Rocky Mountain
Rail Authority

Rocky Mountain Rail Authority (RMRA)

High-Speed Rail Feasibility Study

Denver Metro Input Team Scoping Meeting

DRCOG Offices in Denver

September 10, 2008

Rocky Mountain Rail Authority (RMRA)

High-Speed Rail Feasibility Study

I-70 Corridor Input Team Scoping Meeting

Summit County Commons in Frisco

September 11, 2008

Rocky Mountain Rail Authority (RMRA)

High-Speed Rail Feasibility Study

I-25 Corridor Input Team Scoping Meeting

Mountain Metropolitan Transit in Colorado Springs & North Front Range MPO in Fort Collins

September 16, 2008

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Agenda

- **Introductions**
- **Roles Responsibilities**
- **RMRA Overview**
- **Feasibility Study Overview**
  - Study Overview
  - Technologies
  - Alignments
- **Discuss Opportunities & Constraints**
- **Next Steps**

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Introductions

- RMRA representatives
- Study team representatives
- Corridor Input Team representatives

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Rocky Mountain Rail Authority

- **Multi-jurisdictional government body formed in 2007**
- **Created to determine viability of high-speed passenger rail in Colorado**
- **46 member counties, municipalities and other organizations**
  - Board and Executive Committee
  - Rail Feasibility Study Steering Committee
- **Funded by CDOT SB-1 Transit Grant and memberships**

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Role of the Corridor Input Teams

- **Cities, Counties, MPOs, TPRs, Transit/Transportation Agencies**
- **Elected Officials / Senior Staff**
- **Provide Policy/Technical Input at Key Milestones**
  - September `08: Study Kick-Off / Scoping
  - November `08: Alternatives Selection
  - February `09: Alternatives Analysis
- **Represent Local Constituencies**
- **Share Study Information w/ Local Constituencies**
- **Individual Collaboration as Appropriate**

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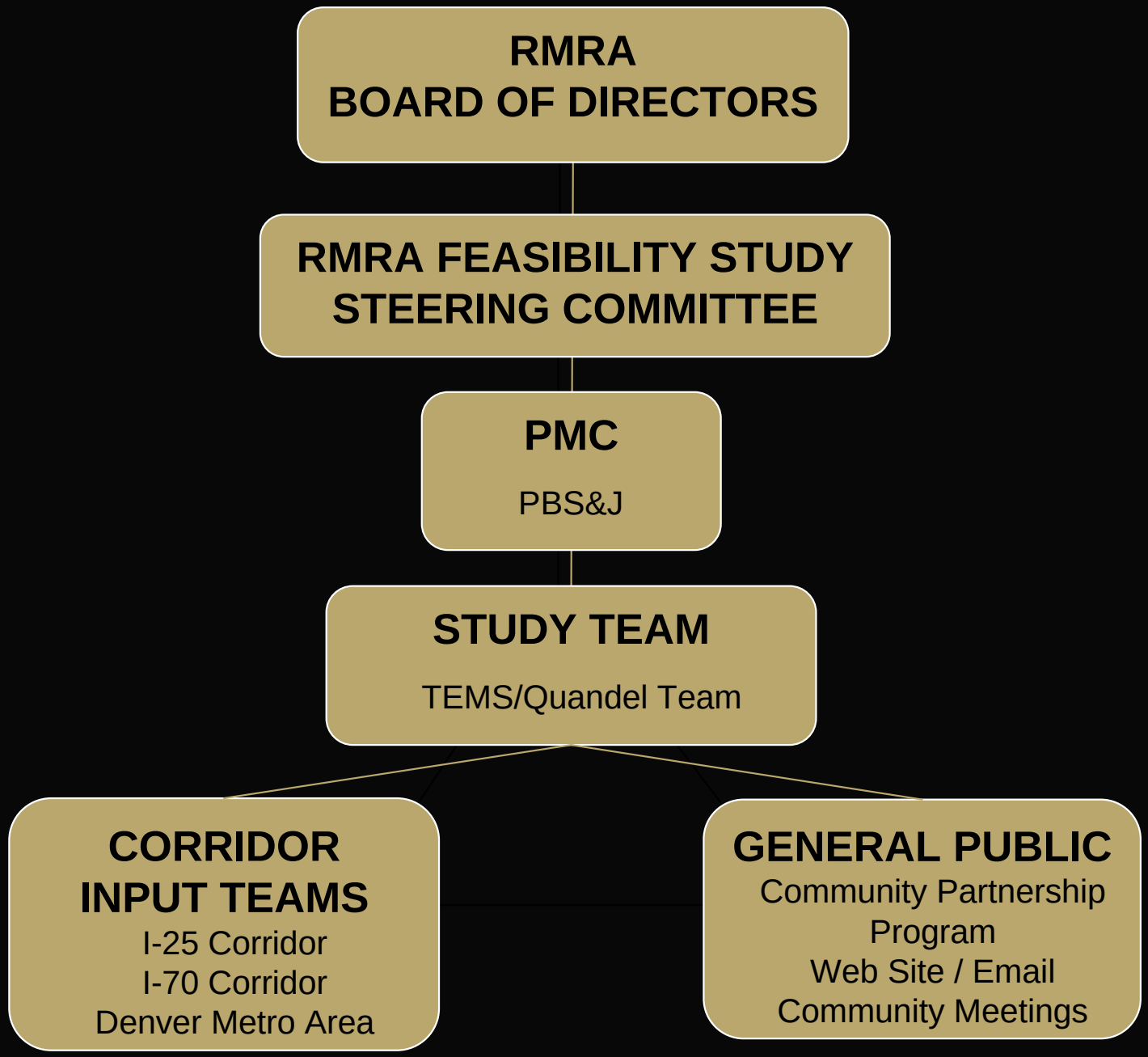
Input & Decision Making Process



