



**EAGLE P3 PROJECT  
Prime and Core Contractors  
Industry Forum**

**July 30, 2008**

# Agenda

- Welcome Address
- EAGLE P3 Project Introduction and Overview
- Procurement Process, Schedule and Key Requirements
- Disadvantaged and Small Business Requirements
- Overview of the Financing Requirements
- Corridor and Maintenance Facility Descriptions
- Operations and Rolling Stock
- Questions

# RTD and FasTracks Status

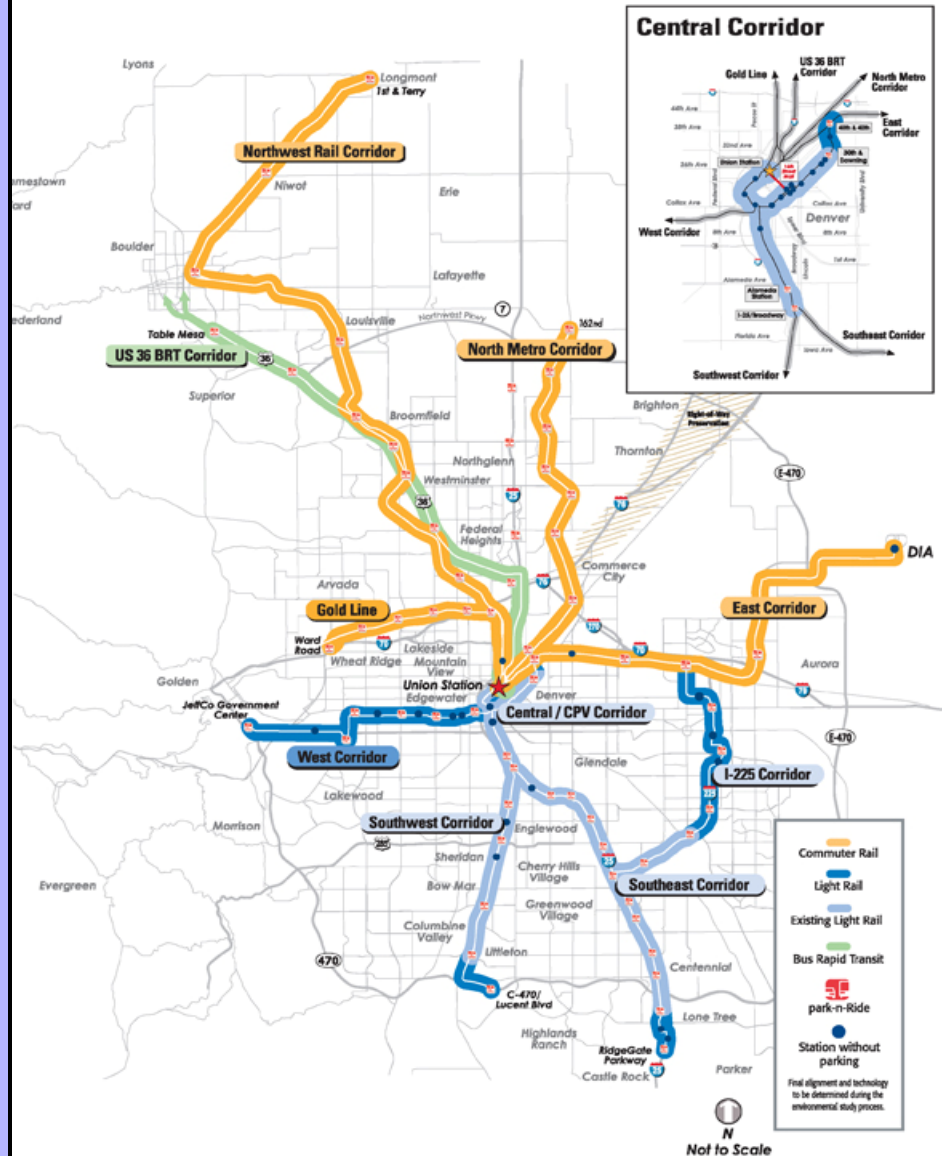
- RTD system
  - Ridership up 15-20% over past year
  - Support for FasTracks over 70%
- Financial challenges
  - Existing system
  - FasTracks

*The Transit Paradox – as demand has grown as never before, costs are rising*

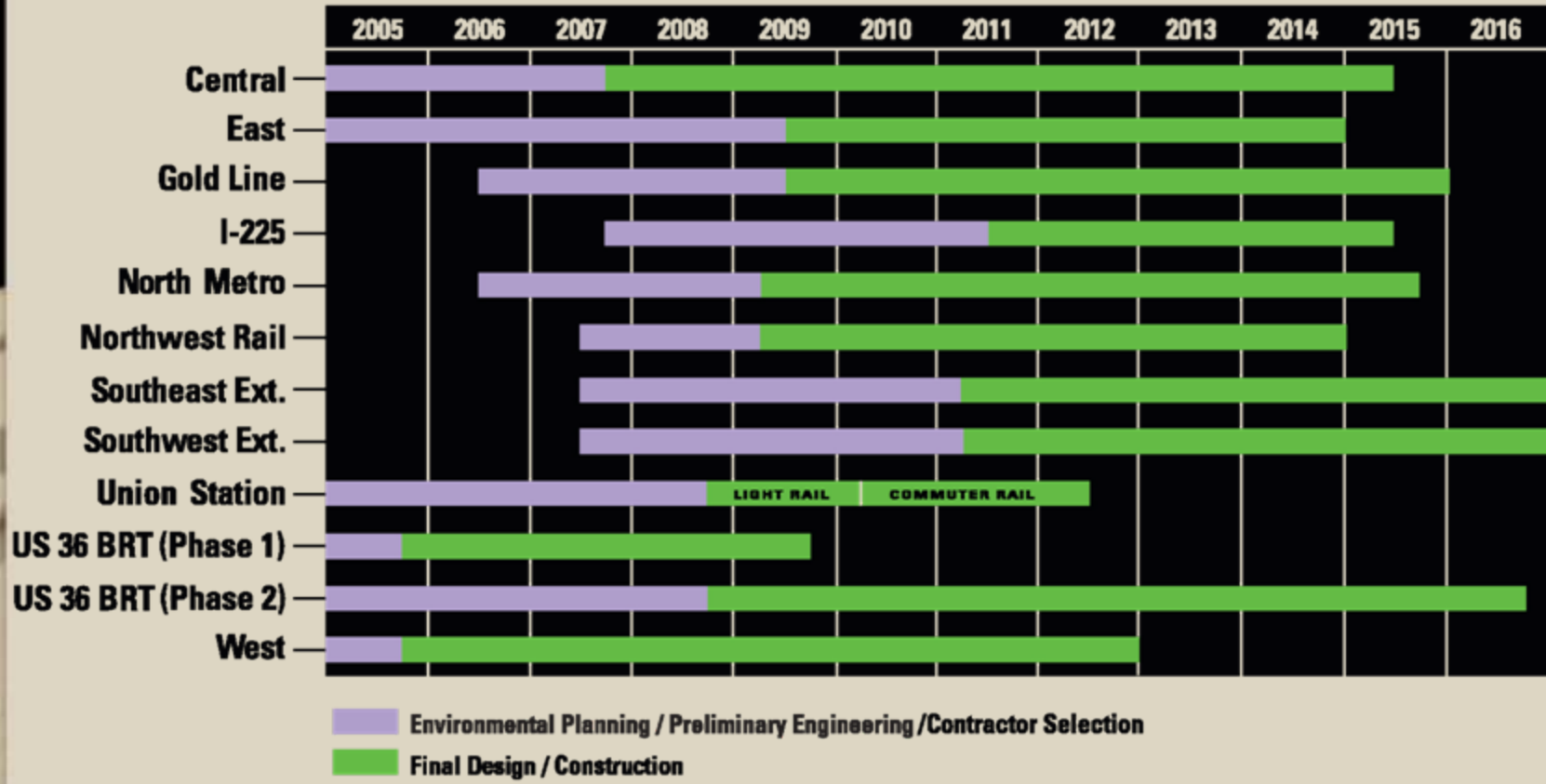
# Eagle P3 Project Introduction and Overview

