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Front Range Passenger Rail RTD Heavy Rail Upgrade Denver - Highlands Ranch - May 2023

FRPR Through Denver

A frequent and reliable FRPR service through Denver is needed to deliver sufficient mobility benefits for the Front Range as a whole.

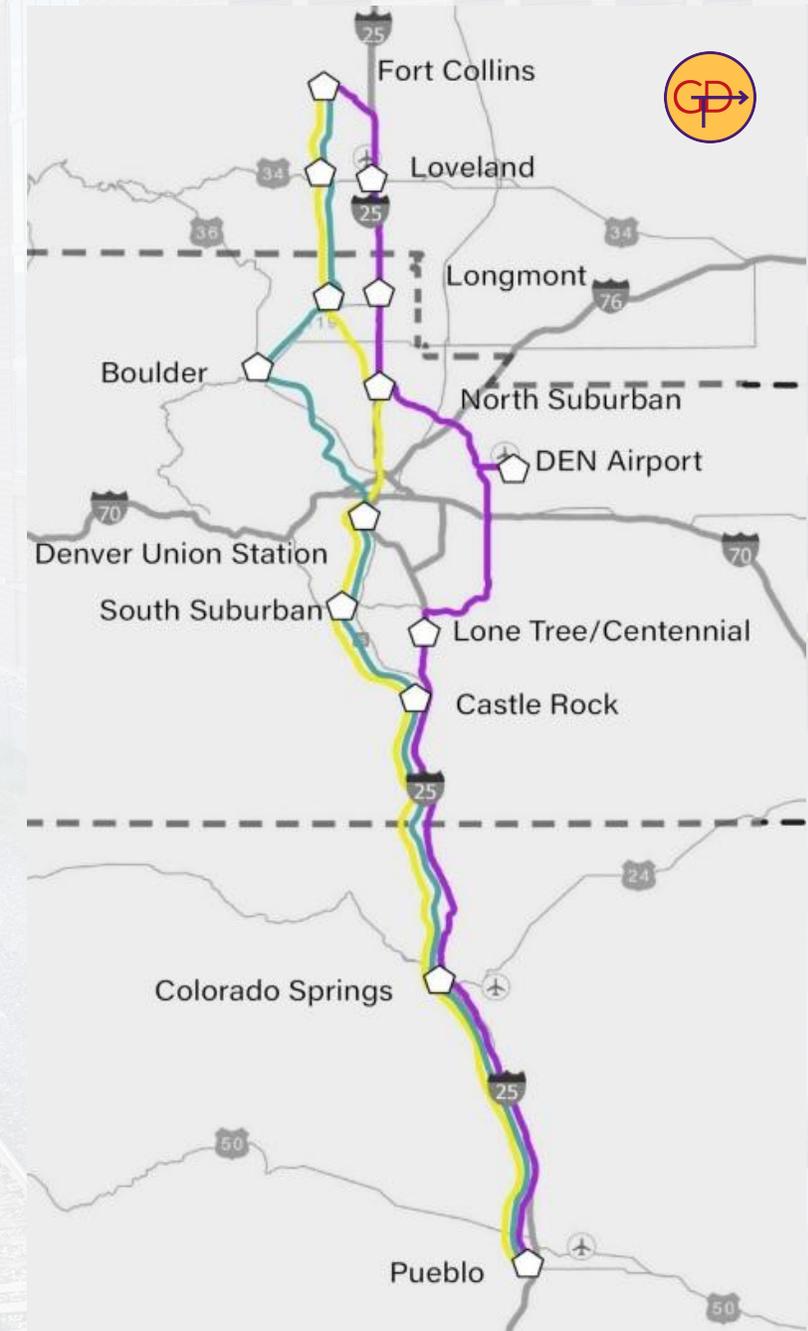
The [FRPR 2020 Alternatives Evaluation Report](#) identifies two [BNSF Right-of-Way Alternatives](#) (Green & Yellow) that serve Denver and Littleton for further study.

The [Denver Moves Everyone 2050 Plan](#) says “Establish Denver Union Station as a main hub along the planned FRPR route...”

The [RTD Accountability Committee 2021 Final Report](#) “supports the Northwest Rail alignment for the Front Range Passenger Rail (FRPR) corridor and recommends RTD pursue all reasonable partnership opportunities with the FRPR project.”

