confirm the application and permission processes.

To provide information about the railroad requirements to all construction or maintenance contractors who might bid on a project, it is recommended to provide the template language for the appropriate railroad within the project specifications, with clarification that the templates are for information only.

Safety and security orientation for anyone working on railroad ROW is a requirement of the FRA.

Class 1 Railroad contractor safety orientation and eRailSafe safety and security orientation are available online for construction and maintenance contractors and consultants. Both BNSF and UPRR have links on their respective websites for these required sources for railroad safety and security orientation.

OmniTRAX, other shortline railroads, and tourist railroads may require safety orientation specific to the project location. See the respective railroad’s website for contact information.

For safety training associated with work in light rail and commuter rail ROWs, refer to the RTD website.

The following table provides current website links to the safety training requirements by railroad that must be completed before entering railroad ROW.

Railroad	Training	Website Link
UPRR	Property Access Training	UP: UP Property Access Training
BNSF	Contractor Safety	BNSF Contractor
OmniTRAX	Project Specific	OmniTRAX-Customer-Safety-Handbook-2019.pdf
RTD	Project Specific	Utility Construction Information RTD - Denver

Note contractors and consultants may also be required to complete eRailsafe training for UPRR and/or BNSF for right-of-entry, depending on the type of work to be completed. CDOT staff do not complete eRailsafe training.

3.22 Traffic Control

The NTP letter to the railroad shall contain all pertinent information related to the Method of Handling Traffic during the construction of the improvement at the crossing. Requirements for construction traffic control devices at crossing approaches shall be coordinated with the Region Traffic Engineer.

For off-system crossings, the Local Agency Project Manager shall be responsible for all traffic control and coordination requirements. Requirements shall, at a minimum, comply with the latest CDOT approved edition of the [Manual on Uniform Traffic Control Devices for Streets and Highways](#) (MUTCD). Consideration should be given to nearby traffic control that has the potential to affect grade crossing operations. For additional information, see **Section 5.17, Construction Traffic Control at or near Highway-Rail Crossings**, of this Manual.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits



3.23 Project Final Inspection and Closure

Upon completion of the work as described in the contract, for regional projects, the railroad shall notify the Region Utility Engineering Program Manager or the Resident Engineer so that arrangements for final inspection can be made. The Region Utility Engineering Program Manager shall coordinate the final inspection of the railroad work. The inspection team should include the following:

- Region Utility Engineering Program Manager
- PUC Rail Safety Engineer
- Resident Engineer (if the project is on the State Highway System)
- Statewide Railroad Program Manager
- Local Agency Project Manager (Section 130 only)

The Resident Engineer or the Region Utility Engineering Program Manager shall verify that all work has been completed according to the contract terms and notify the Statewide Railroad Program Manager in writing. The Region Utility Engineering Program Manager or Resident Engineer will be responsible for project closure. CDOT Form 950 may be used to document proper project closure. The Statewide Railroad Program Manager will submit PUC compliance filing when CDOT is the applicant.

3.24 Audit

Documentation and reports of the work performed by the railroad shall be sufficient to provide the opportunity for CDOT and project funding entities to conduct a project audit. The following documentation should be available for review:

- Number of workers, their classifications, and hours charged to the project
- Documentation of quality and cost of materials and equipment and labor used on the project
- Detailed description of completed work
- Documentation of any extra work completed as a result of contract/amendment
- Any other document requested by CDOT auditors

3.25 Project Files Maintained by Statewide Railroad Program Manager

The Statewide Railroad Program Manager must systematically review and properly maintain the railroad project files. The file contents and documentation shall be as detailed below.

Project Development and Programming Documents

- Highway-rail Grade Crossing Project Application
- Section 130 Priority Listing showing project and fiscal year plan
- ISP Tabulation for applicable fiscal year
- Documentation (email, SAP screen print, etc.) of budget actions
- PE authorization letter to railroad
- CDOT Form 1180 - Form to send to FHWA to approve project funding
- CDOT Form 463 Design Data - Final 463 including environmental clearance
- Documentation of phase obligation actions
- Advance materials authorization letter (if applicable)
- CDOT's railroad specifications



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Diagnostic Review Documents

- Diagnostic Review meeting letter and meeting minutes
- Site review attendance roster and meeting notes
- Site photographs
- USDOT Crossing Inventory Data Sheet
- Documentation of Diagnostic Team recommendations

PUC Application and Order Documents

- PUC application
- Notice of Application filed
- Entry of Appearance and Notice of Intervention
- Order granting application
- Local Agency resolution and supporting information

Plans and Notice to Proceed Documents

- Copy set of complete plans and specifications
- Plans transmittal memorandum
- ROW and utility clearance letters
- NTP letter by the Statewide Railroad Program Manager to Railroad Project Manager
- Copy of NTP issued by Regional Manager

Billing and Closeout Documents

- Billing documentation
- Transmittal memorandum forwarding billing to Local Agency
- CDOT Form 950 and/or other project closure documentation
- Audit documents



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

4. Highway-Rail At-grade Crossings

Highway-Rail at-grade crossings are often complex and unique as they involve different owners, operating authorities, and users, with at least two modes of transportation intersecting at one location. Although there have been many successful grade separation projects in Colorado, most of the nation's and states' highway-rail crossings remain at grade.

Highway-rail grade crossings are complex, as each crossing has its own unique features.

Differences include the physical characteristics of the crossing, such as:

- Number of lanes
- Number of tracks
- Overall width of the crossing
- Angle at which the railroad crosses the highway
- Profile of the crossing
- Volume of vehicular traffic
- Types of crossing users (trucks, buses, pedestrians, bikes, etc.)
- Speed and frequency of trains
- Types of rail operators (freight, commuter, transit)

Trains have the ROW at highway-rail at-grade crossings. This historically stems out of the ability of a train to stop in comparison to a vehicle, bike, or pedestrian and has been confirmed by the Supreme Court.

The ability to stop is a characteristic of the train's mass. As such, it is critical to clearly establish ROW at grade crossings to help deter train-vehicle incidents. When there is a new grade crossing project or a modification to an existing grade crossing, the project goal should be to minimize user risk in an effort to save human life.

4.1 Grade Crossing Data Resources

The FRA, one of ten departments of the U.S. Department of Transportation (DOT), assigns a crossing number for all at-grade and grade separated crossings nationwide. The seven-digit DOT number consists of six numbers, followed by one alphabetic letter, such as 254064N.

For all new crossings, the railroad owner is responsible for selecting a crossing number and submitting the number to the FRA for processing. The FRA assigns the crossing a number to uniquely identify it. DOT numbers are posted at every grade crossing on Emergency Notification System (ENS) signs and sometimes on the railroad signal cabinets/houses if the crossing has active warning devices.

At the start of any grade crossing project, it is key to determine the correct DOT number for that crossing.

The FRA has established a [Railroad Crossing Locator App](#) that is a good resource for finding not only a crossing's DOT number but also other crossing information.

The railroad and CDOT update the inventory information as required by the FRA.

In addition to the app, the [FRA website](#) contains multiple resources for any grade crossing project, including:

- FRA Crossing Inventory Report
- FRA Crossing Accident History

The FRA, in cooperation with the Association of American Railroads (AAR), has developed the Highway-Railroad Crossing Inventory. The inventory contains information for each crossing (at-grade and grade-separated). CDOT's Statewide Railroad Program Manager updates FRA inventory-related traffic counts on the State Highway System. Local road authorities are required to provide information to CDOT so that CDOT can update inventory data associated with local roads, including:

- Types and numbers of traffic control devices
- Nearby highway traffic signals
- Highway traffic signal interconnection
- Highway traffic signal preemption



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

- Highway traffic presignals
- Highway system
- Functional classification of road at crossing
- Is crossing on State Highway System
- Highway speed limit
- Annual average daily traffic (AADT) volume
- Estimated percent of trucks
- School bus use
- Emergency service route
- Roadway authority

The FRA Accident History is also available with the FRA Railroad Crossing Locator App or through the FRA website and provides historical information on the number and types of FRA-reported grade crossing incidents at each crossing since the early 1970s. The accident reports detail the day and time, type of crossing user (motorist, pedestrian, and trespasser), weather conditions at the time of the accident, speeds at the time of impact, and sometimes a general description of the incident. Accident reports, especially those made in the last five years, often serve as a resource in determining what types of crossing enhancements may need to be considered to help avoid similar incidents in the future.

4.2 Emergency Notification Information

The FRA requires each railroad owner to maintain a 24-hour hotline number for any emergencies at their grade crossings and along their ROW. When at a grade crossing or working near the tracks, call the railroad's hotline number if you see something that is of concern to crossing safety and rail operations.

Each highway-rail grade crossing has an Emergency Notification System sign that details the hotline number specific to that railroad, typically the rail entity (UPRR, BNSF, OmniTRAX, etc.) and the DOT number.

The signs are always blue with white lettering and mounted on the grade crossing active or passive warning equipment. **Figure 4-1** in **Appendix D** depicts what ENS signs may look like.

Railroad hotline numbers provide a way to directly communicate with the railroads if there is an emergency at a grade crossing or if something would affect train operations. The public is encouraged to call the hotline numbers if any of the following is observed at a grade crossing or on railroad property:

- Malfunctioning gates and lights
- Trespassers or other suspicious behavior
- Grade crossing problems
- Personal injuries
- Criminal activities
- Illegal dumping
- Vehicles stuck/stalled on the tracks or other track obstructions
- Other environmental issues, such as a hazardous materials release
 - Idling locomotives
 - Engines with excessive smoke

When you call the hotline, clearly state your name, the crossing DOT number, and the reason for your call.

The hotline operator will then ask you questions related to your concern and will direct your concern to the necessary party to respond. Depending on the severity and type of concern, the dispatcher can advise train operations to stop if needed, contact railroad employees/contractors, and/or advise local law enforcement.

While the 911 system is widely used nationally to report emergencies of any type, calling the railroad hotline number for grade crossing and rail ROW emergencies is the most efficient way to immediately be in contact with the railroad owner with your location easily identified with the crossing DOT number.

4.3 Highway-Rail Grade Crossing Traffic Warning Devices

Vehicles approaching a highway-rail crossing should be adequately warned of the existence of the crossing. This can be accomplished by installing location-specific warning devices as set forth in the most current edition of the [MUTCD](#),



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Part 8 - Traffic Control for Railroad and Light Rail Transit Grade Crossings.

4.4 Passive Warning Grade Crossings

Passive grade crossing warning devices do not give a warning as a result of activation by the trains. Their message is constant to crossing users and consists of pavement markings and signs.



The railroad is responsible for installing and maintaining all crossbuck signs and yield or stop signs, as applicable, at grade crossings.

All other railroad advance warning and regulatory signs, described in Part 8 of the FHWA [MUTCD](#), are the responsibility of the highway authority with jurisdiction over the public road. MUTCD-specified regulatory signs and plaques are required at grade crossings. The [MUTCD](#) is available for download at: [2009 Edition with Revisions No. 1 and 2 Incorporated, dated May 2012 \(PDF\) - FHWA MUTCD \(dot.gov\)](#).

4.5 Active Warning Grade Crossings

Active grade crossing warning devices include 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 rail traffic at grade crossings. Most devices are activated by the trains.

Selection and design of the appropriate active warning device shall be based on the standards and guidance of the [MUTCD](#) and FRA/FHWA [Highway-Rail Grade Crossing Handbook](#) in conjunction with stakeholders at the crossing diagnostic meeting and project review process.

In Colorado, the PUC has ultimate authority over warning devices to be installed at public at-grade highway-rail crossings.

Flashing Light Signals with Automatic Gates and Bells are the most common type of active warning device installed. They typically consist of post-mounted flashing signal lights with automatic gates and bells, placed on the approach to the railway track crossing.

A standard Flashing Light Signal consists of two red lights in a horizontal line flashing alternately at approaching highway traffic. At a crossing with highway traffic approaching in both directions, flashing-lights are installed facing oncoming traffic and “back lights” facing opposing traffic, in a back-to-back configuration in accordance with the [MUTCD](#). The support used for the lights should also include a standard crossbuck sign and, where there is more than one track, an auxiliary “multiple tracks” R15-2 sign.

Back lights may be eliminated with one-way highway traffic based on engineering judgment. An audible control device may be included (Source: [Highway-Rail Crossing Handbook](#), Third Edition, FHWA, 2019). Audible devices are typically a bell installed on the top of the railroad flashing-light signal pole.



Cantilever Flashing-Light Signals supplement the standard flashing-light signal. Cantilever flashing-lights consist of an additional one or two sets of lights mounted over the roadway on a cantilever arm structure and directed at approaching highway traffic. Cantilevered lights provide better visibility to approaching highway traffic, particularly on multilane approaches.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

This device is also useful on high-speed two-lane highways, where there is a high percentage of trucks or where obstacles by the side of the highway could obstruct visibility of standard pole mounted flashing-lights such as where the terrain or topography of the approaching highway is such that the line of sight to a roadside mounted signal light is obstructed by another vehicle or due to vertical or horizontal curves.

Cantilever flashing-light signals may be mounted back-to-back and should also have an additional crossbuck added to the overhead structure based on site conditions and engineering judgment (Source: [Highway-Rail Crossing Handbook](#), Third Edition, FHWA, 2019).

Automatic Gates provide supplemental visual display when used with both roadside mounted flashing-lights and/or cantilever flashing-light signals on the approach side of the track crossing. The device consists of a drive unit and a gate arm. The drive mechanism can be mounted on flashing-light posts, on cantilever pole supports, or on a stand-alone support.

The gate arm is fully reflectorized on both sides with vertical red and white stripes and has at least three lights. The tip light is continuously lit, and the others alternately flash when the gate is activated and lowered.

When lowered, the gate should extend across approaching highway traffic lanes. Special consideration should be given to clearances for movement of the counter weight arm portion of the gate drive unit in a median and adjacent to sidewalk locations with pedestrians, particularly with the requirements of the [Americans with Disabilities Act \(ADA\) of 1990](#) (Source: [Highway-Rail Crossing Handbook](#), Third Edition, FHWA, 2019).

Exit Gates consist of automatic flashing-light signals and gates where the gates extend across the departure side of roadway lanes, away or downstream of the railway track crossing. Unlike approach gate systems, exit gates provide additional vehicular movement prohibition into the grade crossing after the approach gates have been lowered. The combination of approach gates and exit gates constitute a 4-Quadrant Gate System at a crossing.



Exit gates can be operated with a timed gate delay, an exit gate detection system, or a combination of the two. Timed exit gates allow for a delay between activation of the approach gates and exit gates, for clearance of any vehicles that may have entered the crossing just as the approach gate is activated. An exit gate vehicle detection system prevents the exit gate from lowering if a vehicle is detected within the grade crossing area. Many factors will need to be reviewed during the safety diagnostic to determine which type of exit gate operation should be used.

Pedestrian Gates may be needed at highway-rail crossings with adjacent pedestrian facilities that have high pedestrian traffic movements. Pedestrian scale railroad gates should be considered with caution, as theft and vandalism are issues. Additionally, without corridor fencing, there is no way to enforce users to stay on the walk or path when the gate is down.

Bells are provided as a supplement to other active warning devices as an audible warning to non-motorized users. The bell is typically mounted on top of the flashing-light signal poles. The bell sounds when the flashing-light signals are activated. At all crossings, bells are typically kept on for the duration of the crossing activation event. At crossings with exit gates and pedestrian gates, the bell may not be needed to provide adequate audible warning at the crossing.

Additional Flashing-Light Signals can be installed where there are closely spaced additional approaches to active highway-rail grade crossings requiring active warning. The additional flashing-light signals can be directed at the approaching traffic. These lights can be mounted on existing flashing-light poles, extension arms on the poles, vehicular traffic signal masts, cantilever supports, in medians or



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

other locations on the left side of the roadway (Source: [Highway-Rail Crossing Handbook](#), Third Edition, FHWA, 2019).

4.6 PUC Rail Crossing Jurisdiction

The PUC retains primary jurisdiction over all public highway-rail crossings, including opening, closing, upgrading, overpasses and underpasses, and the allocation of costs in Colorado. Under the authority given to the PUC by §40-4-106, C.R.S., any changes to a grade crossing's operating characteristics must also be coordinated with the PUC.

See **Chapter 8, Public Utilities Commission Authority**, for more information.

4.7 Strategies for Enhancing Safety at Grade Crossings

The best way to enhance safety at an existing at-grade crossing is to grade separate the crossing or to close the crossing. These options should always be reviewed on any proposed grade crossing project. If grade separation or closure is not possible, grade crossing safety can be enhanced through improvement, enforcement, and education.

Strategies for improving at-grade crossing safety at active warning crossings include:

- Upgrading active warning devices
- Conducting public education campaigns
- Increasing enforcement efforts
- Grade separating existing at-grade crossings
- Eliminating or consolidating crossings
- Upgrading or updating advance warning signing and striping to be [MUTCD](#) compliant
- Improving roadway geometry
- Improving sight distance
- Upgrading approach pavement and/or railroad surfacing (where rough) for better ride quality

Vehicular queuing near the track crossing should be reviewed to determine if any queue management techniques should be implemented.

Improving at-grade crossing safety at passive warning crossings may include:

- Upgrading signing and/or striping to current [MUTCD](#) standards
- Using retroreflective elements on signs, striping, delineators, and signposts for better visibility at night
- Implementing a combination of signs and flashing beacons placed near at-grade crossings to provide more effective warning
- Adjusting horizontal and/or vertical roadway alignment in advance of the crossing to improve sight distance from the road approach, along the tracks
- Removing or minimizing visual obstructions, where possible, near at-grade crossings for better visibility by both road approach user and approaching train engineer

When modifying aspects of at-grade passive warning crossings, designers should consider all aspects of safety.

4.8 Crossings within Limits of a Planned Highway Project

When a highway-rail grade crossing is located within the limits of a planned highway project, the crossing, along with any existing devices, must be reconfigured or relocated as necessary to be compatible with changes to the highway. The Statewide Railroad Program Manager is required to assess the extent of plan review coordination and contracting that may be required for such a project.

A Field Diagnostic Review of existing crossing(s) within the limits of the planned highway project is needed to determine any modifications that may be necessary in conjunction with the planned highway project.

Refer to CDOT PD 548.1, "Safety Considerations on Resurfacing and 3R Type Projects," for additional guidance (see [Colorado Department of Transportation \(codot.gov\)](#)).



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Examples of Resurfacing, Restoration, Rehabilitation (3R) projects include:

- Replacement of bridge railing
- Installation of protective fencing and/or curbing on a grade separated structure over railroad facilities
- Resurfacing or restoring pavement or bridge decking

Contact the Statewide Railroad Program Manager for additional guidance.

4.9 Crossings in Proximity to a Signalized Intersection Project

Active warning highway-rail grade crossings near a signalized roadway intersection (generally within 200') increase the complexity of signing and signals. Drivers may receive conflicting information from such closely spaced traffic signals, and the traffic stopped at the adjacent signalized intersection may queue back onto the railroad crossing.

In such cases, consideration should be given to interconnecting the traffic control signal with the active warning control system of the railroad crossing and providing an advanced preemption sequence.

With preemption, the approach of a train causes the nearby traffic signals to enter a special mode to control traffic movements in a manner that is complementary with the train's passage through the crossing. Advance preemption typically involves a vehicular traffic clearance phase to allow vehicles near the track envelope to clear the crossing before the arrival of a train.

Design of traffic control signals near highway-rail grade crossings and preemption programming, when required, shall conform to the latest edition of the [MUTCD](#). **Section 4.14, Traffic Signal Preemption**, of this Manual provides further information.

4.10 Crossings in Proximity to a Planned Highway Project

Planned highway projects near a grade crossing also need to be reviewed to determine if the planned improvements are impacting grade crossing operations.

Nearby projects could affect the long-term operations at a grade crossing, but they also can easily impact the grade crossing in the short term due to traffic control operations.

One example of such a project would be the signalization of a nearby intersection to a grade crossing. Depending on the amount of traffic, number of lanes, and proposed traffic signal operations, spillback queuing from the intersection could occur at the grade crossing since traffic on the roadway will now be metered by the traffic signal. Thus, even though the grade crossing is not within the physical limits of the project area, the proposed improvements have the potential to affect operations at the grade crossing.

Another example is a roadway widening project that stops short of the grade crossing, forcing a lane drop near the grade crossing. For example, if an adjacent crossing is closed for construction, additional traffic would likely be using the adjacent grade crossing. Improvements could be needed at the nearby grade crossing to successfully accommodate the proposed highway improvements in a safe and efficient manner for all.

For a highway project with a grade crossing nearby, a diagnostic meeting with crossing stakeholders may be needed to assess the conditions more thoroughly.

4.11 Closure of Unnecessary Crossings

In 1991, the Executive Director of the FRA established a goal of closing 25 percent of all at-grade rail crossings in the United States. Closing unnecessary crossings improves safety by eliminating the risk of crashes at these crossings and by allowing limited safety funds to be concentrated on the remaining crossings.

Guidance for eliminating and consolidating railroad crossings is provided in the FRA/FHWA [Grade Crossing Handbook Third Edition \(2019\)](#) and the FRA document, [Crossing Consolidation Guidelines](#) (July 2009).

Grade crossing closure should be carefully considered at the beginning of a new project. Existing crossing data such as train volume, roadway volume, and accident history should all be carefully evaluated among other factors.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

4.12 Overview of Federal Section 130 Program

Each year FHWA apportions funds to help improve highway-rail safety, in accordance with 23 U.S.C. Section 130 and related Federal law. These funds must be applied toward projects that eliminate hazards at highway-rail crossings, including:

- Upgraded at-grade crossing warning from passive to active warning devices
- New grade separation and closure of an associated existing at-grade crossing
- Relocation of a roadway to eliminate an at-grade crossing
- Consolidation of existing at-grade crossings to reduce the number of crossings
- Relocation and realignment of railroad tracks to eliminate at-grade crossings
- Installation of active advance warning signs
- Traffic signal interconnection to active grade crossing warning devices and preemption
- Removal of obstructions in sight triangle
- Construction of median barriers
- Intelligent Transportation System improvements (e.g., blank out signs)
- Grade crossing closures

Annual program funds for Colorado total approximately \$3.0 million, of which at least half (\$1.5 million) is available for the installation of warning devices at existing highway-rail at-grade crossings.

At CDOT's discretion, the balance of funds may be applied toward grade crossing warning devices or any other eligible project under this section. CDOT's policy goal has been to apply half of program funds toward grade crossing warning devices and half toward a new grade separation structure project, when possible.

Under this strategy, CDOT can construct four to six grade crossing upgrades (e.g., installation of flashing-lights, gates, and bells) each year on a continuing basis. Due to the high cost of a typical grade separation structure, it is impractical for CDOT to apply the remaining \$1.5 million annual apportionment to a new grade separation project each year. Instead, CDOT can allow multiple

years' worth of apportionment to accumulate until a meaningful amount is available for such a project.

Most safety improvement projects are on local roads and streets (most State Highway-rail crossings have already been upgraded). Local Agencies may have greater incentive to participate in the program if the project is not conditioned on local matching funds.

Section 130 funding for grade separation structures is on a 90:10 Federal matching basis. The State can issue local governments 90 percent Federal Section 130 dollars with a 10 percent local match for an eligible grade-separation project.

4.13 Ranking, Selection, and Prioritization of Projects

A statewide priority list of grade crossing improvement projects is developed every one to two years. This is done as a cooperative effort among CDOT, the PUC, FHWA, and MPOs, incorporating the FRA crossing assessment data.

CDOT's Railroad Program Unit inventories public rail/highway crossings within the State of Colorado. CDOT uses the collected inventory data to identify those crossings that have conditions that may decrease safety and to calculate a hazard rating for each crossing.

Numerous elements exist at a highway-rail crossing, and each can impact the calculation of a hazard rating. To consider each element in a single formula would make the formula far too complex to be of practical use. As such, the formula that the Railroad Program Unit uses to determine hazard ratings is unique to Colorado, as there is no nationally recognized formula.

The formula uses the following elements, which have been selected as having the largest impact on safety at a highway-rail crossing. The Railroad Program Unit evaluates each element, finishing with a numerical value indicating the crossing's hazard rating.

- The crossing's existing crossing warning devices
- A vehicle's stopping sight distance
- Ability of the driver to see approaching trains
- The highway's AADT



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

- The railroad's AADT
- The number and type of railroad tracks existing at the crossing

One important element, grade crossing accidents, is not used in the Railroad Program Unit's hazard rating formula. This non-usage is not an oversight; instead, it is due to Colorado having very few grade crossing accidents each year. As such, it has not been possible to determine a relationship between accidents and physical crossing characteristics for use in a hazard rating formula.

Crossings with the highest hazard index value are studied in detail. To gauge effectiveness of likely countermeasures, crossings selected for improvement are analyzed based on several criteria to generate a final score or ranking. Projects are funded in the final priority order to the extent funds are available.

- Once a prioritized list of projects is developed, CDOT assigns the top candidates to an appropriate fiscal year plan according to available funds.
- Candidate projects that are not initially selected and budgeted may be resurrected later in the three-year planning cycle, if a higher-ranked project should be abandoned for any reason.
- If a project is not approved during the current planning cycle, the sponsoring agency may renominate that project during the next open solicitation.
- State highway crossings and the applications received from local authorities and railroad companies are combined, evaluated, and ranked before project selection.

4.14 Traffic Signal Preemption

Generally, when a signalized intersection is within 200 feet of a highway-rail grade crossing, the traffic control signal should be evaluated for interconnection to the highway-rail grade crossing active warning devices, with preemption capabilities. If the distance between the signalized intersection and the at-grade highway-rail crossing is greater than 200 feet, but less than 1,000 feet, a traffic engineering study, including an estimate of expected vehicle queue length, should be performed.

