Public Open House #1: Goals, Criteria & Initial Alternatives

Colorado Department of Transportation (CDOT) Interregional Connectivity Study

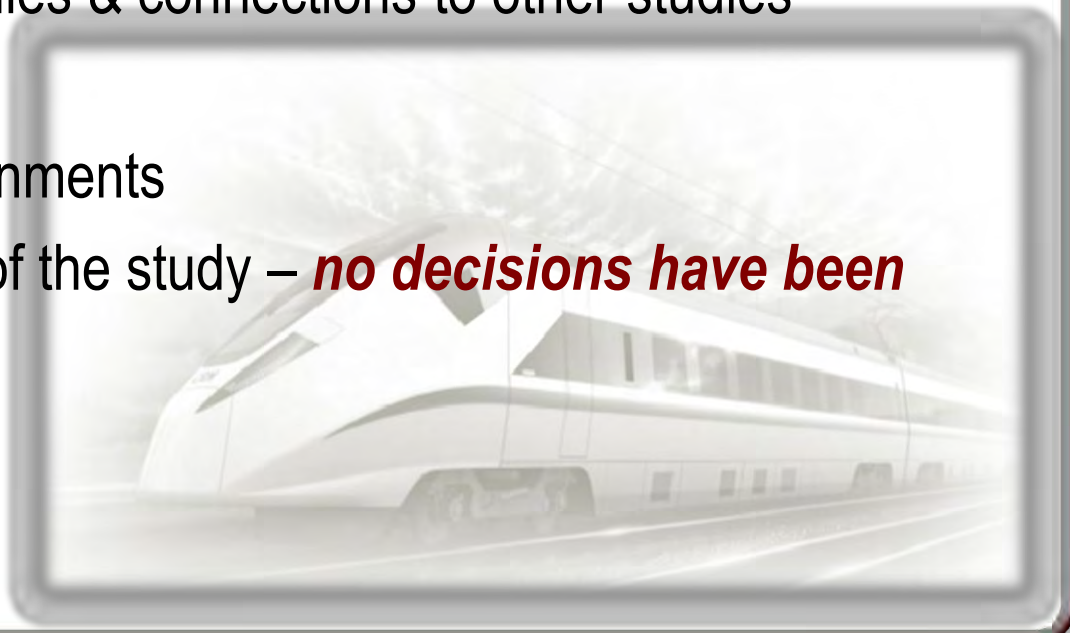
July 2012

Agenda

- Welcome
- Meeting goals
- Background
- Study approach
  - Vision, goals, & criteria
- Preview - range of alternatives
- Next steps

Welcome

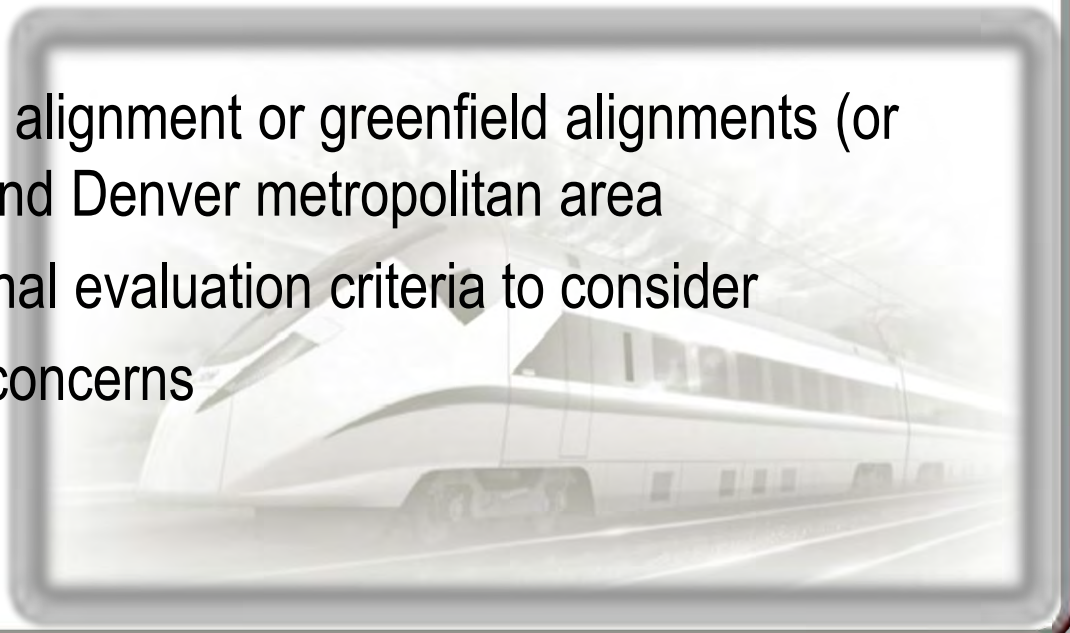
- **Introduce the Interregional Connectivity Study (ICS)**
  - Examining Front Range high speed rail (HSR)
  - Building off past studies & connections to other studies
  - Clarify HSR
  - Examining initial alignments
  - Clarify early stages of the study – ***no decisions have been made***



Meeting Goals:

Receive your input:

- Thoughts on high speed rail (HSR)
- Input on the tradeoffs (railroad alignment or greenfield alignments)
- Thoughts on railroad alignment or greenfield alignments (or others ideas) in/around Denver metropolitan area
- Ideas on any additional evaluation criteria to consider
- Other comments or concerns



Background

Don Ulrich & David Krutsinger

Federal Railroad Administration's (FRA) Definition of High Speed Intercity Passenger Rail (HSIPR)

