



NORTHWEST RAIL PEAK SERVICE FEASIBILITY STUDY





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DEFINITIONS



WHAT IS NORTHWEST RAIL?

In 2004, Denver area voters approved the FasTracks regional transit system. Since that time, The Regional Transportation District (RTD) has completed much, but not all, of the FasTracks plan. Northwest Rail represents approximately two-thirds of the unfinished mileage from the FasTracks Plan. RTD refers to the four remaining projects as "unfinished corridors" in the FasTracks plan. This study evaluates the feasibility of completing the Northwest Rail Project with a reduced level of service from the original proposal. Previous studies of Northwest Rail identified high costs, low ridership and modest benefits as obstacles to receiving Federal project funding.

The Northwest Rail corridor is a 45-mile corridor from Denver Union Station (DUS) to Longmont. Six miles of Northwest Rail were completed in 2016 and now operate as the B Line between DUS and Westminster Station as seen in **Figure 1**. Due to a lack of sufficient funding, the remaining portion of the corridor has not been completed. Since the passing of FasTracks by voters, RTD has continued to evaluate options for completing the Northwest Rail project. As originally envisioned, RTD has focused primarily on options that would operate on existing BNSF-owned freight tracks. This contrasts with other RTD commuter rail corridors, including the current B Line, which operate on new tracks built exclusively for passenger service. Although this option is lower in cost, operating on the freight railroad system, especially as a continuation of an existing RTD commuter rail corridor, introduces complex operational issues.

The proposed service would use existing freight tracks, which is unique to RTD; however, many commuter rail services operate on freight tracks throughout the country. Another unique aspect to RTD is that this proposal would extend existing passenger service on an electrified rail line to a non-electrified rail line where passenger service is not currently offered. This scenario adds both safety and regulatory challenges in assessing the feasibility of Northwest Rail passenger service.



ABOUT RTD

RTD provides public transportation in the Denver metropolitan area. As a public agency, RTD is dedicated to serving the public and providing for the transportation needs of over 3.08 million people located within 2,342 square miles. Services include bus, rail, shuttles, ADA paratransit services, demand responsive services like FlexRide, special event services, vanpools, and many more.

RTD Mission

We make lives better through connections.

RTD Vision

To be the trusted leader in mobility, delivering excellence and value to our customers and community.



Working with local stakeholders, RTD developed a Peak Service Concept for initial service in the corridor. The Peak Service Concept provides rail service between Longmont and Denver serving six new stations and all existing B Line stations.

RTD engaged extensively with two additional stakeholders in this study: BNSF Railway and the Front Range Passenger Rail District (FRPRD), a new entity created to develop intercity rail along the Front Range. Working closely with BNSF allowed this study to address costs and regulatory requirements. CDOT and FRPRD are concurrently developing an intercity rail plan for service between Fort Collins and Pueblo that will share the same Northwest Corridor between Denver and Longmont. The Peak Service Feasibility Study (the Study) focuses on the Peak Service Concept, while the intercity rail plan has other objectives. RTD and FRPRD have been working closely together on these two separate studies. The information revealed in the Study and intercity rail plan will help inform ongoing discussions for rail service in the corridor and help inform decisions for broader passenger rail service along the Front Range.

PEAK SERVICE CONCEPT

The Peak Service Concept assessed in this study consists of three southbound morning peak trips from Longmont to Denver Union Station and three northbound trips on the same route during the evening peak period each weekday.

THE STUDY OBJECTIVE

The objective of the Study is to establish a baseline, or Common Set of Facts, that informs the RTD Board of Directors in its decision to provide commuter rail service in the Northwest Corridor.





02 WHAT IS THE PEAK SERVICE FEASIBILITY STUDY?

In 2022, the RTD Board of Directors authorized the Study to respond to stakeholder input on how RTD might complete its 2004 FasTracks Plan by assessing an initial commuter rail service in the Northwest Corridor. The Study advances the concept brought forward from local stakeholders and RTD staff with a specific focus on developing a Common Set of Facts to inform the RTD Board of possible next steps.

The Project Team, composed of RTD staff and a consulting team, engaged local jurisdictions, stakeholders and the public along the corridor to define and resolve key issues, including station configurations and concept designs as well as the impacts that new rail service would have on the local environment and community. The Project Team also engaged with BNSF to identify initial design requirements and address how RTD and BNSF would operate service on the same tracks.

