The RTD FasTracks Plan

- 122 miles of new light rail and commuter rail
- 18 miles of Bus Rapid Transit (BRT) service
- Voters approved sales tax increase in 2004
- Multi-modal hub at Denver Union Station
- FasTracks is a program of projects
FasTracks Status

- 64 miles of new rail line currently complete or under contract ($5 billion)
- Environmental processes complete
- Light rail maintenance facility, light rail vehicle purchases, platform extensions, power upgrades and other enhancements to the existing system also complete
- Moving forward with committed projects and maximizing funding opportunities

Challenge

- Effectively managing approximately $5 billion of simultaneous construction within budget and schedule constraints.
### RTD PROJECT HISTORY

<table>
<thead>
<tr>
<th>Corridor Project</th>
<th>Delivery Method</th>
<th>Cost (millions)</th>
<th>Opening Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Corridor</td>
<td>5.3 Mile – Design-Bid-Build</td>
<td>$117 million</td>
<td>September 1994</td>
</tr>
<tr>
<td>Southwest Corridor</td>
<td>8.6 Mile – Design-Bid-Build</td>
<td>$180 million</td>
<td>July 2000</td>
</tr>
<tr>
<td>Central Platte Valley</td>
<td>1.8 Mile - Design-Bid-Build</td>
<td>$46 million</td>
<td>April 2002</td>
</tr>
<tr>
<td>Southeast Corridor – T-REX</td>
<td>19.2 Mile – Design-Build, Multi-Modal Project with CDOT</td>
<td>$1.7 billion (LRT - $900 million)</td>
<td>November 2006</td>
</tr>
</tbody>
</table>

### FasTracks Summary Status

<table>
<thead>
<tr>
<th>Corridor Project</th>
<th>Description/Delivery Method</th>
<th>Cost (millions)</th>
<th>Opening Date</th>
<th>Delivery Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Rail</td>
<td>12.1 Mile Light Rail/Construction Manager-General Contractor</td>
<td>$707</td>
<td>April 2013</td>
<td>Opened April 26, 2013 on budget, ahead of schedule</td>
</tr>
<tr>
<td>Denver Union Station</td>
<td>Multimodal Terminal/Design-Build</td>
<td>$500</td>
<td>May 2014</td>
<td>Under construction - 80% Complete</td>
</tr>
<tr>
<td>US 36 – Phase I</td>
<td>11 Mile Bus Rapid/Transit/Managed Lane with CDOT/Design Build</td>
<td>$312</td>
<td>January 2015</td>
<td>Under Construction – 19% Complete</td>
</tr>
<tr>
<td>Eagle P3</td>
<td>35 Mile Electrified Commuter Rail/Design Build Operate Maintain/PPP</td>
<td>$2,100</td>
<td>Through 2016</td>
<td>Under Construction – 37% Complete</td>
</tr>
<tr>
<td>I-225</td>
<td>10.5 Mile Light Rail/Design Build</td>
<td>$667</td>
<td>Spring 2016</td>
<td>In final design; Construction started</td>
</tr>
<tr>
<td>North Metro</td>
<td>18.5 Mile Electrified Commuter Rail 5.8 to 72nd Avenue/Unsolicited design-build proposal</td>
<td>$180 (funded)</td>
<td>2017</td>
<td>Segment One to 72nd Avenue in Final Design on hold pending unsolicited proposal and RFP (July 2013)</td>
</tr>
<tr>
<td>Southeast Extension</td>
<td>2.3 Mile/1TD</td>
<td>$205</td>
<td>TBD</td>
<td>In Now, Starts (entry to PE)</td>
</tr>
</tbody>
</table>
### Design-Bid-Build

- Works well when owner wants control over design (e.g. Elati Maintenance Facility), risks are unknown until more advanced design can be done or when challenging stakeholder issues exist
- Takes more time in the schedule
- Limits innovation from the private sector
- More change orders (owner has risk for design) and more contentious relationships between owner and contractor

### Construction Manager General Contractor

- Contractor is bought in early when design is proceeding
- Contractor provides constructability and value engineering input during design
- A final guaranteed maximum price (GMP) is negotiated
- Owner has control and risk for design although contractor involvement during design can limit that risk
- Requires strong cooperation of design firm, owner and contractor
- Negotiated GMP limits competitive pricing and will impact schedule if negotiations are not successful
Design-Build

- Faster schedule from overlap in activities
- Best value selection fosters collaboration and innovation
- Effective partnering is key
- Shifts certain risks (i.e. design) to the Design-Build contractor
- Fewer change orders, but they are larger on average
- Requires fewer resources for the owner oversight
- Requires quick decision making

Design-Build (continued)

- Well matched with a systems (electrification) project where manufacturers/suppliers do much of the design
- Best value selection fosters collaboration and innovation
- Effective partnering is key
- Shifts certain risks (i.e. design) to the Design-Build contractor
- Still requires effective oversight by the owner
- Variations include design-build-maintain (DBM) and design-build-operate-maintain (DBOM)
Public Private Partnership

- Adds financing from the concessionaire (DBFOM)
- Provides long-term integrated delivery
- Availability payments are tied to operational performance criteria so provides great incentive to consider life cycle costs and operability
- Good value for the money
- Procurement period can be longer, more complex and expensive
- Private financing more expensive than public financing

Lessons Learned at RTD

- Match the project and its risks with the delivery method
- In many cases there is not necessarily a right or wrong delivery method. All types of delivery methods have been successful. If they are not, there is usually some other fundamental reasons
- One size does not fit all projects
- Make sure agency management and project staff is vested in the delivery method
- Bring the right expertise in to manage that delivery method
Lessons Learned at RTD (continued)

- Best value selections have resulted in strong proposals and teams
- In choosing a delivery method consider risk, schedule, cost, innovation of private sector, number of contracts/contractors, stakeholder involvement
- Reflect the agency goals in the evaluation criteria (i.e. price, public outreach, DBE programs, safety, quality)
- Keep the Board and stakeholders informed during the procurement process while respecting the need for confidentiality

RTD Commitment

- RTD and Caltrain are the two agencies currently implementing a 25kV electrified commuter rail. We are both in this together and welcome our collaboration and mutual support.
Questions

www.rtd-fastracks.com