

Alternatives Analysis Update



*Prepared for Regional Transportation Authority
of Central Oklahoma Board of Directors*

November 16, 2022

Prepared by Kimley-Horn and Associates



Agenda

- Engagement Summary
- Alternatives Analysis Update
- Draft Technical Evaluation Results
- Key Takeaways
- Next Steps

The background features a detailed line drawing of a train at a station platform. The train is positioned on tracks, and the platform has various structural elements like pillars and railings. A semi-transparent purple rectangular overlay covers the right two-thirds of the image, serving as a backdrop for the title text. The left third of the image remains white, showing the continuation of the train and platform lines.

ENGAGEMENT SUMMARY

Key Numbers



580

Total Engagements



92

Survey Responses



18

Events Attended



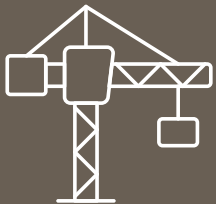
Key Takeaways



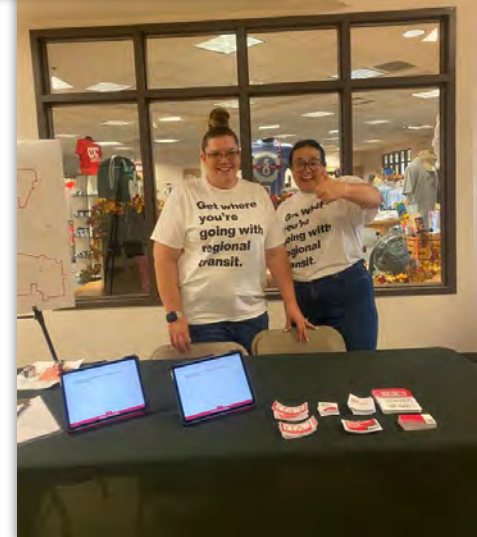
Community partners (Tinker AFB, Norman, Edmond, OKC) are excited about regional transit solutions



Professors and students at universities are interested in more educational outreach efforts



Growth and change in Central Oklahoma is driving interest in regional transportation



Notable Survey Takeaways



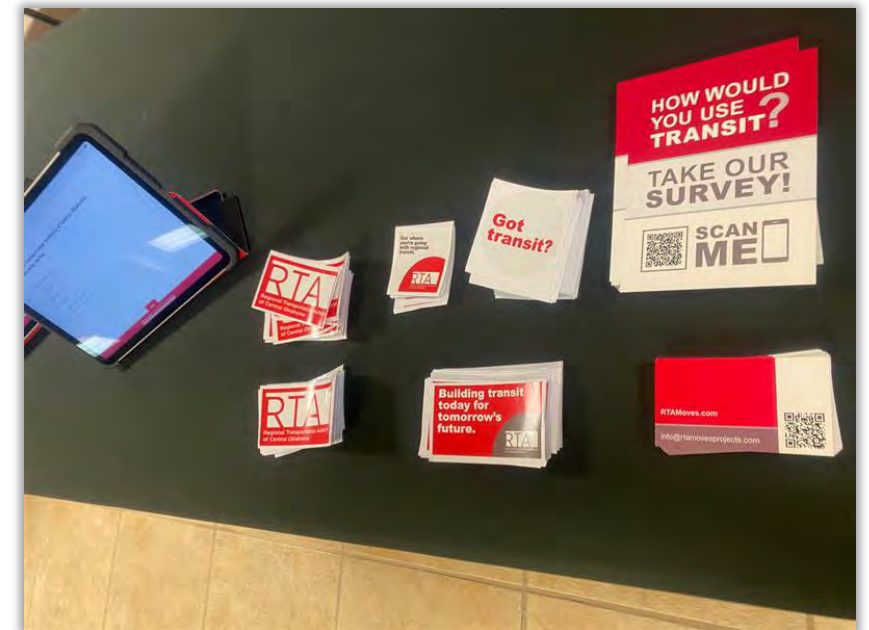
The 92 respondents who participated in the Future Rider Survey represented an equal balance from the three RTA member cities




Over 20% of respondents are current transit users



Park-and-ride facilities and real-time passenger information most preferred amenities among respondents



The background of the slide features a photograph of a train on tracks, viewed from a low angle looking down the length of the train. Overlaid on this photograph is a complex, light-colored line-art or technical drawing that resembles a mechanical or structural diagram, with various lines, circles, and rectangular shapes. The text is centered over the middle of the image.

