

# Gold Line Environmental Impact Statement (EIS)

Public Workshop #2  
October 5, 2006



# Project Introduction and Agenda

# Workshop Purpose



- Present the logic for alternatives development
- Present the results of Level 1 Screening
- Present the results of Level 2 Screening
- Obtain input for Level 3, Detailed Evaluation
- Outline next steps

# NEPA Responsibilities

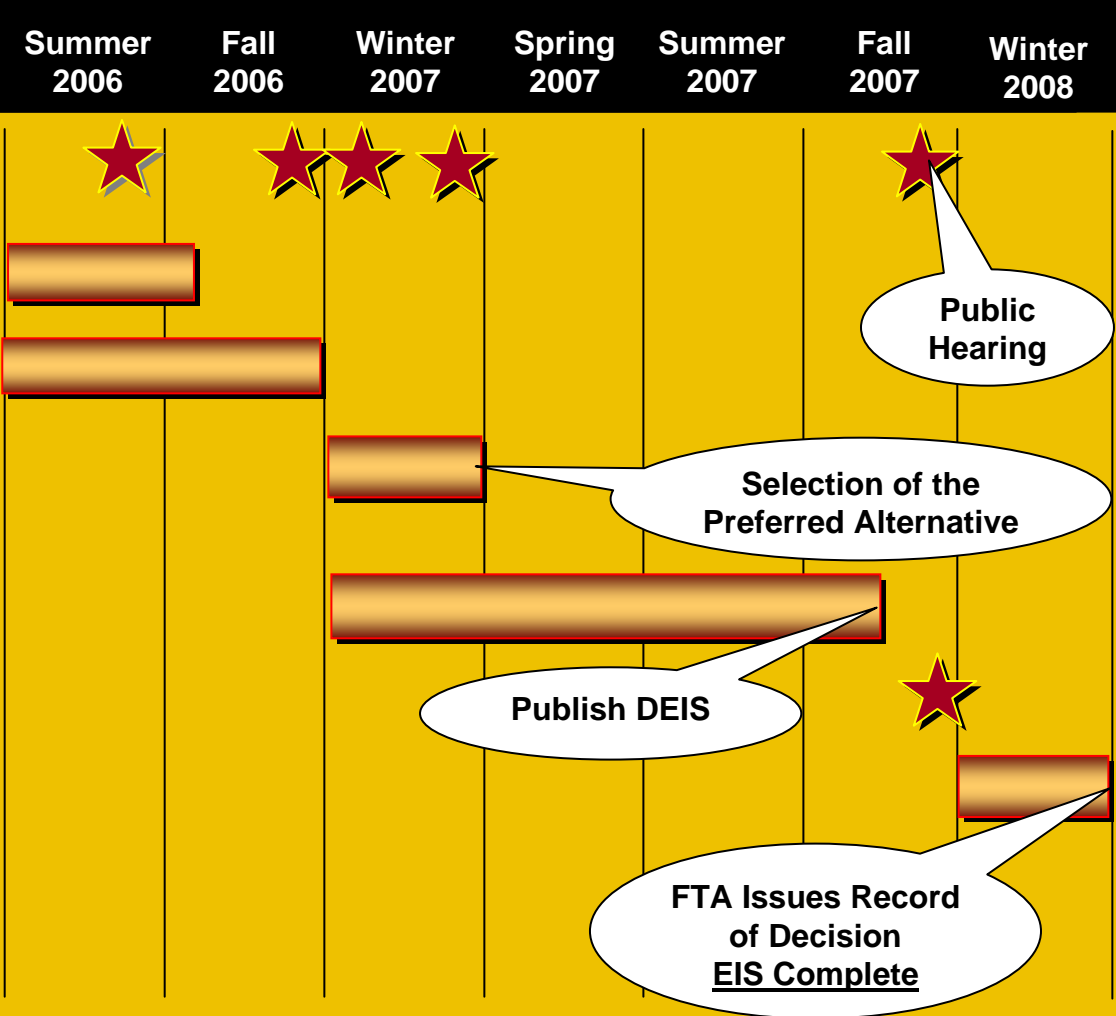


- Milestone workshop to obtain input on Alternatives Analysis
- Responsibility to avoid and minimize impacts
- The Alternatives Analysis must:
  - Consider a “reasonable range of alternatives”
  - Consider previous scoping comments

# Gold Line DEIS Overview



## Gold Line EIS

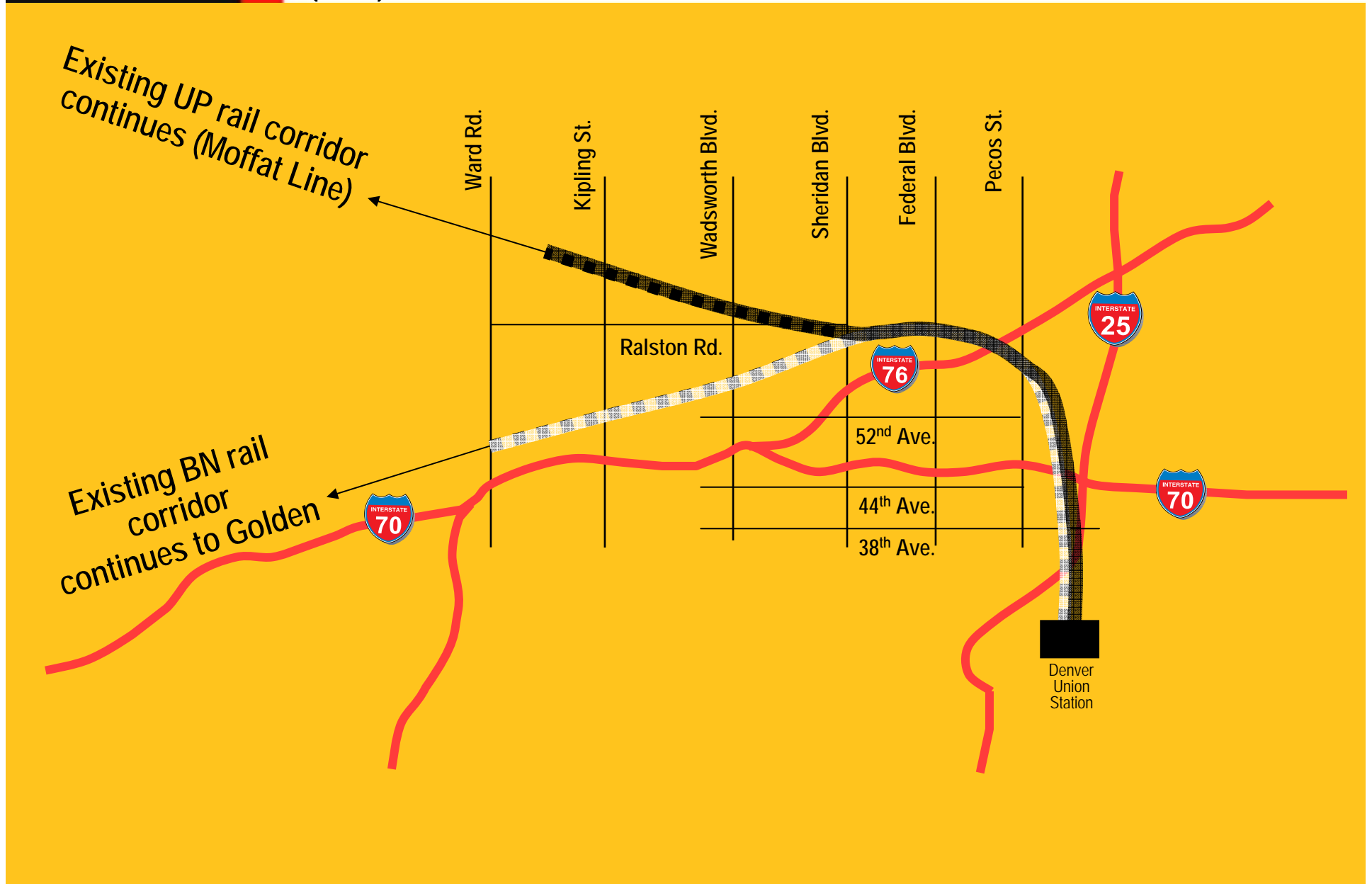


# What We Heard During Scoping



RANK	COMMENT CATEGORY	NUMBER OF COMMENTS	PERCENT
1	Alignment	101	22.1%
2	Transit Technology	69	15.1%
3	Stations	56	12.2%
4	FasTracks System	42	9.2%
5	ROW/Properties Purchased	27	5.9%
6	Noise/Vibration	26	5.7%
7	Environmental	22	4.8%
8	Public Involvement	21	4.6%
9	Operations	19	4.1%
10	Parking	18	3.9%
11	All Other Comments	57	12.4%
	TOTAL	458	100.0%

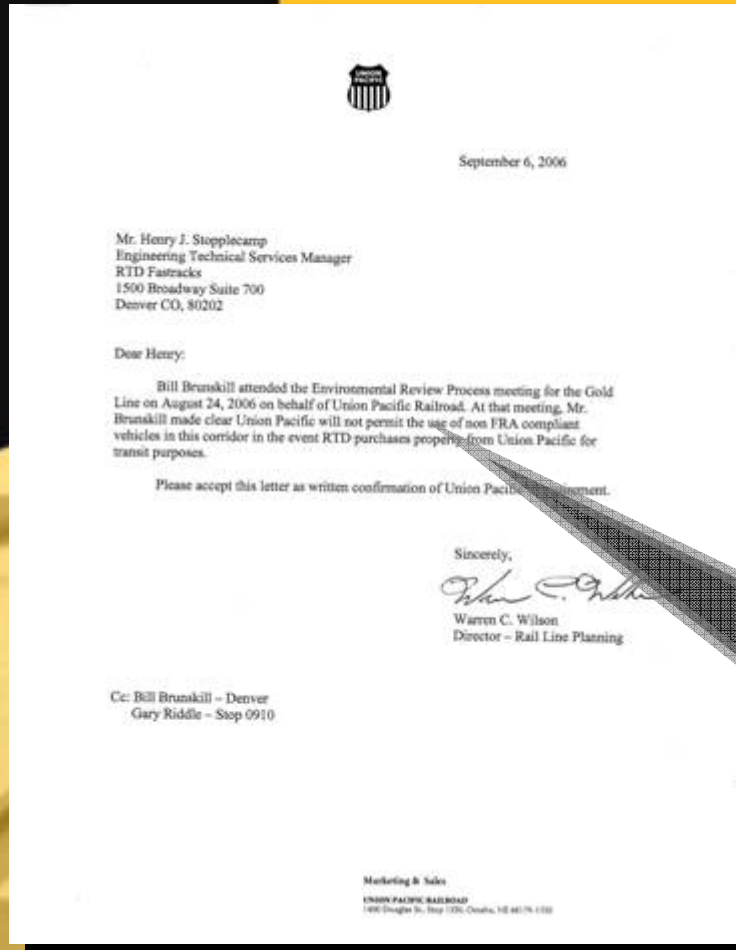
# Union Pacific Railroad (UP) and Burlington Northern Santa Fe Railroad (BN)



