August 2001 RTD acquires site in accordance with IGA between RTD, CCD, CDOT and DRCOG.

Step 1 (2001): RTD Acquires DUS Site

Step 2 (2002-4): Master Planning
- April 2002 Partner Agencies initiated master planning process
- 3-year public process with 96-member Advisory Committee
- September 2004 Vision Plan approved by four Partner Agencies establishing transit and development programs
- September 2004 DUS rezoned T-MU 30

Step 3 (2005-6): Developer Selection
- 18 month process of national significance
- Developer RFQ June 2005
- 11 teams submit
- RFP Part 1, February 2006
- 5 teams submit
- RFP Part 2, July 2006
- Developer Interviews, August 2006
- Public Presentations, September 2006

- USNC team studied alternative configurations
- At-Grade Solution developed and costed; 15% Conceptual Plans prepared
- Master Plan amended to reflect new solution
- EIS advances

- Design Team prepared 30% Preliminary Engineering
- EIS completed
- ROD issued October 2008
- DUSPA created
- DDA created, TIF district established
- DUS Met Districts created

Milestones:
- Nov. 2004: FasTracks approved by voters
- Nov. 2006: USNC Selected as Master Developer, team included SOM, AECOM, and Kiewit
- Nov. 2007: Revised solution & target budget established
- Dec. 2008: PE complete, Start D/B Negotiations

Denver Union Station Redevelopment
**Work Process**

- **Kiewit and Design Team Contracts Executed**
- **DUS Urban Design Standards & Guidelines (DS&G) Approved**
- **DUS General Development Plan (GDP) Approved**
- **Final Design + Early Permit Packages**
- **Regulatory Review Process:**
  - Planning Board Site Plan Review
  - Landmarks Preservation Commission
- **DUSPA Peer Design Panel**
- **Public Meetings**
- **Public Realm Design**
- **Related On-Going Activities:**
  - Continued Stakeholder Outreach
  - Vertical Development Planning and Construction by Others

**Milestones**

- **May 1, 2009**
  - NTP for D/B
- **Summer 2010**
  - DUS LRT Station open to public
  - All Transportation Final Design Packages permitted and RFC
- **Summer 2013**
  - DUS Commuter Rail Terminal and Regional Bus Station open to public
DUS Design Status: Summer 2009

Transit Architecture & Infrastructure
~ 60%
100% Construction Documents
Spring, 2010

Public Realm; Landscape Architecture
~ 10%
100% Construction Documents
December, 2010
Phased Site Plan Submission

UD Package 1
LRT to Wewatta Street
July 1, 2009

- LRT and Mall Shuttle Canopies
- LRT Highblocks
- Mall Shuttle Starter Booth
- Driver Relief Station
- Emergency Generator Set Enclosure
- Chestnut Pavilion and Ventilation Tower
- 17th Street Skylights
- Mid-block Stair Bulkhead
Phased Site Plan Submission

UD Package 2
Wewatta Street to DUS
Sept./Oct. 2009

- CRT Train Hall
- CRT Platforms, Vertical Circulation and Canopies
- Elevated Pedestrian Deck
Phased Site Plan Submission

UD Package 3
Balance of DUS District
Dec. 2009

3A –
• Landmark Preservation Area
• EVA Corridor
• Wynkoop Plaza

3B –
• All Streets and Sidewalks
• All Public Spaces
DUS Redevelopment Area
Existing Condition
42.5 Acres
DUS Transit District | Major Transit Elements

- **Commuter Rail Terminal**
  - East (DIA)
  - North Metro (I-25 North)
  - Northwest (Boulder)
  - Gold (Arvada/Golden)
  - Amtrak
  - Additional Expansion Capacity

- **Light Rail Transit Station**
  - Existing Southwest & Southeast
  - West (Lakewood/Golden)

- **Regional Bus Facility**
  - 16 Regional
  - 4 Downtown Circulator
  - 2 Commercial Bus (dedicated)

- **16th Street Mall Shuttle**
- **Downtown Circulator**
DUS Transit Improvements
Phased Opening

Light Rail Transit + Mall Shuttle

Below-grade Regional Bus Terminal

Commuter Rail Terminal
- General Development Plan
- Urban Design Standards & Guidelines
- Transit Infrastructure Design Regulatory Review
DUS - Transit Infrastructure

- Light Rail + Mall Shuttle Stations
- Regional Bus Terminal
- Commuter Rail Terminal
- DUS Historic Building

Denver Union Station Redevelopment
Denver Union Station Redevelopment

DUS – Transit Architecture

- LRT
- Chestnut Pavilion + Ventilation Tower
- Skylights
- Mall Shuttle
- Wewatta Pavilion
- CRT Train Hall
- Amtrak Canopy
- DUS Pavilion
- Train Hall + Overbuilds provide required 50% Platform Coverage per RTD Criteria
How can we create a distinct civic space?
**Relationship to Station Building**

- Functional relationship
- No physical connection
- Continuous canopy protection
- Formal relationship with the historic station building’s façade
- Daylight can penetrate, lightening visual appearance
- Unobstructed views from the west, respecting the protected 17th Street view corridor
CRT Train Hall

+ 65ft.
+ 85ft.
+ 65ft.
+ 67ft.
+ 21ft.
+ 21ft.
+ 43ft.

