

# Gold Line Environmental Impact Statement (EIS)

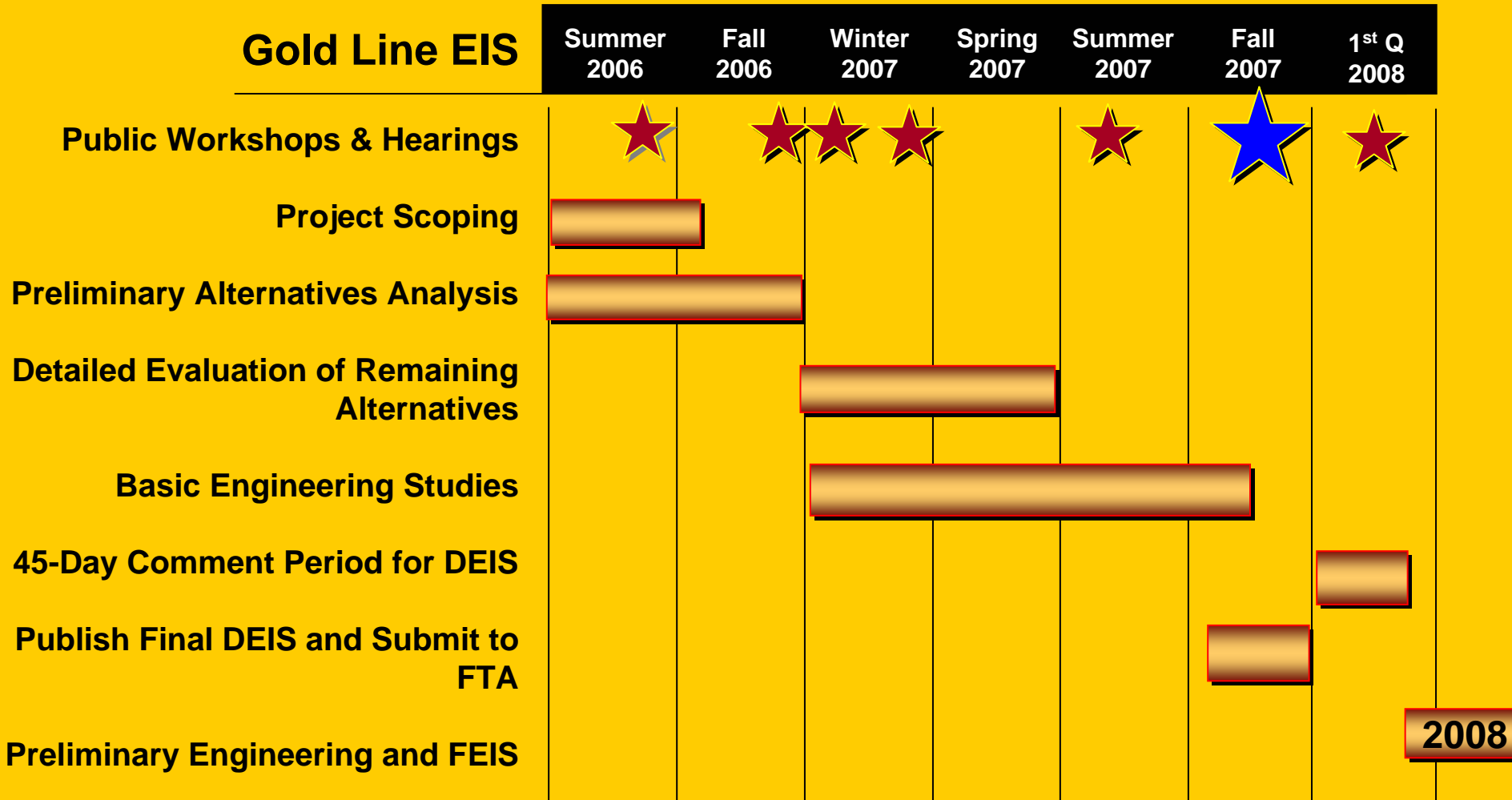
## Workshop No. 5 Consequences of the Preferred Alternative

October 2007

Where are we today?  
We are on schedule!