ALTERNATIVES ANALYSIS UPDATE

Alternative Analysis (AA) Process



1 DISCOVER

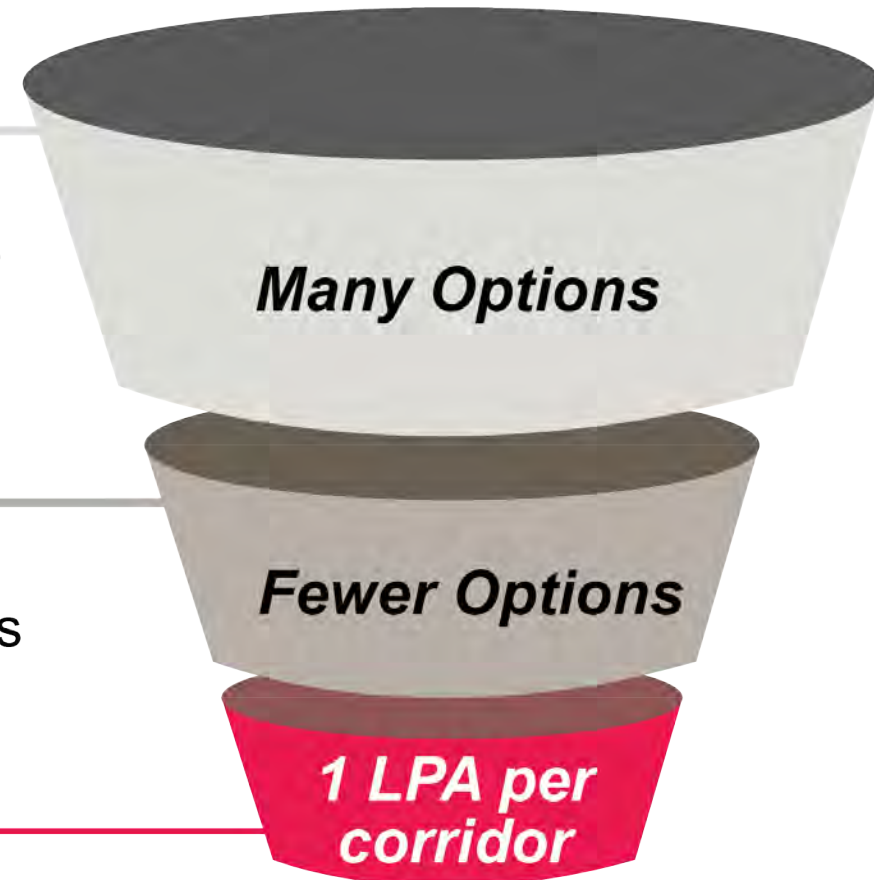
- Define all reasonable alternatives
- Screen against goals & objectives

2 REFINE

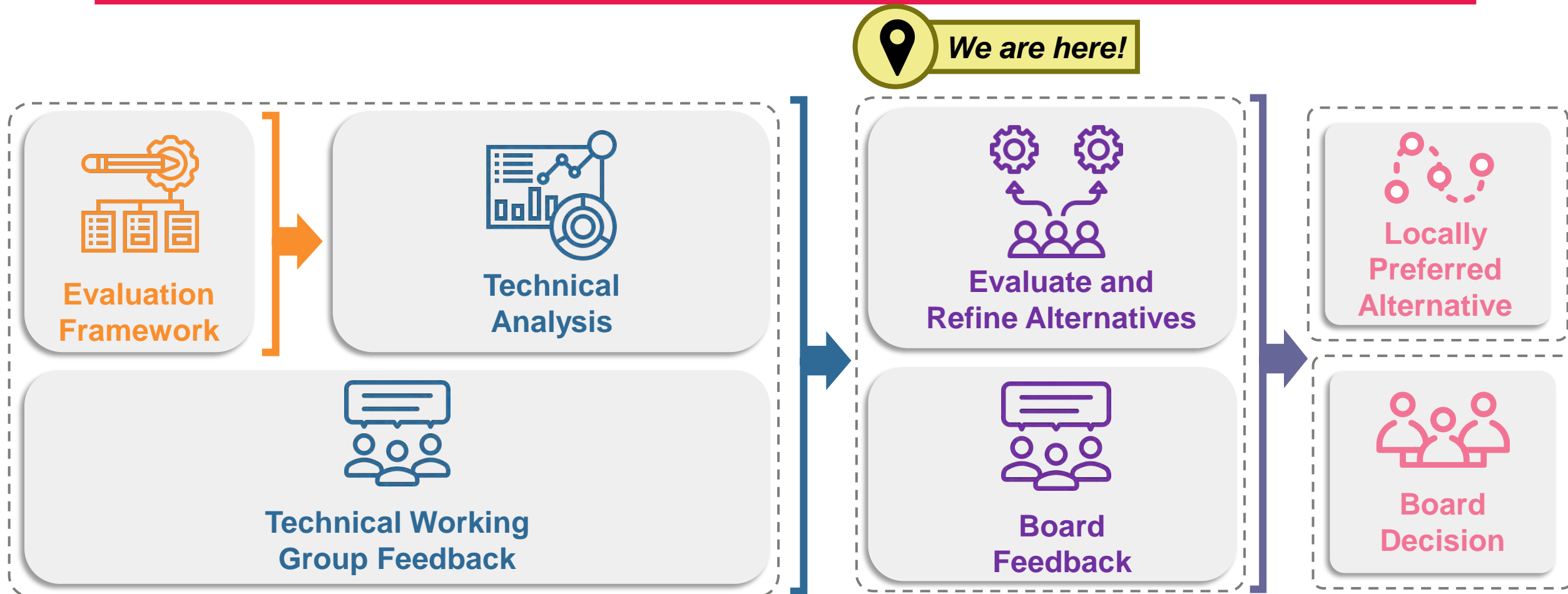
- Advance remaining alternatives
- Perform detailed technical analysis