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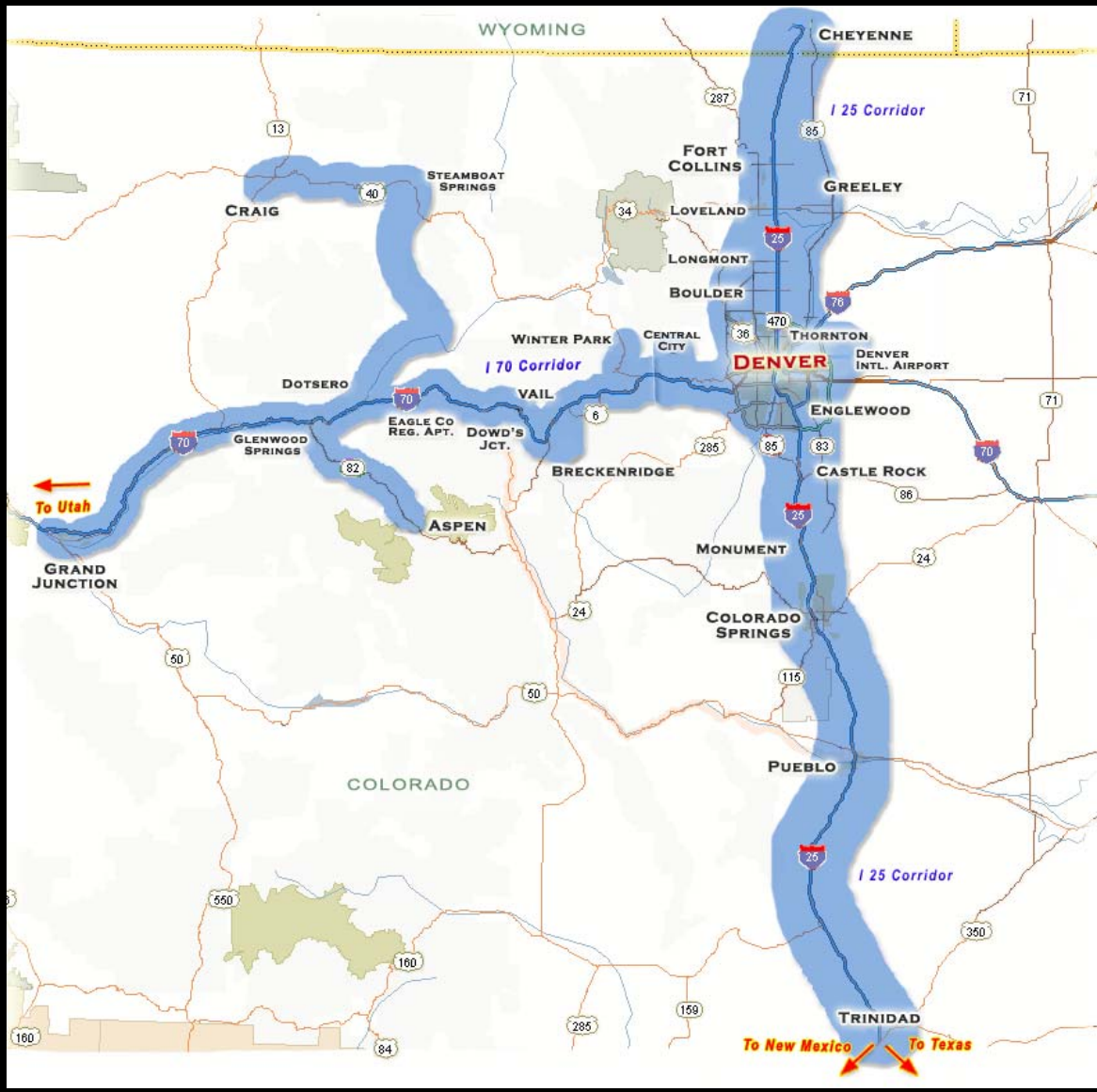
RMRA Feasibility Study