# Railroad Response

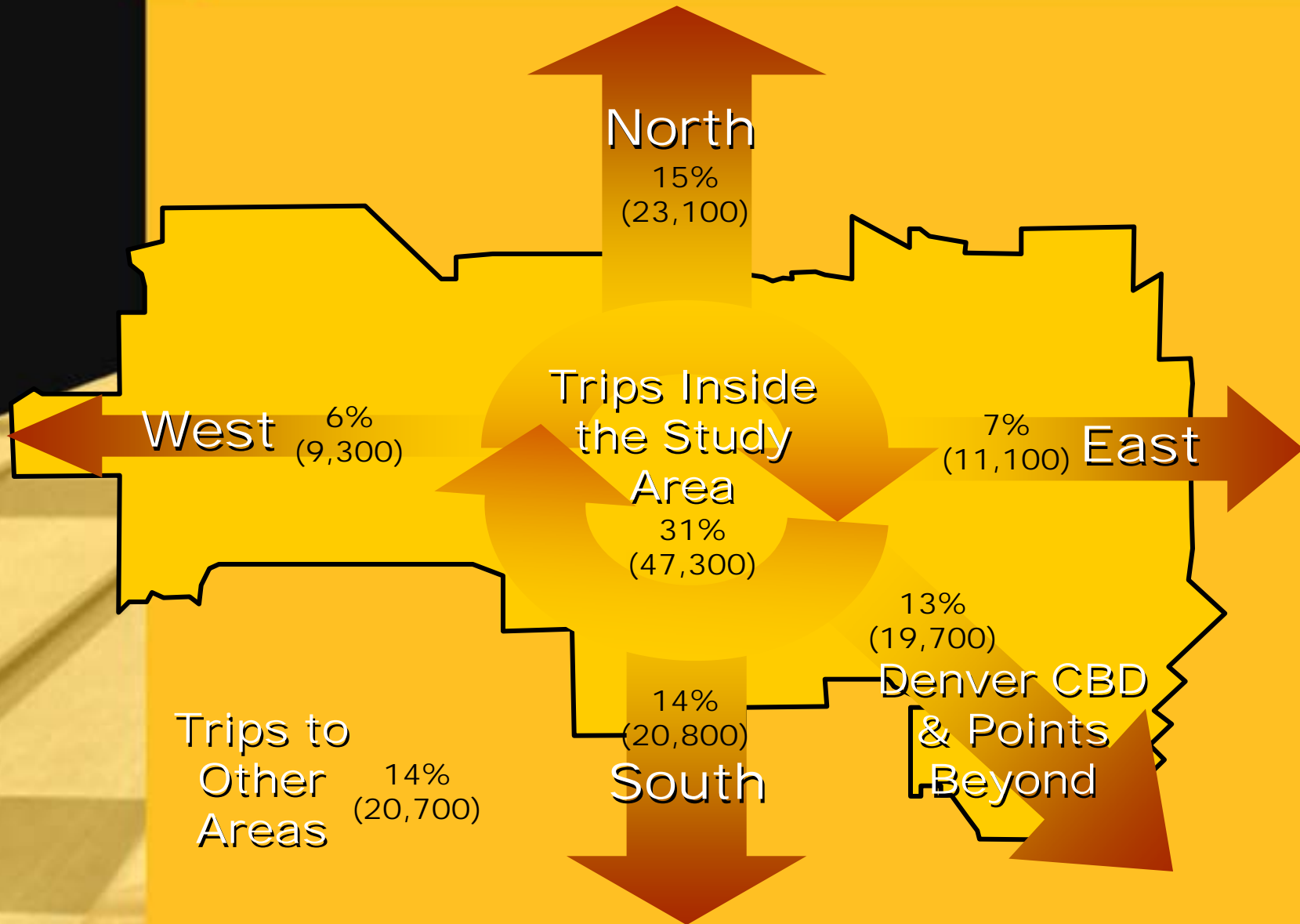


- Response received from Union Pacific (UP) Railroad
- Burlington Northern Santa Fe (BN) Railroad response pending



“...Union Pacific will not permit non FRA compliant vehicles in this corridor in the event RTD purchases property from Union Pacific for transit purposes.”

# Work Trips of Study Area Residents (2030)



# Revised Purpose and Need Statement – NEPA Requirement



- **Purpose**

- To implement fixed guideway transit on the Gold Line corridor between Denver Union Station and Ward Road

- **Need**

- Need for mobility improvements (improved travel time, travel options, and regional interconnectivity)
- Need to serve both traditional transit users and new users.
- Need to provide environmental benefits to the study area and the region.
- Need to be cost-effective and ability to be financed within the FasTracks program.
- Need to meet the voter mandate of the FasTracks program.

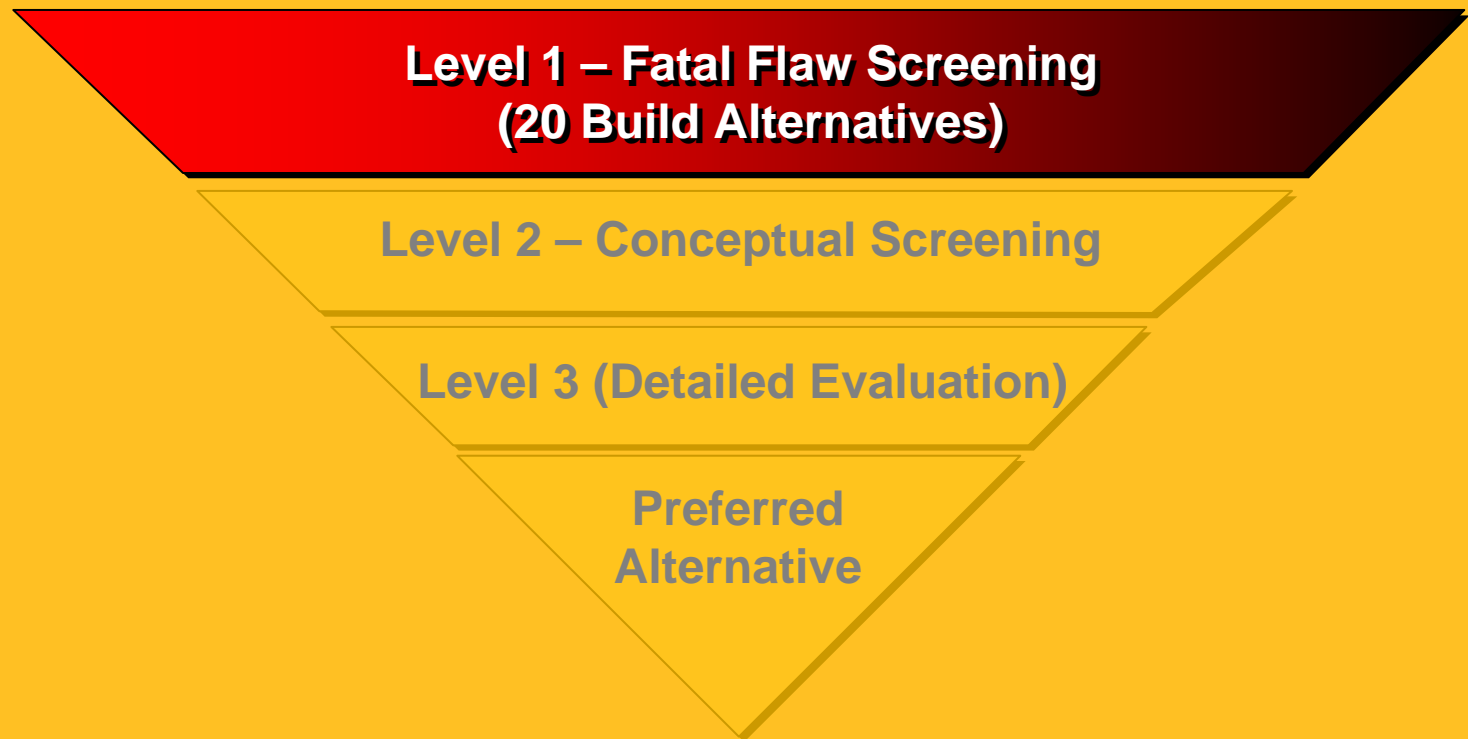


# Results of Level 1 Screening

# Where Are We in the Process?



- Level 1 and Level 2 screening draft results are complete



# Goal of Level 1: Fatal Flaw Screening



- Goal of Level 1 Screening is to eliminate apparently unacceptable alternatives:
  - Do not fulfill the Purpose and Need
  - Are not supported by existing plans
  - Are too costly
  - Have serious environmental impacts
  - Are not technically feasible

## "Pre-Screening" Assumptions



- All MIS alternatives are reconsidered except those that do not meet Purpose and Need:
  - Highway widening
  - Bus/HOV/BRT
- Alternative Alignments should limit properties that need to be purchased
- Alternative Alignments should serve as many activity centers as possible
- Alternative Alignments must also serve Denver Union Station and Ward Road in Wheat Ridge

# Remaining Technology Options Light Rail Transit (LRT)



## Light Rail



- Overhead electric
- Non-FRA-compliant (cannot share tracks with freight)
- Operates in exclusive or semi-exclusive ROW (may be able to share ROW with autos)

# Remaining Technology Options

## Diesel Multiple Unit



### Diesel Multiple Unit



- Self-propelled (diesel)
- FRA-compliant (can share tracks and/or ROW with freight)
- Cannot share ROW with autos

# Remaining Technology Options

## Electric Multiple Unit



### Electric Multiple Unit



- Overhead electric power
- FRA-compliant (can share tracks and/or ROW with freight)
- Cannot share ROW with autos