# The RTD 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 Implementation Schedule



# EAGLE P3 Project Introduction and Overview



## 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
- Dispatch Heavy Rail

## Finance

- All Design-Build elements

# East Corridor

23.6 miles commuter rail

Electric Multiple Units

Connects downtown Denver to DIA

Operational in 2015



# Gold Line

11.2 miles commuter rail

Electric Multiple Units

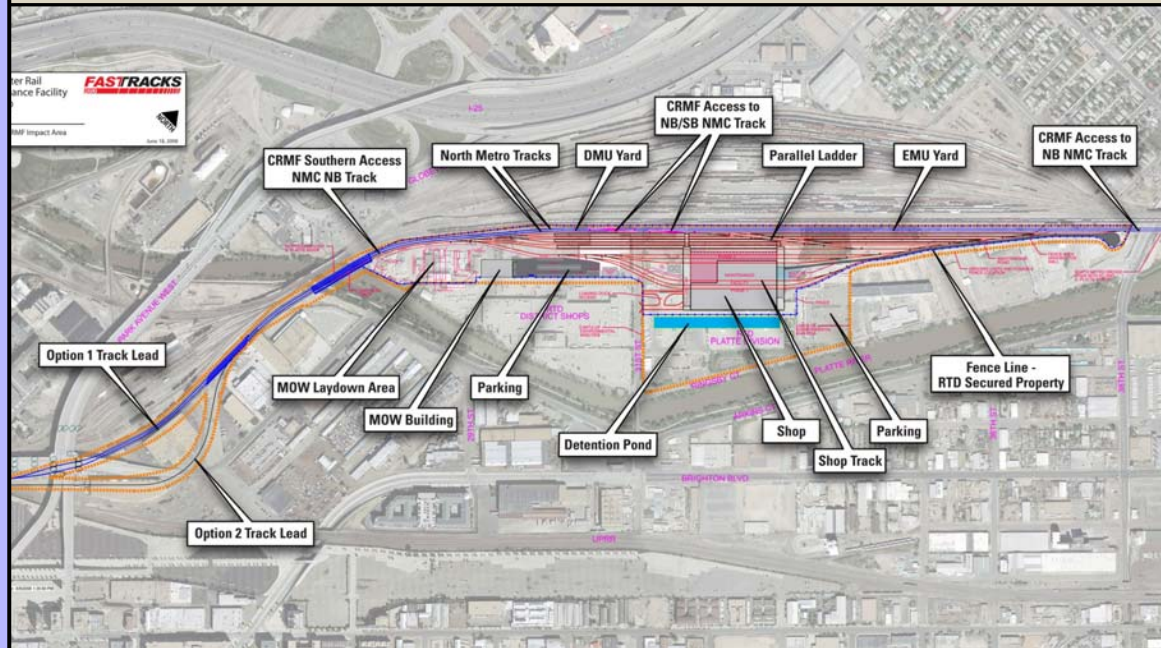
Connects downtown Denver, Arvada and Wheat Ridge

Operational in 2015



# Commuter Rail Maintenance Facility

- Located at RTD's Platte Bus Facility site
- Serves Electric and Diesel/Electric Multiple Units as well as all other maintenance needs
- Operational in 2014