- **The purpose of the study is to determine the technical, financial and economic feasibility of implementing high-speed intercity passenger rail service in the I-25 Corridor, I-70 Corridor and secondary corridors along I-70.**
- **FRA and public-private partnership potential will depend on positive cost-benefit and operating ratios**



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Feasibility Study vs. NEPA Study

	Feasibility Study	NEPA Study (e.g. EIS)
Alignments	Identify representative and feasible alignment(s)	Preliminary engineering of alignments, structures, etc.
Stations	Potential station locations generally identified (e.g. within a community)	Station locations and footprints selected
Alternatives	Reasonable alternatives considered for each technology to determine if "a feasible alternative exists"	Full range of alternatives considered to select and gain environmental approval for one "Preferred Alternative"
Environmental Impacts (e.g. noise, traffic, parks/open space)	Obvious "fatal flaw issues" are considered	Analysis of environmental resources to identify likely impacts and proposed mitigations (where appropriate) for a project.
Cost	Typical unit costs and quantities for major elements used to estimate order of magnitude project costs	Cost estimate based on quantities developed during the preliminary engineering
Financing & Economics	Preliminary financing option developed for preferred technology/technologies	Final financing plan developed for "Preferred Alternative"

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The Study will Include

- **Full market assessment including stated-preference survey and investment-grade ridership and revenue forecasts**
- **Evaluation of full range of high-speed rail technologies**
- **Assessment of potential alignments to identify those capable of supporting high-speed rail operation**
  - Potential station location options
- **Development of a business and implementation plan**
  - Cost-benefit and operating ratios
  - Detailed financial and economic analysis
- **Pro-Forma Financials**
  - Expected levels of federal, state, local and private financial support
- **Potential economic benefits to local communities, regions and the state**
- **Recommended next steps**

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Study Schedule

- **Scoping** (July-Sep `08)
  - Introduce the study and its purpose
  - Gather input on local needs, concerns and desires
  - Gather existing data (from MPOs, railroads, CDOT, local plans, etc.)
- **Alternatives Selection** (Oct-Nov `08)
  - Determine technology and route alternatives to be evaluated
  - Gather data on the proposed technology and route alternatives
  - Develop market database (o/d data, travel flows, socioeconomic data, stated preference surveys)
  - Introduce and gather input on proposed alternatives
- **Alternatives Analysis** (Dec `08-June `09)
  - Identify most feasible alternative(s) (alignments, stations, cost-benefit ratios, operating ratios, potential economic/community benefits, etc.)
  - Select most feasible alternative(s) and identify next steps
  - Develop business and implementation plan