3 SELECT

- Board consideration of LPA



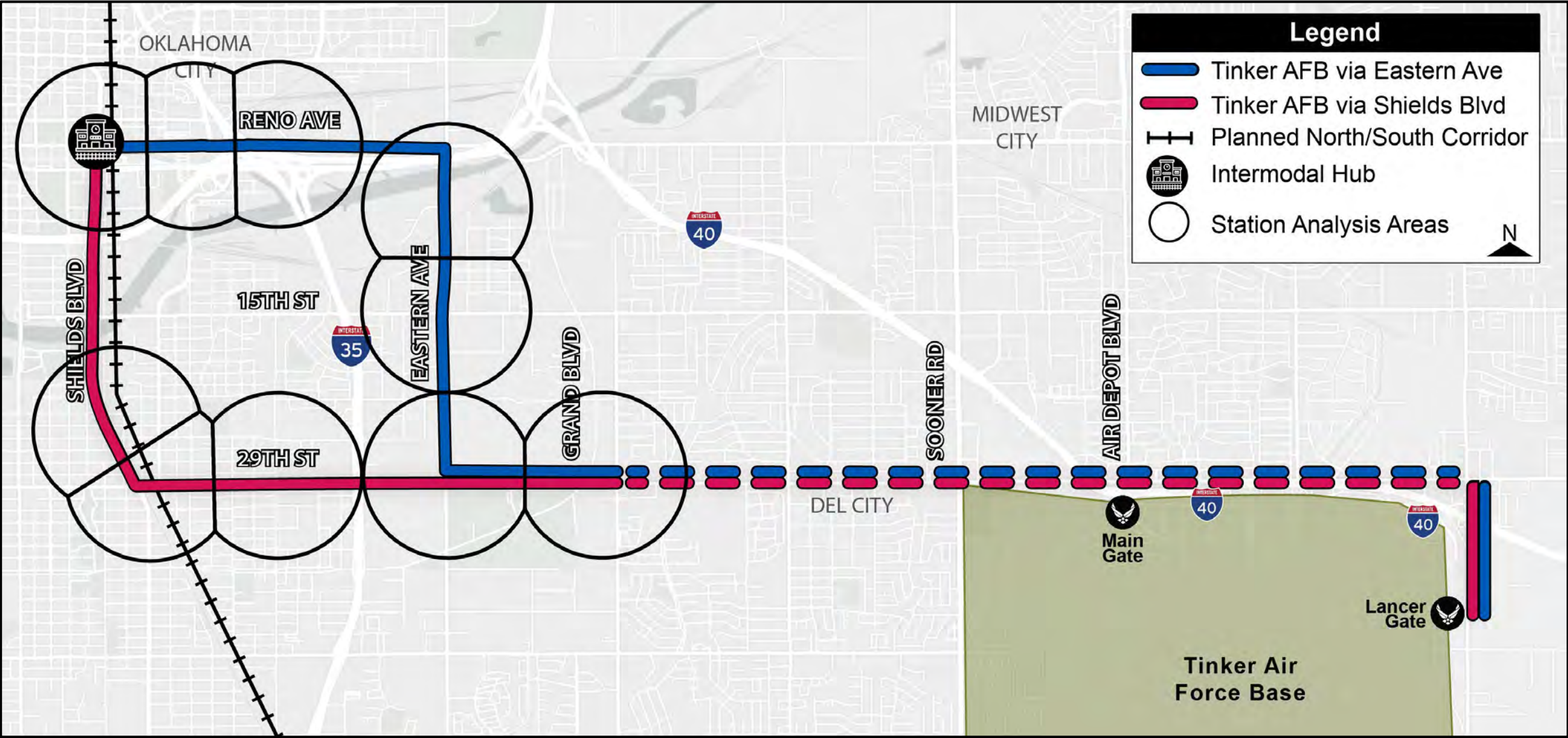
Refine and Select Phase Process

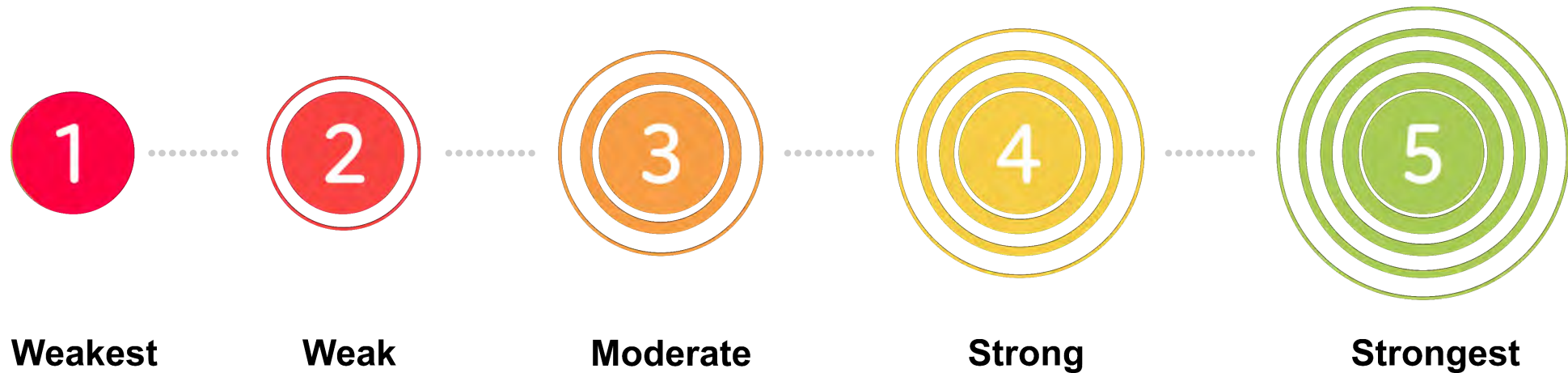
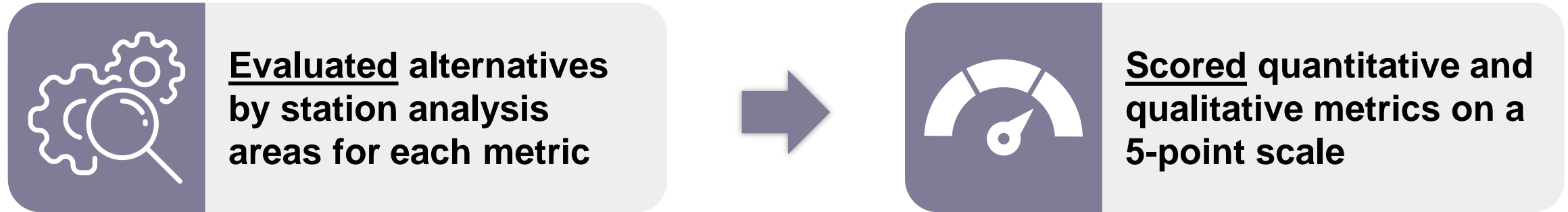


The background of the slide features a photograph of a train on tracks, viewed from a low angle looking down the length of the train. Overlaid on this photograph is a white line-art technical drawing of a train car, showing its internal structure, wheels, and various mechanical components. The text is centered over the image in a large, bold, white sans-serif font.

DRAFT TECHNICAL EVALUATION RESULTS

Alternatives for Technical Evaluation





Scoring was designed to facilitate decision making and establish differences



Mobility & Connectivity

- Serves transit markets
- Miles of comfortable bike infrastructure
- Estimated travel time
- Existing trips between station areas



Equity & Accessibility

- Persons with disabilities + over 65 population
- Resources and trip generators
- Non-white or Hispanic population
- Households below poverty line
- Zero-car households



Economic & Workforce Development

- Ongoing & planned development projects
- Acreage of undeveloped & underdeveloped land
- Projected population growth through 2045
- Projected employment growth through 2045



Sustainability & Viability

- Ability to accommodate increase in ridership
- Conceptual cost estimates
- Traffic implications on existing roadways
- ROW Requirements and acquisition costs
- Feasibility of future LRT



MOBILITY & CONNECTIVITY

Key Takeaways – Initial Findings



Mobility & Connectivity

- Serves transit markets
- Miles of comfortable bike infrastructure
- Estimated travel time
- Existing trips between station areas

Reno – Eastern *Mixed-Traffic*



Access to comfortable bike infrastructure

Reno – Eastern *Dedicated Guideway*



Quick travel times



Access to comfortable bike infrastructure

Shields – 29th *Mixed-Traffic*



Serves transit markets



Access to comfortable bike infrastructure

Shields – 29th *Dedicated Guideway*



Serves transit markets



Quick travel times



Access to comfortable bike infrastructure

Key Takeaways – What's Different?