160ft.

* All heights measured from platform level
Steel Structure:
20-inch-diameter columns with 18" diameter thrust kickstands (15’ on center) painted with 2-part system: zinc-rich epoxy + polysiloxane gloss

Membrane:
PTFE (Teflon) coated fiberglass fabric, with aluminum fasteners
- Light permeable
- Fire resistant (non-combustible)
- Self-cleaning (inert in nature)
- Long life expectancy (35 years)
- UV resistant
Train Hall Aerial View – looking NE
Train Hall – View from Platforms, looking NE

Technology Trusses suspend lighting trays, power, data and electric traction catenary
Denver Union Station Redevelopment

17th Street View, looking East
Elevated “Kinetic” Plaza, looking West
Denver Union Station Redevelopment

Elevated “Kinetic” Plaza, looking South-Head of Platform
Denver Union Station Redevelopment

LRT and Mall Shuttle
Denver Union Station Redevelopment

Circulation – LRT

Southwest, Southeast and West Light Rail Corridors

Alighting East Platform
AM Peak Hour Trips: 4,020
Circulation – LRT

Southwest, Southeast and West Light Rail Corridors

Boarding West Platform
AM Peak Hour Trips: 1,060
Circulation – Mall Shuttle

AM Peak Hour Trips:
420 Alighting
5,980 Boarding

Mall Shuttle
AM Peak Hour Trips:
5,980 Boarding
## Mall Shuttle Route

- Add more stops for the shuttle.
- Move 16th & Wewatta stop to align with CRT public concourse.
- Add a stop for every block in the CPV, similar to Downtown and LoDo in the rest of the system.
- Extend loop to open up access to north side of the Valley/Prospect neighborhood and enhance access to regional buses.

LoDo District Urban Design Committee  
Commons Design Review Board

- Per RTD, changes to the planned route and stops are not contemplated at this time.
Public Comment on Transit Architecture

Comment / Recommendation

**Mall Shuttle Alignment**

- Incursion of Mall Shuttle into Millennium Bridge is a real problem.
- Extremely important to have an inviting walkway between bridge and LRT.
- Equally important to have active retail options on the building frontage where the bridge lands.

LoDo District Urban Design Committee

Response / Action

- Alignment revised to maximize pedestrian sidewalk: increased to 20’ wide at foot of bridge.
Public Comment on Transit Architecture

Comment / Recommendation

**Mall Shuttle Architectural Design**

- Don’t agree that it is necessary for the canopy at the 16th Street Mall Shuttle Stop to be similar to the form of the CRT train hall structure.

Community Meeting Participant

Response / Action

- Design Team feels strongly that a common architectural language is critical to establishing the identity of a transit district that is cohesive and greater than the sum of its parts.
Public Comment on Transit Architecture

LRT Architectural Design

• There has been no public review of any design for the LRT. Is it important that that design be presented to and evaluated by the public.

• To maximize the TOD development opportunities on Blocks 15 & 17, it is important to develop a unique destination place and arrival experience as a transit station.

LoDo District Urban Design Committee
Commons Design Review Board

Response / Action

• Agreed. New presentation material is available.
LRT and Mall Shuttle

- Canopies at LRT
- Canopies at Mall Shuttle Drop-off/Pick-up
- 4 Highblocks with Ramps
- 6 Windscreens
- 12 Benches (48 Seats)
- Starter Booth
- Validators and TVMs

Denver Union Station Redevelopment
LRT and Mall Shuttle

Denver Union Station Redevelopment
Denver Union Station Redevelopment

LRT and Mall Shuttle
LRT and Mall Shuttle – Alternate Site Plan
LRT and Mall Shuttle Canopies
Typical Bay

PTFE Membrane
HSS 6” dia.
Indirect canopy lighting
Signage Band
Conduit Wireway
Windscreen
(2) 3” dia. Stormwater Leaders
HSS 8.75” dia.
SS Column Base Protection
Tactile Warning Strip

Snow Guard @ 18” o.c. with continuous SS cables
Gutter
Cast Aluminum Seating

Denver Union Station Redevelopment
LRT and Mall Shuttle Canopies

Lighting Strategy

PTFE Fabric works as light reflector

Linear fluorescent fixtures integrated in Signage Band (3 per bay)

10'-2"
Denver Union Station Redevelopment

Chestnut Pavilion and Ventilation Tower
Denver Union Station Redevelopment

Chestnut Pavilion and Ventilation Tower
Denver Union Station Redevelopment

Chestnut Pavilion and Ventilation Tower
Chestnut Pavilion and Ventilation Tower

- Intake louvers
- Air Intake Plenum
- Driver Relief Station
- Air Exhaust Plenums
- Concrete Shaft
- Steel structure
- PTFE membrane