The Peak Service Feasibility Study was completed in five stages, each with a major report:

- Milestone 1: Confirm and refine the Peak Service Concept with stakeholders
- Milestone 2: Identify local, state, federal, and BNSF requirements for the operation of service (the "Base Configuration")
- Milestone 3: Conduct initial planning and develop preliminary engineering design and costs required to build and operate the Base Configuration service
- Milestone 4: Identify likely service expansion scenarios to avoid precluding expanded RTD or FRPRD passenger service
- Milestone 5: Identify potential project implementation strategies









What is the Peak Service Concept?

The Project Team began the Study with the basic service concept defined by stakeholders and the Board. The Peak Service Concept is illustrated in **Figure 2**. The next step for the Project Team was to identify corridor challenges, regulatory constraints, infrastructure requirements, fleet options, station site plans, platform configurations, concept designs, costs, benefits, and impacts of providing the service.









Major Challenges and Constraints

- Level boarding at new high platform stations on a freight corridor must match RTD's existing station configuration and meet accessibility requirements.
- The existing BNSF corridor lacks sufficient clearance for overhead electrification, precluding service using RTD's existing fleet.
- RTD must obtain agreement from BNSF on operating conditions and infrastructure required to operate passenger service on tracks shared with freight trains.

Track Improvements

Tracks must be upgraded to allow for passenger service to operate with a competitive travel time.

Fleet Maintenance and Storage

- A new commuter rail maintenance and storage facility is required near the northern end of the line.
- A layover yard for storing and light maintenance of trains during the midday period is required when they are not in service.

Fleet Requirements

- A train that can operate on both RTD and BNSF territory results in a small fleet size unique to this corridor.
- A high floor train is required for accessibile level boarding at high platforms.
- A commonly available fleet type used by another transit agency is strongly preferred to reduce purchase and longterm maintenance costs.

Station Locations

- The general station locations were established for the Study. The Study Team worked with stakeholders to define the preferred location and configuration of proposed stations.
- The exact location and configuration of stations in Boulder and Louisville will be addressed in future phases to resolve a conflict between planned locations and platform accessibility with BNSF operations.

Figure 2: Peak Service Concept Configuration



What is BNSF's role?

The BNSF Railway owns the tracks within the Northwest Corridor as part of its Front Range Subdivision and operates approximately five daily freight trains on this route. As part of this study, the Study Team and BNSF worked together to identify the requirements to operate passenger service on the freight tracks.

Through this cooperative process between the Study Team and BNSF staff, but subject to approval by higher-level decisionmakers at both RTD and BNSF, general agreement was reached on most major service and infrastructure issues:

- Generalized service schedule, including the number of train trips
- Track improvements and connections, including those improvements required to achieve RTD's travel time goals and sidings to meet BNSF's freight needs
- Station locations and configurations, including station sidings
- Safety, signaling, dispatch, and other operational and regulatory requirements
- General cost of improvements based on preliminary engineering plans

- BNSF to adjust freight operations to be outside of the corridor or on the freight sidings during the peak service time blocks
- The set of agreements required for RTD to provide passenger service on the BNSF corridor
- RTD to provide or contract to a third party other than BNSF for fleet maintenance
- Final service and infrastructure requirements to be negotiated with BNSF if RTD decides to implement Northwest Rail

How would Peak Service operate?

RTD specified 65 minutes, plus or minus two minutes, as the desired travel time between DUS and Longmont to be competitive with private vehicle commute times in the corridor. The three peak period trains would operate on 30-minute intervals and would require just under two hours of dedicated passenger service time to operate in each peak direction on the BNSF portion of the track. For simplicity, RTD identified a three-hour time block during each peak period that would provide operational separation and potentially allow for a modest expansion of passenger service within the time block. Figure 3 illustrates the time block concept.







Figure 3: Peak Service Time Blocks for Commuter Rail Operations

Although key decisions remain open about which entity will operate and maintain trains, BNSF, as track owner, will provide rail maintenance, communications, train dispatch, and rail-related safety systems within its corridor. RTD's rail operator, Denver Transit Operators (DTO), already provides those functions on the existing B Line, and the transition between the two track sections will require a well-defined procedure as trains move between the BNSF- and DTO-operated portions of the corridor.



03

WHAT IS THE COMMON SET OF FACTS REGARDING IMPLEMENTATION OF THE PEAK SERVICE CONCEPT?

The Common Set of Facts describes the mutual understanding reached in the Study between RTD, BNSF, and local stakeholders on what it would take to implement the Peak Service plan. As the FRPRD intercity rail requirements are identified, the Common Set of Facts will provide foundational information that will inform ongoing coordination between RTD and FRPRD in a potential joint operations scenario.