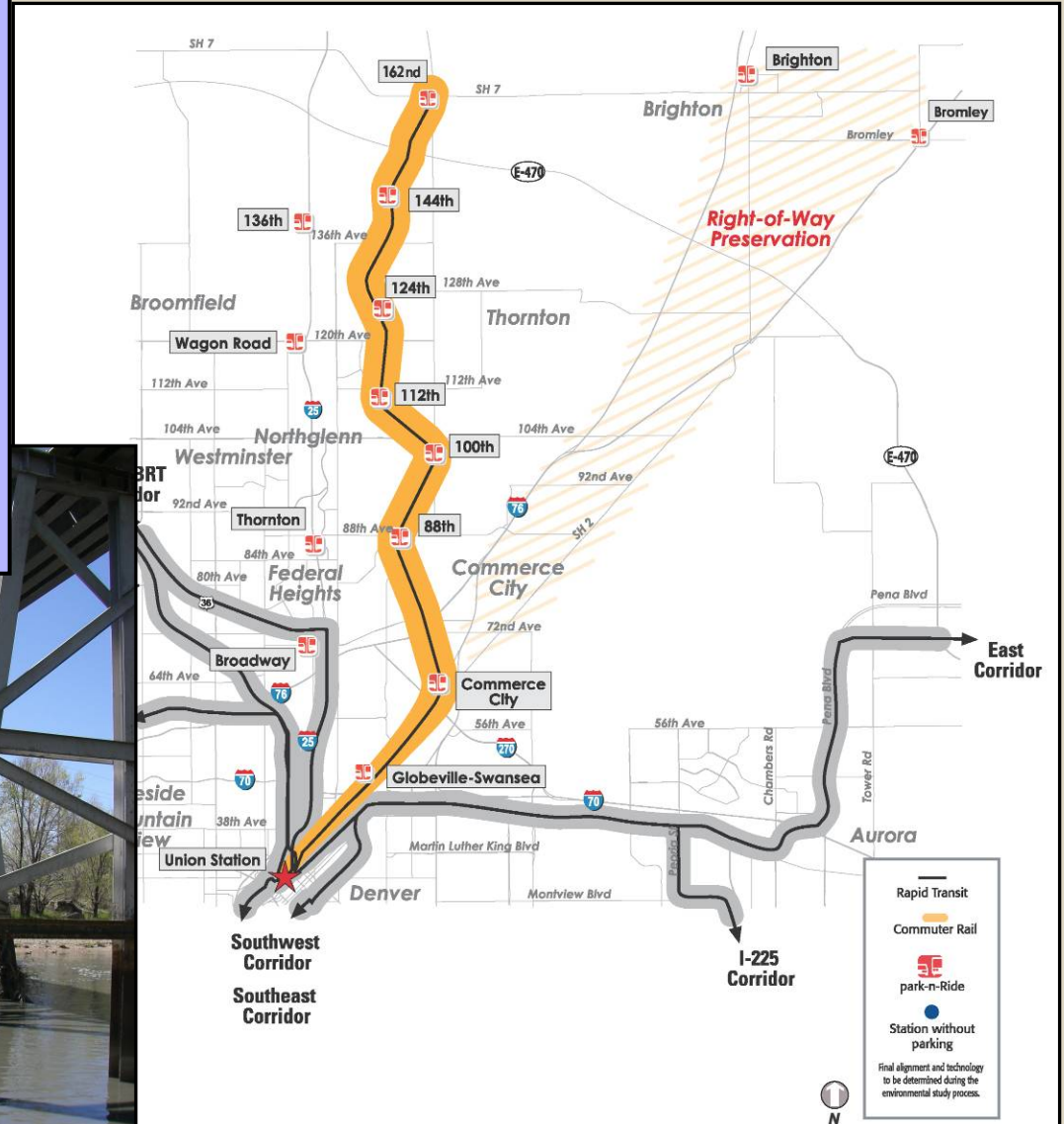
# North Metro

18 miles commuter rail

Diesel/Electric  
Multiple Units

Connects downtown  
Denver to 162<sup>nd</sup>  
Street

Operational in 2015



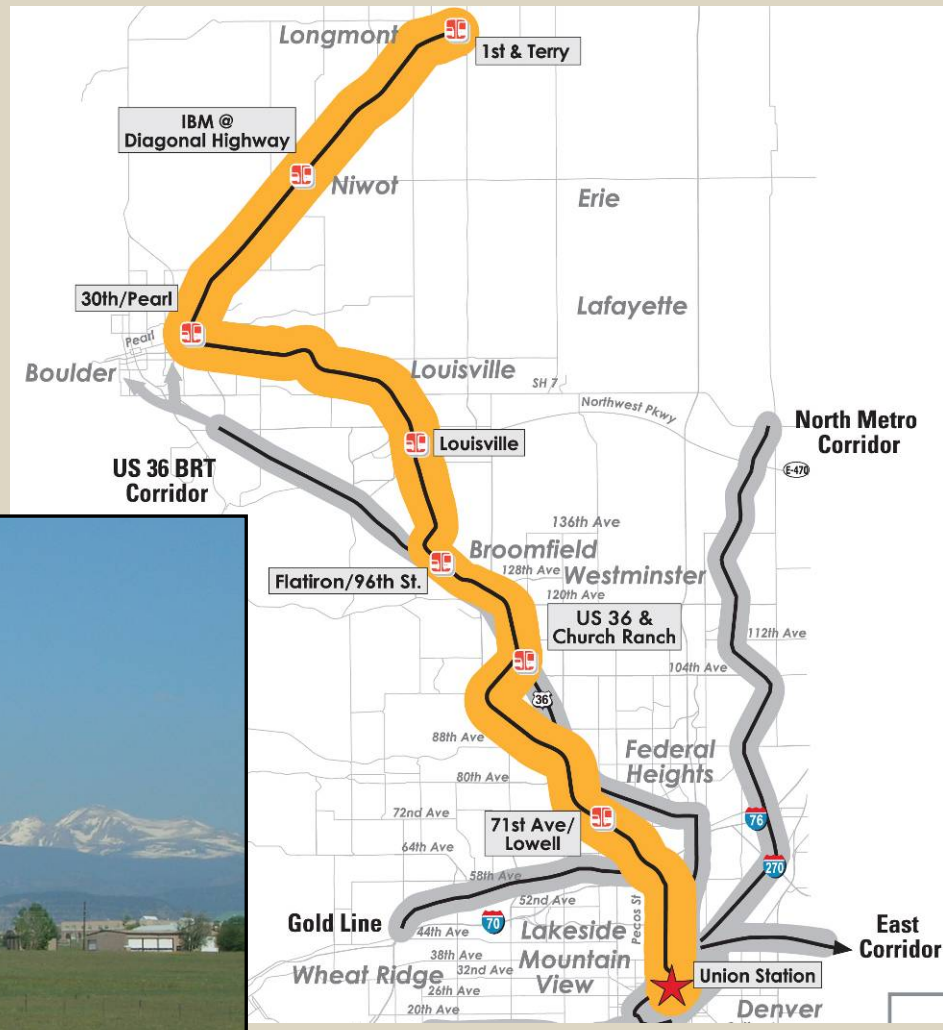
# Northwest Rail

41 miles commuter rail

Diesel/Electric Multiple Units

Connects downtown Denver to Longmont

Operational in 2015



# Denver Union Station

Multimodal hub integrating light rail, commuter rail, Amtrak, buses, taxis, shuttles, bikes and pedestrians

Redevelopment is a cooperative effort between RTD, Colorado Dept. of Transportation, City and County of Denver, and Denver Regional Council of Governments

Complete in 2014



# What is not in EAGLE P3 Project



- Fare system provision and maintenance
- Fare collection
- Construction of Northwest Rail track
- Civil construction of North Metro

***All of the scope described in this presentation is subject to change by RTD and the NEPA environmental process***

# Why P3?

- Facilitates faster implementation
- Provides new commuter rail operation skills
- Allows benefits accrued from FTA's Penta-P program
- Builds on RTD's beneficial experience with private sector

# RTD's Experience with Private Development and Operations



- T-REX (Design-Build of SE Light Rail)
  - Delivered ahead of schedule
  - Delivered under budget
  - Enabled innovations from private sector
- Private Bus Operations
  - Provides additional flexibility
  - Reduces overall operations cost

**Balanced risk sharing has resulted in Win-Win**

# P3 - The Way Forward

- The transit industry faces financial challenges
  - RTD is no different
- RTD believe partnering with industry will deliver a successful and affordable project
  - Candid exchange of ideas
  - Minimize expenditures
  - Maximize benefits
- RTD is committed to maximizing federal funding
  - These corridors have been assessed as candidates for federal funding
  - Leveraging the Penta-P is best road to achieve
  - Private investments support finance plan

**QUESTIONS?**

# Procurement Process, Schedule and Key Requirements

# Procurement Process, Schedule and Key Requirements



- Request for Qualifications (RFQ)
- Short list most highly qualified teams
- Review draft Request for Proposals (RFP)
- RFP will be issued only after:
  - Railroad agreements negotiated
  - Schedule of property availability known
  - Environmental clearances on firm schedule
  - Financial plan adopted by RTD Board

**Emphasis on Partnership and Communication**



# Request for Qualifications (RFQ)



- RFQ will be for core DBFOM Team and will require evidence of:
  - Financial strength
  - Experience in design, construction and maintenance of railroads
  - Experience in design and delivery of rail cars
  - Experience in operating rail transit
  - Plan for how the team will manage delivery of complete scope on time and within budget
  - Commitment to DBE and SBE goals to be established by RTD in the RFP
- Some flexibility will be allowed for Teams to demonstrate their approach in project delivery

# P3 RFQ Evaluation Criteria

- Evaluation criteria will include:
  - Responsive Qualification Statement
    - All required information provided and no significant irregularities
    - All addenda acknowledged and forms completed
  - Technical Qualifications and Experience
    - Experience in all required design and construction technical disciplines
    - Experience in operating and maintaining a rail system
    - Experience in delivering projects through P3s
    - Experience in raising finance for projects
    - Safety record
    - Record of meeting DBE and SBE goals
    - Experience of working as a team and together

# P3 RFQ Evaluation Criteria cont'd



## – Management Approach

- Understanding of project delivery through a P3
- Corporate and management organizational structure
- Understanding of financial complexities and issues and proposed solutions
- Ability to meet schedule and budget needs
- Inclusion and involvement of DBEs and SBEs
- Quality management approach
- Safety management approach for construction and operation
- Sustainable design, construction and operations

## – Financial Capacity and Capability

- Capability to raise financing and absorb risk
- Capacity to secure necessary bonding
- Willingness to commit resources to reach financial close