Preemption requirements should be discussed and documented at the on-site Diagnostic Review meeting, if known at that time, or following the meeting if design is not yet determined. Information to be reviewed and determined should include the following:

- Type of preemption (simultaneous or advance)
- Preemption time requested
- ROW transfer time (minimum green times, pedestrian walk/don't walk times during preemption, if applicable)
- Queue clearance time
- Queue prevention strategy, if applicable
- Type of traffic signal proposed (intersection signal, presignal, or queue cutter signal)



The following conditions may dictate the need for preemption:

- Highway traffic volume
- Number of trains per day
- Proximity of nearby signalized intersections
- Regular on-track queuing

When a new traffic signal is proposed at an intersection near a highway-rail crossing, an engineering study may be required to determine the appropriate interconnection of the intersection and crossing signals. The study must be coordinated with the Local Agency and the PUC.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

In Colorado, traffic signal preemption calculations require PUC staff concurrence.

In situations where vehicles have the potential to queue across a grade crossing, a presignal or queue cutter can be considered.

Presignals are traffic signals that are installed before a grade crossing to prevent motorists from queuing across the tracks. Typically installed at grade crossings that have a traffic signal in proximity, presignals use the traffic signal controller at the nearby intersection to provide a delayed red signal so that vehicles never queue to the tracks.

Queue cutter signals are traffic signals that are placed at a grade crossing and can detect if downstream vehicle queuing is nearing the tracks. If queuing nears the tracks, the queue cutter signal will change to red, preventing vehicles upstream of the crossing from advancing on the tracks.

Queue cutters typically have their own traffic signal controller and operate independently from any nearby traffic signals. This makes them ideal for crossings that have more distance to the signalized intersection but still experience vehicle traffic queuing that may back up to the track crossing. from nearby intersections.

Signal preemption determination and design must comply with the requirements of the [MUTCD](#) and the American Railway Engineering and Maintenance-of-Way Association (AREMA) [Communication and Signal Manual](#).

The CDOT Region Traffic Engineer, the Local Agency traffic engineer, or a designated representative, and the PUC Rail Safety Engineer must review all relevant documents and collaboratively determine the type and need for signal preemption.

4.15 On-Site Diagnostic Review Meeting

An on-site Field Diagnostic Review shall be conducted by a team consisting of knowledgeable representatives from the Project Development Branch, the Region, the railroad, the PUC, and the Local Agency. This team reviews the various aspects of the existing crossing and provides input to the project

proponent regarding the type of improvement proposed, for the project proponent's consideration.

Elements to be reviewed may include the following, when applicable to the proposed project:

- Sight distance
- Visibility of warning devices
- Traffic signal preemption requirements, if applicable
- Roadway alignments
- Adjacent highway railroad grade crossings
- Trucks carrying hazardous materials
- School bus routes
- Emergency access routes
- Roadway approach grades and condition
- Number and type of railroad tracks
- Existing crossing surface type and condition
- Traffic signals or other control devices that may be affected by the grade crossing improvement
- Roadway volume and speed
- Train volume and speed
- Train switching or speed operations
- Signs and pavement markings
- Accident history
- Need for protection of traffic signal poles such as guard rail or attenuators
- Need for protection of railroad crossing devices such as guard rail or attenuators
- Plans for future changes in railroad operations
- Possible crossing closure of adjacent crossings
- Bicycle and pedestrian safety considerations



1

Introduction & Rail Overview

2

Regulatory Requirements & CDOT Roles & Responsibilities

3

Railroad Project Development Process

4

Highway-Rail At-Grade Crossings

5

Grade Separation & Other Specialized Projects

6

Highway & Railroad Track Maintenance Operations

7

Agreements

8

Public Utilities Commission Authority

9

CDOT Railroad Billings, Payment Process and Audits

The CDOT Region staff participating in the Diagnostic Review should be familiar with the crossing being investigated and the conditions of all adjacent crossings. Diagnostic Review team members should take photographs of the crossing, all approaches, and all quadrants.

Following the Diagnostic Review meeting, the Project Development Branch Meeting Organizer shall prepare a report identifying the scope of recommended safety improvements. The report should provide engineering plans that show existing conditions and potential improvements that may include:

- Enhancing passive warning devices
- Installing new active warning devices
- Closing the highway-rail grade crossing
- Closing the highway-rail grade crossing via grade separation
- Sight distance improvements
- Surface condition improvements
- Impact of construction; service interruptions

The Diagnostic Review team should investigate additional supplemental or temporary improvements that may be necessary because of the crossing safety enhancement, including:

- Utility relocations, both above and below ground
- Drainage improvements
- New curb and gutter
- Sidewalks
- Shoulder pavement
- Tree trimming and removal
- Raised medians
- Traffic signal upgrades, addition/ modification of railroad preemption programming and/or addition/ modification of railroad interconnection



4.16 Plans, Specifications & Estimate (PS&E)

The Project Manager shall incorporate all necessary railroad-related requirements into the project plans, specifications, and estimate. The Project Manager shall also coordinate with the Statewide Railroad Program Manager to ensure that the contract fully and accurately reflects such information.

As part of the concept level submittal, provide the following information to the railroad, if available:

- Scope of Work detailing work to be done by Agency and/or railroad
- Photos of all four quadrants of the project location
- Existing and proposed traffic counts
- Existing agreements with railroad

Generally, include the following information, as applicable, on the concept level plan for areas within railroad ROW and carried through final plans submitted to the railroad for review and approval:

- Project location map
- Existing and proposed roadway ROW
- Existing railroad ROW
- Degree of angle of roadway intersection at railroad crossing
- Number and width of roadway lanes
- Number and width of shoulders
- Number and width of sidewalks
- Width of median
- Degree of curvature and profile grade of roadway on railroad ROW
- Existing or proposed super elevation of roadway on railroad ROW
- Curbing type
- Median, length, width, and distance to nearest rail
- Existing and proposed pavement markings and roadway striping
- Existing and proposed roadway signage
- Fencing
- Lighting
- Direction of traffic per lane

1

Introduction & Rail Overview

2

Regulatory Requirements & CDOT Roles & Responsibilities

3

Railroad Project Development Process

4

Highway-Rail At-Grade Crossings

5

Grade Separation & Other Specialized Projects

6

Highway & Railroad Track Maintenance Operations

7

Agreements

8

Public Utilities Commission Authority

9

CDOT Railroad Billings, Payment Process and Audits

TOC

- Existing and proposed warning device type and location as selected by the highway authority consistent with applicable Federal and State guidelines and regulations
- Location of traffic signal on railroad ROW
- Existing and proposed utilities (locations and types), if known
- Location of existing signboards/billboards
- Traffic type (public, industrial, commercial, agricultural, residential)



Where adjacent parallel roadways or intersections exist, provide the following information:

- Distance from near rail to parallel roadway
- Intersection within 200 ft. of railroad
- Traffic signal within 200 ft. of railroad
- Existing and proposed type of preemption (simultaneous or advance) and requested timing



If needed, include the following additional information or documents in the 30% or later plan submittal to the railroad for review and processing:

- Legal description of temporary and permanent easements
- Exhibit of temporary and permanent easements

- Temporary crossing(s) layout (NOTE: Railroads require contractors to use public roadways for access and generally will not allow a temporary at-grade highway-rail crossing)
- Detour plan sheets

4.17 Work Coordination Roadway Workers

Before commencing any work near railroad ROW, roadway workers must:

- Contact CDOT Statewide Railroad Program Manager about the work activity
- Determine the railroad involved and the exact location
- Determine if the work effort will be inside the railroad ROW or adjacent to the railroad ROW
- Determine the type of work, labor & equipment to be used to complete the work task

If the work will be **inside** the railroad ROW, the work will require a right-of-entry permit from the railroad.

If the work will be **outside but near** railroad ROW, the work will require coordination with the Region Utility Engineering Program Manager or the Statewide Railroad Program Manager.

Railroad Workers

Railroads needing to coordinate with road authorities for rail-related work at or near public roadway crossings must contact the Statewide Railroad Program Manager before commencing any work on public roadways.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

5. Grade Separation and Other Specialized Projects

Anytime CDOT has a construction project that could impact railroad ROW, a specialized type of project processing is required. Specialized projects may include, but are not limited to:

- Rehabilitation, widening, or reconstruction of an existing grade separation structure
- New alignment or widening of an existing roadway that may encroach to the railroad ROW
- A resurfacing project that may include reconstruction of the railroad crossing surface
- Section 130 Hazard Elimination grade separation

Local Agencies may also approach CDOT regarding crossing improvements in pursuit of railroad quiet zone establishment.

5.1 Planning, Programming, and Funding

The CDOT Region shall plan, program, and budget the project in accordance with established CDOT procedures.

The Project Manager shall notify the Statewide Railroad Program Manager as early as practicable in the project development process after having determined there will be railroad involvement on the project.

Early notification is needed to allow sufficient time for PE, contract development, general coordination with the railroad, coordination with PUC (as applicable), generation and receipt of cost estimates and time for ordering of railroad materials (if applicable). Project phases may include PE, ROW, Utilities, and Construction.

The Regional Manager shall coordinate with the Statewide Railroad Program Manager on any required project funding actions involving the use of Federal Section 130 funds.

These funds reside in a set-aside budget controlled by the Project Development Branch. A typical grade separation project may be funded with a combination of Federal-aid project funds, Section 130, and other safety funds, including local funds.

5.2 Selection of Grade Separation Projects

Grade separation crossing projects of railroad tracks can be part of a more complex project, such as one requiring a new roadway overpass or underpass of a railroad, where there is currently no at-grade crossing. Grade separation projects may also be pursued specifically to eliminate an existing at-grade crossing.

Grade separations that are part of larger projects progress through the clearance and design process as funding becomes available. The CDOT Program Engineer or Region Transportation Director determines the prioritization of these projects.

For grade separation projects proposed to replace an existing at-grade crossing, there are no specific selection criteria other than an agency determination that the project will eliminate at-grade crossing hazards.

The selection of a grade separation project for funding (or partial funding) with Section 130 funds must be based on a consensus process among the CDOT Regions and the PUC.

Grade separation projects pursued by Local Agencies are under the jurisdiction and process of the Local Agency for prioritization. Roadways that are not State Highways but have been prioritized for grade separation using Section 130 funds proceed through CDOT's Local Agency process because CDOT administers Section 130 funding in Colorado.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

5.3 Scoping

Involved parties (CDOT Region, railroad, Local Agency, and PUC) should discuss project scope, design data, funding provisions, and applicable law, rules, and procedures regarding a proposed project. The CDOT Region, in cooperation with Local Agency staff (if an off-system roadway) and with concurrence from PUC staff, shall determine all necessary railroad construction, proposed active warning devices, and coordination details and requirements including, but not limited to:

- Nature and extent of project work involving railroad property
- Party or parties responsible for work performance
- Railroad flagging needs
- Contractor right-of-entry to railroad ROW
- Coordination requirements
- Warning devices
- Maintenance provisions in accordance with [PUC Rules](#)
- Utility permitting

5.4 Statewide Railroad Program Manager's Role

CDOT maintains a Statewide Railroad Program Manager to assist in coordinating CDOT projects that involve railroads statewide.

It is in the best interest of CDOT projects for the CDOT Project Manager to contact the Statewide Railroad Program Manager at project onset, as they are the central point of contact to the State's railroads and transit agencies.

For planning and environmental project efforts, the Statewide Railroad Program Manager should be made aware of the project location or corridor, the railroad involved or adjacent, and the level of study or evaluation to be conducted. The Statewide Railroad Program Manager will recommend the level of effort likely to be necessary from the involved railroad and may offer contact information, if available.

For design projects, the Statewide Railroad Program Manager should be contacted as part of project scoping to determine the railroad involved, railroad information associated with

the project location, and anticipated level of effort of coordination to support the project.

The Statewide Railroad Program Manager has access to CDOT's library of information regarding railroad contacts, processes, location information, and existing agreements (if available). The Statewide Railroad Program Manager can assist the Region Project Manager and Region Utility Engineering Program Manager in determining the appropriate process, documentation, and timeline to guide the project and minimize delay, to the extent possible.

Following initial scoping and determination of railroad documentation, the Statewide Railroad Program Manager may remain more involved if detailed agreements or special coordination is required or may continue in a support role to the Project Manager or Region Utility Engineering Program Manager.

As design projects progress toward construction, the Statewide Railroad Program Manager determines and advances the necessary agreement, task order, or maintenance request with the project railroad. The Statewide Railroad Program Manager will also compile or assist the Region Project Manager or Region Utility Engineering Program Manager in compiling the necessary information to be contained in a PUC application, if one is required. Upon completion of the PUC application, it shall be sent to the Statewide Railroad Program Manager with supporting exhibits; at which time, the Statewide Railroad Program Manager shall circulate the application to the appropriate departments of the State for the required signatures. The Statewide Railroad Program Manager forwards the signed PUC application to the OAG for formal filing with the PUC.

To allow the Statewide Railroad Program Manager to continue to monitor CDOT's railroad-related projects statewide, it is recommended that the Statewide Railroad Program Manager be invited to design project FIR and FOR meetings.

For project tracking, the Statewide Railroad Program Manager should be copied on all permit and right-of-entry applications and required submittals from contractors as part of construction rights-of-entry.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

For Local Agency projects involving a State Highway and a railroad, the Local Agency Project Manager or the Local Agency’s consultant Project Manager is encouraged to contact the Statewide Railroad Program Manager at the start of a project to discuss project needs and obtain available railroad information for the project area. Similar to CDOT projects, the Statewide Railroad Program Manager should be invited to design FIR and FOR meetings and copied on permit and right-of-entry applications for CDOT’s project tracking.

Note that the agreement and PUC applications may need to be three-party documents depending on the level of involvement of CDOT. The Local Agency or consultant Project Manager should contact the Statewide Railroad Program Manager to determine the format of any railroad agreements or PUC applications.

Local Agency projects not involving a State Highway are coordinated directly between the Local Agency staff, or their consultant and the railroad. Local Agency staff or consultants may contact the CDOT Statewide Railroad Program Manager for guidance or information. However, agreements and PUC applications between Local Agencies and the railroad are not subject to the review or signatory requirements of the departments of the State.

5.5 Railroad’s Role

Each railroad has operational policies that may be unique to that company. What works for one railroad on a project may not work for another.

BNSF, UPRR, and OmniTRAX (owner of GWR) have produced Public Projects Manuals available on their respective websites.

Railroad companies are private companies and have their own guidelines and policies. When working on a rail-related project, early coordination with appropriate railroad representatives is encouraged. Railroads with Public Projects Manuals encourage project proponents to review their manuals before making initial contact with the railroad.

When starting a project, some railroads have a Manager of Public Projects who will be the key representative. Use the information and links

provided in this Manual for guidance and then contact the railroad for further guidance on your specific project.

On any rail-related project, it is critical that the railroad’s cooperation is secured and sufficient time is afforded to them to prepare estimates, review plans and specifications, and prepare for and attend meetings.

Any successful railroad project needs the railroad’s involvement and input from the start, as well as concurrence for project approval on elements within railroad ROW and railroad equipment to be installed, if any. Railroad representatives and public road authorities are encouraged to communicate and provide feedback on project elements under each agency’s authority, such that the project benefits from the expertise of each and is successful for all.

5.6 Preliminary Engineering (PE)

At the start of a project involving a railroad, the railroad should be contacted to identify the project location, anticipated design work, and information regarding how the project may affect the railroad’s property or infrastructure.

BNSF and UPRR have specific processes that include development of a PE Agreement between the road authority and the railroad. The PE Agreement requires the road authority or project proponent to identify basic project information and agree to reimburse railroad staff, and/or the railroad’s consultant, for their time in review of the project documents and for attendance at meetings.

BNSF and UPRR prefer the PE Agreement be in place before the Field Diagnostic Review meeting, if applicable, such that railroad staff and consultants can be reimbursed by the road authority for their participation in this meeting.

Local Agencies, businesses, or private companies are required to contact the involved railroad and prepare the necessary PE Agreement in accordance with the railroad’s website for non-CDOT projects.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT has agreement documentation in place for railroad projects involving BNSF and UPRR, including a PE template to be used for CDOT projects. The Region Project Manager or Region Utility Engineering Program Manager should contact the Statewide Railroad Program Manager to determine the process of documentation necessary for CDOT projects.

Shortline railroads, Tourist railroads, and Light Rail/Commuter Rail may require reimbursement for staff time in review of public or private projects that affect their ROWs or infrastructure. Review the railroad's or transit agency's website and/or contact the railroad/agency at project onset to determine the coordination and reimbursement requirements specific to the involved railroad or agency.

5.7 Cost Sharing for Construction

CDOT, the railroad, and the Local Agency, as applicable, shall cooperatively determine the parties' respective shares of railroad-related project costs.

Grade separation cost sharing on Federal-aid projects shall be subject to the provisions and limitations of 23 C.F.R. 646.210, which states the railroad is required to contribute 5 percent of the cost of the portion of the theoretical structure if the crossing already has active devices installed or active devices have been ordered by the PUC.

Cost sharing on non-Federal-aid projects shall be subject to the provisions and limitations of §40-4-106, C.R.S. (see [Colorado Legal Resources | Statutes Document Page](#) (lexis.com)), which currently states the railroad is responsible for costs not to exceed \$2.5 million in one calendar year for one or more than one project for any one railroad company. For the purpose of assigning the level of cost responsibility for grade separation projects, the Project Manager shall coordinate with the railroad, Statewide Railroad Program Manager, Region Utility Engineering Program Manager, and CDOT Bridge Design and Management Branch to develop geometry and cost estimates for the "theoretical structure" as described in 23 C.F.R. 646.210.

For grade crossings, the PUC will determine cost sharing on installing, reconstructing, or improving signals or devices on Federally funded projects.

5.8 Railroad Force Account Work

Because of railroad labor union contracts with Class 1 Railroads, railroad forces typically perform all track and signal work on railroad property. Early determination of work responsibility and funding sources must be coordinated between the Statewide Railroad Program Manager and railroad.

The type of funding (Federal, State, or Local) must be determined and the railroad will need to know if "Buy America" provisions are required.

If a project requires specialized materials that are not readily available from railroad suppliers, the Statewide Railroad Program Manager shall, after the project Utility phase has been authorized, obtain a contract agreement for force account work.

5.9 Railroad Flagging

Railroads require flagging staff any time labor or equipment is within a prescribed distance from active tracks (typically 25 feet) or have equipment with the ability to foul an active track (cranes, etc.). Exact procedures must be conveyed to the railroads to determine when a flag person is needed.

Railroads determine when and who protects their ROW. Most railroads have the ability to assign qualified flagging personnel from either their railroad forces or a qualified approved third-party railroad flagging provider but the railroad will make that decision.

The Region shall include project special provisions in the contract documents acknowledging the ability to use contract flagging personnel if allowed by the particular railroad and estimating the number of days of required flagging, multiplied by the railroad's or Flagging Contractor's current rates, and designate this as a contractor pay item.

Scheduling railroad union flagging personnel, depending on the length of the work, may take several months if the flagging assignment must be put up for bid by the railroad per union rules.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Check with the Statewide Railroad Program Manager for specifics for each railroad.

Contract flaggers do not have a bid process and the length of time to availability of personnel may be shorter, but the railroads always have to approve contract flaggers.

When a railroad flagger is no longer needed, CDOT’s contractor is responsible for notifying the railroad or the Contract Flagging provider, typically with a 10-day notice in writing. Otherwise, the flagger, due to contractual agreement, will continue to be paid until proper notification is received.

5.10 Plans, Specifications & Estimate (PS&E)

The Project Manager shall incorporate the necessary railroad-related requirements into the project PS&E and coordinate with the Statewide Railroad Program Manager to ensure that the contract fully and accurately reflects such information.

Submittals to BNSF and UPRR are outlined in each railroad’s Public Projects Manual. Applicable information to the public project should be included, to the extent possible, to assist in expediting the railroad’s review.

Concept design submittal to the railroads includes (at a minimum):

- Concept level plans
- Site photos

Preliminary (30%) design submittal to the railroads includes (at a minimum):

- Response to Concept Level comments received from the railroad
- 30% design plans (railroad-related sheets)
- Project specifications (railroad-related specifications)
- Drainage report/memo and plan (railroad-related)
- Shoofly design, if applicable
- Construction phasing Information

Final (100%) design submittal to the railroads includes (at a minimum):

- Response to 30% plan comments received from the railroad
- 100% design plans (railroad-related sheets)

- Project specifications (railroad-related specifications)
- Final drainage report/memo and plan (railroad-related)
- Shoofly design, if applicable
- Construction phasing plans

For additional requirements for grade separation projects over or under a railroad, reference the latest version of the Union Pacific Railroad-BNSF Railway Guidelines for Railroad Grade Separation Projects available on both [BNSF](#) and [UPRR](#) websites.

Generally, submittal information will be acceptable to shortline railroads, unless other direction is provided by the shortline involved in the project.



Grade separation projects that are being prepared to ask for cost allocation from the PUC must have the following documents prepared to be submitted to the Statewide Railroad Program Manager for inclusion in the PUC application:

- Project location map
- Cost estimate for a theoretical grade separation
- Theoretical bridge longitudinal section
- Grade separation bridge general layout
- Theoretical roadway plan sheet(s)
- ROW plan sheet(s)
- ROW plan sheet (ownership map)
- Legal description of temporary and permanent easements
- Easement document
- Railroad detour (shoofly) plan sheets for all phases



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

- Temporary crossing(s) layout (Keep in mind that the railroad requires contractors to use public roadways for access and generally will not allow a temporary at-grade highway-rail crossing)
- Other information as requested

For grade separation projects crossing commuter or light rail tracks of RTD, reference RTD's website at [Construction Engineering | RTD - Denver](#) or the most recent link, for design guidelines and submittal requirements.

5.11 Railroad Right-of-Entry

Right-of-entry, utility agreements, access permits, or consent letters are required when CDOT's construction contractor will be working on railroad ROW. Each railroad has specific instructions and costs depending on what is required. The majority of access instructions can be found at the following current websites:

- UPRR - [UP: Right of Entry/Temporary Use of Railroad Property](#)
- BNSF - [Frequently Asked Questions | BNSF](#)
- OmniTRAX - [Apply for Land Access and Get Documentation - OmniTRAX](#)
- GWRR - [Apply for Land Access and Get Documentation - OmniTRAX](#)
- Utah Railway - [Utah Railway - A Genesee & Wyoming Company \(gwrr.com\)](#)
- Kyle Railway - [Kyle Railroad - A Genesee & Wyoming Company \(gwrr.com\)](#)
- RTD - [RTD - Regional Transportation District \(rtd-denver.com\)](#)

For shortline or tourist railroads, contact the railroad directly for guidance regarding right-of-entry criteria.

For RTD commuter or light rail, contact RTD for design criteria and clearance standards.

Other non-shortline railroad companies will require similar documents and need to be consulted for their specific requirements.

5.12 PUC Approval

Under §40-4-106, C.R.S., the PUC has exclusive authority over all public railroad crossings in Colorado. Approval of the PUC **is required** before **any** crossing is constructed at-grade, above, or below a railroad track.

Design of roadway elements including approaches, signing, striping, traffic signals (phasing, interconnection to railroad active warning, preemption timing), curb and gutter, and operational elements designed for public crossing user safety at public crossings shall follow PUC Rules and the latest version of the [MUTCD](#) with any Colorado supplements.

For more information about the PUC application process, see [PUC Rules Regulating Railroads, Rail Fixed Guideways, Transportation by Rail, and Rail Crossings \(4CCR 723-7\)](#).

5.13 Design Standards for Grade Separation Structures

The design of grade separation structures over railroads shall comply with American Association of State Highway and Transportation Officials (AASHTO), CDOT, FHWA, and PUC minimum standards. The design of grade separation structures under railroads shall comply with AREMA and the railroad's standards as applicable.

The BNSF and UPRR have jointly published the [Guidelines for Railroad Grade Separation Structures](#), which provides design criteria and standards for overhead and underpass structures, including trails.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

5.14 Vertical Clearances for Overhead Structures

A minimum vertical clearance of 23 feet - 4 inches measured from the top of the highest point on rail to the lowest point on the bridge shall be provided for all overhead structures. This permanent vertical clearance must not be violated, even after taking into account the deflection of the superstructure. Additional considerations should be given to specific project or railroad requirements.

5.15 Vertical Clearances for Underpass Structures

The minimum vertical clearance for underpass structures is measured from the top of the highest point on the roadway surface to the lowest point on the superstructure. Class 1 Railroads request different vertical clearances depending on structure type. The most common clearance is 16 feet - 6 inches. However, the user should review UPRR/BNSF and AREMA standards, as well as PUC minimum requirements. Coordinate early with the railroad to determine the required vertical clearance for a specific location and any possible variance requests for factors beyond structure cost.



5.16 Horizontal Clearances for Overhead Structures

Class 1 Railroads require all piers and abutments to be located outside the railroad ROW for structures over the railroad, wherever possible. Other railroads may have similar requirements. When this requirement is impractical, provide written justification and request a variance. Design must also meet PUC minimum requirements.

It is important to discuss with the railroads their needs for access roads, drainage ditches, future freight and commuter tracks, and the correct location and clearances.

Any horizontal obstruction within 25 feet of center line of existing or future tracks shall require AREMA crash walls.



For Highway Underpass Structures, horizontal clearances vary depending on the railroad, curvature of track, future tracks, access roads, and other issues that need to be investigated with the railroads before beginning design. Design must also meet PUC minimum requirements.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

5.17 Construction Traffic Control at or near Highway-Rail Crossings

Highway construction at or near highway-rail crossings may require special traffic control measures to preserve highway and traffic safety, protect workers, and provide for the safe passage of trains through the project work zone.

Construction traffic control activities involving railroads may occur on:

- Section 130 highway-rail grade crossing safety projects
- Projects requiring work on or near railroad tracks or property
- Highway-rail grade separation structure projects

Refer to the applicable section of the latest edition of the [MUTCD](#) for standard guidance on work in the vicinity of highway-rail grade crossings and for typical application of construction traffic control devices at highway-rail grade crossings.

A properly designed construction traffic control plan needs to prevent vehicles from queuing on the tracks.

Section 130 safety projects may include railroad equipment installed by railroad forces on a force account basis. Traffic control is assigned as follows:

- **If the crossing is on a State Highway**, CDOT maintenance forces are responsible for furnishing construction traffic control.
- **If the crossing is on a local road or street**, the involved Local Agency is responsible for traffic control.

This is to conserve limited Federal Section 130 funds so that monies will be spent on actual safety devices.