THE COMMON SET OF FACTS

The Common Set of Facts focuses on five key components to implement the Northwest Rail Peak Service plan:

- 1. BNSF Requirements
- 2. Operating Specifications
- 3. Infrastructure Requirements
- 4. Ridership
- 5. Capital and Operating Costs

1. BNSF Requirements

BNSF utilizes a standard set of agreements for transit agencies to operate commuter rail on its tracks. The four fundamental agreements are:

Access Easement

- RTD Acquisition of a long-term or permanent real property interest for track access
- Provides dedicated passenger-only use of the corridor during defined operating time blocks
- One-time RTD capital cost

Track Improvements

- Improvements required to meet commuter rail travel time and speed specifications
- Freight sidings required by BNSF to allow RTD dedicated use of the track during operating time blocks (see example in Figure 4)
- Any additional work required to support the track improvements (drainage, bridges, walls, crossings, etc.)
- One-time RTD capital cost

Maintenance of Way

- Defines the allocation of the costs of routine maintenance and asset refurbishment between RTD and BNSF
- Recurring operating cost pro-rated between RTD and BNSF

Dispatch and coordination of train operations

- Dispatch and coordination of train operations to ensure safety, reliability, and operational performance
- Recurring operating cost pro-rated between RTD and BNSF

Figure 4: Example of a freight siding



2. Operating Specifications

BNSF completed train simulation modeling of the Peak Service operating concept and determined the infrastructure improvements necessary to meet both RTD's requirements and its own freight needs.

The route follows the BNSF Front Range Subdivision freight tracks and includes six new stations. The route continues on the existing RTD B Line to serve four existing stations. RTD refined the operating requirements in the following ways throughout the Study:

- Mid-day storage location requirement: RTD determined that a location near Westminster/72nd Station was the preferred option for a mid-day storage location.
- Replacing existing peak period B Line trips: With the selection of Westminster/72nd mid-day storage location, RTD determined that replacing existing B Line trips with Northwest Rail Peak Service trains during the peak periods would minimize operating conflicts.
- Travel time specification: RTD sought to offer competitive travel time and determined that a 65-minute travel time between Longmont and DUS would be achievable. BNSF used this travel time (+/- 2 minutes) as the design basis for track improvements.
- Operational hand-offs: Since the Northwest Rail Peak Service will operate partly on BNSF track and partly on RTD track, trains will require a transfer of dispatching and Positive Train Control (PTC) at the BNSF and RTD track connection.



Fleet Characteristics

RTD will require five trainsets consisting of a locomotive, coach, and cab car to operate the service. Three trains will run the service for the day, with one train reserved in case of breakdown and one train undergoing periodic and required maintenance.

RTD evaluated different fleet options and determined that locomotive-hauled trains could operate on both the RTD and BNSF tracks at high platform stations. The Project Team could not identify a Buy America-compliant, high platform compatible, self-propelled train (e.g. diesel multiple unit, or DMU) in current production for lease or purchase.

Locomotive-hauled passenger train configurations are readily available in the market, meet all of the unique needs of the corridor, and are likely compatible with intercity rail service. For these reasons, this fleet configuration formed the basis for the Study cost estimate.



3. Infrastructure Requirements

The Base Configuration includes the infrastructure requirements identified in **Table 1**. BNSF will be responsible for all track-related work, communications and signaling, structures, and drainage. RTD will be responsible for obtaining the fleet, building the rail maintenance and storage facilities and the remaining off-track improvements, including stations and their associated amenities.

Table 1: Infrastructure Improvements Required for Peak Service Plan

Description	Technical Assumptions
Trackway	 Three Freight Sidings required totaling approximately 8.2 miles of new track and switches Station Sidings for platform level boarding and switches Mainline track adjustment to allow 65-minute runtime Upgrades to drainage, bridges, and retaining walls along the alignment Modifications (varying in type/level of improvement) to 41 roadway crossings along the corridor
Stations	 Six new stations will be provided at the following locations: Downtown Westminster Broomfield/116th Avenue Flatiron Downtown Louisville Boulder Junction at Depot Square Downtown Longmont
Support Facilities	 Full-service Rail Maintenance Facility in Longmont Mid-day Layover Facility located adjacent to the existing Westminster Station (light cleaning, crew check-in, etc.)
Site Work and Special Conditions	 Utility relocation General site work Environmental mitigation, including any hazardous waste remediation
Systems	 Positive Train Control (PTC) signaling Communications Transmission System (CTS) Other Communications/Supervisory Control and Data Acquisition (SCADA) Central Control at RTD existing site
Right-of-Way, Relocation	Additional right-of-way required at stations
Vehicles	Five locomotives, five cab cars, and five coaches