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EQUITY & ACCESSIBILITY

Key Takeaways – Initial Findings



Equity & Accessibility

- **Persons with disabilities + over 65 population**
- **Resources and trip generators**
- **Non-white or Hispanic population**
- **Households below poverty line**
- **Zero-car households**

Reno – Eastern *Mixed-Traffic*



Serves persons over 65 and with disabilities



Serves a diverse population



Serves households below the poverty line



Serves zero-car households

Reno – Eastern *Dedicated Guideway*



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ECONOMIC & WORKFORCE DEVELOPMENT

Key Takeaways – Initial Findings



Economic & Workforce Development

- Ongoing & planned development projects
- Acreage of undeveloped & underdeveloped land
- Projected population growth through 2045
- Projected employment growth through 2045

Reno – Eastern *Mixed-Traffic*



Provides access to large future developments



Access to developable parcels

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Access to developable parcels

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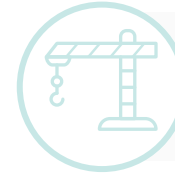
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Access to developable parcels



SUSTAINABILITY & VIABILITY

Key Takeaways – Initial Findings



Sustainability & Viability

- Ability to accommodate increase in ridership
- Conceptual cost estimates
- Traffic implications on existing roadways
- ROW Requirements and acquisition costs
- Feasibility of future LRT

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Is cost effective



Minimize impact to adjacent properties



Minimizes traffic operations impacts

Reno – Eastern *Dedicated Guideway*



Scalable service



Prepares corridor for LRT conversion

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Scalable service



Prepares corridor for LRT conversion

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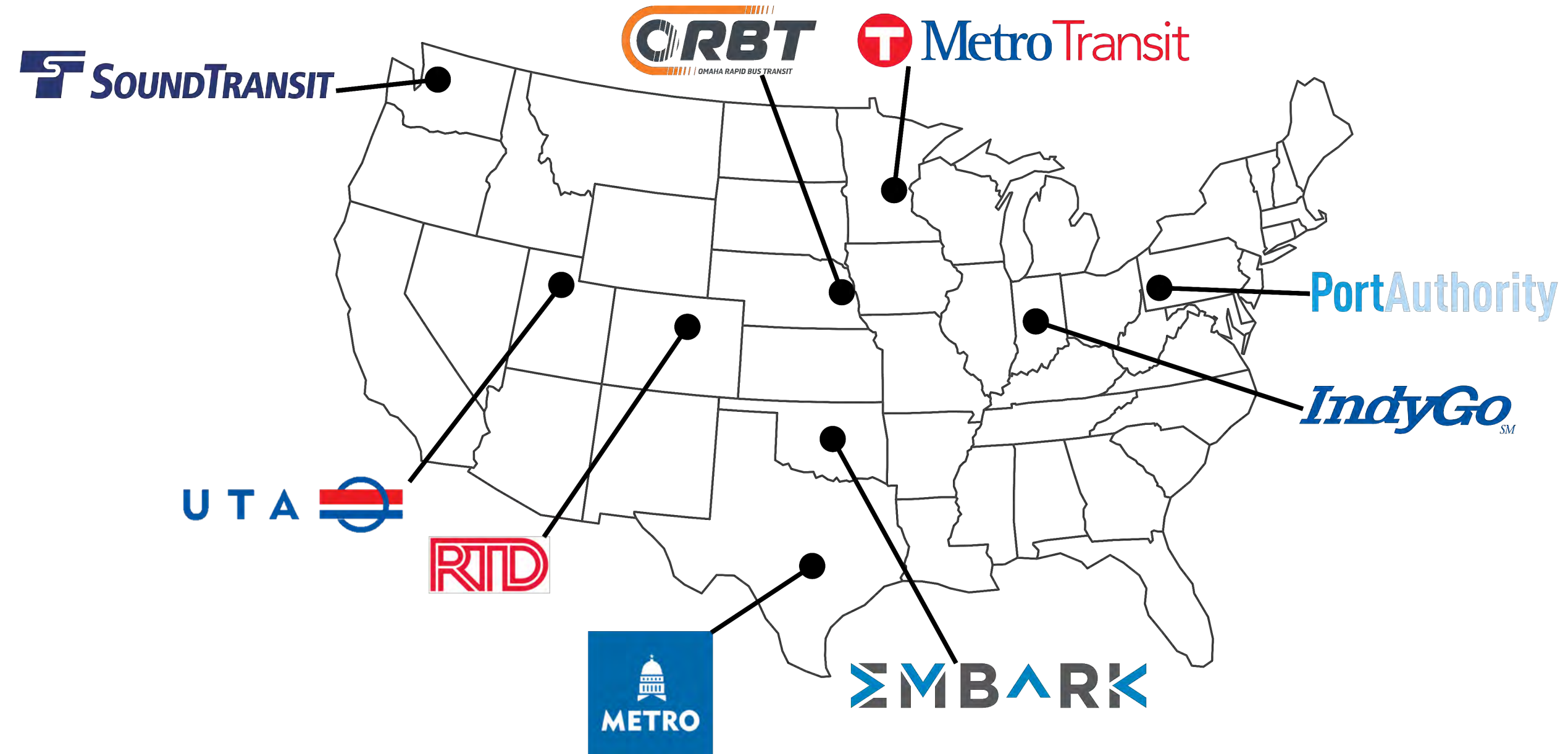
Prepares corridor for LRT conversion