[Union Station](#) provides the densest [concentration](#) of people, jobs, attractions and other transit on the FRPR corridor.

GDT believes that the Core FRPR alignment selected should serve Denver Union Station.



Denver Union Station Overview

Denver Union Station (DUS) is the busiest transportation hub in Colorado.

Operates as 2 train stations connected via a bus concourse.

3 freight railroad tracks pass immediately north of the light rail station.

Transfers can require up to a 0.4 mile walk (eg. A Line on track 1 to light rail on track 12).

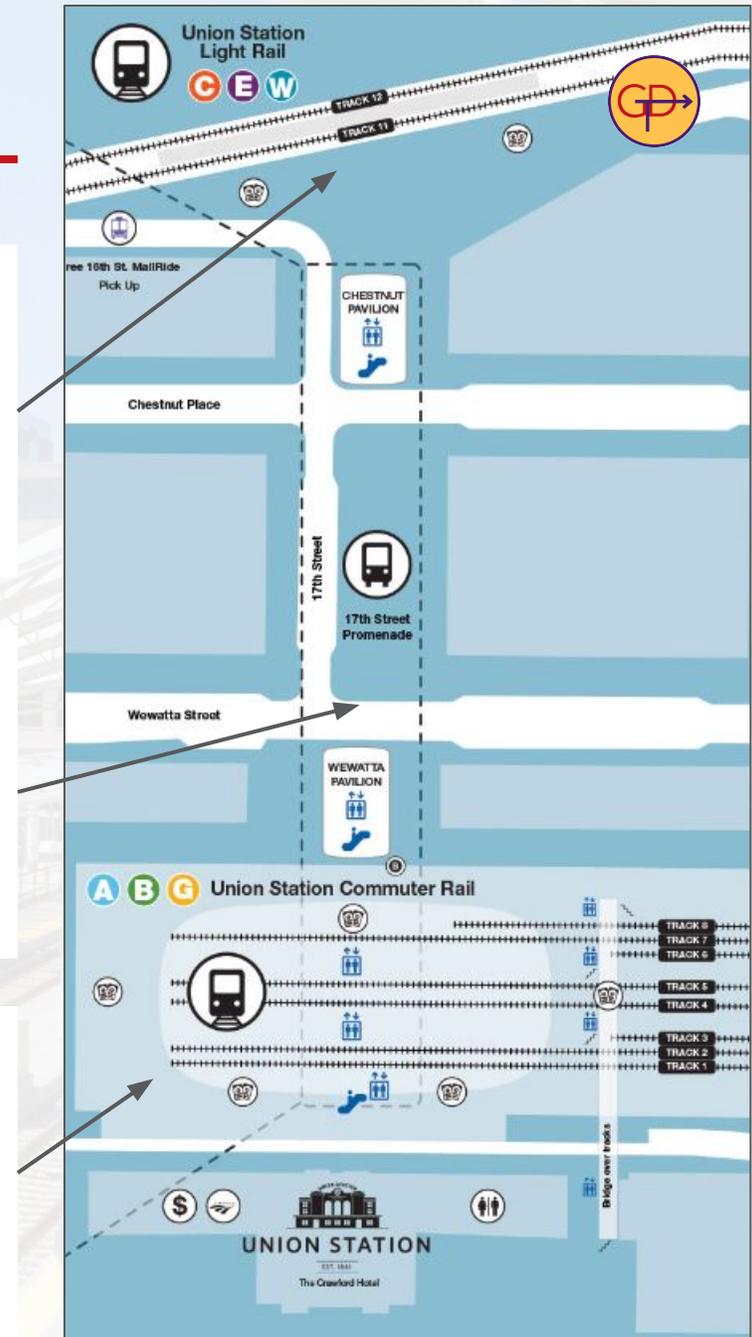
Light Rail Station



Underground Bus Concourse



Train Hall



How the Train Hall Became a ‘Stub’