Source: HDR; July 2024

4. Ridership

Ridership forecasts were prepared for the year 2030 and found to be consistent with previous forecasts. The 2030 forecast from DRCOG Regional Travel Demand Model (2019) is 1,100 boardings per weekday with the total evenly divided between the morning and the afternoon peak periods. For comparison, the *Unfinished Corridors Report*; RTD, June 2019, estimated 1,400 boardings per day for 2040.

DRCOG is in the process of updating the regional travel demand model from 2019 to incorporate land use and travel behavior changes. The updated DRCOG model and transit-oriented development planning by communities may further change the future ridership forecast for Northwest Rail. Additionally, Colorado House Bill 24-1313 requires a minimum density near transit-oriented communities intended to expand housing opportunity and transit ridership.

5. Capital and Operating Costs

The total estimated capital cost for the Peak Service Base Configuration is \$650 million (in 2024 dollars). The cost for infrastructure improvements required to operate Peak Service in the Base Configuration on the corridor are summarized in **Figure 5**.

Operating costs include train operations, vehicle maintenance, and cost reimbursed to BNSF for train control, dispatch, and track maintenance. Total estimated operating and maintenance costs for Peak Service is \$12-16 million (in 2024 dollars) per year.

Both capital and operating costs in this report represent the current snapshot in time in 2024 dollars and are based on RTD's current understanding of the likely terms of its agreement with BNSF. Costs for rail corridor improvements to support passenger rail service are based on 30% engineering plans and cost estimates developed by BNSF. Cost estimates for the Access Easement with BNSF were developed by the Project Team using experience with similar programs where BNSF is the host railroad. Estimates for train control, dispatch, and track maintenance were developed using the FTA's National Transit Database (NTD).



Figure 5: Total Estimated Peak Service Costs

04

WHAT DID WE LEARN FROM STAKEHOLDERS AND PUBLIC ENGAGEMENT?

RTD developed a two-part strategy for seeking input into the feasibility study.

Agency and Stakeholder Engagement

RTD formed a Study Advisory Team (SAT) with members of local agencies along the proposed project corridor, as well as members from regional transportation agencies and public interest organizations. The SAT supported the overall direction of the Study and gave RTD both general and technical feedback. Several of the SAT members were involved in earlier studies of commuter rail in the corridor, giving them an important historical perspective, background, and understanding of the project.

Proposed station design concepts incorporate improvements the cities have made to station area roadways, corridor grade crossings, and active transportation connections since the passage of FasTracks. **Figure 6** illustrates the various engagement activities during the Study.

Public Engagement

Over the approximately two-year Peak Service Study, there were two primary public engagement periods:

- Study Understanding (January and February 2023): Two in-person open house public meetings and an online self-guided online meeting.
- Confirmation of Base Configuration (November and December 2023): Two inperson open house public meetings and an online self-guided online meeting.







Takeaways from these outreach periods

- Desire for a reverse commute
- Potential Partnerships with FRPR
- Potential for infill stations
- Lack of service for customers with nontraditional commute times
- Interest in transit-oriented development "growth" around stations
- What the next steps or outcomes would be if peak service is deemed "cost prohibitive"

- Appreciation that RTD is working to fulfill the FasTracks commitments
- Need for integrated service options to help with first- and last-mile connections
- Benefits of Peak Service: Avoid traffic, be productive during commute (read, work, rest, etc.), reduce vehicle emissions
- Freight siding-track concerns: Noise and air quality, idling, derailing, neighborhood interference

The majority of participants were in favor of peak service and are ready to see it implemented.

Figure 6: Public Engagement At-A-Glance



05

HOW IS PEAK SERVICE DIFFERENT FROM THE FRONT RANGE PASSENGER RAIL PROPOSAL?

In 2019, the State of Colorado delegated to CDOT the responsibility to plan an intercity passenger rail service along the Front Range between Fort Collins and Pueblo. This work led to the formation of the FRPRD in 2022, just before RTD began this Study.

The Differences Between Commuter and Intercity Rail

Throughout the US, commuter and intercity rail services operate on the same tracks.



Commuter Rail

Serves one metropolitan area connecting suburbs to an urban core.

Inter-City Rail Connects cities

across the state.



