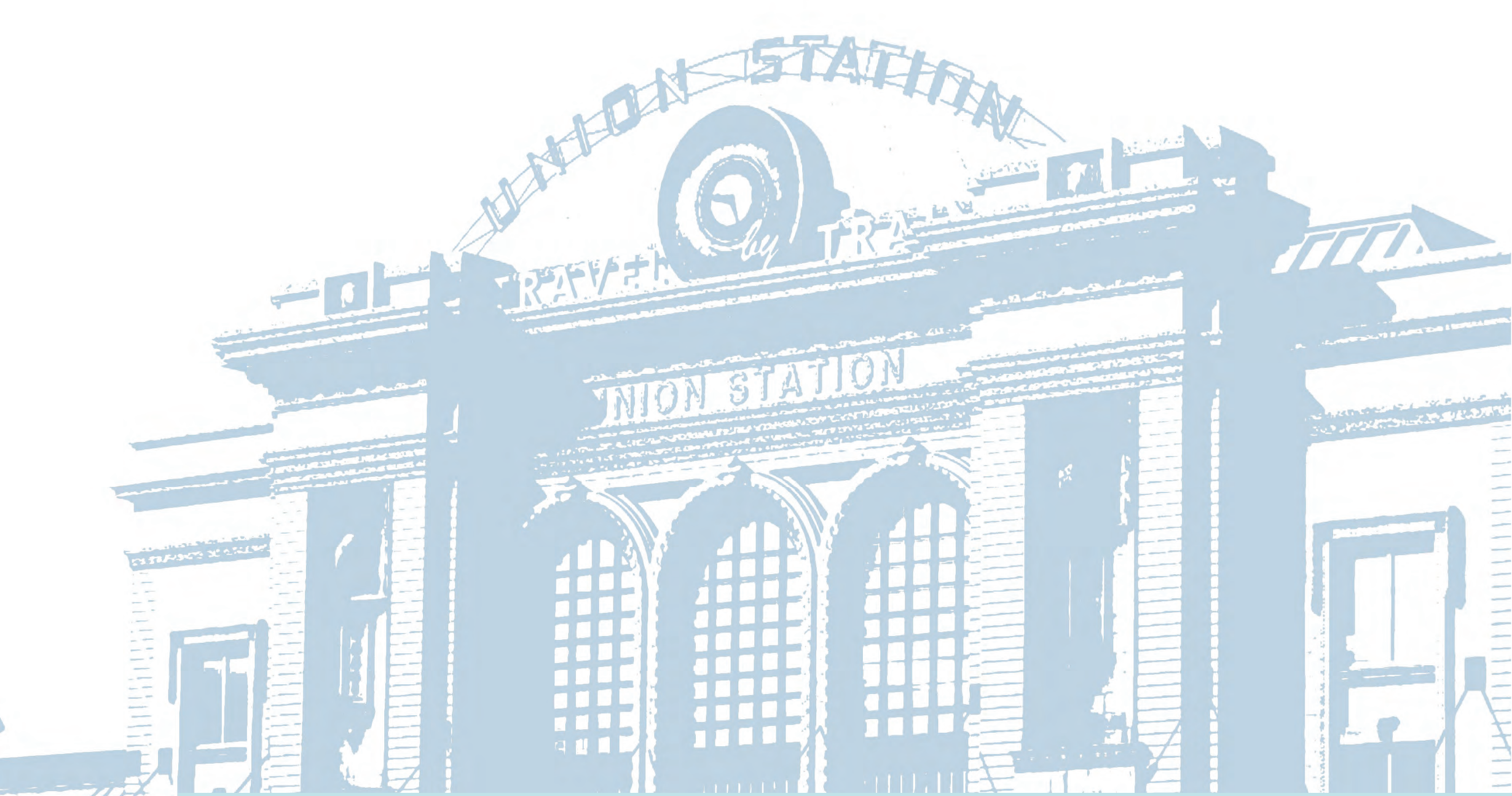


Denver Union Station

Master Plan **September 2004**


UNION STATION
NION STATION

PART I


UNION STATION
NION STATION

Introduction

Dear Fellow Citizens and Interested Readers:

We proudly present the Denver Union Station Master Plan. This document was developed through an unprecedented collaboration among four public agencies – the City and County of Denver, the Colorado Department of Transportation, the Denver Regional Council of Governments, and the Regional Transportation District – along with many organizations and individuals in the community and the region. Their participation, strong support, and donation of countless hours of their time were essential to this project.

The vision statement for this Master Plan proposes to transform the historic Denver Union Station (DUS) site over time into "a multimodal transportation hub of international significance, and a prominent and distinctive gateway to Downtown Denver and the region." As the product of extensive study, planning, and community participation, the Master Plan outlines solutions that offer the region's citizens many more transportation options, all in one place. Denver Union Station will unite critical elements of the local, regional, statewide, and national transportation systems, both public and private, existing and planned, with private development and inspiring civic features.

Denver Union Station's unique assets make it an ideal location for this new type of multimodal transportation facility. Denver Union Station will create an exciting transportation crossroads, improving connections among all transportation modes, respecting the character and historical significance of this handsome station and its adjacent neighborhoods, and providing a stimulating environment for public activity and economic vitality.

Focusing on transportation and connectivity, the Master Plan identifies and evaluates potential transportation, development, and civic improvements, along with design character, financing, ownership, and governance structures for redeveloping the Denver Union Station site.

A cornerstone of the Denver Union Station planning effort is preserving flexibility for the site's long-term operations and compatibility with the region's transportation system. In this context, the Master Plan for Denver Union Station establishes a baseline of standards, design concepts, and site programming against which any future modifications must be evaluated.

The Master Plan is one of several major initiatives needed to advance the redevelopment. The Denver Planning Board has reviewed the Master Plan as the first step toward City Council adoption as a supplement to the City and County of Denver's Comprehensive Plan. Concurrent with the adoption of the Master Plan, City Council will be asked to rezone the 19.5-acre Denver Union Station site as a new Transit Mixed-Use (T-MU-30) District and designate the building and a portion of the site as a historic landmark in the City and County of Denver.

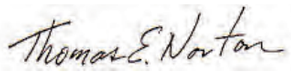
Since 1881, Denver Union Station has been a vital factor in the Denver region's evolution. As a major intercontinental rail link, the historic station helped shape transportation in the region and the nation. The building's distinctive architecture provides a focal point for the Lower Downtown Historic District and a visual landmark for many parts of the city.

Redevelopment of the site will restore Denver Union Station to prominence as a force shaping our state's character, economy, and transportation systems. Much more than a nostalgic reminder of rail's golden era, this revitalized civic landmark will play a major role in shaping Colorado's future.

Clarence W. Marsella
General Manager
Regional Transportation District (RTD)

John W. Hickenlooper
Mayor
City and County of Denver (Denver)

Lorraine Anderson
Chairman, Board of Directors
Denver Regional Council of Governments (DRCOG)



Thomas E. Norton
Executive Director
Colorado Department of Transportation (CDOT)

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Wynkoop Plaza will be a lively public plaza fronting the restored historic building.

Once a lifeline for a geographically isolated city, Denver Union Station was built in 1881 to handle 10,000 passengers daily. In 1902, depot police began enforcing a "no kissing" rule on platforms because "it slows down the trains!" World War II passenger traffic swelled almost to gridlock with 24,000 people a day. With 80 trains daily, the station was always in motion with arriving and departing tourists, business travelers, troops, theatrical companies, and immigrants.

Red caps, trained to "project" announcements of departures without the benefit of a public address system, swarmed the great Train Room carting bags and delivering messages. Yellow cabs crammed the station's portals. For years, Christmas was celebrated with the display of a 25-foot tree, elaborate decorations, and seasonal concerts. Not until the 1950s did passenger traffic at Stapleton Airport exceed that at Denver Union Station.

One of Denver's grandest public spaces, the Train Room of Denver Union Station is often quiet these days. From its heyday in the 1940s, traffic at the station dropped to two Amtrak trains daily.

Soon this will begin changing. Denver Union Station faces a major revival as a crossroads facility that will unify every major transportation mode for the benefit of metropolitan Denver, the Front Range, and the entire State of Colorado. The Denver Union Station Master Plan outlines a plan for revitalizing the three-story-high space so it will once again teem with people in motion—inspiring scenes as bustling as Denver International Airport (DIA) on a holiday weekend.

This Master Plan presents the vision for the rebirth of the historic Denver Union Station as a regional and statewide multimodal transportation center. The station's redevelopment forges a critical transportation link for the metropolitan region and the state. This link greatly enhances local, state, regional, and federal investments in highways, HOV lanes, light rail, commuter rail, local and regional buses, parking, bikeways, and pedestrian networks. Metropolitan Denver's transportation investments will be merged into one cohesive system connecting the region and beyond.

Denver Union Station will be transformed into a hub for efficient transportation connections and transfers within and between the Metro area, the Front Range, mountain communities, DIA, the Rocky Mountian region, and the nation. Denver Union Station once again will be an economic lifeline for the entire state.

A Vision of a 24-Hour Transportation Hub

The Denver Union Station Multimodal Transportation Center represents a new vision for the future of the station as a 24-hour hub of urban activity. This vision honors and builds upon the storied history of Denver Union Station, which was remodeled into its current configuration in 1914.

According to this vision, the station's neon slogan, "Travel by Train," once again rings true as Denver Union Station becomes the region's connecting point for light rail, commuter rail, and intercity rail, as well as for local, regional, and intercity buses, and other public and private transportation modes.

Denver Union Station also becomes the core of a vibrant, pedestrian-friendly, urban neighborhood and an important linchpin of a healthy city, state, and regional economy.

All told, the revitalized Denver Union Station accommodates many categories of transportation, including light rail, commuter rail, regional and intercity bus, taxis, shuttles, vans, limousines, bicycles, and pedestrians, and offers more than 1 million square feet of new offices, residences, and shops.

This one-of-a-kind facility will become a new transportation and economic crossroads for the Denver region and the State of Colorado.

Denver Union Station combines a great location with excellent access to transportation infrastructure. It is poised to become a regional transportation hub serving millions of people through modes such as the following:

- RTD regional light rail
- RTD regional and local buses

- Commuter rail to north Denver metropolitan communities and DIA
- Regional rail to Fort Collins, Colorado Springs, and Pueblo
- Connections to mountain communities
- Amtrak intercity rail
- Ski Train
- Private intercity, interstate, international, charter, and tour buses
- Private, local, and regional van and shuttle services
- Taxi and limousine services
- Rental cars
- Bicycles and scooters
- Walking, both within the site and to and from adjacent neighborhoods and nearby destinations
- Private automobiles
- Other possibilities for existing and future ground transportation modes and services.

The Denver Union Station site will provide convenient and safe access to and efficient connections between each transportation mode, helping improve access to jobs, housing, and activity centers throughout the region.

Redeveloping the Site

RTD acquired the 19.5-acre station site, in 2001 with intergovernmental participation by the the City and County of Denver, the Colorado Department of Transportation, and the Denver Regional Council of Governments. Much of the site is underused and will be rezoned for intensive mixed-use redevelopment that complements and supports transportation uses and activates the station as a 24-hour hub.

The Master Plan envisions redeveloping parcels around the historic station with mixed uses that enhance the multimodal station. Following principles of this Master Plan, the design of new development will complement the historic building, the adjacent Lower Downtown Historic District, and new development in the Central Platte Valley.

This site's potential redevelopment could include:

- About 1 million square feet of office space (Class A and Class B)
- About 300,000 square feet of residences, or about 250-300 units.
- A business-oriented or boutique hotel of 120 to 200 rooms.
- About 100,000 square feet of retail and other commercial uses. This could include restaurant and entertainment venues, specialty retail, and transit-oriented convenience retail.

New uses will build transit ridership by providing destinations that can be reached conveniently by many modes throughout the region. Housing on the site will generate pedestrian traffic that supports retail, restaurants, and entertainment venues. Redevelopment goals include:

- Support transit ridership by providing easy and convenient connections to all transportation modes and by creating a highly desirable destination.
- Revitalize the historic station.
- Provide new commercial and residential development that supports and benefits from multimodal transportation access.
- Attract private investment to help complete the Master Plan.
- Provide opportunities for new well-paying jobs on site, mixed-use affordable housing options, and more efficient, convenient, and affordable transportation options for the workforce, through public and private modes.
- Build a lively, pedestrian-oriented urban development that enhances Lower Downtown, the Central Business District, and the Central Platte Valley.
- Create activity on-site throughout the day to enhance the site's attractiveness and security.

The Vision Plan

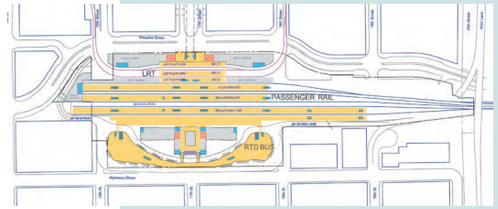
How can all these proposed transportation modes merge into one facility?

The Master Plan's Vision Plan defines a physical environment that seamlessly accommodates transportation modes and efficient movement throughout the site. The Master Plan process studied more than 40 alternatives, using a four-step evaluation. This Vision Plan emerged as the strongest alternative.

The Vision Plan suggests possible uses for specific land parcels and identifies public spaces and circulation. It also allows flexibility to respond to future market conditions and changes in the transportation and development programs.

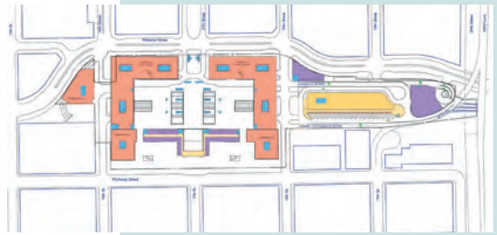
Key elements of the Vision Plan include:

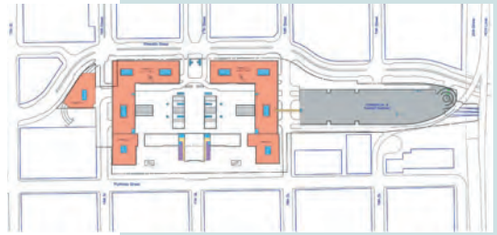
- Placing major transportation modes - light rail, passenger rail, and regional bus - below grade. This separates functions, promotes convenient and safe circulation, and frees the street level for flexible transportation uses, public spaces, and complementary redevelopment.
- Restoring and rehabilitating the historic train station to serve as the main circulation and orientation space and to provide transportation services, retail, restaurant, and office uses.
- Designing the Denver Union Station site to accommodate the potential for a "through" station for passenger rail (see page xx).
- Creating a mixed-use, transit-oriented development that makes effective use of transportation infrastructure, supports transit use, increases transit ridership, and creates an active and vibrant urban center.
- Providing a through station for light-rail service to improve the efficiency and scheduling of arriving and departing trains.
- Connecting 18th Street between Wynkoop and Wewatta streets.
- Creating a commercial bus facility for 18 buses one level above the street to accommodate intercity, charter, and tour buses.



Lower Level


Street Level


Second Floor


Third Floor

Four levels of the Vision Plan showing transportation locations and development parcels.

Summary of Project Goals and Principles:

Transportation

- Transform Denver Union Station into a hub that integrates regional transit into one transportation system.
- Seamlessly blend many different transportation modes in one site in a way that is efficient, logical, and safe.
- Increase transit ridership.
- Make it easy and logical for commuters and travelers to transfer from one mode to another.

Urban Design

- Encourage mixed-use redevelopment that complements the site and neighborhood.
- Ensure that the design, materials, and scale of new architecture complements the historic building and neighborhood.
- Connect neighborhoods now divided by the historic station site with new pedestrian, bicycle, and vehicle access.

Historic Preservation

- Restore and preserve Denver Union Station, which is listed in the National Register of Historic Places and will be a Denver Landmark.
- Promote the active use of Denver Union Station for passengers, transportation access, transfer and support services, and for commercial uses including retail, entertainment, and offices.
- Providing space for a downtown circulator to supplement the 16th Street Mall Shuttle.
- Creating flexible street-level space between the historic station and the development on Wewatta Street for pedestrians, private transportation, the 16th Street Mall Shuttle, the proposed downtown circulator, and future development.
- Improving access and circulation for bicycles and pedestrians, with safe and convenient access from the Cherry Creek and South Platte Bike and Pedestrian Paths and connections between the Central Platte Valley and Downtown at 16th, 17th, and 18th streets.
- Setting aside 76,000 square feet of flexible program space above passenger rail and below the commercial bus facility between 18th and 19th streets for transit services or future development.
- Providing, through mixed-use development, a variety of housing options and employment opportunities at DUS, as well as access and connections to housing and jobs throughout the region.
- Creating a new public plaza on Wynkoop Street and a new public pedestrian area at the 17th Street Promenade.
- Providing approximately 2,100 parking spaces to serve transportation, offices, shops and residences.
- Creating development parcels with the potential for more than 1 million square feet of new offices, residences, shops, and restaurants.
- Combining all these elements in a vibrant, safe, convenient, and legible urban environment.

Weaving Denver Union Station into the City

The Master Plan includes principles of urban form that unite multimodal transit with redevelopment. Key principles ensure that redevelopment will:

- Create a walkable environment that complements the character and enhances the economic vitality of adjacent neighborhoods and business districts.
- Transform Denver Union Station from a barrier between neighborhoods into a place that unites Lower Downtown, Downtown, and the Central Platte Valley, providing extensive access for pedestrians and bicyclists.
- Enliven city streets with gracious storefronts, streetscapes, food and entertainment venues, and attractive public spaces that produce a high volume of pedestrian traffic.
- Respect the city's historic street grid.
- Reduce or eliminate conflicts between transit vehicles, private vehicles, and pedestrians.
- Complement the scale and character of the historic building and the Lower Downtown Historic District, as well as the newly developing Commons area.
- Create clear, legible pedestrian circulation routes and access to transportation.

Behind the Vision: A Partnership with the Public

This vision for Denver Union Station is made possible by a unique partnership among four entities: the City and County of Denver (Denver), the Colorado Department of Transportation (CDOT), the Denver Regional Council of Governments (DRCOG), and the Regional Transportation District (RTD). In 2002, these partners began working on the Master Plan, incorporating an extensive public process to create this document.

Spanning two years, the Master Plan process invited the public to share ideas through town meetings, mailings, a web site, and other public outreach efforts. Public participation included the work of an 80-member Technical Advisory Committee and the 93-member Union Station Advisory Committee representing the interests of 36 stakeholder groups.

With citizens engaged as partners, this public process produced more than 40 alternative scenarios and a series of goals and principles to guide redevelopment.

The Master Plan process also studied passenger-rail stations in other cities that were redeveloped into multimodal facilities. These included Washington, D.C.'s Union Station, New York City's Grand Central Terminal, Boston's South Station, Los Angeles Union Station, Portland Union Station, and Dallas Union Station. Keeping the unique conditions of Denver Union Station in mind, the Master Plan considered issues such as traffic engineering, transportation planning, foot-traffic circulation, development, governance, passenger safety, and convenience.

The Master Plan presents solutions forged through strong consensus among the advisory committees' public, private, and citizen representatives.

Using the Master Plan

The Denver Union Station Master Plan identifies the vision and goals for a multimodal transportation hub. It also explains the history and context of the area, structuring elements of the site, including zoning and landmark designation, programs for transportation and development, and implementation strategies.

Specifically, the Master Plan:

- Establishes a framework of elements needed to fulfill project goals.
- Directs the integration of these elements within the site according to guiding principles and site constraints.
- Identifies implementation strategies to guide the project from inception to operation.

The Master Plan contains two sections.

Part I introduces the vision for transforming Denver Union Station into a multimodal facility surrounded by complementary redevelopment. It explains in detail the Vision Plan and strategies for implementation.

Part II describes the synthesis of project goals, research, planning, design, transportation study, and public participation that went into creating the Master Plan. Part II also:

- Relates Denver Union Station's history from rail's inception in Denver through modern times.

- Describes the project's context—how Denver Union Station relates to the Denver street grid, surrounding neighborhoods and districts, and to such regional attractions as Coors Field, Larimer Square, and the Pepsi Center.
- Addresses structuring elements affecting site redevelopment, including the 19.5-acre site itself, the multimodal transportation program, the development program, and the regulatory structures of zoning and landmark designation.
- Provides principles of urban form to guide the planning and design of elements needed for a lively, safe urban environment. These components include public open space, access for pedestrians and bicycles, vehicle access and parking, streetscapes, transit facilities, new architecture, and legible way-finding systems.
- Includes a section on alternatives, comparing leading scenarios that were developed and tested.
- Includes a transportation study, an outline of public participation, a historic timeline, and a list of advisory team members.

Thus the Master Plan provides specifics to guide revitalization from transportation planning and engineering, to architectural design, to retail programming, according to a shared vision, principles, and goals. Public elements of the Vision Plan are projected to cost $560 million to build over several decades.

At the same time, the Vision Plan is flexible and can adapt to evolving transportation plans and real-estate market conditions. It defines *directions* for site redevelopment rather than specific *outcomes*. This "road map" provides the basis for decision-making, continually grounding stakeholder decisions within consistent boundaries of agreed-upon goals and values.

The 17th Street Promenade will feature access to lower-level passenger trains.

Summary of Project Goals and Principles (*continued*):

Development and Finance

- Plan public-private redevelopment that enhances the urban context and provides revenues to help fund the multimodal transportation center.
- Develop financing that includes federal, state, local, and private sources.
- Ensure that the project will be economically sustainable for generations.
- Create a redevelopment that provides economic opportunities for the city, region, and state.

Implementation and Governance

- Develop a governance plan that includes private partners and users with no undue risk or burden for taxpayers.
- Create a governing body that will maintain high standards for facility design, operations, and maintenance.

Denver Union Station Vision Statement

"Denver Union Station will be a multimodal transportation hub of international significance and a prominent and distinctive gateway to downtown Denver and the region.

Denver Union Station will bring critical elements of the public and private local, regional, statewide, and national transportation systems, both existing and future, together with private development and inspiring civic features.

Denver Union Station will create an exciting setting that will improve the connections between all transportation modes, respect the character and historical significance of the station and its adjacent neighborhoods, and provide a stimulating environment for public activity and economic vitality."

Vision statement developed by the Union Station Advisory Committee and the Agency Partners, Summer 2002.

Introduction

From early times in Colorado, farsighted citizens and local leaders recognized the link between a strong transportation system and a thriving state economy. Their efforts started in the 1870s with the struggle to bring railroads to Denver and continued with the development of a statewide roadway system, construction of I-70 through the Eisenhower Tunnel and Glenwood Canyon, creation of the Regional Transportation District (RTD), building Denver International Airport (DIA), and most recently expanding the highway and light rail on I-25 and I-225.

The Denver Union Station Master Plan presents a vision for the next stage of Colorado's transportation future. A revitalized Denver Union Station will blend many transportation modes and transportation networks in one place for the benefit of the entire state.

This future may look like this:

The scene is Denver Union Station, somewhat later in this century.

During evening rush hour, a Rocky Mountain sunset illuminates the huge arched windows above the 17th Street Promenade. The air is scented with flowers and roasting coffee beans.

Inside, hundreds of commuters move smoothly and efficiently through the station toward gates for light-rail and bus connections. Many carry home fresh produce, cheese, or bread from specialty markets in Denver Union Station.

Arrivals and departures are announced over the public address system: "Transit to Silverthorne and Breckenridge, Platform 3, 6:37pm Train to DIA, Platform 2, 7:14 p.m. Greyhound bus to Grand Junction, Gate 4, 7:15 p.m. Express to Fort Collins, Track 6, 7:16 p.m., stopping in Loveland only." Attractive signs and arrival-departure boards direct patrons to their connections with ease.

A young couple pushes a child in a stroller. They just stepped off the 16th Street Mall Shuttle after visiting the Denver Art Museum, and are about to board a light-rail train to their home in the suburbs. Another young couple is planning their wedding. They arrived via RTD bus from Northglenn and will take light rail to Park Meadows Mall to register at a department store.

A few commuters tuck bike helmets under their arms. They rode light rail from work elsewhere in the metro area, and are off to claim their bikes from the on-site Bike Station outside the historic station building.

Neighborhood residents drop by the Train Room to meet friends for a bite at a bistro. They may hang around a few hours to hear some jazz at a new club next to the station. Afterwards, their friends will grab a taxi home to Washington Park.

Long-distance travelers pull wheeled luggage through the Train Room. They may be catching Amtrak to California, or boarding the Air Train to DIA for a flight to London. Some passengers just arriving in Denver follow signs to local buses, taxis, and car-rental counters. Travelers carrying ski bags head for private van services that will shuttle them to mountain resorts.

Several retirees visiting from San Francisco wander around the historic Train Room snapping pictures. After reading about the revitalized Denver Union Station in national magazines, they traveled by train (stopping in Glenwood Springs for a few days) to see for themselves. After a day in Denver, they plan to take light rail to Englewood to visit relatives.

The historic building itself—one of Colorado's great examples of Beaux-Arts architecture—has been meticulously restored. New shops and services introduced within and near the building complement the station's style, scale, and materials. The former parking lot in front of the station on Wynkoop Street has been transformed into a handsome public plaza.

Concept for a revitalized Denver Union Station from the corner of 16th and Wynkoop Streets.

A Multimodal Transportation Center

The Denver Union Station Master Plan presents a vision, a framework, and practical guidelines to transform the historic station into a multimodal transportation center serving the Denver region and the entire state of Colorado. The multimodal concept brings together many different means of transportation in one place with logical, safe, and convenient transfers.

The Master Plan expands this concept to include international connections through DIA and private international bus connections. And it restores the station as a gateway to Colorado, the metropolitan region, and Downtown Denver.

By combining all the region's transportation modes at one hub, Denver Union Station will enhance the value of local, regional, state, and federal investments in highways, HOV lanes, light rail, commuter rail, local and regional buses, parking, bike paths, and pedestrian networks.

The diverse transportation elements of the metropolitan Denver region will be integrated into a single transportation system with easy linkages and transfers among modes. This newly unified system itself will be linked to transportation throughout Colorado and beyond.

Why Union Station?

Denver is the primary intersection of transportation modes and corridors serving the region and the state. Statewide and regional rail networks, interstate highways, state roads, light rail, and bike paths all converge near Downtown Denver. The city and its transportation infrastructure create the gateway to the region, the state, and the Rocky Mountain West.

Denver Union Station will serve as the hub for many different transportation modes.

"The impact of railroads [on Denver] was more than significant—it was monumental."—Lyle W. Dorsett & Michael McCarthy, *The Queen City: A History of Denver*, 1986

"When it was built in 1881, Union Station was a symbol of Denver's coming of age, its initiation as `Queen City of the Plains.' "—Joshua Dinar, *Denver Then & Now*, 2002

"With the exception of the steam railways, it would seem that no institution has done so much for the upbuilding of Denver as the street railway system."—Jerome Smiley, *History of Denver*, 1901

"Automobility had turned Denver inside out, transforming the streetcar and railroad city into a new metropolitan world."—Stephen J. Leonard & Thomas J. Noel, *Denver: Mining Camp to Metropolis*, 1990

Overall Master Plan Goal

The Denver Union Station Master Plan shall identify and evaluate potential transportation, development, and civic components, along with design character, financing, ownership, and governance structures for the Denver Union Station site.

The Master Plan shall establish a final integrated plan that provides the best possible solution for redevelopment of the site in light of the project's vision, recognizing that transportation and its connectivity is the primary focus.

This plan supports the vision set forth in the following regional plans:

- City and County of Denver's Comprehensive Plan 2000 and Blueprint Denver Land Use and Transportation Plan
- Denver Regional Council of Government's Metro Vision 2020 Plan
- Regional Transportation District's Transit System Plan and FasTracks Program
- Colorado Department of Transportation's 2020 Statewide Transportation Plan

Artist's rendering showing activity and connections to the lower-level passenger-rail facility from 17th Street Promenade.

In the 1980s, as the Denver region studied regional light rail and commuter rail, planners identified the need for a central point of connection. The best location for this hub soon came into focus: Denver Union Station. Located in the state's geographic heart and capital city, as well as its busiest downtown, Denver Union Station enjoys:

- existing rail lines that allow easy access for new lines,
- convenient highway connections,
- a wonderful historic building prime for adaptive use,
- adjacent sites for complementary development that supports transportation,
- a central location near the region's biggest event and entertainment venues and densest employment center, and
- proximity to the South Platte River and Cherry Creek greenway and bike path systems.

Through extensive study, planning, design, and public feedback gathered during the Master Plan process, the Denver Union Station site was confirmed as the best location for a multimodal facility that takes advantage of its geography and transportation infrastructure.

Why now?

Because of its rugged geography, the population density of established communities, a fragile environmental landscape, limited financial resources, and a growing desire among citizens for increased transportation choices, Colorado's current transportation needs require more than highway expansion. As the state's population grows to a projected 7 million by 2030, Colorado will need transportation alternatives to keep people and goods flowing. Denver Union Station provides the premier access and transfer point for transportation that will serve the region, the state, and beyond.

A transportation partnership is ready to make this happen. In the 1990s, Denver, CDOT, DRCOG, and RTD joined as partners in planning a multimodal transportation hub at Denver Union Station. These efforts, in conjunction with the planning and partial implementation of the regional transportation system, led to RTD's 2001 purchase of the site, as part of a jointly funded acquisition with intergovernmental participation by the public agency partners. In a spirit of unprecedented cooperation, these agencies now share a common vision for the future of Denver Union Station as an integral component of the region's multimodal transportation systems for the coming decades and beyond.

This vision creates a walkable urban environment, reinforces principles of sustainability, and improves access to activity centers by offering transportation choices. It also preserves and restores one of Denver's landmark buildings and connects several downtown neighborhoods.

The effort to create this multimodal hub also enjoys widespread support. DRCOG's *Metro Vision 2020 Plan*, the 2020 Statewide Transportation Plan, RTD's adopted FasTracks Plan, the City and County of Denver's Comprehensive Plan 2000 (and the subsequent *Blueprint Denver* Land Use and Transportation Plan), all support the need for a multimodal transportation center at Denver Union Station.

Benefits of the Denver Union Station Multimodal Transportation Center

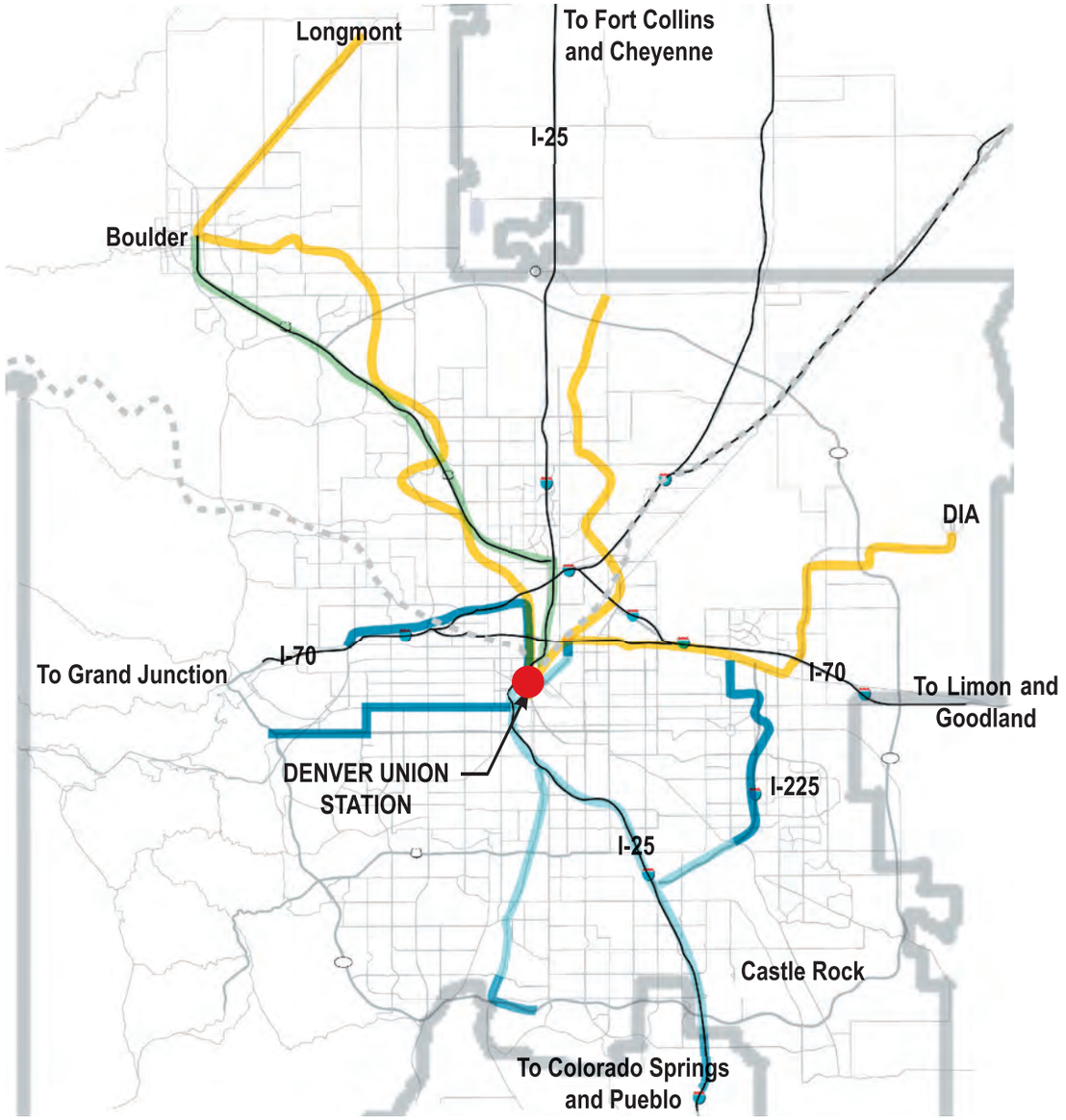
Benefits will be realized throughout the city, metropolitan region, and state. The transportation hub will promote economic vitality by providing citizens better access to jobs and commerce, and improved connections for business, recreation, tourism, and services.

From Fort Collins to Pueblo, and from DIA to the mountain communities, the state will be linked at Denver Union Station. These connections will be made through new combinations of light rail, regional buses, commuter rail, Amtrak, intercity buses, charter buses, tour buses, taxis, shuttles, private and rental cars, van services, bicycles and pedestrians. Travelers will find convenient access and transfer options for a wide variety of destinations and purposes.

Connections at Denver Union Station also will benefit the young, the elderly, and the disabled by helping them access employment, shopping, and leisure activities more independently.

The plan's major transportation links include:

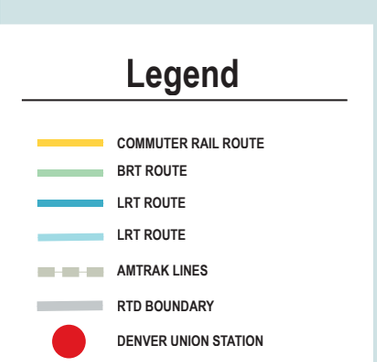
- **US 36 Corridor:** Commuter rail and bus connections to Longmont, Boulder, Louisville, Superior, Broomfield, Lafayette, and Westminster
- **East Corridor**: Commuter rail to Aurora and DIA
- **North I-25 Corridor**: Commuter rail to Thornton and Northglenn

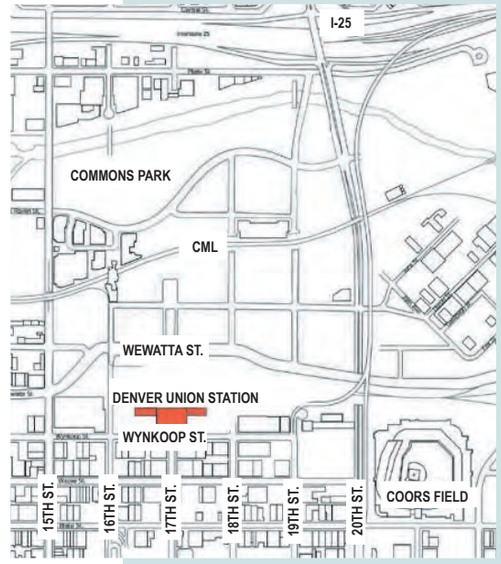


Map showing approximate nine-county RTD boundary, as well as rail and highway connections into Denver Union Station.

- **Gold Line Corridor**: Light-rail connections to Arvada
- **West Corridor**: Light-rail connections to Golden and Lakewood
- **Southeast Corridor**: Light-rail connections to Aurora, Centennial, Greenwood Village, Lone Tree, and southeast Denver
- **Southwest Corridor**: Light-rail connections to Englewood, Highlands Ranch, Littleton, and Sheridan
- **Downtown connections:** A proposed new Downtown Circulator on 18th/19th Streets and Lincoln/Broadway Streets augmenting the 16th Street Mall Shuttle
- **I-70 Mountain Corridor**: Potential new bus and rail connections to mountain communities to ease I-70 congestion
- **Front Range Rail:** Connections from Fort Collins and Loveland to the north and to Colorado Springs and Pueblo to the south
- **Bus/HOV/HOT lanes:** Connections from I-25
- **Intercity & Interstate buses**: Connections to cities throughout the state, the Western U.S., and Mexico
- **Intercity passenger rail:** Amtrak and other potential regional and national rail service
- **Local and Regional shuttle, limousine, and taxi services:** Local circulation as well as regional and mountain service
- **Rental and station cars, bicycles, and other private vehicles:** Parking and drop-off areas for private vehicles, as well as access to rental vehicles
- **Pedestrian access:** Throughout Lower Downtown, downtown, the Central Platte Valley, and nearby neighborhoods
- **Private Excursion Rail:** Including Ski Train and Cheyenne Frontier Days sevice.

Across the nation, other historic train stations once devoted to passenger rail have been revitalized as multimodal centers. The DUS Master Plan incorporates lessons from these projects, improving on many ideas and elements to create what promises to be the nation's most comprehensive multimodal transportation center.





Map showing Denver Union Station and surrounding context.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The transportation program for the Vision Plan includes rail, bus, and commercial transportation modes, all connecting at Denver Union Station.

Site Transportation Program	
2025 Buildout	
RAIL	**Frequency**
Amtrak	2/day
Ski Train	2/day (seasonal)
East Corridor	4/hr.
Boulder Commuter Rail (US 36)	4/hr.
Intercity Rail (North Front Range)	2/hr.
Intercity Rail (South Front Range)	2/hr.
North Metro	4/hr.
Light Rail C Line/West	12/hr.
Light Rail Gold Line	8/hr.
Light Rail SE/SW Corridors	8/hr.
Platte Valley Trolley	On Wynkoop Street
Future Rail Expansion	1 req / track #6 / #6
Future Rail Expansion	1 req / track #1 / LRT
BUS	**No. of Bays**
Regional Bus	16
Commercial Bus Facility	18
Local Bus	On Street
Downtown Circulator	TBD
16th Street Mall Shuttle	6
Tour Buses (Interstate)	share w/Commercial Bus
Charter Buses	share w/Commercial Bus
COMMERCIAL CARRIERS	**No. of Bays**
Taxi	15 positions
Taxi queuing at Commercial Bus	6 positions
Rental Car	30 parking spaces
Vans and Shuttles	3 positions
Ski Area Shuttles	1 dedicated bay
Van Pool	drop off area
Limousine	designated loading zone
Courier Services	designated loading zone
Private vehicle Curbside Drop off @ Commercial Bus	8 spaces or positions

Denver Union Station Vision Plan

The Vision Plan for Denver Union Station (DUS) is the result of the Master Plan process and achieves the spirit of the goals established by the partner agencies and the community. The Vision Plan locates three major modes - light rail, passenger rail, and regional bus - underground. This provides space at ground level, allowing 18th Street to be a through street, while creating flexible transportation space between the historic building and Wewatta Street, and offering the potential of through-passenger-rail service in the future.

The plan offers flexibility for at-grade uses between 16th and 19th streets, spanning the historic building and Wewatta Street development parcels. This flexibility allows for additional circulation space, street-level retail; and locations for the 16th Street Mall Shuttle, a proposed Downtown Circulator, and commercial transit carriers. It also provides openings to the passenger-rail tracks below grade.

The following describes the main components of the Vision Plan and their relationship to other transportation components.

Denver Union Station and Wynkoop Plaza, as forseen in the Vision Plan.

Historic Station

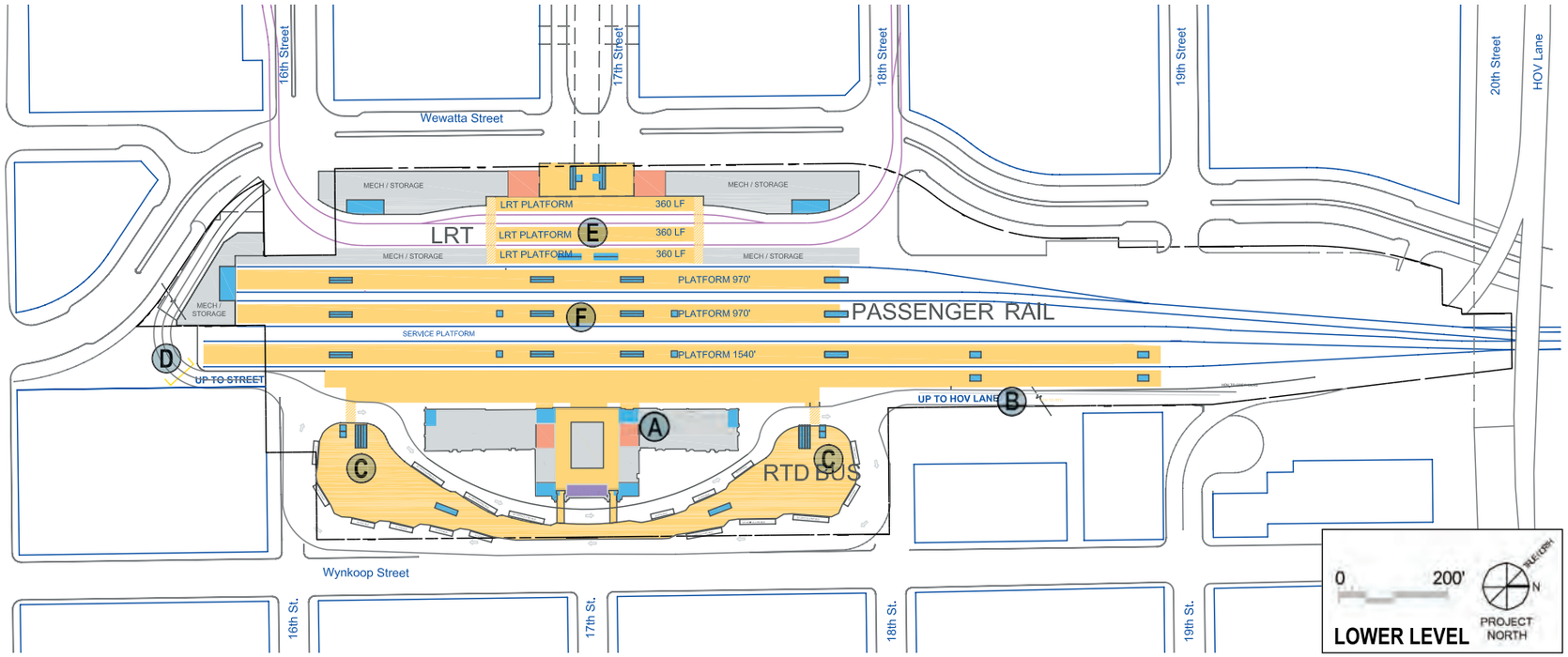
The heart and soul of the Vision Plan is the historic Denver Union Station. The station and key components of its setting will be restored and rehabilitated to bring the building back to its historic prominence. The station will be the centerpiece of the multimodal facility connecting the major transportation components with each other and to surrounding neighborhoods.

The soaring Train Room will serve as the main waiting space for the facility's transportation services, as well as for ticketing, rental car desks, baggage, information, the stationmaster's office, retail, and public uses. The rest of the ground-floor north and south wings will be used for retail, restaurant, event or office space, and for baggage and check-in facilities.

The lower level features the main connection space to the station from the regional bus facility and accommodates retail or vendor kiosks. Connections to the Train Room will be through new stairs, escalators, and elevators at the four corners of the space. The upper floors and mezzanine will be used for offices. Both the interior and exterior of the station will be restored and rehabilitated to reaffirm the building's historic grandeur and to re-establish its function as a major transportation center and entry into Denver. The Landmark Preservation Commission must review and approve all exterior construction projects within the designated landmark area.

Pedestrian Circulation and Connection

To connect transportation modes, the public circulation system needs to be easy to understand and have convenient connections. The main orientation and connection area is the public circulation on the 17th Street axis between Wynkoop and Wewatta streets. All connections to the major transportation modes can be made along this axis. The historic station serves as the main orientation feature for pedestrians on the site. The 17th Street Promenade on Wewatta Street connects the passenger-rail and light-rail platforms to the station and with the public and commercial transportation services that distribute passengers throughout the region. It also includes escalators and elevators, drop-off points for taxis, limousines, and shuttles, the 16th Street Mall Shuttle and proposed Downtown Circulator stops, and retail and vendor kiosks.



Vision Plan

- HORIZONTAL CIRCULATION
- TRANSIT SUPPORT SPACE
- ADDITIONAL CARRIERS
- SUPPORT PROGRAMS
- VERTICAL CIRCULATION
- RETAIL OR COMMERCIAL

LOWER LEVEL

A. Historic Station

B. HOV Ramp to RTD Regional Bus

C. RTD Regional Bus Station

D. RTD Regional Bus Ramp to Street

E. Light Rail

F. Passenger Rail

The main connection area for the regional-bus facility is located on the lower level of the historic station. Though other access points are provided for the bus facility, the lower-level connection to the building provides the quickest access to the passenger-rail and light-rail platforms, as well as to services within the historic station. The site also includes major pedestrian paths that connect the site between 16th and 18th streets, Wynkoop and Wewatta streets, and through Wynkoop Plaza.