High Speed - Express	High Speed - Regional	Emerging High Speed Rail	Conventional Rail
▪ Frequent, express service ▪ Serves major population centers 200–600 miles apart ▪ Few intermediate stops ▪ Top speed at least 150 mph ▪ Grade-separated, dedicated rights-of way (some exceptions)	▪ Relatively frequent service ▪ Serves major/moderate population centers 100–500 miles apart ▪ Some intermediate stops ▪ Top speed of 110–150 mph ▪ Grade-separated (some dedicated and shared track)	▪ Developing corridors of 100–500 miles ▪ Strong potential for future HSR Regional and/or Express service ▪ Top speed up to 90–110 mph ▪ Primarily shared track	▪ Traditional IPR services of more than 100 miles ▪ One to 12 daily frequencies ▪ Potential for future HSR service ▪ Top speed up to 79 to 90 mph ▪ Generally on shared track

RMRA Ridership Projections
(Annual HSR Ridership – Millions of Trips)

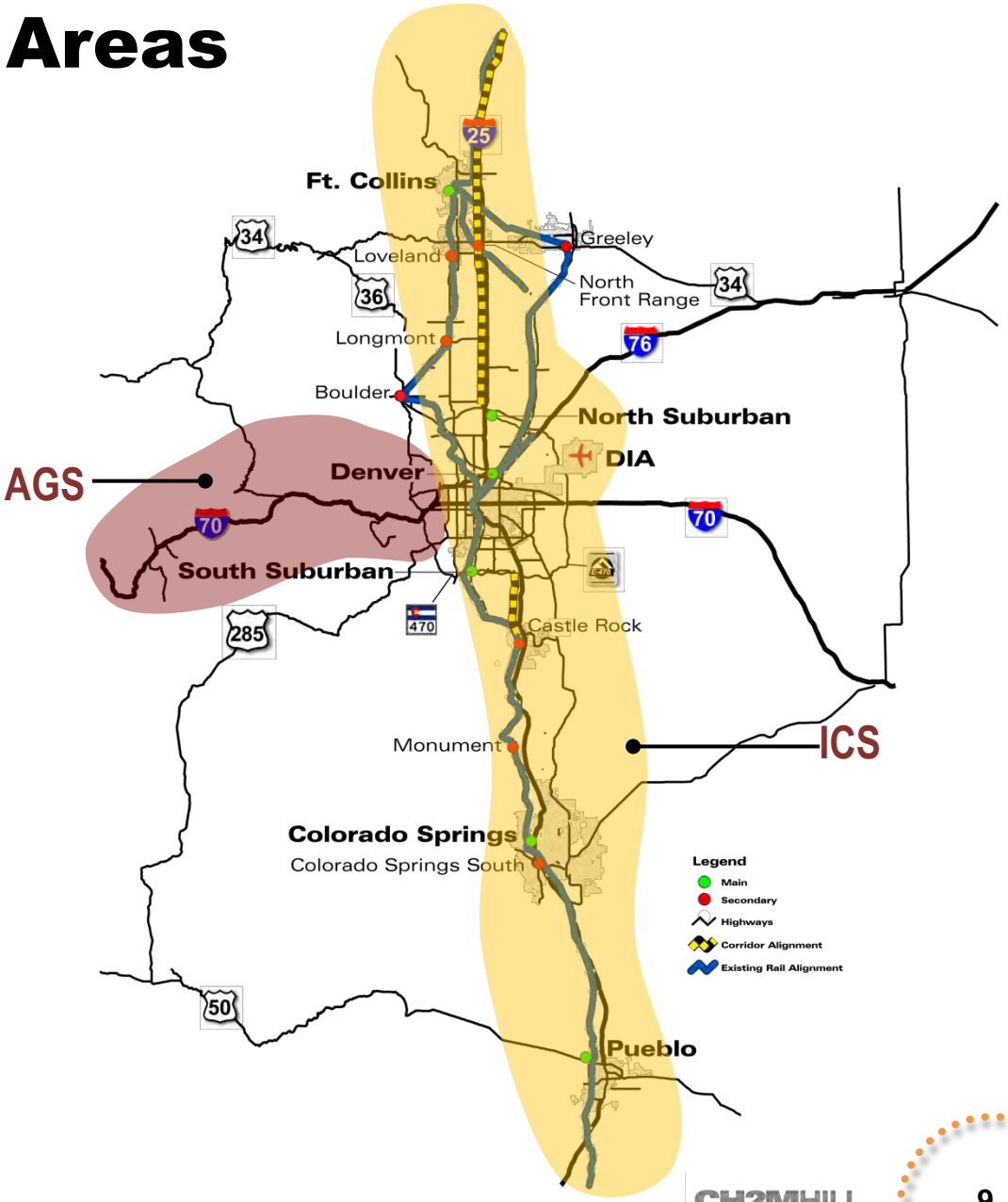
Technology	2025	2035	2045
79 mph diesel	2.80	3.74	4.89
110 mph diesel	7.27	9.64	12.50
125 mph maglev	20.74	27.57	35.79
150 mph EMU	19.13	25.42	33.00
220 mph EMU	26.05	34.53	44.72
300 mph maglev	28.64	37.97	49.17

ICS Study Sponsors & Scope

- **Sponsors:**
  - CDOT and the Federal Railroad Administration funding
- **Scope:**
  - Provide cost-effective recommendations for alignments, technologies and station locations **that maximize ridership between High Speed Intercity Passenger Rail (HSIPR) & Denver's Regional Transportation District (RTD)**
  - Suggest method for integrating HSIPR into **the statewide multi-modal network**
  - Develop the basis for **next steps**

ICS & AGS Study Areas

- ICS
  - Fort Collins
  - Denver
  - Colorado Springs
  - Pueblo
  - Ridership statewide
- Advanced Guideway System Study (AGS)
  - I-70 Mountain Corridor



ICS Study Approach is Based on Endorsement

Beth Vogelsang

State Rail Plan Sets The Foundation

"The Colorado rail system will improve the movement of freight and passengers in a safe, efficient, coordinated and reliable manner. In addition, the system will contribute to a balanced transportation network, cooperative land use planning, economic growth, a better environment and energy efficiency. Rail infrastructure and service will expand to provide increased transportation capacity, cost effectiveness, accessibility and intermodal connectivity to meet freight and passenger market demands through investments which includes public-private partnerships."