The project plans will include a tabulation of construction traffic control devices as a planning aid for the responsible party. Traffic control will be coordinated with the designated CDOT Resident Engineer who is responsible for project oversight.



Highway projects involving work on or near railroad tracks or crossings may, in addition to necessary traffic control measures for at-grade crossings, also require the use of railroad flaggers.

Railroad flaggers are railroad employees or approved railroad flagger contractors who are authorized to stop or direct train traffic on the affected tracks. Whenever the highway work may pose a danger to trains or interfere with normal train movements (construction equipment near tracks, bridge demolition work, etc.), the railroad will require a flagger to be stationed at the project site to monitor site conditions and exert positive control over trains passing through the project.

Railroad flagging requirements and payment provisions, if any, will be set forth in the project special provisions. The railroad will specify railroad flagging rates (daily or hourly).

Highway construction on railroad overpass structures may also require the use of railroad flaggers to guard against hazards to trains, such as falling debris, bridge falsework, or construction equipment.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

The required contract among CDOT, the railroad, and involved Local Agency (if any) will set forth traffic control responsibilities, coordination requirements, and railroad flagging requirements, as applicable. The designer must coordinate any contract requirement with the Statewide Railroad Program Manager well in advance of planned construction to allow sufficient time for contract development and execution (see **Chapter 7**).

CDOT field construction personnel must closely coordinate traffic control with representatives from the railroad and Local Agency.



5.18 Projects with Regional Transportation District

For projects involving RTD, contact RTD to determine exact process elements specific to the proposed project.

RTD requests to be involved at the earliest point possible in any roadway projects that cross their ROW and/or tracks. With enough advance notice, RTD can often coordinate and team on projects.

Contact the RTD Engineering Services Manager for all railroad crossing projects. For further information regarding engineering and construction projects involving RTD, visit: [Construction Engineering | RTD - Denver](#).



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

6. Highway and Railroad Crossing Maintenance

6.1 Crossing Surface Maintenance and Replacement

The Colorado PUC’s Rule 4 Colorado Code of Regulations (CCR) 723-7-7211 establishes the details related to crossing surface maintenance and replacement. These rules are periodically updated through a Rulemaking procedure initiated by the PUC. Reference the most current PUC Rules on the [PUC website](#).



6.2 Maintenance of Railroad Crossing Warning Devices

The Colorado PUC’s Rule 4 CCR 723-7-7301 defines both the responsibility for and the costs of maintenance for railroad crossing warning devices. These rules can also be accessed on the [PUC website](#).

6.3 Crossing Surface Materials

The most common material being used by railroads for crossing surface is concrete. Several types of materials are approved in their standards:

- Precast concrete
- Wood/timber
- Asphalt
- Rubber



The appropriate crossing surface materials and methods will be decided as a collaborative effort between the railroad and road authority, and the railroads will typically install the crossing surface.

Crossings located in curves or near switches may need special ordering and delay projects. Communicate with the railroad to determine if curved or special crossing panels are needed.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

6.4 PUC Adjudication

The [PUC Rules](#) identify the division of costs for maintenance of crossing surfaces between the road authority and the railroad (4 CCR 723-7-7211).

The Commission's rules in effect at the time control what parties are responsible for costs and work. If there is disagreement as to who is responsible for the costs of a particular crossing surface, the road authority may make application to the PUC requesting a determination. The Commission will adjudicate the matter if requested.

Some road authorities have existing crossing maintenance agreements with the railroad or railroads passing through their communities. If both parties continue to abide by the terms of those maintenance agreements, there is no need for PUC action. If one or both parties disagree with the terms of the existing maintenance agreement, any application to the PUC will result in a division of costs pursuant to the PUC Rules.

The [PUC Rules](#) also identify responsibility for costs for maintenance of railroad crossing warning devices (4 CCR 723-7-7301).

6.5 Highway Overlay Projects

When a CDOT highway resurfacing project includes replacement of a railroad crossing surface, CDOT must seek the railroad's cooperation early in project development. The Resident Engineer should contact the operating railroad formally requesting partnership with CDOT to repair deteriorating crossing surfaces. Typical CDOT contributions to crossing surface improvement may include:

- Construction traffic control
- Procurement of crossing surface materials
- Installation or removal of any affected highway, pathway, or sidewalk approaches

The Colorado PUC's Rule 4 CCR 723-7-7211 establishes the details related to Crossing Surface Maintenance and Replacement and shall be followed on CDOT projects affecting crossing surfaces at railroads.

6.6 Traffic Control during Maintenance Operations

On State Highways, CDOT is responsible for arranging or providing traffic control at approaches to highway-rail crossings when railroad forces are engaging in maintenance work at crossings and have notified CDOT. The type of traffic control typically varies, from the closure of a shoulder or a lane to full closures. Typically, railroad crossing renewals require the full closure of the crossing from one to four days depending on the scope of work. Planning and Method of Handling Traffic approval by the CDOT Region Traffic Engineer may also be required, along with the local road authority approval for traffic detours.

Special care must be taken when providing traffic control for any work at a grade crossing, no matter how minor. Motorists rely on clear and consistent messages to guide them while driving. Traffic control must provide motorists adequate warning of the changed condition.

If lane reductions at a grade crossing are necessary, the design should follow the [MUTCD](#) for lane drops and occur before the grade crossing to avoid confusion and potential on-track queuing.

Railroads should provide notification in advance of work at public crossings in accordance with [PUC Rules](#).



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

7. Agreements

A contract between CDOT and the railroad is required and must be executed before any work is performed on railroad ROW. All CDOT projects fall under one of the following three types of agreements:

- Maintenance Consent Agreements
- Master Agreements
- Construction and Maintenance (C&M) Agreements

7.1 Types of Contracts/Agreements

The following discussion outlines the types of agreements and how each may be used for a given situation or project:

Maintenance Consent Agreement - This type of agreement typically includes work conducted under the terms of the original agreement; for example, resurfacing, bridge rail, and curbing renewals.

2-Way C&M Contract - CDOT uses this type of contract on construction projects that receive a portion of their funding from Section 130 Program funds. Examples include grade separations and major widening construction projects that involve railroad work, and railroad real property acquisition. When the at-grade crossing is on the State Highway System, a two-way contract between CDOT and the railroad is required.

3-Way C&M Contract - CDOT uses this type of contract on construction projects that receive a portion of their funding from Section 130 Program funds for local off-system road crossings. Examples include grade separations and major widening construction projects that involve railroad work, and railroad real property acquisition. When the at-grade crossing is off the State Highway System, a three-way contract among CDOT, local government, and railroad is required.

Wireline Agreement - This type of agreement involves new CDOT fiber optic installations over or under a railroad facility.

Pipeline Crossing Agreement- This type of agreement involves new CDOT drainage culverts either under or within railroad ROW.

Encroachment Agreement - This type of agreement involves new CDOT storm drainage culverts parallel to railroad tracks.

7.2 CDOT Maintenance Projects with Class 1 Railroads – Initial Information

For CDOT projects with the Class 1 Railroads (BNSF and UPRR), CDOT has Master Agreements in place under which maintenance work can be completed.

Maintenance work that can be completed under a task order to the Master Agreement includes:

- Railroad crossing surface replacement (same length as existing; no widening)
- Roadway approach work (repaving; repair to existing pavement)
- Signing-striping on approaches
- Existing highway bridge maintenance over railroad (no reconstruction)

For these maintenance efforts, contact the Statewide Railroad Program Manager with the following information to coordinate the task order:

- Statement of Work, including roadway name and milepost (MP), railroad name and MP, crossing DOT number, city, county, type of crossing (at-grade/grade separated), and proposed maintenance to be completed
- Anticipated timeline of maintenance work
- Amount of time roadway forces or roadway contractor will be within railroad ROW
- Concept plan, sketch, or schematic with notes indicating work to be done
- Photo log of site photos, including work areas, with descriptions



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

7.3 CDOT Construction Projects with Class 1 Railroads – Initial Information

For CDOT construction projects with the Class 1 Railroads (BNSF and UPRR), additional information is needed to complete a project-specific C&M Agreement for the work.

Construction projects include:

- Reconstruction of an existing bridge
- Roadway widening necessitating longer railroad crossing surface material
- At-grade crossing new or upgraded railroad crossing warning equipment
- New bridge construction
- New at-grade crossing
- New pedestrian overpass/underpass



For these new construction projects, contact the Statewide Railroad Program Manager to determine the documents that will be needed for the C&M Agreement for the project. Generally, documents include:

- Project Statement of Work and location map
- Estimate of time that the contractor will be within railroad ROW/estimate of time needing railroad flagging
- CDOT PS&E
- Existing ROW agreement or proposed row plans and legal description

7.4 CDOT Projects with Other Freight Railroads/ Local Agency Projects

For CDOT projects with other freight railroads and for Local Agency projects with any of the freight railroads, an agreement will be needed between the Local Agency/road authority and the railroad for the work.

The freight railroads generally use a C&M Agreement, and documents needed to compile the agreement are generally those listed previously for new construction projects.

7.5 CDOT and Local Agency Projects with Tourist Railroads

For projects with tourist railroads, the railroad should be contacted directly to determine the form of agreement for new projects or maintenance work.

7.6 CDOT and Local Agency Projects with RTD

For projects crossing commuter or light rail under the jurisdiction of RTD, contact RTD for the form of agreement for new projects or maintenance work.

7.7 Data Requirements for CDOT – Railroad Agreements

The Statewide Railroad Program Manager shall develop, or acquire from the Region, the Railroad, and PUC, all available supporting data needed for contract preparation. The following details must be defined to prepare the contract:

- There must be a clear scope of work. The work of each party to the contract, i.e., the railroad and CDOT contractor, must be detailed in writing.
- Responsibility for maintenance of the improvements by the parties must be fully described.
- When ROW is to be obtained from the railroad, language is to be included in the contract, along with proper contract exhibits.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

- Railroad billing and payment information is required in the contract.
- When a grade separation structure is involved and cost allocation between CDOT and the railroad is being pursued, theoretical structure plans and cost estimates are to be included.
- If there is to be written advance authorization to the railroad for either PE and/or materials procurement, the funding and obligation must have been approved on the project.

The following requirements must be fulfilled before the final contract is prepared and the contracts are circulated for signature:

- Project funds must be budgeted, appropriated, and otherwise made available with sufficient unencumbered balance remaining for payments.
- The scope of the project must be sufficiently defined for inclusion in the contract.
- The railroad’s written estimate of costs must have been received.

7.8 Data Requirements for Local Agency – Railroad Agreements

For Local Agency projects with freight railroads, the freight railroad typically generates the draft agreement for the Local Agency’s review. To initiate communication with the freight railroad, it is recommended to compile the following information about the project:

- Statement of Work, including roadway name and MP, railroad name and MP, crossing DOT number, city, county, type of crossing (at-grade/grade separated), and proposed project work
- Anticipated timeline of project (design and construction)
- Indication of work to be done within railroad ROW
- Concept plan, sketch, or schematic with notes indicating work to be done
- Photo log of site photos, including anticipated work areas, with descriptions

Contract legal language generated by the railroad will typically include the following information, to which project-specific language and exhibits are attached:

- Parties involved
- Effective date and term of the contract
- Recitals of authority, purpose, and references
- Definitions of terms
- Statement of work
- Maintenance responsibilities after construction
- Payment terms and parties
- Required reporting and notifications
- Record documents
- Representations, warranties, liability, breach, and remedies
- Representatives of each party
- General provisions
- Signature page

Project-specific documents attached to the agreement by the Local Agency typically include:

- Project plans and construction estimate (non-railroad work)
- Project specifications
- Legal descriptions and exhibits for temporary/permanent easements

Project-specific documents attached to the agreement by the railroad typically include:

- Project location map
- Railroad estimate
- Flagging rates
- Payment provisions
- Contractor entry requirements
- Utility requirements
- Insurance requirements
- Other coordination requirements



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

7.9 Contract Preparation for CDOT – Railroad Agreements

Once all necessary contract information is gathered, the Statewide Railroad Program Manager shall work with Contracting Unit staff to prepare the appropriate documents for the agreement depending on the project type and railroad involved.

Before processing the contract for final approvals, verify that the U and/or C phase is properly authorized for the project (prior phase authorization is a necessary condition for Federal participation in costs). Phase authorization status is accessible through ZJ40 in SAP.

7.10 Contract Preparation for Local Agency – Railroad Agreements

For Local Agency projects involving railroads, typically the railroads generate the agreement and forward it to the Local Agency for review by Local Agency counsel. Agreements are not typically begun until the following activities have occurred:

- Initial contact has been made with the railroad/PE Agreement executed
- Concept project information provided
- Field Diagnostic Review of the project location has occurred, if required
- 30% Project design documents have been completed and submitted to the railroad for review
- 30% comments address and 100% plans submitted to the railroad for review
- Local Agency has formally requested a Work Items Cost Estimate from the railroad (for work to be completed by railroad forces or railroad contractors)
- Local Agency has received and agreed to pay the Work Items Cost Estimate and notified the railroad
- 100% Project design documents have been completed and submitted to the railroad addressing any final comments, for approval

Generally, the railroads do not begin agreements until projects have been fully designed and

approved because contract staff at many of the railroads is limited, and the railroad needs assurance that the project will go forward before expending staff time to generate the agreement.

The following requirements must be fulfilled (for projects with CDOT administered funds) before the final contract is prepared and the contract is sent out for signature:

- Project funds must be budgeted, appropriated, and otherwise made available with sufficient unencumbered balance remaining for payments.
- The scope of the project must be sufficiently defined for inclusion in the contract.
- The railroad's written estimate of costs must have been received.
- Final ROW documents
- Final PUC approval
- CDOT Controller review and OAG review and signature
- Chief Engineer signature
- CDOT Controller final signature

7.11 Standard Contract Exhibits

The Statewide Railroad Program Manager shall upload the following exhibits on CDOT's document sharing platform:

- PUC approval to construct order/ruling
- Local Agency ordinance or resolution, as applicable, authorizing the agency's expenditures under the contract
- General plan(s) of the crossing and proposed work, such as proposed highway and railroad alignment, bridge layout, highway or railroad detour(s), signal plans and circuitry diagram, topography, proposed grades, typical section, drainage structures, ROW limits, and any other data pertinent to the use or modification of railroad property
- Railroad's force account estimate prepared in accordance with 23 C.F.R. Part 140, Subpart I
- State and Federally prescribed Civil Rights Exhibit concerning compliance with Title VI of the Federal Civil Rights Act of 1964



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

- Special provisions (Green: Federal-aid projects, Yellow: 100% State-funded projects)
- CDOT Form 1186a (Contract Funding Increase/Decrease and Approval Letter)
- Railroad protective liability insurance provisions (not required on Section 130 grade crossing improvement projects)
- Contractor right-of-entry provisions and documentation (not required on Section 130 grade crossing improvement projects)
- Advance PE authorization letter (if applicable)
- Easement documents with specific railroad requirements
- Railroad exhibits

7.12 Distribution of Executed Contracts

Upon receipt of fully executed contract copies (one copy retained by the State Controller’s Office), the Statewide Railroad Program Manager shall distribute the executed contracts as follows:

1. Send one original copy and an electronic copy to the railroad (including all required exhibits and/or attachments).
2. Submit one original contract to CDOT Contract Files (including all required exhibits and/or attachments).
3. Send one electronic copy or photocopy to the Region Business Office, Utility Engineer, and Project Manager, if applicable (including all required exhibits and/or attachments).
4. Keep one photocopy for the project file (including all required exhibits and/or attachments).

7.13 Railroad Utility Permits, Design & Construction

An applicant (CDOT or its contractors and subcontractors) must obtain a Utility Occupancy License (Wire or Pipeline) through a formal application process before entering railroad property. To initiate the process, the applicant must fully complete the railroad’s application form.

A permit to be on railroad property for utility survey should be executed prior to all survey work on railroad property. **See railroad’s website for this application.**

The applicant shall determine if this project is to be defined as a public project or a third-party utility project. Railroad Real Estate Departments define:

- (1) the type of permit required if the utility is acting as a public service or private use;
- (2) purpose of the permit; and
- (3) the name and owner “licensee” of the utility being permitted. The permit will be classified and defined initially as a “private” or “public” project by the railroad’s Real Estate Permitting Department.

Upon receipt of the formal application and fees, the railroad’s Real Estate team will review the package for approval. Application does not guarantee approval.

If the application is approved, a Utility License agreement will be drafted and forwarded to the applicant for signature. The partially executed agreement must be returned to the Real Estate Department accompanied by the fees and relevant proof of insurance (outlined in the agreement) prior to execution.

For “**standard processing**,” the permit process takes six to eight weeks.

“**Expedited processing**,” can reduce the processing time to one to two weeks for an additional fee defined as an “expedite fee.”

If the application and plans are returned to applicant for revisions to meet required engineering specifications, the expedited process may not be allowed by the railroad or may take longer than two weeks.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Various types of permits depend on the purpose and need of the applicant. Further clarification can be found at each railroad’s permitting site but generally the permit classifications are as follows:

- **Public Crossings:** At-grade roadway improvement projects, grade separation bridge projects, new road crossing openings, parallel roads/highways and recreational trails, and private and public roads crossing pipelines: storm drain, water, gas, culverts. The Public Projects group is the main point of contact for local communities and public agencies developing and working on public projects. Public projects may include public or private crossings, crossing surface renewals, road reconstruction at crossings, over- or underpasses, signalized crossing projects, recreational trails, etc.

Note that utilities installed as part of public projects require individual utility permits from the railroad.

Private Utility Crossings: Advertising signboards, drainage modifications, environmental cleanup or access, house moves, mineral or water rights, property leases, property purchases, temporary right-of-entry such as for movie production, seismic survey requests, pipeline crossings, pipeline encroachments, wireline crossings, wireline encroachments, pipe and wire maintenance and utility upgrades on existing utilities.

The railroads establish specific engineering installation and construction guidelines: AREMA Manual for Railway Engineering Chapter 1 - PART 5 Pipelines. To purchase a copy of the AREMA guidelines, send an application to AREMA.

Every railroad has a permitting procedure and engineering policy that applies to all public and private utilities, including electric power, telephone (including fiber optics), telegraph, cable television, water, gas, oil, petroleum products, steam, chemicals, sewage, drainage, irrigation and similar lines that are located, adjusted, or relocated within the property under the jurisdiction of railroad ROW. Such utilities

may involve underground, surface, or overhead facilities.

Utilities will be located in such a way as to provide a safe environment and must conform to the current National Electrical Safety Code, American Waterworks Association Specifications, Federal Pipeline Safety Regulations, and the American Railway Engineering and Maintenance Association Specifications.

Where laws or orders of a public authority prescribe a higher degree of protection, the higher degree of protection prescribed shall supersede the provisions of this Manual.

Pipelines laid longitudinally on railroad property shall be located as far as practical from any tracks or other important structures and as close to the outer ROW property line as practical.



Parallel encroachments on railroad ROW are to be avoided, if possible, and understood that any and all costs associated with this parallel utility line are at the expense of attachment to bridges and other structures.

The utility owner will not be permitted to attach to bridges or route facilities through drainage structures or cattle passes. Utilities are not to be attached to other railroad structures without the written approval of Railroad Engineering. As a general rule, overhead power, communication, and cable television line crossings at bridges must be avoided.

There is an option to file an application with the PUC if the road authority and the railroad have issues reaching an agreement.

The utility owner will be responsible for the design of all utility installations.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

The plans for the proposed installation shall be submitted with the application. Plans shall be drawn to scale showing the:

- Relationship of the proposed utility line to the railroad tracks
- Angle of the crossing
- Location of valves and vents
- Railroad MP
- Closest railroad engineering station (city/town)
- Railroad property lines, if known
- General layout of tracks and other railroad facilities



The plans should include a cross-section (or sections) from the field survey showing utility placement in relation to the actual profile of ground and tracks.

If tunneling is proposed, the method of supporting tracks or driving of tunnel shall be shown. The geotechnical study, when required, should be included.

The plans should contain the following data for carrier pipe and casing pipe:

- Contents to be carried
- Inside diameter
- Pipe material
- Specifications and grade of material
- Wall thickness
- Actual working pressure
- Type of joints
- Longitudinal joint factor
- Coating
- Type, size, and spacing of insulators or supports method of installation
- Vents - number, size, height above ground seals-both ends, one end
- Cover (top of tie to top of pipe or casing)
- Over (other than under tracks)
- Cover (at ditches)
- Cathodic protection

For Utility Construction/Installation:

- The execution of the work on railroad property shall be subject to the inspection and direction of the railroad's Roadmaster or his representative.
- A railroad Signal Department representative must be present during installation if railroad signals are near the proposed construction.



7.14 Other Railroad Agreements / Licenses

When CDOT has a highway project that encroaches into the railroad ROW, it is important that CDOT, its contractor, and/or consultant sign a Right-of-Entry Agreement and a Contractor's Right-of-Entry with the railroad before beginning any work or activity inside the railroad property.

Furthermore, if the project plans call for work activities that require permanent occupation of the railroad ROW, such as boring a conduit or water pipe under a railroad track(s), a permit must be obtained from the railroad.

Each railroad has different requirements for issuing permits and licenses, which can be obtained on their websites. A drawing of the construction plans that concern the railroad property should be sent with the permit.

The railroads require that liability insurance of the standard amounts be obtained before work on railroad ROW will be permitted. If workers and equipment are within 25 feet of the track, a railroad flagger(s) must be present. If work is being done by CDOT forces, an insurance certificate may be obtained from the CDOT Office of Risk Management.

Permits and licenses for the various railroads, along with their processes and identification that the applications are online or hard copy, can be found on each railroad's website.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

8. Public Utilities Commission Authority

The PUC has the primary jurisdictional authority over all public highway-rail crossings, including opening, closing, upgrading, overpasses or underpasses, and for allocating costs in accordance with PUC Rules.

Applicable [PUC Rules](#) and regulations include:

- Colorado Public Utilities Commission Rules and Regulations, [4 CCR 723-1, Part 1, Rules of Practice and Procedure](#)
- Colorado Public Utilities Commission Rules and Regulations, [4 CCR 723-7, Part 7, Rail Rules](#)

8.1 PUC Applications

CDOT's Statewide Railroad Program Manager shall be required to assemble and prepare a PUC application for crossing projects on the State Highway System. CDOT's OAG shall be required to file applications with the PUC for crossing projects on the State Highway System and is considered the applicant. If the crossing improvement is not on the State Highway System but is being done as part of a State Highway construction project, CDOT will take the lead and file a joint application with the Local Agency.

For all other crossings located on local public roads, the Local Agency is considered the applicant and is required to file an application with the PUC.

Applicants who may submit applications to the PUC shall be in accordance with the current version of [4 CCR 723-7-7203](#) available on the PUC website based on the type of public project being pursued.

8.2 Statewide Railroad Program Manager Responsibilities

Statewide Railroad Program Manager responsibilities include but are not limited to:

- With the assistance of the OAG, as appropriate, prepare and file the PUC application (signed by the Chief Engineer and Resident Engineer or designated representative) on CDOT's behalf
- Assist Local Agency applicants in the completion of the PUC application, if requested by such agency
- Submit evidence of the executed contract and other information as required to the PUC as soon as practicable and in accordance with the PUC Rules, procedures, and orders
- Track the progress of applications to the point at which a Final Order is issued; coordinate with the Region, railroad, and involved Local Agency to encourage timely filing to be made and to ensure proper authorization is received
- Complete compliance filings (final plans, contracts, and notices of completion)

8.3 PUC Application Requirements

The template for PUC applications is provided in [4 CCR 723-7, Part 7, Rail Rules, Rule 7204, Application Contents](#). In preparing an application to the PUC, it is recommended to use the same number/letter designations for the various parts of the application and to indicate "N/A" for portions of the application that are not applicable to the proposed project. Doing so will assist PUC staff in checking applications for completeness based on the project for which the application has been filed.

All applications must provide basic information in accordance with [PUC Rules](#), which currently includes:

- Contact information of applicant
- Contact information for road authority
- Contact information for railroad
- National Inventory Number (DOT) of crossing



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

- Accident reports for the crossing
- Date of Diagnostic Review, if required
- Number of trains (current)
- Number of trains (5-year projection)
- Maximum timetable train speed
- Statement of the need for the project
- Statement of the scope of the project, including design, warning devices, estimate, funding source
- Estimated start and completion of construction dates
- Vicinity map
- Names and addresses of adjacent property owners
- Names and addresses of utilities in the area
- Justification for not grade separating (if the crossing is currently at-grade)
- Indication of whether the application is for preliminary or final approval
- Indication if application is requesting installation of a temporary safety measure

Additional detail specific to the type of project must follow this information in the application format provided in the [PUC Rules](#).

8.4 Timing of Application Filing

The PUC has provided the option to submit an application when the majority of the project information is complete and the applicant does not anticipate any substantive changes to the design. This application identifies the request for Preliminary Approval from the PUC and begins the process of notification of the application to the involved parties, adjacent landowners, and utilities.

Once final details are received or completed, those documents are filed into the application docket with a request for Final Approval from the Commission.

If all information required for a given project is compiled and available in a timely manner, the application can be prepared with the request for Final Approval. This procedure is similar to that of the request for Preliminary Approval in terms of notification of the application. However, since all necessary information is included and Final Approval has been requested, no additional

missing documents are required to be filed. The Commission will proceed with review and approval of the application if there is no intervention from any notified parties.

The Statewide Railroad Program Manager may coordinate with the PUC's Chief of Rail Safety for review of a draft PUC application for more complex projects. The PUC will not consider the application complete at this time but will review the draft application for completeness, which can result in a more thorough and complete application at the time of formal filing.

The PUC application shall be filed sufficiently in advance of the planned start of work, as to not delay the project, pending final PUC action on the application.

8.5 PUC Notice of Application Filed

Once the application is formally filed, PUC staff will review the application for completeness and provide a deficiency letter to the applicant if any information is missing. The applicant has 10 days to submit missing information.

Following applicant filing of any missing information and PUC determination that the application is complete, the PUC will send a "Notice of Application Filed" to the CDOT Statewide Railroad Program Manager and copies of the document by first-class mail or through eFiling to the railroad, adjacent property owners, utility companies, and other affected parties (counties, cities).