# P3 RFQ Evaluation and Selection Process



- RTD will establish a technical selection panel
- Panel will include representatives from:
  - Project Management
  - Engineering
  - Rail Operations
  - Safety
  - Small Business Opportunity Office
  - Legal
  - Finance
  - Contracts (non-voting)
- Panel will be supported by Goldman Sachs/JP Morgan Chase (financial) and Freshfields (legal)

# P3 Qualified Team Selection

- Response to RFQ due October 3, 2008
- Anticipate Technical Evaluation Panel will provide findings to RTD Board in November 2008
- Plan to short-list no more than 4 highly qualified teams

# Request for Proposals (RFP)

- Complete Draft RFP (including Concession Agreement) issued to short-listed teams
- Opportunities for site visits and physical due diligence
- One-on-one meetings to discuss Draft RFP
- Final RFP issued to short-listed teams
- Technical Proposal and Budget confirmation
  - RTD will provide feedback on Technical Proposal
- Final Proposal including Full Financial Proposal
- Selection on a “Best Value” basis

**Stipends will be available for  
unsuccessful, responsive proposals**

# Key Requirements

- John Dawson, RTD Purchasing Agent
  - Point of contact for all communications after RFQ issued
- This Project funded in part by the FTA, Federal provisions will be required
  - Davis-Bacon Wage Rates (Construction)
  - Seismic Safety (Design & Construction)
  - Buy America (Construction and Rolling Stock)
  - ADA access (Design & Construction)
  - Debarment & Suspension
  - Lobbying
  - Clean Air & Water
  - DBE Participation
- Federal or State bonding requirements may be required, waivers may be sought

**QUESTIONS?**



**THE RTD SMALL BUSINESS  
OPPORTUNITY OFFICE PRESENTS:**

**THE P3 INDUSTRY FORUM  
JULY 30, 2008**



SMALL BUSINESS  
OPPORTUNITY OFFICE

# *Small Business Opportunity Office Mission*

*To ensure and advocate for the participation and economic opportunity for small and historically underutilized businesses, minorities and females in the workforce by establishing a level playing field through mentoring, financial advice, providing certification assistance, contract compliance and monitoring, technical assistance and outreach programs that support the affected community groups.*



# DBE/SBE Goals

- RTD will establish a separate DBE participation goal for both the Design & Construction phases (49 CFR Part 26)
- The SBE goal process will apply to the Operation and Maintenance phase
- The DBE program is federal and the SBE program is local (separate certification programs)
- Should federal funds be utilized during the O&M phase the concessionaire will be required to apply and comply with Federal requirements
- Transit Vehicle Manufacturers requirements apply to new vehicle procurements



# S/DBE Participation & PPP's

## PARTICIPATION WITHIN DESIGN-BUILD:

- **RANGE OF GOAL: 10-25%**
- **There will be a goal for the Design (Pre-Construction) and a goal for the Construction phase**
- **PROCESS/METHODOLOGY**
  - **RTD will establish goals that the concessionaire is required to meet**
  - **The concessionaire will be required to submit a comprehensive DBE program and plan to be approved by RTD**
    - *The plan will include ongoing outreach, subcontracting processes, reporting, mentoring and compliance*
    - *RTD will maintain oversight to ensure that the DBE requirements are properly implemented*
- **OPPORTUNITIES**
  - **Design/Consulting & Construction**
  - **Equipment, material, and supplies**



# S/DBE Participation & PPP's

## PARTICIPATION WITHIN OPERATION AND MAINTENANCE:

- **RANGE OF GOAL: TBD**
- **There will be an Operational and Maintenance Goal**
- **PROCESS/METHODOLOGY**
  - The concessionaire will establish contract specific goals to meet the annual RTD approved goal
  - The concessionaire will be required to submit a comprehensive SBE program and plan to be approved by RTD
    - *The plan will include ongoing outreach, subcontracting processes, reporting, mentoring and compliance*
    - *RTD will maintain oversight to ensure that the SBE requirements are properly implemented*
    - *Federally funded procurements will be subject to federal requirements*
- **OPPORTUNITIES**
  - Design/Consulting & Construction
  - Equipment, material, and supplies
  - Support services

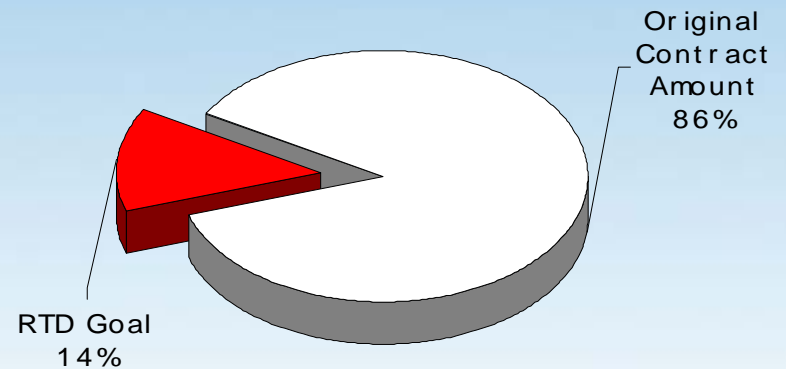
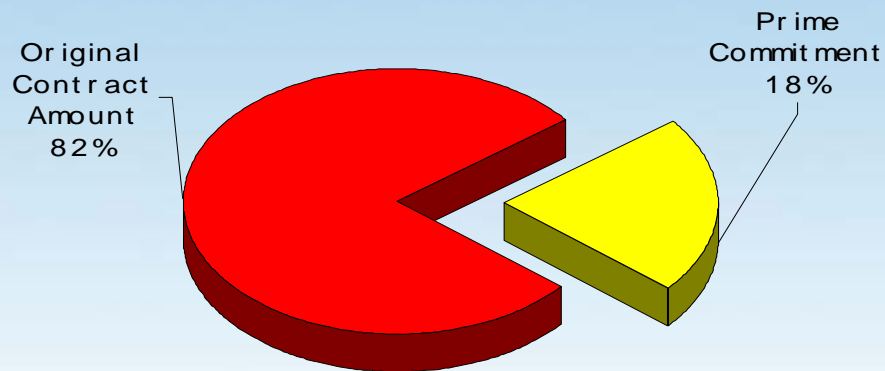


# Contract Summary

<b>NUMBER OF CONTRACTS</b>	<b>28</b>
<b>TOTAL AMOUNT AWARDED</b>	<b>\$183,599,560.92</b>

<b>OVERALL PRIME COMMITMENT</b>	<b>18%</b>
<b>OVERALL PRIME COMMITMENT AMOUNT</b>	<b>\$ 32,838,671</b>

<b>OVERALL RTD DBE GOAL</b>	<b>14%</b>
<b>OVERALL RTD DBE GOAL AMOUNT</b>	<b>\$ 25,328,857</b>



# Additional Requirements

- There will be:
  - EEO/Title VI requirements
    - Including ADA and LEP
  - Workforce and Davis Bacon
  - Federal requirements flow down irrespective of tier
  - RTD's SBOO will partner with the concessionaire to ensure the success of all equal opportunity requirements