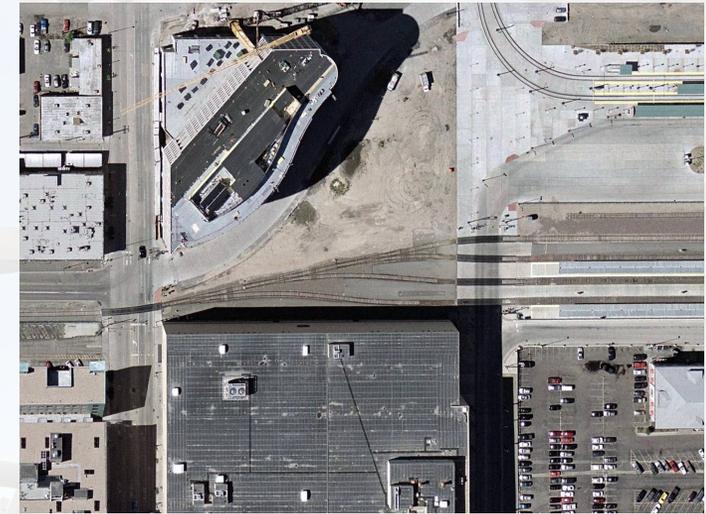
Once a “through” station, **DUS** was disconnected from the south and west.

DUS’ heavy rail tracks were cut off from lines to the southwest when Downtown’s freight lines were moved in 1986.

Short “tail tracks” stubs were left until 2010, but were removed after discussions between RTD, Amtrak, and City of Denver ruled they would not be needed.

The right-of-way (RoW) was then sold off and **redeveloped**, eliminating potential for any at-grade southwest extension.

Costly aerial or underground alignments are now the only options for extending southwest.



Denver Union Station circa 2002 - Google Earth



Denver Union Station circa 2022 - Google Earth





The Union Station Problem: Freight Traffic. FRPR **MUST NOT** share freight track here!

Unreliability

Amtrak trains that share tracks with freight traffic experience chronic delays.⁹

Low Frequency

Shared freight corridors tend to allow fewer than 6 passenger trains / day.

Low Support

A poor service undermines public appetite for other transit projects.