Passenger Rail

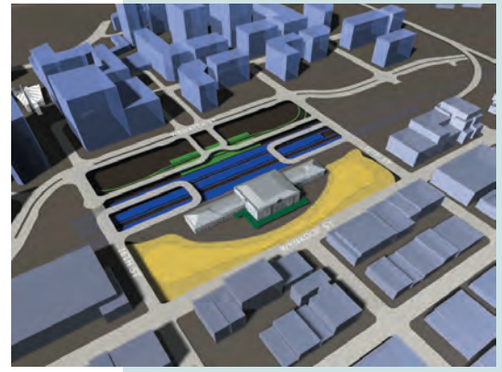
The passenger-rail facility is located at the lower level, next to the Wewatta Street side of the historic station. The facility includes six tracks and three passenger platforms. One platform is 1,540 feet long to accommodate Amtrak and Ski Train. The other two platforms are 970 feet long to accommodate commuter trains. Additional platform space is provided next to the historic building and at a service platform.

The platforms are connected to the circulation space above with elevators and escalators for easy access to the mall shuttle, Downtown Circulator, commercial carriers, and on-site commercial and residential uses. Overhead clearance of 20.5 feet accommodates various rail vehicles and allows for future electrification. The track area between 18th and 20th streets slopes up to grade at 20th Street.

The below-grade location for passenger rail allows for a future connection to the south for a through-passenger rail station. The use of diesel-powered trains and the potential to fully enclose the below-grade space require mechanically ventilating the entire passenger-rail facility. Safety issues related to crossing the passenger-rail tracks prevent direct connection between the lower level of the historic station and the light-rail platforms. However, convenient connections are provided via the 17th Street Promenade. Circulation from the Train Room to light rail will be along the 17th Street Promenade.

As part of the passenger rail improvements, the track throat north of 20th Street will be rebuilt to provide as many as five tracks with switches. This configuration increases passenger-rail capacity by 60 percent more than is required to meet the needs identified in Denver Union Station's 20-year planning horizon. This additional capacity also offers operating flexibility, making maintenance and scheduling easier. These improvements provide the majority of the functions of the existing tail tracks between 16th Street and Cherry Creek.

With passenger rail placed underground, 18th Street can connect Wewatta and Wynkoop Streets to become a through-street. This new street improves circulation around DUS, as well as between LoDo and the Central Platte Valley.



Vision Plan's lower-level light-rail, passenger-rail, and regional-bus facility.

Vision Plan

- HORIZONTAL CIRCULATION
- TRANSIT SUPPORT SPACE
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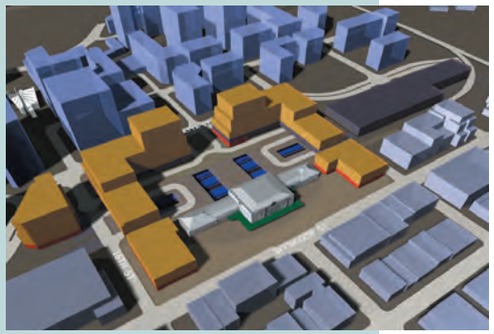
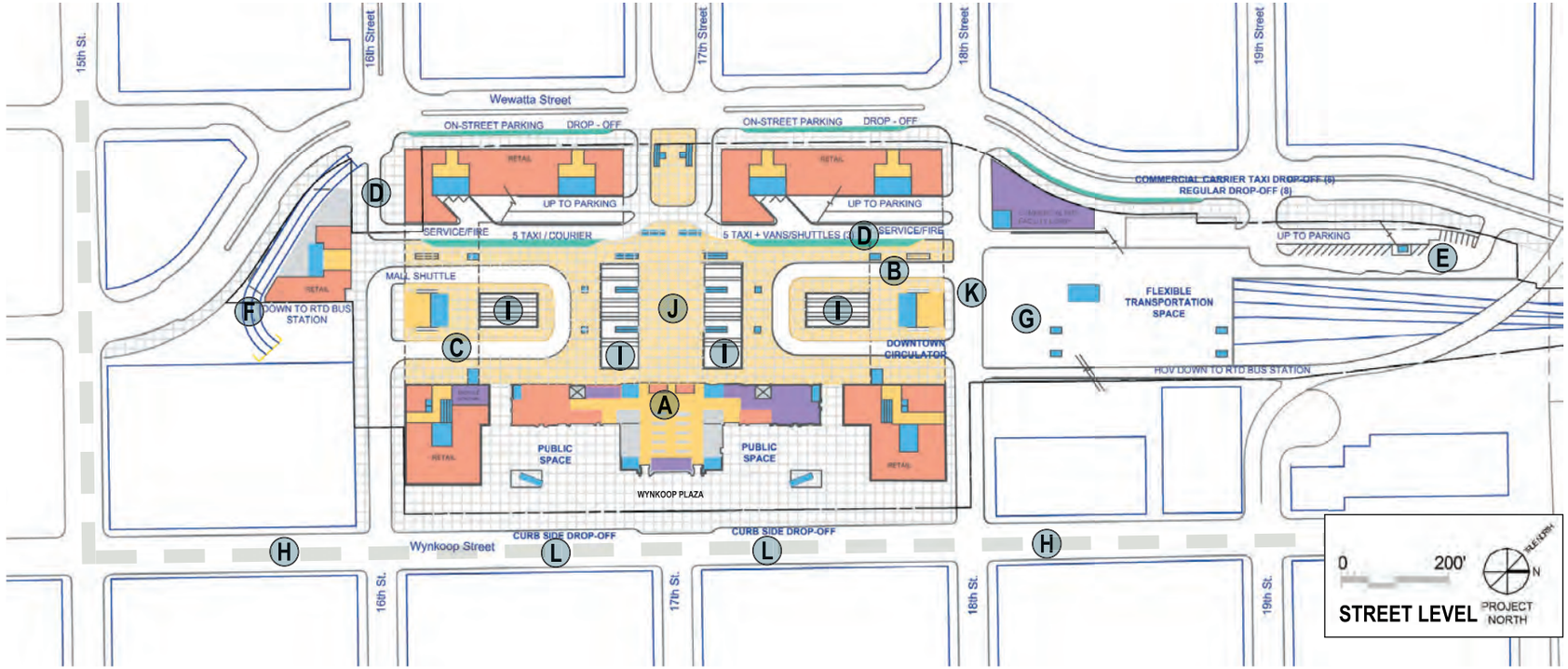
STREET LEVEL

A. Historic Station
B. Downtown Circulator
C. 16th Street Mall Shuttle
D. Commercial Carrier Drop-off/ Service/Fire Lane
E. Bus Staging
F. RTD Regional Bus Ramp to Street
G. Flexible Transportation/ Development
H. Future Platte Valley Trolley
I. Opening to Lower Level Transportation
J. 17th Street Promenade
K. 18th Street
L. Passenger Drop-off



Vision Plan development program.



Light Rail

The light-rail facility is located below grade next to Wewatta Street. The facility is designed as a full through station, with rail movements below grade on 16th and 18th streets and a loop that connects 16th and 18th Streets next to the Consolidated Main Line (CML). This configuration provides full access to the light-rail lines entering the station from the north and south.

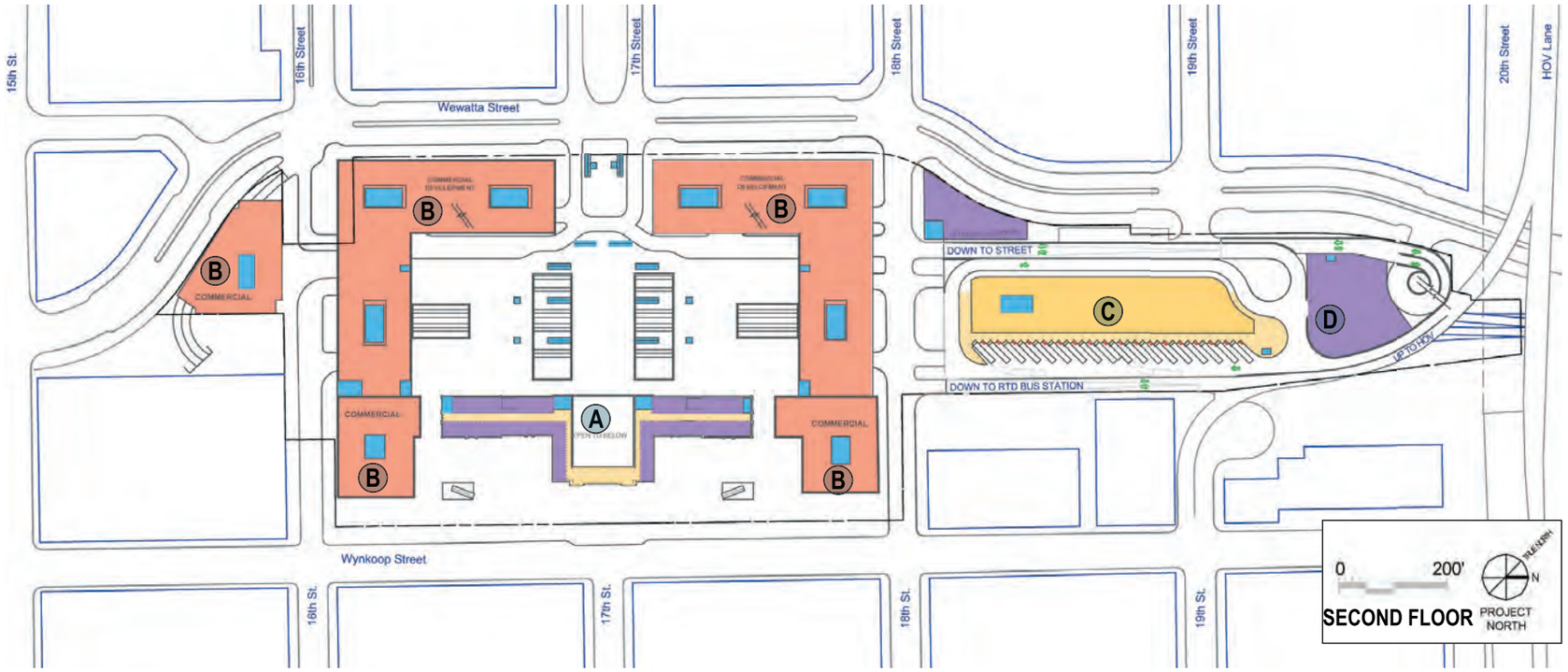
The light-rail station includes three tracks and three 360-foot-long passenger platforms, allowing for four-car light-rail trains. Other transportation modes are accessed via escalators and elevators to the 17th Street Promenade. Direct connections to the development space above light rail are possible with this configuration. Overhead clearance of 16.5 feet provides adequate height for light-rail vehicles and catenary wires. Because this space will be enclosed, it must be ventilated mechanically.

RTD Regional and Express-Bus Facility

The regional and express-bus facility is located at the lower level on the Wynkoop Street side of the historic station, between the building and Wynkoop Street. This facility provides a large, climate-controlled, central waiting island for passengers, and 17 bus bays for RTD's bus fleet. Six access and circulation points allow access to the 16th Street Mall Shuttle, the proposed Downtown Circulator, the historic station, and Wynkoop Plaza above. Buses access the facility either by the HOV ramp from 20th Street or by a ramp connecting to the local street network at the corner of 16th and Wewatta Streets. When the passenger-rail facility is extended south below grade, the 16th and Wewatta Streets bus access will be moved to 15th, 18th, or 19th Streets. The bus facility must be ventilated mechanically, either through the historic building roof, or through new development at each side of the plaza.

Commercial Bus Facility

The commercial bus facility is located between 18th and 20th Streets, one level above the street. This facility serves Greyhound, tour buses, charter buses, and other intercity and interstate bus services. The main entry is at the corner of 18th and Wewatta Streets with lobby and ticketing space. Passengers access the bus-facility waiting room via a bridge over the bus access ramp from the lobby space. Additional access to the waiting area can be provided from 18th Street elevators. Buses can access the facility from either the HOV ramp or from the street connection at 18th and Wewatta Streets, up a ramp to the bus slips. The facility provides space for 18 buses, including space for the commercial bus facility freight and package express services between 19th and 20th Streets.



Vision Plan

- HORIZONTAL CIRCULATION
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SECOND FLOOR

A. Historic Station

B. Commercial Development

C. Commercial Bus Facility

D. Commercial Bus Facility Package

Express

16th Street Mall Shuttle and the Downtown Circulator

The 16th Street Mall Shuttle and the Downtown Circulator will provide the main distribution for passengers to downtown. The Mall Shuttle and Downtown Circulator connections are located at street level directly above passenger-rail platforms. Each turnaround provides enough space for two mall-shuttle-size vehicles to pick up and drop off passengers, and space for four waiting vehicles. The Downtown Circulator could extend into the Central Platte Valley to the Consolidated Main Line before returning on 18th Street.

Commercial and Private Carriers

Commercial and private vehicles, including taxis, shuttles, van pools, vans to the mountains, limousine services, courier services, and private vehicles, have more than a quarter-mile of passenger drop-off and pick-up areas.

The curbside drop-off area on the Wynkoop Street side of the historic station will become one of several primary passenger drop-off zones for taxis and private vehicles.

The commercial bus facility's drop-off zone for taxis and private vehicles is on Wewatta Street between 18th and 19th Streets. Staging for additional commercial vehicles will be off-site. Other carriers would be distributed around the site at drop-off zones behind development parcels on Wewatta Street. These drop-off areas are a one-way system, to be assigned according to trip volume, length of stay, and size of vehicle. Other drop-off and delivery space can be provided along Wewatta Street between 16th and 18th Streets and along 18th Street.

Parking for rental cars is in the parking structure north of 18th Street.

Pedestrian, Bicycle, and Other Modes

Simple, convenient, and efficient pedestrian movements are critical to the Vision Plan. Pedestrians can enter the facility at grade at 16th, 17th, and 18th Streets and can pass through the site at these axes, or can move between 16th and 18th Streets either at Wynkoop Plaza or along the west side of the historic station. This network of pedestrian routes provides easy circulation to transportation modes, to future development spaces within the historic station, and to connections with LoDo and the Commons Neighborhood.

Bicyclists access the site from Wynkoop and 16th, on designated bike routes, and from local streets. The Bike Station location is flexible. Initially, it will be on the ground floor of the 16th and Wynkoop Street development parcel. The Bike Station program includes locker rooms, a bicycle-maintenance facility, and bike

Vision Plan

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- RETAIL OR COMMERCIAL

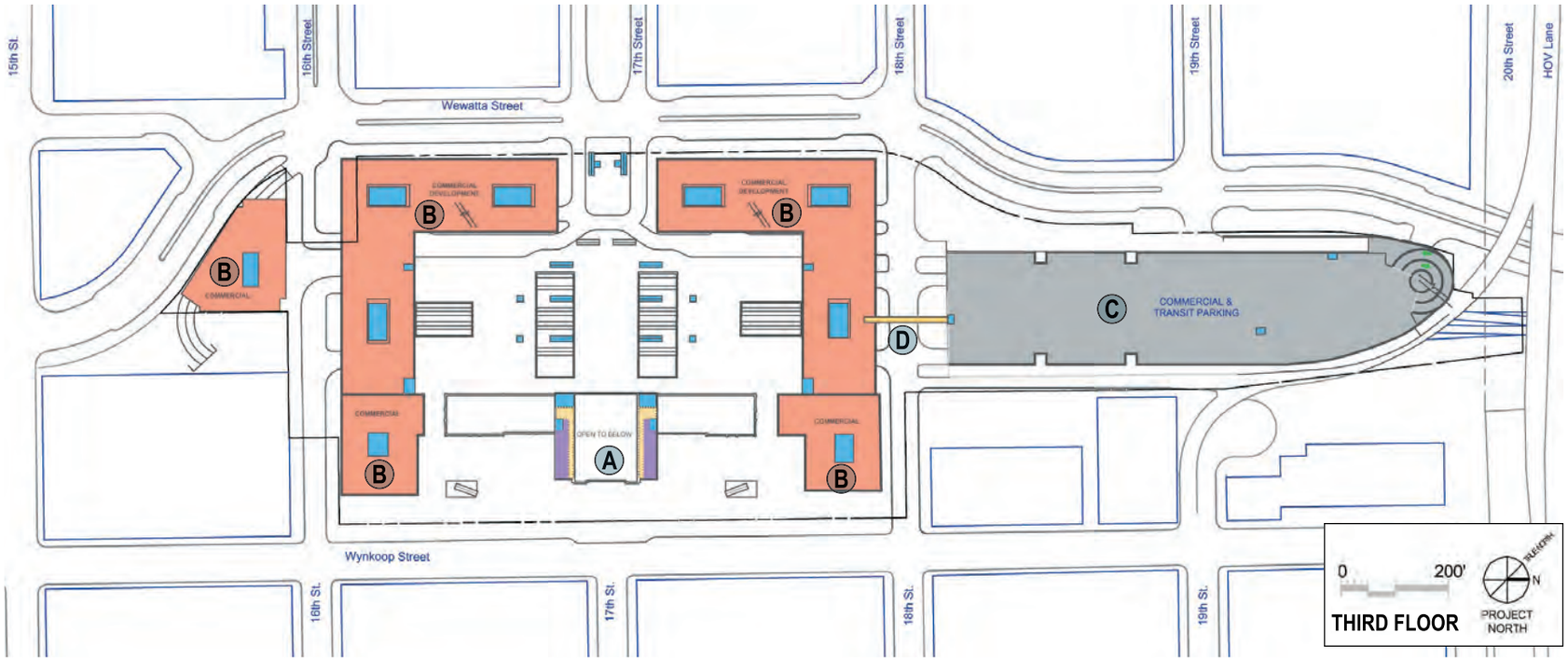
THIRD FLOOR

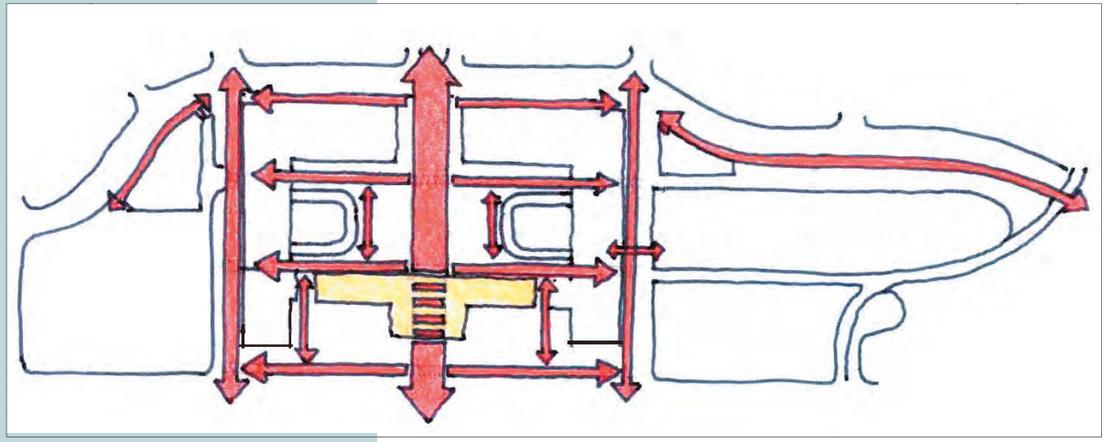
A. Historic Station

B. Commercial Development

C. Structured Parking

D. Pedestrian Bridge





Primary pedestrian circulation routes of the Vision Plan.

storage and parking. Other modes, such as horse-drawn carriages, small electric vehicles, and pedicabs, can be located in many different areas of the site.

Automobiles and Other Privately Owned Vehicles

In addition to the drop-off zones along Wynkoop Street, private vehicles access Denver Union Station off Wewatta Street at either 17th, 18th, or 19th Streets, where parking facilities are located above grade. During off-peak hours, service vehicles share the drive behind the Wewatta Street development sites.

Parking

Parking on the site accommodates both transportation and development needs. The plan does not show the exact location of parking because of the need for future flexibility. There are three possible locations for parking. Because most of the below-grade space is taken up by major transportation modes, on-site parking must be provided above-grade, either in the development envelopes between 16th and 18th Streets, or in a parking structure above the commercial bus facility between 18th and 20th Streets.

Development parking needs are based on the potential development program and T-MU-30 zoning. T-MU-30 zoning reduces required parking by 50-percent because of the proximity of the transportation facility and shared parking opportunities. As many as 800 spaces can be provided in the development footprints at levels +1 and +2, and up to 1,700 spaces can be provided north of 18th Street in four-levels parking above the commercial bus facility.

Parking built between the historic building and the Wewatta Street development between 16th and 18th Streets, could provide 1,000 more spaces.

The site also contains parking for transportation, including Amtrak, Ski Train, commercial bus, and rental cars. These spaces are in the parking structure north of 18th Street and account for 620 spaces of the 1,700-space structure. Because of the efficiencies of parking deck construction, a fourth deck could be built to meet the parking demand with extra capacity if needed.

CDOT plans to add High Occupancy Toll (HOT) lanes on I-25. The lanes will access the 20th Street High Occupancy Vehicle (HOV) lanes. It may be possible to connect the parking structure to HOV lanes. The DUS Master Plan allows for the addition of a ramp connecting the existing I-25 elevated HOV/Bus ramp along 20th Street with Wewatta Street.

Parking Summary for the Vision Plan:

Parking for Transportation		
	RTD	250 spaces
	Ski Train	200 spaces
	Amtrak	100 spaces
	Commercail Bus	40 spaces
	Rental Car	30 spaces
Parking for Development		
	Office	950 spaces
	Retail	150 spaces
	Residential	300 spaces
	Historic Station	75 spaces
Total		2,095 spaces

Public Space

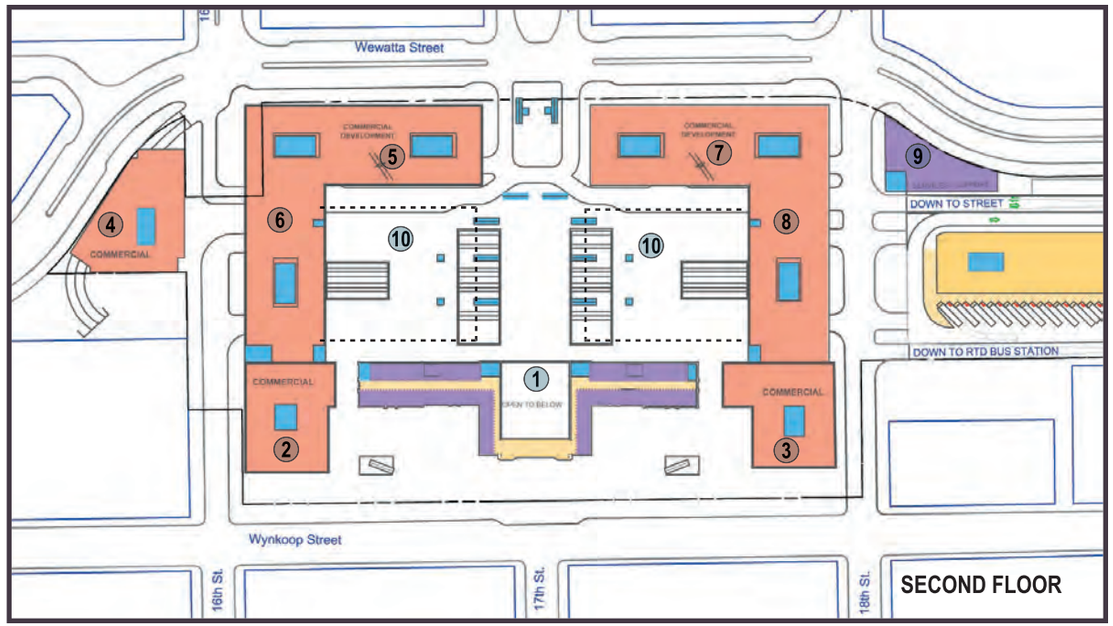
The primary public space for Denver Union Station is Wynkoop Plaza on the east side of the historic building. Wynkoop Plaza will be used as circulation space, as gathering space for small groups or events, and for access to the regional bus facility below. This open space will provide views of the historic station façade, and enhance the station's setting and create a vibrant and attractive pedestrian amenity and circulation space.

To ensure that Wynkoop Plaza becomes a lively public space, it is critical to provide active uses along the plaza's edge and along 16th and 18th, and within the plaza itself. These uses could include shops, restaurants, and outdoor cafes. Retail carts and vendors, seating, trees, flowers, fountains, street performers, newspaper stands, and public art also can animate the plaza.

Another major public space is the 17th Street Promenade located on grade above passenger rail and light rail. This will be a busy circulation space with the opportunity for small retail shops, cafes, and transportation services such as ticketing. These street level uses also provide services and an appropriate scale and interesting elements for pedestrians, including travelers and commuters.

Flexible Transportation/Development Space

The Vision Plan allows for about 76,000 square feet of flexible space between 18th and 19th Streets, above passenger rail and below the commercial bus facility. This space could be used for transportation, temporary staging, additional drop-off and pick-up, or development. A deck over the passenger rail area would be built at the same time as the rail component.



Potential development parcels.

Site Development

There are ten development parcels on the Denver Union Station site. They front along Wynkoop, Wewatta, 16th, and 18th Streets and allow for varying amounts of development under different height limits and setbacks allowed by T-MU-30 zoning. The uses listed below are based on the market analysis prepared for the project. Final uses may vary depending on future market conditions

Historic Denver Union Station Building (1)
The historic building is used for transportation connections and circulation, "convenience retail," restaurants, DIA connection, baggage, and ticketing on the ground floor, with offices on upper floors.

*16th and Wynkoop * (2)*
The 16th and Wynkoop Street parcel has a 65-foot height limit and could include ground-floor retail, residences, or a hotel. The 90,380-square-foot building total would be built after the bus facility. A 45-foot setback from Wynkoop Street aligns teh facade with the face of the Train Room. The ground-floor lobby includes access to the lower-level bus facility and the Bike Station.

*18th and Wynkoop * (3)*
The 18th and Wynkoop Street parcel has a 65-foot height limit and could include ground-floor retail, residences, or a hotel, within 95,310 square feet. It would be built after the bus facility. A 45-foot setback from Wynkoop Street allows for pedestrian activity and station views. The ground-floor lobby includes access to the lower-level bus facility.

Triangular site at 16th and Wewatta (4)
The parcel at 16th and Wewatta Street has a 140-foot height limit and includes ground-floor retail along the 16th Street Mall and office uses on the upper floors. The 12-story building has about 194,000 square feet of developable space.

16th and Wewatta (5)
The largest new development on the site is located between 16th and 17th Street on Wewatta Street. The base height is 140 feet, with a tower that could rise to 220 feet. Ground-floor uses are retail, with floors 2 to 18 for office and residential. Below-grade uses are limited to a small mechanical or service space because of constraints of the light-rail facility. This building totals about 380,000 square feet of developable space.

16th and Wewatta (over mall shuttle) (6)
Zoning allows a 90-foot-high, 138,000-square-foot office building that faces the 16th Street Mall, connecting the 16th and Wewatta Street development to the 16th and Wynkoop Street development. The ground floor would be open for the mall shuttle turnaround. The building varies in height from 6 to 10 stories.

18th and Wewatta (7)
The parcel between 17th and 18th Street on Wewatta Street can accommodate the second-largest new building on the site. The base height of this 360,000-square-foot building is 140 feet, with a tower that reaches 200 feet. Ground-floor uses are retail, with floors 2 to 16 for offices and residential. Below-grade uses are limited to a small mechanical or service space due to the constraints of the light-rail facility.

18th and Wewatta (over downtown circulator) (8)
Zoning allows a 90-foot-tall, 138,000-square-foot office building that faces 18th Street, connecting the 18th and Wewatta Street development to the 18th and Wynkoop Street development. The ground floor of this building would be open for Downtown Circulator access. The building varies in height from 6 stories to 10 stories.

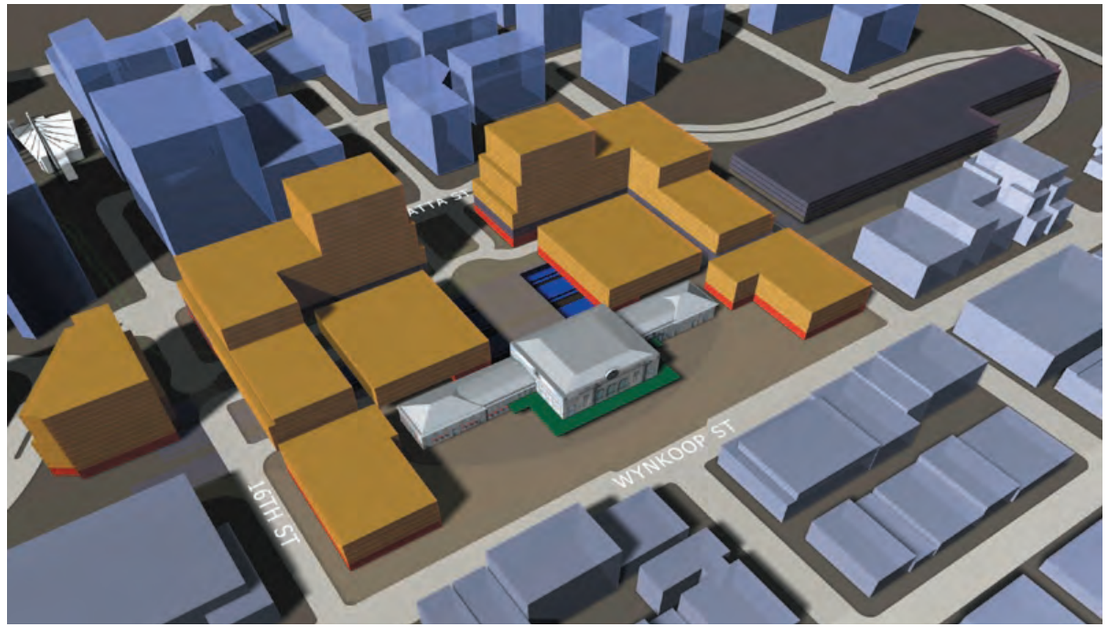
Commercial Bus Facility Lobby (9)
On the north side of 18th Street at Wewatta Street is a building with a smaller footprint. The bottom two floors would be used for the commercial bus facility lobby and circulation, with the potential of four more floors for office space totaling 32,600 square feet. This space could be used as office space for the commercial bus companies that operate out of Denver Union Station.

* While zoning defines the building envelope, the Landmark Preservation Commission's design guidelines will provide direction about the mass, form, scale, materials, and detailing of new 16th and Wynkoop and 18th and Wynkoop buildings. The Landmark Preservation Commission must review and approve the exterior design of all projects within the designated landmarked area.

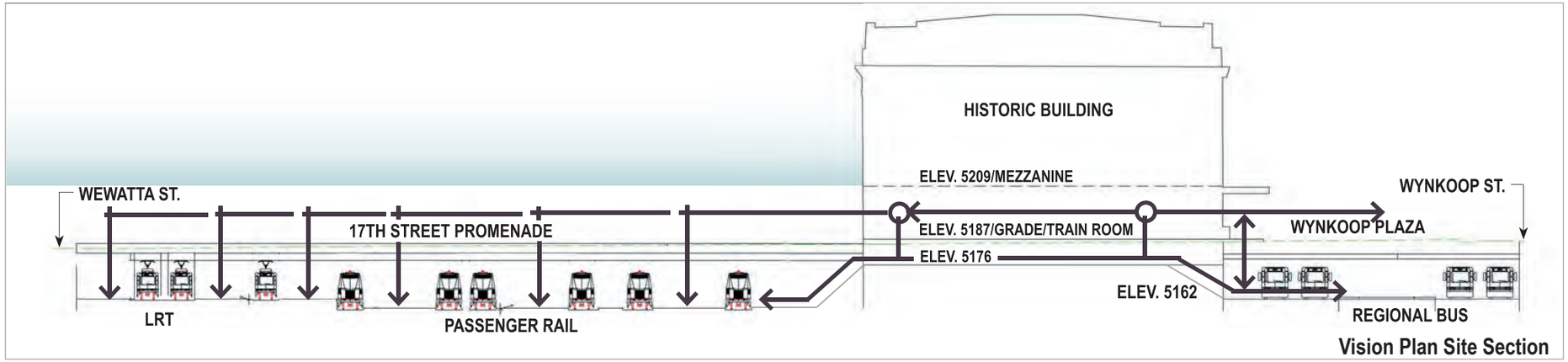
Possible Development Program					
Building Location	**Number of Floors**	**Office**	**Residential**	**Retail/Restaurant**	**Circulation**
			(250-300 Units)		
DUS Historic Building (1)	3	30,800 SF		11,000 SF	20,100 SF
16th and Wynkoop Building (2)	5		72,300 SF	18,070 SF	
18th and Wynkoop Building (3)	5		76,250 SF	19,060 SF	
16th and Wewatta (5)	18	268,000 SF	87,500 SF	23,300 SF	
16th and Wewatta (over Mall Shuttle) (6)		139,000 SF			
18th and Wewatta (7)	16	274,500 SF	63,250 SF	23,300 SF	
18th and Wewatta (over Downtown Circulator) (8)		139,000 SF			
16th and Wewatta (triangular site) (4)	12	194,000 SF		7,600 SF	
Above Commercial Bus lobby (9)	4	32,600 SF			
Totals		**1,077,900 SF**	**299,300 SF**	**102,330 SF**	**20,100 SF**

The chart above identifies one possible development scenario. The numbers were used to determine quantity of parking, traffic impacts, and reflect the building footprints shown on the site plans.

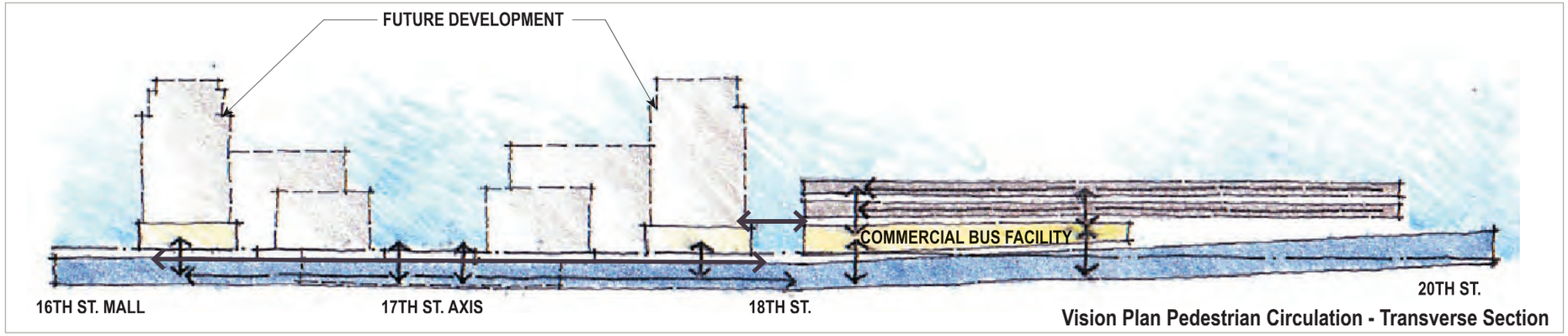
Future Interior Buildings (10)
The new zoning for the site includes the potential for infill buildings between the Wewatta Street development (5), (7) and the historic station (1). These buildings would be open at street level to allow access for the Mall Shuttle, Downtown Circulator, and pedestrians. Upper floors could be used for office, residential, or parking. The maximum height of these buildings is 70 feet. Calculations in the table above do not include these buildings.



Massing diagram illustrating full build-out allowed by the T-MU-30 zoning.



Arrangement of the three major transportation modes at the lower level along the 17th Street axis, showing major pedestrian circulation.



Pedestrian circulation along the passenger-rail axis.

Benefits of the Vision Plan

- Establishes a unified regional multimodal transportation center that accommodates all contemplated public and private modes of ground transportation in one location, with flexibility to expand transportation services and operations.

- Creates simple and convenient access to and connections between transportation modes, increasing transportation choices and enhancing time effectiveness and traveler comfort for thousands of regional commuters, residents, and visitors every day.

- Re-establishes Denver Union Station as a major transportation hub from downtown Denver, the metropolitan area and the state, with the restored historic building as the jewel, icon, and central orienting feature of the development.

- Facilitates seamless, efficient connections among urban centers throughout the region, improving workforce mobility, housing options, and access to essential services, entertainment venues, and shopping for people of all ages, needs, and means.

- Links the important values of historic preservation, transportation efficiency, and economic development, thus creating jobs, generating tax revenues, and attracting tourists and travelers to the Denver Metropolitan Area.

- Creates opportunities to offset the public costs of the development, support the use of the transportation facilities, and add to the vitality of downtown and the city through mixed use development that provides space for new economic activity, good jobs and a range of housing types and prices.

- Provides as many as 3,000 to 4,000 on-site jobs though office, retail and transportation uses.

- Creates a pedestrian-friendly environment by allowing at-grade pedestrian access between Wewatta and Wynkoop Streets along the 16th, 17th, and 18th Street axes, as well as at-grade connections between 16th and 18th Streets in numerous locations.

- Provides at-grade flexible transportation space between the historic building and Wewatta Street and between 18th and 19th Streets. This allows for flexibility of routing the 16th Street Mall Shuttle, downtown circulator, taxis, shuttles, vans, and other carriers.

- Provides a continuous 18th Street through the site, improving access to and circulation around the DUS site, as well as enhanced connections between LoDo and the Commons Neighborhood.

- Provides the potential to increase passenger-rail capacity and operational flexibility by allowing for:
  - extension of below grade tail tracks to the south from DUS;
  - potential below-grade through-service tracks south from Denver Union Station, connecting to the CML for northbound and/or southbound passenger-rail service;
  - the possibility of a remote passenger-rail stop at the CML for north/south through service.

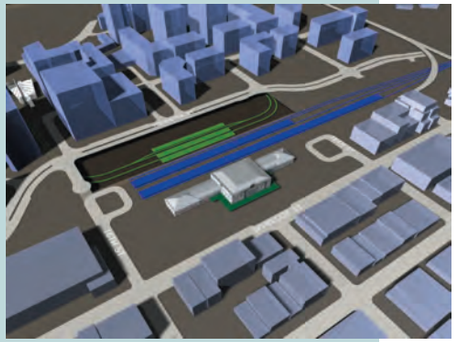
- Links LoDo to the Commons Neighborhood for pedestrians, automobiles, bicycles, and ground transportation.

- Provides construction jobs through multimillion dollar investments in development, historic rehabilitation, transportation, and infrastructure.

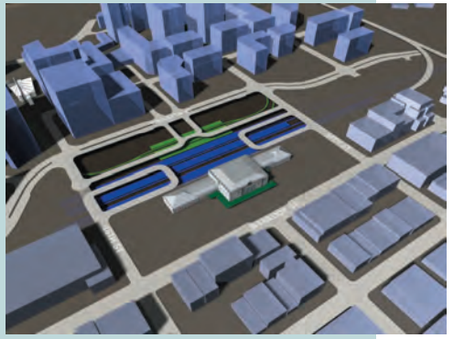

UNION STATION
NION STATION

Implementation

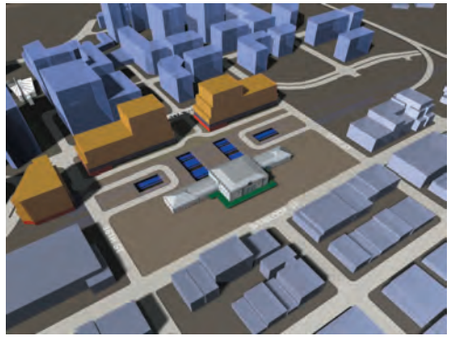
The eight pictures below and on the next page represent one possible plan for phasing the Denver Union Station project. Depending on funding, transportation demand and sequencing, and community desire, the project could be completed in different sequences. This sequence shows light rail as being the first major transportation mode to be constructed.



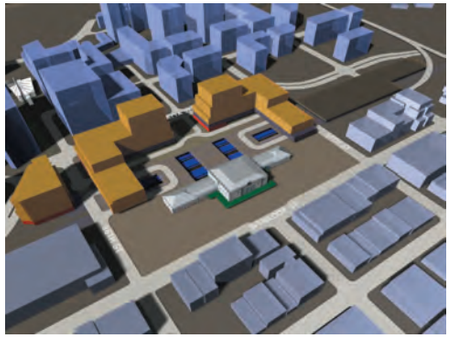
1. Construct light rail facility.



2. Construct passenger rail.



3. Construct development over light rail.



4. Construct development over passenger rail.

Implementation

Phasing Assumptions

The Denver Union Station Master Plan will be a complex project to implement due to many modes and uses and the need to keep the station operating during construction. In development of the phasing strategy for the project, some basic assumptions were made that influenced the phasing possibilities.

- Public and private funding likely will become available in partial and irregular increments over time, creating the need to complete the project in multiple phases.
- The site's space constraints, the need to maintain existing transit operations, and a scarcity of nearby staging locations also contribute to the need for phased construction.
- RTD light rail, Mall Shuttle, RTD regional bus, Amtrak, and Ski Train services will continue operations during site construction and must be accommodated on site or at another location. Service disruptions should be minimized.
- With or without buildout of the FasTracks plan, Market Street Station will continue to meet RTD regional bus demand until around 2015.
- Without buildout of the FasTracks system plan, light rail at Union Station remains practical. FasTracks' implementation will require the build-out of light rail as the Master Plan envisions.
- Without buildout of the FasTracks system plan, passenger rail remains workable for existing RTD, Amtrak, and Ski Train services in its current at-grade configuration. With FasTracks, passenger rail requires new configurations below grade or at grade north of 18th Street.
- Since the site's major transit elements will be located below ground level, other transportation, development, and civic elements at or above ground level cannot be completed efficiently before completing one or more of the below-ground-level elements. Because of their placement on the site, certain project elements must follow the completion of certain other specific elements.
- Due to the unavoidable uncertainty of timing of the project funding and the demand for various project elements, the sequence of major project elements cannot be projected.

In light of these assumptions, it is logical to expect that the Master Plan will be implemented in phases over time. Phasing is needed to efficiently stage transportation improvements and to match project elements to potential funding sources. Site development must be coordinated with the timing and function of transportation needs. Potential phasing alternatives have been developed based upon the factors set forth above.

Phasing Alternatives

To help understand relationships among major site elements, phasing alternatives were developed that included the following major site elements:

- Light rail (LRT)
- Passenger rail, including all Federal Railroad Administration (FRA) compliant modes, such as Diesel Multiple Units (DMUs) and commuter rail
- Tail tracks
- RTD regional and express bus
- Local buses
- Commercial bus carriers such as Greyhound
- Additional carriers including taxis, rental cars, and station cars
- Historic train station
- Wewatta Street
- Future development
- Parking

Phasing alternatives were then evaluated for the following components of each major transit element:

- Related elements
- Additional right-of-way for transit expansion
- Cost
- Duration of design and construction
- Parking for transit uses and redevelopment
- Pedestrian and site circulation
- Operating issues

Phasing alternatives identified major transit modes with closely related components. For example, the commercial bus facility is directly related to passenger rail because it must be built over the rail component.

Construction sequences were analyzed to determine infrastructure needed before other elements can be added. For example, redevelopment along Wewatta Street cannot be built until the light-rail station and track are in place. The regional bus facility must be completed before construction of the Wynkoop Plaza on the Wynkoop Street side of the historic station.

There is no particular order in which the project phases must be implemented. Each major transit element of passenger rail, light rail, and regional bus can be built

as an independent phase. At the conclusion of the construction of any single project element or phase, the Union Station facility will be fully functional, including complete access to and connections between all transportation and development elements incorporated up to that time. Because of the phased nature of the project and the need to maintain access to and operations on the site during and in between each successive phase, the project over time will likely have the appearance of several different "finished" products.

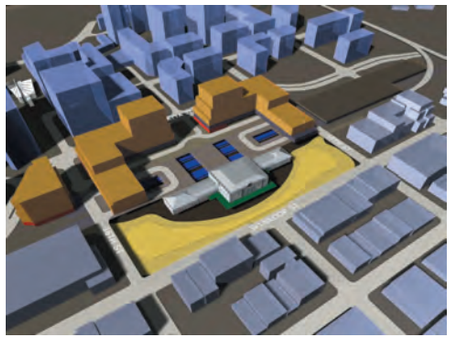
Phasing scenarios could be influenced by several factors, including:

- ***Funding:*** While the total funding from federal, state, local, and private sources through 2025 could approach $820 million, it is likely that funding will be tied to particular project elements, which will influence phasing.
- ***Transportation:*** Since major transportation components will be located at the lower level, transportation construction generally will precede private development on specific portions of the site. Site development must preserve the ability to construct transportation improvements in planned locations and on schedule. Transportation improvements must provide structural foundations for future buildings.
- ***Community impacts:*** Construction and facility operations will affect the surrounding community, possibly dictating aspects of phasing and timing.
- ***Construction efficiencies:*** It may be more efficient economically, logistically, and operationally to construct certain elements in certain sequences.
- ***Development considerations:*** Revenues generated and financing opportunities from early demand for private development of the site could expedite some of the facility's transportation improvements.

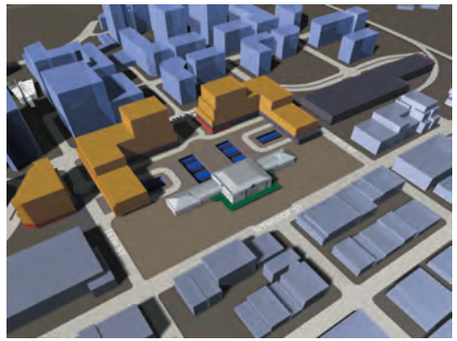
Projects Potentially Impacting DUS Phasing

Separate but related transportation and development projects could influence the phasing of the DUS Vision Plan through the creation of project funding, a near-term need for specific project elements and/or construction efficiencies or challenges. Examples of such projects that are currently underway or under consideration include the following: (It should be noted that funding for these projects has not been secured.)