## Gold Line EIS



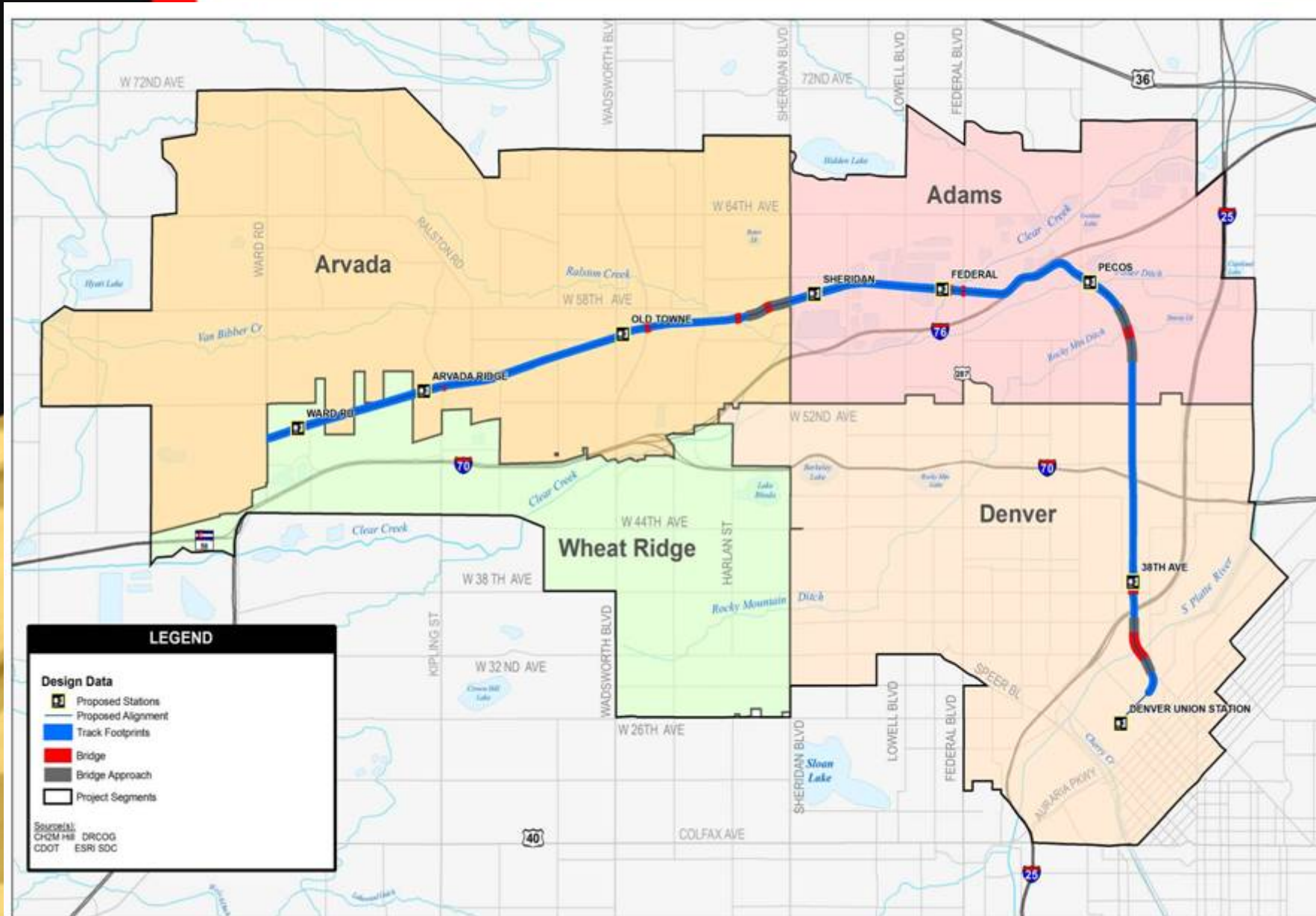
2008

- **Project Introduction**
  - Where is the project?
  - What is the purpose and what are the goals of the project?
- **Alternatives Considered**
  - What Alternatives were looked at?
  - What is the No Action alternative?
  - What is the Preferred Alternative?
- **Environmental Consequences**
  - What things were looked at?
  - What are the benefits of the project?
  - What are the consequences?
- **Public Involvement & Next Steps**