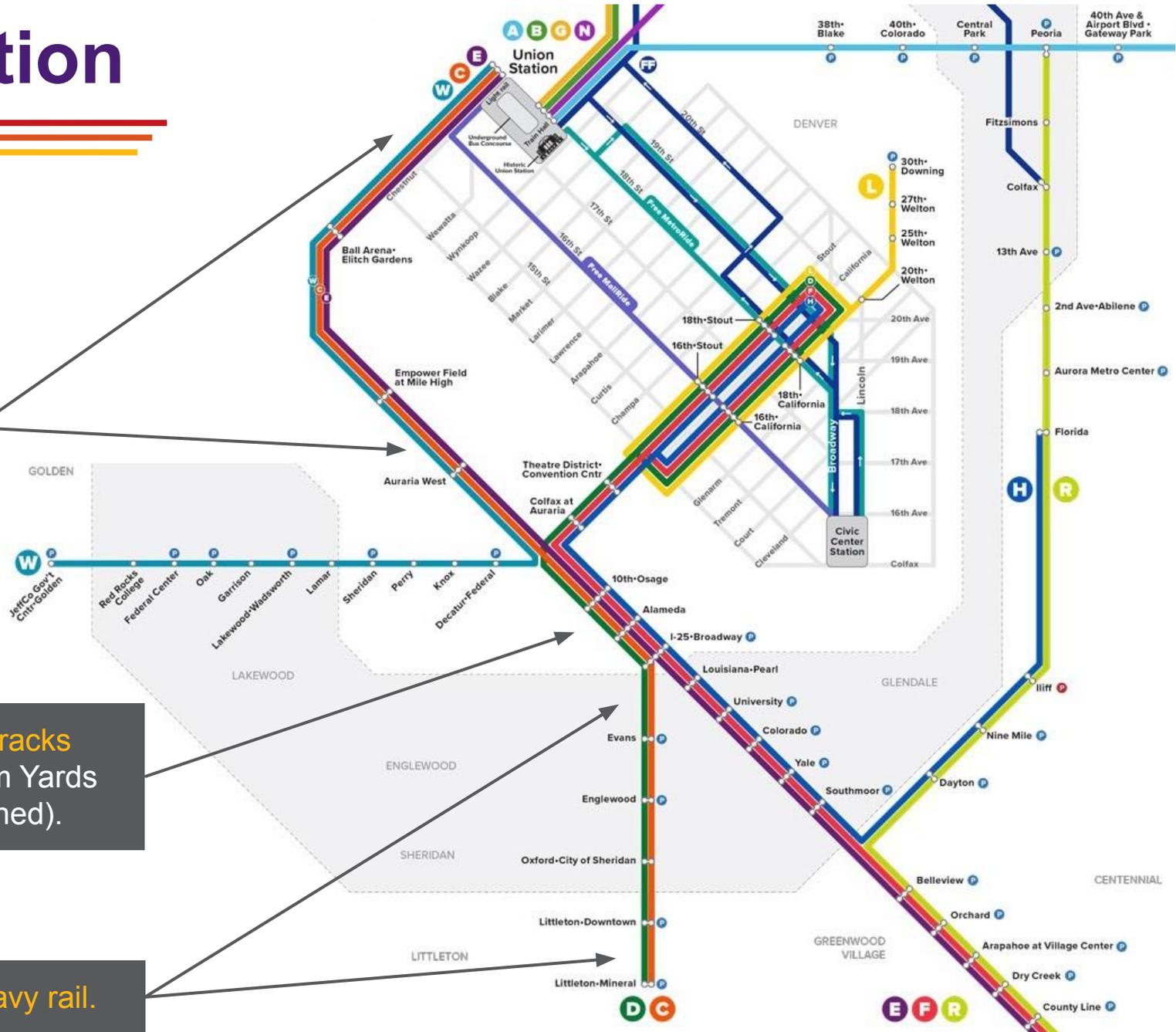
Our Proposed Solution

Existing light rail infrastructure between Union Station and Littleton is upgraded to FRPR-compatible heavy rail standards.

Central Platte Valley Light Rail Line upgraded to heavy rail.

2x new heavy passenger rail tracks provided by CDOT in Burnham Yards Redevelopment (already planned).

Southwest Light Rail Line upgraded to heavy rail.



Light Rail to Heavy Rail Upgrade

Signalling system replaced.

Overhead Catenary System (OCS) upgraded from 750V DC to 25kV AC.

Services operated using Commuter Rail rolling stock.

Stations rebuilt with high-floor platforms.

Track replaced.



Passenger-only FRPR Right-of-Way



A rail upgrade project most affordably **buys FRPR trains a reliable passenger-only right-of-way** across the Denver Metro.

Proposed FRPR trains can run on the same tracks as RTD's Heavy (Commuter) Rail trains (same propulsion / signalling technology).

Significant financial savings from utilizing an existing passenger-only right-of-way (RoW) instead of acquiring land and building from scratch.

Parts of the existing Central Platte Valley and Southwest light rail lines civil infrastructure may be able to be reused such as the roadbed, structures, drainage and fencing.





Front Range Passenger Rail RTD Heavy Rail Upgrade Alignment Details

Denver Union Station

Freight tracks realigned to accommodate FRPR tracks.

New flyover viaduct carries FRPR tracks over freight tracks and Platte River to B and G lines.

Right-of-way banked for Denver Airport tunnel link to A Line.

Light rail station replaced with new 4-track FRPR / Commuter Rail station.

Union Station Train Hall

Freight tracks.

Existing RTD Central Platte Valley Light Rail Line upgraded to heavy rail.

FRPR trains will save time by not having to reverse at DUS.



I-25

Park Ave.

20th St.

Broadway

Ball Arena

Freight tracks.

Existing RTD Central Platte Valley Light Rail Line upgraded to heavy rail.

Existing pedestrian bridge at 9th Ave retained.

Ball Arena

New pedestrian bridge constructed at 7th Ave.

Light rail station replaced with new 2-track FRPR / Commuter Rail station.

Increase in station capacity will ensure transit infrastructure is ready to handle the greatly increased demand for public transportation from the River Mile and Ball Arena Redevelopment.



Empower Field

Existing RTD Central Platte Valley Light Rail Line upgraded to heavy rail.

E Line diverted to Downtown Light Rail Loop and effectively becomes the F Line.

Freight tracks.

Existing Empower Field light rail station demolished.

Existing Auraria West light rail station demolished.

Empower Field

New 2-track FRPR / Commuter Rail station.

New Auraria West light rail and BRT station.

W Line

Pedestrian connection between stations.

W Line diverted to Downtown Light Rail Loop.

New freight and FRPR tracks.

Increase in station capacity will ensure transit infrastructure is ready to handle the **greatly increased demand** from the pending pedestrian bridge connection to Empower Field.