The background of the slide features a grayscale line-art illustration of a train at a station platform. The train is composed of several connected carriages and is positioned on tracks that recede into the distance. To the right of the tracks, there are vertical support structures for the platform. On the left side of the image, there is a vertical white line that separates a lighter, less detailed area from the darker, more detailed line-art area. Overlaid on this background is the text 'PEER COMPARISON' in a large, bold, white sans-serif font.

PEER COMPARISON

Where are our peers?

RTA



CAPITAL COSTS, FINANCING, AND FEES



**Equipment and
Facilities**



Financing



Infrastructure



**ROW
Acquisition**

OPERATIONS AND MAINTENANCE COSTS



**Station
Maintenance**



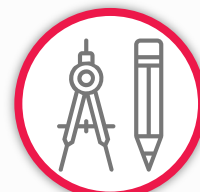
**Transportation
Operations**



**Equipment
Maintenance**



**Maintenance of
Right-of-Way**



**General and
Administrative**

CAPITAL COSTS, FINANCING, AND FEES



**Equipment and
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Financing



Infrastructure

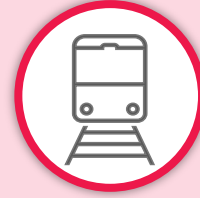


**ROW
Acquisition**

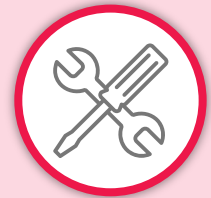
OPERATIONS AND MAINTENANCE COSTS



**Station
Maintenance**



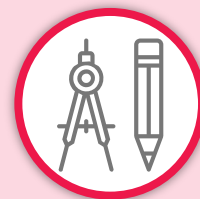
**Transportation
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**Equipment
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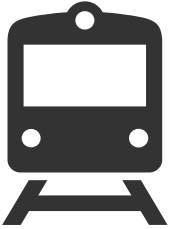



**Maintenance of
Right-of-Way**















**General and
Administrative**

Peer Systems – Capital Costs

Mode	Percent Dedicated Guideway	Average Capital Cost/Mile (2022 Dollars)	Peer Systems
Bus Rapid Transit <i>Mixed Traffic</i> 	< 50% Dedicated 	\$7 million \$ \$ \$	<i>ORBT</i> , Omaha <i>EMBARK</i> , OKC <i>CapMetro</i> , Austin <i>UTA</i> , Salt Lake City
Bus Rapid Transit <i>Dedicated Guideway</i> 	> 50% Dedicated 	\$47 million \$ \$ \$	<i>PRT</i> , Pittsburgh <i>IndyGO</i> , Indianapolis
Light Rail Transit 	100% Dedicated 	\$108 million \$ \$ \$	<i>CapMetro</i> , Austin <i>RTD</i> , Denver <i>Metro Transit</i> , Twin Cities <i>Valley Metro</i> , Phoenix

Peer Systems - Service Frequencies

RTA

Service Frequency				
	30+ min	15 min	10 min	<10 min
	 Red Line BRT	 Midvalley Connector BRT	 EMBARK NW BRT	 1 Line LRT
	 Typical Local Bus	 TRAX LRT	 OKC Streetcar	 Downtown-Uptown-Oakland BRT
		 West Line LRT	 Pleasant Valley BRT	
			 Blue Line BRT	
			 Omaha BRT	
FTA Qualified Service Levels				

What are the major operations and maintenance cost elements?