# Remaining Technology Options

## Streetcar



### Streetcar



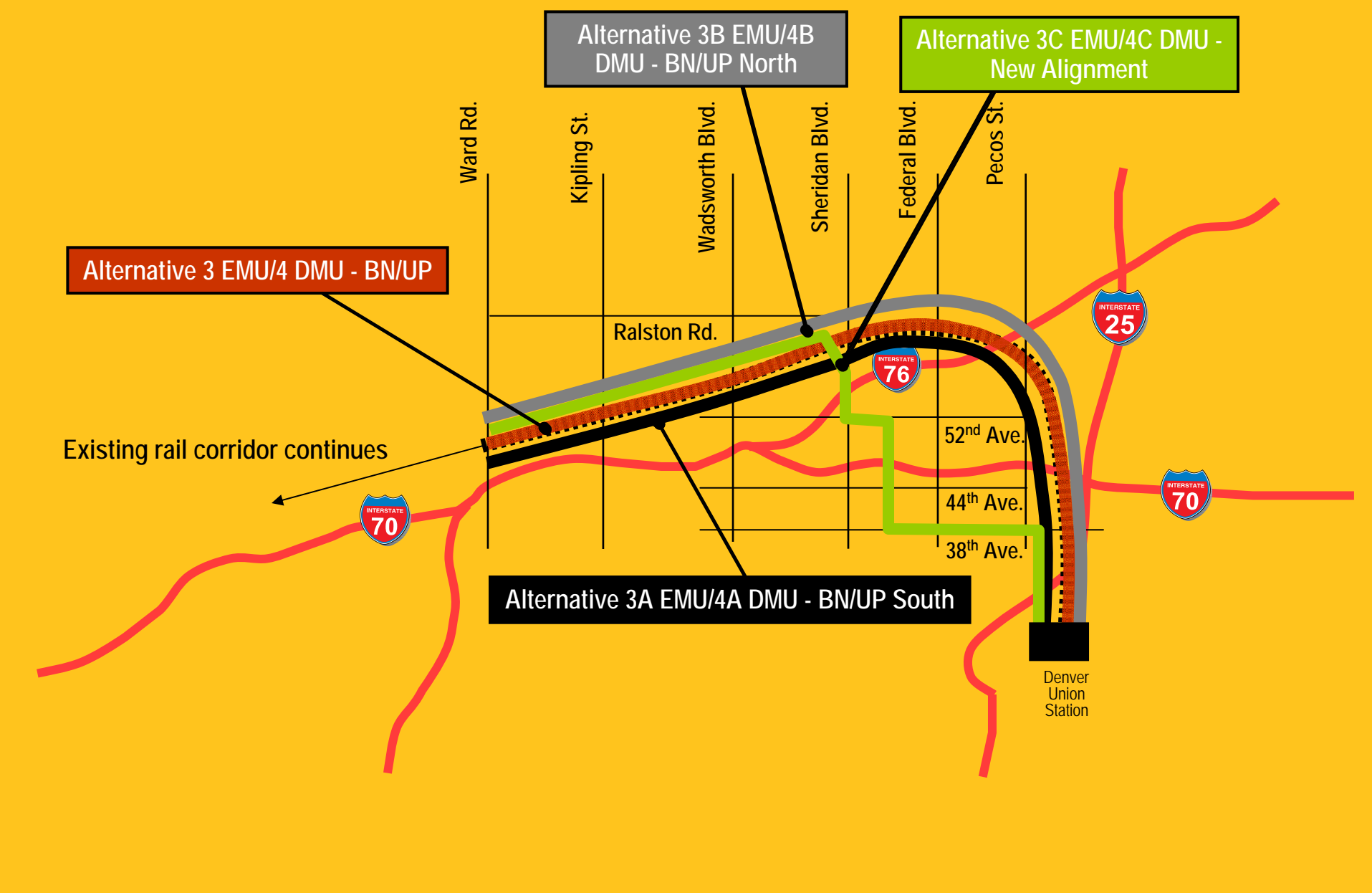
- Overhead electric
- Non-FRA-compliant (cannot share tracks with freight)
- Operates in exclusive or semi-exclusive ROW (can share ROW with autos)

# Remaining Technology Build Alternatives



3	EMU – BN/UP
3A	EMU – BN/UP South
3B	EMU – BN/UP North
3C	EMU – New Alignment
4	DMU – BN/UP
4A	DMU – BN/UP South
4B	DMU – BN/UP North
4C	DMU – New Alignment
5	LRT – BN/UP
5A	LRT – BN/UP South
5B	LRT – BN/UP North
6A	LRT – Pecos/BN/UP
6B	LRT – Lowell/52 <sup>nd</sup>
6BB	LRT – Lowell/Ralston
6C	LRT – Federal/52 <sup>nd</sup>
6D	LRT – Sheridan/Ralston
6E	LRT – Sheridan/44 <sup>th</sup>
6F	LRT – Lowell/BN
7A	EMU/Streetcar
7B	Streetcar – Lowell/Ralston

# Level 1 Screening: Alternatives 3 & 4 Series Alignment Options

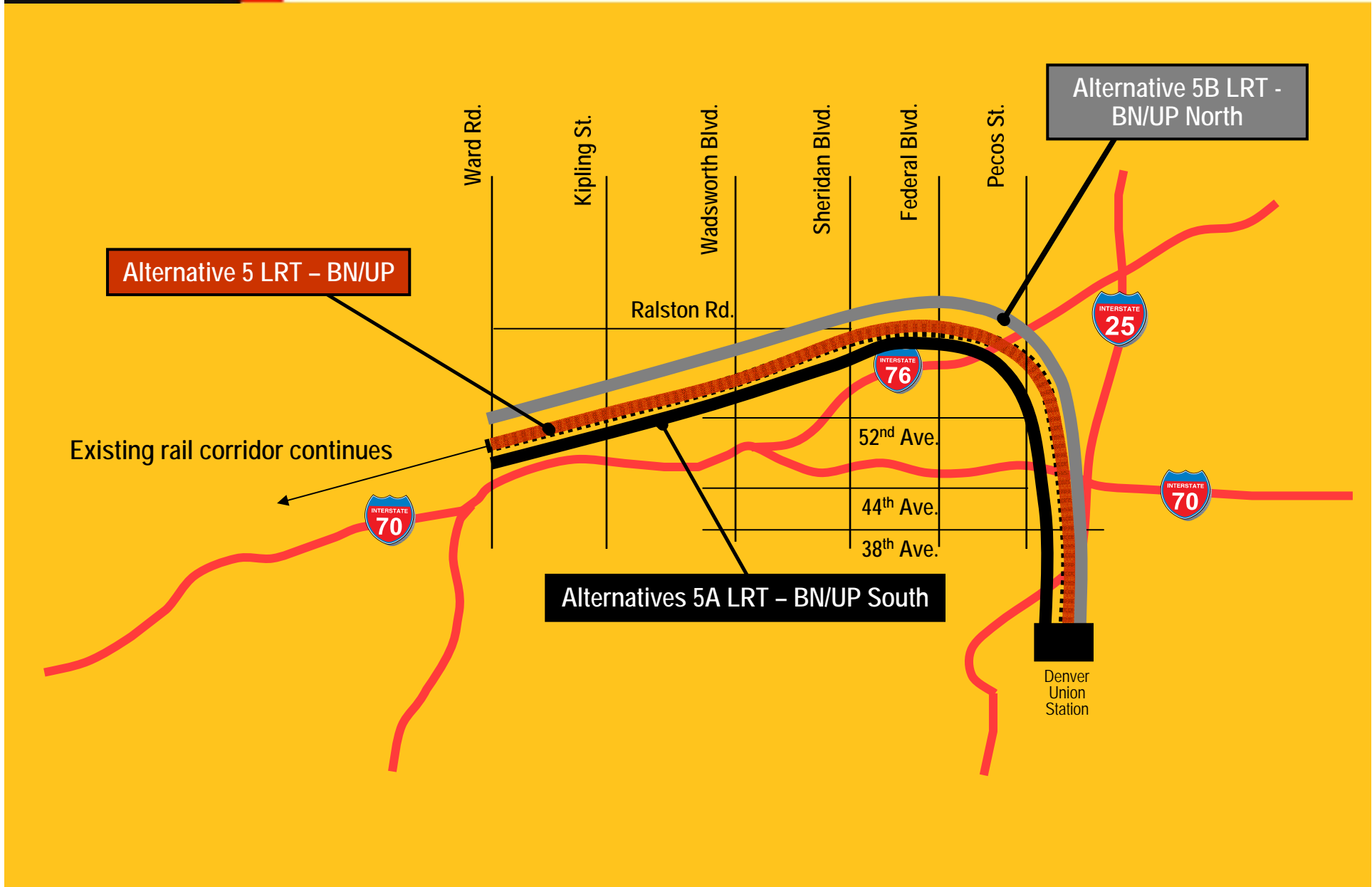


# Level 1 Screening: Alternative 3 EMU & Alternative 4 DMU Series Alignment Options



Alternative	Screening Results
3 EMU/4 DMU – BN/UP	<b>PASS</b>
3A EMU/4A DMU – BN/UP South	<b>FAIL</b> – Estimated to exceed FasTracks budget, properties that need to be purchased, environmental impacts, and costly grade separations
3B EMU/4B DMU – BN/UP North	<b>FAIL</b> – Same as above
3C EMU/4C DMU – New Alignment	<b>FAIL</b> – Requires dedicated ROW that increases properties that need to be purchased and costs

# Level 1 Screening: Alternative 5 Series LRT Options Along the BN/UP



# Level 1 Screening: Alternative 5 Series LRT Options Along the BN/UP



Alternative	Screening Results
5 LRT – BN/UP	<b>FAIL</b> – Union Pacific will not allow LRT in ROW (*Local Government Team has requested this alternative be advanced)
5A LRT – BN/UP South	<b>FAIL</b> – Estimated to exceed FasTracks budget, significant properties that need to be purchased through Olde Town Arvada and historic districts
5B LRT – BN/UP North	<b>FAIL</b> – Same as above