Burnham Yards

Execute Alternate "E" of CDOT's Burnham Yard and I-25 Central PEL which realigns the CML to Burnham Yard & adds extra tracks.

Existing freight tracks abandoned.

New freight and FRPR tracks.

10th & Osage Station

Light rail tracks.

Mariposa Light Rail Maintenance Facility

8th Ave.

6th Ave.



Burnham Yards - Developer's Option

An alternative plan for Burnham Yards would be to relocate the light rail beside western CML & FRPR / RTD passenger rail tracks.

(Optional) New 2-track FRPR / Commuter Rail station.

Existing freight tracks abandoned.

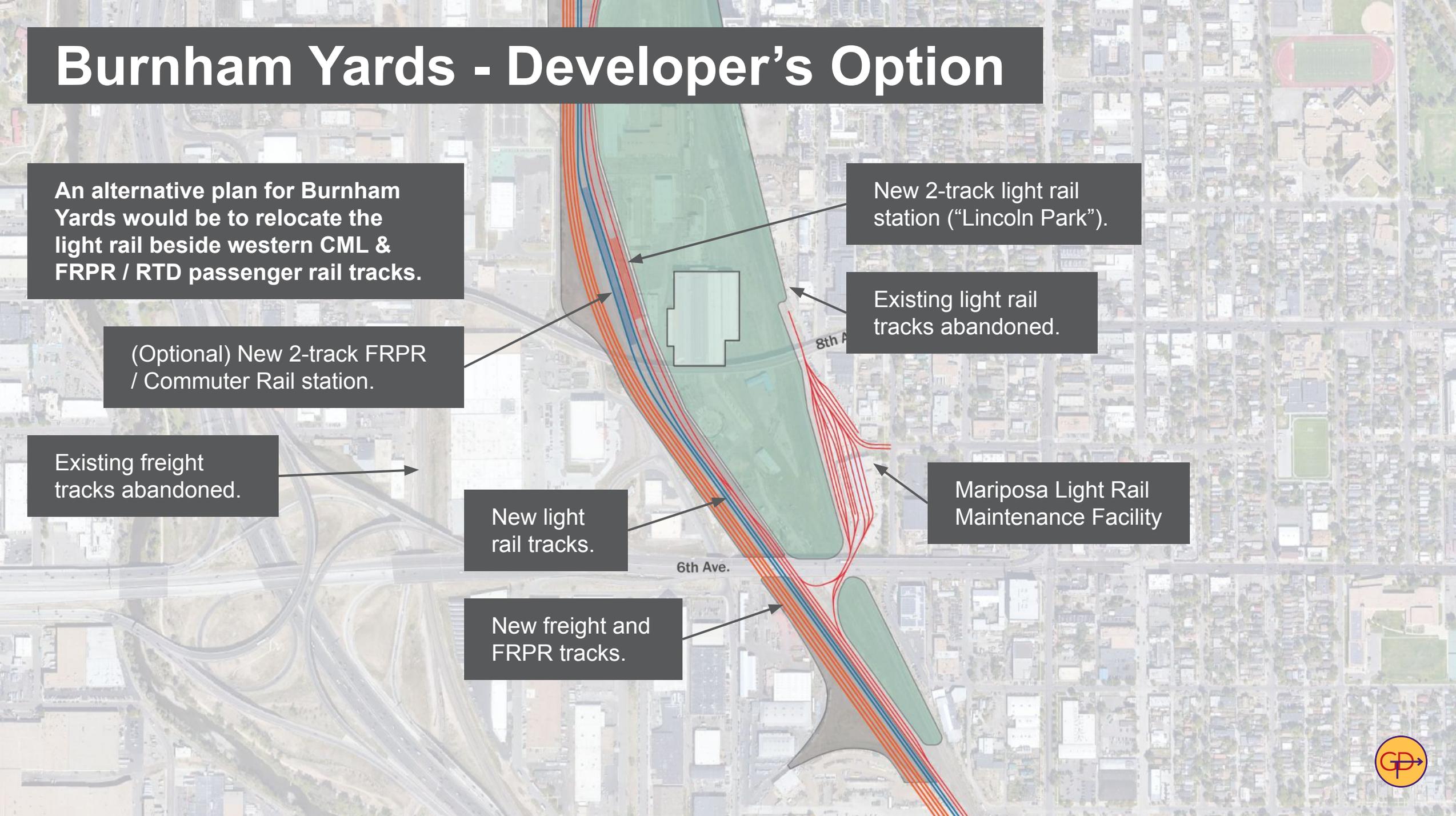
New light rail tracks.