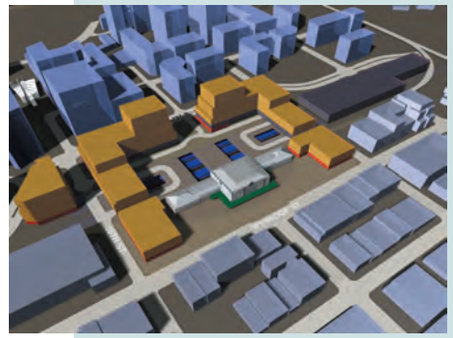
- ***RTD FasTracks Program:*** Implementation of this program for regional transit would require completion of the DUS light-rail station and related off-site light-rail improvements, along with interim improvements to the passenger/commuter rail tracks. Any FasTracks funding plan will have to cover the costs of these DUS-related elements.
- ***DMAP:*** The Downtown Denver Multimodal Access Plan is an interagency planning effort for future access to and circulation through Downtown Denver. Implementation of this plan could influence the sequence and timing of certain elements of the DUS Master Plan, especially those needed to accommodate new downtown circulation programs. In addition to having an impact on phasing, DMAP will identify transit improvements beyond 2025 that should be incorporated into DUS.
- ***HOT Lanes:*** The Colorado Department of Transportation is studying high-occupancy toll lanes on certain roadways accessing downtown Denver. Implementation could influence the timing of DUS project elements by creating a need for HOT lane connection to the site and its parking.
- ***Front Range Rail Corridor:*** Previous study of North Front Range rail service between Denver and Fort Collins identified DUS as the connecting point. CDOT has requested designation by the federal government of the Front Range rail corridor between Fort Collins and Pueblo as a National High-Speed Rail Corridor. This passenger-rail corridor likely would require that the Vision Plan's passenger-rail elements be completed and perhaps expanded.
- ***Relocation of Commercial Bus Service:*** Discussions about the placement and expansion of Denver's commercial bus service may impact DUS phasing by creating near-term need and funding for the DUS commercial bus facility.
- ***Adjacent LoDo and Commons Development:*** Anticipated development or redevelopment of parcels to the south and west may influence phasing by enhancing market demand for DUS or by creating new construction opportunities or constraints.
- ***Relocation of Freight-Rail Service on the CML***: Discussion has started on the possibility of moving much of the CML freight-rail service east of the Denver Metro Region. If this happens, it may effect how the CML is used for passenger-rail traffic.



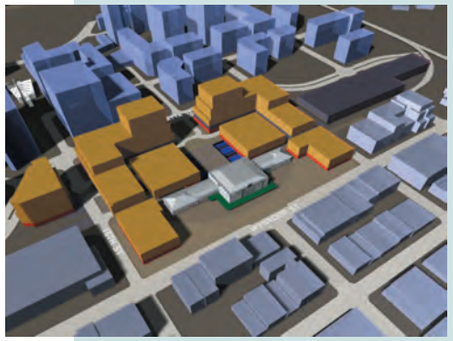
5. Construct regional bus facility.



6. Construct parking structure.



7. Construct development over regional bus.



8. Full build-out within the zoning.

Project Costs and Funding

Cost estimates were prepared from conceptual plans completed before preliminary engineering required for the Environmental Impact Statement (EIS). These cost estimates will be revised when the final EIS is developed. Major costs fall into two categories:

Transportation Elements

- Passenger rail, including the track throat leaving the station north of 20th Street
- A partial deck over the rail component for the 16th Street Mall Shuttle and the proposed Downtown Circulator
- Flexible transportation space north of 18th Street and the commercial bus facility deck
- Light rail, including the off-site underground sections along 16th and 18th Streets, tracks parallel to the CML, and the 15th Street bridge reconstruction
- Covering the light-rail station
- Connections to regional bus, including links to the HOV lane, and 16th and Wewatta Streets
- Vertical circulation for passenger connections
- Foundations for future development along Wewatta and Wynkoop Streets
- Ventilation of the underground transportation facilities

Site Elements

- Restoration and rehabilitation of the historic station including vertical circulation
- Underground connections to the regional bus facility, and new office, retail, and restaurant space
- Station facilities including circulation space and drop-offs
- Parking, including parking decks above the commercial bus facility
- Public spaces, including Wynkoop Plaza and the 17th Street Promenade
- Streetscapes for Wynkoop, Wewatta, 16th, and 18th Streets
- Safety and security, including cameras and barriers
- Public art

Total Public Costs	
Transportation Elements	
Element	Cost
LRT	$230 M
Passenger Rail	$120 M
RTD Regional Bus	$125 M
Site Elements	$85 M
Total Cost	**$560 M**

Estimate project costs in millions (2003 dollars.)

The estimated public cost of the project of $560 million includes costs associated with the development of major transportation modes and required public infrastructure. These costs also include some provisions for future private development that must be built along with the below-grade transportation components. These elements include foundations for future buildings along Wewatta, 16th, and 18th Streets, the deck above passenger rail for the commercial bus facility and its access ramp, and modifications to the HOV lane into the commercial bus facility. These private development costs comprise approximately $35 million of the $560 million. It is anticipated that these costs will be recovered in the future when private development moves to the site.

Project Funding Sources

Funding sources have been identified and will be pursued to implement the DUS Master Plan. While the Vision Plan reflects a longer-term set of goals for the DUS site, current projections assume a 20-year horizon for project funding. The Plan makes no assumptions regarding when a particular funding component will become available, other than the assumption that the projected private development funding will not become available until significant underground transportation infrastructure has been completed.

Cost of Land Acquisition per Agency Partner		
CDOT/DRCOG	$20 M	Federal Congestion Mitigation Air Quality Funds
City & County of Denver	$10 M	
RTD	$19.75 M	

The failure or deferral of any early funding efforts or any related transportation or development projects will not change or negate the Master Plan or its elements. But such circumstances may impact the timing and phasing of project implementation. Completion of project components must be consistent with and allow for the eventual implementation of the full Vision Plan.

The phasing and timing for realizing the Vision Plan will depend in significant part upon the availability of funding. The Vision Plan offers great flexibility in accommodating a broad array of potential funding timelines and strategies. As funding becomes available, the project's primary transportation elements can be completed in a variety of sequences, either in combination with or independent from each other. As a result of this flexibility, the implementation of the Vision Plan can be achieved as quickly as funding becomes available, but can also be extended over a longer period of time if funding comes at a slower pace.

Completion of the Vision Plan will require numerous and varied public and private funding sources. Most transportation infrastructure will be publicly funded through local, regional, state, and federal funds. Private funding will support the transportation elements used by private and commercial transportation providers and will finance the on-site commercial development. It is expected that, over time, the net revenues yielded by private use and development of the site will provide funding for the public elements of the site. The site's physical limitations, however, will dictate that significant transportation infrastructure must be in place before certain private development can occur.

The initial analysis of project funding sources uses a time frame concurrent with the project's 20-year Environmental Impact Statement (EIS) planning period. The specified funding ranges from the various public sources reflect the partner agencies' projections for the levels of funding that may be available for the project over this period, but do not represent funding commitments from any public agency. The funding range for private development and private transportation providers is based upon market analysis of development opportunities over the same period.

The total maximum potential project funding from public and private sources exceeds the projected public costs of the Union Station Vision Plan. This difference between the total maximum potential funding ($820 million) and the projected public costs of the project ($560 million) provides the project a critical financial cushion ($260 million) if funding from one or more sources falls short of projections.

Potential Funding Source

Funding Source	Time Period**	Potential Dollar Range
Federal Funding	**2005 - 2025**	**Up to $250 million**
New Category Funding		
Congestion Mitigation Air Quality Funds(CMAQ)/		
Surface Transportation Program Metro/Enhancements		
Earmark Authorization		
**3-4 6-year reauthorization cycles over this time period		
State Funding	**2005 - 2025**	**Up to $50 million**
Senate Bill 1 (SB-1)		
State Historic Fund		
City & County of Denver	**2005 - 2025**	**Up to $70 million**
Annual Budget		
Capital Improvement Fund		
General Obligation Bond Issue		
RTD	**2005 - 2025**	**Up to $250 million**
Annual budget		
Sales-tax increase		
Sale/refinance of existing properties		
Sale of Market Street Station		
Private Transp. Providers And Private Development	**2005 - 2025**	**Up to $200 million***
Development-Sale/Lease Net Revenue		
Parking		
Private Transportation providers Lease Revenues/Use Fees		
Private Bus Companies, Rail, Shuttles, Limousine, Taxi, Car Rental		
*includes residual value created through future income streams		
Total Possible Funding		**Up to $820 million**

Governance

The Importance of Governance

The vision incorporated in this Master Plan for DUS is ambitious and far-reaching, both in scope and time. It includes a wide variety of public transportation elements, private transportation elements, private development, public space, a highly revered historic building, and a constrained physical site. It is also a project which, given its nature, cannot and will not be fully developed all at once. Contributing to the cumulative and evolving character of the project is the likelihood that many future uses of the site are unknown today. Reflecting this reality, a major guiding principle of the master planning process has been long-term flexibility. A governance structure needs to incorporate flexibility in order to address the complexities of the development, management, operations, and maintenance issues that are likely to impact the potential uses envisioned on the Denver Union Station site.

Governance is the name used for the process of creating and maintaining an organization or alliance of parties to manage – or govern – an enterprise, development, and/or activity, sometimes including physical facilities. Governance can sometimes be accomplished through the creation of a formal legal entity whose function and purpose is to assume direct responsibility for the legal, decision-making, planning, administrative, financial, communications and public outreach elements of the enterprise or facility.

The need for a governance structure is usually not a point of focus when implementation of a project is extremely well-defined and short-term. Understandings are usually incorporated into contracts and then "managed." However, in long-term flexible projects, governance is a critical implementation component. Governance connotes a more formal tactic to create an ongoing determining or guiding influence. It is the process by which policy is made and administered on a continuing basis. In short, a governance structure determines who makes policy, on what issues, and with what powers. This is why decisions on governance are so important and frequently so controversial.

One complication of the governance issue is the inability to utilize a "one size fits all" approach. Successful governance should reflect and be tailored to the specifics of each situation. It is clear from looking at the governance of a variety of multimodal transportation facilities throughout the United States that their structures grew out of circumstances unique to their environments. Denver Union Station has its own unique set of qualities and is different in significant respects from other facilities. While similarities can be explored and lessons can be learned from other facilities, the specific characteristics of Denver Union Station should form the basis for determination of a governance structure.

The governance structure must provide the capability to marshal the necessary political, financial and organizational resources and have the power and expertise to use them effectively. To accomplish this, a governance structure should have legitimacy. Legitimacy is a complicated concept but is fundamentally based upon representation. No governing structure can have legitimacy if it excludes significant interests over which it has policy-making authority or if those interests perceive that they should be included under the governance umbrella. Expertise, good intentions and intelligent participants are all fundamental characteristics of a governance entity, but they do not matter without a prerequisite foundation of legitimacy. Legitimacy is of such fundamental importance in evaluating governance that it should be used as stand-alone screening criterion for evaluating governance options to narrow the candidates for further consideration.

Functions of the Governing Body

One of the most important overall characteristics of a successful governance structure is its ability to ensure that policies and procedures are well-defined, so that the implementation of the Master Plan can be achieved over an extended period of time and not be encumbered by the political climate at a given moment. The complexity of the overall governance structure cannot be underestimated. In addition to setting and executing policy, the governing body also must have the expertise and experience, or access to resources that have them, to handle the following types of issues in a non-partisan manner. The governing entity must:

a. Implement, to the extent of its capabilities, the Master Plan for the Denver Union Station site.
b. Devise and implement, in cooperation with the relevant public sector agencies, elected officials, and private sector organizations or foundations, appropriate funding strategies to support completion of the project.
c. Receive funds from a variety of sources.
d. Ensure that the historic station development is sensitive to all landmark issues while maximizing adaptive re-use within the building.
e. Contract with necessary contractors, vendors, and service providers for current and future site management and operations, as well as site development and project build-out.
f. Manage design and construction of site development and project build-out.
g. Manage and lease commercial transportation space and facilities.
h. Manage and lease space for office, retail, public and other uses on site.
i. Ensure performance of ongoing facility maintenance and improvements.
j. Establish and carry out a process for policy decisions related to the operations and development of Denver Union Station, future expansion to, or modifications of the facility, and potential modifications to the Master Plan for the site that includes participation by the City and County of Denver, Colorado Department of Transportation, Denver Regional Council of Governments and the Regional Transportation District.
k. Create and maintain an appropriate forum for public participation and input.
l. Maintain project quality and standards.
m. Manage overall facility operations.
n. Provide a single point of contact and accountability for dealings with developers, tenants, regulating and funding agencies, contractors, and the public.

Overview of Organizational Models for Governance

There are basically three main models that could be considered for a governance structure for DUS.

The variations within each model for ownership, development, financing and day-to-day management, are extensive. Simply put, the three models are:

1. *Private Developer* – A private developer may serve as the governing entity for a project or facility with public components. This would occur if a private entity were to purchase DUS and lease, or grant an easement, to the transportation providers.
2. *Internal Agency Management* – Under this model, an existing government entity, or agency thereof, is the governing entity.
3. *Separate Special (or Single) Purpose Entity* – A new entity or organization may be created with the sole mission of governing a project. Its mission, authority, powers, and governing board are all defined and are focused on a single project. There are two distinct types of such entities-private and governmental. They can be loosely described as follows:
   a) Private Special Purpose Entity: *The Non Profit Corporation.* A non profit development corporation is a public benefit corporation usually established under section 501(c)(3) or 501(c)(4) of the Internal Revenue Code. While private, the corporation must have a public purpose in order to be eligible to borrow funds or to receive tax-deductible contributions. The corporation is governed by a board of directors, which can consist of public and private sector members representing appropriate interests. Board size and composition is practically rather than legally constrained. A multimodal facility example of this governance structure is the Union Station Redevelopment Corporation which oversees Union Station in Washington, D.C. Locally, the Stapleton Development Corporation was created to govern the redevelopment of the old Stapleton Airport site.

   b) Governmental Special-Purpose Entity: A special-purpose government entity is the most diverse structure and includes metropolitan districts, public corporations such as 63-20 or 57-187 corporations, authorities created by intergovernmental agreement, and others. The defining characteristic of such entities is that they are all governmental entities created and/or authorized by one or more existing governmental entities. Depending upon the specific form chosen, their powers can be extensive or significantly limited, all in accordance with the authorizing legislation. As with private, non profit corporations, the boards of directors of these entities can include public and private sector members. Representation is flexible, though the constraints vary by type of entity. Local examples of this structure include the Lowry Redevelopment Authority and Denver Health.

Union Station Interim and Permanent Governance Structures

Denver Union Station is currently owned by RTD as a result of an Intergovernmental Agreement between, and jointly funded acquisition of the site by, RTD, the City and County of Denver, the Colorado Department of Transportation and the Denver Regional Council of Governments (collectively, the "Agency Partners"). The Denver Union Station Master Plan and Environmental Impact Statement are being governed and managed by a collaborative team reflecting representation from each of these four public agencies. A recommendation for an appropriate long-term ownership and governance structure was included as part of the work scope for the Master Plan.

Based upon the analysis performed as part of the Master Plan formulation and due to the complexities of developing a long-term ownership and governance structure and the timeframes involved, the Agency Partners have concluded that formation of a permanent governance structure prior to the commitment of funding and commencement of project implementation would be premature. However, the Agency Partners agreed that it was desirable to establish an interim governance structure, along with an agreed upon process for forming a permanent governance structure at the appropriate time. As a result, the Agency Partners, on April 20th, 2004, entered into a Third Amendment to the Intergovernmental Agreement for the Acquisition and Development of Denver Union Terminal (the "Third Amendment"), through which matters of interim governance and the process for devising a permanent governance structure for Denver Union Station were addressed.

Under the terms of the Third Amendment, the Executive Oversight Committee (EOC), which was established to make policy decisions concerning and oversee the DUS Master Plan and Environmental Impact Statement, will serve as the interim governance structure for Denver Union Station, pending the occurrence of one of several defined "trigger" events, which will prompt the creation of a permanent governance structure. The Executive Oversight Committee comprises the chief executive (or his/her designee) of each of the four Agency Partners. The trigger events that will signal the need for a permanent governance structure are manifestations of certain minimum thresholds of funding commitments for the project or implementation activity on the DUS site.

Each of the four Agency Partners represents a distinct set of relevant interests and constituencies in the project, which, taken as a whole, are not completely represented by any one existing entity. Consequently, it is desired and expected that the Agency Partners will continue to participate in the ultimate long-term governance structure.

Principles of Governance

The Agency Partners have also agreed that some basic principles of governance should be established to guide both the interim and permanent DUS governance structures. The following governance principles have been incorporated into the Third Amendment and are intended to recognize the various different needs of the Agency Partners, users, and surrounding neighborhoods. They will also help to establish realistic expectations for how the property should be developed and the facility managed, operated and maintained over time.

1. The primary goal of the governance structure is to make the DUS Site function as an efficient transportation facility. However, the governance

structure shall provide for integration of the entire redevelopment of the DUS Site, including the transportation, development and civic components, while taking into account the needs and interests of the Parties, users and surrounding neighborhoods.

2. The governance structure shall provide appropriate opportunities for public agency, general public and private interest involvement to assure the viability of the project.
3. The governance structure shall consider the needs of all the Master Plan Transportation Facilities and treat them all with importance to make a successful multimodal transportation hub.
4. The governance structure shall diligently pursue the full implementation of the Master Plan Transportation Facilities and Master Plan and the vision it sets forth, and the future needs of the historic station and the DUS Site.
5. The governance structure shall be capable of seeking and/or receiving funds from all sources and creating funding mechanisms to fully implement the Master Plan and the Master Plan Transportation Facilities.
6. The governance structure shall be charged with diligently pursuing and using best efforts to secure funding and approval for full implementation of the Master Plan and the Master Plan Transportation Facilities.
7. The governance structure shall provide that Site-Generated Revenues first be used for the reasonable operation and maintenance of the DUS Site; second, for reimbursement of any shortfalls in the reasonable operation and maintenance of the DUS Site if approved by the governing body of the permanent governance structure; and third, to implement the Master Plan to the extent not prohibited by federal statute, court decision, or grant agreement as determined by the appropriate federal agency after the EOC has had an opportunity to present the matter to the appropriate federal agency. Once the Master Plan is fully implemented, all Site-Generated Revenues shall be used for transit projects within the RTD and DRCOG region boundaries consistent with the DRCOG long-range regional transportation plan.
8. All uses of the DUS Site shall be planned, constructed and operated so as to not adversely impact the Master Plan Transportation Facilities or any other Master Plan element as determined by the permanent governance structure.

Summary

Based on the foregoing analysis, and in accordance with the procedures, timelines and trigger events specified in the Third Amendment, the Agency Partners will undertake a more thorough investigation of the models outlined and select the approach that would best serve all interested parties in maximizing public and private opportunity at Denver Union Station according to the parameters established in the Master Plan.

It is unlikely that any of the four Agency Partners would ultimately have the total responsibility and risk associated with the numerous and divergent elements of and interests in the facility. This approach would allow each agency to focus on its core mission, while protecting its interests through ongoing participation in the governance of Denver Union Station. The ultimate governance entity, under the appropriate articles of incorporation or authorizing language, would have flexibility to handle all legal, financial, and administrative issues on behalf of the project.

A single point of contact is also important to help move the process forward from both a public and private point of view. The public should have fewer concerns if a single point of contact can insure that their concerns are heard and promptly addressed. For the private sector, having one point of contact empowered to expedite decisions as well as insure fairness in the process will add credibility and spark private-sector interest in project participation. The DUS governing body will assume responsibility for and ensure compliance with all legal requirements associated with any source of funding for any project element, including but not limited to, any requirements related to construction contracting and construction worker wages.

Next Steps for Governance

While a permanent governing structure for Denver Union Station need not be in place immediately, decisions regarding the ultimate governing structure will take time to adequately explore and resolve, both legally and politically. This process should proceed as soon as possible. Legal actions required to enact governance will take time, and any new governance structure will take time to get organized and become familiar with its tasks.

In the meantime, the interim governance structure will need to address matters related to more detailed planning and design, a comprehensive funding plan, early implementation measures, interim facility operations and the process for selection of a private developer for the site.

Next Steps

The Master Plan and the EIS process are the first steps needed to realize the Vision Plan. The site rezoning and the landmark designation of the historic building are proceeding simultaneously with the approval of this Master Plan.

Near the end of 2004, the draft environmental study documents will be completed for the Vision Plan and made available for public comment. A final environmental document will follow with a Record of Decision (ROD) that summarizes the project selection process and its impacts and potential mitigation. Once the Federal Transit Administration (FTA) approves the document and signs the ROD, the site will be ready for the next phase of the project.

Planning and Design Phase

General Development Plan (GDP)

Transit Mixed-Use 30 (T-MU-30) zoning code requires approval of a General Development Plan (GDP) before development occurs. The GDP establishes a framework for developing large, complex, and multi-phase projects. This framework includes:

- land uses and their locations
- density
- open space

- parking distribution
- roadway, utility, and drainage infrastructure
- general development and design standards
- fixed transportation and rail

However, the rezoning of the DUS site to T-MU-30 included a waiver of the GDP process for specific RTD early-action transit elements.

Denver's Development Review Committee (DRC) reviews GDP applications. However, T-MU-30 districts require the additional steps of a public hearing and approval by the Denver Planning Board.

Design Standards and Guidelines (Rules and Regulations)
Mixed-use zoning designation enables the City to adopt rules and regulations, or design standards and guidelines, for specific areas and projects. T-MU-30 zoning requires design guidelines for each district. The guidelines may be approved as part of the GDP or adopted independently. In either case, design standards and guidelines are required before the city will issue a permit for a building project other than RTD early-action transit elements.

Design standards and guidelines to be developed for Denver Union Station need to address the area within the Landmark Preservation Commission's purview, as well as the rest of the site. These guidelines will be influenced by new development designed to complement the Lower Downtown Historic District and more contemporary new development in the Commons Neighborhood.

These guidelines must address:
- Urban design
- Site design
- Public open space
- Streetscape
- Landscape architecture
- Vehicle circulation and access
- Pedestrian circulation
- Architecture
- Scale and detail
- Materials
- Historic station
- Parking garages
- Temporary uses and structures
- Public circulation space
- Signs and wayfinding
- Criteria for transportation facilities

Public Involvement
The Vision Plan could not have been developed without the involvement of the Union Station Advisory Committee. As the process moves forward, there will be new opportunities for public involvement through the Environmental Impact Statement, the GDP process, and through the partner agencies and future governing entity. Executive Oversight Committee (EOC) meetings, for example, will be open to the public, and the EOC may provide for public comment at regular meetings.

Environmental Impact Statement
The Environmental Impact Statement process includes a public hearing where citizens can comment on the plan, its environmental impacts, and possible mitigation measures.

T-MU-30
The T-MU-30 establishes opportunities for public notification and comment as the Vision Plan is implemented. Some of these involve public notification of a specific action with an opportunity for written comment, while others involve notification of a public meeting at which a certain action is being considered and the public may testify. Typically, the notice is sent to Registered Neighborhood Organizations (RNOs) within 200 feet, and to the district City Councilmember. Opportunities for public notification and comment include:
- General Development Plan: Planning Board review and approval with public comment.
- Design guidelines if not included in GDP: adopt as rules and regulations, which require legal notice and public hearing before the Planning Board.
- Development Plan Review: written notice of application inviting written comments.
- Reduction of parking spaces: written notice of application inviting written comments due within 20 days.
- Special review use or unenclosed use: written notice of application inviting written comments due within 30 days.

Denver Union Station T-MU-30 with Waivers and Conditions
The specific opportunities for public involvment established in the T-MU-30 with waivers and conditions for Denver Union Station are:
- Review of proposed encroachments into the 17th Street view corridor.
  - Applicant notifies property owners, RNOs within 200 feet, and district councilmember.
  - Planning Board reviews and recommends approval, approval with conditions, or denial to Zoning Administrator.

Landmark Designation
Once the station and a portion of the site are designated as a Denver Landmark, the Landmark Preservation Commission must approve exterior alterations to the station requiring a permit, including additions and new construction. Landmark design review has no formal notice requirement. Landmark Preservation Commission meetings are public, and anyone may testify about a design review item. The Landmark Commission also has the authority to adopt site-specific design guidelines as rules and regulations, which requires legal notice and a public hearing at which any person may testify.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PART II


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Project Context

Four Agency Partnership

The four agencies involved in creating the Master Plan represent a unique partnership among the City and County of Denver (City), the Colorado Department of Transportation (CDOT), the Denver Regional Council of Governments (DRCOG), and the Regional Transportation District (RTD). This partnership continues previous collaborations on transportation projects related to Denver Union Station, including efforts to develop a multimodal hub.

In the late 1980s, RTD and the City cooperated with the Denver Union Terminal Railway Corporation (DUT), the private owner of the terminal, to make improvements on the Denver Union Station site. These improvements included upgrading rail-platforms and canopy facilities, and accommodating an RTD bus lane to access Market Street Station from the I-25 bus/HOV lanes.

Between 1994 and 1996, RTD, the City, and CDOT, with DUT, the U.S. Environmental Protection Agency, and Trillium Corporation prepared a feasibility study to determine the prospects for using the station as a regional intermodal transportation center. That study was the precursor to this Master Plan.

RTD, the City, and DRCOG cooperated from 1997 to 2000 with the Union Station Transport Development Company (USTDC) and various private land owners and businesses to create the Central Platte Valley Light Rail Spur (C-Line), a major public transit connection to Denver Union Station. The C-Line opened in April 2002 and has been a success in connecting people to Lower Downtown and to major venues in downtown.

In 1999, CDOT, working with the City and USTDC, led an effort to secure a federal grant to study the potential for a bike station, electric-vehicle, and trolley program at Denver Union Station. Bicycles and electric vehicles are accommodated on-site in this Master Plan, with an adjacent off-site trolley stop contemplated.

In August 2001, RTD purchased the site in accordance with a jointly funded Intergovernmental Agreement between RTD, the City, CDOT, and DRCOG. As the Master Plan process continues, the four agencies have agreed to continue their cooperative efforts beyond the planning phase and into implementation of a full multimodal center at Denver Union Station.

Project Scope

The project encompasses four major work products: the Master Plan (development guidance), Site Rezoning (entitlements), Landmark Designation (historic building protections), and an Environmental Impact Statement (EIS). The other work products besides this Master Plan are summarized and referenced in this document, but exist as separate stand-alone documents.

The Master Plan focused on creating a multimodal transportation center, with transportation elements designed first, followed by development that is compatible with the site's transportation uses.

Given the highly visible nature of DUS and its importance to the fabric of LoDo, Downtown Denver, and the region, community involvement and outreach were important elements in the Master Plan and EIS processes.

Town meetings were held periodically throughout the Master Plan process in coordination with the EIS processes. A citizen's advisory committee allowed the community to provide regular responses and recommendations. Special presentations were made to community groups and local businesses. A project website informed the community of project progress.

Master Plan

The Master Plan is a guide document that provides the framework for future development. It gives an overview of the history, structuring elements, and Vision Plan arising from the master planning process, the next steps in implementing the plan, and the basis for rezoning.

Rezoning

Zoning needs to allow for both transportation and development on the site. Existing zoning did not fulfill these requirements. After studying numerous possibilities, it was determined that rezoning the site to a new zone district, Transit Mixed-Use 30 (T-MU-30), would meet the future needs of the site.

Landmark Designation

The historic Denver Union Station building was listed in the National Register of Historic Places in 1974. However, it has never been designated as a Denver Landmark structure. The effort to designate the historic structure has run concurrently with the Master Plan and rezoning processes with the goal of simultaneous approvals for each process.

Environmental Impact Statement (EIS)

In accordance with the provisions of the National Environmental Policy Act (NEPA), a Notice of Intent (NOI) to prepare an Environmental Impact Statement was published on June 4, 2002, in the *Federal Register*, titled *Preparation of an Environmental Impact Statement for the Union Station Master Plan and Vicinity in Downtown Denver, CO.* The purpose of the notice was to inform interested parties of the intent to prepare an EIS.

The purpose of the EIS is to evaluate the possible impacts to the natural and built environment of the multimodal center identified during the scoping and Master Plan processes. This will evaluate the project's transportation components. The EIS also identifies mitigation measures.

The EIS entails the longest process. Begun in June 2002, the process is projected to be completed in early 2005. Impacts of the Vision Plan on the natural and built environment, developing and circulating a draft EIS (DEIS), incorporating responses to the DEIS during the public review and comment period, and preparing a final EIS (FEIS), are all components of the EIS.

The FEIS recommends a locally preferred alternative, and documents mitigation. The team will complete the process by seeking the Federal Transportation Administration (FTA) signature for a Record of Decision on the locally preferred alternative. If there are no significant impacts associated with the proposed action, FTA may issue a Finding of No Significant Impact instead of a Record of Decision.

Project Vision and Goals

The Master Plan Vision and Goals statements were created to serve as a guide for the future redevelopment of Denver Union Station. These statements were prepared jointly by the Executive Oversight Committee, the Union Station Advisory Committee and the Technical Advisory Committee.

Denver Union Station Vision Statement

"Denver Union Station will be a multimodal transportation hub of international significance and a prominent and distinctive gateway to downtown Denver and the region.

Denver Union Station will bring critical elements of the public and private local, regional, statewide, and national transportation systems, both existing and future, together with private development and inspiring civic features.

DenverUnion Station will create an exciting setting that will improve the connections between all transportation modes, respect the character and historical significance of the station and its adjacent neighborhoods, and provide a stimulating environment for public activity and economic vitality."

Vision statement developed by the Union Station Advisory Committee and the Agency Partners, Summer 2002.

Master Plan Goals

I. Transportation/Multimodal Center

- Develop a public transportation facility that will:
- Serve as the hub of the regional transportation system.
- Ensure that all modes function together to optimize the efficiency of each mode for system wide efficiency.
- Provide connections for all transportation modes into and throughout the Denver region.
- Increase transit ridership and use of other forms of public and private transportation and alternative transportation modes.
- Provide increased ground transportation options to the traveling public.
- Accommodate all ground passenger modes, both public and private, to the greatest extent feasible on the site.
- Create a system of mode transfer and way-finding orientation that allows for simple and efficient movements and connections for travelers.

- Support major activity centers and destinations in the region by providing easy access and seamless connections.

- Provide transportation options and uses at Denver Union Station that are consistent with the Metro Vision Regional Plan.

- Provide the opportunity for connections to and between local, regional, statewide, and national transportation systems and networks.

II. Urban Design and Neighborhood Integration

- Develop a plan that will provide pedestrian-friendly urban design elements that:
- Ensure that the mass, scale, orientation, and architecture of the redeveloped Denver Union Station site and its private development are harmonious with the historic station and the surrounding neighborhoods.
- Encourage a mix of land uses on the site that creates appropriate densities of development that are compatible with neighborhood plans and concepts.
- Connect downtown, the Central Platte Valley, and the adjacent neighborhoods, emphasizing pedestrian and bicycle connections to and through the development, easy access to transportation, and an active, attractive environment.

- Create a positive user experience for the Denver Union Station multimodal transportation center and related on-site development.

- Provide for the creation of public spaces

III. Historic Preservation

- Provide for the preservation of the historic Denver Union Station building.

- Fit the form and architecture of the project's new development with respect to the historic character of Denver Union Station and the surrounding neighborhoods.

- To the greatest extent feasible, fully incorporate the historic train station into the multimodal transportation hub both physically and functionally.

IV. Development Feasibility

- Develop a plan for the facility that maximizes the opportunity for public/private development that supports transportation ridership, serves neighborhood needs, functions as a regional and statewide amenity, generates project revenues to help offset costs, and enhances downtown's environment.

- Develop a financing package that optimizes the use of funding from federal, state, local and private sources.

- Integrate transportation and development in an economically sustainable phasing and build-out strategy that takes advantage of available funding and public/private partnerships.

V. Implementation and Governance

- Develop a plan that provides governance of the Denver Union Station site that is appropriate for a public/private facility, that does not put undue risk and burden on the taxpayers, and that provides opportunities for private partners and users.

- Ensure that the long-term ownership and governance structure for the Denver Union Station site incorporates strict and demanding standards of quality and cost-effectiveness for facility design and quality of workmanship, as well as for on-going operations and maintenance.

Guiding Principles

The Master Plan goals will be achieved by implementing the Vision Plan with the following guiding principles developed by the planning team:

Urban Form

The principles of urban form are site and context-specific outgrowths of the project goal statements. They are framed to provide direct feedback for design decision-making. These principles are intended to ensure that the revitalization of Denver Union Station occurs in a way that integrates this large and complex transportation center into the life and form of the downtown that encompasses it.

Sustainability Principle

Sustainability entails meeting the needs of the present without compromising the ability of future generations to meet their own needs. The objectives behind a multimodal transportation center are linked to the related concept of regional and global sustainability. The availability of transportation options beyond the personal automobile can produce significant environmental, economic, and social benefits, such as greater energy efficiency. This concept should be implemented at the community level by a parallel concept of project sustainability. Project sustainability attempts to minimize adverse effects of development and identify and implement approaches that have net positive effects on the local environment, social, and economic health.

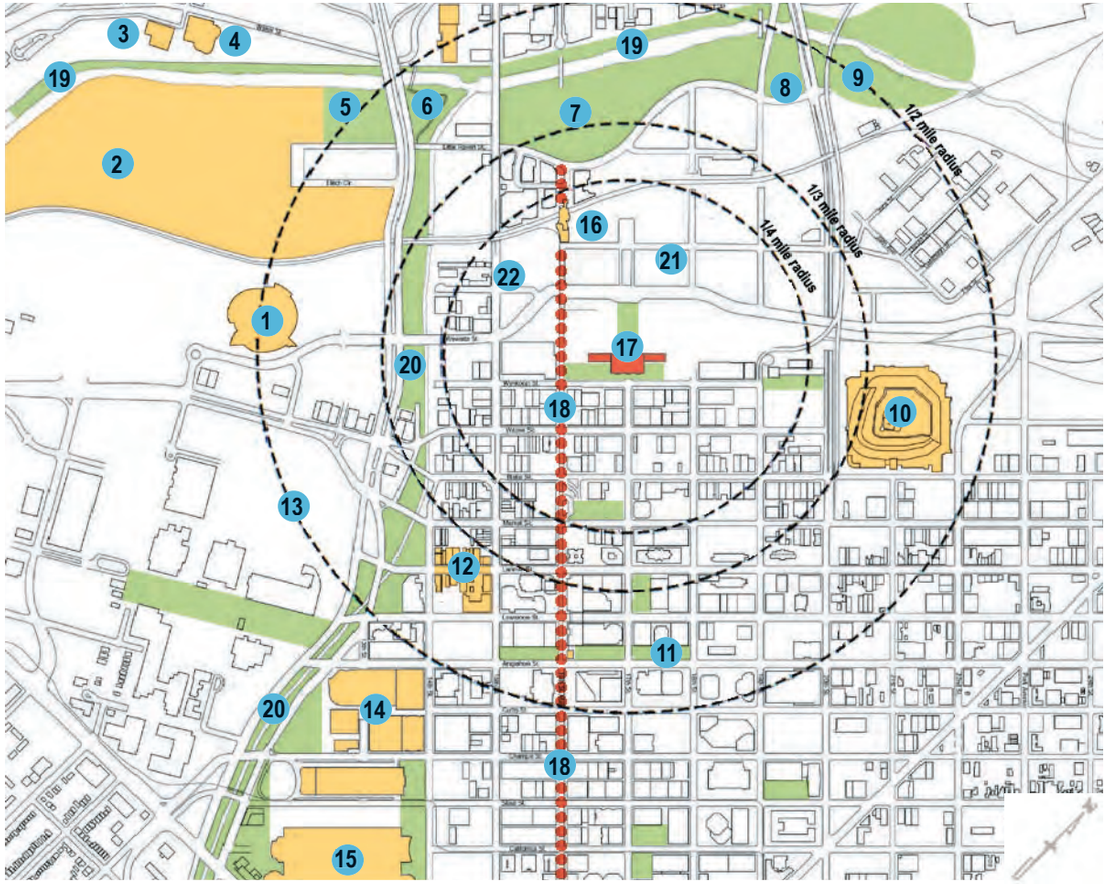
LEGEND

1. Pepsi Center
2. Six Flags - Elitch Gardens
3. Denver Children's Museum
4. Aquarium
5. Centennial Gardens
6. Confluence Park
7. Commons Park
8. Skateboard Park
9. Cuernavaca Park
10. Coors Field
11. Skyline Park
12. Larimer Square
13. Auraria Campus
14. Denver Center for Performing Arts
15. Colorado Convention Center
16. 16th Street Millenium Bridge
17. Denver Union Station
18. 16th Street Mall
19. South Platte River Greenway
20. Cherry Creek Trail
21. Commons Neighborhood
22. Museum of Modern Art

Area Context

For most of Denver Union Station's history, the site has held the western edge of Downtown's warehouse district. In the last 15 years, the mercantile warehouses of the Lower Downtown Historic District (LoDo) have been rejuvenated with residences, galleries, restaurants, shopping, and entertainment. Downtown, LoDo, and surrounding neighborhoods now contain more than 11,000 residents. Major sports and entertainment venues around LoDo have turned the entire area into a regional attraction.

The site is at the western end of the 16th Street Mall, with a strong connection to Central Business District employment. Just three blocks north, Coors Field has spurred new residential and commercial development north and east of the station. To the south and west, the new Commons Neighborhood is emerging on former railyards in the Central Platte Valley. The historic Highlands Neighborhood is further west across I-25, featuring spectacular views of the Denver Union Station site and Downtown. Six blocks south is Larimer Square, Denver's first historic district. The Pepsi Center and Invesco Field at Mile High are located one-half mile and one and one-half miles south and west, respectively.



Area map showing various Denver destinations and walking distance to those locations from Denver Union Station.

Centennial Gardens in foreground with Six Flags Elitch Gardens behind.

Rock sculpture at City of Cuernavaca Park.

View of the aquarium from the south bank of the South Platte River.

Aerial photo showing Downtown Denver and surrounding area, as well as points of interest, ca. 2001.

The site is connected to the regional trails of the South Platte River and Cherry Creek, which provide most of the area's public open space. The 30-acre Commons Park is located along the South Platte River just across the Consolidated Main Line (CML) in the Commons Neighborhood, with a pedestrian connection at 16th Street across the Millennium Bridge. Additional open space includes Skyline Park, which runs for three downtown blocks along Arapahoe Street, the City of Cuernevaca Park and Centennial Gardens on the South Platte River Greenway, and Civic Center Park on the south end of the 16th Street Mall.

Major highway access is via I-25 at Speer Boulevard, 20th Street, and 23rd Street. Local access streets include Auraria Parkway, Speer Boulevard, Wewatta Street, Wynkoop Street, 15th, 17th, 18th, 19th, 20th, and 23rd Streets. An HOV lane along 20th Street links the north end of LoDo to I-25 North. The site can also be accessed from I-70 to the north via Brighton Boulevard.

Regional entertainment and sports venues include Coors Field (home of the Colorado Rockies), the Pepsi Center (home of the Colorado Avalanche, Denver Nuggets, Colorado Crush, and Colorado Mammoth), Invesco Field at Mile High (home of the Denver Broncos and Colorado Rapids), Colorado's Ocean Journey aquarium, and Six Flags-Elitch Gardens amusement park. All have access to the Denver Union Station site through rail, vehicle, bicycle and pedestrian connections.


Larimer Square.

Wewatta entrance into the Pepsi Center.


Denver Millennium Bridge at night.

Neighborhood Context

Denver Union Station is located between LoDo and the new 54-acre Commons Neighborhood in the Central Platte Valley. Within a quarter-mile radius of the site are many historic and new uses that will benefit from the multimodal hub.

Lower Downtown (LoDo)

Adjacent to Denver Union Station and across Wynkoop Street is LoDo. This 21-block area encompasses the city's origins and includes many large historic warehouses. Many have been converted into commercial, retail, and residential spaces. LoDo's historic context includes 131 contributing buildings, of which 85 percent are under fifty-five feet tall, 15 percent are between 55 and 85 feet tall, and none exceed 85 feet. Front doors are oriented primarily toward named streets. LoDo features a traditional right-angle grid with 80-foot right-of-way streets.

LoDo first-floor retail with offices above.

LoDo's revitalization resulted in part from creation of the Lower Downtown Historic District in 1988. Widespread rehabilitation of historic mercantile buildings has created a rich, varied mix of uses, including residences, specialty retail, art galleries, small offices, restaurants, bars, and clubs. About 2,000 people now live in LoDo. New infill buildings have been tailored in massing, street orientation, and detailing to respect the district's character, while also differentiating themselves as modern designs.

Public space in LoDo is mainly provided by sidewalks, many of which have been improved under the 1988 Lower Downtown Streetscape Plan. Additional open spaces include Market Street Station between 16th and 17th Streets on Market Street, the Cherry Creek Greenway, and the Ballpark Promenade at the Wynkoop Street terminus between 19th and 20th Streets.

Coors Field promenade along Wynkoop Street.

Commons Neighborhood

The Commons Neighborhood is located between Denver Union Station and the South Platte River. Formerly rail yards, this area within the next 10 to 15 years will be developed to include as much as 6 million square feet of new office, commercial, retail, and residential uses. Zoning for the Commons area allows for a larger-scale district compared to LoDo. Buildings of 140-foot height are typical, with five sites allowing buildings up to 250 feet. The 1997 Commons Neighborhood Urban Design Guidelines promote high-quality design, neighborhood compatibility and lively pedestrian-scaled streetscapes.

The Commons Neighborhood faces Commons Park along the South Platte River. A 17th Street extension is planned to include a wide landscaped median in a 160-foot-wide right-of-way. A new neighborhood landmark is the Millennium Bridge, which spans the CML tracks and links pedestrians from Commons Park to LoDo and the 16th Street Mall. Other pedestrian connections are planned across the CML at 18th Street, over the South Platte River, and over I-25 on axis with 16th Street.

View from the Sky Garden in Commons Park, looking south towards Promenade Lofts.

Adjacent Uses

The historic IceHouse building is adjacent to the northeast edge of the Union Station site. The IceHouse includes ground-floor retail and residential lofts on the upper floors. Across 16th Street is the Post Office Annex building, slated for redevelopment and offices for the Environmental Protection Agency. Other uses include restaurants, offices, and lofts across Wynkoop Street from 15th to 20th Streets. The Tattered Cover Bookstore is located across Wynkoop Street at 16th Street.

Access to the Site

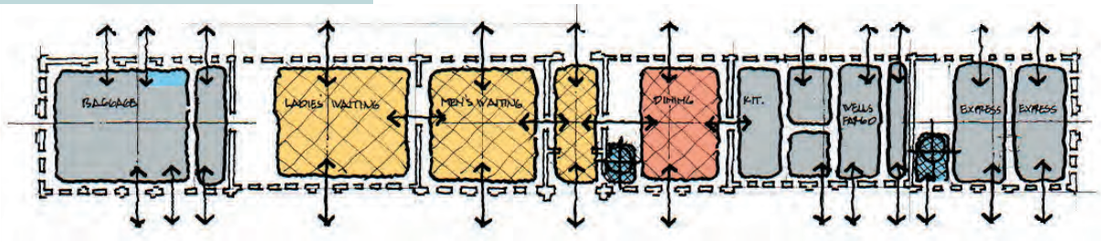
Wewatta Street provides local vehicle access to the Denver Union Station site. Wewatta Street connects Speer Boulevard to 23rd Street along the edge of the Commons Neighborhood, and is slated to become a four-lane arterial in the future. On the LoDo side, Wynkoop Street runs only between 15th and 19th Streets, providing local access. Wynkoop Street is a two-lane street with on-street bike lanes and parking on both sides. Currently 17th, 18th, and 19th Streets terminate at the station at Wynkoop Street.

There is also transportation access to the site via the RTD 'C' Line light rail, which terminates at Denver Union Station; regional bus access from the HOV lane, which passes on the Wewatta Street side of the historic station; local bus access on Wynkoop Street; and 16th Street Mall Shuttle access at a turnaround stop on the Wewatta Street side of the Station and at the corner of 16th and Wynkoop Streets.

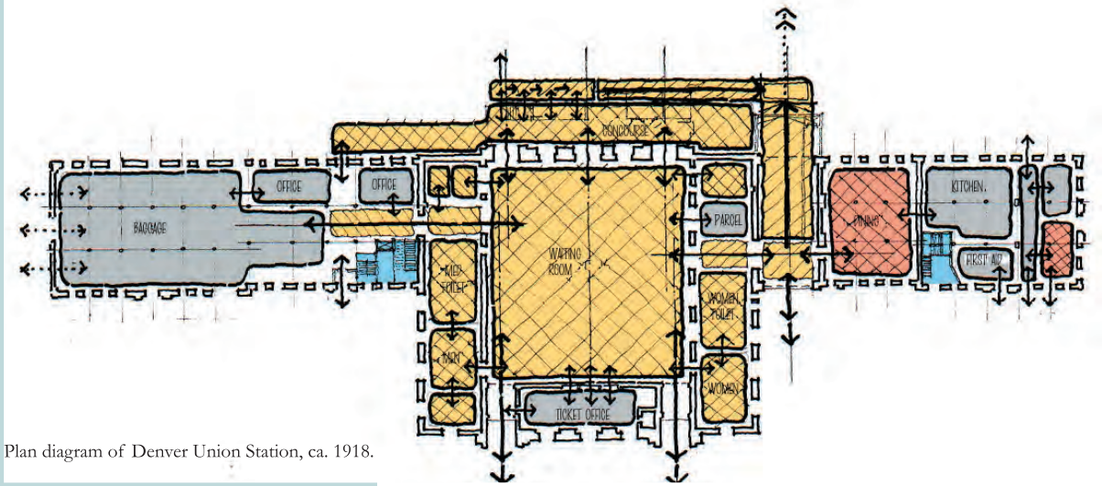
Bicycle access is provided on Wynkoop Street and on 16th Street with easy connections to the Cherry Creek Bikeway and the South Platte River Greenway. Pedestrians access the site on the street network at 16th, 17th, 18th, Wynkoop, and Wewatta Streets.