# Project Introduction



# Where is the project?



# What is the purpose and what are the goals of the project?



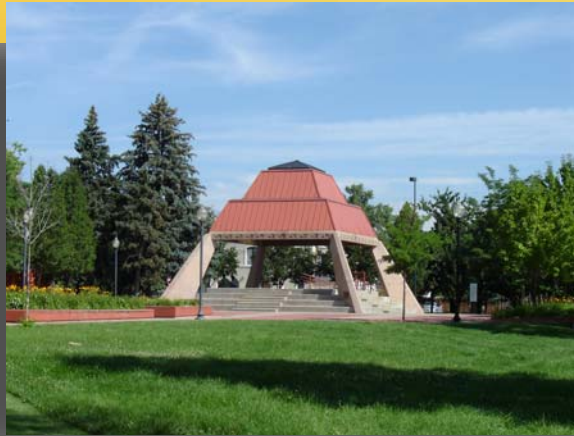
## **Purpose**

- Implement Fixed Guideway Transit Between Denver Union Station and Ward Road

## **Goals**

- Provide a cost-effective transit option
- Provide a high-quality and reliable transit service
- Provide system linkage with other FasTracks corridors
- Fulfill existing land use and TOD plans
- Enhance access to jobs, entertainment, recreation
- Provide equitable transit opportunities
- Minimize environmental impacts
- Improve environmental sustainability