# QUESTIONS



# Financing Overview

# Financing Sources

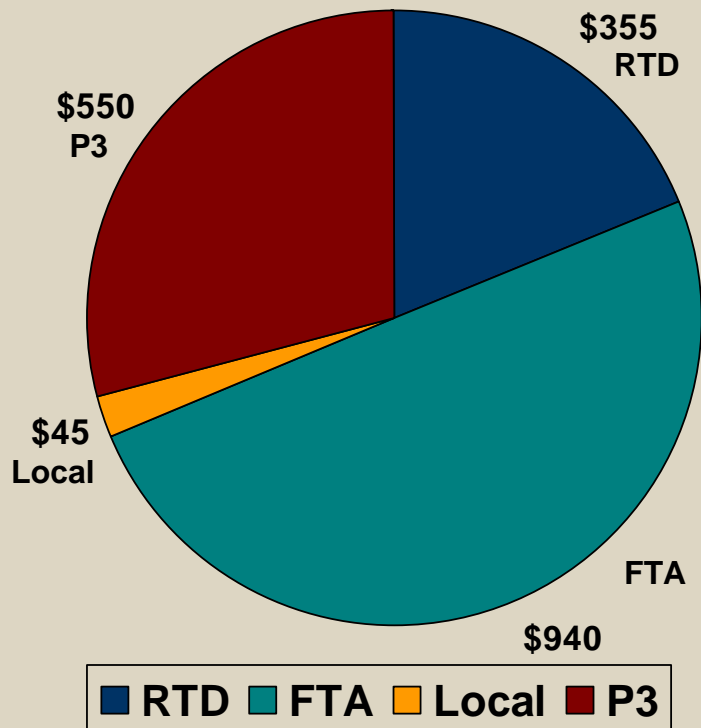
- The Project will be funded from a combination of RTD, local and Federal sources
  - RTD contribution to include right of way acquisition, milestone payments and availability payments over 45 years to concessionaire
  - Local contributions largely as payments in kind (Property, waiver if permit fees, etc.)
  - RTD milestone payment schedule will reflect anticipated receipt of Federal grants

# Financing Requirements: EAGLE P3

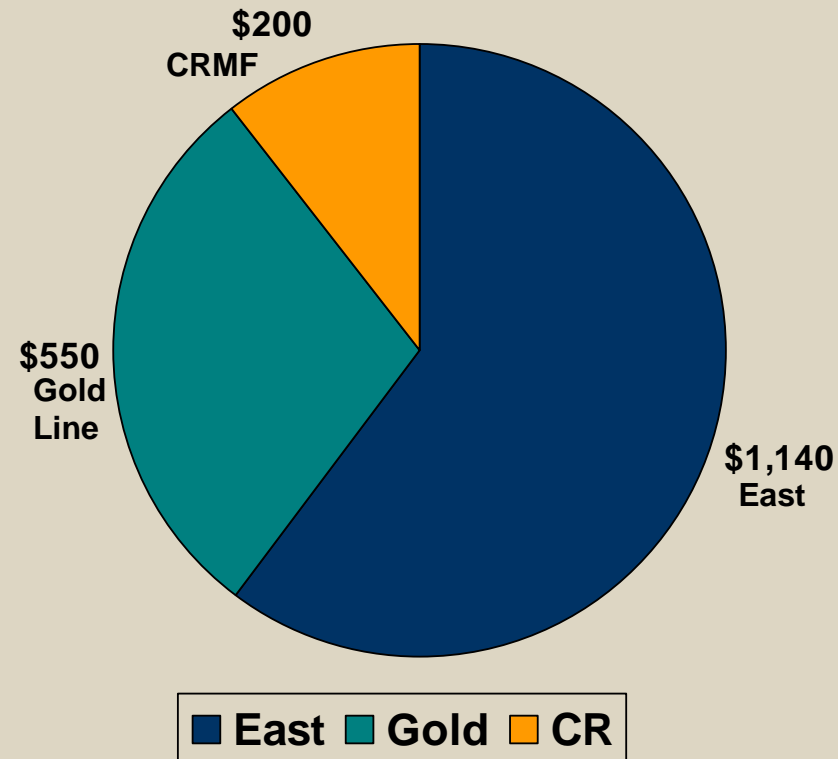
- 2007 FasTracks Financial Plan included the following financing assumptions:

Total Value \$1.89 billion

Sources (US\$m)



Uses (US\$m)



# Financing Requirements: Federal Funding



- The EAGLE P3 project selected for the FTA's Public-Private Partnership Pilot Program (Penta-P)
- RTD will apply for a Full Funding Grant Agreement (FFGA)
- The amount and timing of federal funding will be determined upon FFGA award in 2010

# Financing Requirements: Availability Payments

- Concessionaire will be responsible for financing a portion of the project in return for availability payments
- Availability payments to be subject to annual appropriation by RTD
- Availability payments commence upon start of revenue service and subject to adjustment based upon performance and inflation
- RTD will be applying for Private Activity Bond (PAB) and TIFIA allocation for use by bidders
- RTD is authorized to serve as a conduit issuer for PABs
- Favorable depreciation tax treatment expected
- RTD does not anticipate Concessionaire will bear ridership risk

# Financing Requirements: RTD Financial Profile



- RTD's primary funding source is a 1% regional sales tax
  - 0.6% sales tax funds the existing Base System
  - 0.4% sales tax authorized by 2004 Election to fund FasTracks
  - \$418 million total sales tax revenue generated in 2007
  - Annual sales taxes growth has averaged 5.6% over the past 20 years
  - RTD currently enjoys Aa3/AA+/AA- ratings on sales tax revenue bonds and A1/A/A on COPs
  - Complete financial information available on RTD's website

**QUESTIONS?**

**15 Minute Break**

# East, Gold Line and CRMF presentations

# Operations

# Commuter Rail Operating Plan Highlights



Corridor	Route Miles	Number of Stations	Average Station Spacing
East	23.5	7	3.9 mi
Gold	11.2	8	1.6 mi
North Metro	19.0	9	2.4 mi
NW Rail	40.5	12	3.7 mi
4-Line System	94.2	33	3.0 mi

# Vehicle Load Assumptions Per Car

- 86 Seats
- 21 m<sup>2</sup> aisle area for standees

	Seated	Standees	Total
<b>2015</b>	<b>86</b>	<b>69</b> @ 3.3 pax/m <sup>2</sup>	<b>155</b>
<b>2020+</b>	<b>86</b>	<b>105</b> @ 5.0 pax/m <sup>2</sup>	<b>191</b>

# Corridor Travel Time Assumptions

<b>Route</b>	<b>One-way Travel Time*</b>	<b>Round Trip Cycle Time</b>	<b>Total Trainsets Required</b>
<b>East Corridor</b>	<b>28-32 min</b>	<b>1:30</b>	<b>6</b>
<b>Gold Line</b>	<b>19-23 min</b>	<b>1:10</b>	<b>9</b>
<b>North Metro</b>	<b>30-33 min</b>	<b>1:30</b>	<b>6</b>
<b>Northwest Rail, Longmont</b>	<b>60-65 min</b>	<b>2:30</b>	<b>5</b>
<b>Northwest Rail, Boulder</b>	<b>45-48 min</b>	<b>2:00</b>	<b>4</b>

**\*Subject to refinement between PE/EIS and Final Design.**

# Forecast Peak Hour Peak Direction Loads



2015	Route	Projected Max Line Load	Cars per Train, Peak Service	Trains per Hour
		East Corridor	1,579	3
	Gold Line	1,715	2	8
	North Metro	1,282	3	4
	Northwest Rail	159	2	2
2030	Route	Projected Max Line Load	Cars per Train, Peak Service	Trains per Hour
		East Corridor	2,727	4
	Gold Line	2,280	2	8
	North Metro	1,506	3	4
	Northwest Rail	311	2	4

# Fleet Size Summary

**2015**

Route	Type	Cars per Train, Peak Service*	Total Trainsets, Peak Service	Fleet Size, Including 20% Spares
East Corridor	EMU	2.6 - 3	6	22 - 24
Gold Line	EMU	2	9	20 - 22
North Metro	DMU	2.3 - 3	6	18 - 22
Northwest Rail	DMU	2	5	12

**2030**

Route	Type	Cars per Train, Peak Service*	Total Trainsets, Peak Service	Fleet Size, Including 20% Spares
East Corridor	EMU	3.6 - 4	6	28 - 30
Gold Line	EMU	2	9	20 - 22
North Metro	DMU	2.3 - 3	6	18 - 22
Northwest Rail	DMU	2	9	22

\*Cars per train variations show different assumptions for vehicle manufacturer delivery. For example uneven 2- and 4-car consists (i.e. East @ 2.6) if cars are only manufactured in permanently-coupled pairs, or the allowance for 3-car consists with semi-permanent couplings.