Coors Field at 20th and Blake Street.

View of Station Platforms looking northeast. Note 20th Street HOV ramp and flyover, ca. 2003.



Plan diagram of the original Denver Union Station, ca. 1885.



Plan diagram of Denver Union Station, ca. 1918.

The Importance of Rail to Denver's Growth

The barrier of the Rocky Mountains has always influenced transportation and development in Colorado. The transcontinental railroad went through Cheyenne, and in 1870, a connection between Denver and Cheyenne was made, connecting Denver to both the east and west coasts via rail.

Railroads made the city's prosperity possible, and the growth of the city into a Rocky Mountain metropolis ensured the economic success of railroads. Thanks to the steam locomotive and steel rails, Denver became one of the first and best examples of a major population and trading center far removed from water-based commerce.

The railroads usually met Denver between the river's floodplain and the upland claimed by Downtown between Blake Street and Cherry Creek. Roughly parallel to the river, the main railroad alignment occupied the original Wewatta Street right-of-way. This alignment became the basis for the current Denver Union Station passenger-rail platforms.

After 1870, different railway companies built eight passenger depots around the city. To eliminate the cumbersome transfer of freight and passengers from one station to another, railroad interests incorporated the Denver Union Station and Railroad Company in 1879 and set upon constructing a consolidated passenger and freight-rail station.

Denver Union Station

For more than 120 years, Denver Union Station has been one of Downtown's most visible landmarks. The station has undergone two major architectural transformations, along with many smaller additions, subtractions, and changes to tracks and platforms that have affected neighborhood circulation. A rather grand park-like space and a civic arch that once faced Wynkoop Street are both distant memories.

Designed by architect William E. Taylor, the first Denver Union Station building opened in 1881 with a 500-foot-long limestone-and-rhyolite facade set back 140 feet from Wynkoop Street. This building radiated a civic monumentality far beyond its relatively modest interior volumes.

On the Wynkoop Street side of Denver Union Station, an oblong outdoor space was given over to a large park-like lawn and perimeter rows of street trees. The entire space was edged by flagstone sidewalks and low wrought-iron fencing. At 17th Street, this area was interrupted by vehicle access and by a long walkway extending from the main passenger entry at the clock tower base toward Wynkoop.

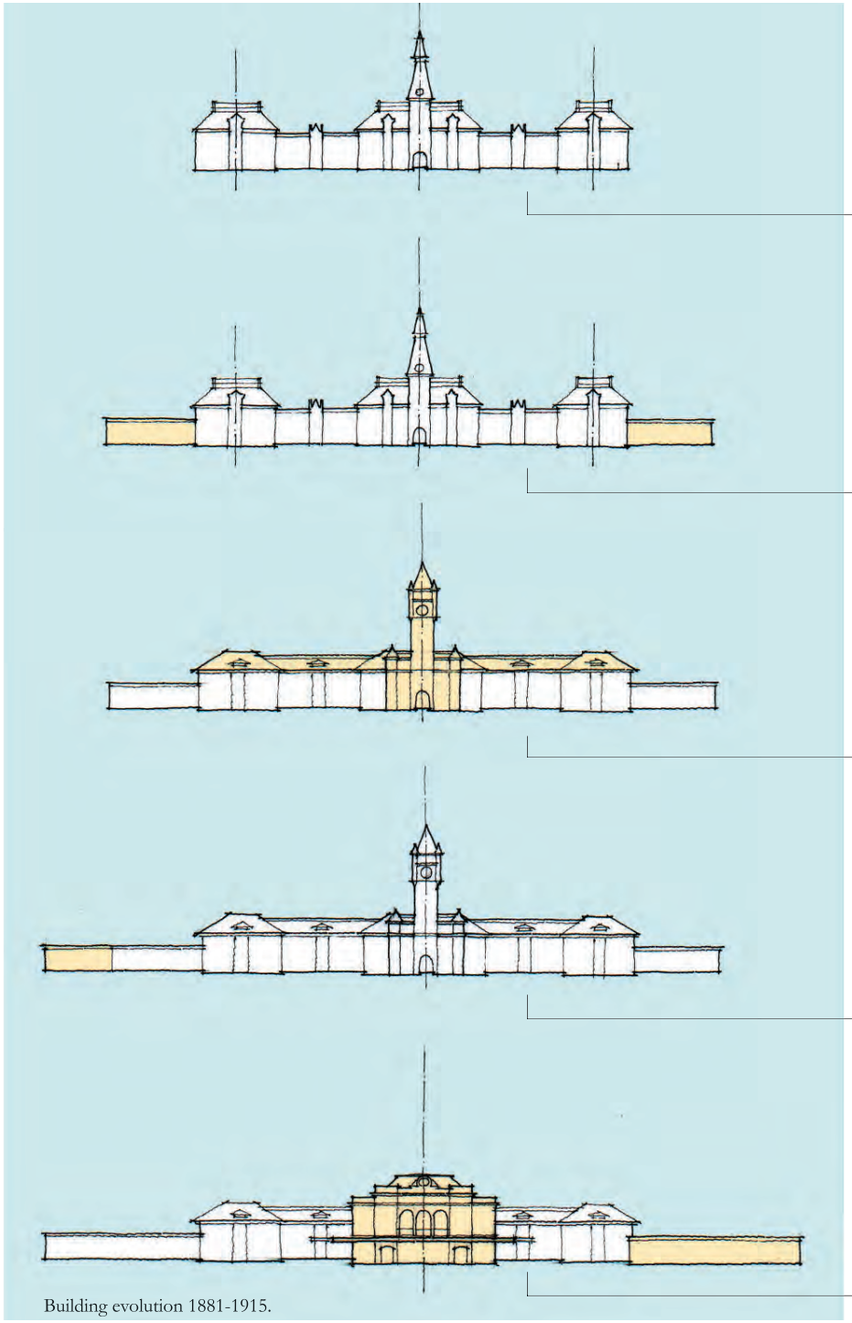
Downtown grew quickly in the 1880s and early 1890s. This growth stopped with the silver crash of 1892, and resumed in 1900. Wynkoop Street evolved from a disparate collection of early frontier buildings into an imposing frontage of masonry-walled, timber-framed mercantile warehouses. The monumental nature of these warehouses seemed to increase the stature of the station's park-like forecourt.

The original passenger-rail platforms on the west side of Denver Union Station were placed at roadbed level with grade crossings at 16th, 18th, and 19th Streets. The 16th Street viaduct was built between 1881 and 1889. Freight-rail yards grew quickly to the south to warehouse termini along 15th Street. The one-story wings on Denver Union Station were added in 1892.

A fire on March 18, 1894, destroyed the interior of the building's south and central portions. Reconstruction completed in 1895 preserved the building's interior plan but greatly altered the exterior. In the then-*au courant* style of Romanesque Revival, a massive new tower crowned the vista down 17th Street. The building acquired a new, lower-pitched, hipped roof while architectural ornament from the original 1881 depot was removed. Unbroken for its 500-foot length, the new façade appeared much more monolithic, except for a large shed dormer, symmetrically placed around the new tower and crowned by two pyramidal caps above the flanking doors.

Through most of Denver Union Station's life, passenger platforms held the western part of the Delgany Street (now Wewatta) right-of-way. With no other buildings in the way, the 500-foot-long western facade of DUS has created a memorable Downtown edge for years. From the Highlands Neighborhood and western approaches to downtown, DUS remains a prominent presence.

In the next 20 years, Denver's economy and population exploded. DUS was pressed to keep up with the corresponding increase in railroad activity. By the century's end, new baggage and express wings were added.



Building evolution 1881-1915.

Historic Landmark

The building has many architecturally significant features. These include:

The Train Room interior volume, including the 1918 detailing around the monumental windows and original monumental wood-bench seating.

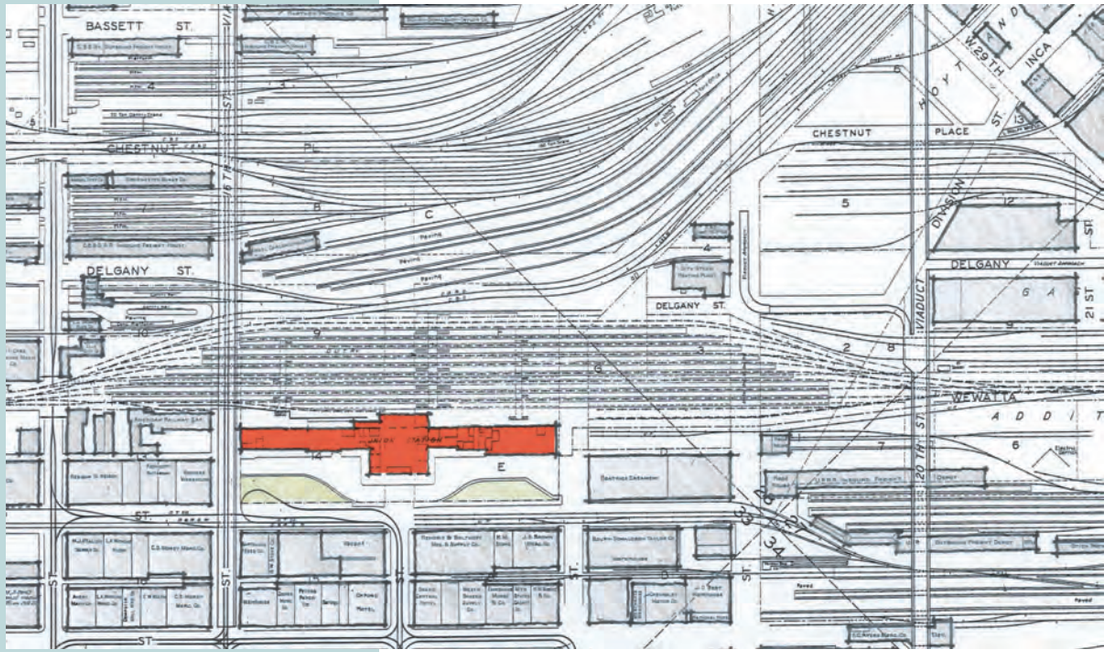
The terra cotta and granite exterior of the Beaux Arts/Renaissance-Revival Central Block, including the original Wynkoop Street entrance canopy, monumental metal windows, and large clocks atop the entablature.

The 1881 exterior stone facing of the wings, stripped of much of their original, character-defining detailing.

The neon "Travel by Train" signage at either facade on the 17th Street axis (added in 1951.)

Some remaining pre-1914 interior casings and detailing, particularly on the southwest wing.

The 1914 passenger tunnel, including many original tiles and architectural fixtures.



Union Station and the Central Platte Valley, ca. 1936. Railyards covered almost the entire area between Denver Union Station and the South Platte River.

Denver Union Station Platforms, ca. 1900, looking northeast.

Twentieth Century: 'Travel By Train'

In 1906, Denver Mayor Robert Speer dedicated the ornate "Welcome Arch" (also known as the Mizpah Arch) in front of Denver Union Station to greet travelers. Often called "Denver's front door," this 70-ton steel gateway was 65-feet high, 86-feet wide, and illuminated by 1,294 light bulbs. In 1931, the arch was deemed a traffic hazard and removed.

In 1914, Denver Union Station was expanded and remodeled to keep up with increasing traffic. The redesign by Denver architects Aaron Gove and Thomas Walsh created one of Denver's finest Beaux-Arts/ Renaissance-Revival buildings. Sheathed in a granite façade and a wrought-iron canopy, the new interior volume combined the formerly separate functions of vestibule, hall, and waiting rooms, surrounded with a roughly symmetric arrangement of ticketing offices, toilets, a barber shop, and a parcel checkroom.

A new façade inspired by Roman triumphal arches replaced the Romanesque clock tower. This façade design was repeated on the western platform side. Inside, the lofty, light-filled Train Room created a major new public space.

The new central block dramatically changed open space fronting Denver Union Station along Wynkoop Street. The addition projected into the open space, effectively cutting it in half. At about that time, a tramway loop off Wynkoop Street encroached into the southern half of the park. The north side of the park was then eliminated for asphalt paving and parking to accommodate autos and trucks.

New baggage and passenger tunnels were constructed to provide grade-separated access to all platforms. Platforms were raised above the tracks, lengthened, and fitted with canopies. These changes severed access to the Central Platte Valley from 16th, 18th, and 19th Streets. Later a new passenger tunnel allowed arriving passengers to bypass the Train Room and go directly to Wynkoop Street. This fundamentally changed the original design's simple through-circulation scheme for passengers.

Aerial view looking north along the South Platte Valley, ca. late 1930s. (Denver Union Station is left of the number 8.)

Modern Times

In the 1920's, major alterations essentially came to an end. Over time, restaurants, cafes, and leased office space replaced railroad-related functions such as baggage handling and administrative offices. The Colorado and Midland Model Railroad moved into the basement in 1933.

In the 1990s, the 16th and 20th Street viaducts were removed, once again altering Denver Union Station's circulation. The one-story wings were removed in 1990. Passenger platforms were shortened to allow pedestrian and bicycle access from 16th Street into the Central Platte Valley. Twentieth Street was relocated below the main tracks and now connects into the Central Platte Valley.

Today, Denver Union Station is used by Amtrak, the Ski Train, RTD Regional Bus, RTD's 'C' Line light rail, and the 16th Street Mall Shuttle. Restaurants occupy the north and south wings, with office space on the second and third floors. In the Train Room, a gift shop and cafe counter primarily serve Amtrak patrons.

Denver Union Station Main Waiting Room, during the 100th Anniversary Celebration on July 25, 1981.

Denver Union Station, showing vehicle access and public open space, ca. 1905.

Welcome Arch, looking southeast up 17th Street.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Structuring Elements

Major Structuring Elements

Four major structuring elements will influence how Denver Union Station evolves into a multimodal transportation hub. They are:

- the physical requirements, size, and configuration of the site itself and existing infrastructure,
- the transportation program,
- the development program, and
- the regulatory structure imposed by zoning and landmark designation.

This section explores the implication of each structuring element for redeveloping Denver Union Station according to the Master Plan's goals.

The Site

The 19.5-acre Denver Union Station site has many assets, as well as elements that challenge proposed transportation improvements and redevelopment.

The site's most prominent feature is the 72,000-square-foot historic station, which houses restaurants, offices, and waiting, ticketing, and baggage facilities for Amtrak and Ski Train. The historic building is one of the site's greatest assets. Its distinctive architecture, rich history, and grand public spaces will play an important role in attracting and serving future travelers, office workers, downtown residents, shoppers, and tourists.

Adjacent to the Station on the west side of the site lay five passenger-rail tracks, including Amtrak and Ski Train rail services with "tail tracks" that cross 16th Street and extend to Cherry Creek.

The RTD Light Rail 'C' line terminates at the site, with the 16th Street Mall Shuttle drop-off area located next to the light rail (LRT) platforms. One active tunnel connects below the passenger-rail tracks between the LRT platforms and the historic station.

The Wynkoop Street side of the building is occupied by two parking lots and a vehicle turnaround/drop-off at the terminus of 17th Street, facing Wynkoop Street.

Improvements proposed under the Master Plan must consider the site's access, utility, and shape. The site's long linear shape derives from its origins as a station and rail yard. While this size and shape works for today's transportation needs, the configuration poses challenges to the Master Plan's programs of transportation and development.

The site is a space-constrained parcel surrounded by existing and planned street and development infrastructure. Since the project's early stages, it has been apparent that, due to the limited size of the site footprint, the nature of the existing transportation and development infrastructure, and the type and extent of new facilities needed, the site's transportation improvements would have to be configured on multiple levels.

As the surrounding area has developed, the site has become a physical barrier between Downtown Denver and the Central Platte Valley. Recent improvements to the Central Platte Valley and the South Platte River underscore the need to improve connections. Plans for Denver Union Station redevelopment should be sensitive to this objective and avoid exacerbating the area's connectivity challenges.

The site also has access issues for autos, buses, and rail. The HOV lane provides direct access from 20th Street to I-25. While private autos must exit the HOV lane at 19th Street, RTD buses now run next to Denver Union Station to access the 16th Street Mall to Market Street Station.

All other vehicular access to the site from I-25 uses less direct routes from Auraria Parkway, Speer Boulevard, 20th Street, and 23rd Street. Wewatta Street is slated to become an arterial road connecting Speer to 23rd Street. Wynkoop Street runs the length of the site's eastern edge. Because of its abbreviated length and lack of connections to highways or major arterials, Wynkoop Street carries relatively little traffic. Passenger-rail access is provided to the site only from the north, over the 20th Street grade-separation structure. Light-rail access occurs from the south.

Aerial photo of the 19.5-acre site with boundaries superimposed, ca 2000.

The Multimodal Transportation Program

The multimodal hub must blend many different transportation modes in one place with convenient transfers and connections. This critical mass of transportation services will encourage dynamic redevelopment and give the region's residents and visitors a compelling variety of transportation choices.

Site Transportation Program						
2025 Build-out						
	Number of req'd tracks/	**Platform**	**Track**			
RAIL	**Track No. /share with**	**Req'd Length**	**Req'd Length**	**Frequency**	**Remarks**	**Source / Document**
Amtrak	1 req / track #1 / track #2	1540'	1835'	2/day	18 cars @ 85' + 3 loco + 10' for a stub end	RTD agreement w/Amtrak
Ski Train	1 req / track #2 / track #1	1540'	1835'	2/day (seasonal)	18 cars @ 85' + 3 loco + 10' for a stub end	RTD agreement w/Ski Train
East Corridor	1 req / track #3 / NA	870'	970'	4/hr.	2 (4 cars trains @ 85' + 1 loco) for stub station	Fastracks Program / DUS Rail Capacity Sim.
Boulder Commuter Rail	1 req / track #4 / NA	870'	970'	4/hr.	2 (4 cars trains @ 85' + 1 loco) for stub station	Fastracks Program / DUS Rail Capacity Sim.
Intercity Rail (North Front Range)	1 req / track #5 / NA	870'	970'	2/hr.	2 (4 cars trains @ 85' + 1 loco) for stub station	Fastracks Program / DUS Rail Capacity Sim.
Intercity Rail (South Front Range)	1 req / track #6 / #6	870'	970'	2/hr.	2 (4 cars trains @ 85' + 1 loco) for stub station	Fastracks Program / DUS Rail Capacity Sim.
North Metro	1 req / track #6 / #6	870'	970'	4/hr.	2 (4 cars trains @ 85' + 1 loco) for stub station	Fastracks Program / DUS Rail Capacity Sim.
Light Rail C Line/West	3 req / track #B, C / all	360'	460'	12/hr.	4 cars @ 80'	EIS / West
Light Rail Gold Line	1 req / track #B, C / all	360'	460'	8/hr.	4 cars @ 80'	RTD Program
Light Rail SE/SW Corridors	1 req / track #A / all	360'	460'	8/hr.	4 cars @ 80'	EIS / Southeast
Platte Valley Trolley	NA	NA	NA		separate operation on Wynkoop Street	Trolley Feasibility Study
Total Additional Capacity						
Future Expansion	1 req / track #6 / #6	870'	970'	NA	2 (4 cars trains @ 85' + 1 loco) for stub station	RTD
Future Expansion	1 req / track #1 / LRT	200'	270'	TBD	Excess cap. for future technology	
BUS	**No. of Bays**					
Regional Bus	16	(10) 45' slips, (6) 65' slips	-	-	-	RTD Program
Commercial Bus Facility	18	(18) 45' slips	-	-	-	Greyhound / Tour / Charter providers
Local Bus	None	None	-	-	assumed on street	RTD Program
Downtown Circulator	6	50'	-	-	space provided for on-site	Draft DMAP
16th Street Mall Shuttle	6	(6) 45' slips	-	-	space provided for on-site	RTD
Tour Buses	share w/Commercial Bus	8 potential carriers	-	-	share w/Commercial Bus	Transystems memo.
Charter Buses	share w/Commercial Bus	-	-	-	share w/Commercial Bus	Transystems memo.
COMMERCIAL CARRIERS	**No. of Bays**					
Taxi	15 positions	-	-	-	Taxi positions utilizing drop-off areas	TS Addl Carriers Memo
Taxi queuing at Commercial Bus	6 positions	-	-	-	Taxi positions utilizing on-street curb side	TS Addl Carriers Memo
Rental Car	30 parking spaces	-	-	-	In parking structure	TS Addl Carriers Memo
Vans and Shuttles	3 positions	-	-	-	Utilizing drop off areas West side of DUS	TS Addl Carriers Memo
Ski Area Shuttles	1 dedicated bay	-	-	-	Utilizing drop off areas West side of DUS	TS Addl Carriers Memo
Van Pool	drop off area	-	-	-	Utilizing drop off areas West side of DUS	TS Addl Carriers Memo
Limo	designated loading zone	-	-	-	Utilizing drop off areas West side of DUS	TS Addl Carriers Memo
Courier Services	designated loading zone	-	-	-	Drop off area or curb side	TS Addl Carriers Memo
Private Vehicle Drop off @ Commercial Bus	8 spaces or positions	-	-	-	-	TS Addl Carriers Memo
OTHER MODES	**No. of Spaces**					
Bicycle	Bike Station		-	-	1 space per 200 auto parking spaces required	-
PediCab	On Street (16th /or designated site)	-	-	-	-	-
Motorcycles / Scooters	In Parking Structure	-	-	-	-	-
Small Electric Vehicles	In Parking Structure	-	-	-	-	-
Horse Drawn Carriage	On Street (16th /or designated site)	-	-	-	-	-
Pedestrians	Incorporate into circulation system	-	-	-	-	-
Parking for Transit	**No. of Spaces**					
Commercial Bus Facility	40 spaces	-	-	-	-	Greyhound Program
Ski Train	200 spaces	-	-	-	-	Ski Train
Amtrak	100 spaces	-	-	-	-	Amtrak
Transit Parking (RTD)	250 spaces	-	-	-	-	RTD memo
Rental Car	30 spaces	-	-	-	-	TS Addl Carriers Memo
Total Transit Related Parking	**620 spaces**	**-**	**-**	**-**	**-**	-

CATEGORIES OF TRANSPORTATION MODES AT DUS

- Passenger rail
- Light rail
- RTD express and regional bus services
- RTD local and limited bus services
- Commercial intercity, international, tour and charter bus service
- 16th Street Mall Shuttle and Downtown Circulator
- Commercial vans and shuttles
- Taxis and limos
- Bikes and scooters
- Platte Valley Trolley
- Rental cars
- Pedestrians
- Automobiles and other privately owned vehicles

Passenger Planning Goals

A multimodal transportation facility must be designed around passenger movement and convenience. This means placing modes with connecting heavy passenger volumes close together, while removing as many physical and visual barriers to pedestrians as feasible. Quantitative and qualitative goals for designing stations around these principles follow.

Quantitative Goals

Minimize walking distances

The station design should locate travel modes with heavy interchange volumes close together. This will minimize the time and distance each passenger spends walking through the facility.

Facilitate level changes

Level changes using stairs, elevators, or escalators should be convenient, accessible, and easily identifiable for passengers, with direct routes to connect major modes.

Improve legibility and wayfinding

Direct routes through the station minimize the amount of time passengers need to spend orienting themselves to the space and choosing their travel path. Introducing turns, and blocking sightlines, increase passenger travel times and make the station experience less "legible."

Qualitative Goals

Maintain universal accessibility

For disabled passengers, level changes and steep grades can be barriers to movement, unless elevators are provided. Facilitating level changes and flattening grades make travel easier for disabled passengers and others.

Passenger Rail

The passenger rail program for Denver Union Station includes regional commuter service, and longer-distance intercity and excursion service such as existing Amtrak and Ski Train service.

Amtrak and Ski Train passenger platforms are 1,540 feet long, assuming an 18-car, three-locomotive train. These carriers run on infrequent schedules and have the longest "dwell time" in the station. Their schedule gaps may allow flexibility to share platforms with other carriers. Denver Union Station will need a service platform for these long tracks for baggage handling and in-station maintenance.

The multimodal hub may add such passenger services as a commuter-rail service to Denver International Airport, commuter rail to Boulder via the US 36 corridor, and an intercity connection to the north metro area.

The Master Plan also recognizes the potential of two commuter-rail connections to the north, an intercity link to Colorado Springs and points south, Fort Collins to the north, and expansion space for transportation to the I-70 mountain corridor. A mode has not been identified for the I-70 mountain corridor. The operational program for the passenger-rail elements recommends six tracks. These tracks include two long tracks for Amtrak and Ski Train with 1,540-foot platforms and four shorter rail tracks with 970-foot platforms for commuter, intercity, and DIA service. The program includes switches and pocket tracks at the station. These tracks and platforms will be about 170 feet wide. (For the intensity of track use for each rail service, see the Station Simulation chart in the Appendix.)

Station capacity is also affected by the available width for the lead track at the throat (a "pinch point" as the tracks converge entering and leaving the station) just north of 20th Street. This area is constrained by Wewatta Street on the west and Coors Field on the east. The throat width can be designed for up to five parallel track leads. Additional lead tracks in the throat for passenger rail will generally improve operational capacity and efficiency at the stub-end station.

Diesel Multiple Unit (DMU).

Amtrak train at Denver Union Station.

Denver Ski Train.

Denver light-rail train.

Future Expansion Option: Through Rail Service

Denver Union Station now functions as a "stub-end" station for passenger rail. This stub-end configuration requires all trains to enter and exit the station from the same direction (to and from the north). Trains either back into the station, or the pulling locomotive switches ends at the station to exit.

In its heyday, Denver Union Station was a through-station, with a direct connection to the south, allowing trains to pass through the station without reverse-direction movements from south to north or north to south. In the 1980s, this through-movement option was eliminated when the rail yards were reconfigured and southbound track leads out of the station removed. The remaining southbound tracks in the Central Platte Valley were condensed into the Consolidated Main Line (CML) closer to the South Platte River and away from the station. Along with relocating the CML and removing yard tracks, the City began to remove or replace many viaducts in the valley to restore grade-level streets at Speer Boulevard and 15th and 16th Streets, and to rebuild grade-separated facilities at 20th and 23rd Streets (Park Avenue).

Of alternatives considered, only the Vision Plan, where passenger rail is located underground, provides the future option of creating passenger-rail through-service at Denver Union Station. An at-grade south connection is not possible due to numerous at-grade crossings of major arterial streets south of Denver Union Station. Both the City and the Public Utilities Commission (PUC) have indicated that they would object to new at-grade rail crossings. RTD has indicated that such crossings would pose significant operational and maintenance problems for rail-service providers.

There are a number of possible through-connection options with the Vision Plan that have been determined to be technically feasible, if and when the additional capacity is needed, and funding is available. Each of the possible options allows for a direct south connection to the CML for connections to Colorado Springs and Pueblo, and a north loop connection to the CML so trains from the north would not need to change direction when returning to the north.

The benefits of increased operational flexibility, increased capacity, increased rail speeds, safety enhancement, and redundancy provided by passenger-rail through-service at Denver Union Station were studied and verified as part of this Master Plan process. While it is possible to reestablish Denver Union Station as a through station, there will be numerous challenges to overcome before this can be realized. They include limited track tangents at the CML, which are required for a CML connection; required tunneling under 16th Street, Wewatta Street, 15th Street, Cherry Creek, Speer Boulevard, and private property; utility conflicts; easements and land acquisitions; and the high costs of the underground improvements.

Before passenger-rail through-service can be pursued, a more detailed study is needed to identify precise alignments, as well as improvements and requirements needed to implement such service.

Stub-Station Passenger-Rail Capacity

The capacity and demand analysis performed as part of this project, based on projections to 2025, demonstrated that either basic station configuration--stub-end or through--could work in terms of programs and operations.

The chart in the Appendix shows a simulation for a stub-end station. The simulation shows a six-track configuration, with each horizontal bar depicting a specific train, its dwell time, and the time the track is empty. This evaluation shows the peak-hour volume at the station from 7 a.m. to 8 a.m. The capacity of the stub-end station is 60 percent more than needed for the 2025 program using a three-track throat north of 20th Street. The addition of tracks at the throat north of 20th Street would increase this capacity significantly.

Light Rail (LRT)

RTD has determined that the future light-rail program needs a through station. This will allow trains to connect to the north (Gold Line) and the south (Southeast, Southwest, and West Lines) through a new loop linking the 16th and 18th Street legs of the system at the CML and at the station.

Under this scenario, up to 24 LRT trains an hour may pass through the station. The new light-rail corridors will require a three-track station with associated switching movements, train storage, and platforms.

The station must accommodate four-car LRT trains with 360-foot-long platforms. The width needed for the LRT tracks and platforms is about 90 to 100 feet. (For each line's intensity of track use, see the LRT Simulation chart.) Each track at the station must also include a 50-foot tangent at each end of the platform.

Because of the frequency and number of LRT trains using Denver Union Station, the tracks will need to be grade-separated from Wewatta Street. An at-grade crossing with perhaps 48 trains an hour, crossing Wewatta Street at 16th and 18th Streets at peak times, would cause major conflicts with auto traffic.

RTD Express and Regional Bus Service

Regional and express bus routes from the north and northwest metro area now access Downtown Denver via the HOV lanes next to 20th Street, and circulate adjacent to Denver Union Station to access the Market Street Station via the 16th Street Mall.

A new regional and express bus facility at Denver Union Station will replace Market Street Station. This will reduce the number of buses using the 16th Street Mall connection through Lower Downtown. The new station facility will increase current capacity by six gates. The regional and express bus program for Denver Union Station requires space for six articulated buses, 10 standard line-haul buses, and Bus Rapid Transit (BRT).

This new facility needs to be near the 16th Street Mall and the proposed Downtown Circulator. Regional and express buses also need direct access to the HOV lanes on 20th Street and to the street grid.

RTD Local Bus Service

Many local bus routes will serve Denver Union Station and LoDo. These routes include the 20, 0, 6, 15, and 10B. Buses will be accommodated on local streets. The 20 route will continue to serve Wynkoop Street. The other routes will be rerouted to Wewatta Street.

Local RTD bus service.

Typical Greyhound Bus associated with commerical bus service.

Commercial Bus Facility Service

A new facility for commercial bus service providers will accommodate intercity, international, charter, and tour buses.

Commercial intercity and international buses have different needs for gate layout, passenger waiting areas, operations and administrative space, and baggage handling. They also require:

- direct private auto access to its passenger terminal for drop-off and pick-up,
- direct bus access to the city street grid,
- bus access to HOV lanes, if possible, and
- fueling capability on site.

The bus program includes space for eighteen 45-degree bus gates and related space for bus maneuvering and circulation, passenger waiting areas, a lobby, fast-food service, package express, and support spaces. Greyhound also requires 40 parking spaces for employees.

Denver Union Station may serve as Downtown Denver's main location for charter and tour buses, including buses that coordinate service with Amtrak and the Ski Train. These buses would share the Commercial Bus Facility with Greyhound and other bus carriers.

To coordinate all these companies and their equipment, services, schedules, and space needs, Denver Union Station will need a full bus-operations plan before the new bus facility is open.

16th Street Mall Shuttle/Downtown Circulator

The Denver Union Station multimodal hub must include new transportation services to help distribute passengers to their Downtown destinations.

The 16th Street Mall shuttle now terminates at the station next to the "C" Line light-rail platform. The Master Plan program for the mall shuttle requires two bus positions for passenger loading and unloading, and new space to stage four mall-shuttle vehicles.

When Denver Union Station reaches its full multimodal capacity, the Mall Shuttle will lack the capacity to carry all passengers to their Downtown destinations from the station. The station therefore must provide space for a new service–the proposed downtown circulator–to augment the Mall Shuttle. The circulator will serve the Civic Center Regional Bus Station and planned Central Connector transportation service, as well as Denver Union Station. The DMAP project team has proposed a circulator similiar to the 16th Street Mall Shuttle that will circulate on 18th/19th Streets and Lincoln/Broadway Streets between DUS and the Civic Center.

16th Street Mall Shuttle is a free service.

Commercial and Private Carriers (Non-Bus)

Additional private carriers will support the Denver Union Station multimodal hub, and may include taxis, shuttle and van services, limousine services, auto rentals, and vans to mountain destinations. These carriers add breadth, variety, flexibility, and convenience to the facility's program. Space is needed for private carriers to pick up and drop off passengers.

The program for these services follows:

Commercial & Private Carriers Program

Taxi	*15 positions*
Taxi at Commercial Bus Facility	*6 positions*
Rental Car	*30 parking spaces*
Vans and Shuttles	*3 dedicated bays*
Ski Area Shuttles	*1 dedicated bay*
Van Pool	*Drop-off area*
Limousines	*Designated loading zone*
Courier Services	*Designated loading zone*
Private Vehicle Drop-off at Commercial Bus	*8 spaces*

Pedestrian and Nonmotorized Modes

Nonmotorized modes are also vital to the Denver Union Station program. Many transportation riders become pedestrians when they arrive Downtown. Many Downtown destinations are within easy walking distance of the station.

The multimodal hub must be designed to allow passengers to get around on foot with ease and safety. In addition, the pedestrian experience must be attractive, enjoyable, legible, and safe. The site design will include pedestrian walkways and circulation, bicycle access, and storage. A new Bike Station, including bicycle storage, lockers, showers, and repair area will be included at the facility. This use should be easy to access from the bike access routes at 16th, Wewatta, and Wynkoop Streets. Access and space for pedicabs and horse-drawn carriages will also need to be provided.

Automobiles and Other Privately Owned Vehicles

This multimodal hub must include access and parking for autos and other privately operated vehicles. These also may include spaces for passenger drop-off, 'Kiss-n-Ride' facilities, service vehicles, emergency access, delivery vehicles, motorcycles, and small electric vehicles.

Parking for redevelopment must meet the standards of T-MU-30 zoning. This zoning allows for parking reductions of up to 50-percent because alternative transportation and shared parking opportunities are so abundant. Amtrak, Ski Train, RTD, and commercial buses also require some parking for passengers who will drive to the station.

Commercial and private carriers (Super Shuttle, Yellow Cab, and Oxford Hotel limousine sevice.)

Examples of pedestrian and nonmotorized modes of transportation.

RTD Peak Hour Transit Transfers

From / To Mode	Pedestrian	Mall Shuttle	Local, Limited, Circulator	Regional Express	Rail (LRT & CRT)
Pedestrian	0	180	17	14	1,269
Mall Shuttle	116	0	16	13	1,125
Local, Limited, Circulator	1	2	0	0	7
Regional & Express	94	130	12	0	874
Rail (LRT & CRT)	3,719	5,118	475	403	1.565
Total	**3,930**	**5,430**	**520**	**430**	**4,840**

Development Potential

The Denver Union Station Master Plan emphasizes development of a regional multimodal transportation center, while also encourages private development on the site to create an active, economically successful, cost-effective, and attractive facility. Metropolitan Denver has seen renewed interest in higher-density, mixed-used development, particularly around transit stations. This is a major goal of *Blueprint Denver*, the City and County of Denver's land use and transportation plan, and other regional plans. The addition of offices, residences, and retail shops on the Denver Union Station site will help support transportation and increase pedestrian traffic.

The access and activity generated by local and regional transportation will make the site attractive to developers and tenants. The redeveloped Denver Union Station will complement Downtown by creating a niche for high-profile addresses, easy access for employees and patrons, high pedestrian volume, and reduced reliance on private vehicles.

This section summarizes a Spring 2003 market analysis by Economic and Planning Systems (EPS) of prospects for private real-estate development in the Denver Union Station multimodal transportation center. The development potential can serve multiple markets and have various locations and configurations. Potential development elements include:

- Office, residential, retail, or hotel development on land not needed for transportation facilities.
- Single-use or mixed-use buildings built on air rights over the transportation facilities.
- Retail and service commercial uses primarily serving transportation riders and located within multimodal center facilities.
- Office space for public-agency partners or private-transportation providers.
- Retail or office in portions of the historic building not needed for transportation.
- Parking to support on-site and nearby demand.

Including private real-estate development addresses several project goals, such as:

- Generating revenues to help finance development and construction, as well as some future costs of transportation facilities.
- Creating activity throughout the site at all times of the day, thus enhancing public use, appeal, and safety.
- Providing active pedestrian edges to complement the site's perimeter streets and public spaces.
- Buffering the transportation-intensive uses, and,
- Making the project compatible with surrounding development.

Market Conditions Today

In the last decade, Downtown Denver experienced unprecedented housing and population growth. From 1990 to 2001, the Downtown population (including LoDo, the Central Platte Valley, and the Golden Triangle) increased from 3,050 to 6,170, or 6.6 percent per year. In the early 1990s, housing growth mainly resulted from conversion of historic warehouses to lofts in LoDo and vacant office and department stores to apartments and lofts in the Downtown core. Although the inventory of older buildings is diminishing, the Downtown housing boom has continued through the construction of new housing units. In the last five years, LoDo has added 564 housing units with another 302 units proposed or under construction. The Central Platte Valley increased by 584 units, with another 1,353 in the pipeline.

The Downtown office market has cooled after a period of vigorous growth. From 1996 to 2000, the Downtown market absorbed more than 2 million square feet of new office space, bringing the vacancy rate below 5 percent. The recent economic downturn drove the vacancy rate to 15 percent in 2003. In the last five years, new Downtown office construction focused on the LoDo area, with four new buildings and three warehouse conversions totaling more than 1 million square feet. The Downtown core has seen two major new government buildings and several renovations. No new nongovernmental office buildings have been built in the Downtown portion of the Central Business District since the mid-1980s.

Both public and private investment have been important catalysts to Downtown growth, redevelopment, and renewal. Since the early 1990's, there has been more than $900 million in public investment in Downtown, including Coors Field, Six Flags-Elitch Gardens, the Pepsi Center, Invesco Field at Mile High Stadium, Central Platte Valley light rail (C-Line), and Commons and Cuernavaca Parks. Another $700 million in projects with substantial public investment are underway with the Colorado Convention Center expansion, Convention Center Hotel, and the Denver Art Museum expansion.

The Central Platte Valley, as it looked in 2003. Mixed-use redevelopment is slated for the former railyards in the foreground.

Potential Uses at Denver Union Station

The development component of the Vision Plan identifies the potential uses, square-foot requirements, and massing of redevelopment. The development potential also considers the T-MU-30 zoning with height and bulk-plane limits, as well as urban design principles, transportation footprints and locations, parking reductions, and neighborhood compatibility. The allowed maximum height of 250 feet in T-MU-30 has been modified by the proposed Denver Union Station zoning through waivers and conditions.

This program includes:

- 600,000 square feet of Class A and Class B office space.
- 440,000 square feet of residential space (This could include a business-oriented or boutique hotel of 120 to 200 rooms.)
- 130,000 square feet of retail/commercial space, including a specialty-food market, entertainment, street-level specialty retail, and transit-oriented convenience retail.

Summary of Development Potential			
Use	**Potential**	**Timing**	**Comment**
Office			
Class A	300-400,000 SF	2009	
Class B	200-225,000 SF	2008	
Residential			
Condominiums	300-400 units (1200 SF each)	2008	
Hotel			
Boutique or Business	120-200 rooms	2010	After East Corridor is complete
Destination Retail			
Restaurant, retail shops, transit convienience	105-175,000 SF	2008	Additional specialty retail may be supportable at a later date

Source: Economic and Planning Systems
Summary of Development Potentials - Denver Union Station Master Plan.

Office

The DUS site provides a good location for new multi-tenant office development. Denver Union Station is at the edge of LoDo, which has emerged as an attractive office market. The site's transit-oriented development (TOD) assets should distinguish the project from competitive sites when the overall office market recovers.

- By 2009, Denver Union Station potentially could capture 10 percent of new Downtown demand, meaning it could support 300,000 to 400,000 square feet of market-driven Class A office development. To succeed, the new office space must be well-designed and integrated within mixed-use redevelopment.

The site can also support 200,000 to 225,000 square feet of Class B office building space. This office space, as well as the Class A office space, could be completed in conjunction with the construction of adjoining transportation facilities.

Gates headquarters in the Central Platte Valley.

New office building at 16th & Market Street.

Promenade Lofts at Riverfront Plaza, with ground-level retail/office.

Residential Development

With its convenience to Downtown and access to transit, Denver Union Station site is a strong location for for-sale condominium, loft development, and rental units. LoDo is a desirable neighborhood with little room for new residential development. The site's Wynkoop Street side is an excellent location for residential development. The Wewatta Street side relates to the Commons Neighborhood and could complement the Union Center, Riverfront Park, and Prospect Park projects.

- The Denver Union Station site could support between 300 and 400 units within five years, starting from the inception of redevelopment.
- Wynkoop Street is attractive for LoDo-oriented mid-rise housing.
- The success of properties facing Wewatta Street hinges on design approaches that consider street frontage, parking access, and buffering from transportation facilities. Residences could be built on the upper floors of mixed-use buildings.
- A mixed-use development program weighted toward residential uses could achieve higher land values and faster absorption than a program weighted towards office-based development.

In support of the affordable housing goals set forth in Denver's Comprehensive Plan 2000, a variety of housing opportunities need to be provided as part of the residential component of the future development. This includes housing with a range of housing types and prices and an affordable housing component that accommodates people and families of all incomes. This opportunity at the connection to multiple transit lines and transportation services should be capitalized on at DUS.

Retail Development

The Denver Union Station site is at the intersection of Downtown Denver's two major destination retail areas: the 16th Street Mall and the LoDo arts-and-entertainment district. A short walk from both, Denver Union Station is well-positioned to include a range of specialty retail, restaurant, and entertainment venues, with convenience retail for transportation riders.

The site can support 105,000 to 175,000 square feet of retail, including restaurant, entertainment, specialty, and convenience retail. Retail frontages along the site's perimeter streets and public spaces will form active and visible edges for the site. The Denver Union Station Train Room and other transit waiting and connection facilities can support 10,000 to 20,000 square feet of convenience retail, which may include coffee shops, newstands, and limited fast food.

Park Place Lofts at Riverfront Plaza.

Retail located inside of Grand Central Terminal, New York.

Adaptive reuse in LoDo with first three floors retail (Tattered Cover Bookstore) and residential lofts above.

Hotel

Based on growth projections for the Central Platte Valley and demand created by the rapid-transit link to DIA, the site could attract a business or boutique hotel. The business-oriented hotel could include 200 to 250 rooms, with limited meeting and conference space on either Wewatta or Wynkoop Streets. Alternatively the site's LoDo side could support a 120-to-200 room, high-end boutique hotel.

As redevelopment nears, market conditions will need to be re-evaluated to adjust the site's development potential. The site's private development value should increase as potential users recognize the benefits of developing and leasing space next to the Denver metro area's largest transportation hub.

Oxford Hotel in LoDo, one block from DUS.

T-MU-30 ZONING

In October 2002, the City created the T-MU-30 zone district to encourage transit-oriented mixed-use development at several transit station sites. The main purpose of the T-MU-30 district is to promote a mix, arrangement, and intensity of residential, office, civic, and commercial uses to provide good access to transportation. T-MU-30 districts must be close to a "mass transportation railway system station."

Zoning

Two land-use and development regulatory structures affect the Denver Union Station site redevelopment: zoning and landmark designation. Together these regulatory processes establish the framework for future development. They must provide for a clear and predictable redevelopment process that incorporates flexibility over time.

Zoning for the site is currently divided between two zone districts: Platte River Valley (PRV) and the Central Platte Valley Planned Unit Development (Commons PUD). Most of the site is zoned PRV, with a strip of land between the existing tracks and Wewatta Street governed by the Commons PUD.

The division of the site into two zone districts presents a challenge to multimodal redevelopment. Neither zone district allows for the anticipated mix and diversity of transportation and development uses, or for the needed development flexibility.

After evaluating the PRV and Commons PUD zoning, as well as several other zone districts, the four partner agencies elected to seek rezoning of the site to T-MU-30 with waivers and conditions. New zoning was developed with assistance from the Union Station Advisory Committee at regular meetings and at the zoning break-out group.

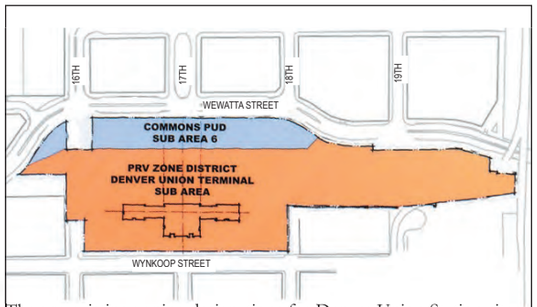
Blueprint Denver and the Transit Mixed-Use 30 Zone District

In March 2002, the Denver City Council approved *Blueprint Denver* as an amendment to the City's Comprehensive Plan. It is designed to guide the city's growth for the next 20 years.

Blueprint Denver divides Denver into two broad planning categories: **areas of change,** where investment in new buildings and alternative transportation can be integrated, and **areas of stability,** where maintaining and enhancing the existing character is paramount. *Blueprint Denver* directs new development to areas of change, where increased density and mixed-use development is appropriate--generally along major road corridors, near planned transit stations, and in Downtown. While encouraging this redevelopment, *Blueprint Denver* seeks to maintain stable neighborhoods.

Blueprint Denver identifies Denver Union Station among other areas of Denver as a potential site for transit-oriented development. It called for a new transit-oriented zone district to accommodate redevelopment in these areas.

