LESSONS LEARNED FROM PENTA-P

RTD FASTRACKS – A CASE STUDY

Brian Middleton

March 26, 2009
Agenda

• Denver Regional Transportation District (RTD)
• RTD’s FasTracks Program
• Case Study #1 - Denver Union Station –
• Case Study #2 - Eagle Project
• Penta-P
• Lessons Learned
The Regional Transportation District

- Created in 1969
- Eight county service area
  - 37 municipalities
- Service area: 2,410 square miles
- 2.5 million population
- 1,071 buses
- 83 light rail vehicles
- 175 routes
- 66 park-n-rides
- 10,366 bus stops
- 2,510 employees
- 35 miles of light rail
- 36 light rail stations
- 99 million+ annual boarding
- 8 operating & admin. facilities
- Total 2008 Operating Budget: $458 million
RTD’s FasTracks Program
RTD’s FasTracks Plan

- 122 miles of new light rail and commuter rail
- 18 miles of Bus Rapid Transit (BRT)
- 31 new park-n-Rides with over 21,000 new spaces
- Enhanced Bus Network & Transit Hubs (FastConnects)
- Redevelopment of Denver Union Station
FasTracks History

- Ballot measure in 2004
  - Raised sales tax by 0.4%
  - Regional approach to transit expansion
  - Approved by voters 56% to 44%
- Supported by:
  - All 31 Mayors in District
  - Chamber, industry, and overall business community
- Built on proven success of $1.7billion T-REX project
  - Delivered 22 months ahead of schedule
  - Completed under budget
FasTracks schedule

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- Environmental Planning / Preliminary Engineering / Contractor Selection
- Final Design / Construction
Challenges

• Achieving political consensus
  – Largely in place as part of ballot initiative
  – Continuing strong support

• Schedule adherence
  – Many projects coming on line simultaneously
  – Integrated network requires close coordination

• Meeting budget
  – National pressures on commodity prices
  – “Normal” scope creep needs careful attention

• Resource availability
  – Labor – professional and unskilled
  – Materials
How P3s address the challenges

• Schedule adherence
  – PPPs are proven to deliver projects quickly
  – Single point of responsibility assures integration

• Meeting budget
  – Speed of delivery reduces overall costs
  – Performance specifications reduce likelihood of scope creep

• Resource availability
  – International interest in large projects increases resource pool for labor
  – Large consortia have greater “pull” to obtain materials
RTD is using a number of P3s:

- Construction Management/General Contractor
- Design-Build
- Master Developer
- Design-Build-Finance-Operate-Maintain
Case study #1 – Denver Union Station

The HEART of Transit,
The SOUL of the CITY
– Powered by the Energy of People in MOTION
The Public-Private Partnership

- Regional Transportation District (RTD)
- City & County of Denver (CCD)
- Colorado Department of Transportation (CDOT)
- Denver Regional Council of Governments (DRCOG)
- **Union Station Neighborhood Company (USNC)**
Selection process

- 18 month process
- National significance and representation
- Developer RFQ in June of 2005
- Developer RFP Part I, February 2006
- Developer RFP Part II, July 2006
- Developer Interviews, August 2006
- Developer Public Presentations, September 2006
- Developer Selection, USNC November 2006
Integrated Transit Neighborhood
Master Developer approach

- Leverage Value of Real Estate to Help Fund Transit
- Ensure Efficient Integration of Transit, Development, and Public Space
- Simultaneously Address City Building and Transit Function Opportunities
Case study #2 – Eagle Project
Eagle Project

**Design-Build**
- East and Gold Line
- Maintenance Facility
- DUS systems
- North Metro systems
- Commuter rail cars

**Operate & Maintain**
- East, Gold Line and North Metro corridors
- All commuter rail cars
- Northwest Rail transit facilities

**Finance**
- All Design-Build elements
Eagle Project – Federal Project Elements

Scope elements agreed upon with FTA during Request to Enter PE:

- East (DUS throat to end-of-line)
- Gold Line (Pecos to end-of-line)
- Electrification and stations for Northwest Rail shared section (DUS - Pecos)
- Commuter Rail Maintenance Facility
- Commuter rail cars for East and Gold Line only
Eagle Project schedule