# Level 1 Screening Arterials and Alternate Alignments Considered



**58<sup>th</sup> and Ralston**



**38<sup>th</sup> and Vance**



**Sheridan South of 58<sup>th</sup>**



**52<sup>nd</sup> Near Marshall**

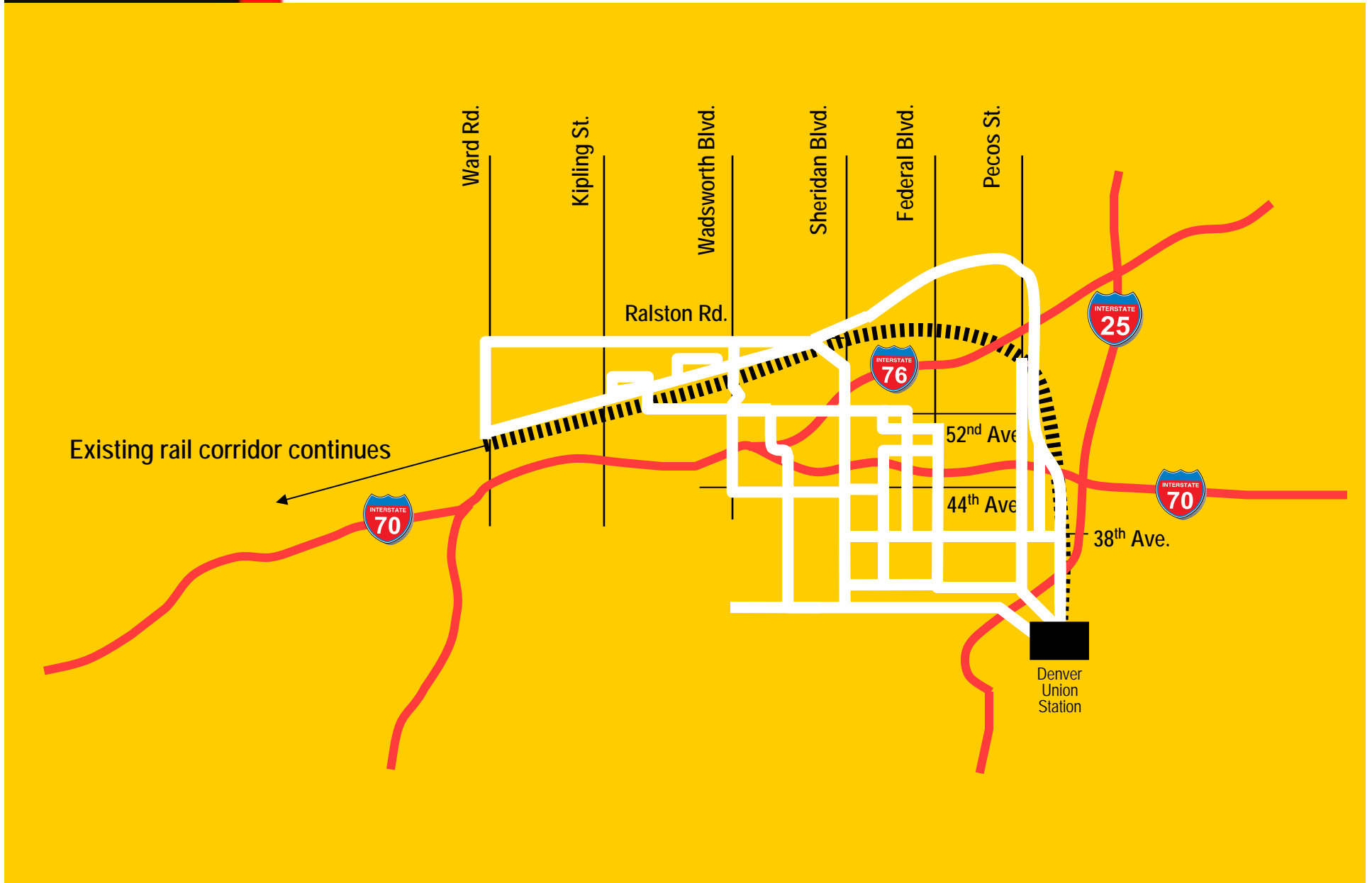


**Ridge Road**

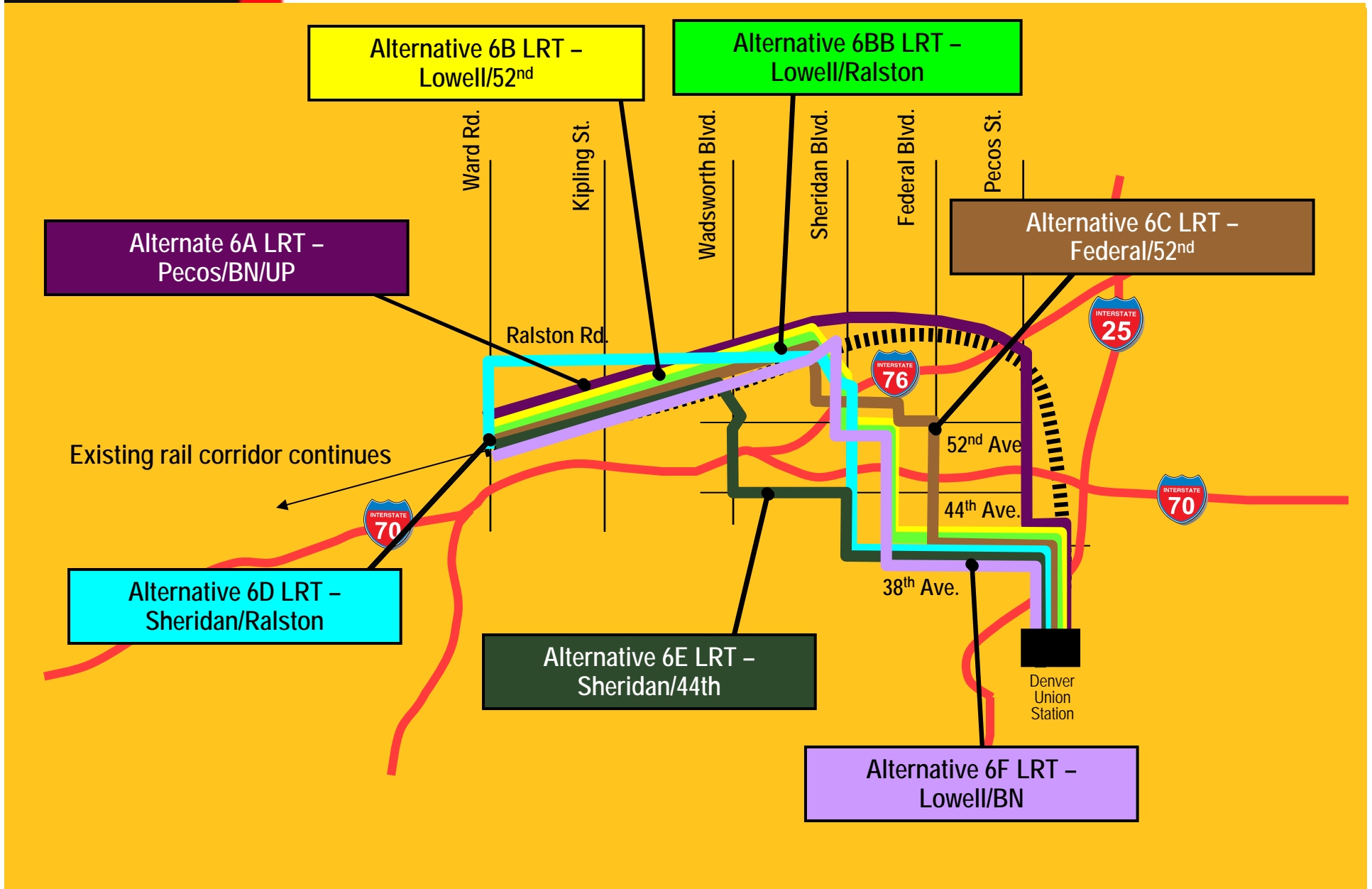


**Wadsworth North of 38<sup>th</sup>**

# Level 1 Screening Arterials and Alternate Alignments Considered



# Level 1 Screening: Alternative 6 Series LRT Options Along Alternate Alignments



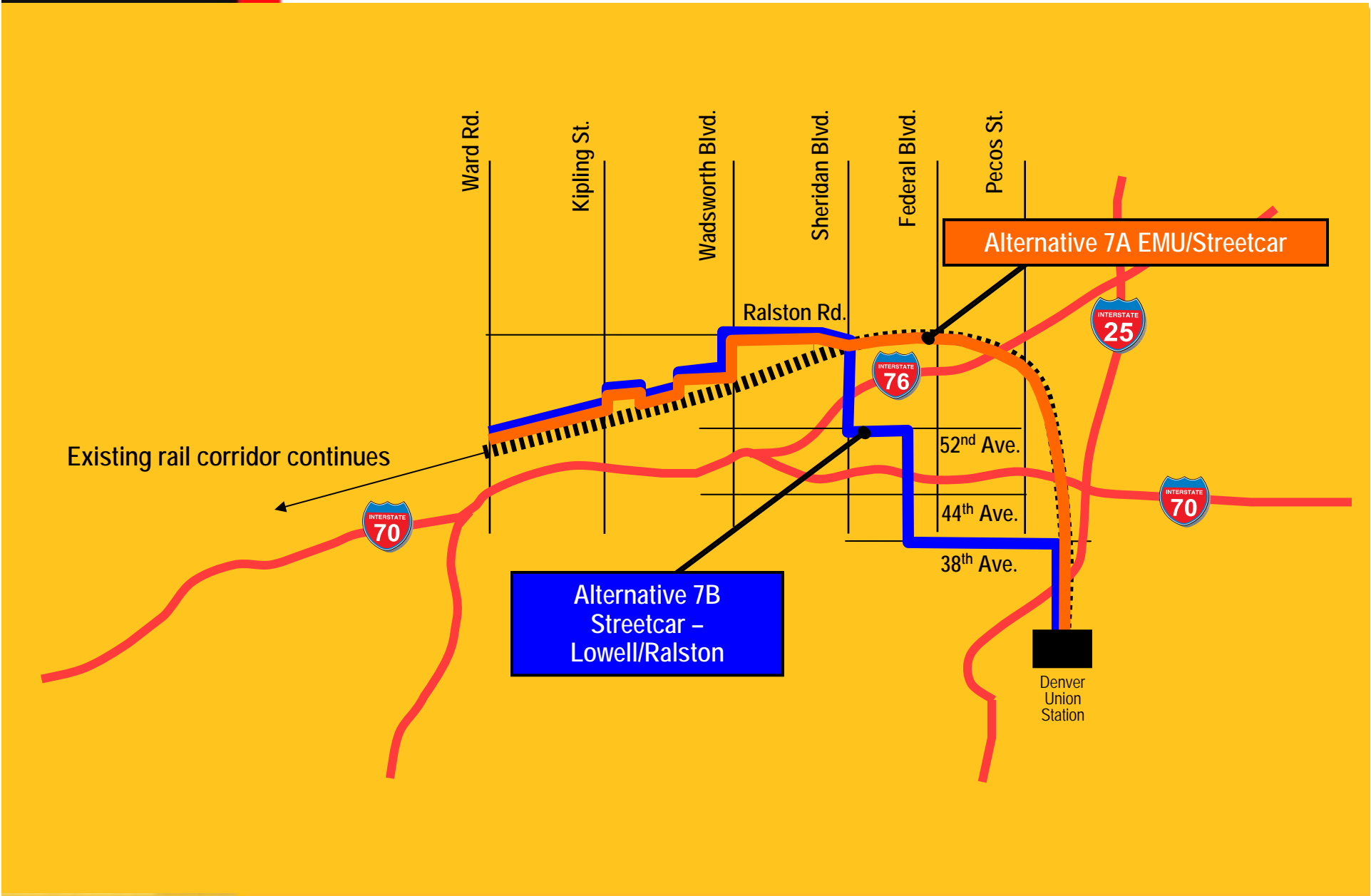
# Level 1 Screening: Alternative 6 Series LRT Options Along Alternate Alignments



Alternative	Screening Results
6A LRT - Pecos/BN/UP	<b>FAIL</b> – LRT not permitted in UP ROW
6B LRT - Lowell/52 <sup>nd</sup>	<b>PASS</b>
6BB LRT – Lowell/Ralston	<b>PASS</b>
6C LRT – Federal/52 <sup>nd</sup>	<b>FAIL</b> – Congested state highway (Federal)
6D LRT – Sheridan/Ralston	<b>PASS</b>
6E LRT – Sheridan/44 <sup>th</sup>	<b>FAIL</b> – Congested state highway (Wadsworth)
6F LRT – Lowell/BN	<b>PASS</b>



# Level 1 Screening - Alternative 7 Series Streetcar Options



# Level 1 Screening – Alternative 7 Series Streetcar Options



Alternative	Screening Results
7A EMU/Streetcar	<b>PASS</b>
7B Streetcar – Lowell/Ralston	<b>PASS</b>