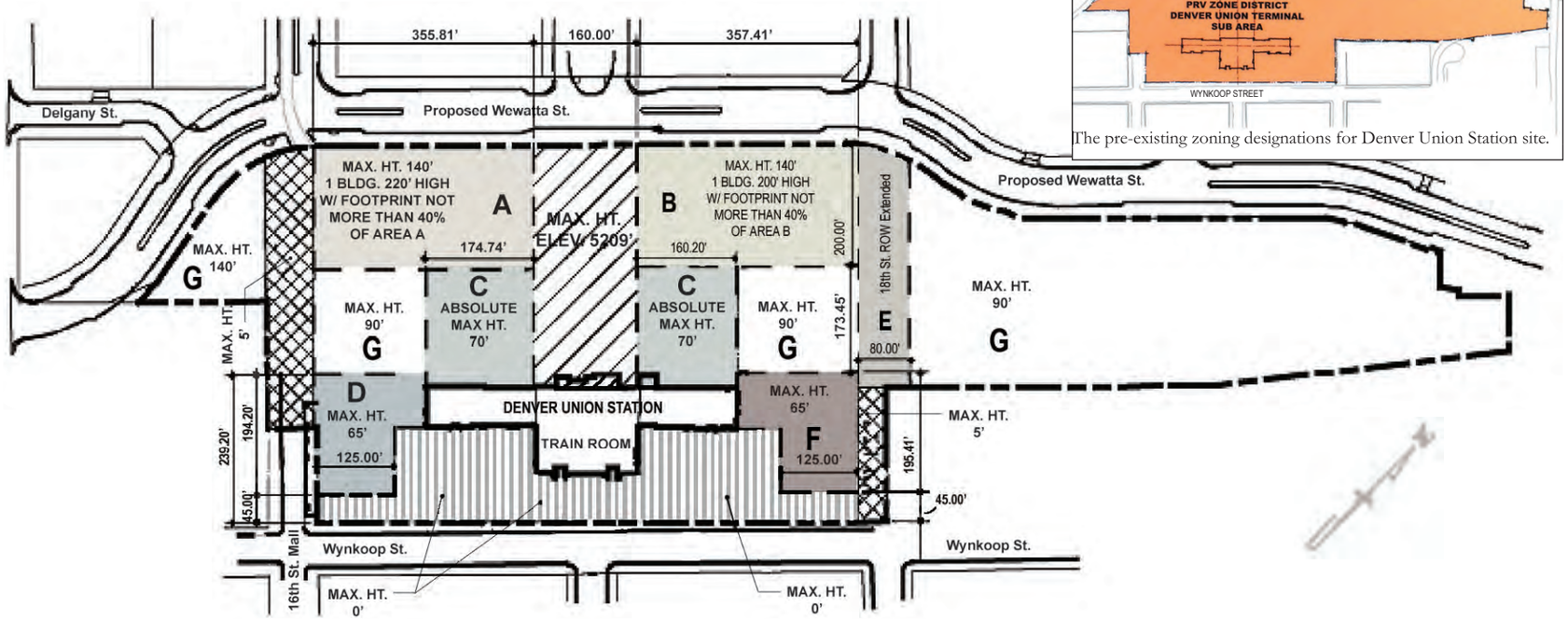
In October 2002, the City Council created the Transit Mixed-Use 30 (T-MU-30) zone district to encourage transit-oriented, mixed-use development at several major transit stations. The T-MU-30 district promotes



The pre-existing zoning designations for Denver Union Station site.

Legend

- 17th STREET CORRIDOR AREA MAXIMUM HEIGHT: 5209 FEET ELEVATION
- FIVE-FOOT HEIGHT AREA MAXIMUM HEIGHT 5 FEET
- ZERO-FOOT HEIGHT AREA MAXIMUM HEIGHT 0 FEET
- A: HEIGHT & ENCROACHMENT MAXIMUM HEIGHT 140 FEET
- B: HEIGHT & ENCROACHMENT MAXIMUM HEIGHT 140 FEET
- C: HEIGHT MAXIMUM HEIGHT 70 FEET
- D: MAXIMUM HEIGHT 65 FEET
- E: HEIGHT & STRUCTURES MAXIMUM HEIGHT 90 FEET
- F: MAXIMUM HEIGHT 65 FEET
- G: HEIGHT RESTRICTION ONLY
- USES -- ZERO-FOOT HEIGHT AREA MAXIMUM HEIGHT 0 FEET



New T-MU-30 zoning for Denver Union Station, with waivers and conditions.

a mix, arrangement, and intensity of residential, office, civic, and commercial uses that provide good access to transportation.

The T-MU-30 district is intended for station areas with enough vacant or underused land to create a successful transit-oriented development, such as the one envisioned for Denver Union Station.

This new zoning district allows a broad range of uses and a floor-area-ratio (FAR) of 5:1 (or five times the amount of development area to land area). The mixed-use nature of T-MU-30 provides critical flexibility for long-term redevelopment and changing real-estate markets.

Denver Union Station Zoning

To facilitate transit-oriented development, the Denver Union Station site should be rezoned to T-MU-30 with waivers and conditions. Zoning waivers and conditions are used to change the requirements of the underlying zoning.

Public Process

An extensive public process was used to develop the waivers and conditions for the new T-MU-30 zoning for the DUS site. This process included members from the Agency Partners, USAC members, the public, and the consultant team. A total of 13 Zoning Break-Out group meetings were held, and the topic of zoning was discussed at 15 regular USAC meetings. Members of the neighborhood and the USAC were regular participants at these meetings and helped to craft the final zoning waivers and conditions. Discussions preceding this outcome were extensive, substantive, and thoughtful. The zoning for the site evolved through this process. The Agency Partners and the USAC ultimately endorsed the final zoning application.

Key Elements of the Waivers and Conditions

Building Envelopes and Maximum Building Heights

The waivers and conditions focus on potential building envelopes and heights. Except for the 17th Street View Corridor and the zero- and five-foot height areas, the site requires a minimum height of 35 feet. Maximum heights vary by building envelope and are defined on the zoning map. Each building envelope includes height exceptions.

Wynkoop Street Plaza

To create a significant public space and protect views of the Train Room, the proposed zoning provides for a zero-foot height limit in front of the Train Room and wings on the Wynkoop Street side. The only structures allowed in the zero-foot height area are public art, accessory uses, temporary uses, and structures that provide access to or shelter for transportation facilities. In addition, the zero-foot height area does not allow major transportation uses, parking, or loading. The size and shape of this area were determined by the desire to create and maintain an active public space, honor the historic train station, and allow for a public space appropriately scaled with the neighborhood and new on-site development.

Wynkoop Street

The area between Wynkoop and the station has always been open, but has for most of the station's history been put to utilitarian transportation, vehicular access, and parking uses. The Master Plan and new zoning will reinforce the concept of open space, while assuring that the open space is active. The Master Plan ensures that the historic building is appropriately framed, and that the 16th and 18th street edges contribute to a good street environment. Any proposed structure at the corner of 16th and Wynkoop Streets (Area D) and 18th and Wynkoop Streets (Area F) must comply with zoning requirements along with rigorous review by the Landmark Preservation Commission.

Examples of massing studies evaluating visual impact of zoning envelopes along Wynkoop Street frontage.

16th and 18th Streets

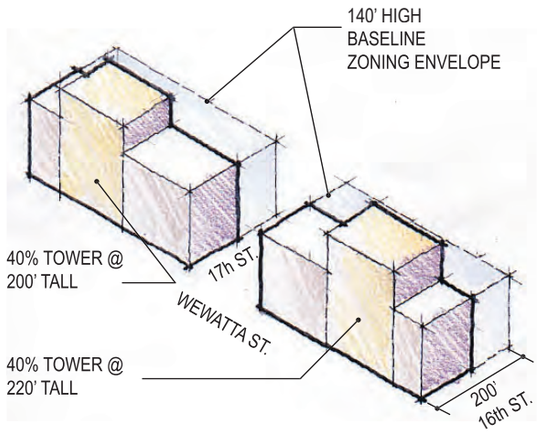
For the building envelopes near the corners of 16th and Wynkoop Streets and 18th and Wynkoop Streets, the waivers impose a 65-foot height limit along with a 45-foot setback.

KEY ELEMENTS OF WAIVERS AND CONDITIONS

- Height
- Massing
- Public Space
- Limits on uses in specific areas
- Setbacks
- Signage
- Design Intent Statements for future Design Standards and Guidelines (Rules & Regulations)
- General Development Plan (GDP) process/requirements

Wewatta Street Frontage

The baseline building height along Wewatta Street is 140 feet. The area between 16th and 17th Streets (Area A) allows for one structure up to 220 vertical feet, provided the footprint of this structure does not exceed 40 percent of Area A. The area between 17th and 18th Streets (Area B) has a base height of 140 feet allowing for one structure up to 200 feet tall, provided the footprint of this structure does not exceed 40 percent of Area B. Design guidelines will promote architectural diversity and sensitive massing along Wewatta Street. Placement of the towers does not need to be symetrical.

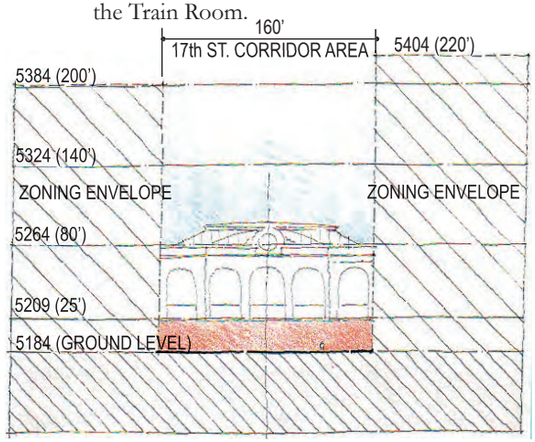


17th Street View Corridor

As first established in the Commons PUD, the 17th Street View Corridor is the extended 17th Street right-of-way from Wewatta Street to the west face of the Denver Union Station Train Room. Views must be preserved from the Train Room's monumental windows out to Wewatta Street and down the 17th Street axis.

The proposed zoning restricts height in this area to an elevation of 5,209 feet above sea level, which is the elevation of the second-floor windowsill of the Train Room. Encroachments into the view corridor are allowed only if such encroachment:

- complements and protects the historic scale and character of Denver Union Station;
- promotes visibility of pedestrian activities;
- defines public spaces, including pedestrian corridors, plazas, or atria to facilitate pedestrian traffic;
- encourages pedestrian access to structures and uses along public streets, sidewalks, plazas, pedestrian corridors, and atria;
- maintains sky exposure through transparency and minimal structural incursions;
- promotes vehicle and transportation circulation compatible with pedestrian access, streetscapes, and amenities; and
- maintains substantially unobstructed views of the Train Room.



Section through 17th Street View Corridor, showing location (red) of buildable area within corridor.

Setbacks

T-MU-30 typically establishes front, side, and rear setbacks from zero to 20 feet based on building use. Due to the urban nature of the Denver Union Station site, these setbacks were waived to allow for a zero-foot setback for all structures.

Signs

Defining sign regulations for DUS is complicated due to the complexity of planned transportation and development elements. The waivers and conditions allow for a site-specific comprehensive sign plan to be submitted for approval.

This comprehensive sign plan must:

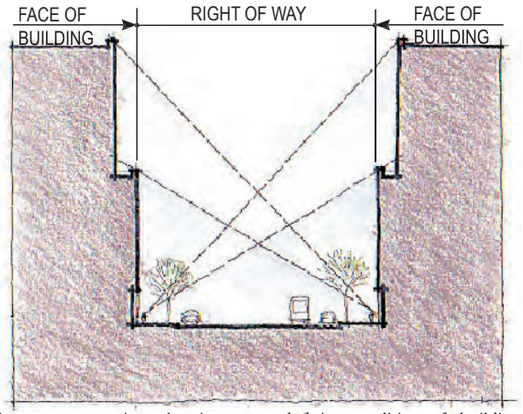
- create an organized and interrelated system of signs, sign structures, lighting, and graphics;
- provide high-quality sign and graphic design, with durable materials;
- create signs and graphic elements that express the use they identify;
- create signs and graphic elements that relate to and respect the architecture of the building they serve; and
- encourage a variety of signs and graphic elements that enhance the neighborhood's character.

Design Standards and Guidelines

Though design standards and guidelines have not yet been developed, the zoning establishes the following criteria for their creation. The design must:

- promote visibility of pedestrian-oriented activities at ground level;
- provide human scale through change, contrast, and intricacy of facade form, color, and material where lower floors of buildings face public streets and spaces;

New building in LoDo reflects general desired characteristics of the anticipated guidelines.



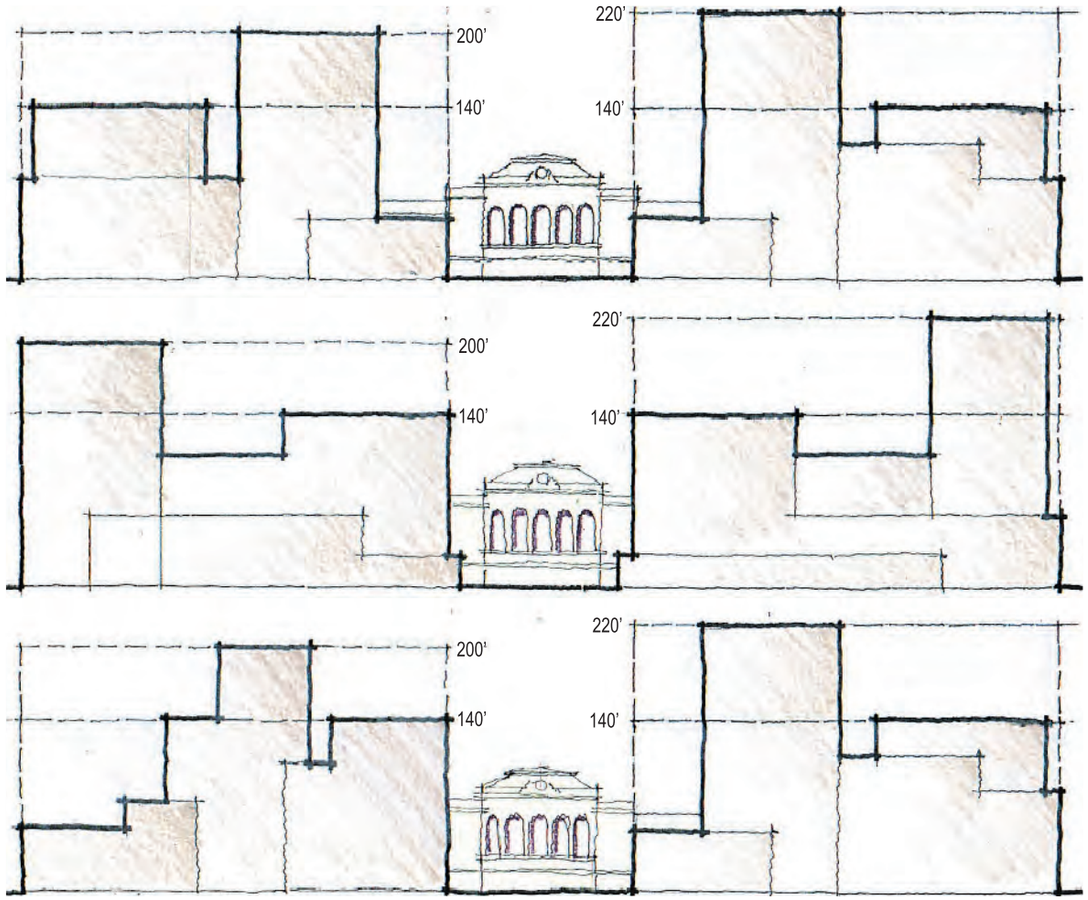
Street cross-section showing space-defining qualities of building edges.

- define street spaces to concentrate pedestrian traffic and to create a clear urban character;
- encourage pedestrian access to structures and uses along public streets, sidewalks, and open space;
- maintain views of the sky and exposure to light;
- minimize downdrafts from tall buildings;
- protect the historic interior and exterior of Denver Union Station;
- promote vehicle and transportation patterns compatible with pedestrian access, streetscapes, and open spaces;
- promote architecture that is sympathetic to adjacent urban areas;
- maintain substantially unobstructed views of the main Train Room for structures within the 17th Street View Corridor Area;
- provide sufficient transparency and minimizes structural incursions to protect the station's historic character, for structures next to Denver Union Station;
- encourage architectural diversity and varied building heights for structures in Areas A and B (refer to zoning diagram); and
- protect sunlight on the 16th Street Mall.

Such rules and regulations must be adopted before or as part of the approval of the property's General Development Plan (GDP).

General Development Plan Requirement

In addition to meeting the regulations of T-MU-30 zoning and its waivers and conditions, a GDP must be approved before development on the Denver Union Station site, except for defined RTD Early-Action Transit Elements. The GDP process requires certain planning and engineering documents while defining the framework for site redevelopment. It includes overviews of land use, open spaces, pedestrian circulation, design standards and guidelines, transportation, and infrastructure. The GDP process requires extensive public notification, a public hearing, and Denver Planning Board approval.



Wewatta Street elevation diagrams (looking east towards Denver Union Station) illustrate range of massing arrangements that meet the intent of the new zoning along Wewatta Street.

OVERVIEW OF LANDMARK DESIGNATION

A structure may be designated for Landmark status if it meets at least one criterion in two or more of the following categories: 1) History, 2) Architecture, and 3) Geography.

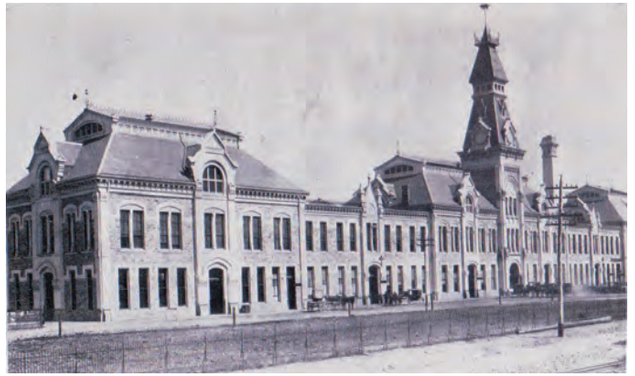
Denver Union Station meets criteria in all three categories.

Landmark Designation is designed to help the public and the developer preserve a structure's most valuable exterior characteristics. Designation also creates opportunities to incorporate a historic resource into a new project, extending its life and utility.

The Master Plan intent to preserve and restore Denver Union Station and to reinforce its setting through the creation of Wynkoop Plaza and views to the Train Room along the 17th Street Promenade.

The historic station building and the area between 16th and 18th Streets and from 25 feet west of the station to Wynkoop Street will be designated a Denver Landmark. All future restoration and new development within this area will be reviewed and approved by the Landmark Preservation Commission per Chapter 30 of Denver's Revised Municipal Code.

History: As the structure most directly associated with Denver's railroad development, Denver Union Station is one of the city's most historic buildings. The station is associated with many individuals and events important to the nation's and city's histories.



Original Denver Union Station with elaborate roof and tower, ca. 1881.

Architecture: In its present form, Denver Union Station is one of Denver's best examples of the Renaissance Revival Beaux Arts style as defined by the Colorado Office of Archeology and Historic Preservation. Two wings survive from the original 1881 station, originally an ornate example of Victorian Eclectic architecture, also referred to as Italian Romanesque or Railroad Gothic.

Denver Union Station, ca. 1895.

Geography: Denver Union Station has outstanding geographical importance. Its location on axis with 17th Street terminates the view along this important street from both the southeast and the northwest (when the new 17th Street is constructed in the Central Platte Valley). In continued use as a train station, Denver Union Station remains an essential link between Denver's railroad past and the future potential for local, regional, and national transportation advancements.

Denver Union Station, ca. 1914.

Denver Union Station's designation as a Denver Landmark under the Landmark Preservation Ordinance (Chapter 30 of Denver's Revised Municipal Code) includes the following protections and processes:

- The Denver Landmark Preservation Commission (LPC) must review and approve any proposed alteration, reconstruction, or addition requiring a building permit to the exterior of a landmark structure or the designated site. The site's zoning does not supercede this authority.

- To review proposed changes, the LPC uses the U.S. Secretary of the Interior Standards for Historic Preservation, the City's Design Guidelines for Landmark Structures and Districts, and any supplemental design standards and guidelines created specifically for Denver Union Station. These will complement design standards and guidelines to be developed under the new zoning provisions for the DUS site. The LPC and the Department of Community Planning and Development will conduct a joint design review of proposed Denver Union Station redevelopment. However, the LPC retains the authority to approve or deny development within Landmark designation boundaries.

- While only one submission is required, applicants are advised to make a series of submissions as the design evolves through conceptual design (mass, form, and scale of the proposal); schematic design (facade and form articulation); and design development (materials and details).

- LPC staff makes recommendations to the LPC based on an objective review according to its standards and guidelines. Landscaping and site features are included in this review within Landmark designation boundaries. The review does not include interior features.

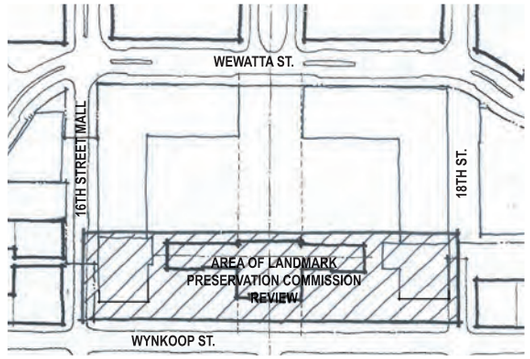
- The LPC may approve, approve with conditions, or deny an application. The LPC acts within 30 days of application and the receipt of all requested information. LPC decisions are final. If an application is denied, the applicant may resubmit an alternative application at any time or appeal the LPC decision to District Court.

- Except for demolition approvals, LPC deliberations and decisions do not require public hearings. However, the LPC does notify other agencies and maintains an "interested parties" list that receives agendas. All LPC meetings are open to the public. The public is invited to speak at designated times.

A public hearing and the posting of the property are required before demolition of any part of a designated structure. This process may be condensed for some new additions if the LPC identifies character-defining features of the designated structure. The LPC must approve changes even for features that do not define historic character. These conditions, however, do not require a noticed public hearing.

Present-day Denver Union Station.


Historic Union Pacific locomotive at Denver Union Station, ca. 2003.



Area of Landmark Preservation Commission review.

Summary Points of Landmark Designation

Historic Union Station will be a focal point of the transportation center envisioned by the Master Plan. As a Denver Landmark, the station and the property within the landmark designation boundary will be subject to Landmark Preservation Commission authority related to alteration of the building exterior and new construction. The LPC will develop and approve design guidelines that give further direction for both rehabilitation and restoration of the exterior as well as new construction. Key concepts to be incorporated into these design guidelines include:

- The integrity of Denver Union Station and its setting and context will be respected.
- The Wynkoop Plaza and 17th Street promenade will provide views of the station.
- New features within open space areas will be located and designed to maintain the quality of important views.
- The station should be integrated into the overall site so that it remains an important part of the transportation center.
- Both the interior and exterior of the building will be restored to the building's historic grandeur.

Alternatives Evaluated

Alternatives Evaluated

To create the Master Plan's Vision Plan, more than 40 alternatives were studied, evaluated, and developed into many variations. Some of the alternatives are depicted on the following pages. Other alternatives are included in the Appendix.

The result of the evaluation process is a "preferred alternative" that meets the technical and space requirements of a multimodal transportation program combined with development. The preferred alternative also allows convenient connections between modes and achieves other project goals. Each alternative was reviewed using the screening process described below.

No-Build Alternative

The Environmental Impact Statement Process requires a No-Build Alternative composed of regional land-use and transportation projects contained in the DRCOG Fiscally Constrained 2025 Interim Regional Transportation Plan (RTP), the 2003-2008 RTD Transit Development Plan (TDP), and the 2003-2008 DRCOG Transportation Improvement Plan (TIP).

The No-Build Alternative assumes no new major transit investments at Denver Union Station or changes in land use at the site. It provides baseline information that helped evaluat the relative impacts of alternatives. The No-Build Alternative also will be used as the base condition for evaluation of the preferred alternative in the Environmental Impact Statement (EIS.)

Range Of Alternatives

The Range of Alternatives studied through the process are grouped into five main categories. Each presents different locations and arrangements of major transit components.

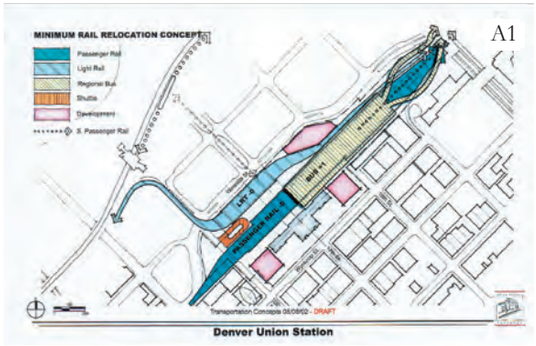
A Concepts place the main transportation elements (LRT), passenger rail, and bus) parallel to the station. LRT and passenger rail are located at-grade. The regional/intercity bus is elevated one level above grade over passenger rail and LRT, north of the 17th Street right-of-way.

B Concepts place the main transportation elements parallel to the station. LRT and passenger rail are located at-grade. The regional/intercity bus component is located one level below grade.

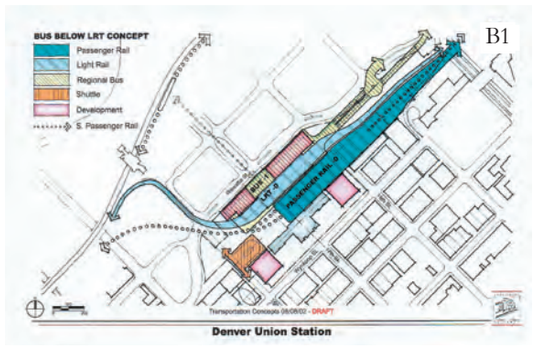
C Concepts place LRT either parallel or perpendicular to the station, one level below grade, with passenger rail at-grade. The regional/intercity bus facility is located either below grade, at-grade, or above grade depending on the configuration of passenger rail and LRT.

D Concepts place LRT and passenger rail parallel to the station, with LRT elevated one level above grade. Passenger rail is at-grade.

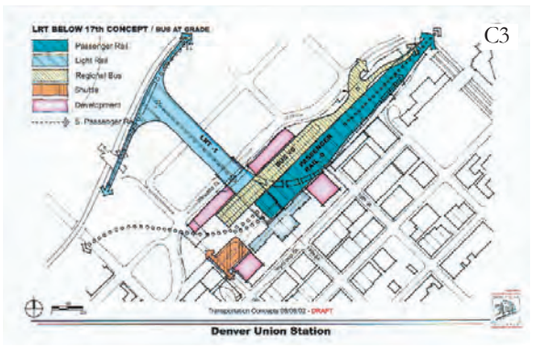
E Concepts locate both passenger rail and LRT one level below grade. The regional/intercity bus facility is located below grade, at-grade, or above grade, depending on the configurations of LRT and passenger rail.



'A' Alternatives with commercial bus above grade.



'B' Alternatives with commercial bus below grade.



'C' Alternatives with light rail below grade.

LEGEND

- passenger rail
- light rail
- regional bus
- shuttle
- development
- south passenger rail

Screening Process

A four-step process was used to evaluate alternatives and their variations.

Step 1: Fatal-Flaw Analysis

A fatal-flaw analysis eliminated alternatives that failed to physically accommodate the rail or bus program or failed to meet a threshold of functionality.

Step 2: General Screening

Fifteen surviving alternatives were then evaluated for operating capacity, mode connections, potential for private development, and use of the historic station for pedestrian circulation.

Step 3: Detailed Screening

Nine alternatives survived and were evaluated using eight categories:

- transportation effectiveness,
- joint development/transit-oriented development,
- effects on the transportation systems,
- financial viability,
- historic preservation,
- effects on the natural and built environment,
- urban design and neighborhood integration, and
- constructability.

Each category contained criteria and measures consistent with project goals and objectives.

Step 4: Additional Alternative Groupings and Evaluation

The six remaining alternatives--three sets of paired alternatives--were grouped on the basis of similar attributes. These were evaluated on the basis of effective service for parking, additional carriers, the 16th Street Mall Shuttle, a Downtown Circulator, and pedestrian circulation.

Three alternatives then remained. They included one alternative that placed both LRT and passenger rail at-grade (A2), one with passenger rail at-grade and LRT underground (C3), and one with both passenger rail and LRT below-grade (E2). These alternatives are shown on the next page.

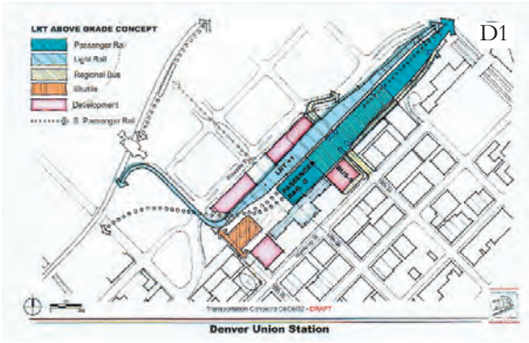
Review of these three alternatives revealed three major issues requiring study:

1) *LRT layout in Alternative C3.* While the stub-end station LRT arrangement functioned adequately, RTD staff preferred a through-station design for operating efficency and other considerations. Eight variations were considered, including an LRT route under the Wynkoop Street forecourt.

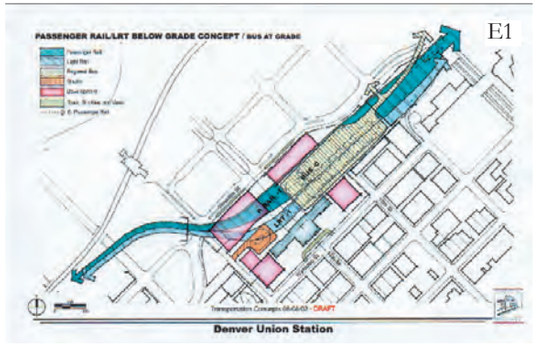
2) *The proximity of the RTD regional and express bus facility to the 16th Street Mall Shuttle.* These components were rearranged to locate the RTD facility as close to the Mall Shuttle as possible with alternative locations for the bus facility.

3) *The effect of LRT at-grade crossings at Wewatta Street.* With up to 48 LRT train crossings of Wewatta Street projected per hour, there were concerns about safety at the intersections of 16th, 18th, and Wewatta Streets, which is designated to become an arterial street with heavy traffic. After further study and discussion, the A2 alternative was eliminated because of the at-grade LRT street crossing.

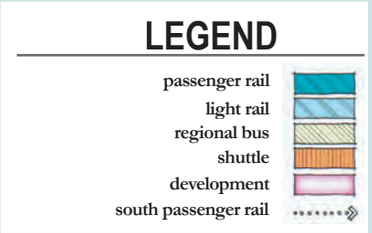
Major refinements to the two remaining concepts included an LRT through-station on C3 and an underground RTD bus facility in front of the historic building on both the C3 and E2 Concepts. Renamed C and E, these alternatives were analyzed for cost, constructability, and phasing.



'D' Alternatives with light rail above grade.



'E' Alternatives with passenger rail below grade.



ELEMENTS CONTAINED IN THE NO-BUILD ALTERNATIVE

Existing Land-Use Systems
- 19.5-acre site comprising the Union Station building and surface parking
- Denver Union Station tunnels

Existing Transportation Systems
- Central Platte Valley line and station (C-line)
- 16th Street Mall extension
- Amtrak (passenger/express mail)
- Ski Train
- Special use trains
- Tail tracks to Cherry Creek
- RTD North HOV Busway (High Occupancy Transit (HOT) lanes not included)

Approved Projects On-Site
- RTD Bike Station
- Electric-vehicle hub project
- Denver Union Station--Wynkoop frontage improvements

RTD TDP, and DRCOG TIP Projects
- Southeast Corridor Light-Rail Transit (LRT)
- 16th and I-25 pedestrian/bike bridge
- Bike connection from Cuernavaca Park to railroad underpass at I-25
- Additional regional projects listed in the long-range plan

Approved Development Projects in the (CPV)
- Commons PUD – 15th to 20th, Wewatta to Commons Park
- Prospect Square
- Prospect Park Apartments
- Legacy Plaza and parking garage
- Water Tower Lofts
- Waterside Apartments
- The Manhattan Apartments
- Archstone Commons
- Hines Terminal Annex Redevelopment

Approved Transportation Projects in the CPV
- 16th and Platte Bridge
- Wewatta Street completion –two lanes 15th to 16th and four lanes 16th to 20th

Projects not included in the No-Build Alternative
- West Corridor LRT
- East Corridor Air Train Commuter Rail
- FasTracks
- I-70 Mountain Corridor
- North and South Front Range Regional Passenger Rail
- Relocation of Market Street Station Service
- HOT Lanes

Key Issues Influencing Alternatives:

Rail, Light Rail, and Bus Operation Criteria
With further study, information regarding the rail and bus operations led to the decision that LRT could be placed only between passenger rail and Wewatta Street due to the cross-over and switching problems north of 20th Street. This preferred location allows for easier connections to the CML and to the future Gold Line to Arvada.

LRT Through-Station Requirements
The requirement for an LRT through-station eliminated the possibility of LRT below-grade under 17th Street as a stub LRT station, and completely changed the C3 Concept.

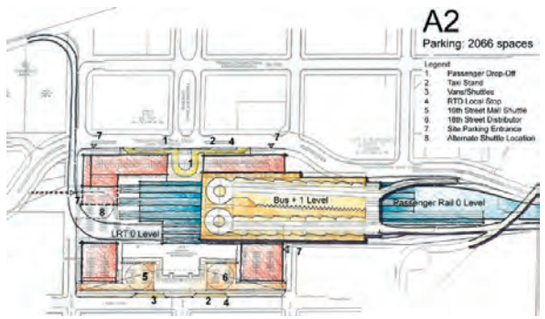
Traffic Impacts on Adjacent Streets, Particularly Wewatta Street
The LRT at-grade option was eliminated because of high future traffic volumes on Wewatta Street. This eliminated the A2 concept from the process. Slip ramps (for bus access to an underground facility) on Wewatta Street were also discarded because of the geometry of the street and the extra street width needed.

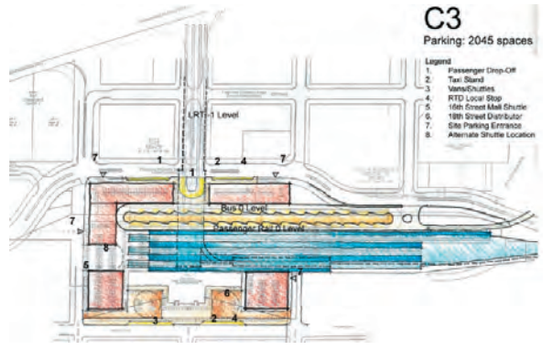
Preservation of Public Space at Wynkoop Street Frontage of DUS
The preservation of high-quality public space on the Wynkoop Street side of the building required placing most additional carriers on the Wewatta Street side of the site. The preservation of this space also precluded consideration of any development on the Wynkoop Street side of the historic building.

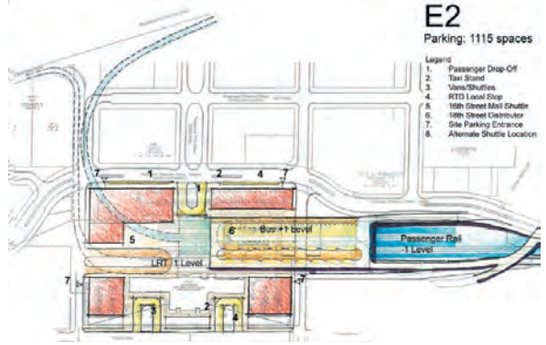
Bus Access for RTD and Commercial Bus Facility (HOV and Streets)
Both the regional and intercity bus facilities need access to the HOV lanes and to the street. This limited the flexibility of their placement.

Site Area and Physical Shape
The limited size of the 19.5 acre site relative to the program and its shape were the largest factors influencing the outcome of the alternatives.

Rail Access to CML and Through-Station Connections
After reviewing alternatives, the Agency Partners strongly preferred a through station.







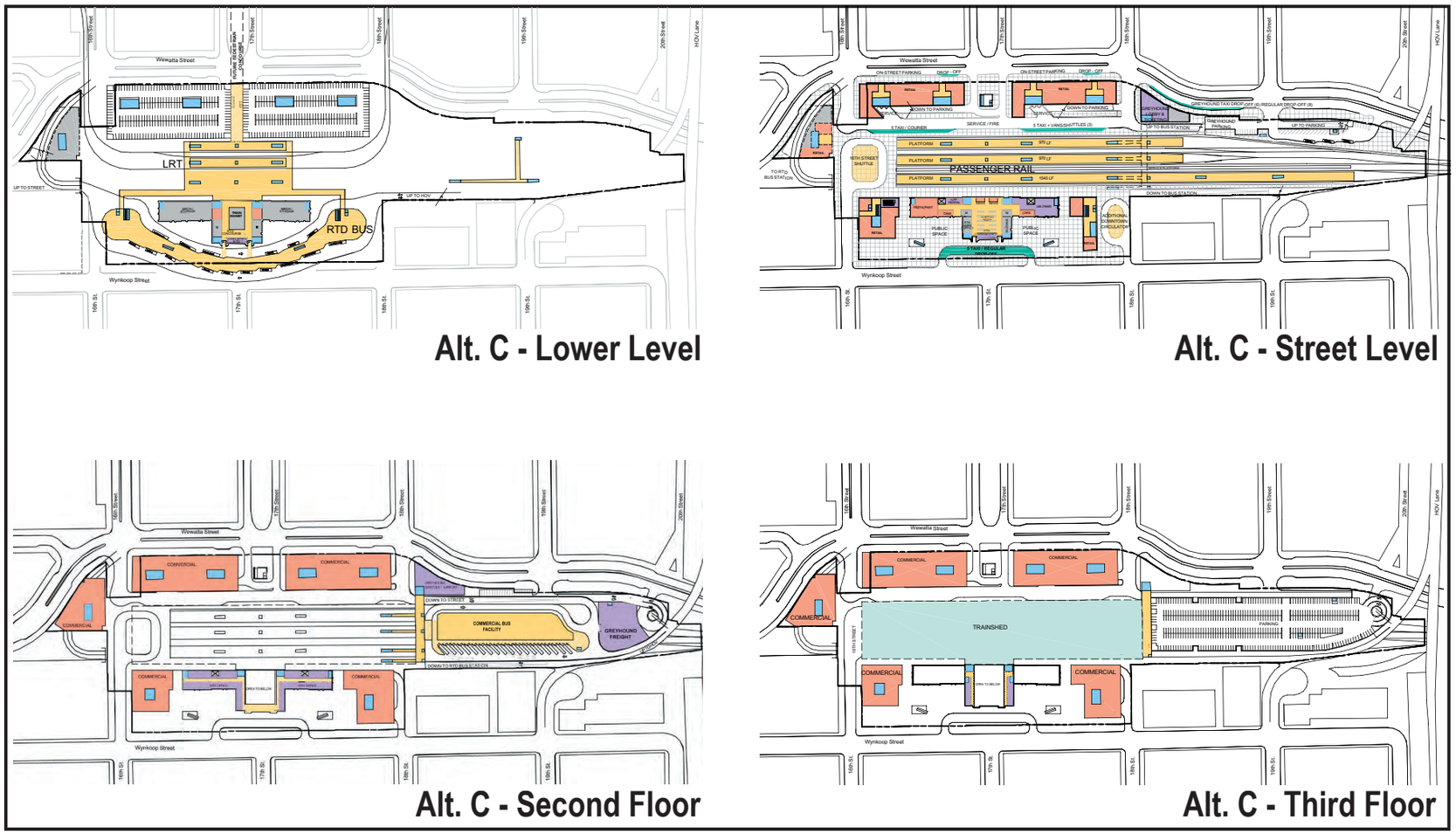
The three remaining alternatives after Step 4 screening.

Reaching the Vision Plan

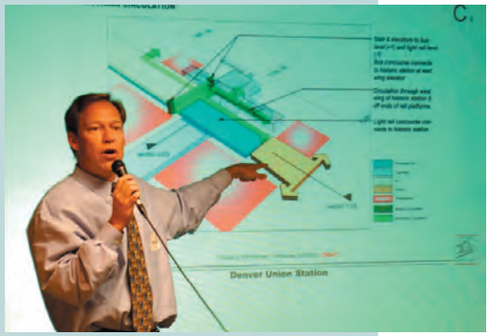
The C and E Alternatives are almost identical. The only major remaining differences were the location of passenger rail and the horizontal alignment of the below-grade light-rail tracks and platforms. But a minor modification to the horizontal location of light rail on the C Alternative would not preclude the future placement of passenger rail underground in either alternative. With this in mind, Alternative E was selected as the Vision Plan.

CML Alternatives

Alternatives were studied that looked at placing a portion of or all of the transportation elements at the CML. Refer to the appendix for these diagrams.



Alternative C with four levels. The C Alternative was similiar to the Vision Plan except for the horizontal location of LRT below-grade, and the at-grade location of passenger rail.



"Committed – Creative – Critical – Cooperative."

These are just some of the words used to describe the unprecedented level of public involvement surrounding the Denver Union Station Master Plan. The dedication of hundreds of people who committed time, expressed ideas, and offered solutions has been essential to the success of the project.

USAC co-chairs.

Public Involvement and Community Outreach

For more than 120 years, Denver Union Station has served the public as a train depot. It is only fitting that a Master Plan designed to transform it into a regional transportation hub would inspire a high level of public involvement. The dedication of hundreds of people who committed time, expressed ideas, and offered solutions was essential to the success of the project.

The following strategies ensured public awareness, response, and consensus.

Town Meetings

Four well-publicized town meetings raised awareness and provided updates on the Master Plan. Public participation also was encouraged several ways:

- advance information on the project's website and hotline;
- display advertisements in *The Denver Post* and *Rocky Mountain News*;
- Spanish and English-language flyers inserted in community papers;
- press releases distributed to all area media outlets, including radio, TV, and print (see press articles and transcripts of radio and TV segments in the Appendix);
- notification of more than 100 community, neighborhood, and business organizations;
- 150 personal notification letters sent to property owners within a 200-foot radius of the site; and
- videotaping of the first and second town meetings for subsequent airing on the City and County of Denver's cable television channel, Denver 8.

Participants received an information packet with a program, comment sheet, and more than a dozen other documents, including fact sheets, transportation alternatives, and a vision statement and goals. PowerPoint graphics accompanied each presentation. A professionally moderated question-and-answer session encouraged immediate response. More than 30 participants received answers at the meetings.

Participants were then organized into stakeholder groups to elect delegates and alternates to the Union Station Advisory Committee (USAC) or were encouraged to view transportation alternatives at stations staffed by experts ready to answer questions. Participants also were asked to fill out contact information for the project's public distribution list. The public contact list had more than 350 e-mail addresses. The e-mail distribution list allowed citizens to ask questions or comment on the project.

Town Meeting 1 - June 20, 2002 – Attendance 200

This meeting had three main goals:

1. Introduction of the Consultant and PMT members.
2. An overview of the Master Plan and Environmental Impact Statement processes.
3. Self-selection of the Union Station Advisory Committee (USAC) members.

Town Meeting 2 – September 12, 2002 – Attendance 154

This meeting presented the range of alternatives for Union Station. Fourteen alternatives stacking the major transportation components in various ways were displayed at stations around the Colorado Convention Center Ballroom. After each alternative was described, the public toured the display boards and asked questions.

Town Meeting 3 – January 27, 2004 – Attendance 130

This meeting was held to present the draft Master Plan to the public and to receive comments on the Vision Plan.

Town Meeting 4 – Date to be determined

The last town meeting will be the public hearing to review the draft Environmental Impact Statement with the public.

Town Meeting no. 2.

Advisory Committees

After the first town meeting, two advisory committees were created to help keep the public and various experts up-to-date on the project. At regular meetings of both advisory committees, the Project Consultant Team and Project Management Team solicited feedback and updated members on the project's progress. The committees are:

Technical Advisory Committee

The 80-member Technical Advisory Committee (TAC) has representatives from 34 areas of expertise, including rail, public health, communications, utilities, planning, government, public transit, environment, and historic preservation. (See Appendix for a list of TAC agencies and members.)

Union Station Advisory Committee

The Union Station Advisory Committee (USAC), created at the conclusion of the first town meeting, may be the largest public advisory group ever assembled in Denver. Composed of 93 individuals representing 36 stakeholder groups with special interests in the Master Plan, the USAC reviewed 40 transportation alternatives and achieved consensus recommendations on numerous issues, including the structure height and density of Denver Union Station redevelopment. (See Appendix for a list of USAC stakeholder groups and members.)

The USAC was self-selected by a caucus of the 200 participants. The stakeholder group members debated the merits of each potential representative and alternate. Each group elected one representative and one alternate to represent them. This approach to self-selection is considered innovative for an advisory group in Denver.

USAC meetings were held every three weeks during the busiest times of the project. USAC members who could not attend were mailed an agenda packet. Meeting minutes were distributed to each member and posted on the project's website. To manage this large committee, USAC members elected three co-chairs.

Break-Out Groups

In addition to the general advisory committees, meetings of smaller groups were held as needed to analyze rail, traffic, bus, environment, zoning, historic preservation, and land-use issues. The zoning and land-use break-out group held the most meetings, reaching consensus recommendation on matters related to height and density.

Town Meeting no. 2.

These break-out groups augment the discussions and analyses of TAC and USAC. The break-out groups shared results with all the committee members. The public was invited to attend the group meetings.