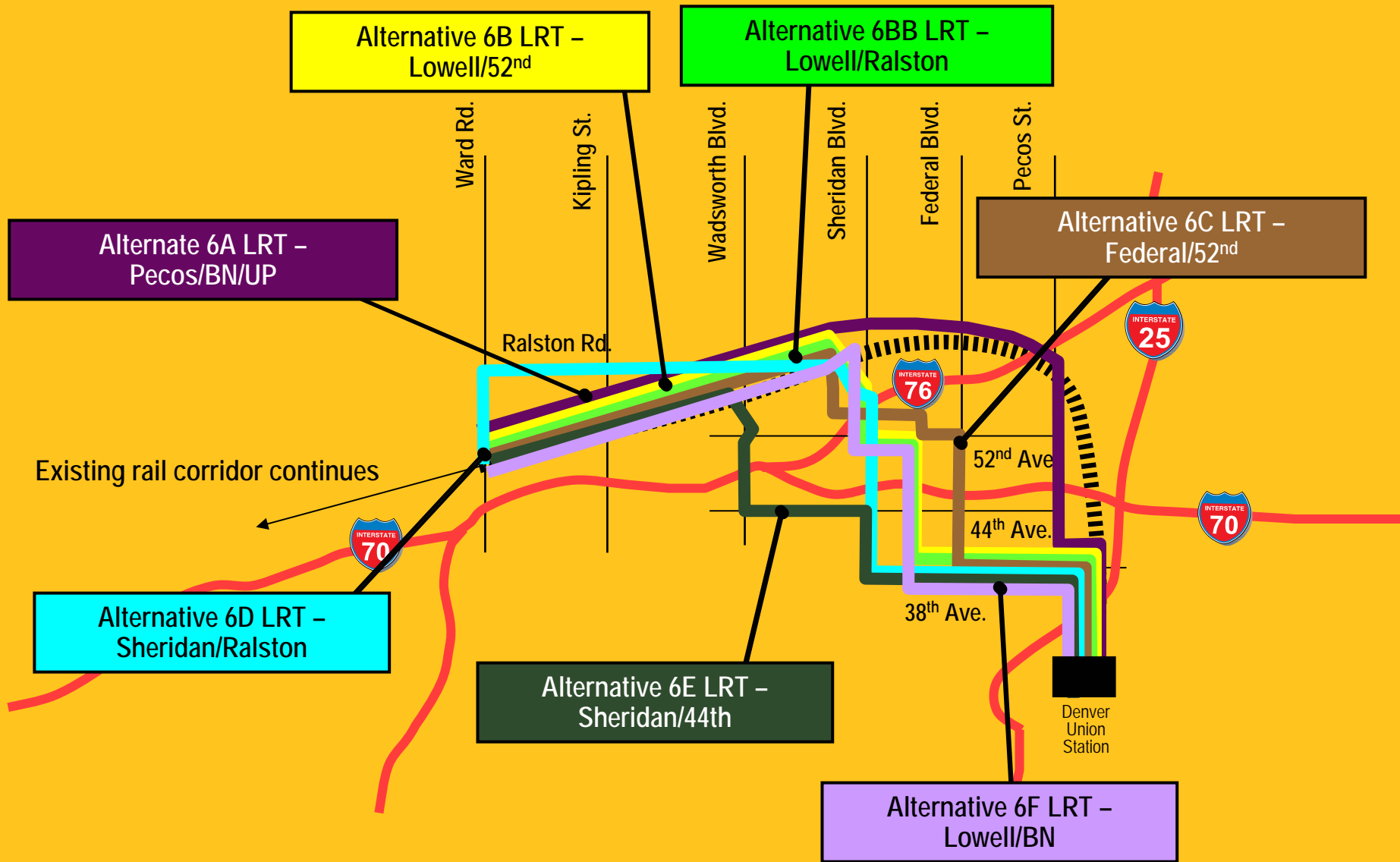
# Alternatives Evaluated



# What alternatives were considered?

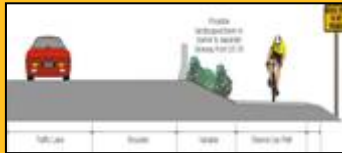
- Incorporated the results of past studies
- The 20 alternatives considered included:
  - Alternative alignments
    - Selected arterials
    - Railroad alignment
  - Alternative technologies
    - Streetcar
    - Light Rail Transit
    - Diesel and Electric Commuter Rail
  - Alternative station locations
    - At least 3 locations for each station

# Example of alternatives evaluated in during screening



# What technologies did we look at?

## TSM Remains



## Dropped @ MIS



## Evaluated at DEIS



## No Action



- **No Action Alternative**

- The No Action does not mean that “nothing happens”
- The No Action includes existing projects and financially committed projects within the study area to respond to the expected growth in the study area
- Provides the benchmark from which the Preferred Alternative is evaluated

- **Preferred Alternative**

- EMU on the Railroad Alignment
  - 7 stations (same as FasTracks)
  - Similar alignment to FasTracks and 2001 Major Investment Study recommendation
  - Similar, but heavier technology, to FasTracks and 2001 Major Investment Study recommendation – meets new railroad requirements.

# How are the alternatives compared in the EIS?

- **The No Action and Preferred Alternative** are compared against each other
- **The Alternatives** are compared using the same criteria:
  - Community & agency support
  - Environmental benefits and impacts
  - Transportation benefits and impacts
  - FTA criteria for funding
    - Cost effectiveness
    - Mobility benefits
    - Environmental benefits
    - Other measures (e.g. land use)

# Environmental Consequences



# What human and environmental things are considered?



<b>Resource Studied</b>	<b>Results Different from the No Action?</b>
<b>Social Impacts</b>	<b>Yes (during construction)</b>
Environmental Justice	No
<b>Land Use</b>	<b>Yes (benefits)</b>
Economic Conditions	No
<b>Land Acquisition</b>	<b>Yes</b>
<b>Historic Resources</b>	<b>Yes</b>
<b>Visual Resources</b>	<b>Yes</b>
Parkland, Open Space	No
Air Quality & Energy	No
<b>Noise &amp; Vibration</b>	<b>Yes</b>
Biological Resources	No
Water Quality/Floodplains	No
<b>Wetlands</b>	<b>Yes</b>
Hazardous Materials	No
Public Safety & Security	No

# Why do we have comparatively few environmental impacts?



- Impacts have been reduced because:
  - Significant public input on concerns were addressed through design
  - Conducted Avoidance and Minimization efforts
  - Designed “single track” in areas with constrained Right of Way
  - Preferred Alternative is located in a railroad Right of Way
  - Most station sites are currently in industrial areas