- Draft RFP Review
- Finalize RFP
- Issue RFP
- Proposal Preparation
- Technical Proposals Due
- Final Proposals Due
- Preferred Bidder Selected
- Financial Close

Events:
- Industry Forum
- RFQ
- Draft RFP for Review by Short-Listed Teams

Timeline:
- 2008
  - J: Issue RFP
  - M: Finalize RFP
- 2009
  - J: Draft RFP Review
  - A: Proposal Preparation
  - S: Technical Proposals Due
  - O: Final Proposals Due
  - N: Preferred Bidder Selected
  - D: Financial Close
Status of Eagle Project

• **Procurement:**
  – Three teams prequalified in November, 2008 through RFQ process
  – Draft RFP for industry review released in December, 2008
  – Final RFP to be issued in May, 2009
  – Final proposals to be submitted with fixed price and committed finance in February, 2010
  – Financial close and notice to proceed in June, 2010

• **New Starts Process:**
  – Applied for Entry Into PE in September, 2008
  – Submitting Final Design/FFGA application in August, 2009 (early submittal of deliverables beginning in May, 2009)
  – Objective is to secure an FFGA in March, 2010
Concessionaire team

• Teams consist of:
  – Equity investors/ infrastructure funds
  – Financial firms
  – Operators and maintainers
  – Rolling stock manufacturers
  – Construction contractors
  – Engineering firms
# Prequalified Concessionaire Teams

<table>
<thead>
<tr>
<th>Denver Transit Partners</th>
<th>Mile High Transit</th>
<th>Mountain-Air Transit Partners</th>
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<tbody>
<tr>
<td>Fluor Enterprises, Inc.</td>
<td>John Laing</td>
<td>Babcock &amp; Brown</td>
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<tr>
<td>Macquarie Capital Group Ltd</td>
<td>HOCHTIEF PPP Solutions</td>
<td>Siemens</td>
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<td>Ames Construction</td>
<td>Bombardier</td>
<td>Veolia</td>
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<td>Balfour Beatty Rail, Inc.</td>
<td>Flatiron Corporation</td>
<td>Kiewit</td>
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<td>Alternate Concepts, Inc.</td>
<td>Archer-Western</td>
<td>Herzog</td>
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<td>HDR Global Design Consultants</td>
<td>Aldridge Electric</td>
<td>Stacy and Witbeck</td>
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<td>Arup</td>
<td>DMJM-Harris/AECOM</td>
<td>HNTB Corporation</td>
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<td>Orrick, Herrington &amp; Sutcliffe LLP</td>
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<td>Millibank, Tweed, Hadley &amp; McCoy</td>
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<td>Interfleet Technology, Inc.</td>
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<td>Citi</td>
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<td>Romero and Wilson</td>
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<td>Merrill Lynch</td>
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</table>
Contract basics

• **Single Concession Agreement**
  – 50-year term including ~5 years design/build
  – Underlying lease of real property and improvements
    • RTD owns all assets at all times
  – “At-risk” financing from concessionaire
  – Proposers committing to a service payment adjusted over time including fixed cost of design-build and O&M

• **Powerful incentives for budget and schedule adherence**
Risk Allocation Identified in Draft RFP