Website

www.DenverUnionStation.org provides project information, on meetings, architectural renderings of project alternatives, Environmental Impact Statement updates, and other subjects. The website has been visited thousands of times. In January 2003, for example, the website received 18,549 hits with an average "view" of the site lasting 6 to 10 minutes. The *Contact Us* and *Public Outreach* sections were consistently in the top 10 viewing sections on the website.

Some website visitors asked general project questions which could be answered immediately. Others asked to be included on the e-mail list or offered comments, suggestions, or transportation alternatives which were directed to consultants. Every e-mail received a computer-generated thank-you that also provided information about upcoming public meetings. Every e-mail was sorted, catalogued, and filed by topic in a comment database. Topics included land use, environmental impact, community impact, aesthetics, view corridor, and transportation components.

Hotline

A local 24-hour English and Spanish hotline was established for those without Internet access. The voice mail message was updated regularly and relayed upcoming meeting information. The hotline provided a place for citizens to voice their questions, comments, or concerns. The hotline is checked regularly. Calls receive a response and are archived in a hotline database file.

Public Comments

Comment sheets recorded questions and comments at neighborhood meetings. Comments were recorded and received a response. Most of the project's comments were received from the website, e-mail, or in meetings.

Media

Press releases were sent regularly to all media outlets, including print, radio, and TV. The press was also invited to periodic debriefings. Dozens of newspaper articles and radio and television segments provided the public regular reports. Television stations also carried live interviews with team members. Denver Channel 8 covered the town meetings on its cable channel.

DUS Visits	visits
RTD Transit *Express & Regional Bus, Local, Limited & Circulator, Mall Shuttle, Light Rail, Commuter Rail*	95,000
Commercial Carriers *Taxis, Rental Cars, Vans and Shuttles, Ski Area Shuttles, Van Pools, Limousines, Courier Services, Private Vehicle Drop-Off at Commercial Bus, Commercial Buses*	20,000
Development Trips	15,000
Estimated Total Visits	***130,000***

Transportation and Circulation

Understanding the surface transportation needs of the Vision Plan is key to accommodating the new development that will be in place at DUS. This understanding comes from identifying the transportation associated with the no-build condition (a condition defined as the projects currently identified and funded), and comparing that to the future Vision Plan. In identifying the transportation needs, the Vision Plan has taken into account future development around the DUS site in the Commons Neighborhood and adjacent properties, as well as the growth in regional travel demands.

The Vision Plan includes office, residential and retail space in addition to the transit-related components of the site. This development program is based on a market analysis for a reasonable amount of development that could occur at DUS in the next 20 years. These numbers do not reflect the full build-out of the zoning for the site. This development program along with the associated transit uses will require approximately 2,100 parking spaces on the site. These parking numbers are based on the new T-MU-30 zoning for the site, and reflect a substantial reduction in required parking (up to 50%) allowed by the T-MU-30 zoning because of its proximity to a major multimodal transit hub.

The analysis of the transportation and circulation at DUS included estimates of the number of trips and visits (people or vehicles), RTD transit conditions, bicycle conditions, pedestrian conditions, commercial carriers, intersection operations, and parking. The same level of analysis was conducted for each mode; the intersection operations are discussed in greater detail given the need for off-site mitigation.

Total Visits

While the various transportation modes utilize differing forms of measurement for projected trip and vehicle activity at DUS, a common measurement of "daily visits" to the site was devised to reflect the total level of transportation activity from all mode types expected for the facility. A visit is defined as entering and leaving the DUS property, thus a commuter who passes through DUS twice a day makes two visits. The total visits to DUS on a typical weekday in 2025 has been estimated at approximately 130,000. Of these visits, the vast majority (95,000) occur via RTD transit vehicles which are calculated using projected boardings and alightings. The remaining visits are split between the on-site development (15,000) measured as projected automobile trips and the commercial carriers (20,000) calculated based upon a projected number of total vehicles. The total number of visits represents the culmination of all technical data related to trips generated by all modes.

Trips at DUS

Four categories of transportation will generate trips to and from the DUS site: Automobiles related to new development, transit boardings and alightings associated with RTD's program, Commercial Carriers, and pedestrians. Potential future regional passenger rail service for the North Front Range, South Front Range and I-70 Mountain Corridor was not included in this analysis due to the fact taht they are undefined projects at this point. The number of trips at DUS, as distinguished from "visits" as defined above, may be defined as either the number of people or vehicles depending on the type of trip being discussed. The trips associated with the new development at DUS (the office, commercial, and residential) are defined in terms of vehicle trips, as are the commercial carriers. The transit trips associated with RTD's program of buses, light rail, and commuter rail are defined in terms of the number of people boarding or alighting RTD's transit vehicles.

Automobile Traffic Related to New Development

Proposed development at DUS will generate approximately 9,800 daily auto trips. Most of these trips are associated with the new office and retail development on the site. Projections indicate 840 inbound trips in the A.M. Peak Hour, and 950 trips outbound at the P.M. Peak Hour associated with the new development. The majority of these trips will be focused on the intersection of 19th and Wewatta Streets, which is the access for 68 percent of the parking spaces for the site at the parking structure located between 18th and 20th Streets. The remainder of the site parking is accessed either at 17th and Wewatta or 18th and Wewatta Streets. This category accounts for 15,000 of the total 130,000 daily visits.

RTD Transit Boardings and Alightings

Boardings (getting on a transit vehicle), alightings (getting off a transit vehicle) and through trips (passengers not changing transit vehicles) were studied for the Vision Plan, including pedestrians who walk to or from DUS. For pedestrians, a boarding is defined as a pedestrian walking to DUS while an alighting is a

DUS RTD Transit Boardings, Alightings and Through Trips - Year 2025

	2025 No-Build		2025 Vision Plan	
RTD Transit Mode	**Peak Hour**	**Daily**	**Peak Hour**	**Daily**
Express and Regional Bus	4,300	18,900	2,710	14,500
Local, Limited, Circulator, Mall Shuttle, and Pedestrians	5,900	46,100	12,690	83,700
Light Rail	400	2,100	9,360	51,900
Commuter Rail	0	0	7,490	40,900
Total	**10,600**	**67,100**	**32,250**	**191,000**

Source: RTD/TranSystems/PB

pedestrian walking from DUS. With the implementation of the Vision Plan, DUS will have 190,000 boardings, alightings and through trips on a typical weekday by 2025. Of these, 9,900 are passengers that pass through DUS without changing vehicles. In the morning peak hour, approximately 60 percent of the people arriving at DUS are destined for the Downtown area. The remaining 40 percent are passing through DUS by either remaining on the same vehicle or transferring to another and leaving Downtown Denver. Most of those destined for Downtown will predominately walk or will use the Mall Shuttle or proposed Downtown Circulator. The split between the Mall Shuttle and the Downtown Circulator will depend on the type of technology selected for the circulator and the route and schedule of this new service. This category accounts for 95,000 of the total 130,000 daily visits.

Commercial Carriers

The number of commercial carriers -- shuttles, taxis, vans, limousines, rental cars, van pool, and commercial buses -- will depend largely upon available space and negotiations with private carriers for the use of that space, and could range from 1,150 to 2,300 vehicles per day. Therefore, precise trip volumes generated from commercial carriers are not identified. This category accounts for 20,000 of the total 130,000 daily visits.

Pedestrians

The pedestrians at DUS are comprised of those who walk onto the site and exit via another mode, those who arrive via another mode and exit as a pedestrian, and those who walk to and from the site. The majority of these trips are paired with either another transit or commercial carrier mode. Using this definition and not including on-site circulation, the number of pedestrians at DUS is approximately 37,500 per day. An estimated 36,000 of these pedestrian trips access or egress the site via transit. These trips are included in the 130,000 daily visits as a component of the transit or development related trips.

RTD Transit Conditions

To better understand the impacts of RTD's transit operations at DUS, a comparison was undertaken with and without the Vision Plan. As a baseline, there are no significant changes in transit service anticipated in the area of Denver Union Station for the Year 2025 No-Build, with the exception of the Local and Limited Route 6, which may utilize Wewatta Street upon the street's completion. Though the Denver Union Station site would continue to be served by some bus routes, the Regional and Express buses still would use Market Street Station under the No-Build Scenario.

RTD projected transit ridership for DUS for the Vision Plan using models and procedures developed for this purpose. Boardings, alightings and through trips at DUS for the No-Build and Vision Plan scenarios from the most recent model runs are shown on page 74.

The projected ridership on the Mall Shuttle will approach its capacity of 5,500 to 6,000 passengers per hour at DUS. This will increase the need for an additional circulator to distribute transit riders to and from the station in the peak hours. The Vision Plan assumes the presence of another distributor mode such as a Downtown Circulator. The technology of this Downtown Circulator is undefined and is being looked at as part of the Downtown Multimodal Access Plan, currently underway. For the DUS Vision Plan, this circulator was assumed to be a rubber-tired vehicle operating with similar characteristics (acceleration, deceleration, and turning radii) as a bus, although other vehicle types or technologies also could be accommodated. For commuters taking a shuttle to their final destination, the 16th Street Mall Shuttle and the Downtown Circulator each will handle approximately half the demand.

Bicycle Conditions

Currently, bicycles can access the site along Wynkoop Street on the dedicated bike lane, or at 16th Street from the Commons Neighborhood. Additional bicycle lockers and racks were installed in 2004. It is anticipated that with or without the DUS development, a Denver Bicycle Master Plan recommendation to add a bicycle lane along the 16th Street Mall connecting the bike lanes on Wynkoop Street to Wewatta Street and the Millennium Bridge should be completed. A Bike Station included in the DUS Vision Plan will be equipped with such amenities as bike parking, bike repair, bike accessories, transit pass sales, and restroom/changing stalls. It may also include bike rentals and a café or snack bar.

Pedestrian Conditions

Pedestrian facilities will be provided on the site to enhance circulation around and through Denver Union Station. Signalized pedestrian crossings will be provided at the intersections on Wewatta (at 16th, 17th, 18th, and 19th Streets) and on Wynkoop (at 16th, 18th, and 19th) to enhance the ability of pedestrians to access DUS from neighboring blocks. The intersection of 17th and Wynkoop Streets, which currently operates under an all-way stop condition, will not have a signalized crossing, however pedestrians will be able to easily cross this intersection as all vehicles are required to stop. Pedestrians will be able to pass through the site at-grade at 16th, 17th, and 18th Streets as part of the Vision Plan, and between 16th and 18th Streets at either side of the historic station.

Commercial Carriers

In development of the Denver Union Station Vision Plan, the Commercial Carriers are defined as those modes and services other than RTD's transit services. Commercial carriers include auto rentals, taxis, vans, shuttle services, Amtrak, Ski Train, intercity buses, charter, and tour buses. Commercial carriers operate independent of other modes and contribute to a more comprehensive mix of transportation services at DUS.

Demands for commercial carriers at DUS range from shuttles to taxis to other commercial buses. The number of bays for each of these carriers is summarized in the table below. The commercial bus drop-off area refers to both private vehicles and non-bus commercial vehicles (taxis, vans, shuttles, etc) which may serve the commercial bus facility. Curbside and parking spaces/ bays available for the commercial facility are projected to accommodate the upper end of demand.

In addition to these commercial carriers, Amtrak (currently 2 trains per day) and the Ski Train (2 trains per day on a seasonal partial week basis) will also produce marginal amounts of automobile traffic at the site. However, this traffic will vary more from day to day, particularly with ski trains. These two commercial carriers may generate between 100 and 500 vehicles per day.

Parking

New development at DUS requires a total of 2,095 parking spaces for the office, retail, residential, and transportation uses.

The largest reservoir of parking is located above the Commercial Bus Facility between 18th and 20th Streets in four decks of parking. This parking structure contains the majority of the site parking with approximately 1,700 spaces. Access for this parking is located at the intersection of 19th and Wewatta Streets. Additional parking is provided in the development buildings along Wewatta Street between 16th and 18th Streets. Access for this parking is from 17th and Wewatta and 18th and Wewatta Streets. Surplus parking spaces (those that exceed the zoning required minimums) are provided in the parking structure and will serve as available parking to improve the efficiency of the parking structure and could be permanently allotted to future uses depending on demand.

There are a number of parking areas that are close to DUS and connected to the site via transit. These include the Pepsi Center, Six Flags-Elitch Gardens, Invesco Field at Mile High, Coors Field, and many nearby parking lots, structures, and on-street meters. Although parking associated with development at DUS is provided on site, these other parking facilities could be tapped if additional parking is needed. No formal discussions have occurred between the major venues and DUS, but these venues routinely share parking during major events, and DUS could play a role in LoDo's parking strategy.

Parking Summary for the Vision Plan:	
Parking for Transit	
RTD parking	250 spaces
Ski Train	200 spaces
Amtrak Parking	100 spaces
Greyhound Parking	40 spaces
Rental Car Parking	30 spaces
Parking for Development	
Office Development	950 spaces
Retail Development	150 spaces
Residential Development	300 spaces
Historic Station	75 spaces
Total Required Spaces/T-MU-30	2,095 spaces

Intersection Conditions

The study intersections were evaluated based on the existing A.M. and P.M. Peak Hour traffic and the results of this analysis are expressed by a Level of Service (LOS). Level of Service is a ranking of the operating conditions at an intersection ranging from "A" to "F". LOS A closely represents free-flow conditions with little impedance to drivers while LOS F represents extreme congestion where it can take several cycles of the traffic signal to travel through an intersection. Incremental rates of B, C, D and E reflect increasing delays experienced by motorists, with LOS D representing the minimal desirable operating conditions for the City and County of Denver. The study intersections are currently operating at level of service (LOS) D or better during the periods analyzed.

Site Requirements for Commercial Carriers

Mode	Space Provided	Daily Vehicles
Taxi	15 positions	150-500
Rental Cars	30 parking spaces	120-300
Vans and Shuttles	3 dedicated bays	100-200
Ski Area Shuttles	1 dedicated bay	10-20
Van Pool	Drop-off area	10-20
Limo	1 dedicated bay	10-20
Courier Services	Loading Zone	10-50
Commercial Bus	18 positions	140-160
Private Vehicle Drop-off at Commercial Bus	8 spaces or positions	500-1000
Amtrak and Ski Train/Private Vehicle Pick-up/Drop-off	Track 1 & Track 2/ Drop-off areas	100-500
	Total	**1,150-2,770**

Source: TranSystems

No-Build Conditions

The no-build condition examines future funded improvements in the area (including the Commons Neighborhood) without any new development at DUS. The projected Year 2025 No-Build Peak Hour traffic volumes and the study intersections are projected to operate at acceptable levels of service (D or better) in the Year 2025 No-Build conditions, with the exceptions of the following intersections:

- Speer Boulevard and Wewatta Street – This intersection is projected to operate at LOS F in both the A.M. and P.M. Peak Hours.
- 15th Street and Wazee Street – This intersection is projected to operate at LOS F during the P.M. Peak Hour.
- 17th Street and Blake Street – This intersection is projected to operate at LOS F during the P.M. Peak Hour.

Vision Plan Conditions

The study intersections for the Year 2025 Vision Plan conditions were also evaluated based on the A.M. and P.M. Peak Hour traffic volumes, taking into account RTD's transit program, vehicle traffic generated at the site by the additional office, commercial and residential development, commercial carriers, pedestrians and bicycles. While the majority of the intersections are projected to operate at acceptable levels of service (LOS D or better), there are some locations which are projected to operate at a lower level of service (LOS F).

- Speer Boulevard and Wewatta Street – This intersection is projected to operate at LOS F in both the A.M. and P.M. Peak Hours.
- 15th Street and Wewatta – This intersection is projected to operate at LOS F in the P.M. Peak Hour.
- 15th Street and Wynkoop – This intersection is projected to operate at LOS F in the P.M. Peak Hour.
- 15th Street and Wazee Street – This intersection is projected to operate at LOS F during the P.M. Peak Hour.
- 17th Street and Blake Street – This intersection is projected to operate at LOS F during the P.M. Peak Hour.

Baseline Traffic Volume Increases

Several of the major roads in the study area are anticipated to experience significant growth regardless of the Denver Union Station development.

- Traffic volumes on Speer Boulevard are anticipated to increase approximately 2,450 vehicles in both Peak Hours.
- Traffic volumes on 15th Street are anticipated to increase approximately 1,150 vehicles in both Peak Hours.
- Traffic volumes on 20th Street are anticipated to increase approximately 1,125 vehicles in both Peak Hours.

While the streets in the Central Platte Valley (Wewatta and Chestnut) are anticipated to experience significant traffic growth, the growth on local streets (Wynkoop and Wazee) in LoDo is less dramatic. Volumes on Wynkoop and Wazee Streets are anticipated to increase from existing conditions to Year 2025 No-Build conditions by 225 vehicles in both the Peak Hours, which correspond to an additional 2.5 to 5 vehicles per minute. This growth can be accommodated on these streets while still providing a relatively high level of service for pedestrians and bicycles.

Vision Plan Traffic Volume Increases

While the major arterials such as Speer, 15th Street, 20th Street, and Blake Street will see only a minimal growth (generally five to ten percent) between the Year 2025 No-Build conditions and the Year 2025 Vision Plan, other streets in the area will see a more significant change.

- Traffic volumes on Wewatta will increase by almost 1,000 vehicles in the Peak Hour.
- The local roads in LoDo will see an increase in traffic volumes with the connection of 18th Street from Wewatta to Wynkoop Street. An increase of anywhere from 250 to 500 vehicles is anticipated on 18th Street.

It is important to note that as development plans mature for DUS, detailed traffic studies will be required which will outline the impacts and improvements of the future development.

Intersection Improvements

Several improvements have been identified to accommodate the effect of Denver Union Station development on the study intersections. The following list summarizes the improvements identified for the Vision Plan at the intersections expected to operate over capacity:

Speer Boulevard and Wewatta Street

- Construct a second southbound left-turn lane.
- Construct a northbound right-turn lane.
- Construct a second westbound left-turn lane.
- Convert the second westbound through lane to a right-turn lane.

15th and Wewatta Street

- No improvements were identified at this location due to the constraints of adjacent development.

15th and Wazee Street

- Only limited improvements are identified at this location due to the constraints of adjacent development.
- Construct an eastbound left-turn lane on Wazee Street (This may require on-street parking restrictions on Wazee Street.)
- This may require on-street parking restrictions on Wazee Street.

18th Street

- Convert to two-way traffic from Wynkoop to Blake Street.

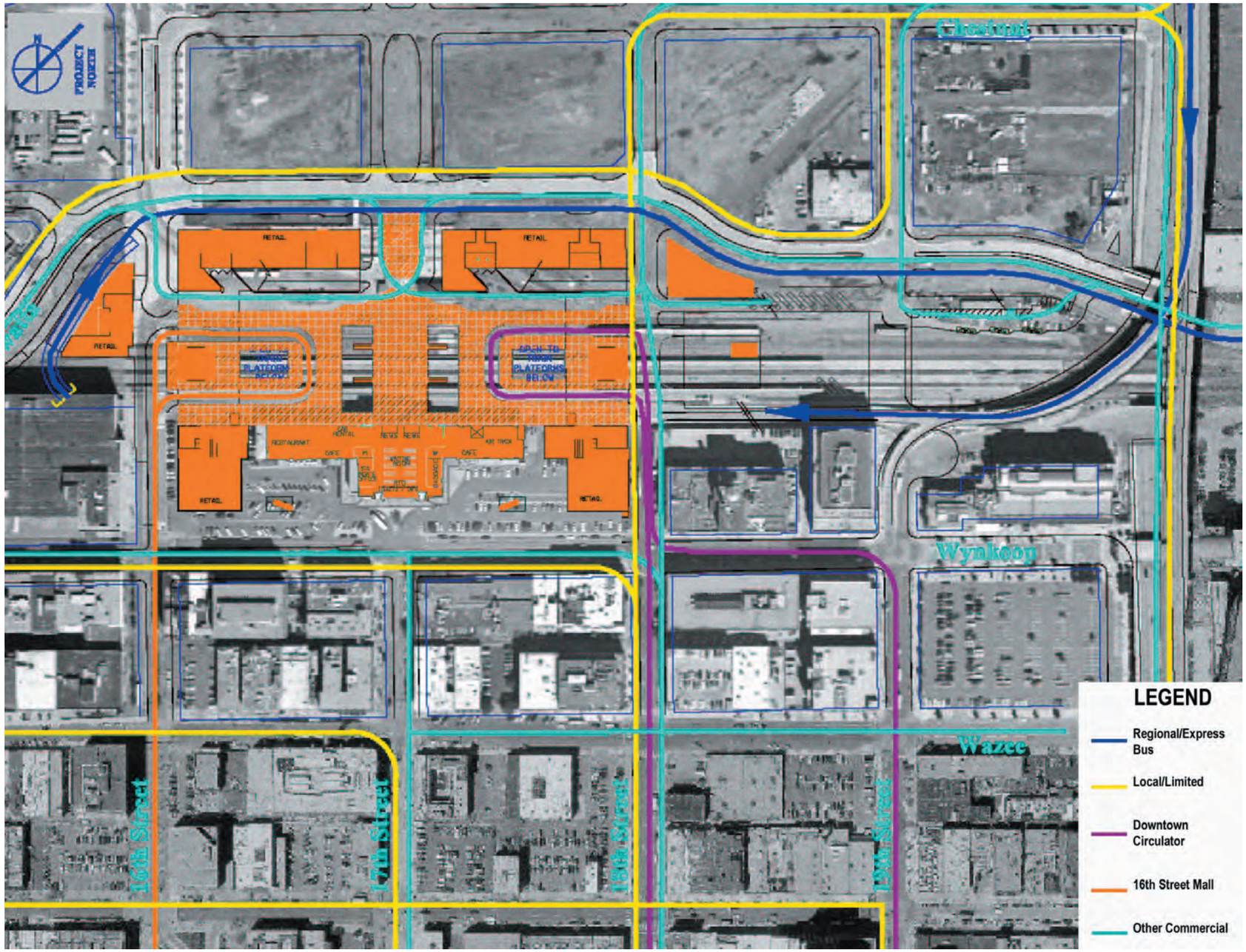


Diagram showing circulation routes for buses and commercial carriers.

The conversion of 18th Street to two-way provides a convenient alternative to congestion on 15th Street and Speer Boulevard. The effects of this change will be a minor traffic increase on 18th Street, and lower traffic volumes on 15th, 17th, and Speer Boulevard. Combined with the available transit alternatives and the less-congested 20th Street, this provides drivers opportunities to avoid congestion in the study area. Other enhancements, such as ITS (Intelligent Transportation Systems) signs could direct drivers to alternative routes.

Circulation

Adequate traffic circulation around the DUS site is critical to the Vision Plan's success. Not only do private vehicles need to access the site, but the commercial carriers such as taxis, shuttles, vans, buses, and service vehicles will need easy access to the site and be able to circulate around the site to serve the various needs of the traveling public.

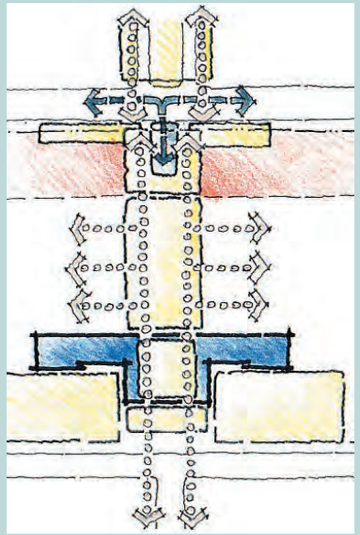
Wewatta Street will serve as the major access point for the site, with Wynkoop Street serving as a secondary access point. When 18th Street is completed, this through-movement will help distribute commercial carriers around the site, and help to distribute vehicles to destinations around Downtown. The circulation benefits of 18th Street as a through street are increased site connectivity to Downtown without having to use 15th, 20th, or 23rd Streets, better access for vehicles to site parking and services, and better on-site circulation for taxis, shuttles, vans, limousines, and buses.

Major access for RTD's Regional and Express buses will be from either the HOV ramp at 20th Street, or along Wewatta to the 16th and Wewatta Street intersection with street access for the below-grade bus facility. Local and limited buses will access the site on 15th, 18th, Wewatta, and Wynkoop Streets.

The Vision Plan assumes the Downtown Circulator will access the site from 18th Street, with potential connections to the Commons Neighborhood along 18th Street, depending on the final mode and routing. The 16th Street Mall Shuttle will continue to access the site along the 16th Street Transit Mall.

Commercial buses will enter the commercial bus facility either from the 20th Street HOV ramp or from 18th Street. Other commercial carriers will enter the site from Wewatta Street at 16th, 17th, or 18th Streets. Taxis and private vehicles can access the site curbside on Wynkoop Street.


UNION STATION
NION STATION



17th Street axis circulation.

PUBLIC OPEN SPACE

Size and proportion of public open space should encourage pedestrian activities within them and along their edges.

Wynkoop public space should be strongly related to the context of the historic building and the Lower Downtown Neighborhood.

Wynkoop public space should be designed to promote and allow a variety of pedestrian activities, minimize impacts of major transportation uses, and reinforce pedestrian access continuity along Wynkoop Street.

17th Street Promenade should encourage and support active pedestrian uses and circulation related to transportation, as well as through-site orientation and connectivity.

Introduction

The principles of urban form for Denver Union Station are derived from three sources: a relatively universal set of sound urban design precepts, a group of ideas related to Downtown Denver and the adjacent Lower Downtown and Commons Neighborhood, and principles related to the historic preservation of Denver Union Station and environs.

The 17th Street Promenade can accommodate a range of potential architectural and design approaches, addressing the following objectives for that space:

- Create a grand arrival and circulation space that connects the major modes of transportation on site.
- Provide travelers opportunities for shelter from weather while keeping the area light and spacious.
- Allow for ground-level retail opportunities to further enhance the vitality of the space.
- Frame the views to the historic Train Room from Wewatta Street.

Any structure associated with the 17th Street Promenade must adhere to the following criteria. It must:

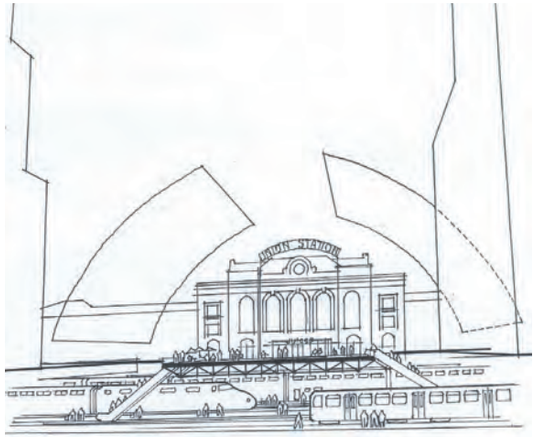
- complement and respect the historic scale and character of DUS;
- provide visibility of pedestrian activities;
- help to define public space, including pedestrian corridors, plazas, or areas to facilitate pedestrian traffic;
- encourage pedestrian access to structures and uses along public streets, sidewalks, and plazas;
- maintain sky exposure through transparency and minimal structures;
- promote vehicle and transportation circulation compatible with pedestrian access, streetscapes, and amenities; and
- maintain substantially unobstructed views of the Train Room from the west.

Creating Successful Public Space at DUS:

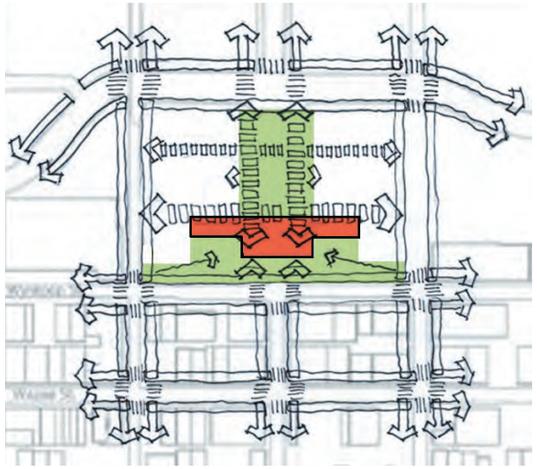
Making public spaces lively and interesting is not an easy task. Guidelines must be in place, to create opportunities for many different activities and experiences throughout the open space. Smaller spaces generally are easier to activate than larger spaces.

The following are goals for the future design of public spaces at Denver Union Station:

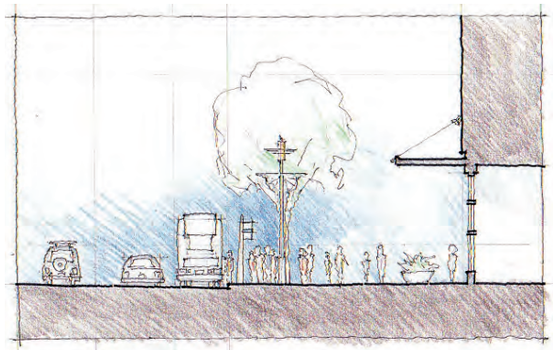
- Create active and inviting edges by providing opportunities for street-level retail, restaurants, cafés and outdoor retailing opportunities.
- Provide ample seating with benches, tables and chairs, movable seating and seating walls, and complementary site furnishings such as bollards, trash receptacles, and banners.
- Provide shade with building canopies and awnings, shade trees, and shade structures.
- Provide space for retail vendors and carts for food, flowers, newspapers, arts and crafts, and coffee and drinks, placing them along busy passageways where they are convenient, visible, and accessible.
- Provide public art such as sculptures, paving design, fountains, interactive art, and wall art throughout public spaces and along surrounding streets.
- Use a variety of materials that complement the historic building and new development and add interest in the pedestrian environment.
- Provide numerous access points for public and private transportation modes.
- Provide a wireless access point for computer internet access within the public space.
- Provide infrastructure for providing power and water for maintenance, temporary uses, and performances and events.
- Create visual interest and focal points with fountains and moving water.
- Provide adequate lighting to make the spaces feel safe and useful during evening hours.
- Work with adjacent off-site businesses to promote activity around the site.



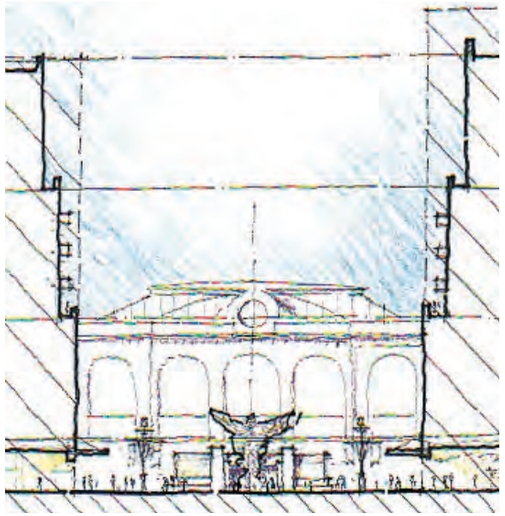
Structures associated with the 17th Street Promenade should not obstructe views of the Train Room.



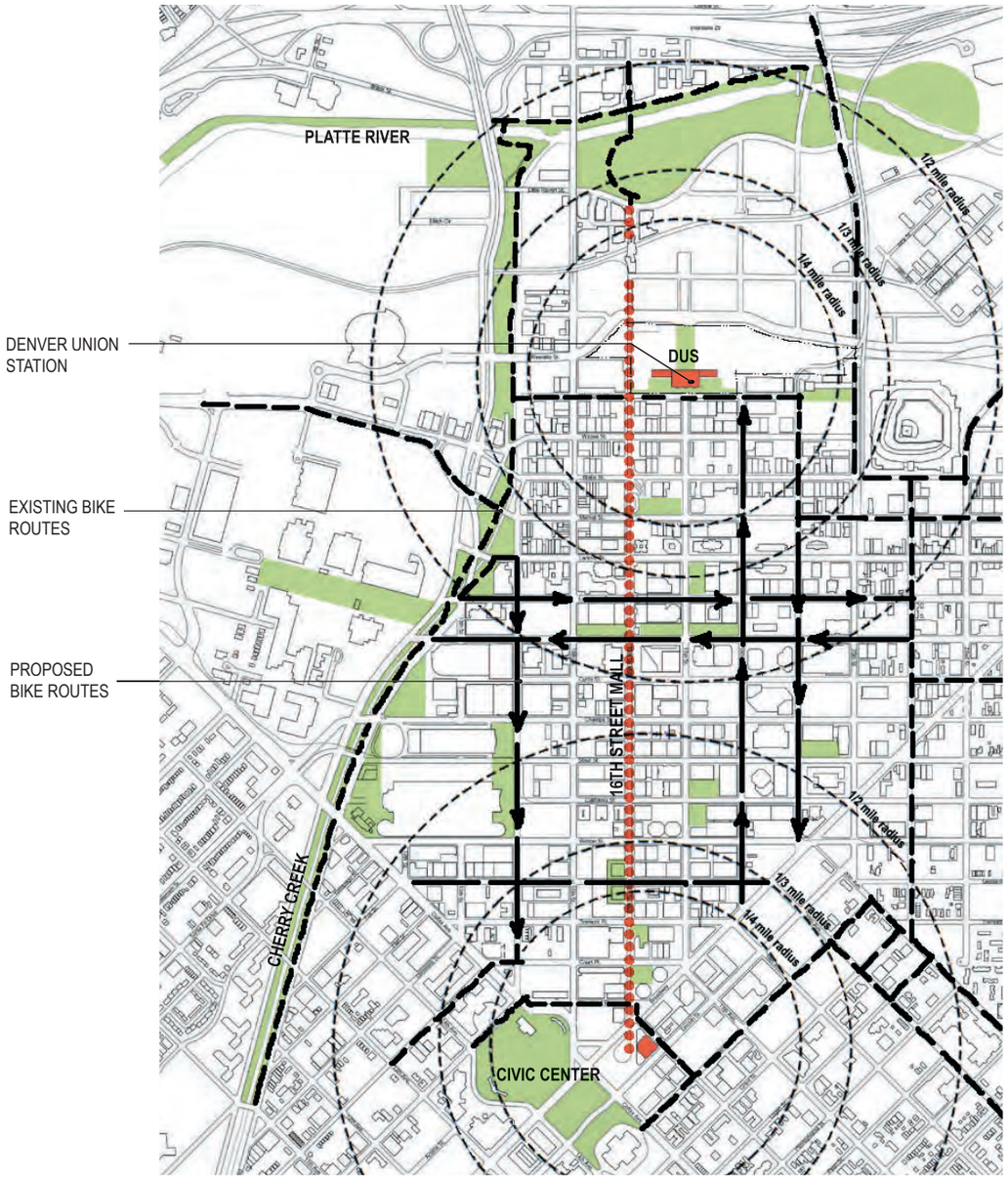
Public open space should form a legible, cohesive, and inviting series of connected public spaces linked with major pedestrian corridors.



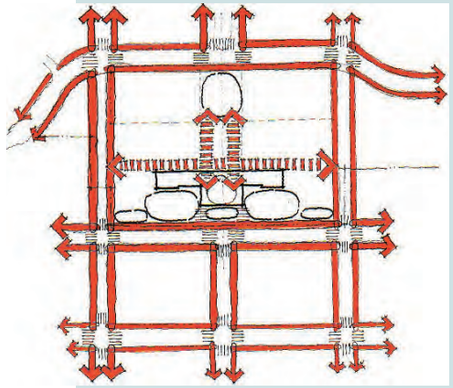
Pedestrian Elements: *Adequate sidewalk widths need to be provided along Wewatta Street for pedestrian activity and for areas of passenger drop-off and pick-up.*



17th Street Promenade: *The 17th Street Promenade is a defining pedestrian circulation element for the development and transportation programs, as well as the relationship to the adjoining Commons Neighborhood.*



Area Open Spaces and Bike Routes: *The Denver Union Station site should be accessible by bicycles with clear connections to adjacent bike paths and public space. The concentric circles represent one-quarter mile, one-third mile, and one-half mile distances from Denver Union Station and Civic Center Station.*



Pedestrian circulation should be maximized around and through the site.

PEDESTRIANS & BICYCLES

The 17th Street Promenade between Wewatta Street and Denver Union Station is a defining pedestrian circulation element for the development.

The Denver Union Station site will be accessible by bicycles with clear connections to adjacent bike paths and public space and on-site designated parking areas.

Arrange transportation components and activities on the site to encourage circulation through the historic Train Room.

Adequate sidewalk widths need to be provided along Wewatta Street for pedestrian activity and for areas of passenger drop-off and pick-up.

Pedestrian circulation should be maximized around and through the site, linking neighborhoods, streets, transportation, and public spaces. This diagram represents internal site and sidewalk circulation.

VEHICULAR ACCESS &PARKING

The building massing of the development should reinforce the hierarchy of the existing street pattern.

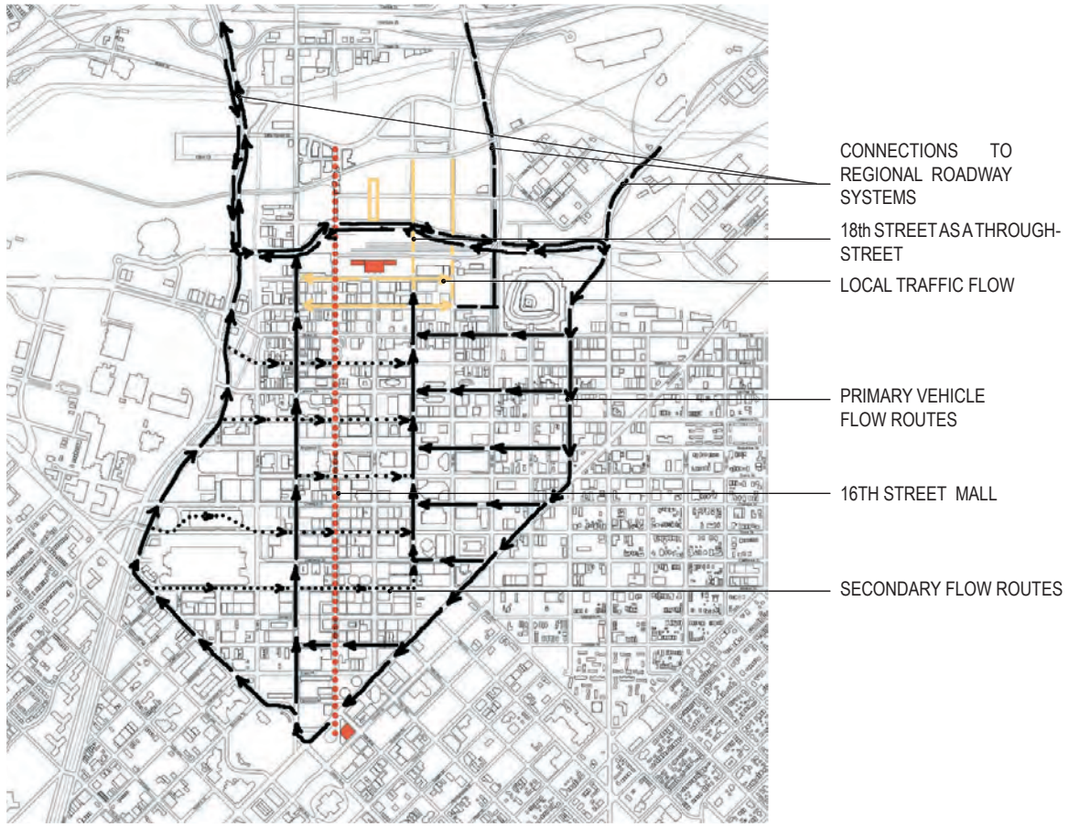
The organization of site elements should minimize conflicts between transportation modes, vehicles, and pedestrians.

On-street transportation stops and connections should be placed to help activate spaces.

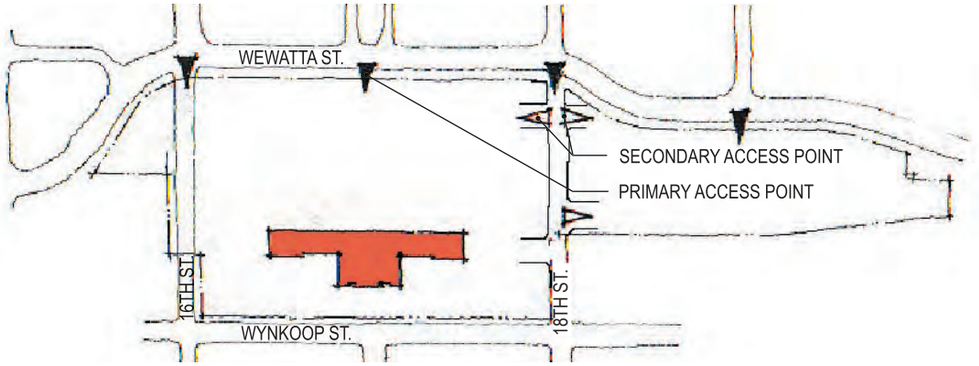
Private vehicle access to the site should be limited along Wynkoop Street and, with the exception of limited and controlled access for service and commercial transportation vehicles, prohibited from the 16th Street Mall.

Curb cuts for parking and service should be minimized and located mid-block, if needed. Driveways should be perpendicular to the street.

To the greatest extent possible, all transportation modes and functions should be brought into the site without disrupting public open space, pedestrian circulation, or street frontage development opportunities.



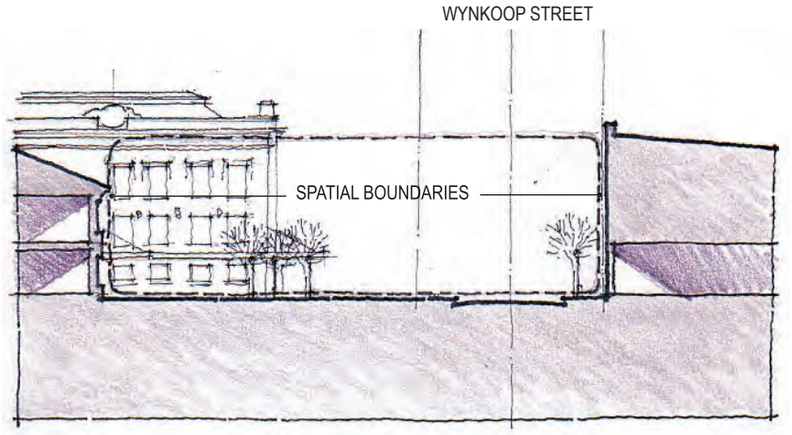
The form of the development should reinforce the hierarchy of the existing street pattern.

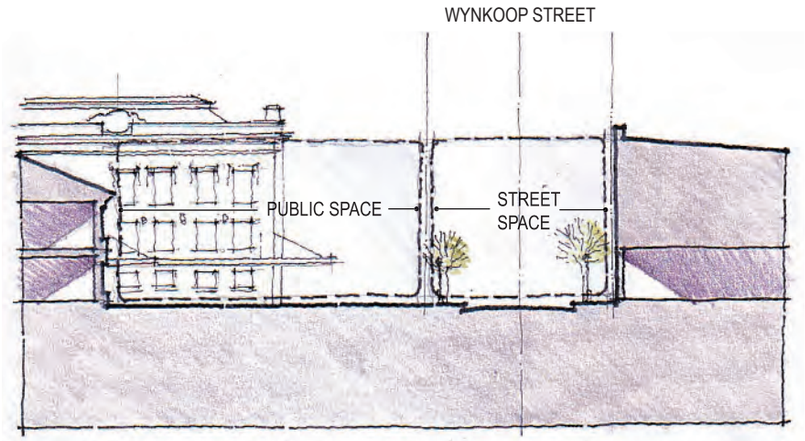


Private vehicle access to the site should be limited along Wynkoop Street and, with the exception of limited and controlled access for service and commercial transportation vehicles, prohibited from the 16th Street Mall.

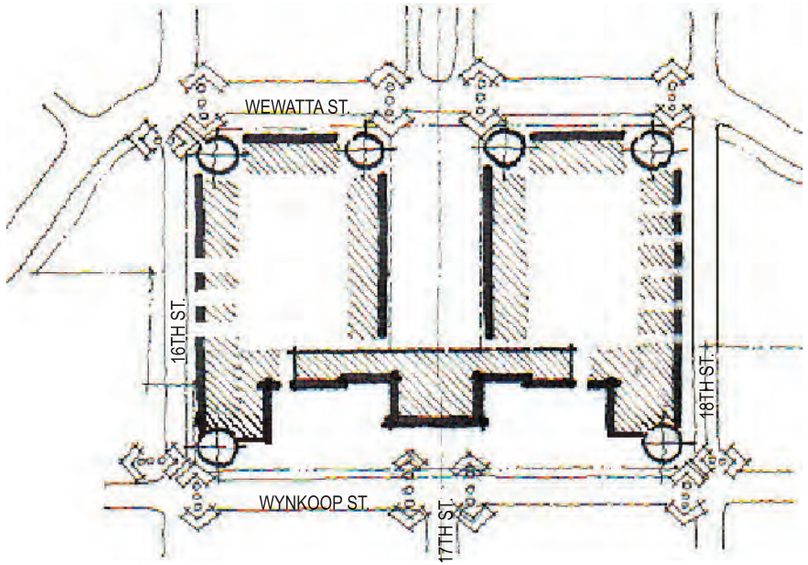
Minimize conflicts between transportation modes, vehicles, and pedestrians.

Curb cuts for parking and service should be minimized and located mid-block, if needed. Driveways should be perpendicular to the street.





Urban design treatment of the Wynkoop Street edge should reinforce the preferred use and scale of the public space fronting on Wynkoop Street, either encouraging separation from or connection to the street.



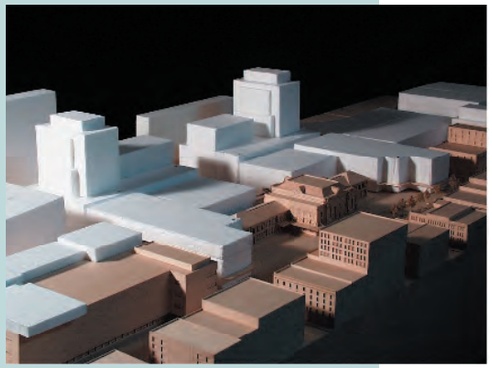
Active and continuous frontages should be developed around the perimeter of the Wynkoop Street public space, particularly at the corners linking the public space to 16th and 18th Streets.