# Level 1 Screening Results Summary – Build Alternatives



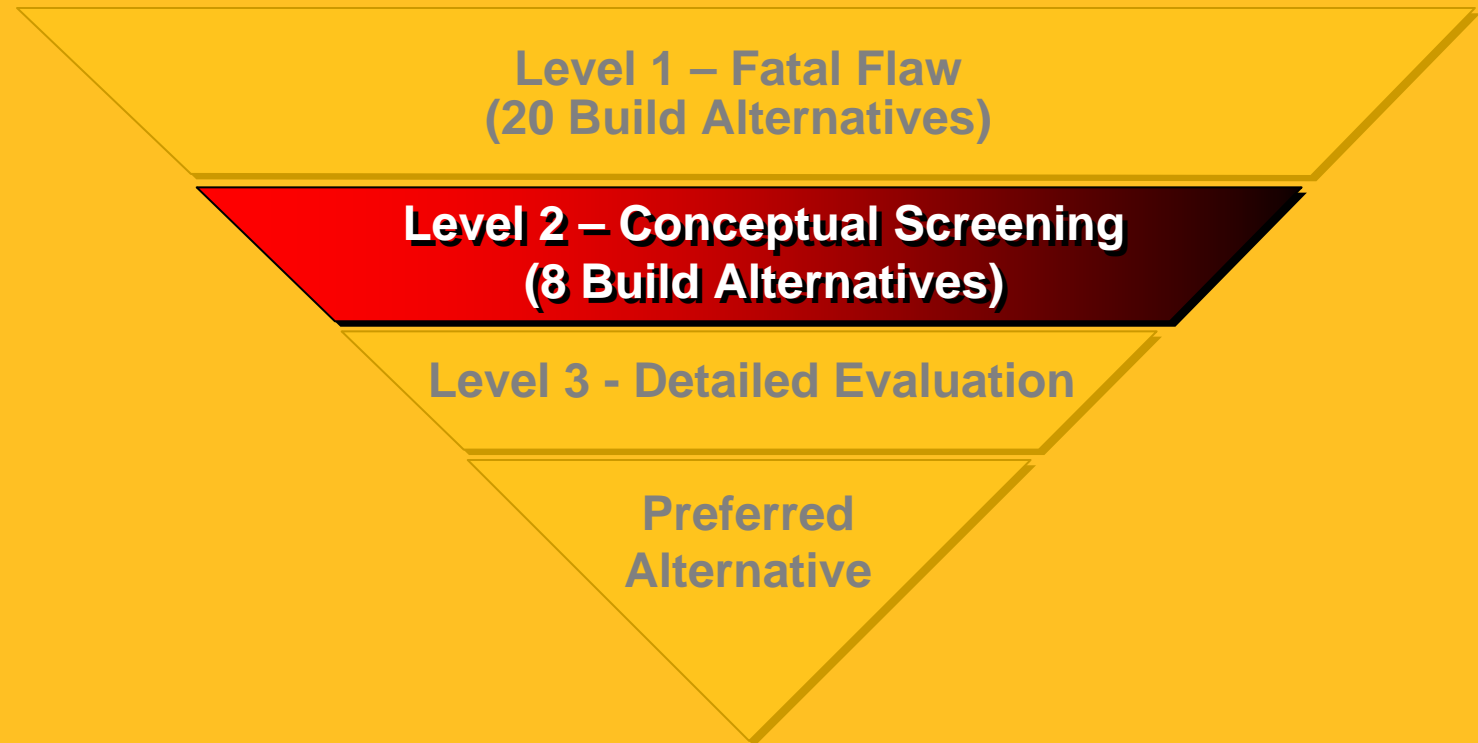
## **PASS**

- **3 EMU – BN/UP**
- **4 DMU – BN/UP**
- **6B LRT – Lowell/52<sup>nd</sup>**
- **6BB LRT – Lowell/Ralston**
- **6D LRT – Sheridan/Ralston**
- **6F LRT – Lowell/BN**
- **7A EMU/Streetcar**
- **7B Streetcar – Lowell/Ralston**



# Results of Level 2 Screening

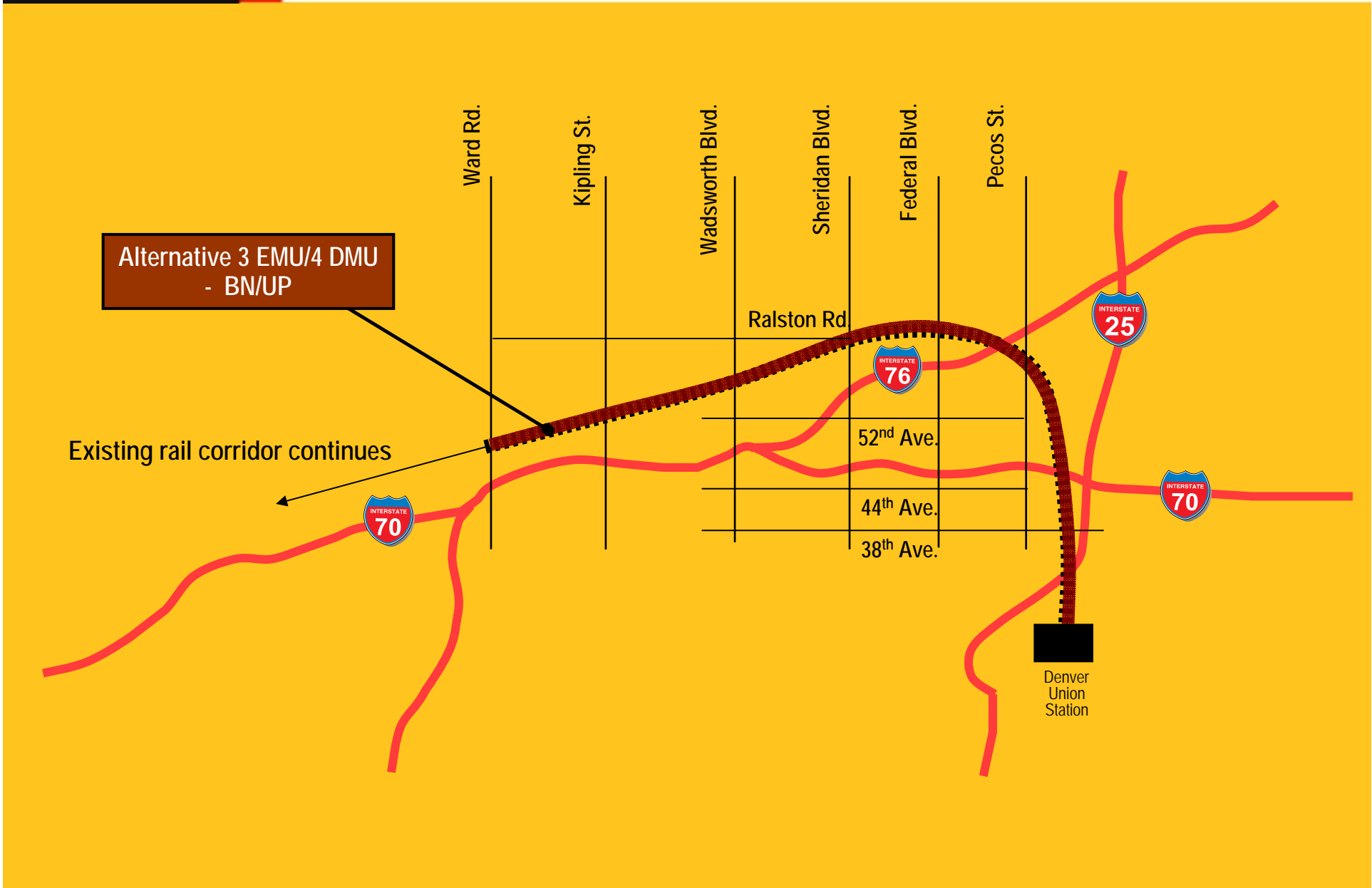
# Level 2 Alternatives Analysis Screening



- **Level 2 Screening** – Quantitative evaluation where possible (unit cost, GIS environmental data, initial trade-offs)

- **Alternatives on the UP/BN**
  - Impacts similar to the original Locally Preferred Alternative
  - Uncertainties with the railroad remain
  - More closely follows planning to date
  - Estimated 14,000 - 17,000 daily riders
- **Alternative Alignments**
  - Are closer to more people
  - Require taking travel lanes
  - Operate slightly slower (than UP/BN alternatives)
  - Estimated 12,000 - 16,000 daily riders
- **Streetcar (new technology option)**
  - Lower cost and less properties that need to be purchased
  - Similar service
  - Estimated 10,000 – 13,000 daily riders

# Level 2 Screening: Alternatives 3 EMU & 4 DMU - BN/UP



## Level 2 Screening: Alternative 3 EMU/4 DMU - BN/UP

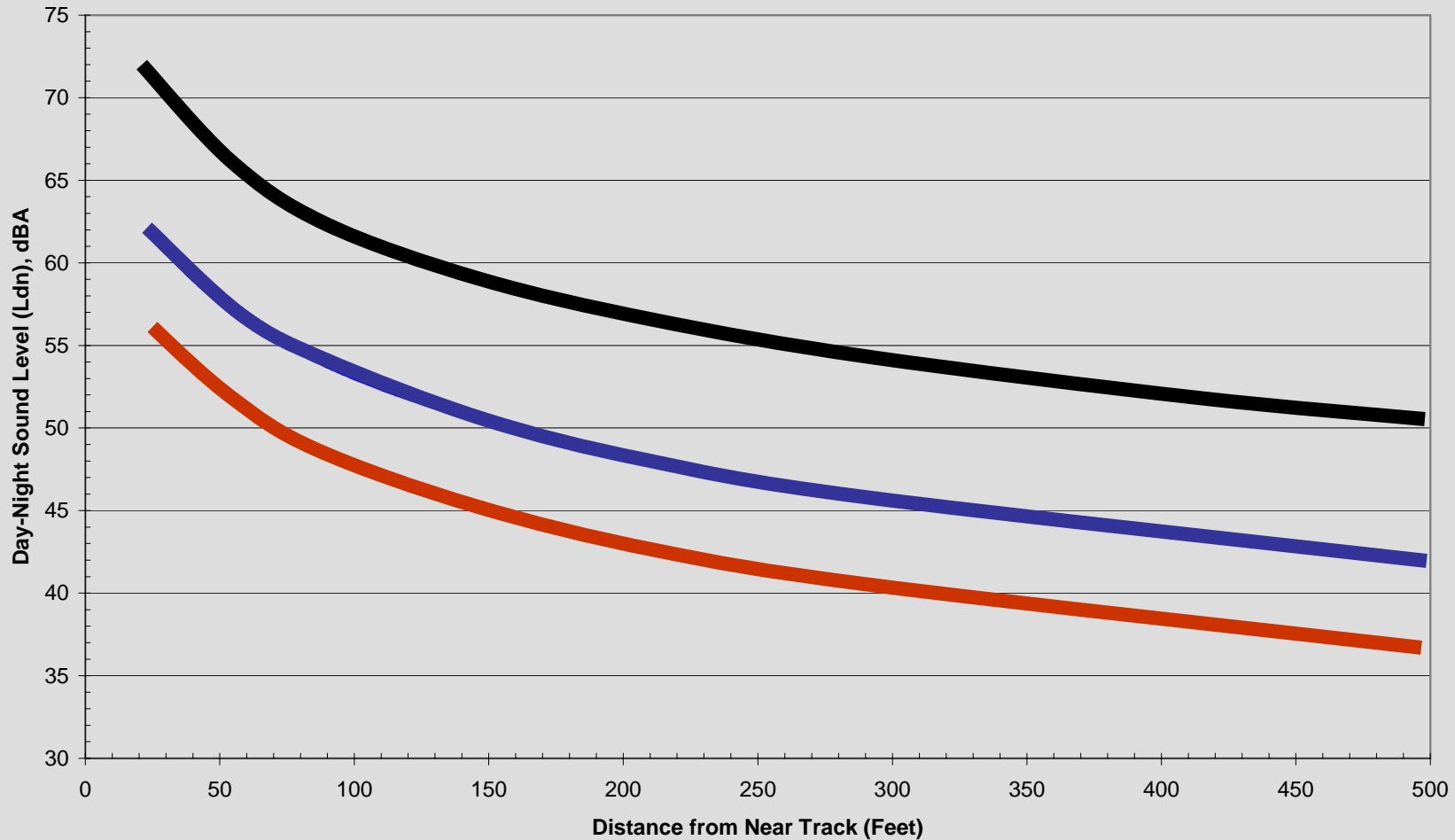


Criterion	Results/Comments
1. Fulfills P&N	<b>YES</b>
2. Affordability/ Cost-Effectiveness	<b>YES:</b> Alt 3 - \$466 Million and Alt 4 - \$433 Million (Goldline Budget \$462 Million +/- 10%)
3. Environmental Impacts	About equal to the original LPA Most impacts in the UP/BN ROW DMU has no overhead wires DMU has concerns with diesel emissions
4. Community Impacts/Benefits	<u>18</u> properties that need to be purchased 18,535 population w/in 1/2 mile of stations
5. Consistency with local plans	<b>Yes</b>
6. Mobility Improvements	<u>Travel time approximately 25 minutes</u> (Faster than Alternative Alignments) Ridership: <u>14,000 to 17,000</u>
7. Community Support	TBD
8. Agency Support	TBD