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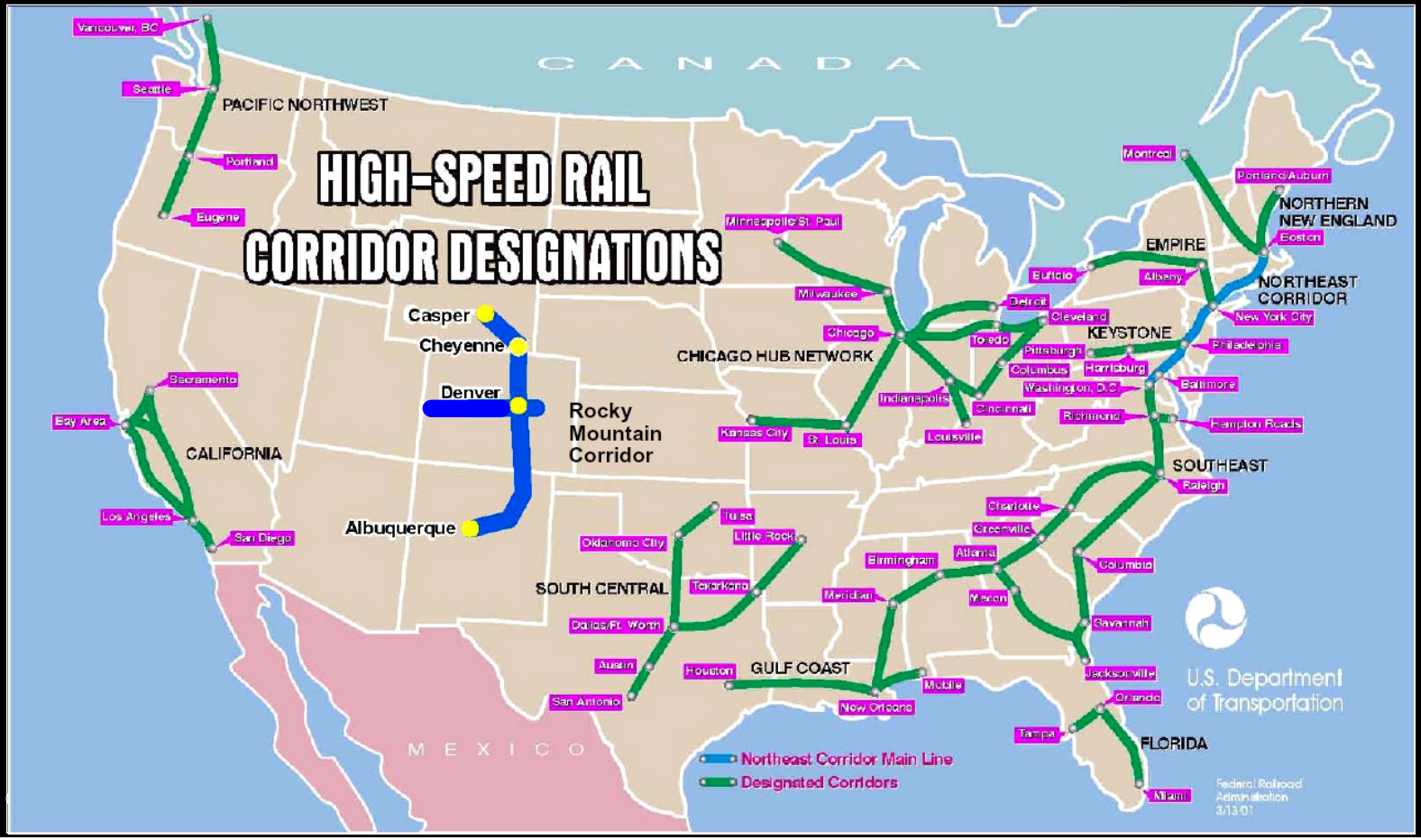
If a Feasible Alternative is Found

- **Submit to Federal Railroad Administration for designation as nation's 11th high-speed rail corridor**
- **Conduct necessary environmental studies (e.g. Environmental Impact Statement)**



Study
Questions & Comments

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Vehicle Technology Categories

Type	Power Source	Maximum Operating Speeds*
Conventional Rail	Electric or Diesel	<79 mph
High-Speed Rail	Electric or Diesel	110 – 130 mph
Very High-Speed Rail	Electric	150 – 185 mph
Ultra High-Speed	Electric	>250 mph