Successful Alternatives Fulfill The Purpose & Need

Purpose:

- *The purpose of the High Speed Intercity Passenger Rail project is to provide Colorado with a well supported modal option for the State's transportation network that connects communities and destinations for interregional business and tourism travel; builds on and strengthens Colorado's existing transportation infrastructure; supports the State's Vision, as articulated in the State Rail Plan; and offers statewide social, environmental, and economic benefits that are greater than the capital and operating costs of its implementation.*

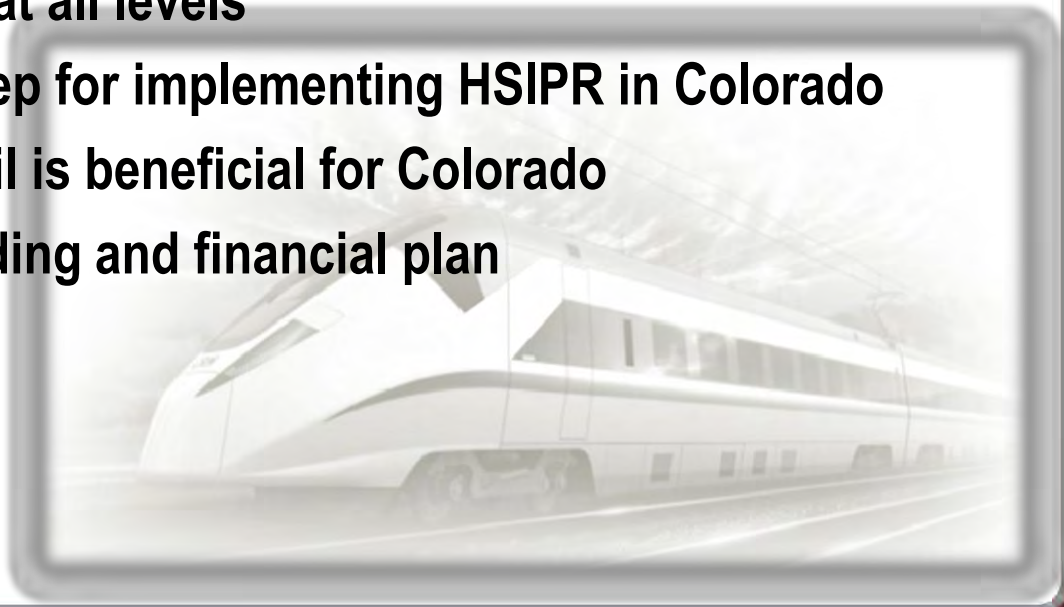
Successful Alternatives Fulfill The Purpose & Need

Needs:

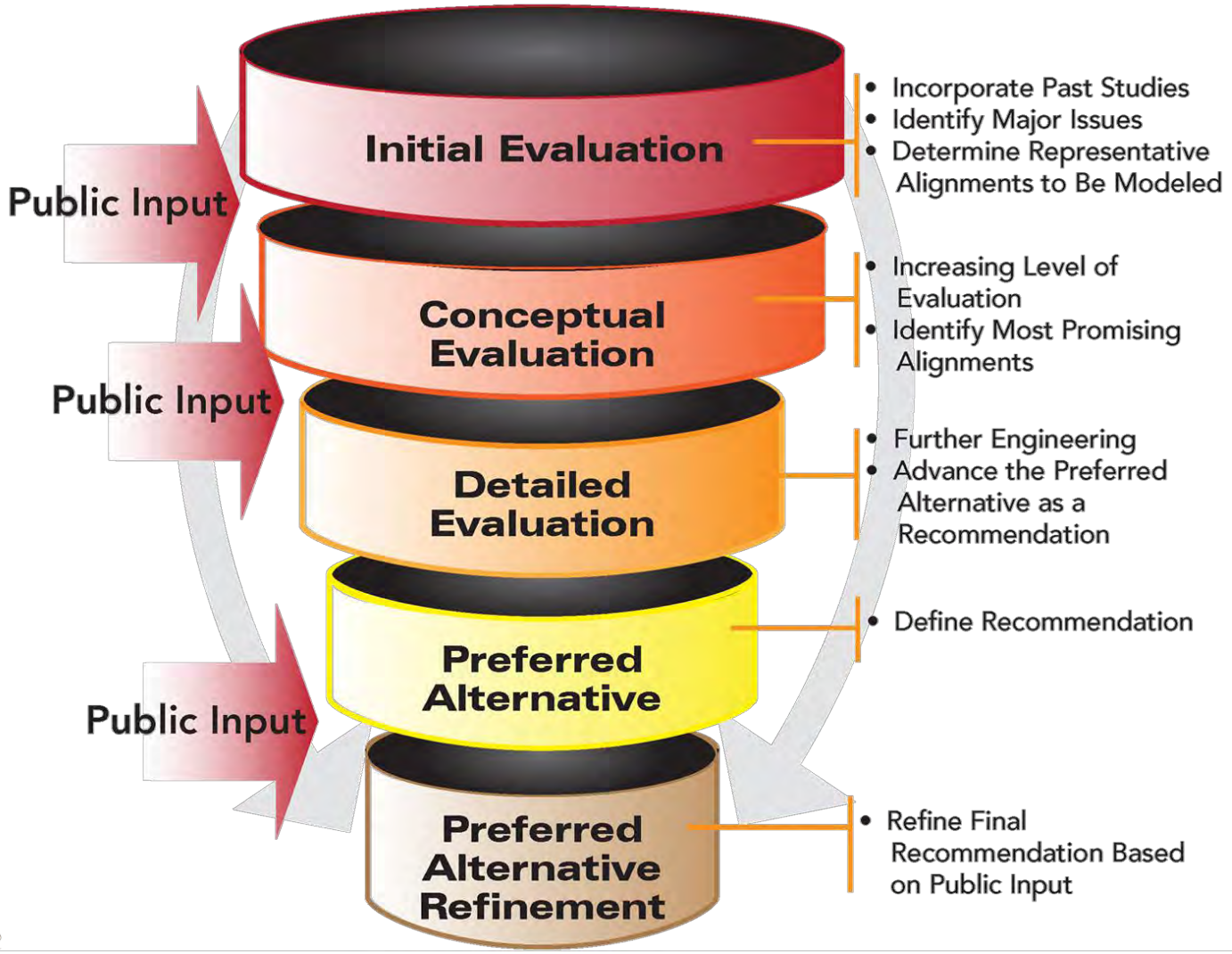
- Address the mobility demands of future population growth
- Improve mobility through provision of a travel option
- Enhance economic development through improved connectivity
- Improve the State's environmental quality and energy efficiency
- Provide economic benefits sufficient to receive new funding sources