# Projected Commuter Rail Noise Exposure at 20 MPH - 2030



Projected Commuter Rail Noise Exposure (Year 2030, 20 mph Operation)



**Slide 36**

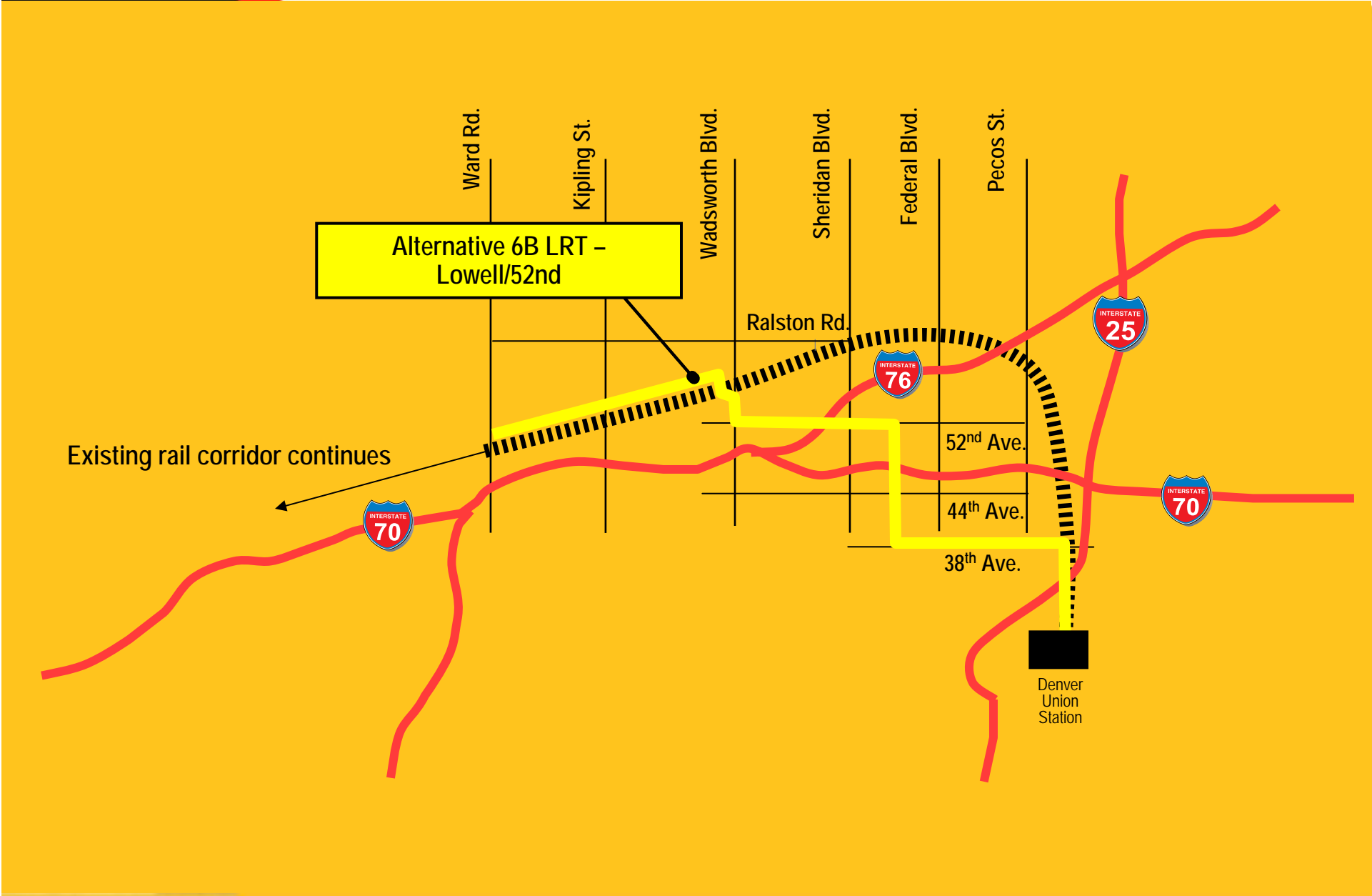
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**CH4**

move to another location with GIS slide

CH2M HILL, 10/5/2006

# Level 2 Screening: Alternative 6B LRT - Lowell/52nd



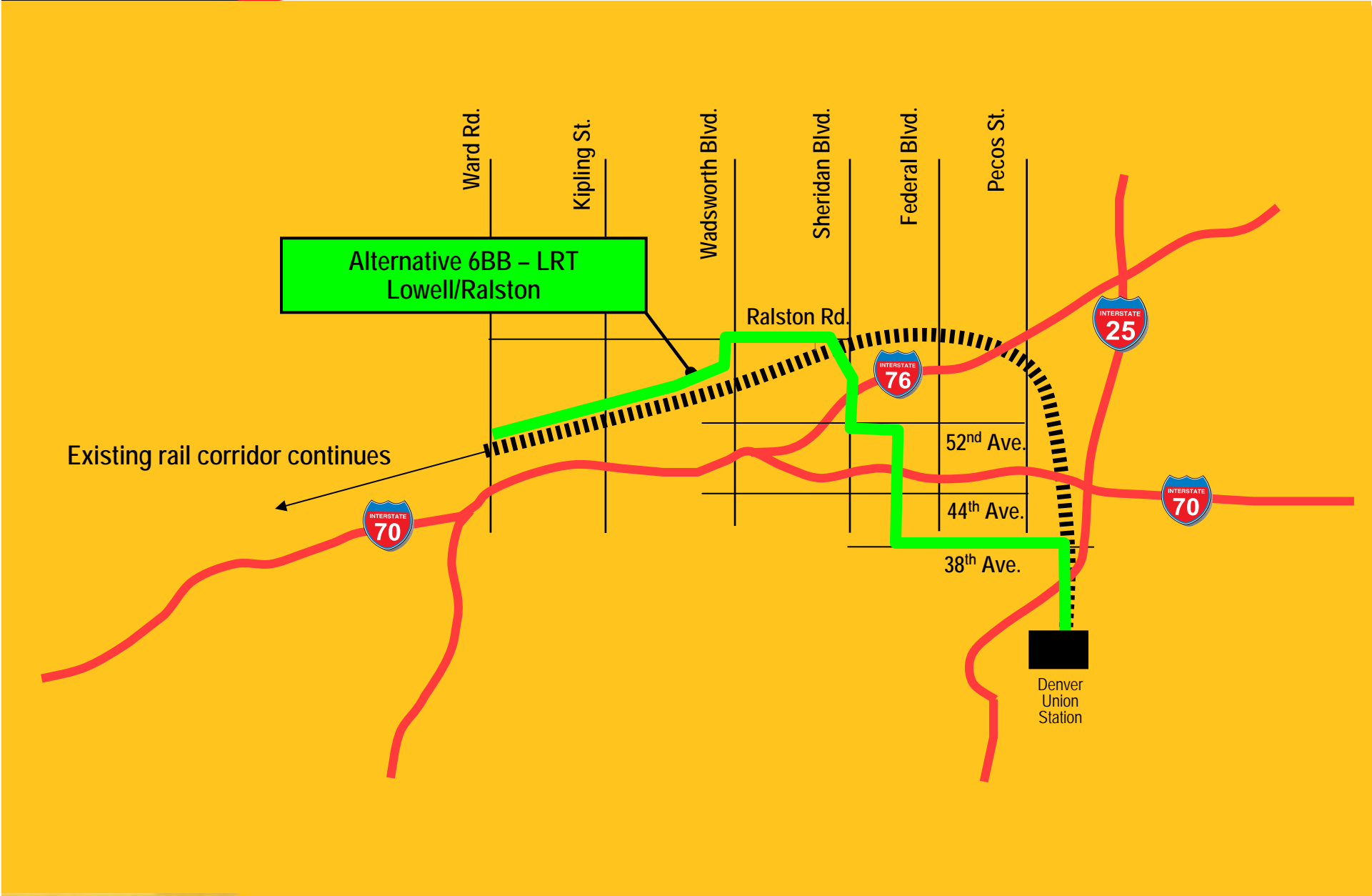
## Level 2 Screening: Alternative 6B LRT – Lowell/52nd



Criterion	Results/Comments
1. Fulfills P&N	<b>YES</b>
2. Affordability/ Cost-Effectiveness	<b>YES: \$460 Million</b> (Goldline Budget \$462 Million +/- 10%)
3. Environmental Impacts	<b>Fewer stream crossings</b> <b>More people affected by construction</b>
4. Community Impacts/Benefits	<b>80 properties that need to be purchased</b> <b>34,573 population w/in 1/2 mile of stations</b>
5. Consistency with local plans	<b>Neutral to Non-supportive</b>
6. Mobility Improvements	<b>Travel time approximately 27 minutes</b> <b>Ridership: <u>13,000 to 16,000</u></b>
7. Community Support	<b>TBD</b>
8. Agency Support	<b>TBD</b>



# Level 2 Screening: Alternative 6BB LRT - Lowell/Ralston



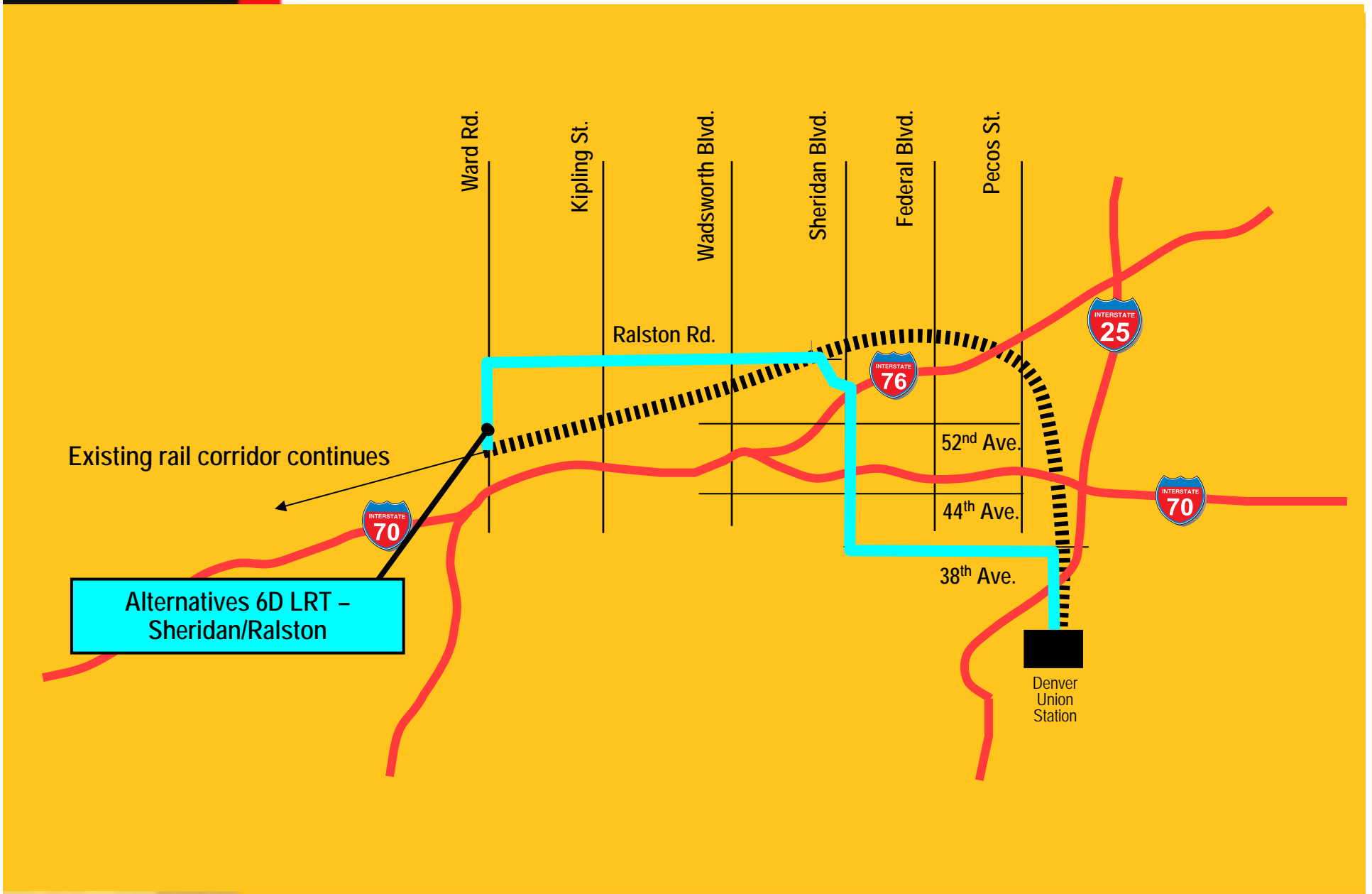
Level 2 Screening:  
Alternative 6BB LRT – Lowell/Ralston