Active and continuous street frontages.

STREET EDGES

Urban design treatment of the Wynkoop, Wewatta, 16th, and 18th Street edges should reinforce the preferred use and scale of the public space or street, either encouraging separation from or connection to the street.

Active and continuous street frontages should be developed along 16th Street, 18th Street, and Wewatta Street, particularly at the corners of 16th, 17th, 18th, and Wewatta Streets.



Zoning allows a tall building zone along Wewatta Street.

URBAN FORM

No more than two tall buildings (greater than 140 feet) can occur along Wewatta Street.

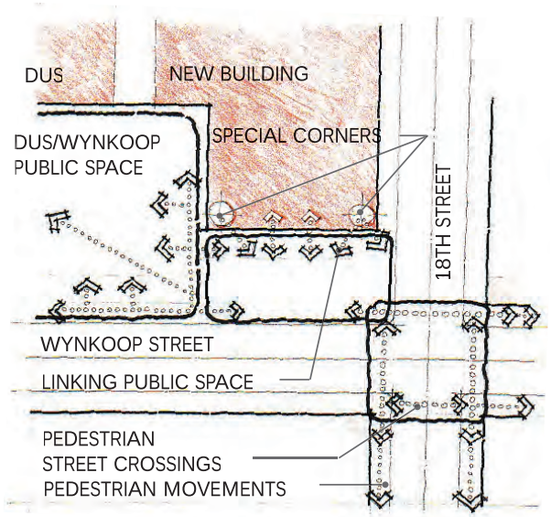
Two tall buildings should have a balanced, but not necessarily symmetrical, composition to the 17th Street axis.

Tall buildings must form edges framing the public space along 17th Street.

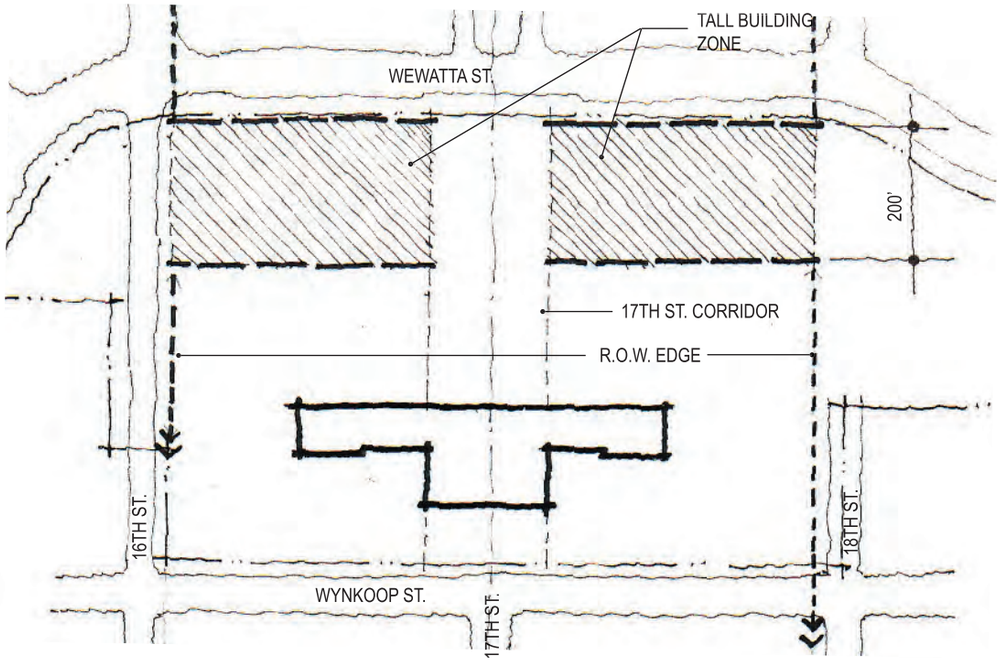
Tall buildings must be vertical in proportion and tower-like, as opposed to blocky, horizontal or slab-like in proportion.

Buildings at 18th and Wynkoop Streets shall reinforce pedestrian-oriented street activity and help activate the public space.

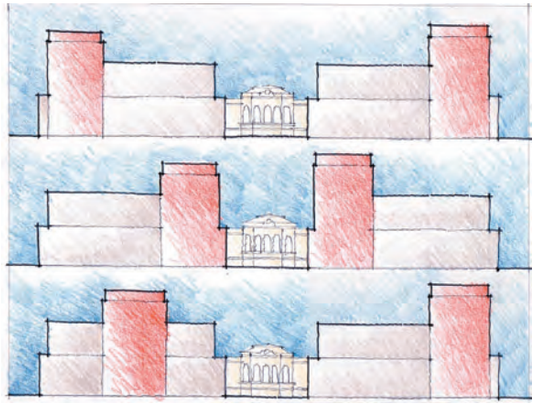
Zoning allows a tall building zone along Wewatta Street. Heights of 140 feet, with one taller tower on each block (200 and 220 feet tall), are permitted.



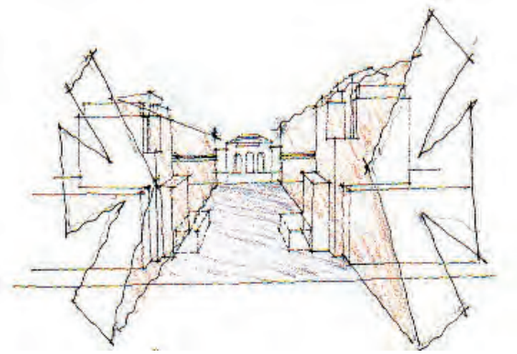
Buildings at 18th and Wynkoop shall reinforce pedestrian-oriented street activity and help activate the public space.



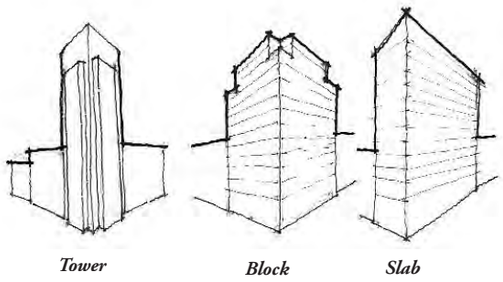
A tall buildings zone (140 to 200 or 220 feet) shall occur along Wewatta Street between 16th and 18th Streets to a depth of approximately 200 feet.



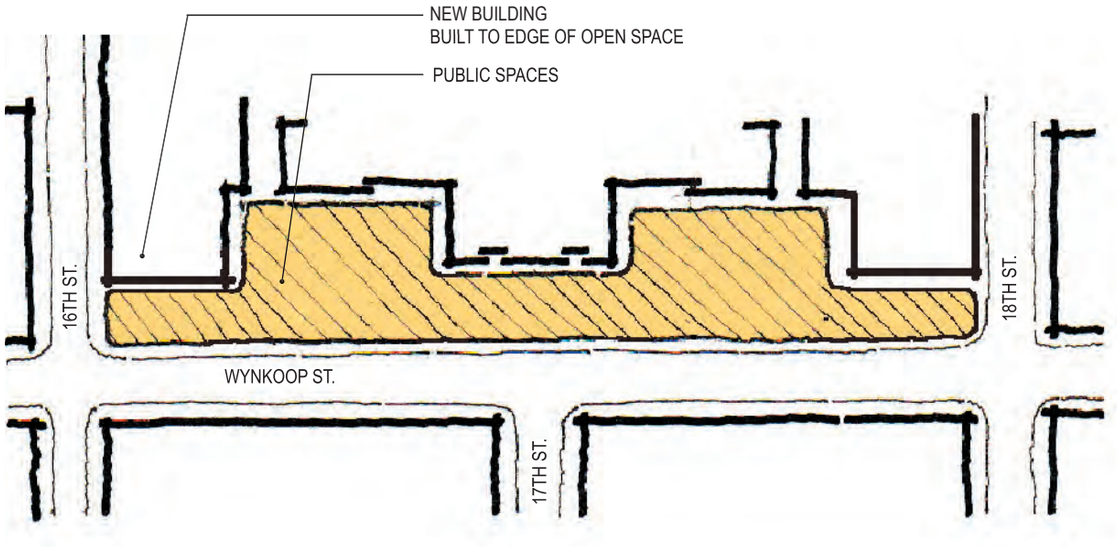
If two tall buildings are proposed, they must be positioned with respect to the 17th Street axis. This can be achieved with either a symmetrical or non-symmetrical compostion.



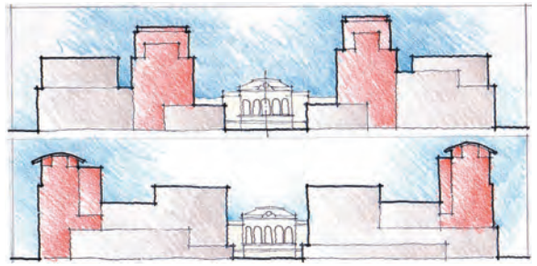
Tall buildings must frame the public space fronting on 17th Street. These buildings shall be architecturally complementary to each other, and integrated with the public space, activity, and circulation at the lower levels. Together the buildings and space frame and complement the Train Room, either through similarity or contrast.



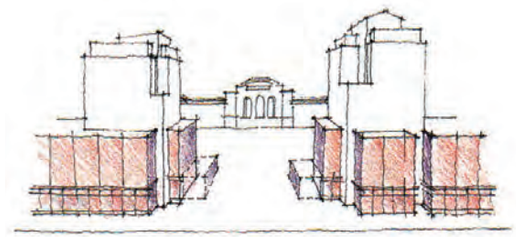
Tall buildings should be slender and tower-like, as opposed to block and slab-like.



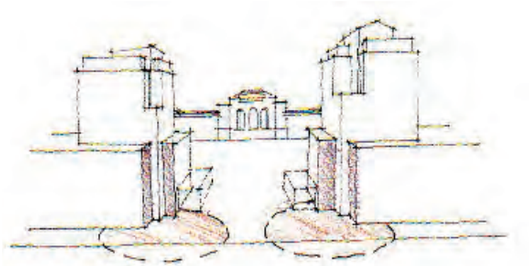
Possible structures near the corners of 16th and Wynkoop and 18th and Wynkoop Streets should reinforce pedestrian-oriented activity to facilitate views, public space needs, and station and transportation access.



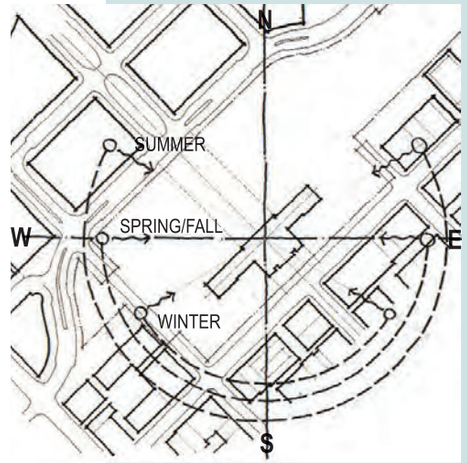
Tall buildings, consistent with a tower-like conception, should terminate with an architecturally finished top, however the building's top does not need to be object like in nature.



Tall buildings must not exist either initially, or in the long term, as solitary objects detached from the continuity of the street frontage, particularly along 16th and Wewatta Streets.



Buildings at Wewatta and 17th should step back at the corners to allow for a wider view of the Train Room, and greater ease of pedestrian access to transportation facilities.



Possible structures should consider the impacts of shade and shadow on public open space.

URBAN FORM

Possible structures near the corners of 16th and Wynkoop and 18th and Wynkoop Streets should reinforce pedestrian-oriented activity to facilitate views, public space needs, and station and transportation access.

Tall buildings, consistent with a tower-like conception, should terminate with an architecturally finished top.

All buildings must not exist as solitary objects detached from the continuity of the street frontage, particularly along 16th and Wewatta Streets.

Buildings at Wewatta and 17th should step back at the corners to allow for a wider view of the Train Room.

Possible structures should consider the impacts of shade and shadow on public open space.

HISTORIC BUILDING

An "envelope of transparency" should be created around the historic building that is in proportion with the scale of the historic structure.

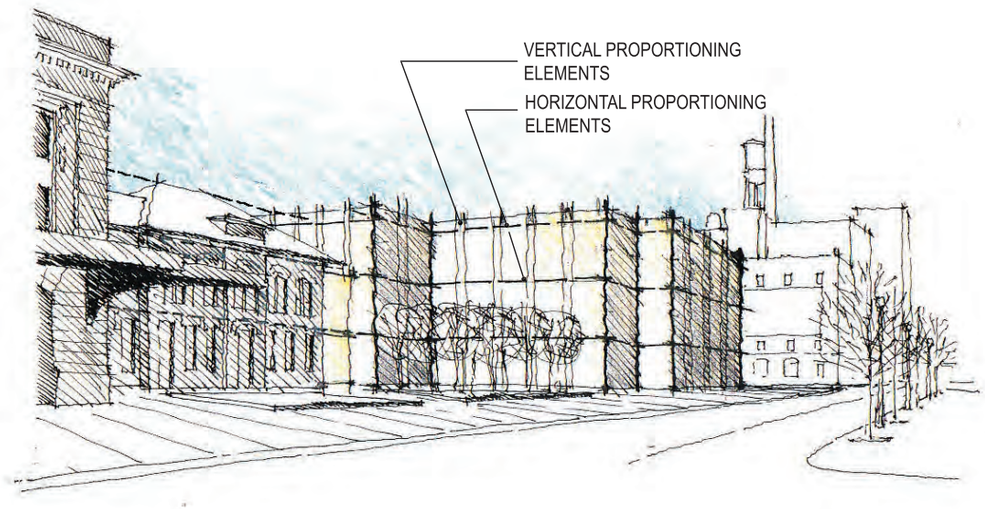
Favorable views of the historic Train Room should be maintained from the Wynkoop Street frontage between 16th and 18th Streets.

Structures within the 17th Street public space between Wewatta Street and Denver Union Station should not be taller than the sill of the Train Room windows, unless a substantially unimpeded view of the Train Room can be maintained.

New development directly to the west of the wings of the historic building should not be visible from the east edge of the Wynkoop Street right-of-way.

Attachments to the historic building shall not block historic detail. All modifications and connections will be subject to Landmark criteria, review, and approval.

New buildings that are immediately adjacent should complement the historic structure and reflect their own time.



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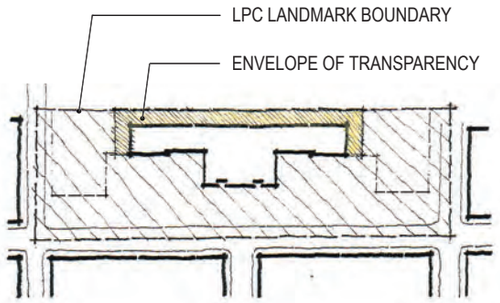

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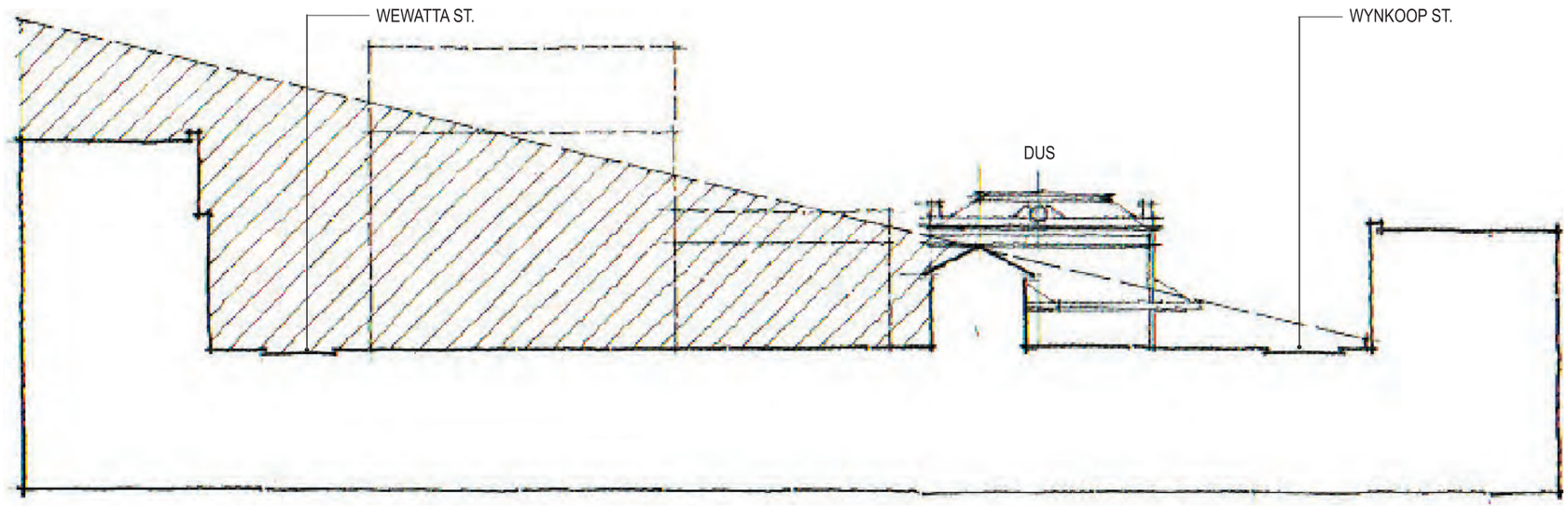
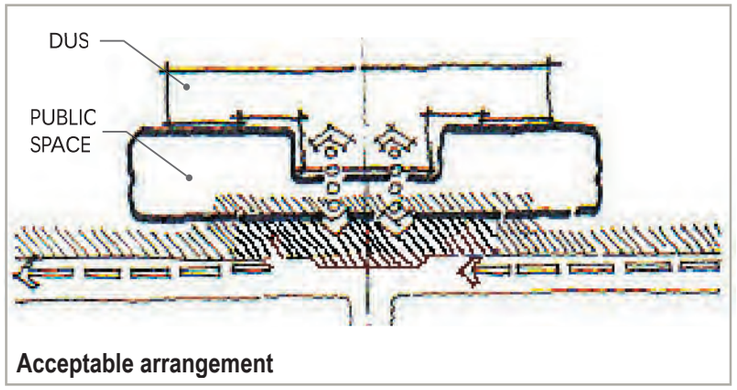
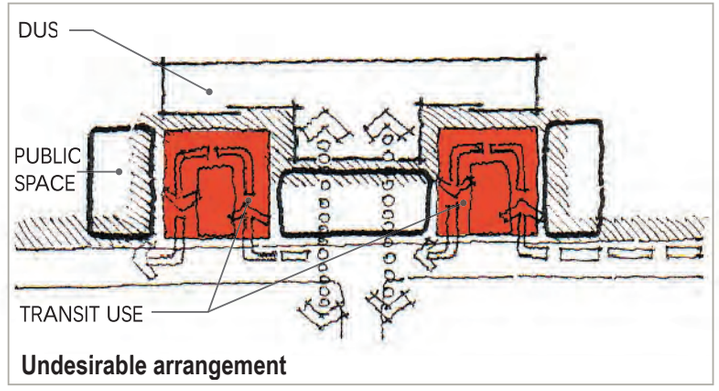


New development directly behind the wings of the historic station should not be visible from the east edge of the Wynkoop Street right-of-way.

Opportunities for private development along public street and open space frontage, as well as adjoining internal circulation, should be maximized to facilitate pedestrian-oriented activity and amenities.

Private and public access and circulation should be integrated throughout the site to facilitate mixed-use opportunities.





The open space in front of the building wings should be preserved for pedestrian activity and circulation, with major transportation activity occuring within the site on the Wewatta Street side of the station and in designated areas on the periphery of the site.

HISTORIC BUILDING

Active uses at ground level, particularly at edges of public open space and major circulation spaces, should encourage pedestrian circulation into and through the site.

Opportunities for private development along public street and open space frontage, as well as adjoining internal circulation, should be maximized to facilitate pedestrian-oriented activities and amenities.

Private and public access and circulation should be integrated throughout the site to facilitate mixed-use opportunities.

The open space on the Wynkoop Street side of the building wings should be preserved for pedestrian activity and circulation, with major transportation activity occuring within the site on the Wewatta Street side of the station and in designated areas on the periphery of the site.

Transit Facilities

Provide spacious, exciting, and welcoming areas between transportation riders and transportation vehicles.

The design of transportation-related spaces should convey the excitement of travel, speed, and vehicle technology.

Waiting and boarding areas should be well-lighted, well-organized, and generously sized.

Entries and circulation routes should be logical, well-marked, and direct.

Design spaces and passageways to feel safe, provide informal and formal surveillance, and be easily secured.

Design public spaces, connections, and transportation/rider interfaces to minimize or control noise and exhaust fumes.

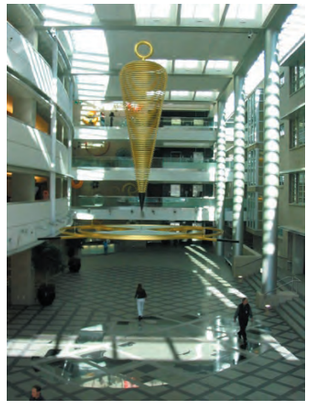
Design transportation circulation spaces with the passenger experience in mind, using high-quality materials and elements.

Design forms, surfaces, and materials to be easily cleaned and maintained.

New Architecture

The architecture of the new development, while respectful of Denver Union Station, should offer a quiet contrast, allowing the new to be true to its era, function, and culture while complementing the old and its era.

New architecture should be true to our place and time by expressing contemporary functions, aesthetics, technologies, and regional characteristics.

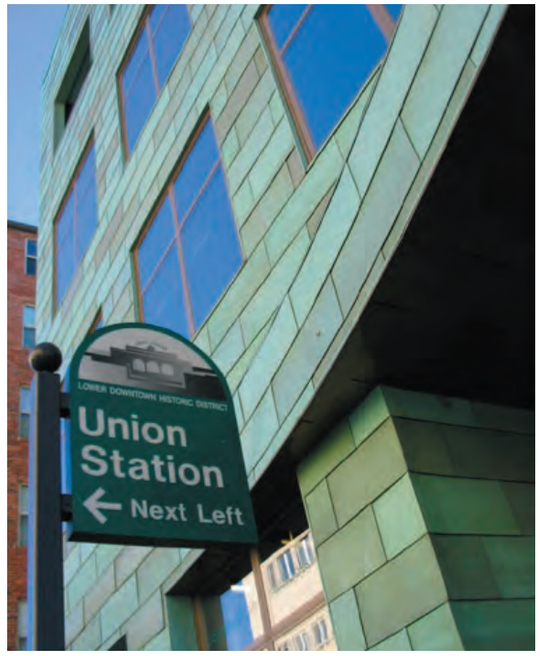


New architecture, particularly adjacent to Denver Union Station, should respect the architectural characteristics of the historic building, such as its scale, proportions, massing, facade divisions, window patterns, and materials.

Wayfinding

Provide an effective system for wayfinding to and around all of Denver Union Station's transportation facilities and uses.

Provide directional signs at the appropriate expressway interchanges to guide vehicle traffic to Denver Union Station.



Place directional signs at key locations on major downtown arterials to focus vehicle traffic onto the appropriate streets serving Denver Union Station.

Provide a sign system at Denver Union Station to guide vehicle traffic to appropriate parking facilities.

Provide a comprehensive wayfinding system to guide pedestrians to all transportation modes and uses as they enter the site on foot from the 16th Street Mall Shuttle, other bus or shuttle stops and drop-off areas, the surrounding pedestrian and bicycle networks, and on or off-site parking facilites.

Provide a wayfinding sign system to direct transportation riders between transportation modes.

Create an information system to guide visitors arriving at Denver Union Station to metropolitan and Downtown entertainment and shopping areas, cultural institutions, hotels, and other points of interest.

Sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

- The Brundtland Report, 1987

Defining Sustainability

The concept of sustainability enjoys growing acceptance in planning efforts in the Denver area and nationwide. DRCOG's *Metro Vision 2020 Vision Statement* includes sustainability as a touchstone: "Effective and efficient cooperative use of limited resources, whether financial, societal, or natural, is essential to achieve the goals of the plan and progress toward a sustainable future."

The term sustainability usually refers to efforts to conserve and restore the environment and natural resources. In recent years, the concept has been broadened to include economic and social sustainability. An economically sustainable development nurtures its community by providing jobs, revenues, and a healthy tax base. A socially sustainable development creates the framework for strong social ties and institutions that provide community support for generations.

This expanded definition is reflected in the *2020 Statewide Transportation Plan*, adopted by the Colorado Transportation Commission. The *Statewide Transportation Policies* state: "We will incorporate social, economic, and environmental concerns into the planning, design, construction, maintenance, and operations of the state's existing and future transportation system."

Denver Union Station redevelopment must conserve energy and other resources, be well-designed to support positive social interactions, and provide long-term economic benefits to the neighborhood, city, and region. Sustainable "success" must be balanced in these three areas.

Trade-offs

The Denver Union Station redevelopment should create economic, environmental, and social benefits, including more transportation services, greater energy efficiency, improved mobility and connections between metro-area communities, and walkable, mixed-use economic development.

Potential negative effects from redevelopment, particularly in the Denver Union Station area, include more pollution from increased transportation activity, more street congestion, and more noise.

These potential adverse effects need to be identified on local and regional levels, and mitigated through design measures.

Other trade-offs may include higher construction costs and energy requirements for placing transportation underground. (Underground transportation, on the other hand, creates a safer, more attractive pedestrian environment at street level, and provides more flexibility for transportation operations and future expansion.) Enclosed station platforms may be more comfortable on hot or cold days, but will raise energy costs for heating, cooling, and ventilating

The following is a summary of environmental benefits and possible mitigation measures for redevelopment of the Denver Union Station site.

Climate-sensitive Building Design

Design that is sensitive to the local climate reduces energy required for heating and cooling. Examples may include:

- passive solar heating of transportation buildings and residences;
- facade design that reduces solar gain (overheating from the summer sun) in office and commercial spaces;
- natural ventilation for cooling residential and lightly loaded commercial space; and
- building design that maximizes "daylighting," sizing and positioning windows and skylights so natural light supplements or replaces electric lights.

Climate-sensitive Open-space Design

Through windbreaks, solar orientation, and shading devices, building design also can create more comfortable outdoor spaces. This can make spaces more usable, improving social interactions and the economic viability of the neighborhood.

Well-designed public spaces contribute to the perception of civility, collective safety, and overall social health. In Denver, these spaces can be indoors or outdoors, because the climate is temperate for much of the year. Designs should enhance outdoor microclimates and provide comfortable, attractive spaces for spontaneous and planned meetings.

Renewable Energy

Energy-conservation measures also indirectly improve air quality. Denver Union Station redevelopment should consider alternative sources of energy, such as buying power from a local or regional wind-power-generation company. Xcel Energy uses wind power to supplement Colorado's power grid.

Mixed-Use Development and Urban Regeneration

The Denver Union Station site forms a barrier between Lower Downtown and the Commons Neighborhood. Redevelopment can tie these elements together to nurture economic growth and weave together the city's social fabric. Redevelopment also uses land and existing infrastructure efficiently.

Intensity of Use

Buildings used intensely around the clock are more resource-efficient than those left vacant for long periods. Intensely occupied buildings benefit more from energy-saving strategies than those that are used lightly over shorter periods. Such buildings also can reap the social benefits of increased pedestrian traffic and transportation use extending over the day.

Maintenance and Operation

Sustainability is heavily influenced by design for maintenance and operations. For example, operating buildings over a 30-year life cycle uses about four times more energy than the amount required to construct them.

The following strategies help minimize resource consumption over time:

- Select durable building materials and surfaces.
- Employ low-energy, nonpolluting (such as non-CFC) heating, ventilation, and cooling (HVAC) technologies.
- Create flexible spaces and systems that can be renovated or reconfigured with minimal effort and materials as their use changes over time.

Re-use of the Historic Building

Re-use of the historic Denver Union Station building is a key factor for sustainability. The re-use refurbishes it and thus recycles a valuable asset.

Regional and Statewide Sustainability

The Metropolitan region and the state will benefit from sustainability efforts at Denver Union Station through:

- economic development resulting from the strong connection between Denver and other cities, including the development of other multimodal centers;
- positive environmental effects provided by alternative transportation, less reliance on auto travel, preserving air quality and reducing demand for gas and oil, roads, and parking; and
- providing a model for dense, mixed-use development as an alternative to urban sprawl.

Sustainability at DUS

There are many ways to incorporate sustainability practices into the new multimodal facility at DUS. The primary sustainability components include:

- Reuse of the historic Denver Union Station building as the centerpiece of site orientation, circulation and connection to Denver's past.
- Creation of a multimodal transportation hub serving Denver, the metro region, and the state with public and private transportation modes connected in one location.

Other Sustainability Goals

Site redevelopment should strive to incorporate other sustainable objectives such as:

- Simplicity in its design, layout, and construction.
- Recycled materials in construction for new buildings, structural components, materials and finishes.
- Energy-efficient glazing for windows.
- Passive and active solar energy.
- High-quality pedestrian connections throughout the site to encourage walking.
- A 'car sharing' cooperative and facilities to recharge electric vehicles.
- Increased bicycle use through elements like the Bike Station and accommodating bicycles on transit vehicles.
- On-site recycling facilities.
- Sustainability in the design standards and guidelines for the site.
- Leadership in Energy and Environmental Design (LEED) facility certification and incorporation of LEED standards.

New technologies to improve sustainable design are rapidly evolving. The predominant model in the U.S. today is the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system, which is becoming a widely accepted set of standards.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Appendix

Many individuals contributed to the development of this Master Plan. The Agency Partners would like to thank the members of the Technical Advisory Committee (TAC) and the Union Station Advisory Committee (USAC) for their dedication to the process and the success of Denver Union Station.

Executive Oversite Committee (EOC)

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(Wayne Cauthen April 2002-March 2003)
(Mayor Wellington Webb April 2003-June 2003)
(Councilwoman Elbra Wedgeworth, Alternate April 2003-June 2003)
(Cheryl Cohen-Vader, October 2003-May 2004)

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Denver Regional Council of Governments (DRCOG)
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Preservation Partnership
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TranSystems Corporation

1870

1870 | 1880 | 1890 | 1900 | 1910 | 1920 | 1930

1870
The railroad arrives

1881
Union Station constructed

1892
One-story wing extensions constructed

1893
Fire destroys central section and SW wing

1906
Welcome Arch built

1912
Cherry Creek flood

1914
Station expansion
Central block rebuilt

1918
World War I

1923
NW Express Wing expanded

1931
Welcome Arch removed

1933
Castlewood flood

2003

1940 | 1950 | 1960 | 1970 | 1980 | 1990 | 2000

More detail on following page

1941
World War II

1951
"Travel by Train" neon sign installation

1956
Last steam train leaves Denver Union Station

1958
Passenger count at Stapleton Airport surpasses Denver Union Station

1965
Great flood

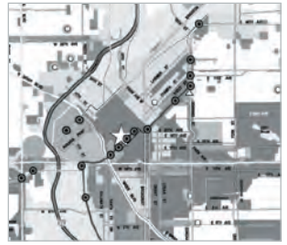
1971
Amtrak takes over passenger rail services

1981
Union Station Centennial celebration

1982
16th Street Transit Mall opens

1986
Consolidated Main Line completed

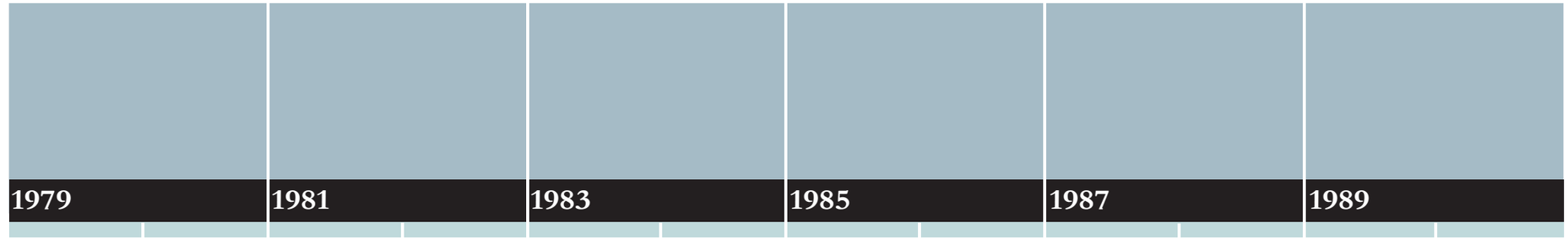
2002
Blueprint Denver



1979

Planning for Denver Union Station is a relatively recent phenomenon. For most of the station's life as a privately held railroad terminal, 'planning' consisted of reactions to explosive growth, economic opportunity, acts of nature, and catastrophic accidents.

As the era of railroad travel ended, and the historic station was left increasingly adrift, public interest grew in search of renewed purpose for this well-loved city landmark. This timeline 'magnification' catalogs the actions, studies, and initiatives that have shaped Denver Union Station's destiny over the past 25 years. A more detailed description of the purposes and outcomes of these events can be found in the following pages.



1979 - 1982
16th Street Mall / Market Street Station / Civic Center Station transit system

1983
Mile High Land Project

1985
DUT Convention Center Proposal

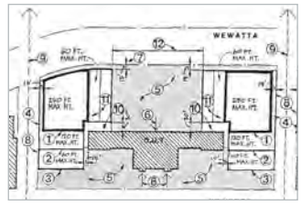
1985 - 1997
Central Platte Valley infrastructure replacement projects

1986
Central Platte Valley Comprehensive Plan Amendment

1986
Downtown Area Plan

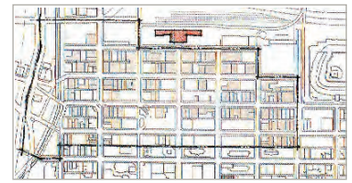
1987
Lower Downtown Urban Design Project

1988
Denver Union Terminal development agreement



1988
Platte River Valley (PRV) Zone District

1988
Lower Downtown Historic District designated



1989
Denver Comprehensive Plan

2003

1991 | 1993 | 1995 | 1997 | 1999 | 2001

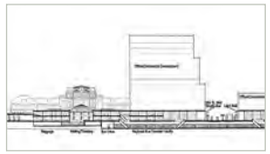
1991
Street bus / HOV lane project

1991
Central Platte Valley Comprehensive Plan Amendment

1993
16th Street Mall extension through Lower Downtown

1995 - 2000
Lower Downtown Neighborhood Plan

1996
DUT Intermodal Feasibility Study



1997
Commons Neighborhood PUD

1997
Metro Vision 2020 Plan First Adopted
2020 Regional Transportation Plan adopted

2000
Adopted Statewide Transport-ation Plan

2000
Denver Comprehensive Plan

2001
LRT spur to Denver Union Station

2002
Blueprint Denver

2002
2025 Interim Regional Transportation Plan adopted

2003
RTD Adopted Fastracks Plan

Previous Plans, Studies and Projects

2002 Blueprint Denver:

Blueprint Denver is an integrated land use and transportation plan for the City of Denver that addresses the next 20 years. The plan provides a set of goals, objectives, strategies, and visions of success.

The plan describes areas of change and areas of stability, but recognizes a continuum between these two conditions.

A key strategy is to direct growth to areas of change. Such areas of change listed in the plan that relate to the Denver Union Station (DUS) are:

- underused land near Downtown and along the South Platte River,
- areas adjacent to and around transit stations, and
- areas already undergoing positive change that is expected to continue.

Denver Union Station is specifically named as a future transit-oriented development area.

2000 Denver Comprehensive Plan:

Implementation of the DUS Master Plan will help realize many of the visions, goals, and objectives of the 2000 Comprehensive Plan. Goals and objectives of the plan relevant to the Denver Union Station Master Plan include:

Environment: Preserve and enhance the natural environment.

- Vision—Citizens will drive less, choosing from a greater variety of low-impact modes of transportation that connect people from place to place and from one transportation mode to another.
- 2-E. Conserve raw materials by promoting efforts to adapt existing buildings for new uses rather than destroying them.
- 2-F. Conserve land by promoting infill development within Denver at sites where services and infrastructure are already in place and creating more density at transit nodes.
- 4-A. Promote the development of sustainable communities and centers of activity where shopping, jobs, recreation, and schools are accessible by multiple forms of transportation.
- 4-D. Promote convenient public transit for the community, including buses, light rail and other alternatives to single-occupancy vehicles.

Land Use: Manage growth and change through effective land-use policies to sustain Denver's high quality of life.

- 4-A. Encourage mixed-use, transit-oriented development that makes effective use of existing transportation infrastructure, supports transit stations, increases transit patronage, reduces impact on the environment, and encourages vibrant urban centers and neighborhoods.

Mobility: Anticipate and meet the expanding mobility needs of residents, business and visitors.

- Vision—The metropolitan area will be served by a multimodal public transit system that will be a popular choice for families, parents with young children, the elderly, those with special needs, commuters, and visitors.
- Vision—Transit-oriented development will become standard for development and redevelopment, and neighborhoods served by transit stations will enjoy popular appeal for their character and convenience.
- 1-A. Advocate transportation investments that increase mobility of people and their connections to employment, education, shopping, cultural opportunities, and other events.
- 2-A. Continue to reinforce Downtown Denver as the main transportation hub for the region, with the proposed multimodal transit facility at Denver Union Terminal as the focal point.
- 2-D. Create more convenient connections between different modes of transportation, as in pedestrian to transit, bus to light rail, or bike to transit.
- 3-A. Strengthen multimodal connections and transportation improvements within and between existing and potential urban centers, including Downtown/Central Platte Valley, DIA/Gateway, Central Park, Cherry Creek/Colorado Boulevard, Denver Tech Center, and the South Wadsworth Corridor.
- 3-B. Promote transit-oriented development (TOD) as an urban design framework for urban centers and development areas. Development at transit stations should provide both higher ridership to the transit system and walkability in the area.

Denver's Legacies: Use the best of Denver's architectural and landscape legacies to guide the future.

- Vision—Exciting new mixed-use and pedestrian-oriented areas will develop, offering a higher concentration of housing, retail, services, employment, and transportation, all within walking distance.
- Vision—By policies that link the values of historic preservation with economic development, Denver will create jobs, stimulate related retail and services, generate tax revenues, and shine as a business location and tourist destination.
- 1-C. Preserve Denver's architectural and design legacies encouraging the evolution of new ones.
- 3-B. Create regulations and incentives that encourage high-quality, mixed-use development at densities that will support Denver's diverse housing needs and public transportation alternatives.

Housing: Expand housing options for Denver's changing population.

- Objective 6. Encourage mixed-use, mixed-income housing development in Denver's core area and along transit lines.
- 6-B. Continue to support mixed-income housing development that includes affordable rental and for-purchase housing for lower-income, entry-level, and service employees, especially in Downtown and along transit lines.
- 6-E. Identify and capitalize on opportunities to develop housing along transit lines.

Economic Activity: Create a sustainable economy that provides opportunities for all.

- Vision—Denver remains the largest employment center in the state. Jobs with good wages are available to all residents wishing to work. Adequate support systems, including education, training, childcare, and transportation are available.
- Vision—Downtown Denver will be one of the most exciting places in the nation to live, work, visit, or operate a business. Downtown will be pedestrian and transit-oriented, safe, affordable, and fun.
- 1-G. Support the development of a greater number of efficient, convenient, and affordable options for workforce mobility, including rapid transit, improved bus service, bicycle and pedestrian access, private shuttle services, and employer-sponsored transportation programs.
- 4-A. Ensure Downtown's future as Denver's pre-eminent center for business, tourism, and entertainment.

To support Downtown economic development, the City should:

- Ensure that Downtown remains the multimodal transportation hub of the region by supporting excellent roadway access, reusing Denver Union Terminal as a regional multimodal transit center, developing the Air Train linking Downtown to DIA, improving and expanding light rail and bus services to and from Downtown, and building the Central Platte Valley light-rail spur to serve entertainment and sports facilities.
- Continue to support reuse of historic buildings in and around Downtown.

1995 - 2000 Lower Downtown Neighborhood Plan:
This neighborhood plan develops consensus on such issues as:

- integrating new buildings into the historic context,
- coexisting residential and hotel uses,
- mitigating of vehicle demands on LoDo streets,
- stimulating further investment in LoDo,
- access from LoDo to new parks, attractions, and emerging neighborhoods nearby, and
- the need for adequate parking.

Principles and policies relating to Denver Union Station include:

- Preserve some of the Market Street open space or preserve open space on another site in LoDo.
- Enhance connections to adjacent neighbors and nearby open space.
- Ensure that the design of Wewatta Street encourages pedestrian access between the communities.
- Emphasize transit-oriented development.
- Support new residential and retail development in LoDo.
- Advocate for the creation of a multimodal transit facility at Denver Union Station.
- Complete Wewatta Street as an arterial around LoDo.
- Reduce regional buses traversing LoDo.
- Support the relocation of the Market Street Station to the proposed multimodal transit facility.
- Protect LoDo's historic architecture and use its design vocabulary to guide renovations, additions, and new construction.
- Allow contemporary buildings to express their times.

1997 Commons Neighborhood PUD:
A comprehensive rezoning of 51 acres of the Central Platte Valley, zoned formally under the Platte River Valley Zone District (PRV). This Planned Unit Development (PUD) maintained the subarea approach established under the old PRV Zone District. For each subarea, uses, densities, set backs, heights, and bulk planes were prescribed.

The PUD also included a subarea that covered a portion of the Denver Union Station property, zoned primarily for a multimodal transit facility.

PUD includes a complete set of design standards and guidelines, which frame views of Denver Union Station and provide a setting for it.

PUD establishes city-administered design standards and a guideline review process.

Extension of Light Rail from the Southwest Line to Denver Union Station and the 16th Street Mall:
This project, completed in 2001, for the first time connects DUS with Denver's light-rail system. It also provides the impetus to extend Mall Shuttle service on 16th Street through LoDo and to Denver Union Station, as well as the Central Platte Valley.

1996 DUT Intermodal Feasibility Study
This study tested the feasibility of developing a multimodal transit facility at Denver Union Station. Nine categories were investigated, each with findings and results:

- Transportation Development Scenarios
- Ridership Projections
- Transportation Facility Program
- Market Demand Analysis
- Conceptual Design
- Conceptual Construction Cost Estimate
- Operating and Maintenance Considerations
- Institutional Considerations
- Next Steps

Four scenarios were tested, ranging from no relocation of the Market Street Regional Bus Station and no light rail or commuter rail service at DUS, to full accommodation of buses, light rail, commuter rail, and passenger rail.

Daily passenger and arrivals/departures were estimated at 53,600 at full build-out of Scenario 4, leading to 16.1 million weekday arrivals and departures annually. The transportation facility program for the full service/full build-out scenario was estimated at about 70,000 square feet. The study's market analysis determined that the multimodal facility could support about 106,000 square feet of retail for the full service/full build-out scenario, but that transportation ridership alone would not support a large-scale commercial development.

The conceptual design was based on the full service/full build-out scenario, using the limited Scenario 1 as a first phase. Based on the site development, a full build-out cost was estimated at $88.1 million.

1993 16th Street Mall Extension Through Lower Downtown:
This RTD project extended the bus transit lanes and wide sidewalks from the Market Street Station to the 20th Street Bus/HOV lane behind Denver Union Station.

The initial project did not include Mall-Shuttle bus service -- only regional buses operating from Market Street Station.

The quality of pedestrian amenities was commensurate with the original 16th Street Mall, but design and materials were tied to the historic character of LoDo.

Later modifications revised the Market Street Station turn-around to provide through shuttle service to shuttle bus stops in LoDo, and the light-rail stop behind Denver Union Station.

20th Street Bus/HOV Lane project
This RTD project replaced the 20th Street Viaduct by an at-grade arterial with underpasses at the Consolidated Main Line Tracks, and at the tracks and platforms at Denver Union Station, as well as an elevated Bus/HOV lane that provided a bus lane to Market Street Station directly behind Denver Union Station.

The project substantially repaired and improved Denver Union Station platforms and tracks.

The Bus/HOV lane was Denver's first rapid-transit facility with its own separated lane. Its only other stop Downtown besides Market Street Station was at Denver Union Station.

1985 – 1997 Central Platte Valley Infrastructure Replacement Projects
Funded mostly by federal money, the Speer Boulevard viaduct was replaced with a raised parkway, and a specially designed bridge at Little Raven spanning the street connection between Elitch's Amusement Park and the rest of the Central Platte Valley.

On the basis of a $50 million portion of the $250 million bond issue passed by the City of Denver voters in 1989, matching money was used to attract over $300 million in federal and state money to replace the 15th, 16th, 19th/20th Streets, and Park Avenue West viaducts.

Public infrastructure projects were designed at a high level of quality to attract high-quality private development.

1991 Central Platte Valley Comprehensive Plan Amendment:
On the basis of the decision to retain passenger-rail operations at Denver Union Station, the 1991 Central Platte Valley Plan was a major departure from the previous 1986 Plan, which relocated passenger-rail service from Denver Union Station to an unspecified location to the northeast of Denver Union Station.

Retention of passenger-rail service at Denver Union Station was due to three factors: the inability of railroad real-estate divisions to raise the funding needed to move the station facilities and track access; the lack of public subsidies from the less-complicated designs of the viaduct replacement projects if the tracks were removed from behind Denver Union Station; and the resistance of the LoDo community to the loss of passenger activity from Denver Union Station during economic recession.