**Station
Maintenance**



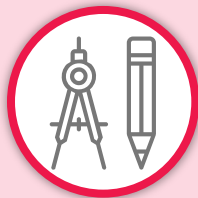
**Transportation
Operations**



**Equipment
Maintenance**



**Maintenance of
Right-of-Way**



**General and
Administrative**

Establishing Initial Operations & Maintenance Cost Ranges

Estimate Service Characteristics

*Planned for alignment with FTA
Qualified Service Levels*



Estimate Revenue Service Hours

*Based on number of vehicles
needed to operate service*



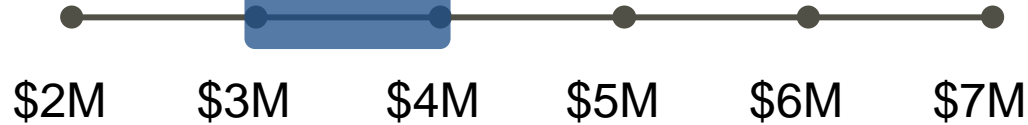
Initial O&M Cost Ranges

*Using estimated EMBARK operating
expenses by revenue hour*

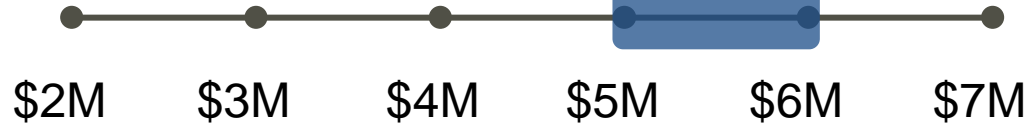
Initial O&M Cost Ranges (Annual, 2022 USD)



BRT



LRT



Establishing Initial Operations & Maintenance Cost Ranges

Estimate Service Characteristics

*Planned for alignment with FTA
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Estimate Revenue Service Hours

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Initial O&M Cost Ranges

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FEASIBILITY

Mixed-Traffic BRT



- ✓ ADA Accessibility at Stations

Dedicated Guideway BRT



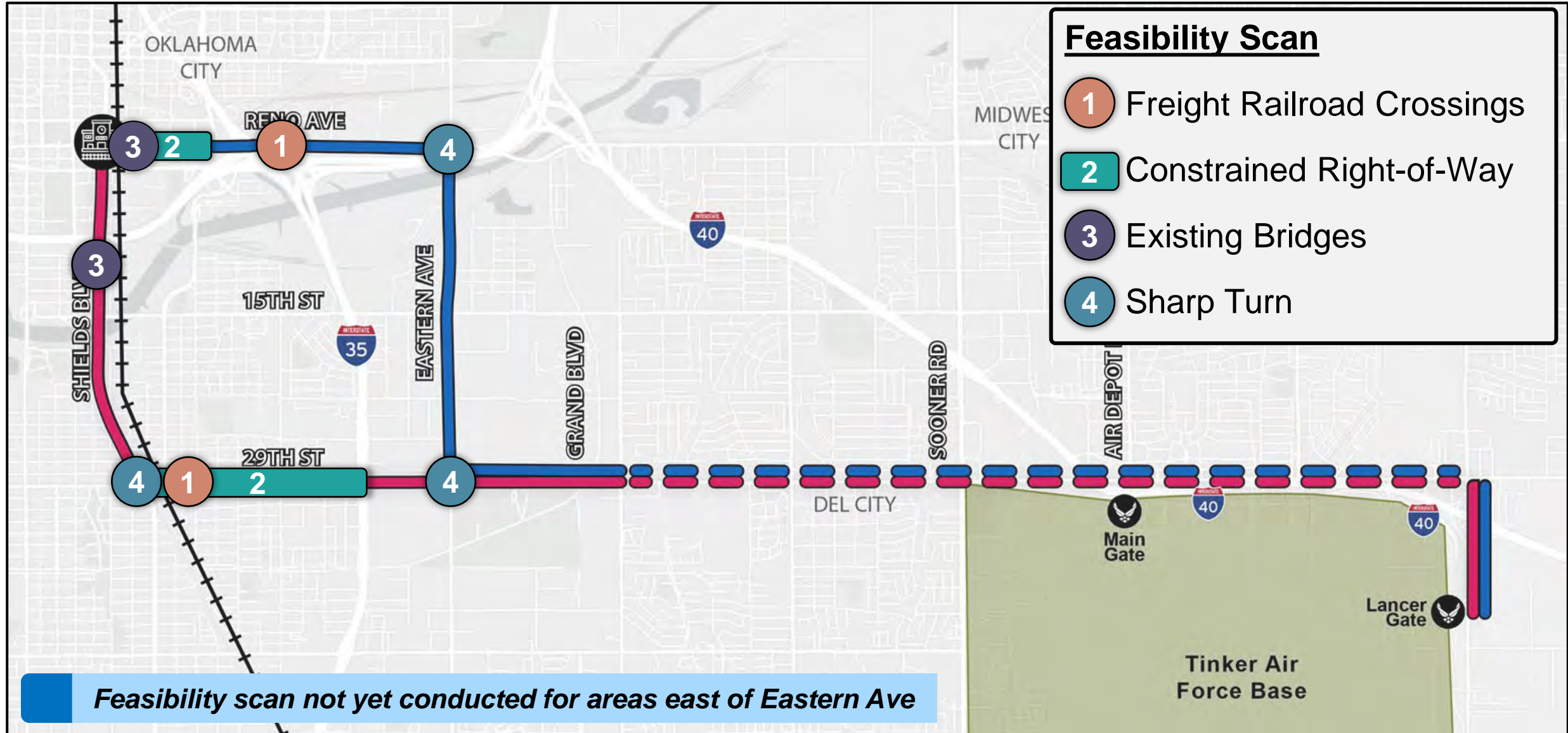
- ✓ ADA Accessibility at Stations
- ✓ Right of Way Feasibility
- ✓ Station Platform Feasibility