# What are the social impacts during construction?

- Construction would require about 36 months
- Approximately 110 acres would be exposed during construction, about ½ in the railroad ROW and ½ for stations
- Where would the affects be most noticed?
  - Denver: Minor effects
  - Adams County: Few community impacts; some impacts to the natural environment
  - Arvada: Most inconvenienced during construction from Lamar to Kipling
  - Wheat Ridge: Minor effects

- Transit supportive land use is a Federal Transit Administration (FTA) funding evaluation criterion
- Community sustainability
- Transit Oriented Development (TOD) saves infrastructure cost and reduces congestion

## Preliminary Results

- Preferred Alternative is compatible and supportive of all land use plans in the study area

# What land use is planned for the station areas?



Station	Existing Land Use	Planned Land Use
<b>38<sup>th</sup> Avenue</b>	<p><u>West/Inca</u>: Light industrial/Residential</p> <p><u>East/Fox</u>: Light industrial/Rail yard</p>	<p><u>West/Inca</u>: Urban Neighborhood: Limited Mixed Use w/ Local Retail</p> <p><u>East/Fox</u>: park-n-Ride (Station Area Plan in progress)</p>
<b>Pecos</b>	Industrial	Flex Industrial/Commercial/Open Space
<b>Federal</b>	Industrial/Commercial	Clean Industrial/Commercial/Open Space/TOD Mixed Use
<b>Sheridan</b>	Light industrial	TOD Mixed use
<b>Olde Town</b>	Commercial/Residential	TOD Mixed use
<b>Arvada Ridge</b>	Vacant	TOD Mixed use
<b>Ward Road</b>	Light industrial	TOD Mixed use

# Why do we evaluate land acquisition?

- Land acquisition has been one of the top concerns throughout the public process

## Preliminary Results

- No homes or residential buildings need to be acquired
- 7-21 businesses may need to be acquired
  - 55-59 acres of commercial/industrial property required for stations

# Potential Land Acquisition



Station	Acres	Number of Residences	Number of Businesses
38 <sup>th</sup>	7	None	3
Pecos East/West	12	None	East = 0 West = 9
Federal East/West	11	None	East = 5 West = 1
Sheridan	11	None	2
Olde Town North/South/West	2	None	North = 1 South or West = 0
Arvada Ridge	3	None	0
Ward	11	None	1

# Why do we evaluate historic resources?

- Historic resources are highly regulated through federal law (Section 106)
- Impacts to historic resources are important to study area stakeholders

## Preliminary Results

- Potential adverse impact on historic structures on 38<sup>th</sup> Avenue station parking footprint
- One adverse impact on archaeological site in the railroad right-of-way
- Potential indirect effects from noise (still to be determined)

# Why do we evaluate visual resources?

- Rail transit is a major investment that should complement the corridor communities
- Project elements need to be compatible with their surroundings
- Preferred Alternative's Major Visual Elements
  - 10 structures
  - 4 pedestrian bridges
  - 7 transit Stations and park and Ride facilities
  - 3.4 miles of retaining walls
  - 11.2 miles of overhead catenary and track way

## Preliminary Results

- No Major Visual Impacts in Denver, Adams County and Wheat Ridge
  - Rail yard setting (Denver)
  - Impacts contained to railroad right of way
  - Station areas are industrial, or redeveloping
- Anticipated sensitivities in Arvada
  - Retaining walls and catenary through historic districts
  - Close proximity to residential land uses

# How can visual impacts be mitigated?

<b>Project Element</b>	<b>Mitigation Measure</b>
All urban design issues	<ul style="list-style-type: none"><li>• Station charrettes</li><li>• Issue Focus Teams</li></ul>
Structures	<ul style="list-style-type: none"><li>• Match existing bridges</li><li>• Landscape abutments</li></ul>
Retaining walls	<ul style="list-style-type: none"><li>• Retaining wall design</li><li>• Wall landscaping</li></ul>
Catenary	<ul style="list-style-type: none"><li>• Architectural poles</li><li>• Catenary design</li></ul>
Track	<ul style="list-style-type: none"><li>• Single track (done)</li></ul>