# Daily Span of Service & Frequency - 2015



		Early Morning		Morning Peak			Midday					Evening Peak			Evening		Late Evening										
Hour of the Day		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	1	2		
<b>East Corridor</b>																											
DUS to DIA	M-F	0:30	0:15	0:15			0:15					0:15		0:15	0:15	0:15	0:15	0:15	0:15	0:15	0:15	0:30					
	S-S	0:30	0:15	0:15			0:15					0:15		0:15	0:15	0:15	0:15	0:15	0:15	0:15	0:15	0:15	0:30				
<b>Gold Line</b>																											
DUS to Ward Rd	M-F	0:30	0:15	0:07:30			0:15					0:07:30		0:15	0:30												
	S-S	0:30	0:30		0:15					0:15		0:30		0:30													
<b>North Metro</b>																											
DUS to 162 <sup>nd</sup>	M-F	0:30		0:15			0:30					0:15		0:30	0:30	0:30	0:30	0:30	0:30	0:30	0:30	0:30	1:00				
	S-S	0:30		0:30			0:30					0:30		0:30	0:30	0:30	0:30	0:30	0:30	0:30	0:30	0:30	0:30	1:00			
<b>Northwest Rail</b>																											
DUS to Longmont	M-F	0:30		0:30			1:00					0:30		0:30	0:30	1:00	2:00										
	S-S	1:00		1:00			1:00					1:00		1:00	1:00	1:00	2:00										
DUS to Boulder	M-F	No Dedicated Service																									
	S-S	No Dedicated Service																									

# Daily Span of Service & Frequency - 2030



		Early Morning		Morning Peak			Midday								Evening Peak			Evening		Late Evening						
Hour of the Day		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	1	2	
<b>East Corridor</b>																										
DUS to DIA	M-F	0:30	0:15	0:15			0:15								0:15			0:15		0:15		0:30				
	S-S	0:30	0:15	0:15			0:15								0:15			0:15		0:15		0:30				
<b>Gold Line</b>																										
DUS to Ward Rd	M-F	0:30	0:15	0:07:30			0:15								0:07:30			0:15		0:30						
	S-S	0:30		0:30			0:15								0:15			0:30		0:30						
<b>North Metro</b>																										
DUS to 162 <sup>nd</sup>	M-F	0:30		0:15			0:30								0:15			0:30		0:30		1:00				
	S-S	0:30		0:30			0:30								0:30			0:30		0:30		1:00				
<b>Northwest Rail</b>																										
DUS to Longmont	M-F	0:30		0:30			1:00								0:30			0:30		1:00		2:00				
	S-S	1:00		1:00			1:00								1:00			1:00		1:00		2:00				
DUS to Boulder	M-F				0:30											0:30										
	S-S	No Service																								

# Resultant Operations Statistics

**2015**

Route	Annual Vehicle Miles	Annual Time in Service (Hours)	Weekday Trains	Weekend Trains
East Corridor	3,659,100	47,117	168	164
Gold Line	1,441,600	41,009	187	122
North Metro	1,961,300	30,977	113	85
Northwest Rail	1,583,950	27,059	56	38

**2030**

Route	Annual Vehicle Miles	Annual Time in Service (Hours)	Weekday Trains	Weekend Trains
East Corridor	4,449,950	47,117	168	164
Gold Line	1,441,600	41,009	187	122
North Metro	1,961,300	30,977	113	85
Northwest Rail	1,999,650	34,938	82	38

# System Assurance Metrics: *Operations*



- Transportation
  - Late or Cancelled Trains
- Mechanical
  - Passenger Capacity
  - Car Defects
- Engineering
  - Station Cleaning and Landscape Schedule Adherence
  - Snow and Ice Removal
  - Station Defects
- Security
  - Staff and Vehicle Coverage

# System Assurance Metrics:

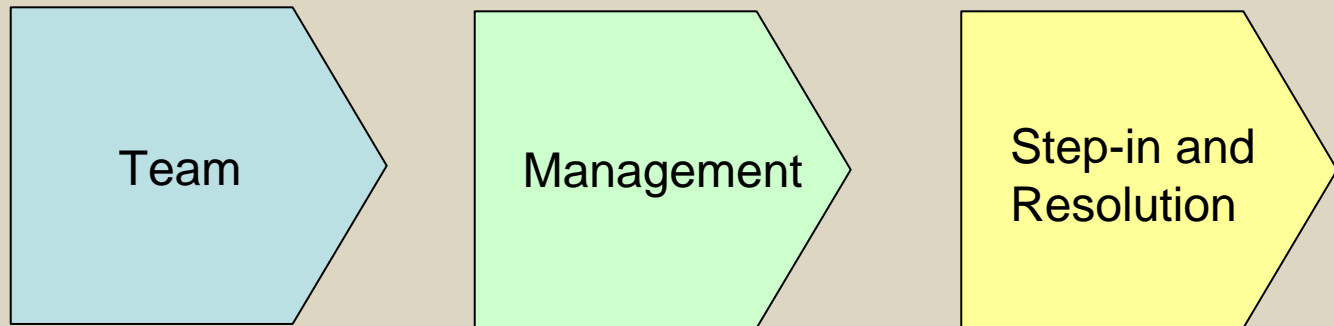
## *Other*



- General and Administrative
  - Employee Conduct and Performance
  - Employee Qualifications
  - ADA Compliance
  - Violations of Rules and Regulations
  - Incident Management Procedure Failure
  - Reporting and Information Management Failure
  - General Non-compliance

# System Assurance Program

- Incentives
  - Adjustments for over and under performance
  - Adjustments proportionate to importance
- Escalation of concern



Partnering and dispute resolution

**QUESTIONS?**

# Rail Cars

# Vehicle Technical Specification

- PPP concessionaire will purchase all vehicles
- Preliminary concept vehicle presented here, but others will be considered
- Draft specification out for industry review
- One-on-one meetings with industry in mid-September, 2008
- Copies available through RTD:

John Dawson  
Purchasing Agent  
Regional Transportation District - Denver  
(303) 299 2215  
[John.Dawson@rtd-denver.com](mailto:John.Dawson@rtd-denver.com)