8.6 Entry of Appearance and Notice of Intervention

Upon filing an application to the PUC for a railroad-related project, in accordance with [4 CCR 723-7](#), 7208, the Commission provides notification of the application to all persons who, in the opinion of the Commission, would be interested in or affected by the grant or denial of the application, including those interested persons the applicant lists in its application.

Noticed persons have 30 days to provide an Entry of Appearance and Notice of Intervention in accordance with 4 CCR 723-1.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Interventions may or may not be in contest or opposition of the application. The Entry of Appearance and Notice of Intervention can generally take one of two forms:

1. **Entry of Appearance and Notice of Intervention as a matter of right** applies to individuals who have been granted automatic right by statute or Commission Rule to be a party and participate in a matter before the Commission.
2. **Entry of Appearance and Notice of Intervention by Permissive Intervention** applies to individuals who must request permission to be included as a party to the proceeding, as they do not have a right to participate per statute or Commission Rule.

Anyone filing to contest or oppose the application must also request a hearing in the matter and provide the grounds for intervention, the claim, or defense for which intervention is being sought, including the specific interest that justifies intervention, and the nature and quantity of evidence, then known, that will be presented if the Commission grants intervention.

Standard practice is for legal counsel of the road authority or railroad to file the Entry of Appearance and Notice of Intervention on the road authority's or railroad's behalf.

For CDOT projects, the OAG would make this filing. For Local Agency projects, legal counsel for the Local Agency would make this filing.

8.7 PUC Hearings

If a filed application is contested or opposed, the PUC encourages the applicant to meet with the protesting party to negotiate an agreement.

If no agreement is reached, a hearing will be set before the PUC or an administrative law judge (ALJ). The ALJ will typically schedule prehearing conferences after the case is initially referred to them to discuss procedural matters about the case. Additionally, settlement negotiations may occur during the course of a proceeding, but it is not required that any party that contests or opposes an application meet with the applicant to negotiate.

The parties have the right to due process, and the ALJ may elect to conduct hearings until a ruling can be ordered.

In contested applications, up to a 12-month duration is expected. This timeline may be longer if available dates for the parties and proceeding cannot be coordinated.

8.8 PUC Order Granting Application

If no opposition is filed to a project application, the PUC will proceed to ruling to grant the application. If the application is opposed, the project will proceed through hearings until such time as due process is completed.

The Final Commission Order will include a deadline for filing the signed C&M Agreement, which must reflect the conditions of the Final Order, and may also require that additional documents be filed with the PUC. Once all required documents have been filed with the PUC, the project must be constructed per the terms of the application and Final Commission Order.

Following completion of construction, the project applicant must file a Compliance Filing with the Commission identifying that the project is complete and providing any additional documentation ordered by the Commission. For CDOT projects, the Statewide Railroad Program Manager files all Compliance Filings with the Commission.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

9. CDOT Railroad Billings, Payment Process, and Audits

9.1 CDOT Central Point of Contact

Because CDOT has five engineering regions and there are numerous Local Agencies in Colorado, the railroads have requested that a centralized location for billing submittals be designated within CDOT. The Statewide Railroad Program Manager fulfills this role. Furthermore, CDOT has determined that it would be far more effective if railroad billings were channeled to one office. Doing so expedites payment to the railroads and allows the CDOT Resident Engineers to be more involved in their total project leadership responsibilities.

The railroad invoice will be sent to the Statewide Railroad Program Manager at CDOT Headquarters. The name and address of the Statewide Railroad Program Manager will be shown in the C&M Agreement.

The Statewide Railroad Program Manager sends copies of billing, tracking spreadsheet and agreement to:

- Region Utility Engineering Program Manager, Resident Engineer, or Project Engineer if the project is on the State Highway System
- Region Business Office

9.2 Time Frame for CDOT Billing Submittal

The railroad usually sends partial billings when a project is in progress. The railroad shall provide its final and complete billings of all incurred costs to the Statewide Railroad Program Manager within one year following completion of the railroad work as described in the contract.

The billing for such work shall reference the project number and subaccount number. CDOT shall provide the railroad with written notice of completion of work, thus marking the beginning of the one-year period.

If the railroad does not submit the final bill to CDOT's Statewide Railroad Program Manager within the one-year time period, as required by paragraph 140.922 of 23 C.F.R., previous payments to the railroad for the railroad work may be considered as final and complete reimbursement for that work, and CDOT may close out the project with no further financial obligation.

9.3 CDOT Billing Review and Approval

The Region Utility Engineering Program Manager or the Resident Engineer is responsible for the following activities:

- Reviewing the billing
- Certifying the receipt of goods and services
- Verifying the accuracy of the billing, retainage, and payment amounts
- Verifying that the billings and services comply with contract terms
- Verifying that the billings do not exceed the contract encumbrance amount
- Receiving notification that the invoice has been paid

After billing review and acceptance, the Region Utility Engineering Program Manager or Resident Engineer will sign the payment voucher request. To ensure accurate and timely encumbrance liquidation, the voucher request must also contain a contract reference in the appropriate coding block. This number is written on the first page of the contract.

The vendor number must be written in the box at the top of the voucher. The Region Utility Engineering Program Manager or the Resident Engineer should identify the Federal-aid matching ratio in the transmittal memo, on the invoice, and on the voucher. This information can be found in the contract.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

9.4 Local Agency Billing Review and Approval

If a project is under a Local Agency jurisdiction, the Local Agency is responsible for reviewing and verifying the railroad's billings to ensure that they are for eligible charges and for work actually performed. The Local Agency will sign the billings as approved for payment. The Local Agency shall also be responsible for:

- Reviewing the billing
- Certifying the receipt of goods and services
- Verifying the accuracy of the billing
- Verifying that the billings and services comply with contract terms
- Verifying that the billings do not exceed the contract encumbrance amount

The Local Agency billing approval process shall be as follows:

- The Statewide Railroad Program Manager will send the Local Agency a copy of the billing; then
- The Local Agency will notify the Region Utility Engineering Program Manager or the Resident Engineer that the railroad force account work has been completed and endorses bill payment; then
- The Utility Engineer or the Resident Engineer shall notify the Region Business Office to pay the invoice.

Additional information is available in CDOT's [Local Agency Manual](#).

9.5 CDOT Payment Processing

Because the contract language requires that payments be made promptly, it is important to send the railroad bill payments out as quickly as possible.

The Region Business Office obtains the signature of the Region Utility Engineering Program Manager or the Resident Engineer on the invoice, verifies that the billing invoice is in agreement with the terms of the contract, and initiates a payment voucher.

CDOT has 30 days to process and pay the billing.

Payment information for BNSF and UPRR can be found at the following web addresses:

BNSF: [Contact Us](#) | [BNSF Suppliers](#)

UPRR: [UP: UP Invoice Submittal Process](#)

9.6 Audit and Follow Up

CDOT or other agencies may audit the railroad's billings for incurred costs for the railroad work for compliance with 23 C.F.R., Part 140, Subpart 1, and the railroad shall allow such an audit to be performed.

Labor charges for any railroad work performed by railroad personnel shall be in accordance with then-current working agreements between the railroad and its employees to be considered eligible charges.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Appendix A. Sample Documents for Railroad Projects

The following represent documents typically used in railroad-related projects that are not generally publicly available because they are developed project by project:

- CDOT Preliminary Engineering Task Order (3 sheets)
- Railroad Cost Estimate (UPRR) for CDOT Project (2 sheets)
- PUC Compliance Filings as Ordered (Project Completion) (1 sheet)
- UPRR Right-of-entry Agreement (for Roadway Contractor) (14 sheets)
- CDOT Utility Clearance Letter (1 sheet)
- CDOT Notice to Proceed Letter Sample (1 sheet)
- CDOT Maintenance Traffic Control Plan Sample (3 sheets)
- CDOT Railroad Specifications-SAMPLE BNSF Railway Requirements (Roadway Surfacing Maintenance) (5 sheets)
- CDOT Form - Railroad Project Diagnostic Form (14 sheets)

Appendix A includes samples of these documents. Note: These documents are subject to periodic update to format or information by the agency or railroad that generates the document. Coordinate with the road authority and railroad to request the most current version for project use.

Links to Samples / Templates

The following sample documents or templates are available at the associated link below. These documents are also subject to periodic review and update by the agency of authority or railroad.

- [PUC Highway-Rail Crossing Application](#)
- [BNSF Exhibit C: Roadway Contractor's Requirements](#)
- [BNSF Exhibit C-1: Agreement Between BNSF Railway Company and the Contractor \(Roadway\)](#)
- [UPRR Roadway Crossing Checklist](#)



Introduction &
Rail Overview



Regulatory
Requirements &
CDOT Roles &
Responsibilities



Railroad Project
Development
Process



Highway-Rail
At-Grade
Crossings



Grade Separation
& Other
Specialized
Projects



Highway &
Railroad Track
Maintenance
Operations



Agreements



Public Utilities
Commission
Authority



CDOT Railroad
Billings, Payment
Process and
Audits

CDOT Preliminary Engineering Task Order (Sheet 1 of 3)

EXHIBIT B – SUPPLEMENT

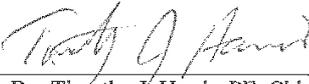
Date: 08/01/12	Master Contract CMS #: 12 HAA 40760	Supplement # 4 Task Order # 4	CMS Routing # 12 HA3 42764
--------------------------	-----------------------------------------------	------------------------------------------------	--------------------------------------

In accordance with Section 5(G)(ii) of the Master Contract between the State of Colorado, acting by and through the Department of Transportation (“State”), and Union Pacific Railroad Company (“Railroad”) beginning March 1, 2012, and ending on February 28, 2017 (“Master Contract”), the provisions of the Master Contract and any amendments thereto affected by this Supplement are modified as follows

- 1) **Supplement Description.** Railroad shall perform the task(s) listed in Railroad's Preliminary Engineering Proposal or General Flagging Proposal or Section 130 Supplement No. 4, dated July 20, 2012, which is incorporated by reference herein in accordance with the provisions of the Master Contract.
- 2) **Price/Cost.** The maximum amount payable by the State for performance of this Supplement is \$20,000.00. The total Master Contract value including all previous amendments, Supplements, etc., is \$65,000.00.
- 3) **Performance Period.** Railroad shall complete its obligations under this Supplement on or before February 28, 2017.
- 4) **Effective Date.** The effective date hereof is upon approval of the State Controller or May 31, 2012, whichever is later.

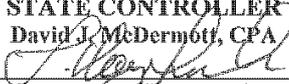
THE PARTIES HERETO HAVE EXECUTED THIS SUPPLEMENT

* Persons signing for Railroad hereby swear and affirm that they are authorized to act on Railroad's behalf and acknowledge that the State is relying on their representations to that effect.

RAILROAD Union Pacific Railroad Company Agreement by Railroad pursuant to the terms of the Master Contract	STATE OF COLORADO John W. Hickenlooper GOVERNOR Department of Transportation By:  By: Timothy J. Harris, PE, Chief Engineer
-----------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ALL CONTRACTS REQUIRE APPROVAL BY THE STATE CONTROLLER

CRS §24-30-202 requires the State Controller to approve all State contracts. This Supplement is not valid until signed and dated below by the State Controller or delegate. Railroad is not authorized to begin performance until such time. If Railroad begins performing prior thereto, the State of Colorado is not obligated to pay Railroad for such performance or for any goods and/or services provided hereunder.

STATE CONTROLLER David J. McDermott, CPA By:  Department of Transportation Date: <u>8/16/2012</u>



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Preliminary Engineering Task Order (Sheet 2 of 3)

PRELIMINARY ENGINEERING PROPOSAL
FROM UNION PACIFIC RAILROAD COMPANY
TO STATE OF COLORADO ACTING BY AND THROUGH COLORADO DEPARTMENT
OF TRANSPORTATION

This Preliminary Engineering Proposal (“PE Proposal”) is made this 20th day of July 2022, from the Union Pacific Railroad Company (“Railroad”) to the State of Colorado acting by and through the Department of Transportation (“CDOT”). Railroad and CDOT are collectively identified as the “Parties”.

Railroad proposes the following:

- A) CDOT provided notice to Railroad of its intent to advance an existing public grade crossing improvement project (“Project”) located at the existing junction of a state highway and UPRR tracks as more fully described below.

CDOT/Public Road involved:	SH 82	UPRR Milepost #	360.19
DOT Crossing #:	253-558X	UPRR Subdivision	Glenwood Springs
City:	Glenwood Springs	County:	Garfield
State:	Colorado		
Agency Project Number:	FBR 0821-094, 18158		

- B) Pursuant to the Parties Master Agreement for at-grade public highway crossings on the Railroad’s tracks with roadway rights of way that require safety improvements (“Master Agreement”) dated March 1, 2012, CMS #12 HAA 40760, Railroad proposes to collaborate in the development of the Project by performing the following (collectively, the “Preliminary Services”):
- 1) Preliminary engineering and other related services including procurement of materials, equipment rental, manpower and deliveries to the job site and all direct and indirect overhead labor/construction costs including Railroad’s standard additive rates;
 - 2) Development of cost estimates;
 - 3) Review of the project’s preliminary layouts; and
 - 4) Submit current train and switching moves.
- C) Railroad estimates that the Preliminary Services for the Project will be \$20,000.00.
- D) Upon CDOT’s execution of a Supplement (as defined in the Master Agreement) for the Preliminary Services, CDOT’s payment and Railroad’s performance for the Preliminary Services shall be made pursuant to the provisions of the Master Agreement. Railroad will refer to CDOT’s project number (identified above) and shall forward Invoices to CDOT pursuant to the Master Agreement.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Preliminary Engineering Task Order (Sheet 3 of 3)

- E) Railroad verifies that train movements at the Project crossing number 7 freight and 2 passenger per day with a maximum timetable speed of 40 MPH for freight trains and 50 MPH for passenger trains.
- F) Railroad verifies that switching movements at the Project crossing number 0 per day with a maximum speed of 40 MPH.
- G) This PE Agreement is the complete proposal from the Railroad for the Preliminary Services for the Project identified above and may be modified by written amendment only, signed by Railroad.

<p>RAILROAD: Union Pacific Railroad Company</p> <p>By: <u>John J. Horanec</u> Print Name of Authorized Individual Title: <u>John Horanec</u></p> <p>Print Title of Authorized Individual: <u>AVP Engineering</u></p> <p>Date: <u>July 20, 2012</u></p>

SAMPLE

- 
 Introduction & Rail Overview
- 
 Regulatory Requirements & CDOT Roles & Responsibilities
- 
 Railroad Project Development Process
- 
 Highway-Rail At-Grade Crossings
- 
 Grade Separation & Other Specialized Projects
- 
 Highway & Railroad Track Maintenance Operations
- 
 Agreements
- 
 Public Utilities Commission Authority
- 
 CDOT Railroad Billings, Payment Process and Audits

Railroad Cost Estimate (UPRR) for CDOT Project (Sheet 1 of 2)

Material And Force Account Estimate CDOT

Estimate Creation Date: 05/09/2017 Number: 111323 Version: 1

Estimate Good for 6 Months Until 11/09/17

Location: GREELEY SUB, SIMN, 55-93.64
Buy America: Yes

Description of Work: Greeley Sub MP 86.04 Carr, CO Stevenson Ave DOT#804893F WO#36777 PID#100948
100% Recollectable

COMMENTS	FACILITY	Description	QTY	UOM	Unit Cost	LABOR	MATERIAL	TOTAL	UP%	Agency%
SIGNAL										
		King - AC/DC Island Only	1	LS	8,007.00	0	8,007	8,007	0	8,007
		King - Dax Cable 1000'	1	EA	8,440.00	4,000	2,440	8,440	0	8,440
		King - Guard Rail	2	EA	1,872.00	2,000	1,844	3,844	0	3,844
		King - W	2	PR	9,000.00	8,998	9,004	18,000	0	18,000
Federal w/o 118.85%		King - Labor Additive	1	LS	100,282.00	100,282	0	100,282	0	100,282
		King - Track Card (Main and S switch) New Cable	8	EA	12,889.00	18,000	20,987	38,867	0	38,867
		King - Track Filter/Battery Ch cke	2	EA	240.00	0	480	480	0	480
		King - 2 Trk CWB w/Gates	1	EA	152,876.00	48,800	104,076	152,876	0	152,876
		King - Engineering Design	1	LS	7,987.00	7,987	0	7,987	0	7,987
		King - Fill/Rock/Gravel	1	LS	7,000.00	0	7,000	7,000	0	7,000
		King - Meter Service	1	LS	5,000.00	0	5,000	5,000	0	5,000
Sub-Total =						190,025	166,018	346,043	0	346,043

Totals = 190,025 166,018 346,043 0 346,043

Grand Total = \$346,043

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements

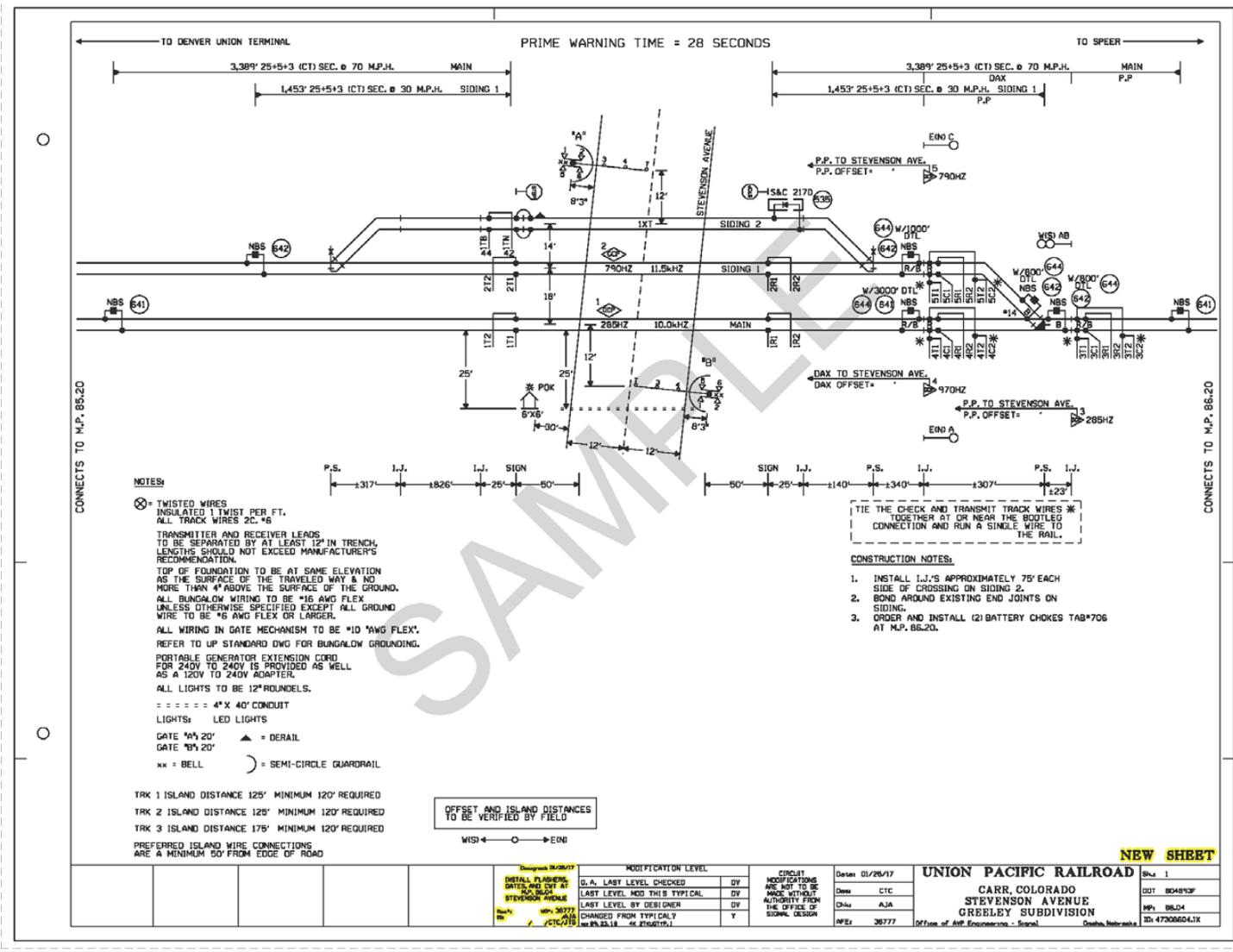


Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Railroad Cost Estimate (UPRR) for CDOT Project (Sheet 2 of 2)



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

PUC Compliance Filings as Ordered (Project Completion)



March 23, 2017

CDOT Project No. STA 0704-210, 16259
I-70 Bridge Replacement over UPRR
Smith Road DOT # 805-503U

Doug Dean
Director
Colorado Public Utilities Commission
1560 Broadway, Suite 250
Denver, CO 80202

RE: **Docket 13A-0567R** - CDOT Compliance Filing

This letter is to provide information on a CDOT project related to PUC Docket 13A-0567R, and **Decision No C13-0847** that required CDOT to provide information.

The subject CDOT Project has completed the I-70 Bridge replacements over the UPRR, and was operational on **December 1, 2016**.

This information should complete the required compliance information.

Sincerely,

Rob Martindale
CDOT Railroad Program Manager



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 1 of 14)

UNION PACIFIC RAILROAD COMPANY
 CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
 Form Approved: AVP Law 03/01/2013



Folder No.: 2958-12
 UPRR Audit No.:

**CONTRACTOR'S RIGHT OF ENTRY
 AGREEMENT**

THIS AGREEMENT is made and entered into as of the _____ day of _____, 2016, by and between **UNION PACIFIC RAILROAD COMPANY**, a Delaware corporation ("Railroad"); and

_____ (Name of Contractor)

a _____ corporation ("Contractor").

RECITALS:

Contractor has been hired by Colorado Department of Transportation's ("State's") to conduct resurfacing, repaving, and repair of the bridge decks; pressure washing and painting the steel framing of the structures; treatment of caps and columns with corrosion inhibitors; and the removal of replacement of the existing bridge fencing, pedestrian bridge hand rails and the existing concrete barrier; and other simple maintenance activities; at the two existing Northern and Mesa Avenues grade-separated public road crossings at Railroad Mile Posts 120.52 (DOT 253466S) and 120.38 (DOT 253465K) on the Walsenburg Subdivision in or near Pueblo, Pueblo County, Colorado, as such location is in the general location shown on the Railroad Location Print marked **Exhibit A**, attached hereto and hereby made a part hereof, which work is the subject of a Consent Letter dated February 29, 2016, between the Railroad and State.

The Railroad is willing to permit the Contractor to perform the work described above at the location described above subject to the terms and conditions contained in this Agreement

AGREEMENT:

NOW, THEREFORE, it is mutually agreed by and between Railroad and Contractor, as follows:

ARTICLE 1 - DEFINITION OF CONTRACTOR.

For purposes of this Agreement, all references in this agreement to Contractor shall include Contractor's contractors, subcontractors, officers, agents and employees, and others acting under its or their authority.

ARTICLE 2 - RIGHT GRANTED; PURPOSE.

Railroad hereby grants to Contractor the right, during the term hereinafter stated and upon and subject to each and all of the terms, provisions and conditions herein contained, to enter upon and have ingress to and egress from the property described in the Recitals for the purpose of



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 2 of 14)

UNION PACIFIC RAILROAD COMPANY
 CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
 Form Approved: AVP Law 03/01/2013



performing the work described in the Recitals above. The right herein granted to Contractor is limited to those portions of Railroad's property specifically described herein, or as designated by the Railroad Representative named in Article 4.

ARTICLE 3 - TERMS AND CONDITIONS CONTAINED IN EXHIBITS B, C & D.

The General Terms and Conditions contained in Exhibit B, the Insurance Requirements contained in Exhibit C, and the Minimum Safety Requirements contained in Exhibit D, each attached hereto, are hereby made a part of this Agreement.

ARTICLE 4 - ALL EXPENSES TO BE BORNE BY CONTRACTOR; RAILROAD REPRESENTATIVE.

- A. Contractor shall bear any and all costs and expenses associated with any work performed by Contractor, or any costs or expenses incurred by Railroad relating to this Agreement.
- B. Contractor shall coordinate all of its work with the following Railroad representative or his or her duly authorized representative (the "Railroad Representative"):

MIGUEL J. ARAGON
 MGR TRACK MNTCE
 400 West B Street
 PUEBLO, CO 81003
 (719) 549-6266

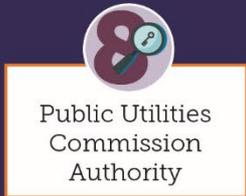
- C. Contractor, at its own expense, shall adequately police and supervise all work to be performed by Contractor and shall ensure that such work is performed in a safe manner as set forth in Section 7 of Exhibit B. The responsibility of Contractor for safe conduct and adequate policing and supervision of Contractor's work shall not be lessened or otherwise affected by Railroad's approval of plans and specifications involving the work, or by Railroad's collaboration in performance of any work, or by the presence at the work site of a Railroad Representative, or by compliance by Contractor with any requests or recommendations made by Railroad Representative.

ARTICLE 5 - SCHEDULE OF WORK ON A MONTHLY BASIS.

The Contractor, at its expense, shall provide on a monthly basis a detailed schedule of work to the Railroad Representative named in Article 4B above. The reports shall start at the execution of this Agreement and continue until this Agreement is terminated as provided in this Agreement or until the Contractor has completed all work on Railroad's property.

ARTICLE 6 - TERM; TERMINATION.

- A. The grant of right herein made to Contractor shall commence on the date of this Agreement, and continue until _____, unless sooner terminated as herein
(Expiration Date)



UPRR Right of Entry Agreement (for Roadway Contractor) (Page 3 of 14)

UNION PACIFIC RAILROAD COMPANY
 CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
 Form Approved: AVP Law 03/01/2013



provided, or at such time as Contractor has completed its work on Railroad's property, whichever is earlier. Contractor agrees to notify the Railroad Representative in writing when it has completed its work on Railroad's property.

- B. This Agreement may be terminated by either party on ten (10) days written notice to the other party.

ARTICLE 7 - CERTIFICATE OF INSURANCE.

