The RTD FasTracks Plan

- 122 miles of new light rail and commuter rail
- 18 miles of Bus Rapid Transit (BRT) service
- 31 new Park-n-Rides; more than 21,000 new parking spaces
- Enhanced Bus Network & Transit Hubs (FastConnects)
- Redevelopment of Denver Union Station
- 57 new rail and/or BRT stations
- Opportunities for Transit Oriented Communities
FasTracks Status

West Rail Line (W Line)—First FasTracks line to open—April 2013, 8 months ahead of schedule

Denver Union Station—93% complete

East/Gold/Northwest Rail Lines (EAGLE)—50% complete

I-225 Line—construction underway

U.S. 36 BRT—Phase 1 of managed lanes 55% complete

North Metro Line—Currently evaluating proposals
West Rail Line

- 12.1 miles of light rail
- 12 Stations
- 5,605 parking spaces
- $707M capital cost
- Ridership
  - 18,800 – 2013
  - 29,700 – 2030
- Train Frequency
  - Auraria – Fed Center
    - 7.5 min (peak)
    - 15 min (off peak)
  - Fed Center to Jeffco
    - 15 min
- Opened April 26, 2013
Major Challenges

• Very narrow right-of-way (old rural residential)
• Staying within budget while dealing with
  – Community Expectations
  – Material Cost Increases
• 300+ partial acquisitions
  - Widening of 13th Avenue
  - Bike Path
• Number of Bridges
Project Elements

• **Rail**
  ✓ 12.1 miles — Begins at Auraria Campus in Denver and ends at the Jeffco Government Center in Golden

• **Bike paths**
  ✓ 4.26 miles — .38 miles in Jeffco, 2.20 in Lakewood, 1.68 in Denver

• **Bridges**
  ✓ 10 Light Rail Bridges
  ✓ 3 Street/Highway Bridges
  ✓ 3 pedestrian bridges

• **Crossings**
  ✓ 20 at-grade crossings
  ✓ 14 grade separations
  ✓ 10 road closures

• **Tunnels**
  ✓ I-70 and Union Boulevard

• **Walls**
  ✓ Retaining
  ✓ Sound
  ✓ Ballast
  ✓ Mechanically Stabilized Earth
  ✓ Soil Nail

• **Stations**
  ✓ 12 Stations — 6 kiss-n-Ride, 6 with parking

• **Utilities**
  ✓ Dry
  ✓ Wet
  ✓ Relocated
  ✓ New
Neighborhood and School Proximity

More than three miles of the line travels within 20 feet of residential properties in Lakewood.

Six elementary schools within four blocks of the tracks, one immediately adjacent.

Creates unique situation where noise and neighborhood cohesiveness are at odds with best safety practices, making safety outreach even more important.
Homes Close to Rail Line
Safety Improvements at Stations and Crossings
Sidewalks and Safety

- Wider sidewalks on Federal and Sheridan Boulevards
- Pedestrian warning signs & signals provided at all crossings
- Pedestrian tunnel built under elevated guideway
Sidewalks and Safety

• Four locations where bikes must cross the light rail tracks

• Bike Bridges over Kipling and Wadsworth

• The bike path will cross the tracks at street level, adjacent to traffic

• Bike path maintenance will be done by the jurisdictions
At-Grade Crossings

RTD is required to get approval from the Public Utilities Commission (PUC) for all crossings of the rail line.

- Quad gates or Medians
- Flashing lights
- Pavement Markings
- Signage
- Audible Signals

Eiber Elementary
Safety Recommendations

Following the UTA accident during pre-revenue, RTD re-evaluated safety and made a number of additional changes, following PUC approval:

- Fencing extension between sound wall and signal mast
- Place bollards between wall and signal mast
- Place swing gate between signal mast and sound wall
- Remove track panels where not needed for walking
- Remove sound wall
- 20 mph speed restriction 24/7 for trains at Independence intersection
- Place “no trespassing” signs at each corner
Safety Recommendations

Wolff Pedestrian Crossing
Quiet Crossings Background

During EIS, surrounding community asked for no horns at intersections, no bells on Gates. RTD agreed to apply to the PUC with these restrictions. Total of 11 quiet crossings.