# Rolling Stock Concept

## Mixed Fleet of Single-Level EMUs and DMUs:

- Fully FRA compliant
- RTD branding
- EMUs and DMUs as similar as practical
- EMU: 25,000 V AC, 60 Hz
- DMU: diesel-electric generators/traction motors
- Married pairs expected, ridership favors singles
- Other configurations will be considered if shown to reduce life cycle costs

# Technology by Service Corridor

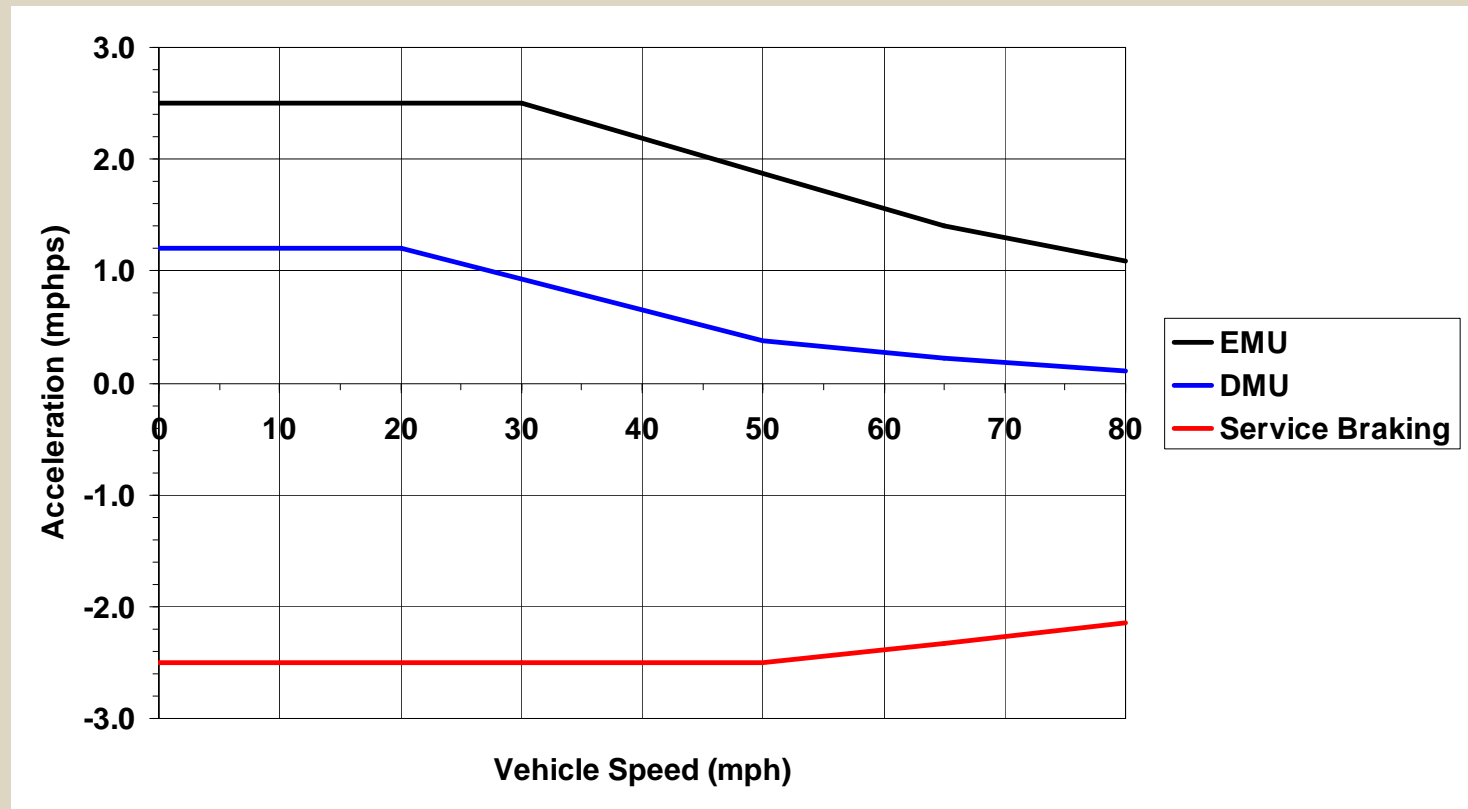


Current estimates:

- EMU: East Corridor & Gold Line  
40 – 50 Vehicle initial order
- DMU: North Metro & Northwest Rail  
30 - 40 Vehicle initial order
- Civil design and program refinement could change vehicle requirements

# Minimum Performance Requirements

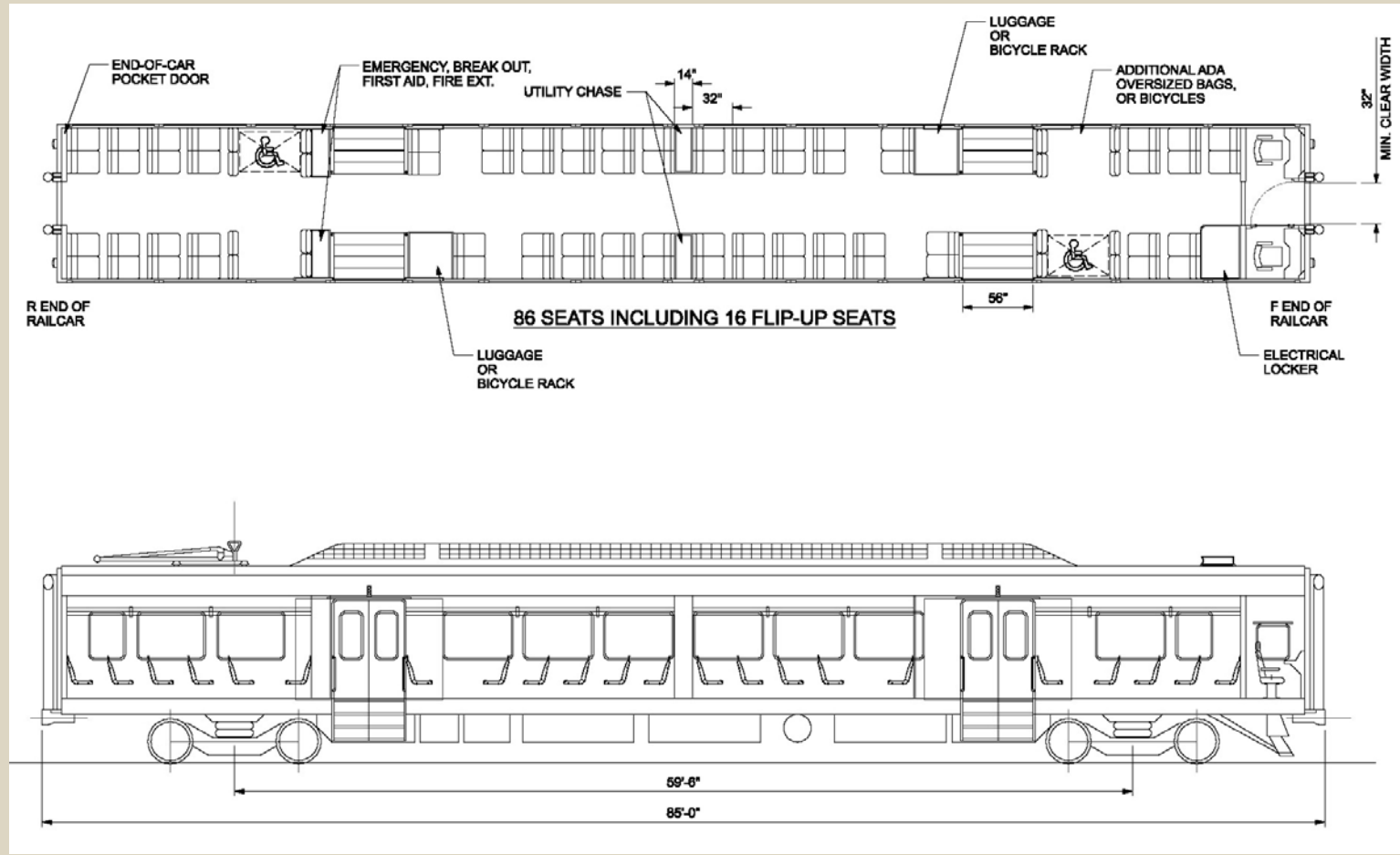
- Route travel times consistent with estimated service level, ridership, fleet size, and system budget