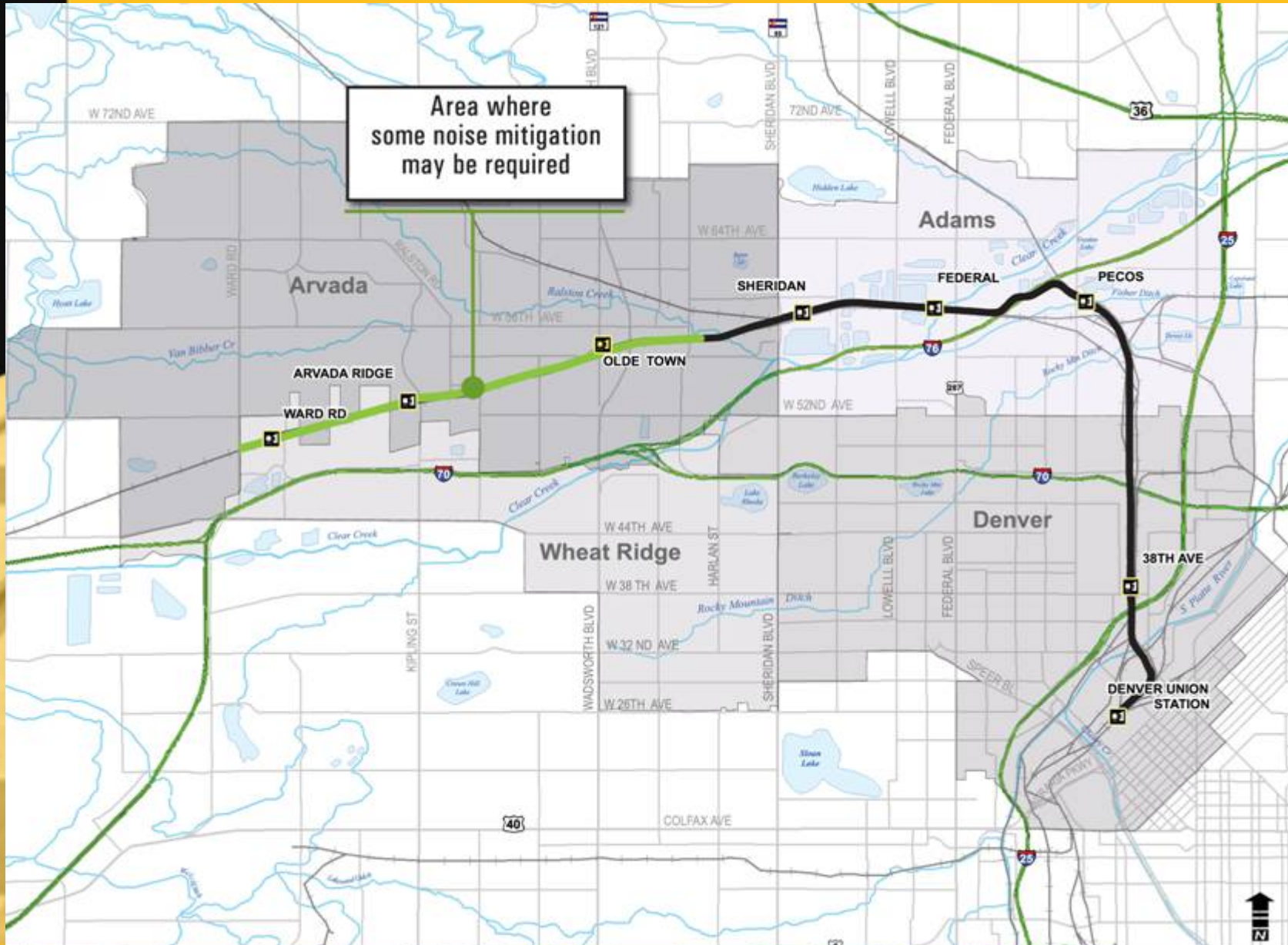
# Why do we evaluate noise and vibration?