* Average running speed between stops is 65-90 Miles Per Hour



CDOT began planning for intercity rail under the federal process in early 2022 and expects to complete its intercity rail plan at the end of 2024. The RTD and CDOT studies will provide the requirements for each respective service and inform the next steps toward implementation of broader passenger rail on the Northwest Corridor. CDOT's study includes:

- An analysis of alternative routes, fleet type, and service options
- Conceptual design to permit definition of station areas, track improvements, environmental screening and cost estimates
- Travel forecasts, rail operations planning, and a financial plan
- Ongoing public engagement

Front Range Passenger Rail has been approved for federal funding to support the CDOT study, which is a required step toward being eligible for federal project funding.

The CDOT study identified the BNSF Front Range subdivision as the preferred route for service between Denver and Fort Collins, creating a shared corridor with RTD between Denver and Longmont. As soon as the preferred route was identified, FRPRD and RTD began cooperating to determine how the two services could operate together. **Figure 7** shows the potential for the overlay of the two services with several shared stations.

Figure 7: Commuter and Intercity Rail in the Same Corridor

Opportunities between Northwest Rail Peak Service and FRPR Passenger Rail – Economies of scale are possible:

Probable joint operational efficiencies

Potential synergies arising from a common fleet type

Possible to share and reduce operations and maintenance costs



Potential to share track improvement costs



Potential to share in cost of safety systems and crossing upgrades

Legend



Northwest Rail Line

Shared Station

FRPR Station

FRPR and Northwest

Northwest Rail Rail Only Station



06

HOW WOULD RTD PROCEED WITH PROJECT DEVELOPMENT AND IMPLEMENTATION?

While the purpose of the Study was to identify the facts associated with an RTD peak service operation, the Project Team identified a potential opportunity for RTD and FRPRD to coordinate efforts for a rail solution in the Northwest area. Consistent with the FasTracks plan, RTD could deliver the peak service on its own. RTD could continue to explore the emerging opportunity to deliver the project in partnership with FRPRD.

RTD FasTracks Implementation with Commuter Rail Peak Service Only

RTD does not currently have sufficient funding to implement Peak Service with an expected capital cost for the Peak Service plan of \$650 million. The findings of the Study reinforce the prior corridor studies and the 2019 *FasTracks Unfinished Corridors Report*. RTD has estimated a completion date for Northwest Rail between 2042 and 2048 based on its financial forecast. RTD should continue to monitor federal grant programs for potential funding of the project while continuing to work with BNSF to maintain the possibility to use the corridor for passenger service. Demonstrating a strong, integrated program with FRPRD and other local partners enhances the probability of being awarded grant funding. RTD will collaborate with the statewide effort to advance the statewide effort to advance passenger rail service and coordinate the Peak Service Concept with that process.



Joint Implementation of RTD Commuter Rail and Intercity Passenger Rail

Legislation passed in 2024 requires RTD and FRPRD to work together to determine how the two programs could be delivered together. Completion of the RTD and CDOT studies would enable RTD and FRPRD to develop a combined approach for improving infrastructure on the corridor and provide service, either jointly or separately, while sharing the common infrastructure. Included in that effort would be an allocation of costs and responsibilities. Opportunities to share economies of scale could be realized between RTD and FRPRD that include joint operational efficiencies, shared fleet, and shared improvement costs. It is reasonable to expect that cost sharing of common elements would result in a lower cost for each agency.

Would Peak Service be Eligible for Federal Funding Through Bipartisan Infrastructure Law (BIL)?

Commuter and intercity passenger rail programs are eligible for federal grant awards, but the application process would require coordination with local partners, including BNSF. Depending upon the type of discretionary grant that would be pursued, RTD may be competitive to receive some federal funding.

Originally, the FasTracks Northwest Rail project considered the possibility of using federal funds from the FTA Capital Investment Grant (CIG) program in addition to RTD FasTracks funds. The discretionary award of CIG funding requires the project to be cost-effective compared to other projects in the country; the key measure is "total cost per new rider". The calculations for the Northwest Rail project showed that the project would be far below the threshold of consideration for CIG funding.

Recently, however, the current BIL program began offering several funding programs some of which the Northwest Rail Peak Service would qualify. These programs are project-specific as opposed to the CIG program that covers the entire investment. One approach would be using a more targeted process focused on individual elements that could be assembled. The BIL is entering its fourth year of the fiveyear program where awarded funding and balances are narrowing for remaining available dollars. With development of a funding and implementation plan, a systematic approach could result in the award of some grants for specific improvements. Major funding for all or most of the Peak Service Plan is not likely. The BIL contains more funding for intercity rail than commuter rail; a partnership with FRPRD could leverage more federal funds for both projects.