** Actual operating speeds would vary depending on community sensitivities, topography and other factors. Particularly in densely populated and other sensitive areas, actual operating speeds would be much lower than these speeds.*

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Vehicle Technology Examples

Conventional Rail

Max Speeds: <79 mph

Example: Conventional Amtrak

High-Speed Rail

Max Speeds: 110-130 mph

Example: Talgo T21

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Vehicle Technology Categories

Very High-Speed Rail

Max Speeds: 150-185 mph

Example: Siemens ICE

Ultra High-Speed Rail

Max Speeds: >250 mph

Example: Transrapid Maglev

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Key Technology Considerations

- **Physical/Performance**
  - Maximum grade, speed and tilt capabilities
  - Acceleration and braking
  - Operational reliability and in-service history
- **General**
  - Weight, size, seating capacity
  - Light freight and baggage capabilities
  - Emergency evacuation safety procedures
- **Economic**
  - Staffing (train crew size & duties, station staff size & roles)
  - Operating, maintenance and capital costs
  - Regulatory approvals

Technology
Questions & Comments

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Key Alignment Considerations

- **I-70 Corridor**
  - Grades and curves (speed vs. cost)
  - Do not assume I-70 widening
  - Environmental sensitivities
  - Local plans/needs/desires
- **I-25 Corridor**
  - Constraints on existing rail alignment (pending Rail Relocation Study)
  - New “greenway” alignment not dependent on freight rail relocation but very costly
  - Local plans/needs/desires
- **Denver Metro Area**
  - Connection and coordination with DIA and FasTracks
  - Local plans/needs/desires
  - Distinction between local and intercity service

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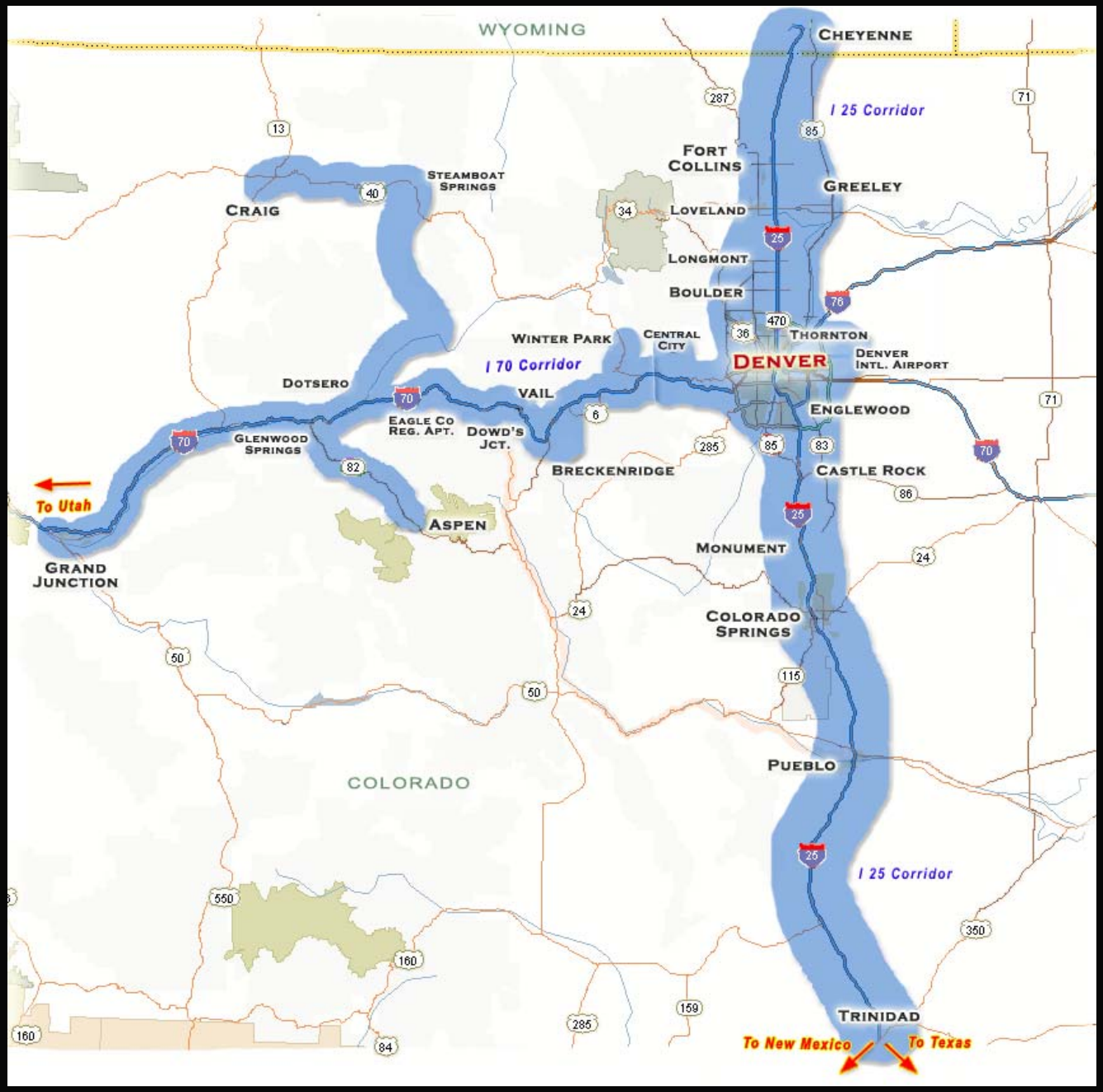
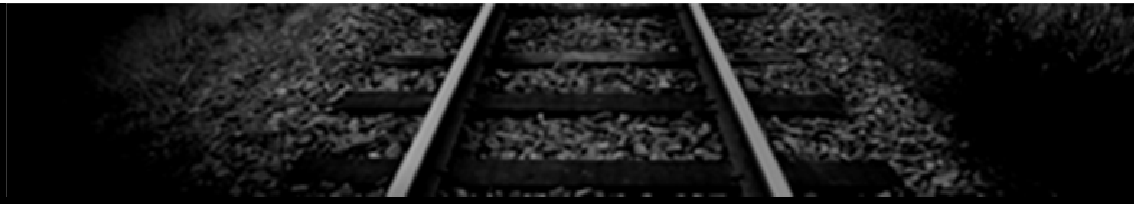
General Alignment Options