- A. Before commencing any work, Contractor will provide Railroad with the (i) insurance binders, policies, certificates and endorsements set forth in **Exhibit C** of this Agreement, and (ii) the insurance endorsements obtained by each subcontractor as required under Section 12 of **Exhibit B** of this Agreement.

- B. All insurance correspondence, binders, policies, certificates and endorsements shall be sent to:

*Union Pacific Railroad Company
 Real Estate Department
 1400 Douglas Street, MS 1690
 Omaha, NE 68179-1690
 UPRR Folder No.: 2958-12*

ARTICLE 8 - DISMISSAL OF CONTRACTOR'S EMPLOYEE.

At the request of Railroad, Contractor shall remove from Railroad's property any employee of Contractor who fails to conform to the instructions of the Railroad Representative in connection with the work on Railroad's property, and any right of Contractor shall be suspended until such removal has occurred. Contractor shall indemnify Railroad against any claims arising from the removal of any such employee from Railroad's property.

ARTICLE 9 - CROSSINGS.

No additional vehicular crossings (including temporary haul roads) or pedestrian crossings over Railroad's trackage shall be installed or used by Contractor without the prior written permission of Railroad.

ARTICLE 10 - CROSSINGS; COMPLIANCE WITH MUTCD AND FRA GUIDELINES.

- A. No additional vehicular crossings (including temporary haul roads) or pedestrian crossings over Railroad's trackage shall be installed or used by Contractor without the prior written permission of Railroad.
- B. Any permanent or temporary changes, including temporary traffic control, to crossings must conform to the Manual of Uniform Traffic Control Devices (MUTCD) and any applicable Federal Railroad Administration rules, regulations and guidelines, and must be reviewed by the Railroad prior to any changes being implemented. In the event the Railroad is found to be out of compliance with federal safety regulations due to the Contractor's modifications, negligence, or any other reason arising from the Contractor's presence on the Railroad's property, the Contractor agrees to assume liability for any civil penalties imposed upon the Railroad for such



Introduction &
Rail Overview



Regulatory
Requirements &
CDOT Roles &
Responsibilities



Railroad Project
Development
Process



Highway-Rail
At-Grade
Crossings



Grade Separation
& Other
Specialized
Projects



Highway &
Railroad Track
Maintenance
Operations



Agreements



Public Utilities
Commission
Authority



CDOT Railroad
Billings, Payment
Process and
Audits

TOC

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 4 of 14)

UNION PACIFIC RAILROAD COMPANY
CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
Form Approved: AVP Law 03/01/2013



noncompliance.

ARTICLE 11 - EXPLOSIVES.

Explosives or other highly flammable substances shall not be stored or used on Railroad's property without the prior written approval of Railroad.

IN WITNESS WHEREOF, the parties hereto have duly executed this agreement in duplicate as of the date first herein written.

UNION PACIFIC RAILROAD COMPANY
(Federal Tax ID #94-6001323)

By: _____
DAVID C. LAPLANTE
Senior Mgr. Contracts

(Name of Contractor)

By: _____

Printed Name: _____

Title: _____



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 5 of 14)

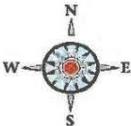


EXHIBIT "A"

RAILROAD LOCATION PRINT

ACCOMPANYING A
GRADE-SEPARATED PUBLIC ROAD CROSSING MAINTENANCE
CONSENT/CONTRACTOR'S
RIGHT OF ENTRY AGREEMENT



UNION PACIFIC RAILROAD COMPANY

WALSENBURG SUB.
RAILROAD MILE POSTS 120.38
PUEBLO, PEUBLO COUNTY, CO

To accompany an agreement with the
**COLORADO DEPT. OF TRANSPORTATION and/or
CONTRACTORS**

UPRR Folder No. 2958-12(b) Date: February 29, 2016

WARNING

IN ALL OCCASIONS, U.P. COMMUNICATIONS DEPARTMENT MUST BE CONTACTED IN ADVANCE OF ANY WORK TO DETERMINE EXISTENCE AND LOCATION OF FIBER OPTIC CABLE.

PHONE: 1-(800) 336-9193

Exhibit A
Railroad Location Print



Introduction &
Rail Overview



Regulatory
Requirements &
CDOT Roles &
Responsibilities



Railroad Project
Development
Process



Highway-Rail
At-Grade
Crossings



Grade Separation
& Other
Specialized
Projects



Highway &
Railroad Track
Maintenance
Operations



Agreements



Public Utilities
Commission
Authority



CDOT Railroad
Billings, Payment
Process and
Audits

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 6 of 14)

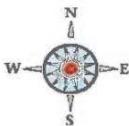


EXHIBIT "A"

RAILROAD LOCATION PRINT

ACCOMPANYING A
GRADE-SEPARATED CONSTRUCTION & MAINTENANCE
CONSENT/CONTRACTOR'S
RIGHT OF ENTRY AGREEMENT



UNION PACIFIC RAILROAD COMPANY
WALSENBURG SUBDIVISION
RAILROAD MILE POSTS 120.52 PUEBLO,
PUEBLO COUNTY, COLORADO

To accompany an agreement with the
**COLORADO DEPT. OF TRANSPORTATION and its
CONTRACTOR'S**

UPRR Folder No. 2958-12(a) Date: February 29, 2016

WARNING
IN ALL OCCASIONS, U.P. COMMUNICATIONS DEPARTMENT MUST BE CONTACTED IN ADVANCE OF
ANY WORK TO DETERMINE EXISTENCE AND LOCATION OF FIBER OPTIC CABLE.
PHONE: 1-(800) 336-9193

UNION PACIFIC RAILROAD COMPANY
WALSENBURG SUBDIVISION
RAILROAD MILE POSTS 120.52 PUEBLO,
PUEBLO COUNTY, COLORADO

To accompany an agreement with the
**COLORADO DEPT. OF TRANSPORTATION and its
CONTRACTOR'S**

UPRR Folder No. 2958-12(a) Date: February 29, 2016

WARNING
IN ALL OCCASIONS, U.P. COMMUNICATIONS DEPARTMENT MUST BE CONTACTED IN ADVANCE OF
ANY WORK TO DETERMINE EXISTENCE AND LOCATION OF FIBER OPTIC CABLE.
PHONE: 1-(800) 336-9193

Exhibit A
Railroad Location Print



Introduction &
Rail Overview



Regulatory
Requirements &
CDOT Roles &
Responsibilities



Railroad Project
Development
Process



Highway-Rail
At-Grade
Crossings



Grade Separation
& Other
Specialized
Projects



Highway &
Railroad Track
Maintenance
Operations



Agreements



Public Utilities
Commission
Authority



CDOT Railroad
Billings, Payment
Process and
Audits

TOC

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 7 of 14)

UNION PACIFIC RAILROAD COMPANY
CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
Form Approved: AVP Law 03/01/2013



EXHIBIT B

TO CONTRACTOR'S RIGHT OF ENTRY AGREEMENT

GENERAL TERMS & CONDITIONS

Section 1. NOTICE OF COMMENCEMENT OF WORK - FLAGGING.

- A. Contractor agrees to notify the Railroad Representative at least thirty (30) working days in advance of Contractor commencing its work and at least ten (10) working days in advance of proposed performance of any work by Contractor in which any person or equipment will be within twenty-five (25) feet of any track, or will be near enough to any track that any equipment extension (such as, but not limited to, a crane boom) will reach to within twenty-five (25) feet of any track. No work of any kind shall be performed, and no person, equipment, machinery, tool(s), material(s), vehicle(s), or thing(s) shall be located, operated, placed, or stored within twenty-five (25) feet of any of Railroad's track(s) at any time, for any reason, unless and until a Railroad flagman is provided to watch for trains. Upon receipt of such ten (10)-day notice, the Railroad Representative will determine and inform Contractor whether a flagman need be present and whether Contractor needs to implement any special protective or safety measures. If flagging or other special protective or safety measures are performed by Railroad, Railroad will bill Contractor for such expenses incurred by Railroad, unless Railroad and a federal, state or local governmental entity have agreed that Railroad is to bill such expenses to the federal, state or local governmental entity. If Railroad will be sending the bills to Contractor, Contractor shall pay such bills within thirty (30) days of Contractor's receipt of billing. If Railroad performs any flagging, or other special protective or safety measures are performed by Railroad, Contractor agrees that Contractor is not relieved of any of its responsibilities or liabilities set forth in this Agreement.
- B. The rate of pay per hour for each flagman will be the prevailing hourly rate in effect for an eight-hour day for the class of flagmen used during regularly assigned hours and overtime in accordance with Labor Agreements and Schedules in effect at the time the work is performed. In addition to the cost of such labor, a composite charge for vacation, holiday, health and welfare, supplemental sickness, Railroad Retirement and unemployment compensation, supplemental pension, Employees Liability and Property Damage and Administration will be included, computed on actual payroll. The composite charge will be the prevailing composite charge in effect at the time the work is performed. One and one-half times the current hourly rate is paid for overtime, Saturdays and Sundays, and two and one-half times current hourly rate for holidays. Wage rates are subject to change, at any time, by law or by agreement between Railroad and its employees, and may be retroactive as a result of negotiations or a ruling of an authorized governmental agency. Additional charges on labor are also subject to change. If the wage rate or additional charges are changed, Contractor (or the governmental entity, as applicable) shall pay on the basis of the new rates and charges.
- C. Reimbursement to Railroad will be required covering the full eight-hour day during which any flagman is furnished, unless the flagman can be assigned to other Railroad work during a portion of such day, in which event reimbursement will not be required for the portion of the day during which the flagman is engaged in other Railroad work. Reimbursement will also be required for any day not actually worked by the flagman following the flagman's assignment to work on the project for which Railroad is required to pay the flagman and which could not reasonably be avoided by Railroad by assignment of such flagman to other work, even though Contractor may not be working during such time. When it becomes necessary for Railroad to bulletin and assign an employee to a flagging position in compliance with union collective bargaining agreements, Contractor must provide Railroad a minimum of five (5) days notice prior to the cessation of the need for a flagman. If five (5) days notice of cessation is not given, Contractor will still be required to pay flagging charges for the five (5) day notice period required by union agreement to be given to the employee, even though flagging is not required for that period. An additional ten (10) days notice must then be given to Railroad if flagging services are needed again after such five day cessation notice has been given to Railroad.

Section 2. LIMITATION AND SUBORDINATION OF RIGHTS GRANTED

- A. The foregoing grant of right is subject and subordinate to the prior and continuing right and obligation of the Railroad to use and maintain its entire property including the right and power of Railroad to construct, maintain, repair, renew, use, operate, change, modify or relocate railroad tracks, roadways, signal, communication, fiber optics, or other wires, pipelines and other facilities upon, along or across any or all parts of its property, all or any of which may be freely done at any time or times by Railroad without liability to Contractor or to any other party for compensation or damages.



Introduction &
Rail Overview



Regulatory
Requirements &
CDOT Roles &
Responsibilities



Railroad Project
Development
Process



Highway-Rail
At-Grade
Crossings



Grade Separation
& Other
Specialized
Projects



Highway &
Railroad Track
Maintenance
Operations



Agreements



Public Utilities
Commission
Authority



CDOT Railroad
Billings, Payment
Process and
Audits

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 8 of 14)

UNION PACIFIC RAILROAD COMPANY
 CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
 Form Approved: AVP Law 03/01/2013



- B. The foregoing grant is also subject to all outstanding superior rights (including those in favor of licensees and lessees of Railroad's property, and others) and the right of Railroad to renew and extend the same, and is made without covenant of title or for quiet enjoyment.

Section 3. NO INTERFERENCE WITH OPERATIONS OF RAILROAD AND ITS TENANTS.

- A. Contractor shall conduct its operations so as not to interfere with the continuous and uninterrupted use and operation of the railroad tracks and property of Railroad, including without limitation, the operations of Railroad's lessees, licensees or others, unless specifically authorized in advance by the Railroad Representative. Nothing shall be done or permitted to be done by Contractor at any time that would in any manner impair the safety of such operations. When not in use, Contractor's machinery and materials shall be kept at least fifty (50) feet from the centerline of Railroad's nearest track, and there shall be no vehicular crossings of Railroads tracks except at existing open public crossings.
- B. Operations of Railroad and work performed by Railroad personnel and delays in the work to be performed by Contractor caused by such railroad operations and work are expected by Contractor, and Contractor agrees that Railroad shall have no liability to Contractor, or any other person or entity for any such delays. The Contractor shall coordinate its activities with those of Railroad and third parties so as to avoid interference with railroad operations. The safe operation of Railroad train movements and other activities by Railroad takes precedence over any work to be performed by Contractor.

Section 4. LIENS.

Contractor shall pay in full all persons who perform labor or provide materials for the work to be performed by Contractor. Contractor shall not create, permit or suffer any mechanic's or materialmen's liens of any kind or nature to be created or enforced against any property of Railroad for any such work performed. Contractor shall indemnify and hold harmless Railroad from and against any and all liens, claims, demands, costs or expenses of whatsoever nature in any way connected with or growing out of such work done, labor performed, or materials furnished. If Contractor fails to promptly cause any lien to be released of record, Railroad may, at its election, discharge the lien or claim of lien at Contractor's expense.

Section 5. PROTECTION OF FIBER OPTIC CABLE SYSTEMS.

- A. Fiber optic cable systems may be buried on Railroad's property. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. Contractor shall telephone Railroad during normal business hours (7:00 a.m. to 9:00 p.m. Central Time, Monday through Friday, except holidays) at 1-800-336-9193 (also a 24-hour, 7-day number for emergency calls) to determine if fiber optic cable is buried anywhere on Railroad's property to be used by Contractor. If it is, Contractor will telephone the telecommunications company(ies) involved, make arrangements for a cable locator and, if applicable, for relocation or other protection of the fiber optic cable. Contractor shall not commence any work until all such protection or relocation (if applicable) has been accomplished.
- B. In addition to other indemnity provisions in this Agreement, Contractor shall indemnify, defend and hold Railroad harmless from and against all costs, liability and expense whatsoever (including, without limitation, attorneys' fees, court costs and expenses) arising out of any act or omission of Contractor, its agents and/or employees, that causes or contributes to (1) any damage to or destruction of any telecommunications system on Railroad's property, and/or (2) any injury to or death of any person employed by or on behalf of any telecommunications company, and/or its contractor, agents and/or employees, on Railroad's property. Contractor shall not have or seek recourse against Railroad for any claim or cause of action for alleged loss of profits or revenue or loss of service or other consequential damage to a telecommunication company using Railroad's property or a customer or user of services of the fiber optic cable on Railroad's property.

Section 6. PERMITS - COMPLIANCE WITH LAWS.

In the prosecution of the work covered by this Agreement, Contractor shall secure any and all necessary permits and shall comply with all applicable federal, state and local laws, regulations and enactments affecting the work including, without limitation, all applicable Federal Railroad Administration regulations.

Section 7. SAFETY.

- A. Safety of personnel, property, rail operations and the public is of paramount importance in the prosecution of the work performed by Contractor. Contractor shall be responsible for initiating, maintaining and supervising all safety, operations and programs in connection with the work. Contractor shall at a minimum comply with Railroad's safety standards listed in



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 9 of 14)

UNION PACIFIC RAILROAD COMPANY
 CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
 Form Approved: AVP Law 03/01/2013



Exhibit D, hereto attached, to ensure uniformity with the safety standards followed by Railroad's own forces. As a part of Contractor's safety responsibilities, Contractor shall notify Railroad if Contractor determines that any of Railroad's safety standards are contrary to good safety practices. Contractor shall furnish copies of **Exhibit D** to each of its employees before they enter the job site.

- B. Without limitation of the provisions of paragraph A above, Contractor shall keep the job site free from safety and health hazards and ensure that its employees are competent and adequately trained in all safety and health aspects of the job.
- C. Contractor shall have proper first aid supplies available on the job site so that prompt first aid services may be provided to any person injured on the job site. Contractor shall promptly notify Railroad of any U.S. Occupational Safety and Health Administration reportable injuries. Contractor shall have a nondelegable duty to control its employees while they are on the job site or any other property of Railroad, and to be certain they do not use, be under the influence of, or have in their possession any alcoholic beverage, drug or other substance that may inhibit the safe performance of any work.
- D. If and when requested by Railroad, Contractor shall deliver to Railroad a copy of Contractor's safety plan for conducting the work (the "Safety Plan"). Railroad shall have the right, but not the obligation, to require Contractor to correct any deficiencies in the Safety Plan. The terms of this Agreement shall control if there are any inconsistencies between this Agreement and the Safety Plan.

Section 8. INDEMNITY.

- A. To the extent not prohibited by applicable statute, Contractor shall indemnify, defend and hold harmless Railroad, its affiliates, and its and their officers, agents and employees (individually an "Indemnified Party" or collectively "Indemnified Parties") from and against any and all loss, damage, injury, liability, claim, demand, cost or expense (including, without limitation, attorney's, consultant's and expert's fees, and court costs), fine or penalty (collectively, "Loss") incurred by any person (including, without limitation, any Indemnified Party, Contractor, or any employee of Contractor or of any Indemnified Party) arising out of or in any manner connected with (i) any work performed by Contractor, or (ii) any act or omission of Contractor, its officers, agents or employees, or (iii) any breach of this Agreement by Contractor.
- B. The right to indemnity under this Section 8 shall accrue upon occurrence of the event giving rise to the Loss, and shall apply regardless of any negligence or strict liability of any Indemnified Party, except where the Loss is caused by the sole active negligence of an Indemnified Party as established by the final judgment of a court of competent jurisdiction. The sole active negligence of any Indemnified Party shall not bar the recovery of any other Indemnified Party.
- C. Contractor expressly and specifically assumes potential liability under this Section 8 for claims or actions brought by Contractor's own employees. Contractor waives any immunity it may have under worker's compensation or industrial insurance acts to indemnify the Indemnified Parties under this Section 8. Contractor acknowledges that this waiver was mutually negotiated by the parties hereto.
- D. No court or jury findings in any employee's suit pursuant to any worker's compensation act or the Federal Employers' Liability Act against a party to this Agreement may be relied upon or used by Contractor in any attempt to assert liability against any Indemnified Party.
- E. The provisions of this Section 8 shall survive the completion of any work performed by Contractor or the termination or expiration of this Agreement. In no event shall this Section 8 or any other provision of this Agreement be deemed to limit any liability Contractor may have to any Indemnified Party by statute or under common law.

Section 9. RESTORATION OF PROPERTY.

In the event Railroad authorizes Contractor to take down any fence of Railroad or in any manner move or disturb any of the other property of Railroad in connection with the work to be performed by Contractor, then in that event Contractor shall, as soon as possible and at Contractor's sole expense, restore such fence and other property to the same condition as the same were in before such fence was taken down or such other property was moved or disturbed. Contractor shall remove all of Contractor's tools, equipment, rubbish and other materials from Railroad's property promptly upon completion of the work, restoring Railroad's property to the same state and condition as when Contractor entered thereon.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 10 of 14)

UNION PACIFIC RAILROAD COMPANY
 CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
 Form Approved: AVP Law 03/01/2013



Section 10. WAIVER OF DEFAULT.

Waiver by Railroad of any breach or default of any condition, covenant or agreement herein contained to be kept, observed and performed by Contractor shall in no way impair the right of Railroad to avail itself of any remedy for any subsequent breach or default.

Section 11. MODIFICATION - ENTIRE AGREEMENT.

No modification of this Agreement shall be effective unless made in writing and signed by Contractor and Railroad. This Agreement and the exhibits attached hereto and made a part hereof constitute the entire understanding between Contractor and Railroad and cancel and supersede any prior negotiations, understandings or agreements, whether written or oral, with respect to the work to be performed by Contractor.

Section 12. ASSIGNMENT - SUBCONTRACTING.

Contractor shall not assign or subcontract this Agreement, or any interest therein, without the written consent of the Railroad. Contractor shall be responsible for the acts and omissions of all subcontractors. Before Contractor commences any work, the Contractor shall, except to the extent prohibited by law; (1) require each of its subcontractors to include the Contractor as "Additional Insured" in the subcontractor's Commercial General Liability policy and Business Automobile policies with respect to all liabilities arising out of the subcontractor's performance of work on behalf of the Contractor by endorsing these policies with ISO Additional Insured Endorsements CG 20 26, and CA 20 48 (or substitute forms providing equivalent coverage); (2) require each of its subcontractors to endorse their Commercial General Liability Policy with "Contractual Liability Railroads" ISO Form CG 24 17 10 01 (or a substitute form providing equivalent coverage) for the job site; and (3) require each of its subcontractors to endorse their Business Automobile Policy with "Coverage For Certain Operations In Connection With Railroads" ISO Form CA 20 70 10 01 (or a substitute form providing equivalent coverage) for the job site.

SAMPLE

-  Introduction & Rail Overview
-  Regulatory Requirements & CDOT Roles & Responsibilities
-  Railroad Project Development Process
-  Highway-Rail At-Grade Crossings
-  Grade Separation & Other Specialized Projects
-  Highway & Railroad Track Maintenance Operations
-  Agreements
-  Public Utilities Commission Authority
-  CDOT Railroad Billings, Payment Process and Audits

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 11 of 14)

UNION PACIFIC RAILROAD COMPANY
 CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
 Form Approved: AVP Law 03/01/2013



EXHIBIT C

TO CONTRACTOR'S RIGHT OF ENTRY AGREEMENT

INSURANCE REQUIREMENTS

Contractor shall, at its sole cost and expense, procure and maintain during the course of the Project and until all Project work on Railroad's property has been completed and the Contractor has removed all equipment and materials from Railroad's property and has cleaned and restored Railroad's property to Railroad's satisfaction, the following insurance coverage:

A. COMMERCIAL GENERAL LIABILITY INSURANCE. Commercial general liability (CGL) with a limit of not less than \$5,000,000 each occurrence and an aggregate limit of not less than \$10,000,000. CGL insurance must be written on ISO occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage).

The policy must also contain the following endorsement, which must be stated on the certificate of insurance:

- Contractual Liability Railroads ISO form CG 24 17 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.
- Designated Construction Project(s) General Aggregate Limit ISO Form CG 25 03 03 97 (or a substitute form providing equivalent coverage) showing the project on the form schedule.

B. BUSINESS AUTOMOBILE COVERAGE INSURANCE. Business auto coverage written on ISO form CA 00 01 10 01 (or a substitute form providing equivalent liability coverage) with a combined single limit of not less \$5,000,000 for each accident and coverage must include liability arising out of any auto (including owned, hired and non-owned autos).

The policy must contain the following endorsements, which must be stated on the certificate of insurance:

- Coverage For Certain Operations In Connection With Railroads ISO form CA 20 70 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Property" as the Designated Job Site.
- Motor Carrier Act Endorsement - Hazardous materials clean up (MCS-90) if required by law.

C. WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY INSURANCE. Coverage must include but not be limited to:

- Contractor's statutory liability under the workers' compensation laws of the state where the work is being performed.
- Employers' Liability (Part B) with limits of at least \$500,000 each accident, \$500,000 disease policy limit \$500,000 each employee.

If Contractor is self-insured, evidence of state approval and excess workers compensation coverage must be provided.

Coverage must include liability arising out of the U. S. Longshoremen's and Harbor Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable.

The policy must contain the following endorsement, which must be stated on the certificate of insurance:

- Alternate Employer endorsement ISO form WC 00 03 01 A (or a substitute form providing equivalent coverage) showing Railroad in the schedule as the alternate employer (or a substitute form providing equivalent coverage).

D. RAILROAD PROTECTIVE LIABILITY INSURANCE. Contractor must maintain Railroad Protective Liability insurance written on ISO occurrence form CG 00 35 12 04 (or a substitute form providing equivalent coverage) on behalf of Railroad as named insured, with a limit of not less than \$2,000,000 per occurrence and an aggregate of \$8,000,000. A binder stating the policy is in place must be submitted to Railroad before the work may be commenced and until the original policy is forwarded to Railroad.

E. UMBRELLA OR EXCESS INSURANCE. If Contractor utilizes umbrella or excess policies, these policies must "follow form" and afford no less coverage than the primary policy.

F. POLLUTION LIABILITY INSURANCE. Pollution liability coverage must be written on ISO form Pollution Liability Coverage Form Designated Sites CG 00 39 12 04 (or a substitute form providing equivalent liability coverage), with limits of at least



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 12 of 14)

UNION PACIFIC RAILROAD COMPANY
 CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
 Form Approved: AVP Law 03/01/2013

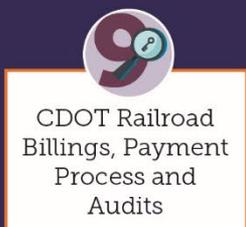
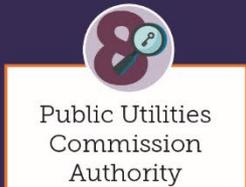
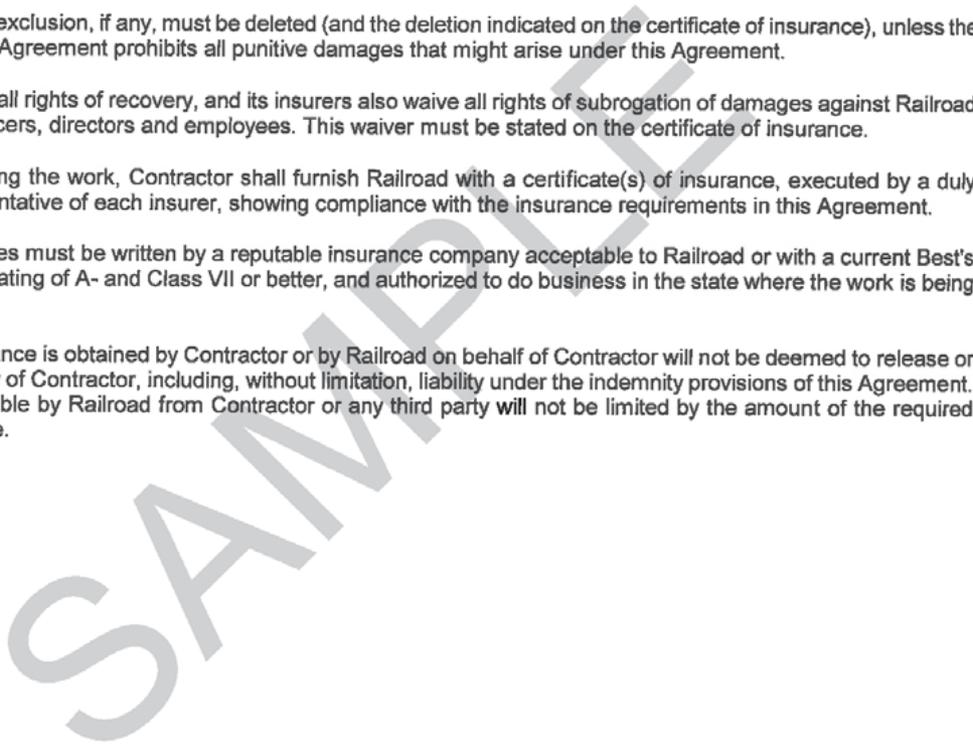


\$5,000,000 per occurrence and an aggregate limit of \$10,000,000.