New freight and FRPR tracks.

New 2-track light rail station ("Lincoln Park").

Existing light rail tracks abandoned.

Mariposa Light Rail Maintenance Facility



Alameda

Rebuild Alameda Station over Alameda Ave to provide E/W bus connections.

Existing freight tracks abandoned.

Existing light rail tracks.

New 2-track light rail and BRT station.

(Optional) New 2-track FRPR / Commuter Rail station.

Alameda Ave.

Existing light rail station closed.

New freight and FRPR tracks.

Broadway

Lincoln St.



I-25 & Broadway

Build new I-25 & Broadway platforms (4 new tracks) to allow FRPR trains (2 tracks) to overtake RTD commuter trains (2 tracks).

New 4-track FRPR / Commuter Rail station.

Existing light rail station.

New BRT station.

Freight tracks realigned to accommodate FRPR station.

E (will be F) and H Lines.

Existing RTD Southwest Light Rail Line upgraded to heavy rail.

Single light rail track for Elati Maintenance Facility access retained.



Evans and Oxford

Freight tracks.

Existing RTD Southwest Light Rail Line upgraded to heavy rail.

Single light rail track for Elati Maintenance Facility access retained.

Light rail station replaced with new 2-track Commuter Rail station.

Broadway

Sante Fe Dr.

Evans Ave.



Elati

Freight tracks.

Existing RTD Southwest Light Rail Line upgraded to heavy rail.

Single light rail track for Elati Maintenance Facility access retained.

Elati Maintenance Facility

3 outer tracks upgraded to heavy rail for FRPR / Commuter train storage.



Englewood and Littleton

Existing RTD Southwest Light Rail Line upgraded to heavy rail.

Santa Fe Dr.

Freight tracks.

FRPR trains will serve Littleton / Downtown Station which offers more walkable destinations over the Mineral Park-n-Ride.

Light rail station replaced with new 2-track Commuter Rail station.

Mineral Ave.

Flyover carries FRPR tracks over freight tracks.

Union Pacific and BNSF freight tracks consolidated onto existing BNSF alignment.

FRPR tracks take over existing Union Pacific alignment.



Highlands Ranch

Potential for new direct RTD Service to Wheat Ridge (via G Line) and/or Westminster (via B Line).

FRPR tracks take over existing Union Pacific alignment.

New 2-track Commuter Rail station, southern terminus for RTD service.

2x outer passing tracks for FRPR to minimize RTD conflict.

Union Pacific and BNSF freight tracks consolidated onto existing BNSF alignment.

2x tail tracks for short-term RTD layover.

New station may replace current Southwest corridor FasTracks extension scheme.