- This is the principle environmental challenge with rail transit systems
- The challenge is generally due to horn noise
- It has been a major community concern

# Areas Requiring Mitigation for Noise



# Areas with Moderate Noise Increases



# How could we mitigate noise impacts?

- **Quiet Zones**

- Upgrade safety measures at at-grade crossings to a level where FRA will not require trains to sound their horns.
- **All noise impacts are eliminated if these are implemented.**

- **Other Types of Mitigations**

- **Source Mitigation** (e.g. wheel truing, wheel maintenance, rail lubrication, adjusting track radius at turns)
- **Path Mitigation** (e.g. noise reduction walls, alignment alterations, adding ballasts on guideway)
- **Receiver Mitigation** (e.g. upgrade windows in impacted structures to be soundproof)

# Areas Requiring Mitigation for Vibration



# How could we mitigate vibration impacts?

<b>Location</b>	<b>Proposed Mitigation Measures</b>
Carr—Garrison Street	<ul style="list-style-type: none"><li>• Track vibration isolation treatment (600 feet long) Will require additional geotechnical information.</li><li>• Turnout modifications</li></ul>
Garrison--Independence	<ul style="list-style-type: none"><li>• Track vibration isolation treatment (1,400 feet long) Will require additional geotechnical information</li></ul>

- Highly regulated
  - “Individual Permit” (takes significant time and regulatory attention)
  - “Nationwide Permit” (requires less time and regulatory attention)
- Provides valuable habitat

## Preliminary Results

- Impacts are caused by:
  - Bridge construction over creeks
  - Widening berms supporting the track

# Jurisdictional Wetlands Impacts<sup>1</sup>

Area	Impact Type	Acreage Estimate
Clear Creek	Alignment/Bridge	.01
Ralston Creek	Alignment/Bridge	.17
Ralston Creek	Alignment/Bridge	.01
Federal West	Station	.01
<b>Total</b>		<b>.20</b>

<sup>1</sup>Assumed jurisdictional but USACOE still making determination

# Non-Jurisdictional Wetland Impacts<sup>2</sup>

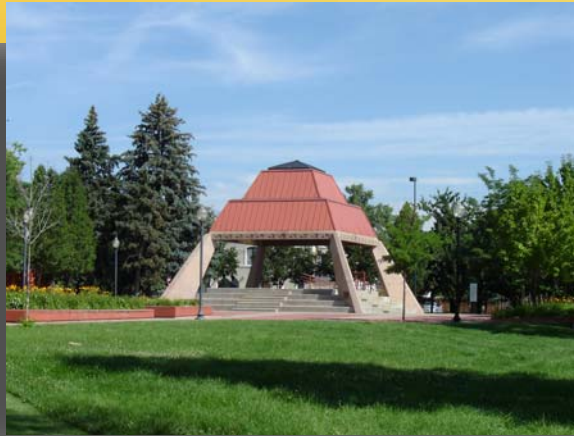


Area	Impact Type	Acreage Estimate
Jim Baker Reservoir	Depression near Track	.30
Olde Town North	Station	.13
Allen-Reno Ditch	Alignment	.32
Swadley Ditch	Alignment	.03
<b>Total</b>		<b>.78</b>