If the scope of work as defined in this Agreement includes the disposal of any hazardous or non-hazardous materials from the job site, Contractor must furnish to Railroad evidence of pollution legal liability insurance maintained by the disposal site operator for losses arising from the insured facility accepting the materials, with coverage in minimum amounts of \$1,000,000 per loss, and an annual aggregate of \$2,000,000.

OTHER REQUIREMENTS

- G. All policy(ies) required above (except worker's compensation and employers liability) must include Railroad as "Additional Insured" using ISO Additional Insured Endorsements CG 20 26, and CA 20 48 (or substitute forms providing equivalent coverage). The coverage provided to Railroad as additional insured shall, to the extent provided under ISO Additional Insured Endorsement CG 20 26, and CA 20 48 provide coverage for Railroad's negligence whether sole or partial, active or passive, and shall not be limited by Contractor's liability under the indemnity provisions of this Agreement.
- H. Punitive damages exclusion, if any, must be deleted (and the deletion indicated on the certificate of insurance), unless the law governing this Agreement prohibits all punitive damages that might arise under this Agreement.
- I. Contractor waives all rights of recovery, and its insurers also waive all rights of subrogation of damages against Railroad and its agents, officers, directors and employees. This waiver must be stated on the certificate of insurance.
- J. Prior to commencing the work, Contractor shall furnish Railroad with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements in this Agreement.
- K. All insurance policies must be written by a reputable insurance company acceptable to Railroad or with a current Best's Insurance Guide Rating of A- and Class VII or better, and authorized to do business in the state where the work is being performed.
- L. The fact that insurance is obtained by Contractor or by Railroad on behalf of Contractor will not be deemed to release or diminish the liability of Contractor, including, without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Railroad from Contractor or any third party will not be limited by the amount of the required insurance coverage.



UPRR Right of Entry Agreement (for Roadway Contractor) (Page 13 of 14)

UNION PACIFIC RAILROAD COMPANY
 CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
 Form Approved: AVP Law 03/01/2013

**EXHIBIT D**

TO CONTRACTOR'S RIGHT OF ENTRY AGREEMENT

MINIMUM SAFETY REQUIREMENTS

The term "employees" as used herein refer to all employees of Contractor as well as all employees of any subcontractor or agent of Contractor.

I. CLOTHING

- A. All employees of Contractor will be suitably dressed to perform their duties safely and in a manner that will not interfere with their vision, hearing, or free use of their hands or feet.

Specifically, Contractor's employees must wear:

- i. Waist-length shirts with sleeves.
 - ii. Trousers that cover the entire leg. If flare-legged trousers are worn, the trouser bottoms must be tied to prevent catching.
 - iii. Footwear that covers their ankles and has a defined heel. Employees working on bridges are required to wear safety-toed footwear that conforms to the American National Standards Institute (ANSI) and FRA footwear requirements.
- B. Employees shall not wear boots (other than work boots), sandals, canvas-type shoes, or other shoes that have thin soles or heels that are higher than normal.
- C. Employees must not wear loose or ragged clothing, neckties, finger rings, or other loose jewelry while operating or working on machinery.

II. PERSONAL PROTECTIVE EQUIPMENT

Contractor shall require its employees to wear personal protective equipment as specified by Railroad rules, regulations, or recommended or requested by the Railroad Representative.

- i. Hard hat that meets the American National Standard (ANSI) Z89.1 – latest revision. Hard hats should be affixed with Contractor's company logo or name.
- ii. Eye protection that meets American National Standard (ANSI) for occupational and educational eye and face protection, Z87.1 – latest revision. Additional eye protection must be provided to meet specific job situations such as welding, grinding, etc.
- iii. Hearing protection, which affords enough attenuation to give protection from noise levels that will be occurring on the job site. Hearing protection, in the form of plugs or muffs, must be worn when employees are within:
 - 100 feet of a locomotive or roadway/work equipment
 - 15 feet of power operated tools
 - 150 feet of jet blowers or pile drivers
 - 150 feet of retarders in use (when within 10 feet, employees must wear dual ear protection – plugs and muffs)
- iv. Other types of personal protective equipment, such as respirators, fall protection equipment, and face shields, must be worn as recommended or requested by the Railroad Representative.

III. ON TRACK SAFETY

Contractor is responsible for compliance with the Federal Railroad Administration's Roadway Worker Protection regulations – 49CFR214, Subpart C and Railroad's On-Track Safety rules. Under 49CFR214, Subpart C, railroad contractors are responsible for the training of their employees on such regulations. In addition to the instructions contained in Roadway Worker Protection regulations, all employees must:

- i. Maintain a distance of twenty-five (25) feet to any track unless the Railroad Representative is present to authorize movements.



Introduction &
Rail Overview



Regulatory
Requirements &
CDOT Roles &
Responsibilities



Railroad Project
Development
Process



Highway-Rail
At-Grade
Crossings



Grade Separation
& Other
Specialized
Projects



Highway &
Railroad Track
Maintenance
Operations



Agreements



Public Utilities
Commission
Authority



CDOT Railroad
Billings, Payment
Process and
Audits

UPRR Right of Entry Agreement (for Roadway Contractor) (Page 14 of 14)

UNION PACIFIC RAILROAD COMPANY
 CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
 Form Approved: AVP Law 03/01/2013



- ii. Wear an orange, reflectorized workwear approved by the Railroad Representative.
- iii. Participate in a job briefing that will specify the type of On-Track Safety for the type of work being performed. Contractor must take special note of limits of track authority, which tracks may or may not be fouled, and clearing the track. Contractor will also receive special instructions relating to the work zone around machines and minimum distances between machines while working or traveling.

IV. EQUIPMENT

- A. It is the responsibility of Contractor to ensure that all equipment is in a safe condition to operate. If, in the opinion of the Railroad Representative, any of Contractor's equipment is unsafe for use, Contractor shall remove such equipment from Railroad's property. In addition, Contractor must ensure that the operators of all equipment are properly trained and competent in the safe operation of the equipment. In addition, operators must be:
 - i. Familiar and comply with Railroad's rules on lockout/tagout of equipment.
 - ii. Trained in and comply with the applicable operating rules if operating any hy-rail equipment on-track.
 - iii. Trained in and comply with the applicable air brake rules if operating any equipment that moves rail cars or any other railbound equipment.
- B. All self-propelled equipment must be equipped with a first-aid kit, fire extinguisher, and audible back-up warning device.
- C. Unless otherwise authorized by the Railroad Representative, all equipment must be parked a minimum of twenty-five (25) feet from any track. Before leaving any equipment unattended, the operator must stop the engine and properly secure the equipment against movement.
- D. Cranes must be equipped with three orange cones that will be used to mark the working area of the crane and the minimum clearances to overhead powerlines.

V. GENERAL SAFETY REQUIREMENTS

- A. Contractor shall ensure that all waste is properly disposed of in accordance with applicable federal and state regulations.
- B. Contractor shall ensure that all employees participate in and comply with a job briefing conducted by the Railroad Representative, if applicable. During this briefing, the Railroad Representative will specify safe work procedures, (including On-Track Safety) and the potential hazards of the job. If any employee has any questions or concerns about the work, the employee must voice them during the job briefing. Additional job briefings will be conducted during the work as conditions, work procedures, or personnel change.
- C. All track work performed by Contractor meets the minimum safety requirements established by the Federal Railroad Administration's Track Safety Standards 49CFR213.
- D. All employees comply with the following safety procedures when working around any railroad track:
 - i. Always be on the alert for moving equipment. Employees must always expect movement on any track, at any time, in either direction.
 - ii. Do not step or walk on the top of the rail, frog, switches, guard rails, or other track components.
 - iii. In passing around the ends of standing cars, engines, roadway machines or work equipment, leave at least 20 feet between yourself and the end of the equipment. Do not go between pieces of equipment of the opening is less than one car length (50 feet).
 - iv. Avoid walking or standing on a track unless so authorized by the employee in charge.
 - v. Before stepping over or crossing tracks, look in both directions first.
 - vi. Do not sit on, lie under, or cross between cars except as required in the performance of your duties and only when track and equipment have been protected against movement.
- E. All employees must comply with all federal and state regulations concerning workplace safety.



Introduction &
 Rail Overview



Regulatory
 Requirements &
 CDOT Roles &
 Responsibilities



Railroad Project
 Development
 Process



Highway-Rail
 At-Grade
 Crossings



Grade Separation
 & Other
 Specialized
 Projects



Highway &
 Railroad Track
 Maintenance
 Operations



Agreements



Public Utilities
 Commission
 Authority



CDOT Railroad
 Billings, Payment
 Process and
 Audits

CDOT Utility Clearance Letter



COLORADO
Department of Transportation
 Division of Engineering,
 Design and Construction

Rob Martindale - Region 3 Utility Engineer
 222 South Sixth Street, Room 317
 Grand Junction, CO 81501-2769
 Phone: (970) 683-6209 / Fax: (970) 683-6205

Date: October 14, 2015
 To: Roland Wagner – Project Manager
 From: Rob Martindale – Region 3 Utility Engineer *Rob Martindale*
 Subject: **Utility Clearance**

Pursuant to 23 CFR 635.309(b), this is to advise that all known utilities have been cleared in conjunction with the project shown below. In conjunction with the project listed below all railroad work has been arranged for it to be undertaken and completed as required for proper coordination with the physical construction schedules of the CDOT project work.

Project No.: **FBR 0821-094**
 Location: **SH 82 Grand Ave Bridge (F-07-A)**
 Sub-Account: **18158**

Please feel free to contact Rob Martindale, at the address or phone number shown above, should you have any questions.

cc: Eller
 Olson
 Wagner
 Feery
 Business Office
 File

222 South Sixth Street / PO Box 2769, Grand Junction, CO 81501 P 970.683.6209 F 970.683.6205 www.colorado.gov/



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Notice to Proceed Letter Sample



COLORADO
Department of Transportation
 Division of Engineering,
 Design and Construction

Rob Martindale - CDOT Railroad Manager
 4201 Arkansas Ave 4th Floor
 Denver, CO 80222
 Phone: (970) 210-5913 / Fax: (970) 683-6205

August 19, 2016

CDOT Project No. SFTY R200-207, SA 20127
 CR 75.1 Flashing lights and gates Project

Amber Stoffels
 BNSF Railway | Manager Public Projects – CO, NE, WY
 Email amber.stoffels@bnsf.com
 Office (303) 480-6584, Cell (817) 565-8234

Re: NOTICE TO PROCEED
 Executed Contract of CR 75.1 Las Animas County Flashing Lights and Gates near
 Trinidad, CO
 MP 632.75
 Existing DOT No.(s) 003-324M
 Trinidad, Colorado

Enclosed please find an executed original of the Contract executed on April 12, 2016 for above referenced project.

You are hereby authorized to proceed with the construction of the above-referenced railroad work to provide the installation of new flashing lights and gates, subject to the following conditions.

- The CDOT Resident Engineer must be contacted as soon as possible in advance of any construction work.
- No Construction work that encroaches on any roadway shall commence until a Traffic control plan has been developed and approved by the CDOT Resident Engineer listed below.
- A pre-construction conference with CDOT representatives may be required prior to beginning construction activities. The CDOT Resident Engineer should be contacted about the need for such conference.

The CDOT Resident Engineer for this project is **Matt Jagow**, 902 Erie Ave, Pueblo, CO, 81002, 719.546.5751, matthew.jagow@state.co.us

Please have all future billings for this project include the CDOT project number **SFTY R200-207** and **Sub Account # 20127** on the cover of each invoice.

Sincerely,

Rob Martindale
 CDOT Railroad Manager



Introduction &
 Rail Overview



Regulatory
 Requirements &
 CDOT Roles &
 Responsibilities



Railroad Project
 Development
 Process



Highway-Rail
 At-Grade
 Crossings



Grade Separation
 & Other
 Specialized
 Projects



Highway &
 Railroad Track
 Maintenance
 Operations



Agreements



Public Utilities
 Commission
 Authority



CDOT Railroad
 Billings, Payment
 Process and
 Audits

CDOT Maintenance Traffic Control Plan Sample (Sheet 1 of 3)

TABULATION OF TRAFFIC ENGINEERING ITEMS			
ITEM NUMBER	ITEM DESCRIPTION	UNIT	PROJECT TOTALS
620-0000	Mobilization	LS	1
630-0000	Flagging	Hour	600
630-0012	Traffic Control Management	Day	5
630-80305	Flagging Station Light	EACH	5
630-80336	Barricade (3 M-B) (Temp)	EACH	14
630-80341	Construction Traffic Sign (A)	EACH	106
630-80342	Construction Traffic Sign (B)	EACH	31
630-80355	Portable Message Sign Panel	DAY	20
630-80360	Drum Channelizing Device (with Light, Flash)	EACH	15
630-80415	Adv. Warn Seq Arrow Panel (C Type)	DAY	2
	Traffic Control Plan (MHT)	EACH	4

NOTES:
 Flagger estimated at 5 flaggers*5 days*24 Hrs
 VMS Sign Panels: 5 VMS*10 days

Project Description:
 US50 / Union Pacific Railroad Crossing: Railroad to remove their tracks, grade the ballast, install the new concrete crossing panels then relay and test the track. Expected duration for the UPRR's work is FIVE days. CDOT will then come in and repave the highway on either side of the railroad crossing the night following the completion of Railroad work.

US50 Eastbound and SH92 Eastbound Detour:
 Detour will allow the railroad crossing work to completely close US 50 north of the First and Main intersection and South of the City Market and Lite Street intersection. Local Business access must be maintained.

The Southbound traffic from Grand Junction will exit US 50 at Gunnison River Drive (McDonalds Intersection) and turn to the West going to the new Alternate Truck Route (ATR). There they will turn South but not cross the new railroad bridge turning Southwest onto Palmer Street. Continuing South on Palmer at the 1st and Palmer intersection the traffic turning to SH 92 (Hotchkiss) will turn East and go through the First and Main intersection. If the Southbound traffic wants to go toward Montrose they will continue South on Palmer to 2nd street turning East on 2nd to get to Main then turn South on Main. Alternatively, US50 traffic headed to Montrose can remain on the Alternate Truck Route.

NOTES:
 US50 / Gunnison River Drive Intersection:
 De-activate the Traffic Signal at US50 / Gunnison River Drive.
 Reduce US50 EB to a single lane prior to the mandatory right turn onto Gunnison River Drive. Flaggers to assist right turn movements for large vehicles.
 This Detour Plan is based on MUTCD Typical Application 9 and M&S Std Plan S-630-1, Case No.21
 Traffic Control Supervisor to provide Method-of-Handling Traffic (MHT).
 Additional Traffic Control Items may be required. Mask any conflicting Guide Signs.
 First and Main St Intersection:
 Set Traffic Signal to Flash. Flagger to direct Traffic.

Print Date: 8/27/2015	Sheet Revisions		Colorado Department of Transportation	As Constructed	US50 and SH92 EASTBOUND DETOUR SIGNING PLAN		Project No./Code
File Name: 19678-EB_Detour_Plan_240_Scale_With_Guide_Signs.dgn	Date:	Comments	2424 North Townsend Avenue Montrose, CO 81401 Phone: 970-663-6420 FAX: 970-249-6018	No Revisions:	Designer: JKE	Structure: X-XX-XX	NHPP 0501-063
Horiz. Scale: 1:240			Region 3	Revised:	Deteller: JKE	Numbers: X-XX-XX	19678
Unit Information			RBA	Void:	Sheet Subset: Traffic	Sheet Number: 1 of 2	Sheet Number 1

1 Introduction & Rail Overview

2 Regulatory Requirements & CDOT Roles & Responsibilities

3 Railroad Project Development Process

4 Highway-Rail At-Grade Crossings

5 Grade Separation & Other Specialized Projects

6 Highway & Railroad Track Maintenance Operations

7 Agreements

8 Public Utilities Commission Authority

9 CDOT Railroad Billings, Payment Process and Audits

CDOT Maintenance Traffic Control Plan Sample (Sheet 2 of 3)

SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES						
SIGNS						
SIGN CODE	LEGEND	DIMENSION	PANEL SIZE			Special
			A	B	C	
48W20-1	ROADWORK(AHEAD)	48x48	2			
48W20-5a(L)	LEFT/TWO LANES CLOSED/AHEAD	48x48	2			
48W14-2(L)	TRANSITION (SYMBOL)	48x48	4			
48W20-7a	FLAGGER (SYMBOL)	48x48	8			
48W20-2	DETOUR / AHEAD	48x 48	6			
60R11-4	ROAD CLOSED TO THRU TRAFFIC	60x 30	5			
48 R11-2	ROAD CLOSED	48x 30	4			
48M4-106	DETOUR ARROW (RIGHT)	48x 18	2			
48M4-101(L)	DETOUR ARROW (LEFT)	48x 18	3			
24M1-52	STATE ROUTE SIGN - SH52	24x 24	9			
24M1-4	US ROUTE SIGN - US50	24x 24	19			
24M4-8	DETOUR	24x 12	25			
24M3-2	EAST	24x 12	15			
24M3-4	WEST	24x 12	10			
21M5-1	ADVANCE TURN ARROW	21x 15	6			
21M6-1	DIRECTIONAL ARROW	21x 15	14			
21M6-3	DIRECTIONAL ARROW (AHEAD)	21x 15	4			
TOTALS			106	31	0	0

US50 Westbound Detour
Northbound traffic wanting to go toward Grand Junction will turn West at 2nd Street to get to Palmer, go North to the Alternate Truck Route (ATR) then to Gunnison River Drive, then East on Gunnison River Drive back out to US 50 at McDonalds to go toward Grand Junction.

The Detour shown on this sheet is designed to minimize loss of drive-by traffic by the businesses located on Delta's Main Street. Alternatively, US50 traffic wishing to by-pass Delta could be directed onto the ATR at the South end of Delta, Left onto 5th St, to G Rd to G50 Rd back onto US50 near MP 65.

Westbound SH 92 Traffic will come to the First and Main intersection and be directed further West to Palmer North to the ATR to Gunnison River Drive then East back out to US 50 at McDonalds to head North toward Grand Junction. If they want to head South toward Montrose on US 50 they will turn Left at the First and Main intersection as they currently do.

Traffic to Eastbound SH 92 (Hotchkiss) will turn East at 2nd Street to get to Meeker Street, turning North on Meeker to get to SH 92, then turn East on 92 to get toward Hotchkiss.

NOTES:
First and Main St Intersection:
Set Traffic Signal to Flash. Flagger to direct Traffic.
Mask any conflicting Guide Signs.

This Detour Plan is based on MUTCD Typical Application 9 and M&S Std Plan S-630-1, Case No.21
Traffic Control Supervisor to provide Method-of-Handling Traffic (MHT).
Additional Traffic Control Items may be required

Print Date: 8/27/2015
File Name: 19678-WB_Detour_Plan_240_Scale_with_Guide_Signs.dgn
Horiz. Scale: 1:240 Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions		
Date	Comments	Init.

Colorado Department of Transportation
2424 North Townsend Avenue
Montrose, CO 81401
Phone: 970-683-6420 FAX: 970-249-6018
Region 3 RBA

As Constructed		US50 and SH92 WESTBOUND DETOUR SIGNING PLAN		Project No./Code	
No Revisions:		Designer: JKE	Structure: X-XX-XX	NHPP 0501-063	
Revised:		Deteller: JKE	Numbers: X-XX-XX	19678	
Void:		Sheet Subst: Traffic	Subst Sheets: 2 of 2	Sheet Number	2

1 Introduction & Rail Overview

2 Regulatory Requirements & CDOT Roles & Responsibilities

3 Railroad Project Development Process

4 Highway-Rail At-Grade Crossings

5 Grade Separation & Other Specialized Projects

6 Highway & Railroad Track Maintenance Operations

7 Agreements

8 Public Utilities Commission Authority

9 CDOT Railroad Billings, Payment Process and Audits

CDOT Maintenance Traffic Control Plan Sample (Sheet 3 of 3)

TABULATION OF TRAFFIC ENGINEERING ITEMS						SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES							NOTES		
ITEM NUMBER	ITEM DESCRIPTION	UNIT	PROJECT TOTALS	UNIT PRICE	EXTENDED	SIGN CODE	LEGEND	DIMENSION	PANEL SIZE						
									A	B	C	Special			
						EA	EA	EA	SF						
620-00000	Mobilization	LS	1	\$2,500.00	\$2,500.00										
630-00000	Flagging	Hour	600	\$32.00	\$19,200.00										
630-00012	Traffic Control Management	Day	5	\$1,000.00	\$5,000.00										
630-80305	Flagging Station Light	EACH	5	\$200.00	\$1,000.00										
630-80306	Barricade (3 M-B) (Temp)	EACH	14	\$400.00	\$5,600.00										
630-80341	Construction Traffic Sign (A)	EACH	106	\$30.00	\$3,180.00	48W20-1	ROAD/WORK(AHEAD)	48x48							
630-80342	Construction Traffic Sign (B)	EACH	31	\$50.00	\$1,550.00	48W20-5a(L)	LEFT/TWO LANES/CLOSED/AHEAD	48x48							
630-80355	Portable Message Sign Panel	DAY	50	\$120.00	\$6,000.00	48W4-2(L)	(L) TRANSITION (SYMBOL)	48x48							
630-80360	Drum Channelizing Device	EACH	20	\$15.00	\$300.00	48W20-7a	FLAGGER (SYMBOL)	48x48							
630-80360	Drum Channelizing Device (with Light, Flash)	EACH	15	\$20.00	\$300.00	48W20-2	DETOUR / AHEAD	48x 48							
630-80415	Adv. Wam Seq Arrow Panel (C Type)	DAY	2	\$200.00	\$400.00										
630-80415	Traffic Control Plan (MHT)	EACH	4	\$100.00	\$400.00										
NOTES:		Flagging estimated at 5 flaggers*5 days*24 Hrs VMS Sign Panels: 5 VMS*10 days													
				TOTAL	\$45,430.00										

SAMPLE



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Railroad Specifications-SAMPLE BNSF Railway Requirements (Roadway Surfacing Maintenance) (Sheet 1 of 5)

Project No. **?????**
PCN **?????**

Date:

1 BNSF RAILWAY REQUIREMENTS

GENERAL

This project includes construction work on the rights-of-way and/or properties of The BNSF Railway (hereinafter called "Railroad") and adjacent to the tracks, wire lines, and other facilities of Railroad. The Contractor and subcontractors shall cooperate with the officers and the authorized representatives of the Railroad and its tenants to the end. The Contractor's work shall be begun, conducted, and completed in such manner as to cause no interference whatsoever with the safety or the continuous and uninterrupted use and operation of the tracks, wire lines, and other facilities belonging to the Railroad or its tenants.

Contractor Responsibilities:

The Contractor is responsible for a Roadway Surfacing/Resurfacing license agreement at the following CDOT railroad crossing that crosses the BNSF Railroad tracks as shown in the construction plans: The Contractor shall fill out the license agreement application online at <https://bnsf.railpermitting.com>. Contractor will need to create an account to start the process.

CDOT Crossing	Railroad M.P.	DOT Crossing No.
?????	??????	???????

The Contractor shall comply with all rules and regulations prescribed by the Railroad, included in obtaining and receiving fully executed Roadway Surfacing/Resurfacing license agreement. Furthermore complying with all requirements of protecting the tracks (and the traffic moving thereon), telephone, telegraph and signal wires, and other property of the Railroad or its tenants at and in the vicinity of the project during the time such work is being performed, and all costs for complying with such rules and regulations shall be borne by the Contractor. The Contractor shall enter into a Roadway Surfacing/Resurfacing license agreement with the Railroad using the online process. All costs and fees for entering into agreement with the Railroad shall be borne by the Contractor. Contractor may also require a temporary access and crossing permit.

The cost of Railroad flagging and/or construction inspection shall be paid by the Contractor and will be reimbursed to the Contractor by separate Force Account items established for this purpose upon submittal of appropriate documentation.

Prior notice shall be given as per the Railroad Requirements and Roadway Surfacing/Resurfacing license agreement.

The plans for this project, affecting the Railroad, are subject to approval by the Railroad and changes in plans may be required after award of Contract. Such changes are subject to the approval of the Department, FHWA, and the Railroad. **There will be no equipment on the tracks.**



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Railroad Specifications-SAMPLE BNSF Railway Requirements (Roadway Surfacing Maintenance) (Sheet 2 of 5)

Project No. ?????
PCN ?????

Date:

2 BNSF RAILWAY REQUIREMENTS

For contractor related Surface/Resurfacing license agreement contact the following:

Melissa Woodruff
Associate Permit Manager
JLL - Rail Practice Group
4200 Buckingham Road, Suite 110
Fort Worth, TX 76155
Direct Number (817) 230-2626

All notices and correspondence with the Railroad shall contain the railroad Tracking Number and location. Conforming copies of such notices and correspondence shall be submitted to the Department's Engineer.

Said notices to be given in writing at least forty-five (45) days in advance of the date on which the Contractor expects to begin such work. Notice shall also be given within ten days following completion and acceptance of such work.

The Railroad shall assign to the Contractor flagmen for the protection of train operations. All costs for such flagmen shall be as provided in **Railroad Flagging** herein.