The ICS Must Fulfill The Study Goals

- Create a persuasive vision for high speed rail in Colorado
- Configure a plan that maximizes ridership for HSIPR and the RTD system
- Maintain public support at all levels
- Provide a logical next step for implementing HSIPR in Colorado
- Show that high speed rail is beneficial for Colorado
- Prepare an effective funding and financial plan



Alternatives Analysis Involves Multiple, Screening Steps



A Range of Alternatives Is Used to Test Performance

Don Ulrich

Developing Alternatives

1

- **Based off of the Purpose & Need**

2

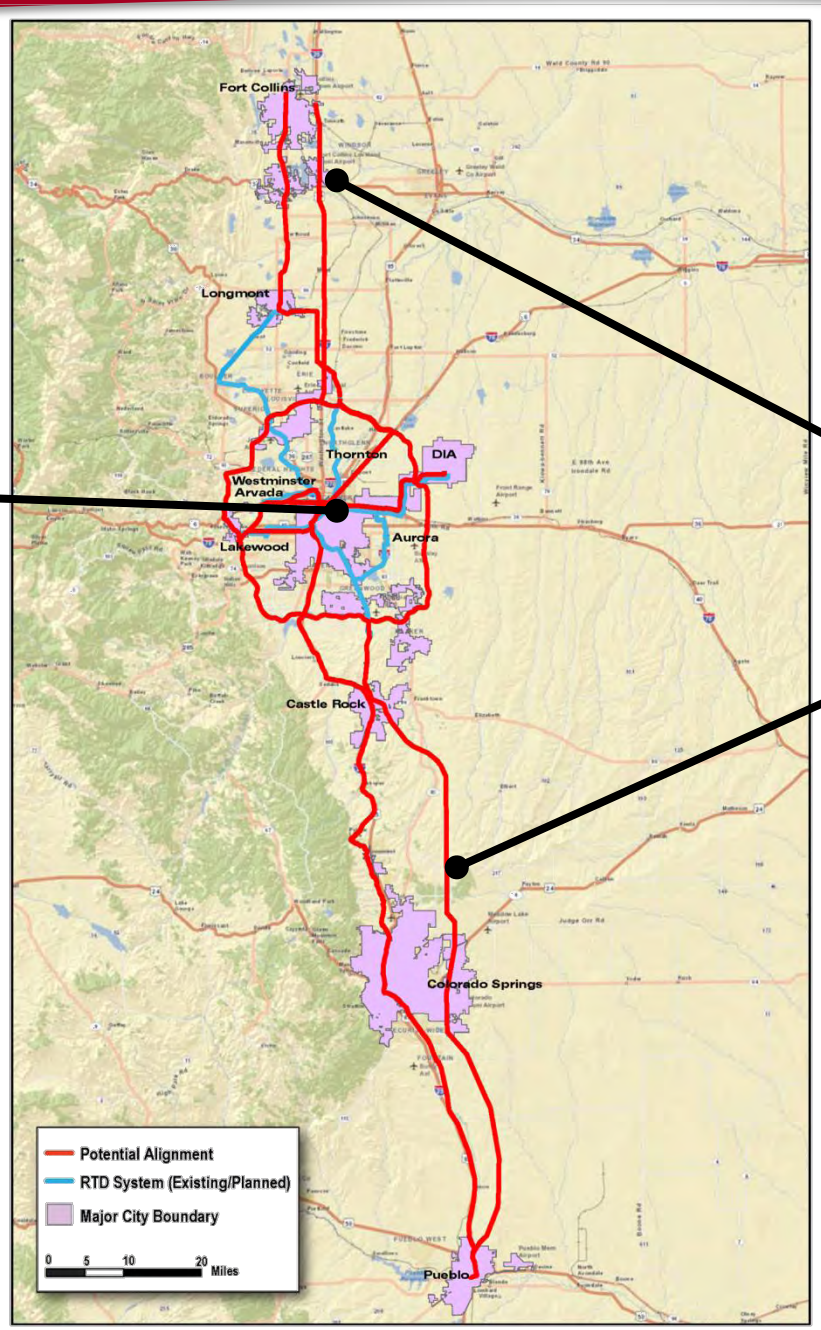
- **Built from past studies**
  - Rocky Mountain Rail Authority Study (RMRA)
  - State Rail Plan
  - RTD System
  - I-70 Mountain EIS
  - North I-25 EIS
  - East Corridor EIS

3

- **Federal Railroad Administration guidance**
  - Speed requirements
  - Operational requirements
  - Safety requirements
  - Stations & station spacing
  - Alternatives analysis evaluation criteria