CONCLUSION

The Northwest Rail Peak Service Study defines the infrastructure required to operate the Peak Service Concept – the Base Configuration – and allowed the Project Team to develop a Common Set of Facts to inform future RTD Board decisions about providing commuter rail between Longmont and Denver. The Common Set of Facts addresses capital costs, operating and maintenance costs, and ridership required to operate the Peak Service Concept, but any decision on project feasibility rests with the RTD Board.

Since 2004 it has been RTD's sole responsibility to plan, finance, and deliver commuter rail between Longmont and Denver. Early in the Study, the State of Colorado began evaluating .intercity passenger rail between Fort Collins and Pueblo that overlaps RTD's planned Northwest Rail route creating the possibility for a joint passenger service. RTD and its partner agencies, FRPRD and CDOT, began evaluating coordination opportunities while completing the separate studies for commuter and intercity rail. The intercity rail study for the Front Range corridor is currently in progress, but there is an opportunity for coordinated rail service.

Before implementation of Northwest Rail Peak Service, RTD staff will need to work with Northwest area stakeholders to identify:

- Final locations and design configurations for stations in Louisville and Boulder
- Financial plan and strategy to implement the Peak Service Concept by RTD alone or jointly with intercity rail
- Changes in BNSF operations that may reduce the feasibility of passenger rail in the corridor
- Potential cost allocation between commuter rail and intercity rail to leverage cost efficiencies for joint construction, operations, fleet, and maintenance

The Northwest Rail Peak Service Study and FRPRD's intercity rail plan will form the foundation for a potential joint path forward. The intercity rail plan presents a new opportunity for RTD to work with state and regional partners to deliver passenger rail service to the Northwest area communities earlier than RTD could complete the Northwest Rail Peak Service without partners.



DEFINITIONS

Buy America: USDOT requirement that Federal agencies and the funding they provide be used to procure domestic materials and products; two conditions must be present for the Buy American Act to apply: (1) the procurement must be intended for public use within the United States; and (2) the items to be procured or the materials from which they are manufactured must be present in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

Front Range Passenger Rail (FRPR): Intercity passenger rail proposal to connect Fort Collins with Pueblo along existing and new railway alignments

Front Range Passenger Rail District (FRPRD): Agency established by the Colorado Legislature in 2021 incorporating 13 counties, charged with the Study and possible implementation of passenger rail service along the Front Range of the state, connecting the cities of Fort Collins south to Pueblo

Peak Service Concept: Consists of three southbound morning peak trips from Longmont to Denver's Union Station and three northbound trips on the same route during the evening peak period

Peak Service Study (Study): Evaluates the feasibility of completing the Northwest Rail Project with a reduced level of service from the original proposal to establish a baseline, or Common Set of Facts, that informs RTD Board of Directors in its decision to provide commuter rail service in the Northwest Corridor

Project Team: The Project Team was composed of RTD study staff members and the HDR consulting team consisting of HDR as the prime consultant, AECOM in engineering and station design, Peak Consulting in environmental/ cost/implementation support, Triunity Engineering in cost estimates/safety and security/PTC and communications; CDR Associates in coordination with the Study Advisory Team, ZANN Associates supporting public engagement; and, SurvWest for ground control surveying and aerial mapping. **RTD Board of Directors (Board)**: The currently seated Board of Directors that directed RTD staff to evaluate the Peak Service Concept

Service Concept: The commuter rail train service proposed to operate in the morning and evening weekday peak periods as directed by the RTD Board that forms the Base Configuration

Study Advisory Team (SAT): Corridor agencies and jurisdictions to meet frequently (approximately monthly) to provide input, comment and suggested direction regarding study findings and results; composed of Arvada, Broomfield, Boulder, Boulder County, Longmont, Louisville, Westminster, CDOT, FRPRD, DRCOG, Commuting Solutions, Boulder Transportation Coalition.

Time block: A specific window(s) of time in the day to be purchased from BNSF reserved for commuter rail service that provides operational separation between the commuter rail passenger train service and freight train service.

APPENDICES

Milestone 1:

Peak Service Concept Technical Report

Milestone 2:

Corridor Conditions Report

Milestone 3:

Base Configuration Confirmation Report

Milestone 4:

Peak Service Expansion Concepts Technical Report

Milestone 5:

Project Delivery and Implementation Concepts Technical Report