Front Range Passenger Rail RTD Heavy Rail Upgrade Getting There and Outcomes

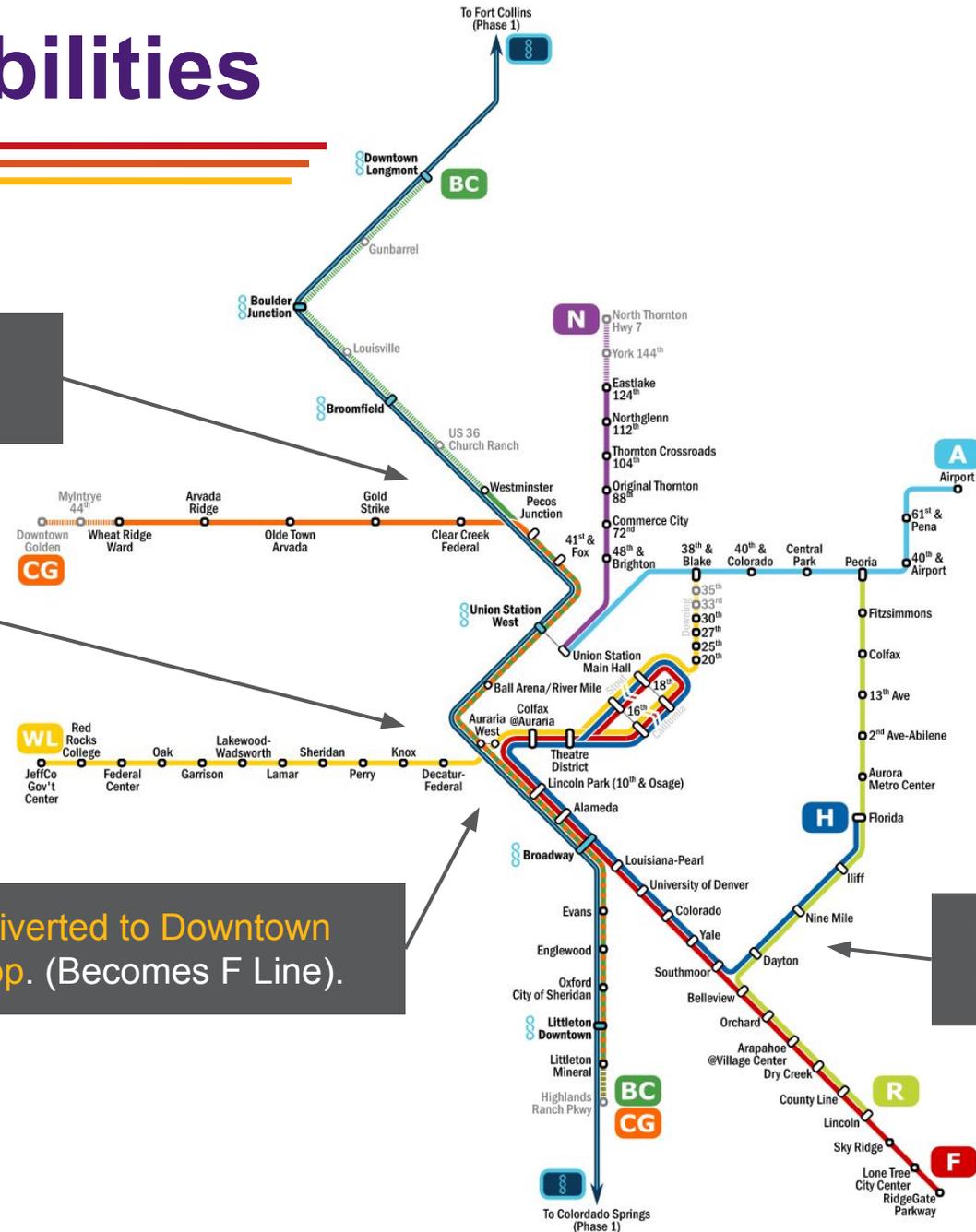
RTD Operational Possibilities

RTD B and G Line commuter rail trains may run through to Highlands Ranch to provide north-south “cross city” service.

RTD W Line diverted to Downtown Light Rail Loop and combined with L Line for E/W through service running from Jefferson County Government Center Station to 38th & Blake Station.

RTD E Line diverted to Downtown Light Rail Loop. (Becomes F Line).

Journeys are simpler and easier due to reduced need to transfer.



H and R lines unchanged.



Asks for the FRPR District



Study the **Heavy Rail Upgrade** solution from Denver to Highlands Ranch.

Asks for RTD



Study operational costs for commuter rail service from Highlands Ranch to northern destinations.

Explore options for additional heavy rail vehicle procurement and operation.

FRPR construction planning for Central Platte Valley, Southwest and W Lines.

Asks for CDOT and DOTI

Adopt Alternative E of the Burnham Yard and I-25 Central PEL which diverts the Consolidated Main Line and funds two new tracks for RTD (to be shared by FRPR).

Study moving all rail (including the Central Light Rail Line) to the west of the Burnham Yard area.

Rebuild and widen the Alameda Ave underpass to accommodate a future BRT station.



Result



By utilizing existing RTD infrastructure, **FRPR can expand into a rail system that serves a wide selection of destinations along the Front Range.**

Right-of-way negotiation is minimized as route mainly deals with existing rail property.

Dedicated passenger rail tracks facilitate **reliable and punctual train service** from both FRPR and RTD.

Enough capacity for hourly (or even half hourly) **FRPR trains** from day one.

Multiple one-seat ride and single transfer opportunities to and destinations both north and south of Denver.

Valuable project which will continue **public support of transit.**





Greater Denver Transit Thank You!

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