Logic

Step 1: Start in Denver



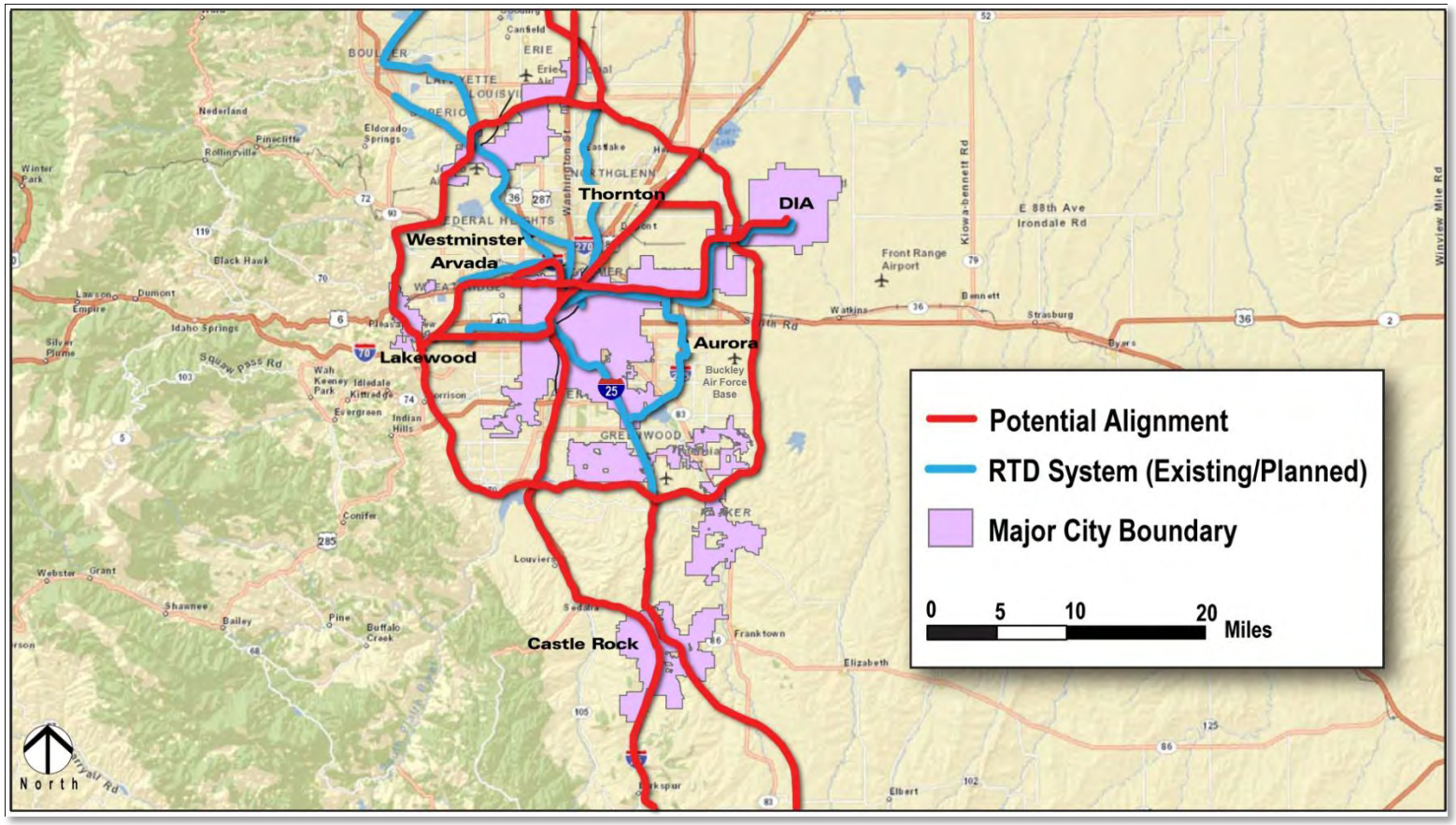
Step 2: Define Railroad & Greenfield Alignments