Alignment
Questions & Comments



NOTE TO REVIEWERS…

- The following slides will be pre-written on butcher sheets of paper and used at the appropriate meeting.
- We will review these “what we know” information with meeting participants and engage them in a discussion to help clarify and expand upon these issues.
- My hope is that you can review these and add to them with add’l opportunities and constraints

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Denver Metro Area Opportunities & Constraints

- Integration with Denver International Airport
- Coordination/integration with FasTracks (RTD supportive of intermodal/intercity opportunities)
- Supportive or conflicting local land-use plans
- Alignment options in a mostly built-out metropolitan area
- Station options (DIA, Central Business District, “parkway” stations)
- Likely confusion between desires for local transit options and goals/objectives of intercity rail.

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I-70 Corridor Opportunities & Constraints

- **I-70 Coalition Land-Use Planning Study**
  - Advanced consideration of rail in the corridor
  - Initial identification of potential station locations
- **Steep mountain grades will be greatest challenge**
  - Technology
  - Alignment
  - Stations
  - Cost
- **Environmental and recreational sensitivities**
- **Avoid, but not preclude, improvements to I-70**
- **Likely confusion between desires for local transit improvements and goals/objectives of intercity rail.**

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I-25 Corridor Opportunities & Constraints

- **Existing freight rail operations in this corridor are viable**
  - Use of existing freight railroad alignments will be dependent on successful relocation of freight lines and would require significant coordination with freight railroads
  - A “greenfield alignment(s)” would have much higher cost than upgrading existing lines and require significant coordination with freight railroads, CDOT local municipalities and private property owners
- **Limited local planning for potential intercity rail stations. No regional planning**
- **Likely confusion between desires for local transit improvements and goals/objectives of intercity rail.**
- **Potential integration with intercity rail in Wyoming and/or New Mexico**