<table>
<thead>
<tr>
<th>RTD Risk</th>
<th>Concessionaire Risk</th>
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<tbody>
<tr>
<td>• Timeliness of third party design reviews</td>
<td>• Design fails to meet the specified requirements</td>
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<tr>
<td>• RTD requested changes to project requirements</td>
<td>• Design delays</td>
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<tr>
<td>• Delay in gaining access to the site</td>
<td>• Construction delays</td>
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<tr>
<td>• Unforeseen archaeological risks</td>
<td>• Cost overruns</td>
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<tr>
<td>• Errors/omissions in environmental reports</td>
<td>• Additional land requirements</td>
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<tr>
<td>• Unidentified and dry utilities</td>
<td>• Compliance with environmental requirements</td>
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<tr>
<td>• RTD permits</td>
<td>• Geological obstructions</td>
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<tr>
<td>• Discriminatory legislative changes</td>
<td>• Safety and security</td>
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<tr>
<td>• Ridership and fare evasion risk</td>
<td>• Accuracy of reference data</td>
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<tr>
<td>• Design fails to meet the specified requirements</td>
<td>• Concessionaire permits</td>
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<tr>
<td>• Design delays</td>
<td>• Concessionaire or subcontractor default</td>
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<tr>
<td>• Construction delays</td>
<td>• Final completion delays</td>
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<tr>
<td>• Cost overruns</td>
<td>• Third party claims</td>
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<tr>
<td>• Additional land requirements</td>
<td>• Security during the construction period</td>
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<tr>
<td>• Compliance with environmental requirements</td>
<td>• Repairs or maintenance work affecting availability</td>
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<tr>
<td>• Geological obstructions</td>
<td>• Failure to meet operating performance standards</td>
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<tr>
<td>• Safety and security</td>
<td>• Operation and maintenance costs</td>
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<tr>
<td>• Accuracy of reference data</td>
<td>• Condition of system at the end of concession period</td>
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<tr>
<td>• Concessionaire permits</td>
<td>• Wet utilities</td>
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<td>• Concessionaire or subcontractor default</td>
<td>• Compliance with railroad agreements</td>
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<tr>
<td>• Final completion delays</td>
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<tr>
<td>• Third party design reviews — disputes</td>
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<tr>
<td>• Non-discriminatory legislative change</td>
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<tr>
<td>• Force majeure</td>
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**Shared Risk**

- Third party design reviews – disputes
- Non-discriminatory legislative change
- Force majeure
Payment scheme

• RTD will make:
  – Construction payments during design/build phase
    • Capped amounts payable based on progress achieved
      – Annual payments for “federal project”
      – Monthly payments for locally funded project components
  – Service availability payments during O&M
    • Indexed over concession term
    • Adjustable based on performance
Adjustments to Service Payments

• **Payments made monthly and adjusted for availability and performance**
  – Provision of required service
  – On-time performance of trains
  – Station availability
  – Quality and timely maintenance

• **Payment adjustments are approximately:**
  – Increase of up to 0.5% for perfect delivery
  – Reduced by up to 50% for inferior delivery

• **RTD makes no payment to concessionaire in the event of default**
Eagle Project Risk Management Approach

- In a P3, awareness of risk has to start at the beginning of project development and continue through to the operating phase.
- Risk assessment, of the type currently utilized by FTA, is only one component of the overall risk management approach needed throughout the delivery cycle of a P3 project.
- RTD’s risk management approach steps through the four phases of the project – Development, Procurement, Implementation and Operations.
- FTA/PMOC will participate in RTD’s risk management process to assist with allocation of risk closures, mitigations and contingencies.
Eagle Project Risk Management Phases

• RTD has developed a risk management approach tailored to the unique characteristics of each phase of project delivery:
  – Development Phase: FasTracks Authorization through Issuance of Request for Proposals (RFP). Qualitative consideration of risk allocation and risk sharing (preliminary risk allocations are currently being reviewed in the draft RFP)
  – Procurement Phase: Development of baseline Risk Assessment to quantify the current risk profile, capture ongoing risks and mitigations, and establish assessment updates throughout the procurement phase
  – Implementation Phase: Monitoring of mitigation and contingency management
  – Operations Phase: Monitoring of concessionaire performance against contractual requirements
## Risk Management Timeline

<table>
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<th>Year</th>
<th>Direction</th>
<th>Management</th>
<th>Procurement</th>
<th>Technical</th>
<th>Risk Management</th>
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<tr>
<td>2007</td>
<td>Management Steering Committee</td>
<td>Task Forces &amp; Support Teams</td>
<td>White Papers</td>
<td>Corridor Design Development</td>
<td>Risk Management</td>
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<td>2008</td>
<td>Management Oversight Committee</td>
<td>Support Teams</td>
<td>Draft RFP</td>
<td>Technical Support</td>
<td>Risk Allocation</td>
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<td>2009</td>
<td>Evaluation Team</td>
<td>Procurement Process</td>
<td>Risk Assessment</td>
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<td>Contract Oversight</td>
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<td>Risk Mitigation</td>
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<td>2011</td>
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<td>Risk Profile Monitoring</td>
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<td>2012</td>
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<td>Mitigation &amp; Contingency Management</td>
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Steps In Risk Assessment Process