Step 3: Model & Refine

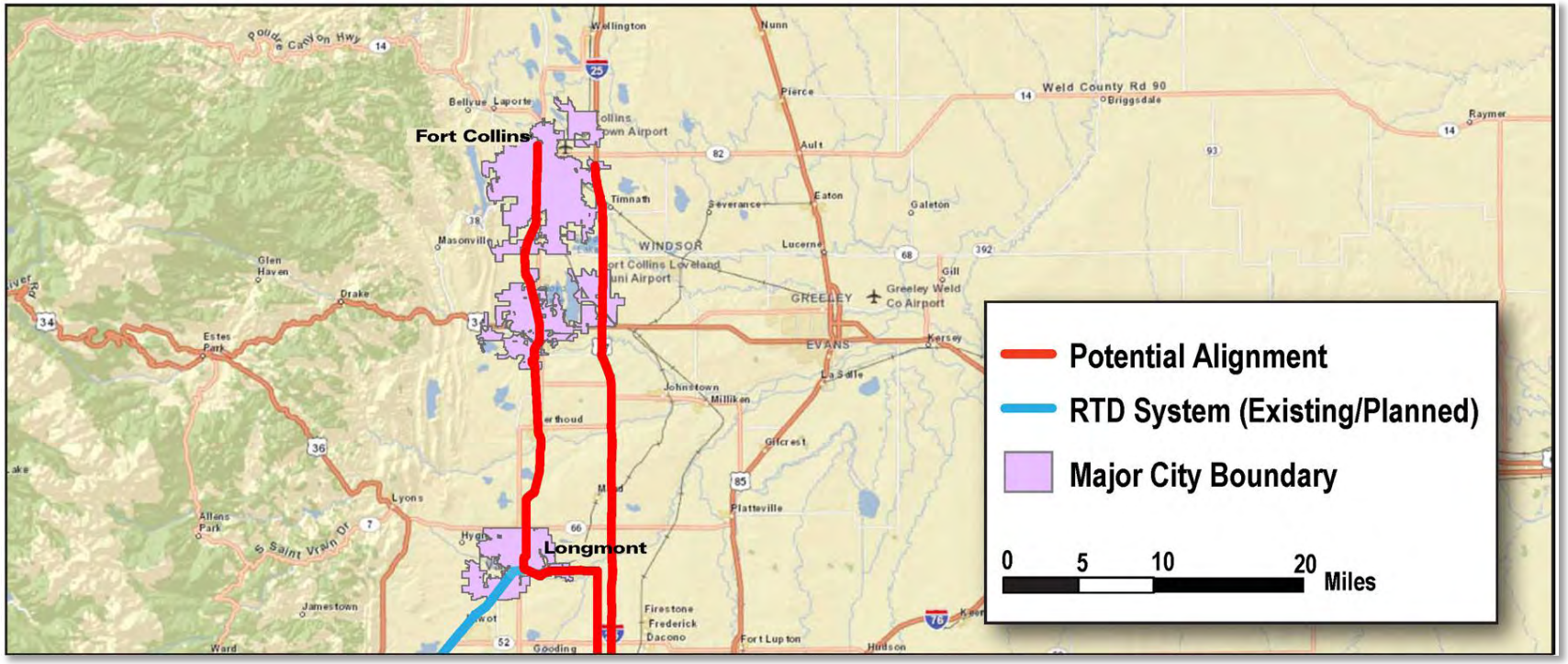
Ridership Studies Are Based On Openness

- Transparent demand forecasting approach
- Appropriate representation of configuration, service & fare levels
- Use of regional government's & other model inputs/outputs
- Represents all major travel markets
- Reflect other future transportation system improvements
- Address any gaps in existing data & enhance the quality of forecasts

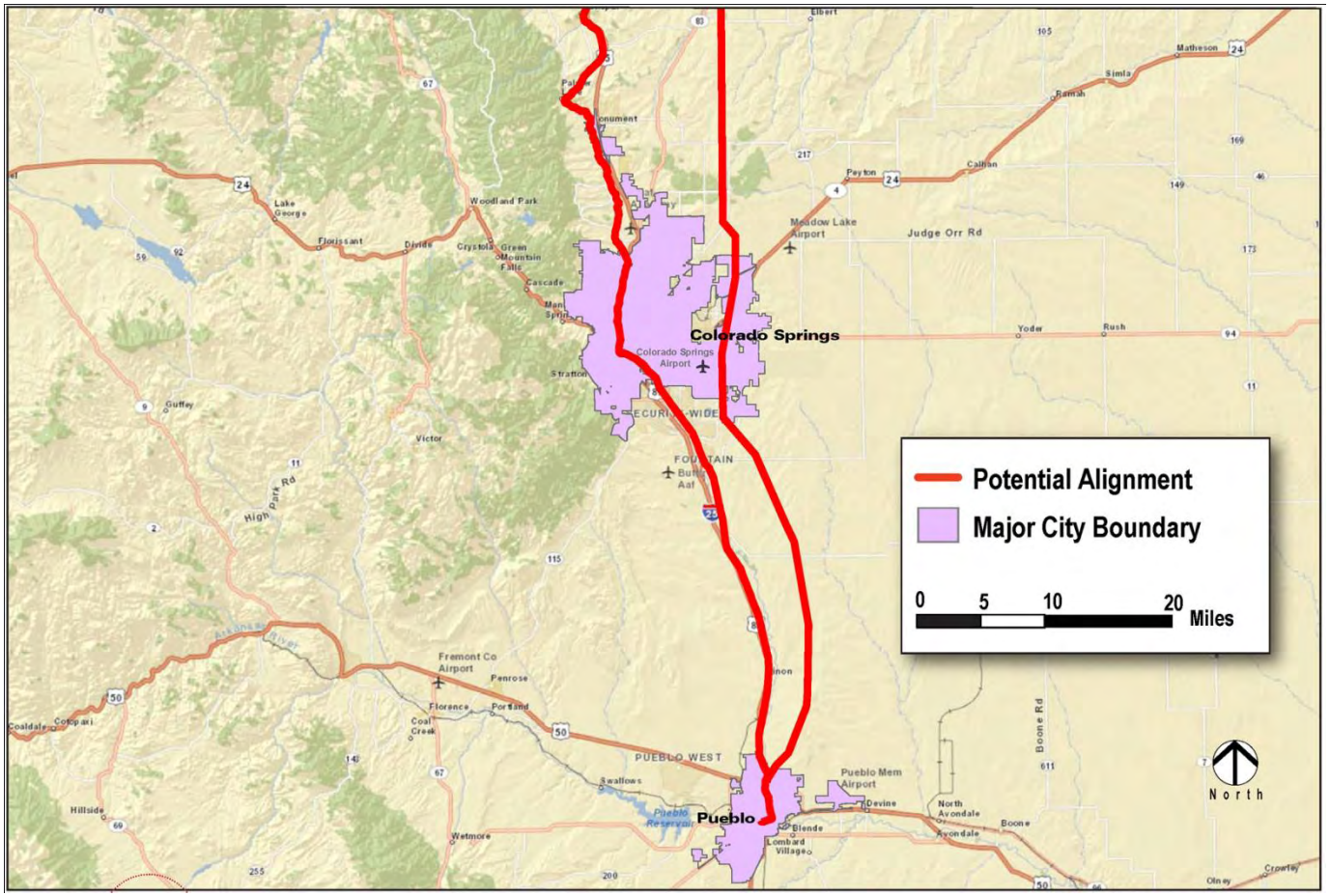
Alignments Being Studied In The Denver Metro Area