The Contractor shall hold the Railroad harmless and indemnify it from and against any and all loss, damage, claims, demands, causes of action, cost and expenses of whatsoever nature arising out of damage to or destruction of property whatsoever, where such injury, death, damage, or destruction results from any cause due to work done in connection with the construction of the project on or in close proximity to railroad property and shall also release the Railroad from and shall waive any claim for injury or damage to the work under construction or to the property which may result from the construction, maintenance, and operation of railroad tracks, wire lines, pipe lines, and other railroad facilities on said right-of-ways of the Railroad, SAVE AND EXCEPTING any death, damage, or destruction resulting solely from the negligent acts or omissions of the Railroad, its officers, agents, or employees.

Requirements for Railroad Roadway Surface/Resurfacing License Agreement

Licensing Process:

1. Once application package is successfully submitted in RailPermitting.com (and fees paid), a drawing will be prepared that will serve as Exhibit A of the license agreement. This process takes approximately 2 weeks to complete.
2. Upon completion of the drawing preparation, information will be forwarded to the local BNSF Roadmaster for approval. Once approved, JLL will send a contract for signature. A letter will be included that will provide directions regarding insurance and any additional fees.
3. Return the signed contract along with the appropriate payment and certificates of insurance to JLL.
4. The final contract will be presented for execution provided payment has been received and insurance has been approved.



Introduction &
Rail Overview



Regulatory
Requirements &
CDOT Roles &
Responsibilities



Railroad Project
Development
Process



Highway-Rail
At-Grade
Crossings



Grade Separation
& Other
Specialized
Projects



Highway &
Railroad Track
Maintenance
Operations



Agreements



Public Utilities
Commission
Authority



CDOT Railroad
Billings, Payment
Process and
Audits

CDOT Railroad Specifications-SAMPLE BNSF Railway Requirements (Roadway Surfacing Maintenance) (Sheet 3 of 5)

Project No. **?????**
PCN **?????**

Date:

3 BNSF RAILWAY REQUIREMENTS

5. The cover letter and the executed contract will include contact information and instructions to schedule the Flagger. All work on the Premises will be conducted under the direction of the Flagger. Fees for the Flagger are separate from the application and license fees, and are based on a daily rate. The Scheduler will prepare an invoice for pre-payment based on the estimated time the contractor will be on the Premises. This pre-payment is a deposit and further billing will be necessary if the contractor works more than the estimate. A refund will be issued should the work complete sooner. **Licensee will need to contact the Scheduler at least 2 weeks prior to beginning work.**

6. Prior to commencing any work on the Premises, Licensee shall complete and shall require its contractor (all parties who will be working on the site) to complete the safety training program at Internet Website <http://www.bnsfcontractor.com>. This training must be completed prior to beginning work and is good for one year from completion.

Process Time:

Please be advised that the average time from successful submission of the application to execution of the license agreement is 4 weeks. And then a minimum of 2 weeks is needed to schedule the Flagger. Every effort will be made to complete this process in a timely manner.

Insurance Requirements for the following Agreement:

	Roadway Surfacing/Resurfacing
Commercial General Liability Insurance	Contractual Liability with a combined single limit of a minimum of \$2,000,000 each occurrence and an aggregate limit of at least \$4,000,000.
Business Automobile Insurance	Combined single limit of at least \$1,000,000 per occurrence.
Workers Compensation and Employers Liability Insurance	Employers' Liability with limits of at least \$500,000 each accident, \$500,000 by disease policy limit, \$500,000 by disease each employee.
Railroad Protective Liability Insurance	Coverage of at least \$2,000,000 per occurrence and \$6,000,000 in the aggregate, except for New Mexico in which coverage is \$5,000,000 per occurrence and \$10,000,000 in the aggregate
Note: These limits are subject to change without notice. An Agreement will be provided to you, which contains details concerning insurance requirements.	

The following will need to be included/attached in the application tool to process the license request:

1. **\$800 non-refundable application fee.** This is not in lieu of a permit agreement fee. Only credit card payments can be made with the application tool.
2. **One set of drawings** for the area to be occupied (include streets, distance from tracks and streets, mileposts if available and any distinguishing landmarks). Please ensure all information is accurate, as each change will add an additional \$800 to the application fee. Documents can be uploaded to the application tool in the Review section.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Railroad Specifications-SAMPLE BNSF Railway Requirements (Roadway Surfacing Maintenance) (Sheet 4 of 5)

Project No. ?????
PCN ?????

Date:

4 BNSF RAILWAY REQUIREMENTS

CONTRACT REQUIREMENTS

1. The Contractor shall comply with the requirements of the executed Roadway Surfacing/Resurfacing license agreement.
2. The Contractor and Railroad shall agree, in advance, upon methods and procedures covering all construction on Railroad's properties. Such proposals shall be in writing with a copy to the Engineer.
3. The Contractor shall not establish any work road crossings on Railroad's tracks or roadways or unloading pits on Railroad's right-of-way, except as shown on the plans and approved by the Railroad.
4. The Contractor shall install, operate, maintain, and remove in a manner satisfactory to the Railroad, suitable barricades adequate to prevent unauthorized vehicles or equipment from using such crossings or roadways. The Contractor shall not, at any time, cross the Railroad tracks with vehicles or equipment of any kind or character, except at existing public crossing.
5. Construction materials or any other temporary obstruction shall not be placed closer than 15 feet from the centerline of tracks, without prior consent of railroad flagman.
6. The Contractor shall coordinate project construction with the performance by the Railroad of each work element listed in "Work to be Done by Railroad" below. Provide an accurate construction schedule that includes all railroad work elements to the Railroad. Provide the Railroad periodic updates to the schedule. Conduct necessary Railroad coordination meetings, and provide other necessary accommodations as directed by the Engineer
7. Delay to Trains. The Contractor shall furnish, maintain and install, during performance of the Project Work, all advance warning signs or barricade protection that are expressly required by the Railroad for the duration of the Project Work. The Contractor shall pay the Railroad for all train delay costs incurred by the Railroad resulting from a Contractor exceeding the agreed upon track construction window periods.
8. Fiber optic cable systems may be buried on the BNSF's property. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. The Contractor shall telephone BNSF during normal business hours (7:00 a.m. to 9:00 p.m. Central Time, Monday through Friday, except holidays) at 1-800-832-5452 (also a 24-hour number for emergency calls) to determine if fiber optic cable is buried anywhere on BNSF's premises within the limits of the project. If it is, the Contractor shall telephone the telecommunications companies involved, arrange for a cable locator and make arrangements for relocation or other protection of the fiber optic cable prior to beginning any work on BNSF's premises."
9. Upon completion of work, the contractor shall remove from the premises of Railroads' right-of-way all equipment, surplus material and debris, leaving such premises in a neat condition satisfactory to the Railroad.
10. A mandatory pre-construction meeting shall be held with BNSF prior to construction.



Introduction &
Rail Overview



Regulatory
Requirements &
CDOT Roles &
Responsibilities



Railroad Project
Development
Process



Highway-Rail
At-Grade
Crossings



Grade Separation
& Other
Specialized
Projects



Highway &
Railroad Track
Maintenance
Operations



Agreements



Public Utilities
Commission
Authority



CDOT Railroad
Billings, Payment
Process and
Audits

CDOT Railroad Specifications-SAMPLE BNSF Railway Requirements (Roadway Surfacing Maintenance) (Sheet 5 of 5)

Project No. ?????
PCN ?????

Date:

5 BNSF RAILWAY REQUIREMENTS WORK TO BE DONE BY RAILROAD

1. Furnish personnel for protection (railroad flagging) and construction inspection services, if required.

RAILROAD FLAGGING & CONSTRUCTION INSPECTION

The Contractor shall notify the Railroad per the executed Roadway Surfacing/Resurfacing license agreement to arrange for required flagging services and construction inspection services.

It is estimated that ONE (1) BNSF flag persons will be required.

During the construction period, all flagging and protective services shall be performed strictly in accordance with directives and instructions issued by the Railroad. Contractor shall confer with the Railroad for the times, locations, and manner of such protective measures.

Flagging Services: The Railroad will be providing flagging during the Project. Labor charges for any Railroad Work performed by Railroad forces will be in accordance with the then current working agreements between the Railroad and its employees and are subject to Railroad's standard direct and indirect labor costs and additives costs as identified in 23 CFR Part 140 Subpart I. The flagging costs are for a normal business day and do not include weekends, overtime or holiday pay. Related costs included in the hourly rate covers vacation allowances, paid holidays, retirement and unemployment, public liability and property damage insurance, health and welfare, and supervision. This rate is subject to any increases which may result from Railroad Employees-Railroad Management negotiations or which may be authorized by Federal authorities.

Construction Oversight Inspection Services: The Railroad will hire an outside consultant to perform construction oversight inspection services in connection with the Project Work. The consultant shall perform the construction oversight inspection services and any further preliminary engineering design review for the BNSF, as necessary.

Flagging services will be performed by Section men. The estimated pay rate for each flag person and construction inspection is \$2,500 per day for an 8-hour day. For information, the estimated cost of flagging services and construction inspection for this project is \$0,000 (0 working days x \$2,500/day) but is not limited to that figure. To the extent of the actual cost, the CDOT will reimburse the Contractor for all approved flagging and construction inspection hereunder. The cost of flagging and construction inspection required subsequent to the Contract time expiration date or any approved extension of time shall be borne by the Contractor.

The Railroad will bill the Contractor monthly at the current rates of pay for flagging services and construction inspection services furnished and the Contractor shall pay the Railroad within 30 days after receipt of bills. The Department will reimburse the Contractor under the planned force account items.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Form - Railroad Project Diagnostic Form (Sheet 1 of 14)

US DOT Crossing Name: _____

US DOT Crossing Number: _____

Diagnostic Date: _____



RR Crossing Diagnostic Form

Railroad/CDOT Project Information

Reviewer: _____ Railroad: _____

City: _____ County: _____

Area Classification: Urban Rural Zoning Classification: _____

Roadway Classification: _____ Roadway Name/Highway Number: _____

Crossing Width Existing: _____ Future: _____

Railroad Crossing Data

Subdivision: _____ Milepost: _____

Number of Trains/Day Existing: _____ Future: _____

Type of Trains (Existing)

Type of Trains (Future)

Freight	# Trains/Day _____	Freight	# Trains/Day _____
Unit Trains		Unit Trains	
Mixed Manifest		Mixed Manifest	
Local Delivery		Local Delivery	
Passenger	# Trains/Day _____	Passenger	# Trains/Day _____
Light Rail (RTD)		Light Rail (RTD)	
Commuter (RTD)		Commuter (RTD)	
Amtrak		Amtrak	
Tourist		Tourist	
Other	_____	Other	_____

Type of Movements (Existing)

Type of Movements (Future)

Thru	# Trains/Day _____	Thru	# Trains/Day _____
Switching	# Trains/Day _____	Switching	# Trains/Day _____

Time Table Speed: _____ Within Yard Limits: Yes No

FRA Track Class: _____ Number of Tracks: _____

Type of Track: _____ Track Gradient: _____ % Direction: _____

Rail Weight: _____ RR ROW Width at Crossing: _____



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Form - Railroad Project Diagnostic Form (Sheet 2 of 14)

US DOT Crossing Name: _____

US DOT Crossing Number: _____

Diagnostic Date: _____

	Approach Direction:	Approach Direction:
Flashing Lights		
Cantilevered Flashing Light Pairs:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____
Mast Mounted Flashing Lights:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____
Flashing Light Pairs:	Total: _____	Total: _____
Flashing Light Type:	<input type="checkbox"/> Incandescent <input type="checkbox"/> LED	<input type="checkbox"/> Incandescent <input type="checkbox"/> LED
Gates		
Entrance Gates:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____
Exit Gates:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____
Pedestrian Gates:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____
Traffic Signals		
At Crossing as Primary Crossing Control:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Downstream Interconnected Intersection:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Presignal:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Queue Cutter:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Protective Guardrail:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bells:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____

Bungalow Location (Quadrant): NE NW SE SW

RR Interconnection (Existing):	<input type="checkbox"/> None <input type="checkbox"/> Advanced Preemption <input type="checkbox"/> Simultaneous Circuit <input type="checkbox"/> Gates Down Circuit <input type="checkbox"/> Supervised Circuit <input type="checkbox"/> Traffic Signal Health Circuit	RR Interconnection (Proposed):	<input type="checkbox"/> None <input type="checkbox"/> Advanced Preemption <input type="checkbox"/> Simultaneous Circuit <input type="checkbox"/> Gates Down Circuit <input type="checkbox"/> Supervised Circuit <input type="checkbox"/> Traffic Signal Health Circuit
--------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Crossing Surface: _____

Medians: Yes No Type: _____ Crossing Angle: _____

Accident History: _____

Other Crossing Information: _____

Click button to attach Accident History Report/Inventory Report: [Attach Files](#)



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Form - Railroad Project Diagnostic Form (Sheet 3 of 14)

US DOT Crossing Name: _____

US DOT Crossing Number: _____

Diagnostic Date: _____

Roadway Approach Data

ADT/AADT

Total: Existing: _____ Future: _____ Year: _____

% Heavy Vehicles: Existing: _____ Future: _____ Year: _____

% Buses: Existing: _____ Future: _____ Year: _____

Sidewalks

Existing: Yes No Width: _____

Future: Yes No Width: _____

Utility Locations/Interferences

Electric: _____

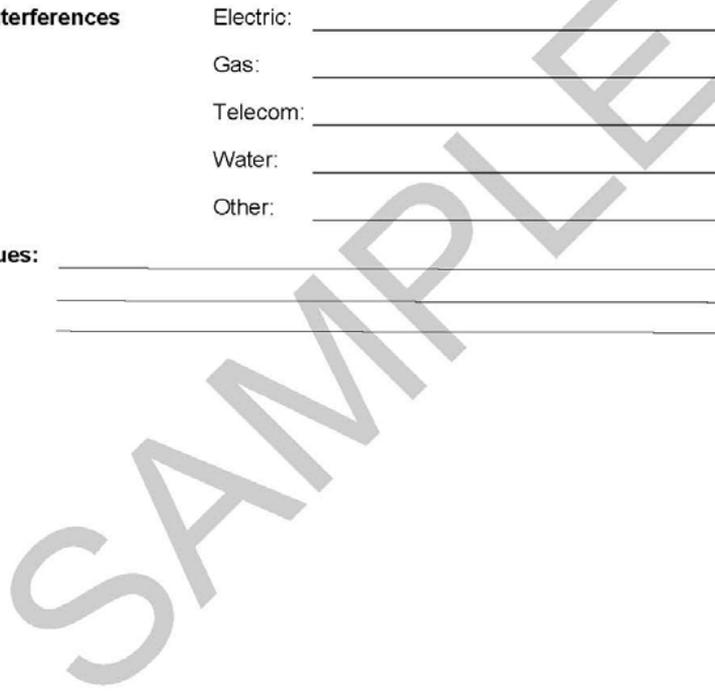
Gas: _____

Telecom: _____

Water: _____

Other: _____

Environmental Issues: _____



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Form - Railroad Project Diagnostic Form (Sheet 5 of 14)

US DOT Crossing Name:

US DOT Crossing Number:

Diagnostic Date:

Approach Direction:		Approach Direction:	
Existing Advance Warning Signs			
W10-1		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-1aP		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-2		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-3		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-4		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-9P		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-11		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-11a		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Other			
Existing Flashing Beacons		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sign(s)			
Existing LED Sign Panels		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sign(s)			

Vegetation

NE Quadrant NW Quadrant

SE Quadrant SW Quadrant

Other Roadway/Approach Information:



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

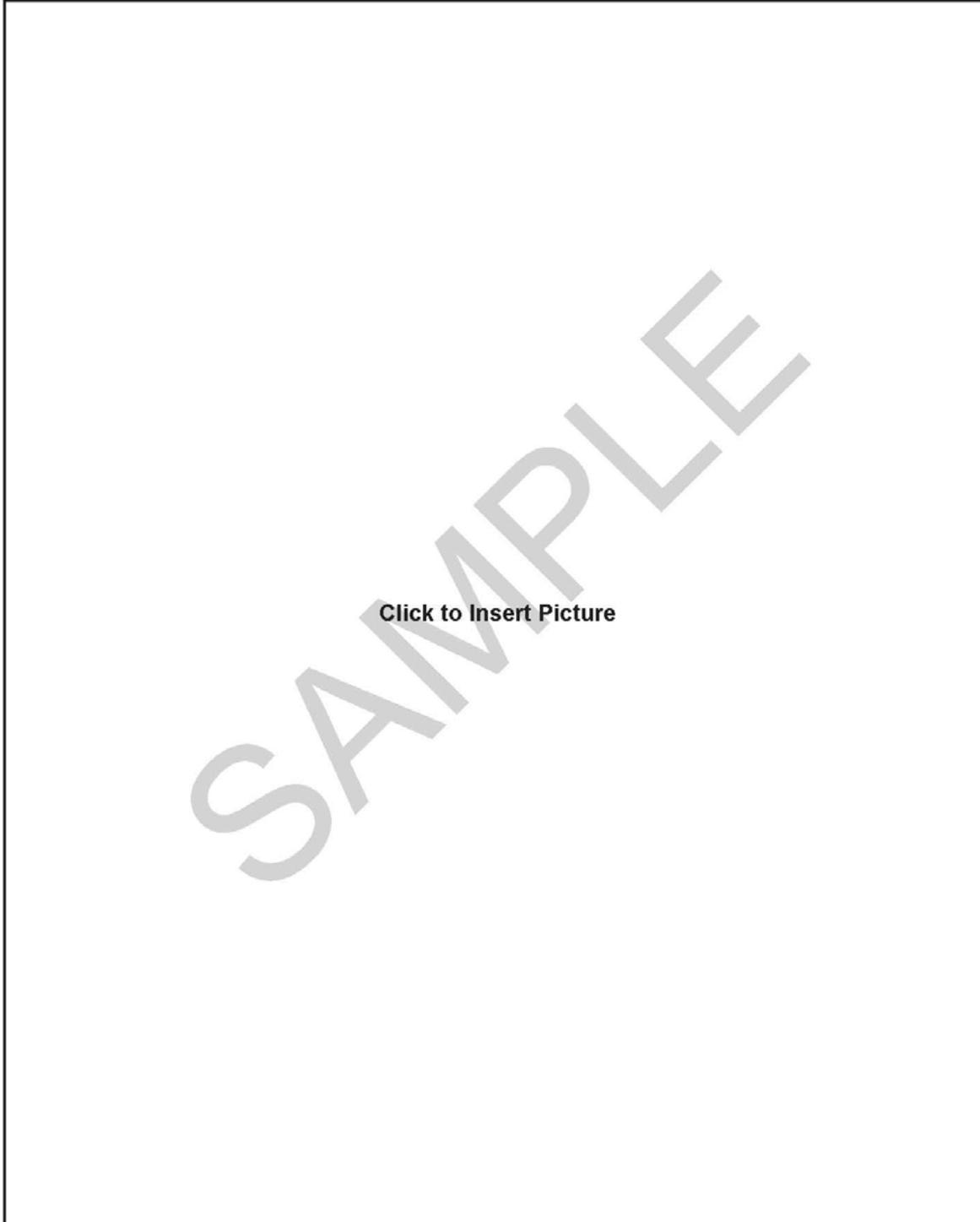
CDOT Form - Railroad Project Diagnostic Form (Sheet 6 of 14)

US DOT Crossing Name:

US DOT Crossing Number:

Diagnostic Date:

Aerial View of Existing Crossing



Click to Insert Picture



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Form - Railroad Project Diagnostic Form (Sheet 7 of 14)

US DOT Crossing Name:

US DOT Crossing Number:

Diagnostic Date:

Site Photos

Click to Insert Picture

Crossing ID #

Click to Insert Picture

Existing Surface Conditions



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

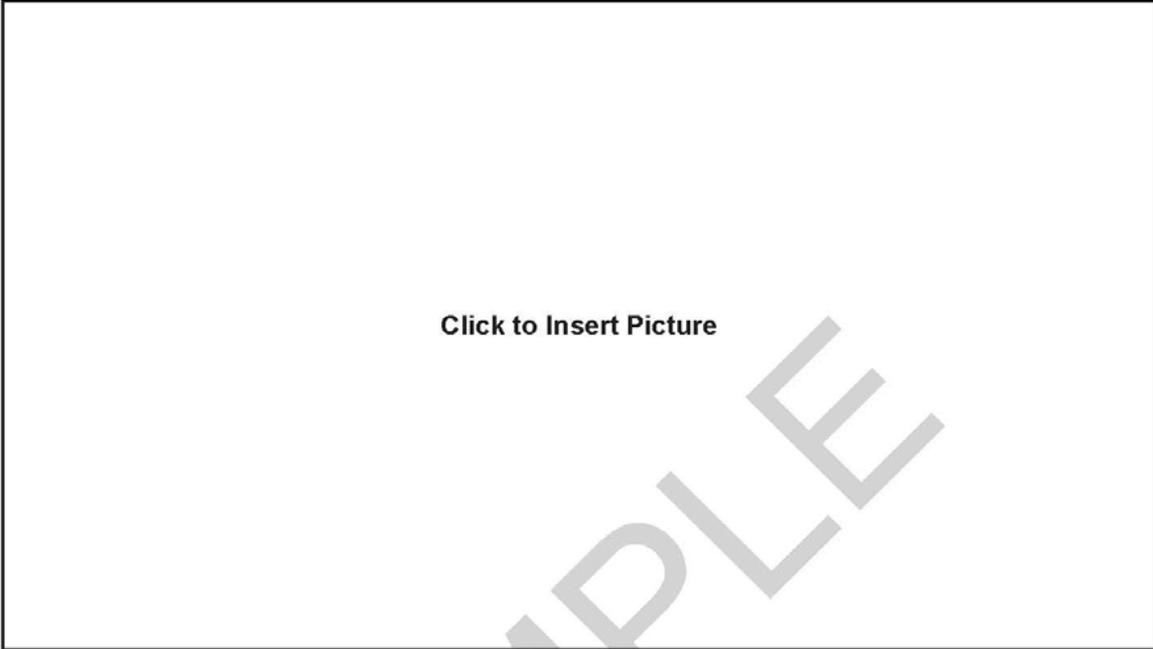
CDOT Form - Railroad Project Diagnostic Form (Sheet 8 of 14)

US DOT Crossing Name:

US DOT Crossing Number:

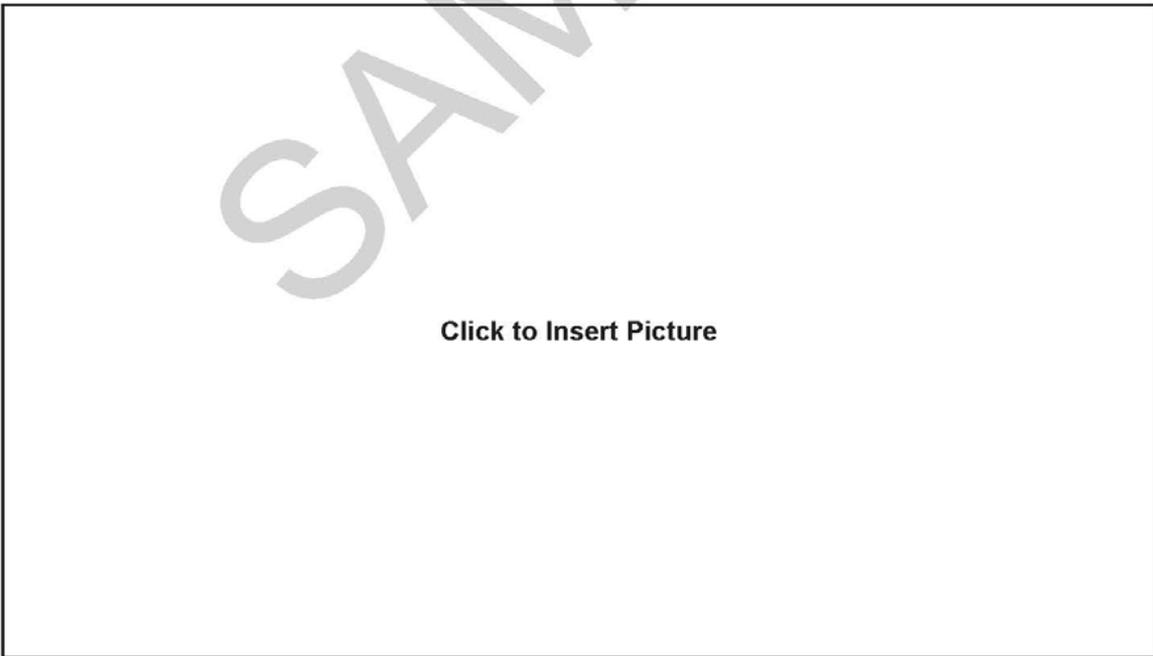
Diagnostic Date:

Site Photos



Click to Insert Picture

NB Approach



Click to Insert Picture

EB Approach



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Form - Railroad Project Diagnostic Form (Sheet 9 of 14)

US DOT Crossing Name:

US DOT Crossing Number:

Diagnostic Date:

Site Photos

Click to Insert Picture

SB Approach

Click to Insert Picture

WB Approach

List major attributes of crossing which may contribute to safety:

List features which may reduce crossing safety:

Possible methods for improving safety at the crossing:



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Form - Railroad Project Diagnostic Form (Sheet 10 of 14)

US DOT Crossing Name: _____

US DOT Crossing Number: _____

Diagnostic Date: _____

Proposed Crossing Upgrades

	Approach Direction: _____	Approach Direction: _____
Proposed Flashing Lights		
Cantilevered Flashing Lights:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____
Mast Mounted Flashing Lights:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____
Total Count of Flashing Light	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____
Flashing Light Type	<input type="checkbox"/> Incandescent <input type="checkbox"/> LED	<input type="checkbox"/> Incandescent <input type="checkbox"/> LED
Proposed Gates		
Entrance Gates:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____ Lengths: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____ Lengths: _____
Exit Gates:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____
Pedestrian Gates:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____
Proposed Traffic Signal		
Downstream Intersection:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Presignal:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Queue Cutter:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Protective Guardrail:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bells:	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Bungalow Location (Quadrant): NE NW SE SW

Bungalow Power Source Location:

RR Interconnection <input type="checkbox"/> None (Existing): <input type="checkbox"/> Motion Detection <input type="checkbox"/> Constant Warning <input type="checkbox"/> Other: _____ <input type="checkbox"/> Advanced Preemption <input type="checkbox"/> Simultaneous Circuit <input type="checkbox"/> Gates Down Circuit <input type="checkbox"/> Supervised Circuit <input type="checkbox"/> Traffic Signal Health Circuit	RR Interconnection <input type="checkbox"/> None (Proposed): <input type="checkbox"/> Motion Detection <input type="checkbox"/> Constant Warning <input type="checkbox"/> Other: _____ <input type="checkbox"/> Advanced Preemption <input type="checkbox"/> Simultaneous Circuit <input type="checkbox"/> Gates Down Circuit <input type="checkbox"/> Supervised Circuit <input type="checkbox"/> Traffic Signal Health Circuit
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Crossing Surface: _____ Medians: Yes No Type: _____



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Form - Railroad Project Diagnostic Form (Sheet 11 of 14)

US DOT Crossing Name:

US DOT Crossing Number:

Diagnostic Date:

Approach Direction:			Approach Direction:		
Proposed Regulatory Signs					
R1-1		<input type="checkbox"/> Yes <input type="checkbox"/> No			
R1-2		<input type="checkbox"/> Yes <input type="checkbox"/> No			
R8-8		<input type="checkbox"/> Yes <input type="checkbox"/> No			
R8-10		<input type="checkbox"/> Yes <input type="checkbox"/> No			
R10-6		<input type="checkbox"/> Yes <input type="checkbox"/> No			
R15-1		<input type="checkbox"/> Yes <input type="checkbox"/> No			
Are R15-1 sign(s) reflective?		<input type="checkbox"/> Yes <input type="checkbox"/> No			
R15-2P		<input type="checkbox"/> Yes <input type="checkbox"/> No			
R15-3P		<input type="checkbox"/> Yes <input type="checkbox"/> No			
Other					



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

CDOT Form - Railroad Project Diagnostic Form (Sheet 12 of 14)

US DOT Crossing Name:

US DOT Crossing Number:

Diagnostic Date:

Approach Direction:		Approach Direction:	
Proposed Advance Warning Signs			
W10-1		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-1aP		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-2		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-3		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-4		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-9P		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-11		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
W10-11a		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Other	_____		
Proposed Flashing Beacons	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Sign(s)	_____		
Proposed LED Sign Panels	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Sign(s)	_____		

Reason for Proposed Upgrades:



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

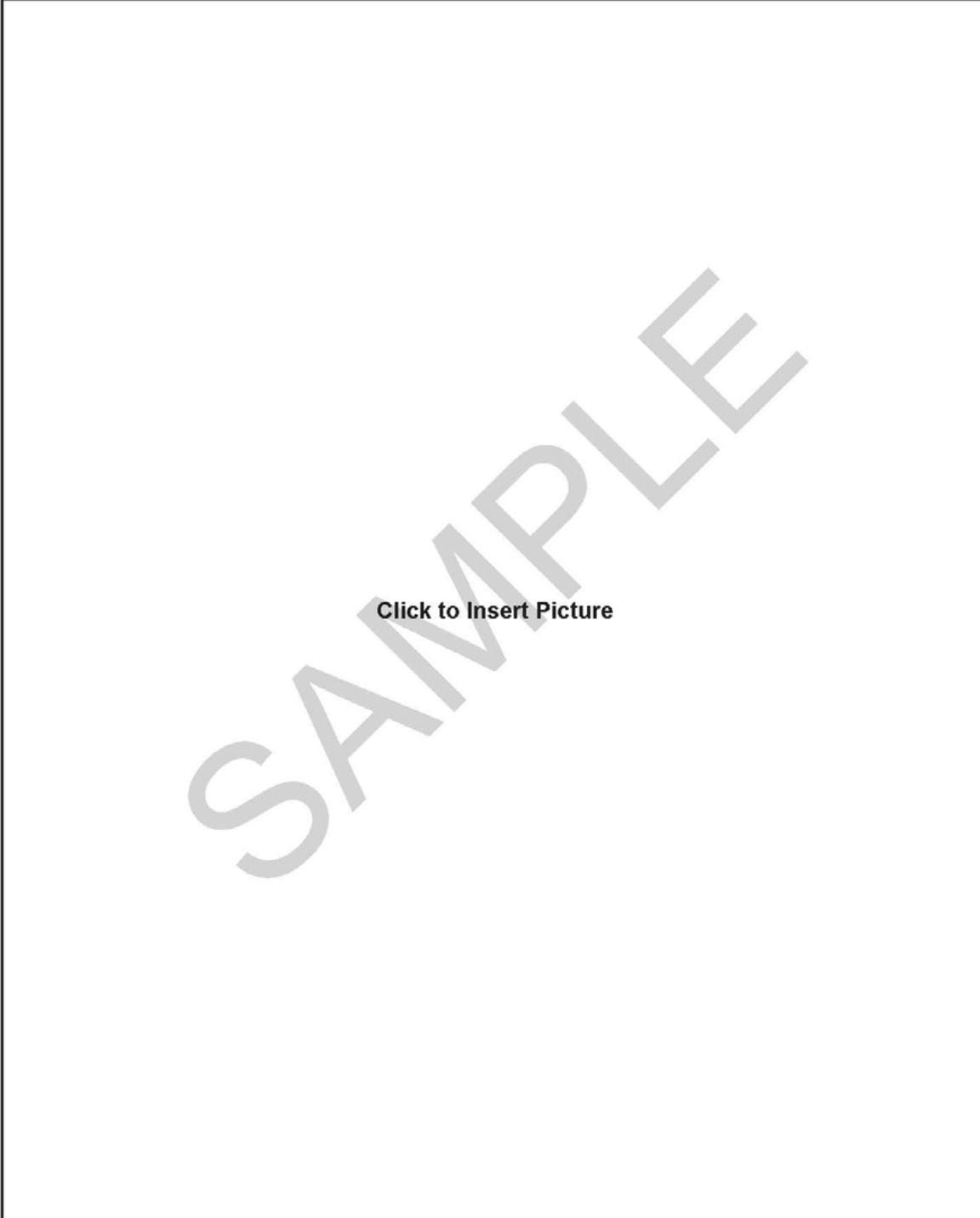
CDOT Form - Railroad Project Diagnostic Form (Sheet 13 of 14)

US DOT Crossing Name:

US DOT Crossing Number:

Diagnostic Date:

Sketch of Proposed Crossing



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Appendix B. Definitions of Terms and Acronyms

The following terms are used in this Manual and are provided for the user's information.

Term	Definition
3R projects	Resurfacing, Restoration, and Rehabilitation projects
AADT	Annual Average Daily Traffic
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
Active Warning Devices	Traffic control devices that include signals, flashing-lights, automatic gates, bells, and other automatically operated devices that warn motorists, pedestrians, and bicyclists of an approaching train.
ADA	Americans with Disabilities Act of 1990
AGNC	Associated Governments of Northwestern Colorado
Agreement	A general term referring to a signed document between two or more parties outlining conditions to which each signing party has agreed.
ALJ	Administrative Law Judge
Applicant	The party that is responsible for applying for and obtaining any required Public Utilities Commission authorization for the project.
Apportionment	Funding allocated for a specific scope. Includes unexpended apportionments made under previous authorization laws.
AQPC	Air Quality Planning Council
AREMA	American Railway Engineering and Maintenance-of-Way Association
At-Grade Crossing	The location where a roadway and a railroad track intersect each other at the same elevation.
Automatic Gates	Gates that automatically block travel lanes, sidewalks, bike paths, and other passageways to warn of an approaching train.
BNSF	BNSF Railway
CDOT	Colorado Department of Transportation
C.F.R.	Code of Federal Regulations
C&M	Construction and Maintenance Agreement
CMGC	Construction Manager General Contractor
CMS	Contract Management System
COFRS	Colorado Financial Reporting System.
C.R.S.	Colorado Revised Statutes
DB	Design-Build Project
DBB	Design-Bid-Build Project
Department	Colorado Department of Transportation
Detour	A temporary rerouting of a railroad track or roadway due to closure of the crossing by construction or other activities.
Diagnostic Review	An on-site evaluation of the safety of a highway-rail crossing, which typically consists of, among other factors, reviewing train and highway traffic volumes, speed, sight distance and existing warning devices.



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Term	Definition
Diagnostic Review Team	Federal, State, and local officials, railroad representatives, engineering consultants and other professionals responsible for conducting an on-site investigation of railroad crossings. This team is also responsible for recommending the closure of crossings or the installation of appropriate protective devices.
DOT Number	A unique identification number consisting of a six-digit number and one letter; assigned by the Federal Railroad Administration to both at-grade and grade-separated highway-rail crossings.
DRCOG	Denver Regional Council of Governments
DSR	Design Scoping Review
DTD	Division of Transportation Development
DTR	Division of Transit Rail
Easement	A right of the landowner to make lawful and beneficial use of the land to another user.
EPA	Environmental Protection Agency
FAST Act	Fixing America’s Surface Transportation Act (enacted December 4, 2015)
Federal-Aid Highway	Any highway eligible for Federal funding assistance. (Note: Local roads and rural minor collectors are not eligible.)
FHWA	Federal Highway Administration
Final Order	PUC approval of an application of crossing improvement project or other project involving a railroad.
FIR	Field Inspection Review (approximate 30% plan level design)
FOR	Final Office Review (approximately 90% plan level design)
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
Grade Separation	A crossing of a roadway and a railroad at different levels
GWR	Great Western Railway of Colorado
Highway	The area within the right-of-way of a public vehicular travel way such as a road, street, or parkway.
HISP	Highway Integrated Safety Plan. A document published annually by Colorado Department of Transportation’s Project Development Branch in which all safety projects are outlined.
Local Agency	City, county, or other local governmental entity that becomes a party to a contract based on their political jurisdiction over the involved highway.
Local Agency Project Manager	Contact and manager for a city, county or other local jurisdiction.
Maintenance (Highway)	The preservation of the entire highway including surface, shoulders, roadsides, structures, and such traffic-control devices as are necessary for safe and efficient use of the highway.
Maintenance (Railroad)	The preservation of the entire railroad, including rail alignment and condition, ballast, ties, special trackwork, grade-crossing panels, grade-crossing equipment, and railroad signal equipment.
Manual	Colorado Department of Transportation Railroad Manual
MP	Milepost
MPO	Metropolitan Planning Organization
MUTCD	The Manual on Uniform Traffic Control Devices for Streets and Highways
NTP	Notice to Proceed
NWCCOG	Northwest Colorado Council of Governments
OAG	Office of Attorney General
OFMB	Office of Financial Management and Budget



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Term	Definition
P3	Public Private Partnership
PACOG	Pueblo Area Council of Governments
Passive Warning Devices	Traffic control devices such as signs and pavement markings placed at a crossing or at approaches at highway-rail crossings that warn of the approaching crossing, but not specifically of an approaching train.
PE	Preliminary Engineering
Permit	An official document that grants authorization for an entity to do something within the terms of an agreement.
PPACG	Pikes Peak Area Council of Governments
Procedural Directives (PD)	An order or instruction by the State related to a particular work task.
Project	A piece of planned work or an activity that is finished over a period of time and intended to achieve a particular purpose.
Project Manager	The Colorado Department of Transportation Region representative (i.e., Region Utilities Engineer, Resident Engineer, etc.) assigned to coordinate and manage a project at the regional level, and with whom the Statewide Railroad Program Manager coordinates on contract development.
PS&E	Plans, Specifications and Estimate
Public Authority	A Federal, State, county, town or township, municipal or other local government with authority to finance, build, operate, or maintain facilities.
Public Road	Any road or street under the jurisdiction of and maintained by a public authority and open to public travel.
PUC	Public Utilities Commission
Rail Safety Engineer	The transportation safety engineer representing the Public Utilities Commission on highway-rail crossing safety matters.
Railroad Company (Railroad)	An entity consisting of any person, private company, public entity, or cooperative owning and/or operating railway and each and every branch or extension together with all tracks, bridges, trestles, rights-of-way, subways, stations, tunnels, depots, yards, terminals, terminal facilities, structures and equipment, and all other real estate, fixtures and personal property used in connection for use in the transportation of persons or property.
Statewide Railroad Program Manager	The Colorado Department of Transportation Project Development Branch person responsible for contract development and oversight of rail projects in the state.
Region	Colorado Department of Transportation Region
Region Business Office	Colorado Department of Transportation Region Business Office
Right-of-Entry	Permission granted by the railroad to CDOT or its contractor or the Local Agency to enter a railroad’s property for the purpose of conducting surveying and/or other project-related investigations for construction activities.
Right-of-Way	A general term denoting land, property, or interest therein, acquired for or devoted to transportation purposes.
ROW	Right-of-Way
RTD	Regional Transportation District
SAFETEA-LU	Safe Accountable Flexible Efficient Transportation Equity Act - A Legacy for Users
Safety Project	A highway-rail crossing project that enhances safety.
SAP	Systems, Applications, and Products in data processing. It is proprietary software used for the state financial management system



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Term	Definition
Section 130	The Federal highway-rail crossings program authorized and funded pursuant to Section 130 of 23 U.S.C.
Shortline Railroad	A small or mid-sized railroad company that operates over a relatively small area.
Signal Preemption	Interconnection of the traffic signal system with the railroad crossing warning system, where the railroad signal can preempt the operations of the traffic signal when a train is detected.
STIP	Statewide Transportation Improvement Program
SWCCOG	Southwest Colorado Council of Governments
TEA-21	The Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program. A metropolitan transportation planning process used by all metropolitan areas exceeding a population of 50,000. All projects included in the TIP must be included in the STIP either directly or by reference.
TPR	Transportation Planning Region
Transportation Commission	11-commissioners appointed by the Governor and confirmed by the State Senate to oversee transportation matters in the State.
UPRR	Union Pacific Railroad Company
U.S.C.	United States Code



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Appendix C. References

CDOT Forms

The following are the most commonly used CDOT Forms on rail-related projects:

- CDOT Form 895 - Force Account and Finding in the Public Interest
- CDOT Form 995 - Activity Report for Safety Project
- CDOT Form 1048 - Project Scoping/Clearance Record
- CDOT Form 1180 - Standards Certification and Project Plans, Specifications and Estimate Approval
- CDOT Form 1186 - Contract Funding Increase/Decrease and Approval Letter
- CDOT Form 1212 - Local Agency Section 130 Final Construction Acceptance Certification
- CDOT Form 1243 - Local Agency Contract Administration Checklist

These forms can be found on CDOT's website as follows:

[CDOT Forms - by Form Number - All – Colorado Department of Transportation \(codot.gov\)](https://www.codot.gov/forms)

CDOT Maps

CDOT provides information including maps, traffic information, and other data on their website. Maps and information include, but are not limited to, CDOT Regions, Commission Districts, Transportation Planning Regions, Maintenance Sections, and Colorado Highways.

This information can be found at the following link: [dtdapps.coloradodot.info - /staticdata/downloads/StatewideMaps/](https://dtdapps.coloradodot.info/staticdata/downloads/StatewideMaps/)

Reference Documents

Agency	Reference	Link
American Railway Engineering and Maintenance-of-Way Association (AREMA)	AREMA Manual for Railway Engineering	MRE (arena.org)
BNSF/UPRR	BNSF/UPRR Guidelines for Railroad Grade Separation Projects	uprr-bnsf-joint-guidelines-railroad-grade-separation-projects.pdf
Code of Federal Regulations (C.F.R.)	23 C.F.R. Part 140 - Reimbursement (Subpart I - Reimbursement for Railroad Work). 23 C.F.R. Part 646 - Railroads	eCFR :: 23 CFR Part 140 Subpart I -- Reimbursement for Railroad Work Title 23 - Federal-Aid Policy Guide (FAPG) (dot.gov)
Colorado Revised Statutes (C.R.S.)	§40-4-106, C.R.S. Rules for public safety-crossings-allocation of expenses.	crs2019-title-40.pdf (colorado.gov)
Colorado Department of Transportation (CDOT)	CDOT Local Agency Project Manual	Local Agency Manual – Colorado Department of Transportation (codot.gov)
	CDOT Utility Manual	Microsoft Word - draft Utility Manual (codot.gov)
	CDOT Utility Accommodation Code	Code of Colorado Regulations (state.co.us)
	CDOT Project Development Manual	2013 Project Development Manual – Colorado Department of Transportation (codot.gov)



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Agency	Reference	Link
Federal Highway Administration (FHWA)	Manual on Uniform Traffic Control Devices (MUTCD), FHWA	2009 Edition with Revisions No. 1 and 2 Incorporated, dated May 2012 (PDF) - FHWA MUTCD (dot.gov)
	Colorado State Supplement to the Federal MUTCD	Colorado FHWA MUTCD (dot.gov)
	Railroad-Highway Grade Crossing Handbook, (FHWA)	Highway-Rail Crossing Handbook, 3rd Edition FRA (dot.gov)
	“Guidance on Traffic Control Devices at Highway-rail Grade Crossings,” FHWA, Highway/Rail Grade Crossing Technical Working Group, November 2002	Guidance on Traffic Control Devices at Highway-Rail Grade Crossings (bts.gov)
Federal Railroad Administration (FRA)	Guide for Preparing U.S. DOT Crossing Inventory Forms	Federal Railroad Administration Guide for Preparing U.S. DOT Crossing Inventory Forms FRA
	U.S. DOT Crossing Inventory Form	6180.71 - U.S. DOT Crossing Inventory Form FRA
	Highway-Rail Crossing Inventory Data	5.02 - Generate Crossing Inventory and Accident Reports (dot.gov)
	Highway-Rail Accident Data	Crossing Inventory & Accidents Page (dot.gov)
	Guide to the Quiet Zone Establishment Process	Guide to the Quiet Zone Establishment Process FRA (dot.gov)
Institute of Transportation Engineers (ITE)	Preemption of Traffic Signals Near Railroad Crossings	Preemption of Traffic Signals Near Railroad Crossings: An ITE Recommended Practice
Public Utilities Commission (PUC)	PUC rules and procedures promulgated thereunder	HOME PAGE Public Utilities Commission Public Utilities Commission (colorado.gov)



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Appendix D. Figures

Figure 1-1: Colorado Freight Rail System Map

Figure 1-2: Public Railroad Crossings Map

Figure 4-1: Emergency Notification Sign



Introduction &
Rail Overview



Regulatory
Requirements &
CDOT Roles &
Responsibilities



Railroad Project
Development
Process



Highway-Rail
At-Grade
Crossings



Grade Separation
& Other
Specialized
Projects



Highway &
Railroad Track
Maintenance
Operations



Agreements



Public Utilities
Commission
Authority



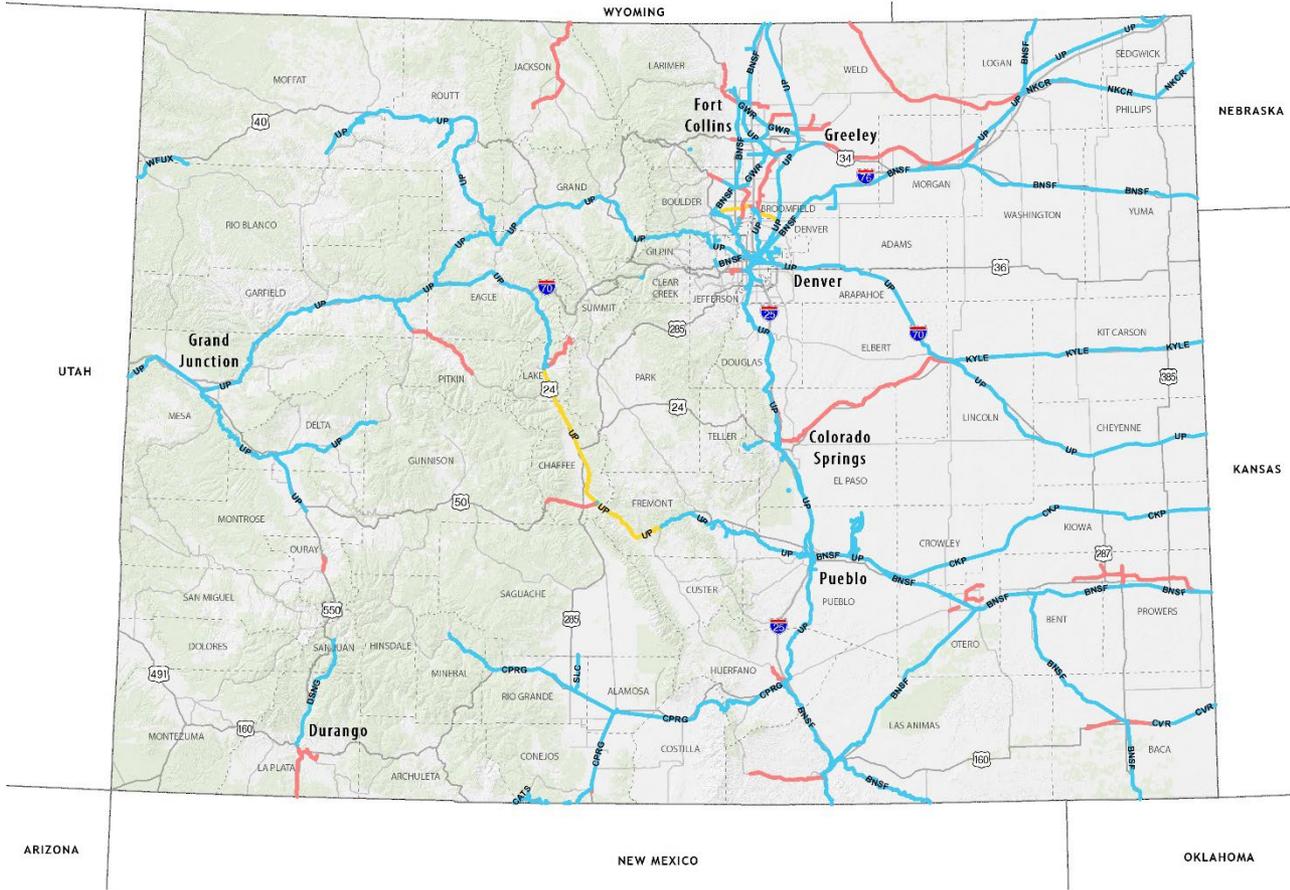
CDOT Railroad
Billings, Payment
Process and
Audits

Figure 1-1: Colorado Freight Rail System Map



Colorado Rail Lines

June 2023



Legend

RR Railroad Owner In Service Out of Service Abandoned Interstate/Highways County Boundaries



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits

Figure 1-2: Public Railroad Crossings Map

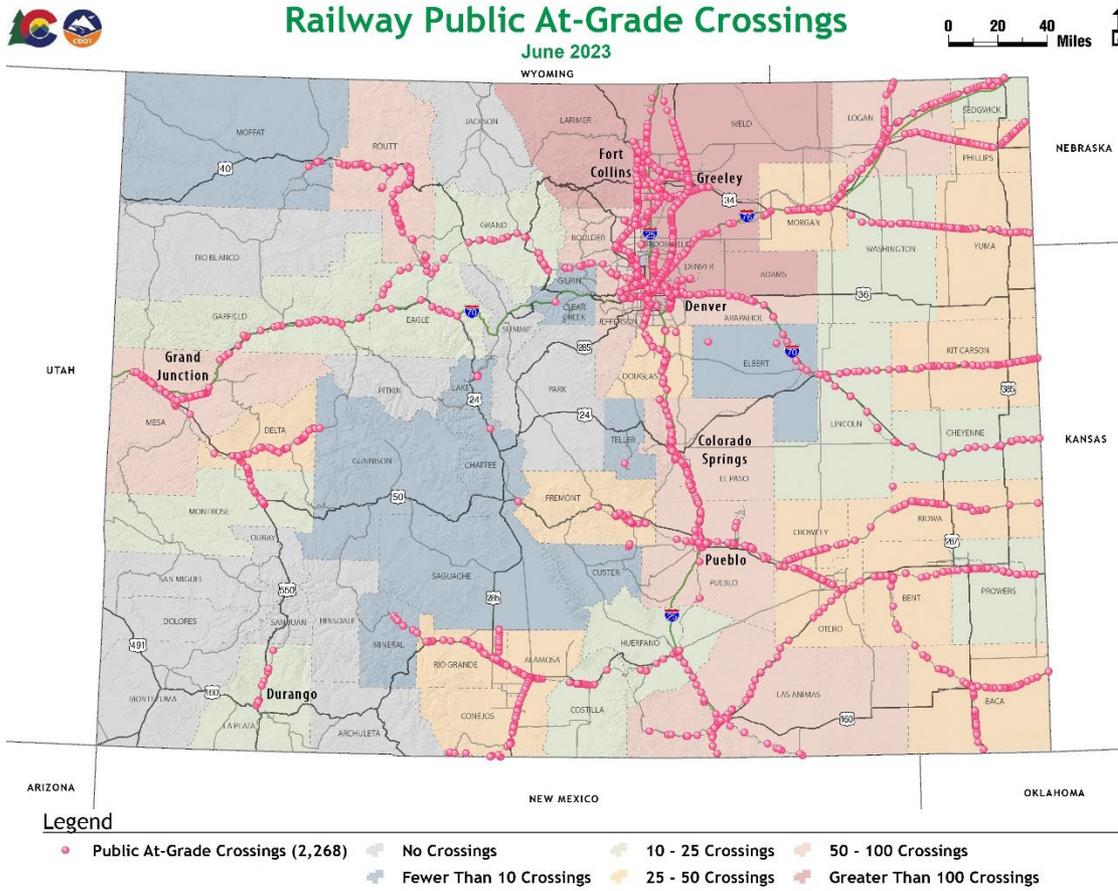


Figure 4-1: Emergency Notification Sign



Introduction & Rail Overview



Regulatory Requirements & CDOT Roles & Responsibilities



Railroad Project Development Process



Highway-Rail At-Grade Crossings



Grade Separation & Other Specialized Projects



Highway & Railroad Track Maintenance Operations



Agreements



Public Utilities Commission Authority



CDOT Railroad Billings, Payment Process and Audits