Criterion	Results/Comments
1. Fulfills P&N	<b>YES</b>
2. Affordability/ Cost-Effectiveness	<b>YES: \$482 Million</b> (Goldline Budget \$462 Million +/- 10%)
3. Environmental Impacts	<b>Fewer stream crossings</b> <b>More people affected by construction</b>
4. Community Impacts/Benefits	<b>80 properties that need to be purchased</b> <b>34,180 population w/in 1/2 mile of stations</b>
5. Consistency with local plans	<b>Neutral to Non-supportive</b>
6. Mobility Improvements	<b>Travel time approximately 27 minutes</b> <b>Ridership: <u>13,000 to 16,000</u></b>
7. Community Support	<b>TBD</b>
8. Agency Support	<b>TBD</b>



# Level 2 Screening: Alternative 6D LRT - Sheridan/Ralston



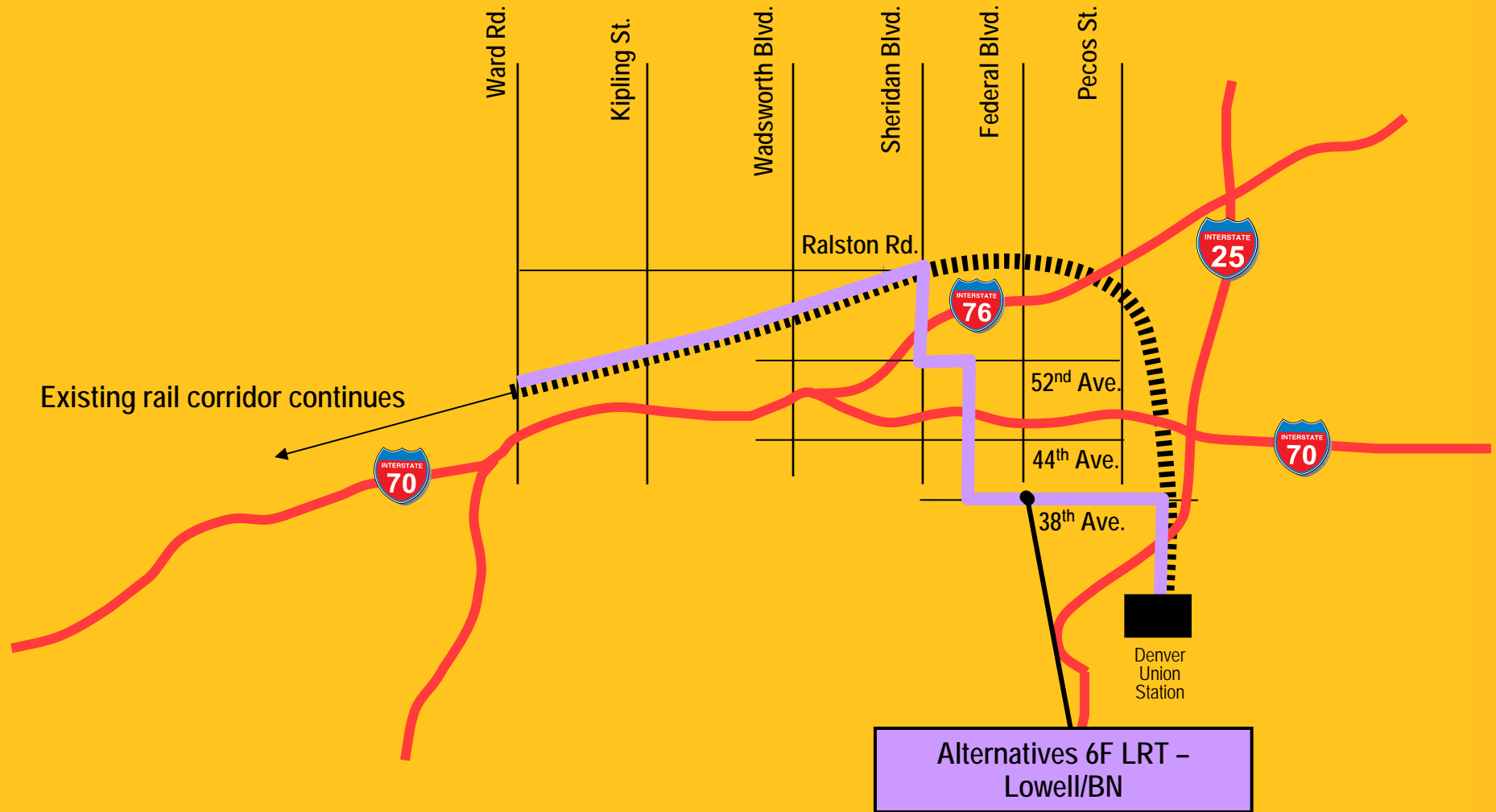
## Level 2 Screening: Alternative 6D LRT – Sheridan/Ralston



Criterion	Results/Comments
1. Fulfills P&N	<b>YES</b>
2. Affordability/ Cost-Effectiveness	<b><u>NO: \$525 Million</u></b> (Goldline Budget \$462 Million +/- 10%)
3. Environmental Impacts	<b>Fewer stream crossings</b> <b>More people affected by construction</b>
4. Community Impacts/Benefits	<b>45 properties that need to be purchased</b> <b>34,180 population w/in ½ mile of stations</b>
5. Consistency with local plans	<b>Neutral to Non-supportive</b> <b><u>Difficult to serve Wheat Ridge</u></b>
6. Mobility Improvements	<b>Travel time approximately 30 minutes</b> <b>Ridership: 12,000 to 16,000</b>
7. Community Support	<b>TBD</b>
8. Agency Support	<b>TBD</b>



# Level 2 Screening: Alternative 6F LRT - Lowell/BN



# Level 2 Screening: Alternative 6F LRT – Lowell/BN



Criterion	Results/Comments
1. Fulfills P&N	<b>YES</b>
2. Affordability/ Cost-Effectiveness	<b>YES: \$460 Million</b> (Goldline Budget \$462 Million +/- 10%)
3. Environmental Impacts	<b>Fewer stream crossings</b> <b>More people affected by construction</b>
4. Community Impacts/Benefits	<u><b>Avoids impacts on Ridge Road</b></u> <b>45 properties that need to be purchased</b> <b>34,573 population w/in 1/2 mile of stations</b>
5. Consistency with local plans	<b>Neutral to Non-supportive</b>
6. Mobility Improvements	<b>Travel time approximately 27 minutes</b> <b>Ridership: 13,000 to 16,000</b>
7. Community Support	<b>TBD</b>
8. Agency Support	<b>TBD</b>