Blind community came out in force to oppose no bells.

Coalition between RTD, Neighborhood reps, blind community

Multiple occasions to test devices in field with community, PUC, RTD representatives.

Basic Agreement:

- No need for trains to blow horns
- Need to have audible signal to alert blind pedestrians
- The audible signal needs to be a bell – the standard sound for a train.
- The audible signal doesn’t need to be at 90+ decibels.
- The bells should focus on the pedestrians.
Quiet Crossings - Compromise

Signals audible to peds within 20’ of crossing

Signals directional to reduce noise outside the 20’ radius

Signals positioned in standard locations at each intersection

Signal to be standard bell tone.

Tone volume to be variable, adjusting in real time based on five decibels above ambient noise levels

Signal volume capped at 5 dBa above pre-construction 24 hours noise level

PUC agreed
Quiet Crossings - Outcome

RTD has approval to run quiet through the crossings (no horns, no train level bells on gates)

A pedestrian specific, low-level audible signal on the crossings to alert pedestrians of approaching trains

Train horn will sound for safety reasons only
- When maintenance crews are along the tracks
- Emergency situations such as pedestrians along the tracks or vehicles rushing the gates

Each Quiet crossing required installation and maintenance of active grade crossing warning devices: flashing lights and gates at public crossings, advance warning signs, and constant warning time devices
Safety Reviews
West Rail Line Safety Reviews

- APTA RTD West LRT Line Operational and Safety Procedures Peer Review
- OP 54 – FTA Region 8
Participants: Mike Avery, King County Metro; Larry Gaul, DART; Vijay Khawani, LA Metro; Harry Saporta, Tri-Met; Greg Hull, APTA

Focused on:
• West Line Alignment & Operating Environment
• Operations and Integration Plan
• Rules and SOP’s
• Grade Crossings
• Safety & Security Processes

Observations/Recommendations: Most addressed grade crossings, and the need to update the grade crossing design criteria and include lessons learned
Review of documents – April 2012; Draft report – December 2012; Close Out tour – April 2013

Participants

- FTA
- PMOC Evaluation Team
- RTD Project Management
- RTD Systems Engineering
- RTD Safety and Security
- RTD Rail Operations
Disciplines/Documents Reviewed

- Scope/Project Definition
- System Integration Testing
- Safety and Security
- Pre-Revenue Operations
- Technical Capacity and Capability

Process

Review Documentation
- Site Visits/Interviews
- Findings/Recommendations
- Systems Integration Testing
- Pre-Revenue Operations
- Final Report
Safety & Security Readiness Review
November 2012

Participants
Ryan Frigo, FTA; Dain Pankratz, FTA contractor

Focused on

Recommendations
Ten recommendations mostly regarding grade crossings
Safety Outreach
Construction Safety Outreach

- Back to School Nights
- Construction Safety Posters
- Messages to Parents
- Neighborhood Meetings
- Fact Sheets
- Website
- FasTracks Freddy

Remember to Be Safe around all construction and light rail activity!!
Information Distribution

- Back to School Nights
- Safety Roadshows
- Health and Safety Fairs/Info Booths
- Presentations
- Tours
- Fact Sheets
- Website Pages
- WRL Newsletter Articles
- PSA announcements
- Light rail car wraps
- Grand Opening Events
Safe Routes to School Grant

- Coordination with multiple entities to develop safe traffic and pedestrian practices at schools near rail crossings:
  - City of Lakewood
  - Bicycle Colorado
  - Operation Lifesaver
  - West Metro Fire
  - Jefferson County Schools

- Back to school nights
  - Provide bilingual walking and biking materials and giveaways

- Safety Road Show
  - Automated rail crossing demonstration
  - Full days at schools within four blocks of the new rail line

- Safety Video Production and Distribution
Safety Roadshows

Demonstrated crossing the tracks safety to six elementary schools within four blocks of alignment – training for 800 children
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