# Conceptual Vehicle Description

- Vehicles must comply with FRA, APTA, and ADA requirements
- 49 CFR 238 tier I, no crash energy management
- Nominally 85' long, 14' 8" tall, 10' 6" wide
- Stainless steel exterior preferred
- Light, bright, open interior of contemporary design
- 30 year service life

# Conceptual General Arrangement



# Interior / Exterior Design

- Industrial designer shall work with contractor and RTD to develop interior/exterior design
- Recognizable, consistent fleet
- Design shall be clean, modular, easy to maintain
- Interior design criteria: safety, manufacturability and maintainability
- Exterior sight lines should be consistent when multiple vehicles are coupled together

# Interior Requirements

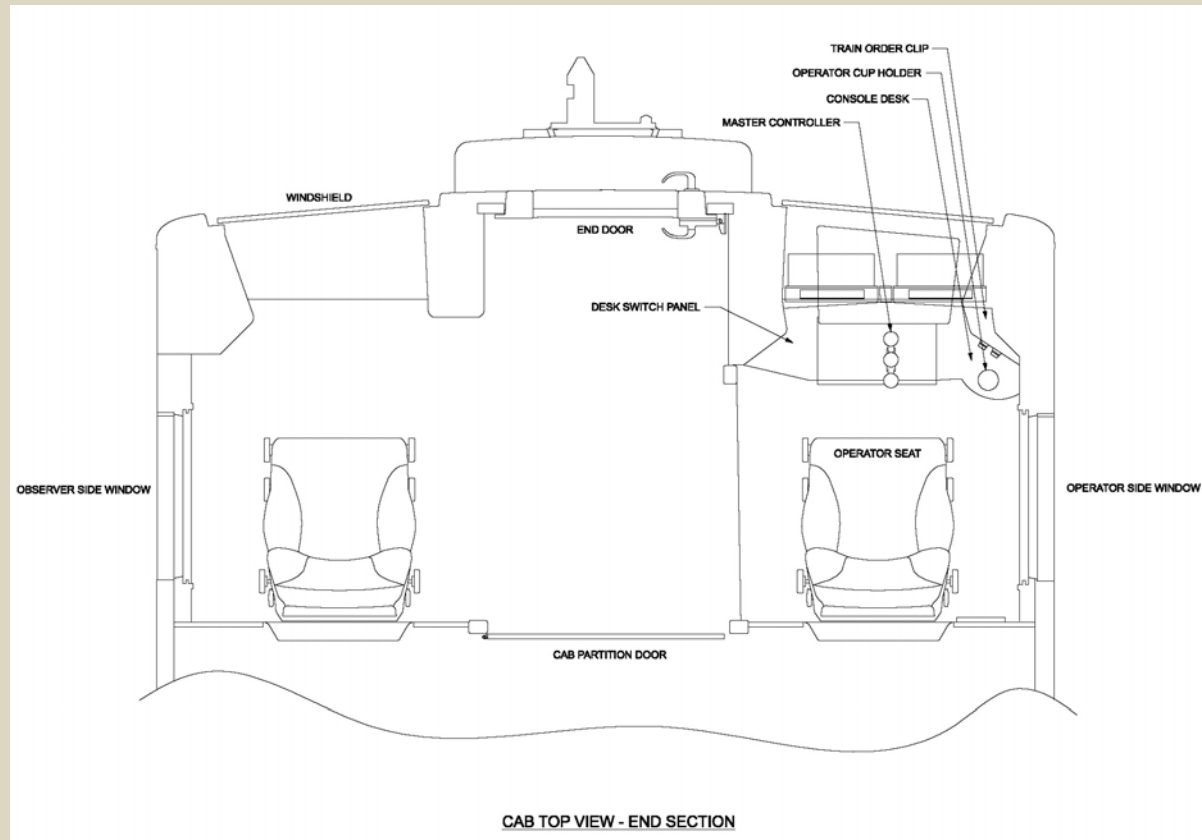
- Continuous high-level floor
- ADA-compliant aisle running full length
- End doors and diaphragms to allow car-to-car travel
- 86 seats minimum, 2+2 arrangement, fixed position, cloth covered
- Flip-up seats to accommodate 2 ADA parking locations per car
- Storage underseat, overhead, and mixed-use for bicycle and over-sized luggage
- Windscreens, stanchions, and handholds to segment car and accommodate standees

# Doors

- Four side entry doorways per car
- Nominally  $\frac{1}{4}$  and  $\frac{3}{4}$  along length of car
- Sliding pocket or plug
- EMUs load from high-level platforms
- DMUs load from both high-level and low-level platforms
- Low-level station ADA boarding via on-board lifts or other means

# Cab

- One control cab per car, every car
- EMUs and DMUs Do not need to operate in a common trainset



# Electric Propulsion

- One pantograph, main transformer, rectifier, and power conditioning unit per EMU
- High voltage bus between cars of a married pair
- System centered on a DC bus for compatibility with DMU design
- One propulsion inverter per truck
- One traction motor per axle
- Every axle powered

# Diesel Propulsion

- Diesel engine, generator, rectifier, and power conditioning unit to provide power to DC bus
- One generator per DMU car or two per married pair
- Inverters and traction motors from EMU
- DMU traction power about half that of EMU
- Most current EPA engine standards
- Diesel engine and exhaust system should allow upgrading to future emissions control technologies

# Trucks

- Service proven design, conforming to FRA, APTA and AAR
- Compensated ride height consistent with ADA level boarding
- Ride quality maintained for operating speeds up to 79 MPH, class 4 track, and range of vehicle loads
- Load equalization to allow up to 4" of cant deficiency on EMU

# Braking

- Friction brakes with pneumatic and electric controls, automatic parking brake
- Disc brakes, wheel tread units if needed
- Wheel tread conditioning for consistent adhesion, grounding, and shunting
- Brake cylinder pressure control per truck
- One air compressor per car
- Dynamic braking and regenerative braking for both EMU & DMU

# HVAC

- Two roof-top, drop-in, modular, forced-air units per car
- Nominally 10-ton cooling, 30 kW heating per unit
- Supplemental electric radiated floor heat
- Independent cab heaters

# Communications/Train Lines/ Data Networks



- Car-to-car train lines for robust train control
- Trainline data networks for diagnostics and communication, non-safety-critical controls
- Crew intercom and passenger address system consistent with FRA and APTA requirements
- Prudent use of diagnostics, data networks, and train-to-wayside communications to assist maintenance and minimize life cycle costs

**QUESTIONS?**

# FINAL QUESTIONS?

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