1. Identify Risks and Consequences
2. Quantify Risks & Assign Mitigations
3. Model Cost Risk & Contingency Coverage
4. Manage Mitigation Actions Using Risk Register
5. Manage Cost & Contingency Using Risk Model
6. Perform Updates at Project Milestones & Scheduled Intervals
7. Provide Status Reports of Project Risk Profile Including Contingency Consumption
Penta-P
## How Eagle Project Supports the Goals of the Penta-P Program

<table>
<thead>
<tr>
<th>Penta-P Goals</th>
<th>Eagle Project Approach</th>
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<tr>
<td><strong>Reduce risk</strong> by sharing responsibility among partners</td>
<td>Allocate to the party that can most cost-effectively manage the risk</td>
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<td><strong>Save time</strong> by using a non-traditional design-build approach and through a streamlined New Starts process</td>
<td>Maximize opportunities to streamline the New Starts process under the Penta-P program, including combining Final Design and FFGA submittals and negotiating with FTA on the limitation of certain risk assessments from the rating process. Limited payment using FTA funds until design-build efforts are completed, which provides powerful incentive to deliver on schedule</td>
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<tr>
<td><strong>Save money</strong> through tighter integration of design, engineering, construction and operations</td>
<td>Incorporate feedback from industry review through draft RFP process, which allows early identification of major cost concerns. Assure life-cycle cost certainty through the 50-year term of agreement</td>
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<tr>
<td><strong>Deliver high quality project</strong> by involving contractor early in project development and identifying opportunities for innovation early</td>
<td>Incorporate early industry feedback and provide performance specifications (not detailed technical specifications) to concessionaires. Include points for innovative ideas in RFP evaluation criteria</td>
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Challenges facing a P3 in the New Starts environment

• **Performance Certainty/ Scope Flexibility**
  – FFFGA normally based on defined scope
  – P3 leverages performance criteria to facilitate innovation – scope may vary somewhat between proposals

• **Timing of FFFGA award**
  – FFFGA normally awarded after bids received
  – FFFGA required to allow financial close but proposers ability to hold committed finance for extended period is limited
Challenges facing a P3 in the New Starts environment – cont’d

• **FFGA Payments**
  – FFGA normally a reimbursement program
  – In a privately financed P3 payments made after start of operations
  – Contractor expenditures need to be considered local match for grant payments

• **Bid Bonding Requirements**
  – FTA circular 4220 anticipates a bid bond of 5%
  – For large P3 this can equate to $100 million
  – Proposer costs high >$20 million
  – Powerful incentive to stay at the table with small bid bond to cover agency costs
Lessons Learned
Lessons learned on Eagle Project

- Develop a plan and stick to it
  - Define scope of work
  - Define approach – acquisition plan
  - Define schedule

- Be prepared but flexible!
  - Development and procurement process takes time, things will change
  - Make sure key objectives are not compromised without full disclosure, agreement and understanding
Lessons learned on Eagle Project

• Risk transfer comes at a cost
  – Allocating the risks to the right party is good for all
  – If a risk cannot be managed the agency should be responsible
  – Share when appropriate

• Third P is critical
  – Think of the project as a long term relationship
  – Success comes from working together
Lessons learned on Eagle Project

- Communicate
- Communicate
- Communicate
  - There is no single way to prepare and implement a P3
  - Learn from your organization and advisors
  - Learn from future partners
Lessons learned as part of Penta-P

- FTA’s New Starts assessment process did not anticipate P3 procurements
  - Certain submittals need adjustment, e.g.
    - Project management plan
    - Fleet management plan
  - Sequential approval for PE, final design and FFGA inconsistent with P3 approach
  - Detailed definition of scope of work inconsistent with flexibility of P3 approach
  - Approval time for FFGA inconsistent with financing needs
  - Reimbursement nature of FFGA not ideal for privately financed P3
Lessons learned as part of Penta-P

- Streamlining of approvals has been beneficial
- Combining stages (FD/FFGA) accelerates development phase ... and saves money
- Discounting private at-risk equity protects public interest while facilitating more projects
FTA approach

- FTA staff has been thoughtful and proactive in examining new ways of doing business.
- RTD looks forward to a successful partnership not only with the Eagle Concessionaire but with FTA.
For Additional Information Contact:

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