One of the plan's major goals was to achieve a multimodal transportation center in the middle of the Central Platte Valley, which included Denver Union Station. This center would:

- connect with the 16th Street Mall when it was extended;
- replace the Market Street regional bus terminal;
- be linked to the light-rail system;
- intercept High Occupancy Vehicles (HOV) and general traffic as they enter the city center from the north and from the south via Auraria Parkway and Wewatta Street; and
- provide a parking reservoir for Downtown and LoDo.

Other goals of the plan which were related to Denver Union Station were:

- Accommodate through-freight movements within the Consolidated Main Line corridor, and future tracked transit adjacent to it.
- Accommodate rail-passenger platforms and associated facilities at DUS.
- Extend the 16th Street Mall into the Central Platte Valley, connecting Downtown and LoDo to the multimodal transportation center, to public open spaces, and to the South Platte River.
- Provide light-rail connections into the Central Platte Valley and Downtown.
- Preserve views of natural and man-made features including:
  - the mountains,
  - the Downtown skyline, and
  - Denver Union Station.
- Foster a character for the Central Platte Valley which is different and distinct from that of Downtown:
  - urban, but with more public open space,
  - developed to densities and heights closely related to LoDo,
  - building heights consistent with the fabric of LoDo, and
  - different parking requirements.

Allow two 250-foot high towers on either side and to the Wewatta Street edge of the DUS property.

Channel Central Platte Valley traffic around Lower Downtown via Wewatta Street.

1989 Denver Comprehensive Plan
Denver's first comprehensive policy plan covered economic development, transportation, neighborhood revitalization, commercial redevelopment, and urban design. While a multimodal transportation facility at Denver Union Station was not specifically mentioned, many policies related to transit service to Downtown and Downtown's role as the hub for the metropolitan area's transit system. These policies referenced advantages of redevelopment around transit centers to increase densities and to build-in transit ridership.

1988 Lower Downtown Historic District
Passage of Ordinance 109 created the LoDo Historic District and the Lower Downtown Design and Demolition Review Board, ending a long period of real-estate uncertainty and speculation. Reinvestment then was focused on the rehabilitation of existing buildings, rather than tearing them down to land-bank property for new development. Many property owners, however, were extremely nervous about the powers of the Historic District, and the viability of a market based on rehabilitation rather than new construction. To reassure property owners, and to achieve their support or acquiescence during the formation of the Historic District, the City tested the B7 zoning ordinance to show that the zoning entitlements were reasonably compatible with the Historic District. The City also established a revolving loan fund of $1 million to encourage rehabilitation, and established a two-year reporting period to assess the impact of the district with the possibility of repealing it if the economic impacts were negative. The ensuing report, however, confirmed that the Historic District improved rather than harmed the value of Lower Downtown real estate.

1987 Lower Downtown Urban Design Project
An urban design study undertaken by the Denver Partnership and the City of Denver, this established the groundwork for LoDo's streetscape improvements, the upgrade of Cherry Creek as a usable open space, the definition of LoDo's boundaries, and the extension of the 16th Street Mall. It also recommended a new civic open space for the front of Denver Union Station, extending from wing to wing. The study viewed Denver Union Station as the district's focal point.

1988 Platte River Valley (PRV) Zone District
Passed in 1988, and based on a two-year planning effort, the PRV zone district was Denver's first design-based, flexible-zoning district. It was structured into three tiers:

- overall land use (including housing quotas), density, open space, height limits, and process requirements;
- area-specific zoning standards for each of 17 subareas, individually approved by City Council; and
- detailed subarea plans for each of the 17 subareas, approved by the Planning Commission.

All three tiers had to be completed before a property had entitlements comparable to a standard-zone district.

While about half of the subareas had their Subarea Zoning Standards approved at the time that the overall ordinance was approved, a number of subareas remained without the second tier of entitlements. Because multiple property owners were required to come to agreement to propose both Subarea Zoning Standards and a Subarea Plan, the PRV zone district never provided a complete set of entitlements necessary to allow substantial new construction to proceed. Only one subarea, the Elitch Subarea, ever completed all three tiers of entitlements, for the simple reason that it was the only subarea with a single owner who wanted to develop.

Denver Union Station had its Subarea Zoning Standards approved as part of the PRV zone district. These standards were based on the rail functions being removed from Denver Union Station, and the building and its then 18-acre site being redeveloped for largely commercial uses at a 2:1 floor-area ratio (FAR).

A substantial portion of the southeastern edge of the Highlands Neighborhood was included in the PRV zone district. However, because of the difficulties in getting owner consensus for Subarea Zoning Standards and Subarea Plans, this portion of the neighborhood essentially lost its old entitlements. A view of Denver Union Station from Hirshorn Park in the Highlands Neighborhood, as well as a view toward the mountains from Denver Union Station across the Central Platte Valley to the South Platte River, were built into the PRV Zoning Ordinance.

When the failure of the PRV zone district became apparent, the City encouraged new development in the Central Platte Valley to rezone under the PUD process. (See the 1997 Commons PUD description for the best example of this approach.)

1988 Denver Union Terminal Development Agreement
Concurrently with the development of the PRV zone district and the Denver Union Terminal Subarea Zoning Standards, the owners of Denver Union Station entered into an agreement with the City of Denver that guaranteed that the owners would maintain and repair Denver Union Station, and would not demolish or otherwise alter Denver Union Station without Denver Landmark Preservation Commission approval. In return, the owners were guaranteed:

- the right to demolish the one-story wings attached to Denver Union Station's original two-story wings;
- the right to develop any improvements on the property permitted by the Denver Comprehensive Plan and the PRV zone district, including the right to erect two 250-foot high buildings on either side of the terminal, as consistent with the development agreement, the DUS Subarea Zoning Standards and the DUS Subarea Plan.
- the right to develop the 18-acre site to a 2:1 FAR density, and with commercial and residential uses.

1986 Central Platte Valley Comprehensive Plan Amendment

The first plan to cover the entire 500 acres of the Central Platte Valley and to establish a subarea approach to structure varying recommendations, the Central Platte Valley Comprehensive Plan Amendment created the basis for the Platte River Zone District passed the next year.

Seventeen subareas included separate subareas for the Denver Union Station property, and the area between the station and the South Platte River between 16th and 20th Streets.

Subareas also included substantial portions of the Highlands and Jefferson Park neighborhoods, as well as areas south of Speer Boulevard around the Auraria Campus.

Based on the assumption and desire of the major railroad property owners in the Central Platte Valley that the passenger-rail functions at Denver Union Station would be moved to another site, left undetermined by the plan, and that Denver Union Station be redeveloped for commercial uses such as:

- office;
- retail, restaurants, bars, entertainment;
- hotel;
- convention facilities/meeting rooms; and
- display, showroom, exhibition gallery, and visitors information center.

It specified 2:1 FAR with bonuses up to 7.4:1 on the B7 portion of the site, with other provisions including:

- height limits of 140 feet with two towers allowed up to 250 feet with the following conditions:
- Denver Union Station provides a connection to the Commons Park;
- towers do not block the views of the historic Train Room, and are integrated in design; and
- the main portion of the railroad station (Train Room and the two-story wings with sloped roof) is preserved or rehabilitated for adaptive reuse.

Denver Union Station and the 16th to 20th/Commons Subarea descriptions also suggested:

- "preservation of a portion of view to the main train room from Highlands and along 17th Street";
- an 18th Street connection (easily achieved without platforms and tracks at DUS);
- parking at 1 space per 1000 square feet of use;
- "a transportation center to include multiple forms of transportation to serve the Central Platte Valley;
- a 30-foot right-of-way (ROW) reservation along the Consolidated Main Line (CML) tracks for transit "used exclusively for in-city destinations, and not to be used for regional transit routes that bypass the core area."

The 1986 Central Platte Valley Comprehensive Plan prepared the redevelopment of the rail yards as well as Denver Union Station by:

- setting the location of the Consolidated Main Line (CML) tracks;
- replacing the old viaducts with new raised viaducts largely on fill similar to the new Speer Boulevard raised viaduct;
- establishing a north/south connecting street along the Wewatta Street alignment;
- removing the 16th Street viaduct and replacing it with an extension of the 16th Street Mall;
- locating a major urban park along the South Platte River at the terminus of the 16th Street Mall extension;
- establishing view corridors to maintain views of the Denver Union Station Train Room from the South Platte River, and key mountain views;
- establishing a 23-degree DUS view corridor from the Train Room to the South Platte River;
- establishing a view corridor from Hirshorn Park to the South Platte River;
- establishing a Front Range southern view from Bell Park at 14th and Larimer Streets;
- extending the 16th Street Mall to Denver Union Station and beyond to the South Platte River;
- identifying a pedestrian and bicycle network throughout the CPV, particularly focusing on the following connections:
  - Denver Union Station to Commons Park and the South Platte River;
  - north/south connections from Prospect and Commons Park area to Cherry Creek bike/pedestrian path;
  - Cherry Creek Riverwalk;
  - north/south connections along Wynkoop Street to the Auraria Village Subarea (now the Pepsi Center);
  - east/west connections along 9th Street from Auraria Campus and Tivoli along 9th Street to the Auraria Village Subarea, and then to the South Platte River; and
  - Highlands Neighborhood to Commons Park along 16th Street.

1986 Downtown Area Plan

A comprehensive plan for Downtown, jointly undertaken by the Denver Partnership and the City of Denver, the Downtown Area Plan established the vision for:

- the Lower Downtown Historic District,
- the seamless extension of Downtown and Lower Downtown into the Central Platte Valley to the South Platte River;
- the undergrounding of the Denver Union Station rail lines to accomplish this seamless extension;
- the identification of all of downtown's access improvement needs, including the access improvements from I-25 to Downtown through the Central Platte Valley.

1985 DUT Convention Center Proposal

This proposal located a 300,000 square foot Convention Center expandable to 600,000 square feet with a 1,000-room hotel directly behind Denver Union Station and over the passenger-rail platforms and tracks. The hotel would frame and provide a backdrop to Denver Union Station façade as seen from Downtown along 17th Street, but block the Denver Union Station façade from the South Platte River, and west-side neighborhoods.

1983 Mile High Land Project
This study by Glacier Park, the real-estate entity of the Burlington Northern Railroad, and its development partners Miller, Klutznick, Davis, Gray Co., focused on the redevelopment of the Burlington Northern's 155-acre property in the Central Platte Valley. Passenger rail service would remain at Denver Union Station. The mixed-use redevelopment would be composed largely of offices laid out along a northerly/southerly parkway. The redevelopment parcels would have a general height limit of 250 feet with several buildings allowed up to 35 stories through the height limit. The redevelopment's main connection to the South Platte River was south of Speer. No real connection to Denver Union Station was contemplated except along 16th Street.

1979-1982 16th Street Mall/Market Street Station/ Civic Center Station Transit System
Using federal funds, RTD developed an innovative downtown transit system that collected regional buses into two terminals, one at the eastern edge of Downtown, and one at the western end at the seam between Lower Downtown and Downtown. These terminals were then connected by a transit/pedestrian mall incorporating free shuttle buses running at four-minute headways during peak hours.

High-quality design and materials established the 16th Street Mall as the core of Downtown, stabilizing the uses and buildings that eventually led to its complete renovation and infill, as well as its extension into Lower Downtown and the Central Platte Valley.

Relationship with DRCOG Metro Vision 2020 Plan and the 2025 Interim Regional Transportation Plan

2025 Interim Regional Transportation Plan:
- Recommends a multimodal center for the region.
- Promotes improved connections between passengers and public and commercial transportation systems within and between modes.
- Promotes improved connections between the metropolitan area and other areas of the state.
- Supports transit-oriented development opportunities.

2020 Statewide Transportation Plan:
- Addresses the need to develop a balanced multi-modal transportation system.
- Emphasizes a multimodal approach to transportation planning.
- Recognizes the importance of rail corridors in the current and future transportation system.

Regional Planning Studies

East Corridor:
Provides commuter-rail service from Downtown Denver to the Denver International Airport terminating at Denver Union Station;

US 36 Corridor:
Provides commuter-rail service operating from Denver Union Station, and Bus Rapid Transit service improvements;

North Front Range Corridor:
Provides commuter-rail service operating from Denver Union Station to Ft. Collins;

West Corridor:
Provides light-rail service from Downtown Denver to Golden, some of the service connecting to the Denver Union Station through the C-Line;

I-70 West Corridor (Gold Line):
Provides light-rail service operating from Denver Union Station from Downtown to Golden along I-70;

North Metro Corridor:
Establishes commuter-rail and High Occupancy Vehicle (HOV) lane service, operating from Denver Union Station north along I-25;

Southeast Corridor:
Provides light-rail service along I-25/I-225 connecting to Denver Union Station through the C-line.

All the previously listed corridor projects assume that the Denver Union Station multimodal center will serve as a terminus for rail, bus, and HOV facilities.

All of the corridor studies also assume that the Denver Union Station multimodal center will facilitate efficient connections between the various public and private transportation modes and providers at DUS.

FasTracks

FasTracks is a transit-funding program that will accelerate construction of these above-listed projects (except the I-70 Mountain Corridor).

Construction funding for improvements to U.S. 36, the Gold Line, North Metro, and supplemental funding of the East and West corridors may be placed on the 2004 election ballot as part of the FasTracks program.

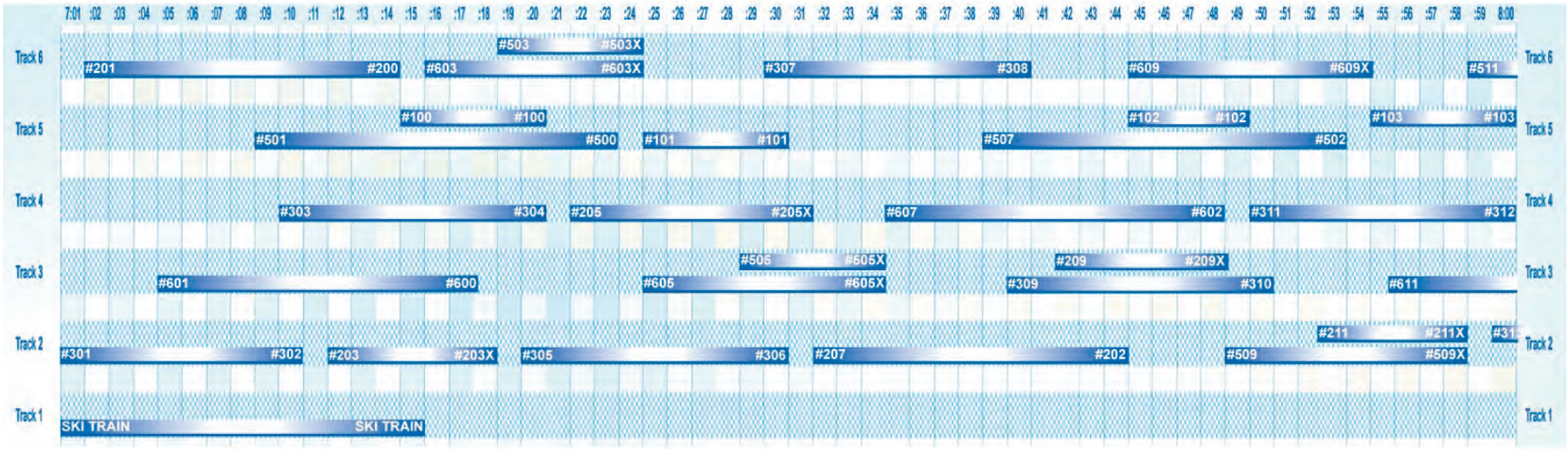
Other Studies

I-70 Mountain Corridor:
Provides transit service, using a mode yet to be determined, operating from I-70/C-470 to Glenwood Springs along C-470/I-70.

Colorado Intermountain Fixed Guideway Authority
Colorado Intermountain Fixed Guideway Authority mandated by the Colorado legislature to develop a demonstration plan for the design, financing, development, and construction of a high-speed, high-capacity fixed guideway facility between DIA and Eagle County Airport west of Vail, Colorado.

I-25 HOT Lane Project:
CDOT and the Colorado Tolling Enterprise are working on a joint project to convert the I-25 High Occupancy Vehicle (HOV) lanes to a High Occupancy Toll (HOT) lane concept. The current HOV lanes will be converted to HOT lanes, which will allow single-occupant vehicles to use these lanes for a toll fee. The facility runs along I-25 from Downtown Denver to 75th Avenue and only to Pecos Street on SH 36. HOV vehicles will still be the primary cutomers for this facility. Tolls will be paid electronically with the cars having a transponder to collect to tolls.

Passenger Rail Simulation Vision Plan



Assumptions for Simulation Vision Plan (Stub Station)

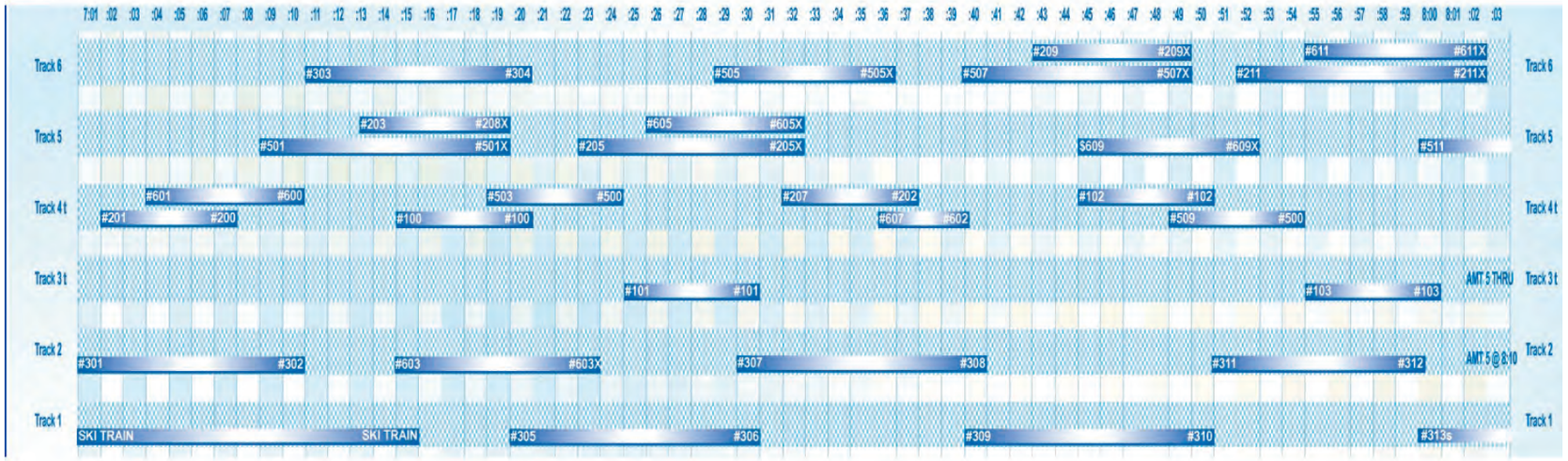
East Corridor Air Train	300	6/hr = 12
Boulder Commuter	200	6/hr + 2 reverse out
Future North Line	500	6/hr + 2 reverse out
North Metro	600	6/hr + 2 reverse out
Intercity NFR	100	2/hr
Intercity SFR	100	2/hr
AMTRAK #5 & #6		
Ski Train		

Operating Schedule Assumptions

300 Series	Arrive & Depart	at 00 - 10 - 20 - 30 - 40 - 50 - 00
200 Series	Arrive	at 02 - 12 - 22 - 32 - 42 - 52 - 02
200 Series	Depart (rev. com.)	at 14 - 44
500 Series	Arrive	at 09 - 19 - 29 - 39 - 49 - 59
500 Series	Depart (rev. com.)	at 23 - 53
600 Series	Arrive	at 05 - 16 - 25 - 35 - 45 - 55
600 Series	Depart (rev. com.)	at 18 - 48
IC NBFR	Arrive	at 15 & 45 - Depart at 20 - 50
IC SBFR	Arrive	at 25 & 55 - Depart at 30 - 00
Ski Train & AMTRAK		Operate Track #1 0600 - 0900

Passenger-rail platform schedule, showing train dwell times and platform assignments over a one-hour peak period for a stub station.

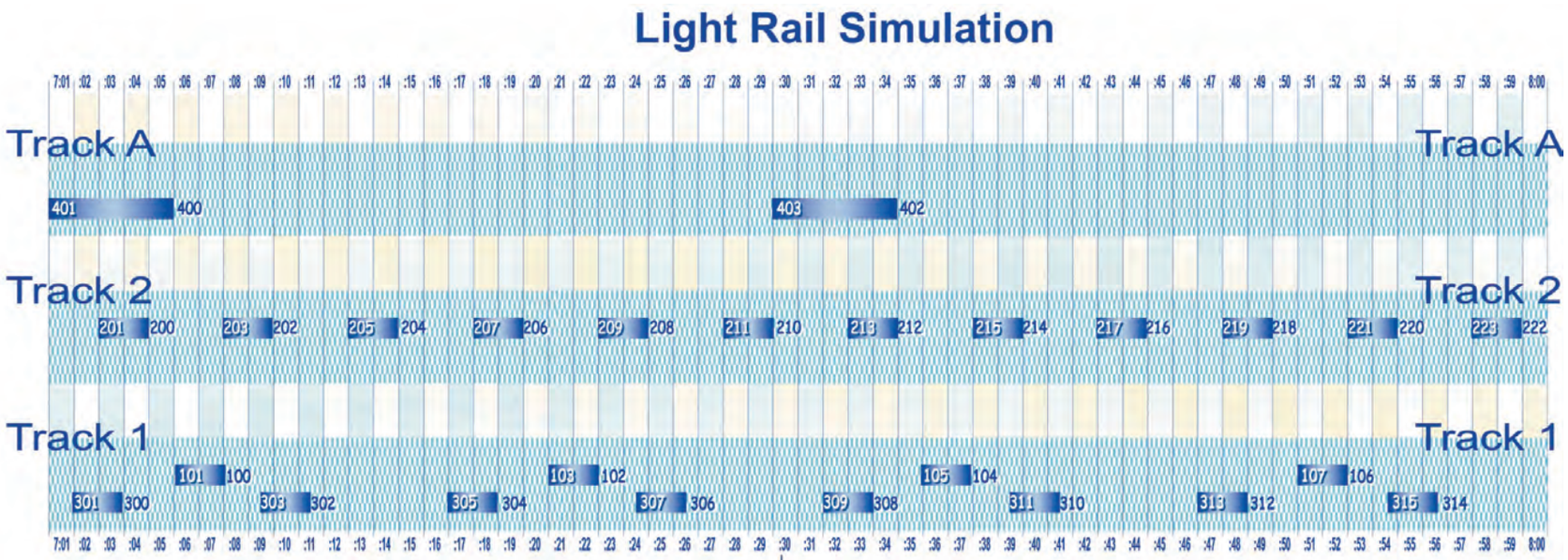
Passenger Rail Simulation Vision Plan



Simulation Vision Plan (Through Station)

1). Intercity (100 Series) utilize CML platform with complete loop
2). Reverse Commuter Departures utilize CML platform with complete loop
3). AMTRAK #5 & #6 utilize loop on inbound leg prior to backing into #1 or #2
4). Ski Train utilizes loop on inbound leg prior to backing into #1 or #2
5). Reverse Commuter Trains Depart 05" after arrival via South loop
6). 600 Series trains reverse commute at 10 & 40
    200 Series trains reverse commute at 07 & 37
    500 Series trains reverse commute at 24 & 57

Passenger-rail platform schedule, showing dwell times and platform assignments over a one-hour peak period for a through station.



Assumptions for LRT Simulation

Southeast/Southwest	100	4/hr = 8
West	200	12/hr = 24
Gold Line	300	8/hr = 16
I-70 Mountain (future)	400	2/hr = 4

Operating Schedule Assumptions

100 Series Arrive (Tk1)	at 06 - 21 - 36 - 51- 06
100 Series Depart (Tk1 - loop out)	at 08 - 23 - 38 - 53 - 08
200 Series Arrive (Tk2)	at 03 - 08 - 13 - 18 - 23 - 28 - 33 - 38 - 43 - 48 - 53 - 58 - 03
200 Series Depart (Tk2 - loop out)	at 05 - 10 - 15 - 20 - 25 - 30 - 35 - 40 - 45 - 50 - 55 - 60 - 05
300 Series Arrive (Tk1)	at 02 - 09.5 - 17 - 24.5 - 32 - 39.5 - 47 - 54.5 - 02
300 Series Depart (Tk1)	at 04 - 11.5 - 19 - 26.5 - 34 - 41.5 - 49 - 56.5 - 04
400 Series Arrive (TkA)	at 00 - 30
400 Series Depart (TkA)	at 05 - 35

Light-rail platform schedule, showing LRT dwell times and platform assignments over a one-hour peak period.

The Consolidated Main Line studies identified possibilities for moving some or all of the Master Plan's rail components to the CML.

Consolidated Main Line (CML) Studies

The possibility of placing some or all transportation components away from the Denver Union Station site on land next to the Consolidated Main Line (CML) between 16th and 19th Streets was studied to resolve the challenge of incorporating a through-station for passenger rail.

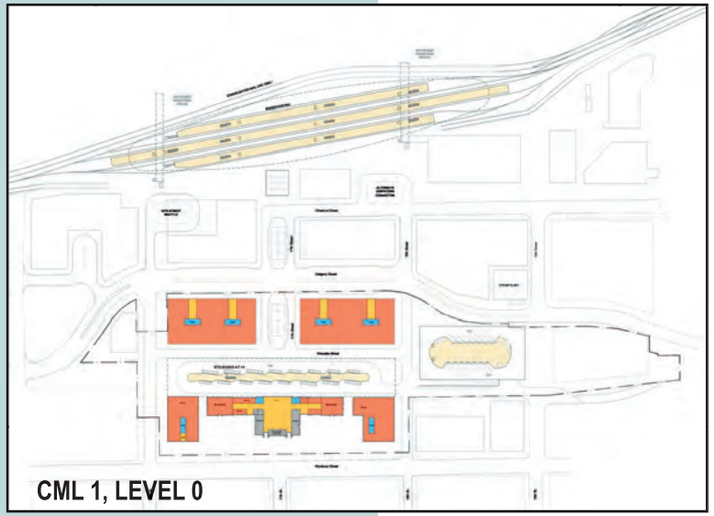
The graphics provided illustrate four options:

CML-1 moves just the through-station passenger-rail and light-rail stations to the CML, thus eliminating the Denver Union Station stub tracks from the 19.5-acre site. It extends the 16th Street Mall Shuttle and proposed Downtown Circulator to the CML to serve both the CML and the multimodal complex.

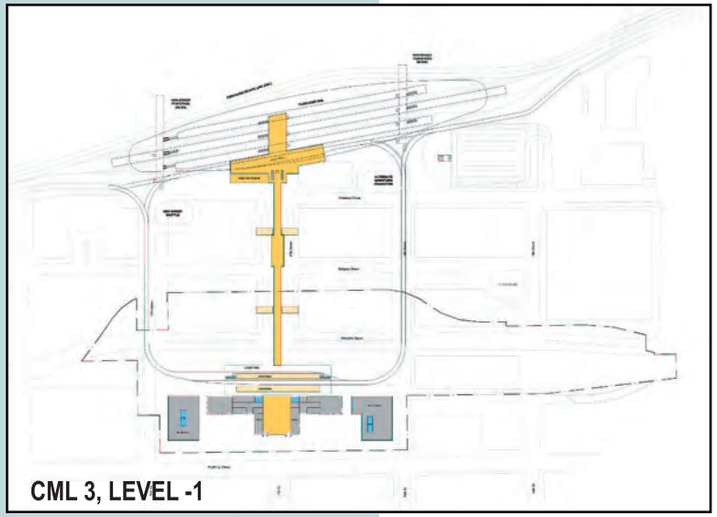
CML-2 also moves the through-station passenger-rail and light-rail stations to the CML. It straightens part of Wewatta Street, permitting a potential land swap for a portion of the CPV to minimize project costs.

CML-3 also moves the commercial bus facility program to the CML and straightens Wewatta Street between 16th and 19th Streets. This creates a larger land parcel for a potential swap for property next to the CML for multimodal components, and may also reduce costs of the alternative. The elimination of two bends in Wewatta could increase the function and safety of this arterial street, but more traffic analysis is needed.

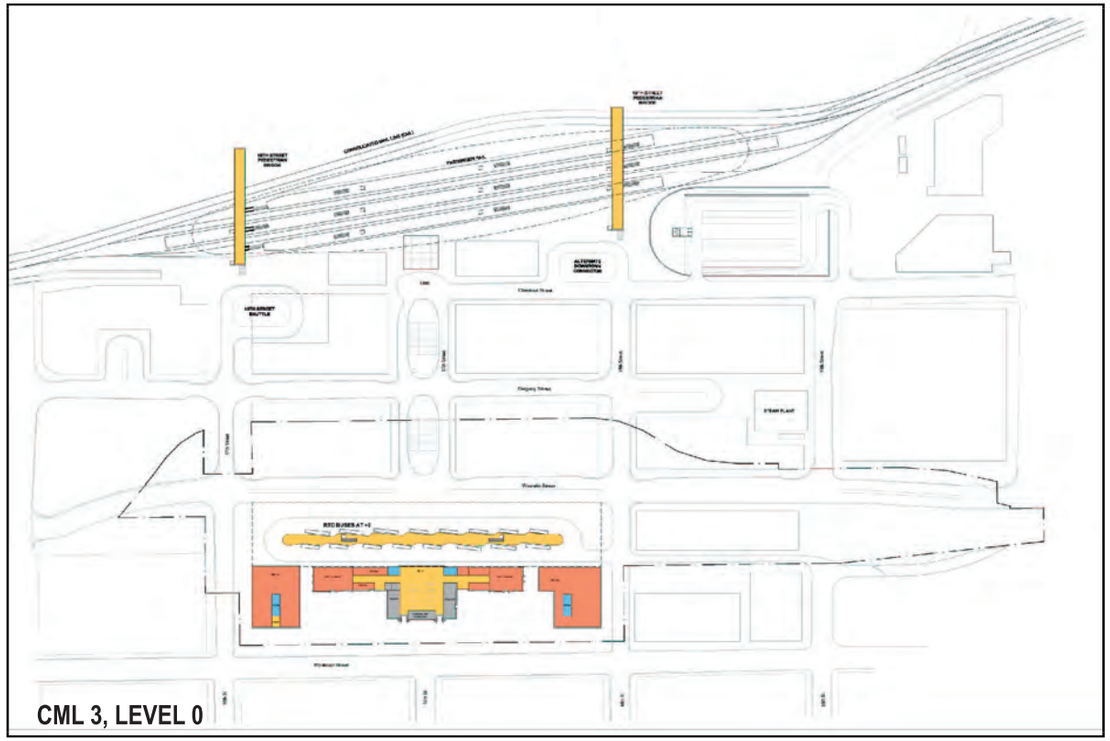
CML-4 relocates all multimodal functions and the historic building to the CML, which extends the city grid without interruption by the existing tracks and DUS building. Land swaps could help realize this compact alternative with through-station rail capability and no net addition of land. The historic Denver Union Station building could be moved intact. Wewatta Street would also be straightened to increase its function and safety.



CML 1, LEVEL 0



CML 3, LEVEL -1



CML 3, LEVEL 0

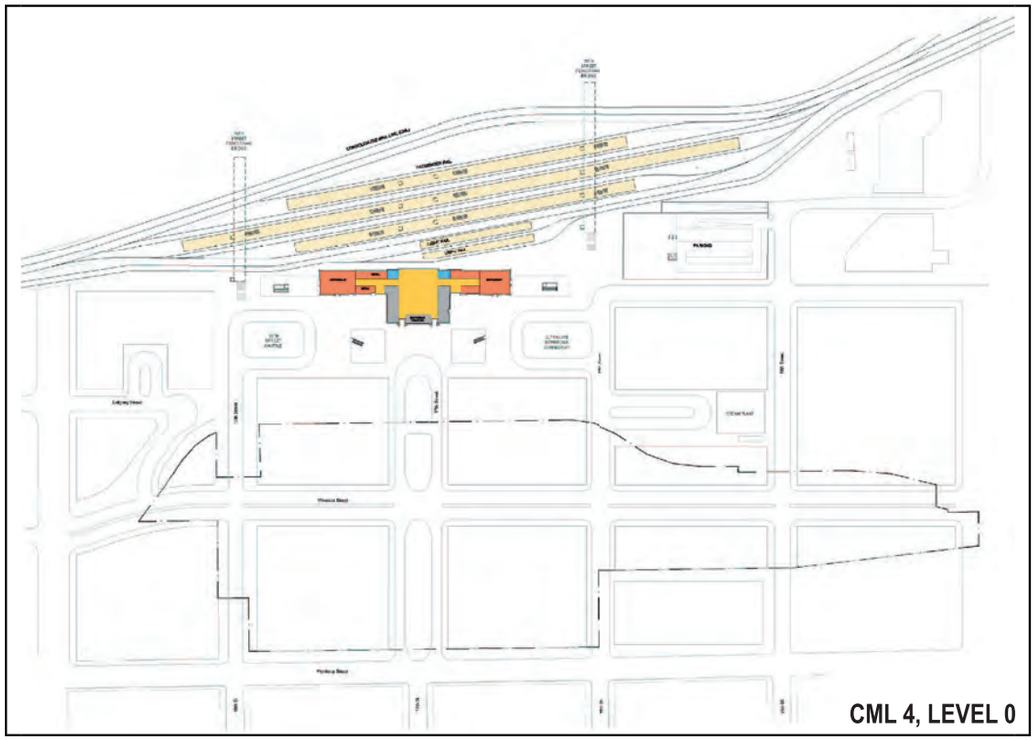
The CML options included benefits such as:

- each CML option produces a through-station passenger-rail facility;
- permitting 18th and 19th Streets to operate as through streets connecting Downtown to the Central Platte Valley;
- increasing the capacity of the multimodal station;
- eliminating the spur tracks and stub-end station;
- offering more flexibility for phasing each alternative;
- decreasing the need for temporary relocation of the passenger rail, light rail, and buses during construction; and
- easing program pressure on the tight site.

Significant disadvantages also emerged, including:

- extending the station over several blocks, making transfers less convenient and requiring other new infrastructure;
- possibly complicated land acquisitions and swaps;
- detaching the historic station from railroad uses (except CML-4 which moves the station closer to the CML);
- removing the historic station from LoDo, where it is a landmark, in CML-4;
- requiring the rezoning of the Commons Neighborhood and the Denver Union Station site;
- through-passenger rail service is possible only for north-to-south and south-to-north rail movements, not for commonly used north-to-north movements;
- conflicts with CML freight traffic; and
- difficult connections from the CML to the I-70 East Corridor.

As the challenges seemed to far outweigh potential benefits, these alternatives were not pursued. Yet some elements may someday provide opportunities for multimodal expansion.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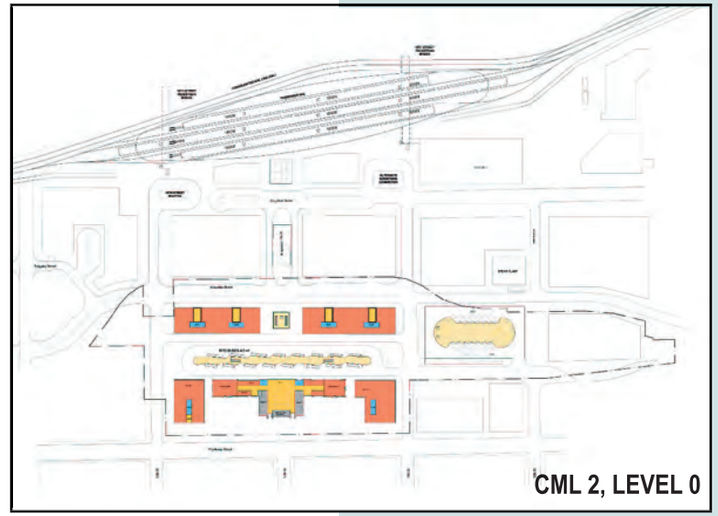
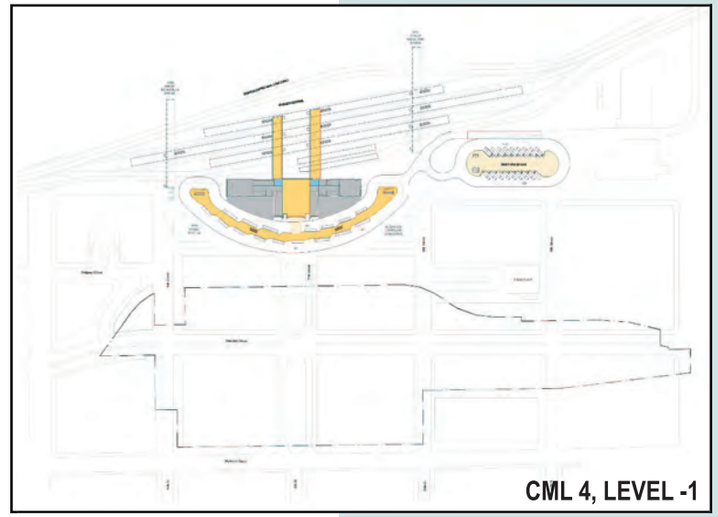
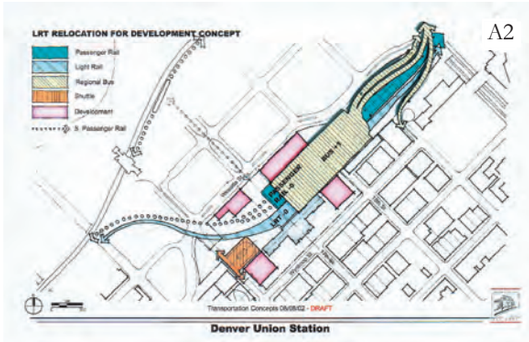
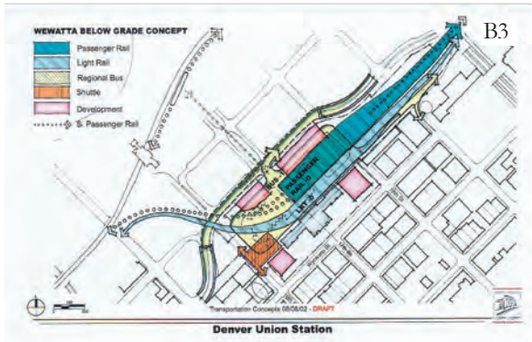

CML 2, LEVEL 0


CML 4, LEVEL -1


LRT RELOCATION FOR DEVELOPMENT CONCEPT
A2
Passenger Rail
Light Rail
Regional Bus
Shuttle
Development
S. Passenger Rail
Denver Union Station


WEWATTA BELOW GRADE CONCEPT
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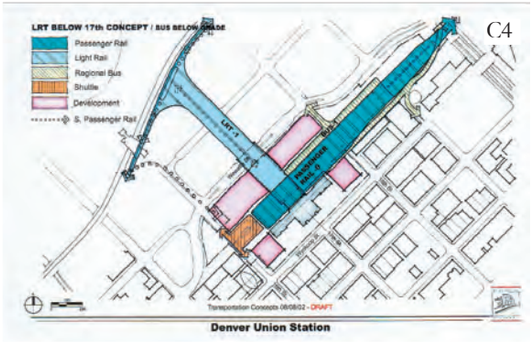
Light Rail
Regional Bus
Shuttle
Development
S. Passenger Rail
Denver Union Station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C4
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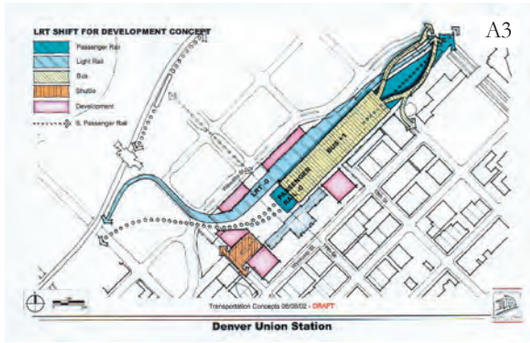
Light Rail
Regional Bus
Shuttle
Development
S. Passenger Rail
Denver Union Station


LRT SHIFT FOR DEVELOPMENT CONCEPT
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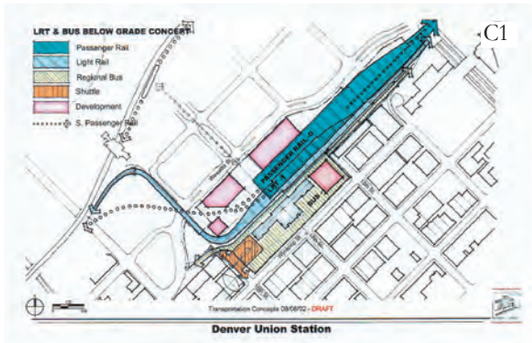
Bus
Shuttle
Development
S. Passenger Rail
Denver Union Station


LRT & BUS BELOW GRADE CONCEPT
C1
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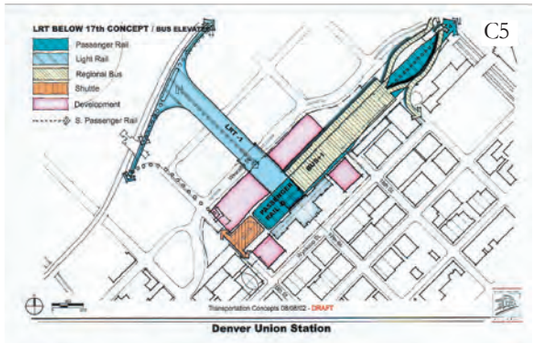
Light Rail
Regional Bus
Shuttle
Development
S. Passenger Rail
Denver Union Station


LRT BELOW 17th CONCEPT / BUS ELEVATED
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Shuttle
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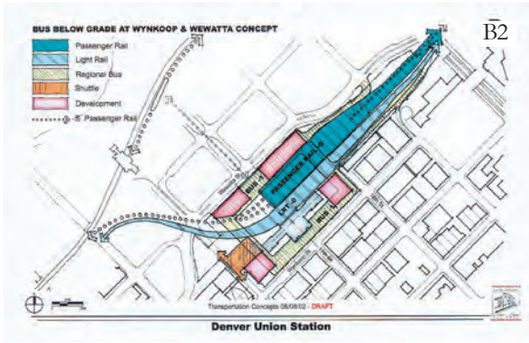
S. Passenger Rail
Denver Union Station


BUS BELOW GRADE AT WYNKOOP & WEWATTA CONCEPT
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Light Rail
Regional Bus
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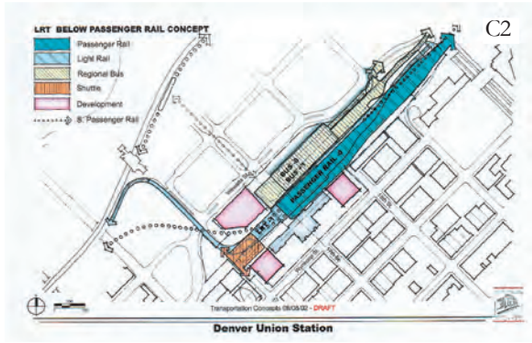
S. Passenger Rail
Denver Union Station


LRT BELOW PASSENGER RAIL CONCEPT
C2
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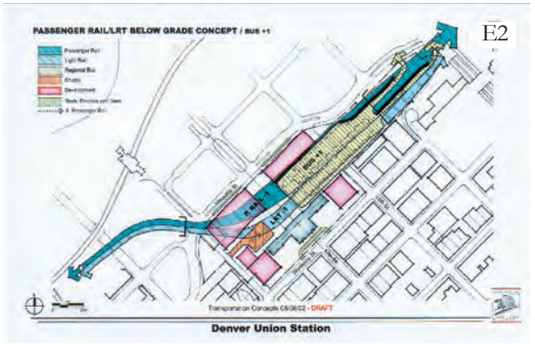
Light Rail
Regional Bus
Shuttle
Development
S. Passenger Rail
Denver Union Station


PASSENGER RAIL/LRT BELOW GRADE CONCEPT / BUS +1
E2
Denver Union Station

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Denver Union Station Master Plan
Abbreviations used in the Master Plan document:

BNSF	Burlington Northern Santa Fe
BRT	Bus Rapid Transit
ca	Circa
CBD	Central Business District
CCD	City and County of Denver
CDOT	Colorado Department of Transportation
CMAQ	Congestion Mitigation Air Quality
CML	Consolidated Main Line
CPV	Central Platte Valley
DEIS	Draft Environmental Impact Statement
DIA	Denver International Airport
DMAP	Downtown Multimodal Access Plan
DMU	Diesel Multiple Unit
DRC	Development Review Committee
DRCOG	Denver Regional Council of Governments
DUS	Denver Union Station
EIS	Environmental Impact Statement
EOC	Executive Oversight Committee
FAR	Floor-Area Ratio
FEIS	Final Environmental Impact Statement
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration
FTA	Federal Transportation Administration
GDP	General Development Plan
HOT	High-Occupancy Toll
HOV	High-Occupancy Vehicle
HT	Height
LEED	Leadership in Energy and Environmental Design
LoDo	Lower Downtown
LOS	Level of Service
LPA	Locally Preferred Alternative
LPC	Landmark Preservation Commission
LRT	Light-Rail Transit
MAX	Maximum
NEPA	National Environmental Policy Act
NOI	Notice of Intent
PMT	Project Management Team
PRV	Platte River Valley
PUC	Public Utilities Commission
PUD	Planned Unit Development
RFP	Request for Proposal
ROD	Record of Decision
RNO	Registered Neighborhood Organization
ROW	Right-of-Way
RTD	Regional Transportation District
RTP	Regional Transportation Plan
SF	Square Feet
TAC	Technical Advisory Committee
TDP	Transit Development Plan (RTD)
TIP	Transit Improvement Plan (DRCOG)
T-MU	Transit Mixed-Use
UP	Union Pacific
USAC	Union Station Advisory Committee