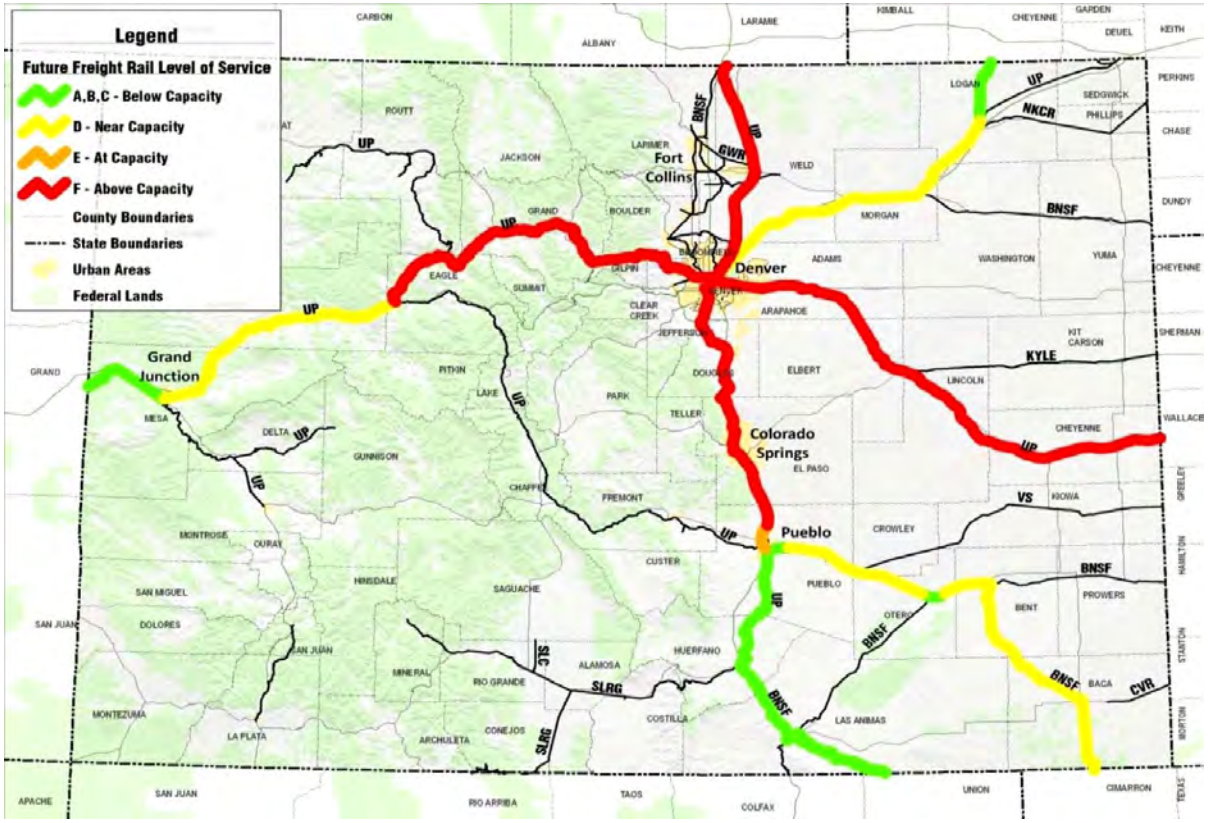
Initial Alignments To Fort Collins



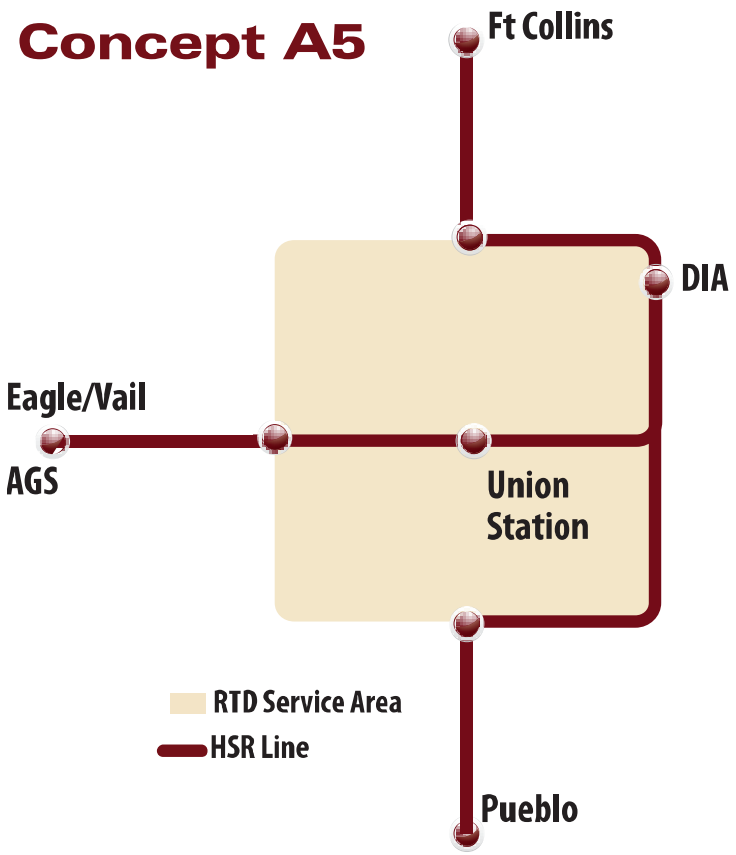
Alignments Being Studied To Colorado Springs & Pueblo



Rail Alignments Are Projected to be Over Capacity

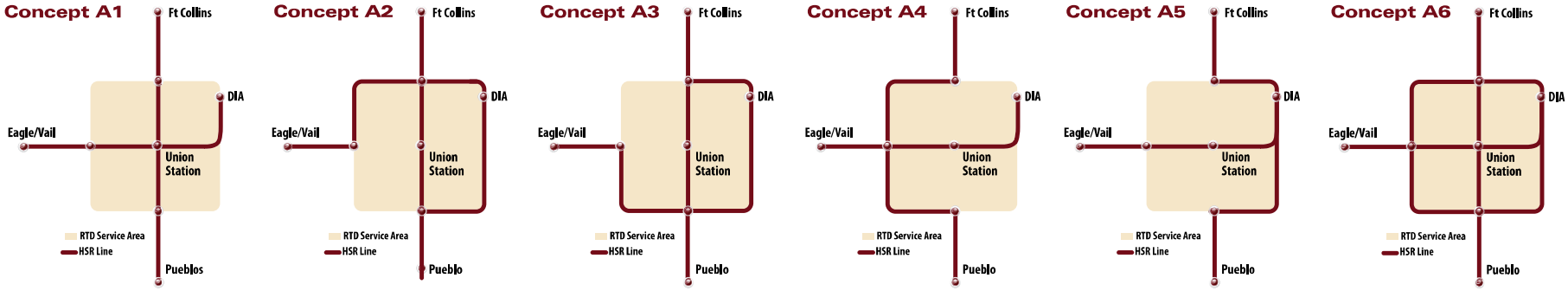


Alternatives 'Stick Diagrams'