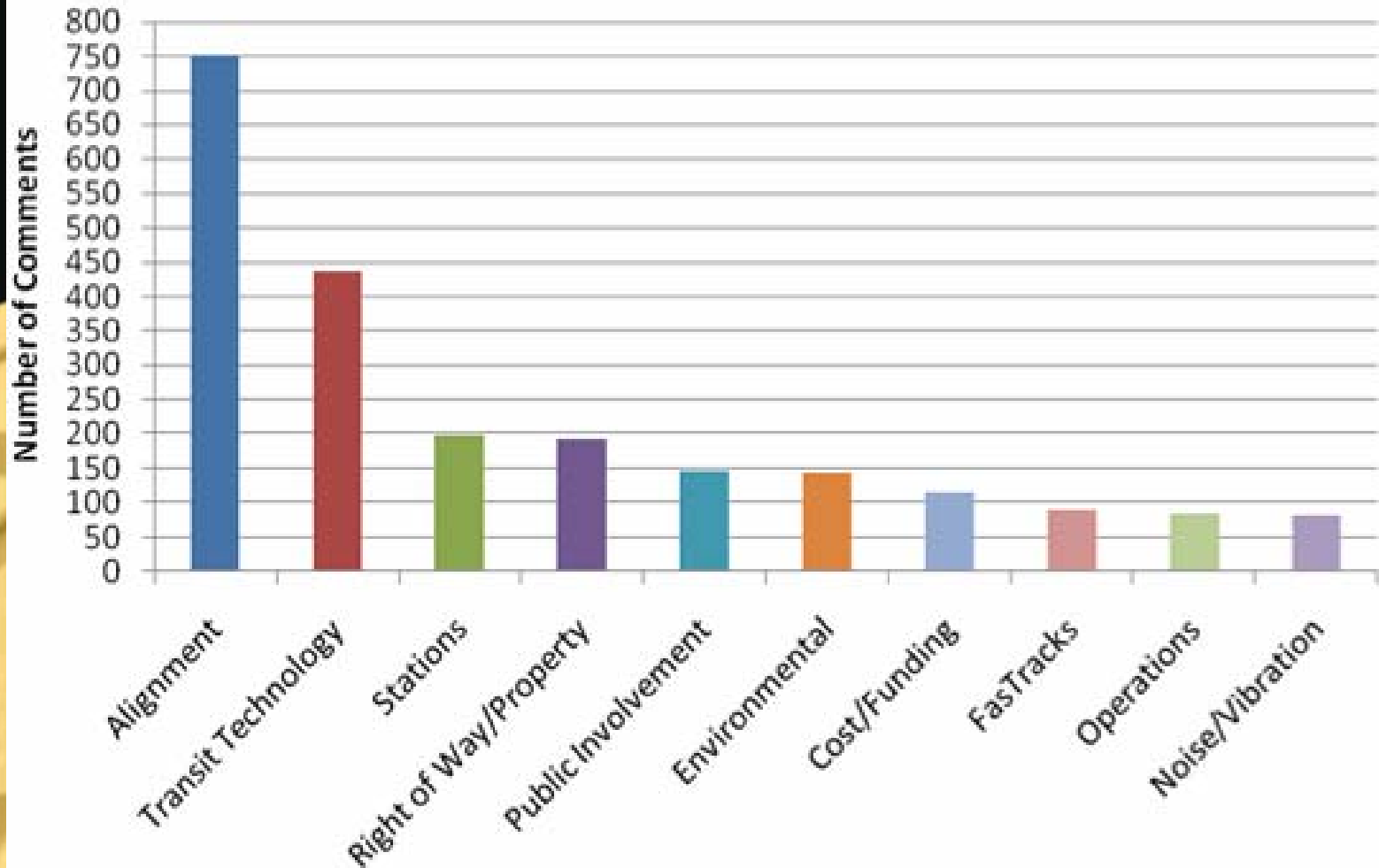
<sup>2</sup>Assumed non-jurisdictional but USACOE still making determination

- All jurisdictional wetlands must be mitigated for on a 1:1 replacement basis
  - Mitigation is either on-site, within the watershed or by banking
  - USACOE prefers on-site or within the watershed
- All non-jurisdictional wetlands should also be mitigated
  - RTD generally mitigates by purchasing credits in “wetland banks”

# Public Involvement and Next Steps



# Project issues have remained consistent.....



# What are the issues to be resolved with stakeholders?

- Further development and refinement of project mitigation
- Station area planning and design charrettes
- IFT meetings to discuss mitigation measures (noise, construction impacts, etc.) and station designs

# What are the key milestones from this point on?



- **January-February 2008** - Draft EIS completed and released
  - EIS available online, at all corridor libraries and at public hearings
  - 45-day public comment period
    - *Online/Email*
    - *By Mail*
    - *Public Hearings*
- **First Quarter 2008** – Public & agency final comments on preliminary station designs
- **June 2008** – Final EIS completed and submitted to FTA
- **September-October 2008** – FTA Decision Document

# Public Questions and Comments

*(3 minutes each)*