LRT



- ✓ ADA Accessibility at Stations
- ✓ Right of Way Feasibility
- ✓ Station Platform Feasibility
- ✓ Necessary Grade Separation
- ✓ Turn Radii

Future LRT Feasibility Scan



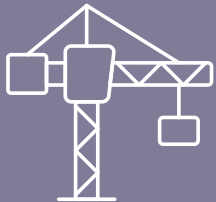
The background features a stylized line-art illustration of a train and its tracks. The train is positioned on the left side of the frame, moving towards the right. The tracks extend into the distance, creating a sense of perspective. The entire illustration is rendered in a dark purple or maroon color, which is semi-transparent, allowing the white text to stand out prominently in the center.

KEY TAKEAWAYS

TWG Meeting Summary



Buses currently experience delay at freight railroad crossings



Current ACOG model does not reflect growth potential along both corridors



Follow-up discussions planned with the TWG



Draft Evaluation: Initial Findings

RTA

Reno – Eastern *Mixed-Traffic*



Serves a diverse population



Provides access to large future developments



Is cost effective



Minimizes impact to adjacent properties



Minimizes traffic operations impacts

Reno – Eastern *Dedicated Guideway*



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Scalable service



Prepares corridor for future LRT conversion



Quick travel times

Shields – 29th *Mixed-Traffic*



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<div> Corridor Based Findings</div>	<div><div>Serves a diverse population</div></div> <div><div>Provides access to large future developments</div></div>	<div><div>Serves a diverse population</div></div> <div><div>Provides access to large future developments</div></div>	<div><div>Serves transit markets</div></div>	<div><div>Serves transit markets</div></div>
<div> Mode Based Findings</div>	<div><div>Is cost effective</div></div> <div><div>Minimize impact to adjacent properties</div></div> <div><div>Minimizes traffic operations impacts</div></div>	<div><div>Quick travel times</div></div> <div><div>Scalable service</div></div> <div><div>Prepares corridor for LRT conversion</div></div>	<div><div>Is cost effective</div></div> <div><div>Minimize impact to adjacent properties</div></div> <div><div>Minimizes traffic operations impacts</div></div>	<div><div>Quick travel times</div></div> <div><div>Scalable service</div></div> <div><div>Prepares corridor for LRT conversion</div></div>

The background features a dark purple, semi-transparent illustration of a train and a ship. The train, on the right, is a multi-car passenger train with visible windows and wheels, moving along tracks. On the left, a white line-art illustration of a ship's hull and a circular porthole is visible. The word "DISCUSSION" is centered in a large, white, sans-serif font.

DISCUSSION



NEXT STEPS



Nov



BOARD MEETING: PRELIMINARY RESULTS/PROCESS UPDATE

Dec



TECHNICAL WORKING GROUP MEETING: AA FOLLOW-UP

Dec



BOARD MEETING: RECAP OF AA RESULTS

Jan
2023



AA REFINEMENT AND ONGOING ANALYSIS

June
2023



SELECTION OF LPA



BOARD & TECHNICAL WORKING GROUP CHECK-INS