- **Alternatives grouped by major attributes:**
  - Groups A, B, C, & N/S
- **Stick diagrams provide a simple view of alignments across a large geographic area**
- **Example:**
  - Ft. Collins to Pueblo traveling east around Denver (E470)
  - From Eagle County Airport through Denver (near I-70/Pena Blvd.) to DIA

Results: Group A - There Are Many Choices For Going Through Denver



Advantages

- Generally shorter
- Probably faster
- One seat ride to DUS & DIA

Disadvantages

- High cost per mile
- Requires aerial structures
- Higher community impacts
- May compete with RTD

Results: Group B – There Are Also Many Options For Going Around Denver

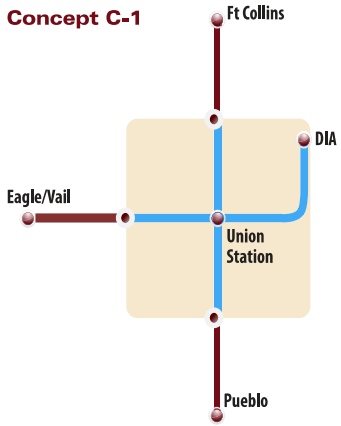
Advantages

- Generally lower cost
- Less construction impacts
- Potentially easier to implement
- Uses RTD infrastructure

Disadvantages

- Not as fast inside Denver
- Probably lower ridership
- No one seat ride to DUS
- Fewer economic benefits

Results: Group C – There are a few choices for sharing track with RTD



Advantages

- Uses RTD track
- One seat ride to DUS & DIA
- Less construction impacts
- Potentially easier to implement

Disadvantages

- Not as fast inside Denver
- Operational challenges working on RTD track
- Fewer economic benefits
- Technology compatibility

Results: Group N/S – There Are Options For Extending North & South

N1 Concept – Railroad Corridor

N2 Concept – Greenfield

S1 Concept – Greenfield

S2 Concept – Greenfield

Advantages

- Rail alignments are closer to the communities
- Greenfield alignments are faster, may have fewer impacts
- Greenfield alignments do not limit technologies

Disadvantages

- Rail alignments limit technology choice
- Rail alignments affect freight operations
- Rail alignments cannot accommodate HSR curves

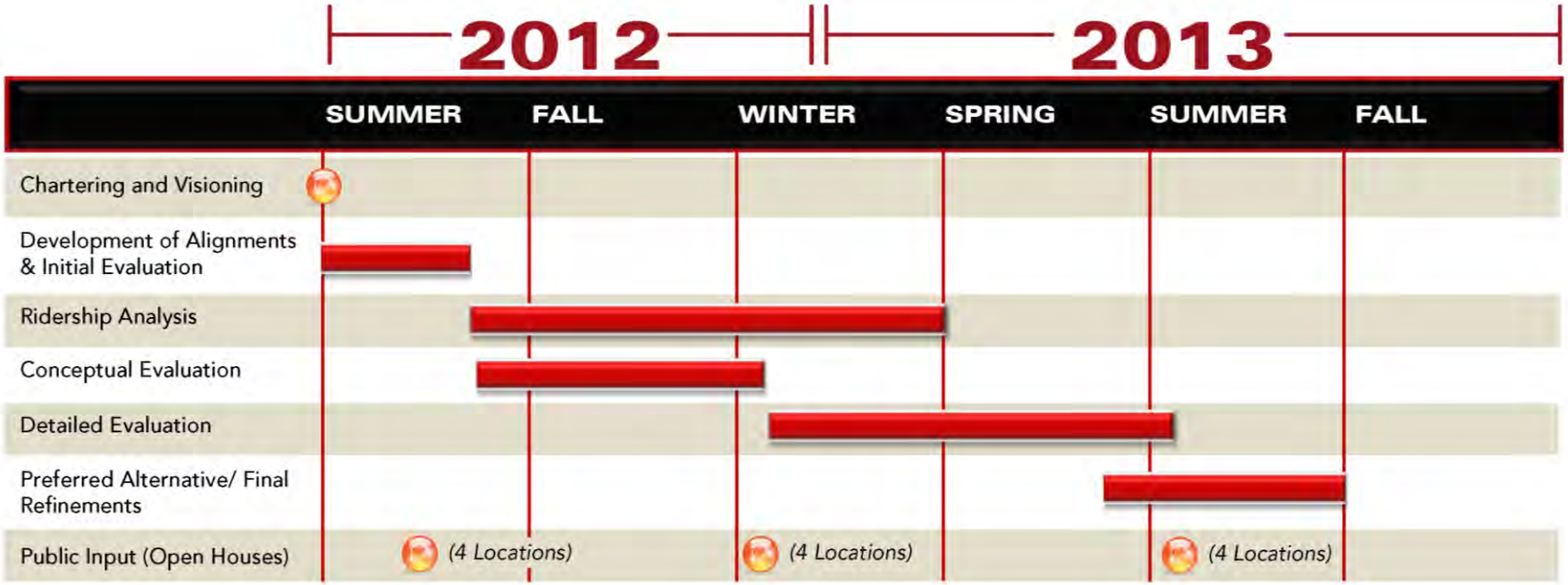
Based On The Initial Evaluation We Have:

- **An understanding of the pros/cons of the alignments**
- **Found that:**
  - Any alignment through Denver has many impacts
  - Alignments outside of Denver have comparatively fewer impacts
  - Acceptance of any of the candidate alignments is unknown
- **No technologies have been eliminated from the Greenfield alignments**
- **Using railroad right of way will limit technology options**
- **The best alignments have not been found**

Next Steps

Don Ulrich & Chris Proud

Next Steps


2012
2013
SUMMER
FALL
WINTER
SPRING
SUMMER
FALL
Chartering and Visioning
Development of Alignments & Initial Evaluation
Ridership Analysis
Conceptual Evaluation
Detailed Evaluation
Preferred Alternative/ Final Refinements
Public Input (Open Houses)
(4 Locations)
(4 Locations)
(4 Locations)

Thank You!

July 2012