20'-0" horizontal separation between intake and exhaust

Denver Union Station Redevelopment
Chestnut Pavilion and Ventilation Tower

PTFE membrane

Steel columns

Textured concrete surface - profile to match louvers

Air Exhaust Plenums

18'-21'

10'-0"

14'-0"

Air Intake Plenum

Metal Louvers

Driver Relief Station

Signage

Exposed Concrete

Denver Union Station Redevelopment
Denver Union Station Redevelopment

Chestnut Pavilion

Bus Concourse

Dimensions:
- 15'-0"
- 18'-6"
- 30'-0"
- 45'-0"
- 11'-0"
- 14'-0"
- 43'-8"
- 10'-0"
17th Street Skylights and Mid-block Egress
17th Street Skylights

- BUS TERMINAL LEVEL (CONCOURSE)
- BUS TERMINAL LEVEL (DRIVE ISLE)
- STRUCTURAL BOX BEAMS
- TRANSVERSE MECHANICAL DUCTS
- SKYLIGHTS
- EGRESS STAIR BULKHEAD
- FIRE COMMAND CENTER

Denver Union Station Redevelopment
Denver Union Station Redevelopment

17th Street Skylights

- Laminated & tempered low-iron IGU, with low-E coating and ceramic silk screen on #2 surface
- [32% slope]
- 4 ft. deep earth fill for planting
- Waterproofing membrane
- Precast box-beams
- Air-Ducts
Comment / Recommendation

**Mid-block Public Access**

- Add vertical circulation core to access the underground bus station, midway between Chestnut and Wewatta.
- Increase access from bus station to commercial areas along promenade, and vice versa, to enliven space and provide connectivity.

LoDo District Urban Design Committee
Commons Design Review Board

Response / Action

- Tradeoffs were considered.
- Project leadership is not willing to compromise on the number of bus slips.
- DUSPA has asked the Design Team to consider making the 5’ wide egress stair available for public entry as well.
- Impacts to be considered include: increased stair width, additional ADA elevator, deletion of moving sidewalks, etc.
Public Comment on Transit Architecture

Comment / Recommendation

**On-street Parking**

- Delete the northern row of parking in the 17th Street ROW to improve accessibility to the public “rooms” of the 17th Street linear park and to maintain an axial view and walkway to the station.

LoDo District Urban Design Committee

Response / Action

- Project leadership intends to provide as much on-street parking as possible to support retail.
- Design Team will investigate opportunities to refine the cross-section of the street.
Skylights project maximum 4'-6" from the ground, to allow unobstructed eye-level views.

4'-0" deep earth fill for planting

35'-0" min.

34'-0"

17th Street Pedestrian Path

Bus Concourse Below

17th Street Skylights

Bus Terminal Egress Stair
Bulkhead and Fire Command Center

32% slope

12'-0"

7'-4"

17th Street Pedestrian Path
Denver Union Station Redevelopment

Below-grade Regional Bus Terminal
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| **Bus Station Architectural Design**  
- The pedestrian environment within the bus box needs further development and presentation. | • Agreed. |

LoDo District Urban Design Committee
Regional Bus Terminal
Denver Union Station Redevelopment

Wewatta Pavilion
Denver Union Station Redevelopment

CRT Train Hall
Train Hall Architectural Design

- I understand the "outdoor urban room" concept, but how much protection will areas covered by the canopy offer, especially from rain and melting snow?
- Explore splitting up the single canopy into two canopies, one at either end of the platform. Remove the canopy proximal and distal to the historic structure in the 17th street view plane.

A. Gonzalez

Response / Action

- Project Leadership strongly believes that the unifying gesture of the train hall structure – simple, elegant, transparent and continuous – is critically important to placemaking at DUS.
- Much more has been done with the Community to gain support for this concept.
- Design Team will continue to work on formal enhancements.
## Public Comment on Transit Architecture

### Comment / Recommendation

**Train Hall Architectural Design**

- Most walls (of private development) surrounding train hall are blank walls. This is important problem. How to create pedestrian friendly facades here needs to be looked at carefully.
- It is crucial that the passageway from 16th Street through the A Block building have a real presence on 16th Street. This building functions as a headhouse to the CRT.

LoDo District Urban Design Committee

### Response / Action

- The DUS Urban Design Standards & Guidelines address considerations for the future adjacent mixed-use development.
- DUS wayfinding design will address the concern about intuitive circulation.
Denver Union Station Redevelopment
Denver Union Station Redevelopment

Union Station West Entry at CRT Hall, looking South
DUS Historic Building

Denver Union Station Redevelopment
Public Realm
TRANSIT REALM
TRANSIT REALM ROOMS

Denver Union Station Redevelopment
Next Steps
Next Steps: Summer/Fall 2009

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Denver Union Station Redevelopment