# Level 2 Screening: Alternative 7A EMU/Streetcar

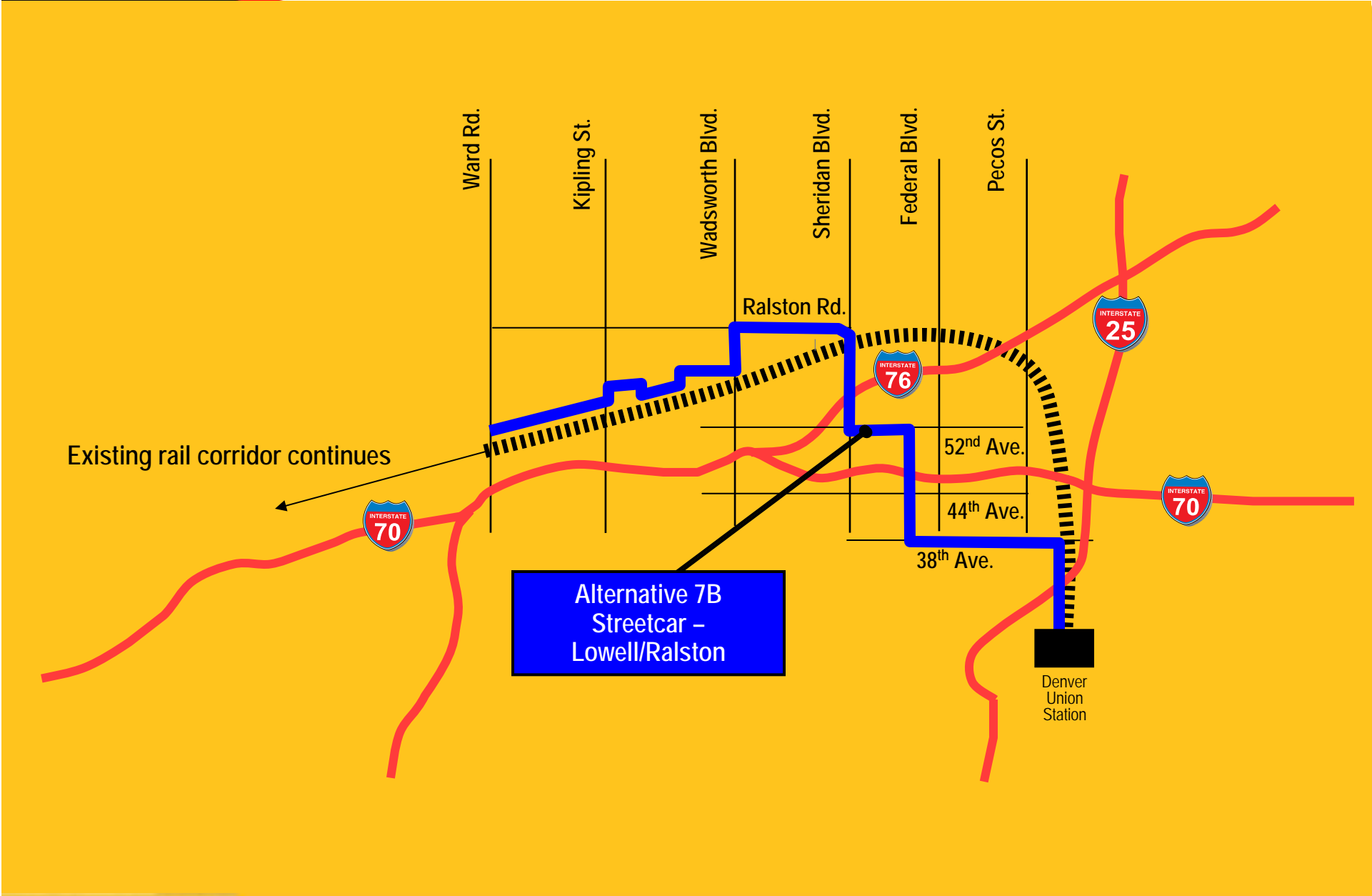


# Level 2 Screening: Alternative 7A EMU/Streetcar



Criterion	Results/Comments
1. Fulfills P&N	<b>YES</b>
2. Affordability/ Cost-Effectiveness	<b>YES: \$389 Million</b> (Goldline Budget \$462 Million +/- 10%)
3. Environmental Impacts	<b>Similar to Alternative 3</b> <u>Reduces impacts to Olde Town</u>
4. Community Impacts/Benefits	<b>&lt;10 properties that need to be purchased</b> <b>18,652 population w/in 1/2 mile of stations</b>
5. Consistency with local plans	<b>Neutral to Non-supportive</b>
6. Mobility Improvements	<b>Travel time approximately 29 minutes</b> <b>Ridership: 10,000-13,000</b>
7. Community Support	<b>TBD</b>
8. Agency Support	<b>TBD</b>

# Level 2 Screening: Alternative 7B Streetcar - Lowell/Ralston



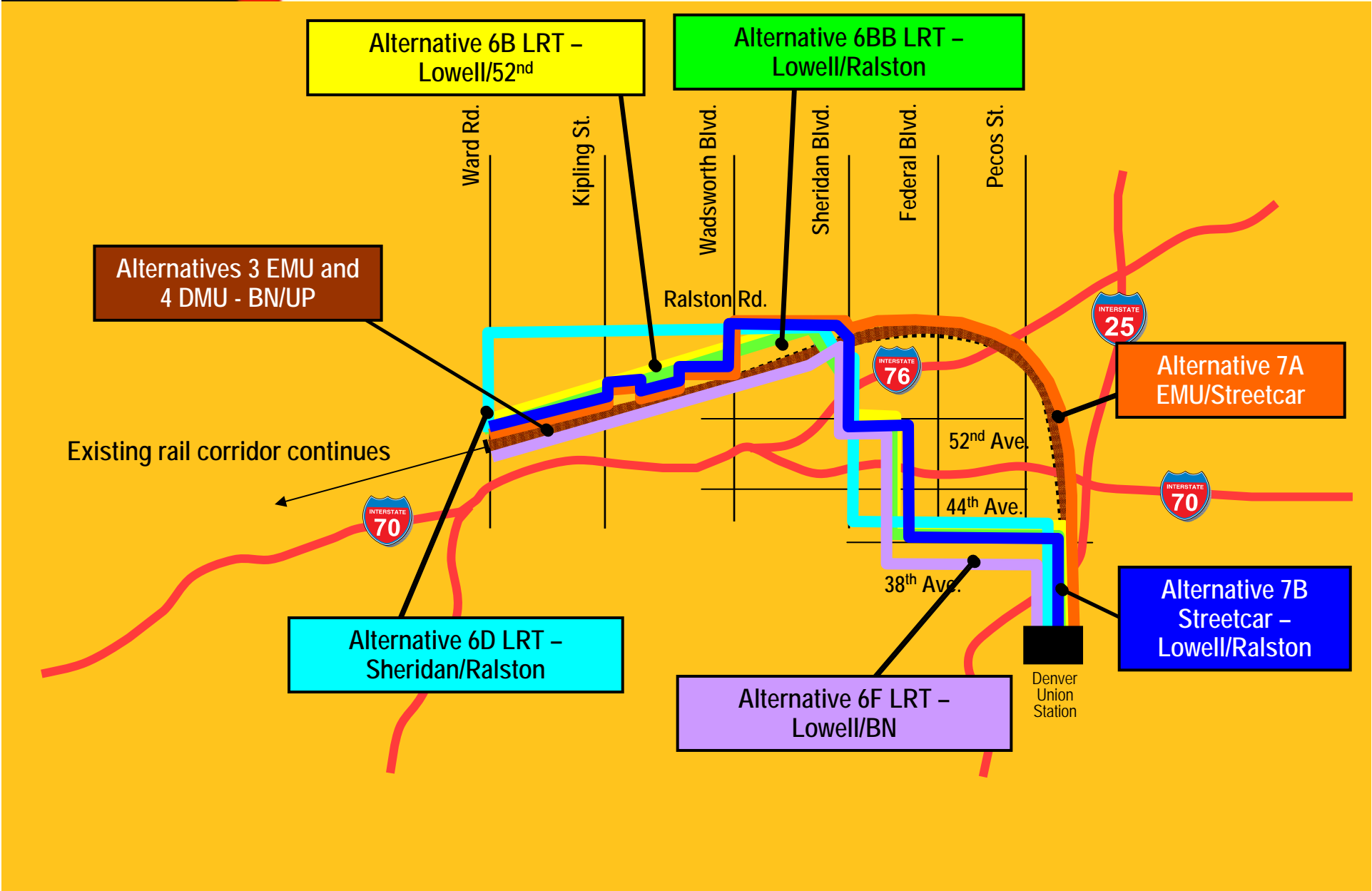
# Level 2 Screening: Alternative 7B Streetcar – Lowell/Ralston



Criterion	Results/Comments
1. Fulfills P&N	<b>YES</b>
2. Affordability/ Cost-Effectiveness	<b>YES: \$291 Million</b> (Goldline Budget \$462 Million +/- 10%)
3. Environmental Impacts	All impacts contained to public ROW Mixed flow operation allows auto travel in same ROW
4. Community Impacts/Benefits	<b>&lt;10</b> properties that need to be purchased 34,180 population w/in 1/2 mile of stations
5. Consistency with local plans	Neutral to Non-supportive
6. Mobility Improvements	Travel time approximately 35 minutes Ridership: 11,000-13,000
7. Community Support	TBD
8. Agency Support	TBD



# Level 2 Screening Results: Alternatives Recommended for Level 3



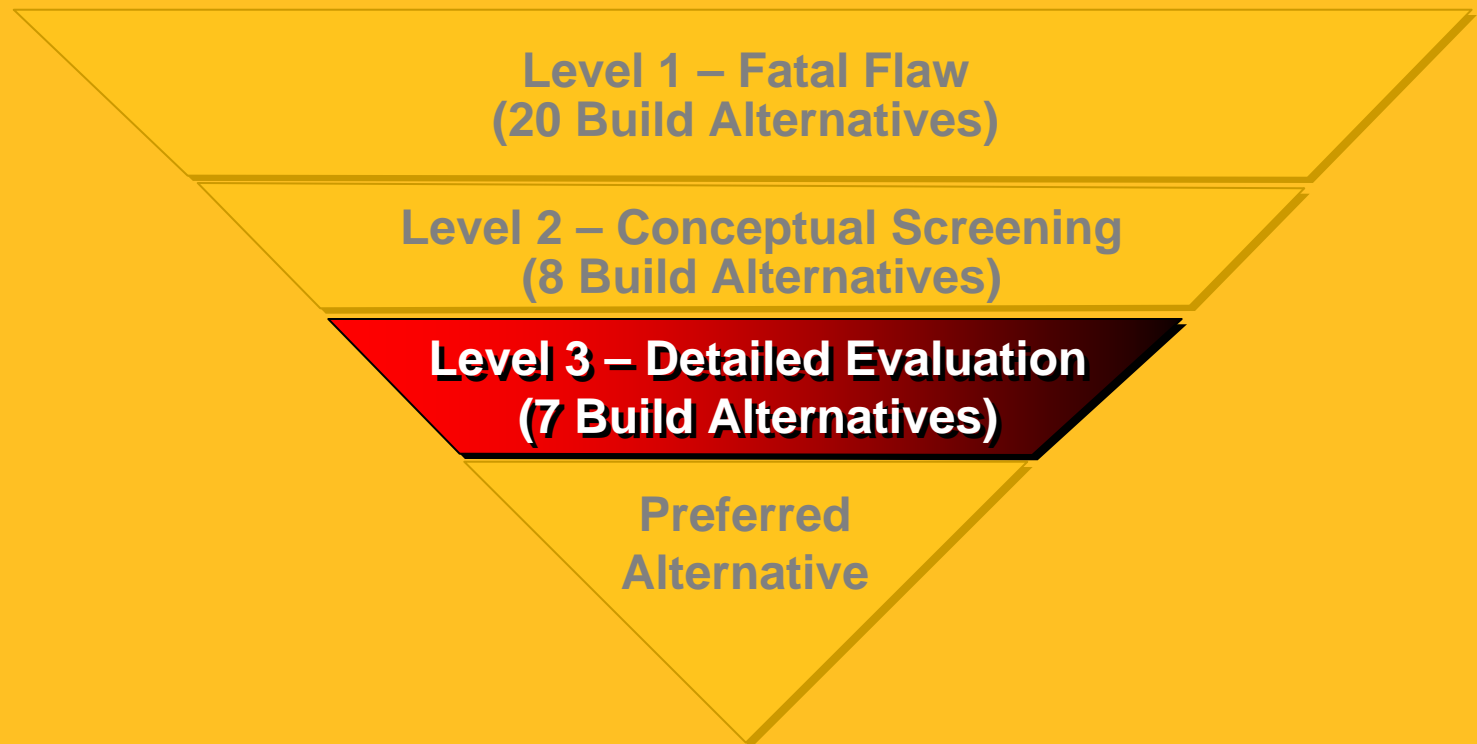
# Level 2 Screening Results



PASS	KEY REASON	FAIL	KEY REASON
3 EMU – BN/UP	Good travel time and ridership	6D LRT – Sheridan/Ralston	Significantly exceeds budget
4 DMU – BN/UP	Good travel time and ridership		
6B LRT – Lowell/52 <sup>nd</sup>	Serves larger travel market		
6BB LRT – Lowell/Ralston	Serves larger travel market		
6F LRT – Lowell/BN	Serves larger travel market		
7A EMU/Streetcar	Good travel time		
7B Streetcar – Lowell/Ralston	Serves larger travel market and least expensive		

# Next Steps

# Next Step Level 3 Screening Detailed Analysis



# Public Workshop Schedule



- Workshop No. 2—Conceptual Screening
  - October 4 and 5
- Workshop No. 3—Detailed Impacts
  - January '07
- Workshop No. 4—Preferred Alternative
  - February/March '07

# How to Stay Involved



- **WEBSITE:**  
www.rtdgoldline.com
- **EMAIL:** Monthly email updates
- **NEWSLETTER:** *Gold Line Times* newsletter
- **HOTLINE:** Project Hotline - 303.299.2000
- **COMMENT TRACKING:** Public Input Tied to the Decision-making Process Through a State-of-the-Art Comment Tracking System

