

Alternatives Analysis



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

November 17, 2021

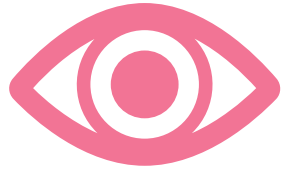
Prepared by Kimley-Horn and Associates



Agenda

- Engagement Status
- Part 1: North/South Corridor Feasibility Study Update
- Part 2: East Corridor Alternatives Analysis Update
- Next Steps

Current Engagement



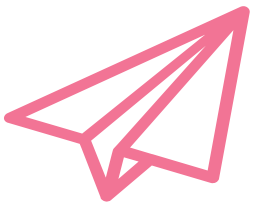
4,200
Website Views



30
Comments



103
Survey Responses



Local Media



Press Release



Social Media



Emails

Upcoming Engagement Efforts

- In-person outreach is planned for mid-January
- Engage with community members by visiting high traffic areas
 - University of Oklahoma Medical Center
 - Oklahoma City University
 - City Center's
 - Senior Wellness Centers
 - Grocery Stores
 - YMCA/Community Center
 - Transit Hubs
- Meet with individual contacts of the communicator group
 - Distribute another message on their communication platforms

The background is a detailed line drawing of a train station. A train with multiple cars is stopped at a platform. The drawing is in a light, sketchy style. The text 'PART 1' is overlaid in the center in a large, bold, white font. The left side of the image is partially white, showing a close-up of a train window and door.

PART 1

The background of the image is a photograph of a train on tracks, viewed from a low angle looking down the length of the train. The train is dark-colored and has multiple windows. The tracks are made of metal rails and wooden ties. On the left side of the image, there is a white line-art overlay that shows a technical drawing of a train car, including details like windows, doors, and internal structures. The text "DRAFT SERVICE VISION" is centered over the image in a large, white, sans-serif font.

DRAFT SERVICE VISION

Draft Service Vision

Step 1

Starter Service:

- 12 Round Trips
- 60 Min Peak
- 120 Min Off-Peak

Phased Investment Plan



Step 3

Aspirational Plan:

- 44 Round Trips
- 15 Min Peak
- 30 Min Off-Peak

The background image shows a freight train with several boxcars in a rail yard. The train is positioned on tracks that recede into the distance. To the right of the tracks, there are tall, vertical wooden or metal structures, possibly for loading or unloading cargo. The entire image is overlaid with a semi-transparent purple layer. On the left side, there is a white line-art graphic that appears to be a technical drawing or a stylized representation of a train car's side profile. The text 'FREIGHT CORRIDOR ANALYSIS' is centered in the middle of the image in a large, white, bold, sans-serif font.

FREIGHT CORRIDOR ANALYSIS

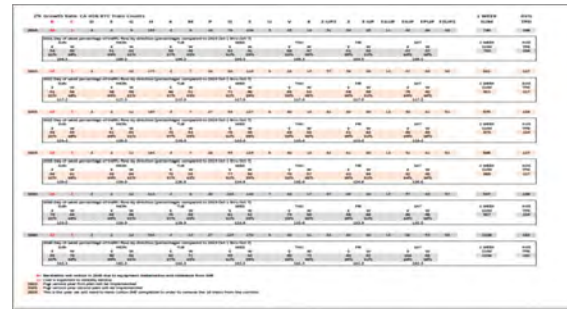
Capacity Analysis

Inputs

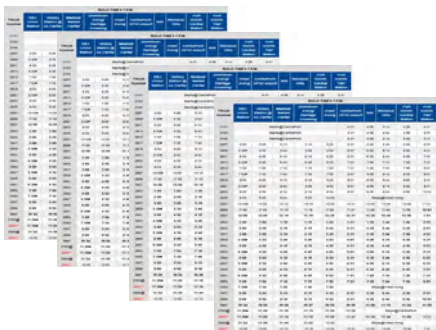
BNSF track chart and timetable



Freight Growth Projections



Freight Operating Data



Future Passenger Schedules

SOUTHBOUND												
EDMOND STATION	6:31	7:31	8:31	9:31	10:31	12:31	14:31	16:31	18:31	20:31		
SOUTHBOUND												
OKLAHOMA CITY	6:31	7:31	8:31	9:31	10:31	12:31	14:31	16:31	18:31	20:31		
SOUTHBOUND												
EDMOND STATION	6:31	7:31	8:31	9:31	10:31	12:31	14:31	16:31	18:31	20:31		
SOUTHBOUND												
OKLAHOMA CITY	7:01	8:01	9:01	10:01	11:01	13:01	15:01	16:01	17:01	18:01	19:01	21:01
SOUTHBOUND												
MOORE STATION	7:16	8:16	9:16	10:16	11:16	13:16	15:16	16:16	17:16	18:16	19:16	21:16
SOUTHBOUND												
NORMAN	7:29	8:29	9:29	10:29	11:29	13:29	15:29	16:29	17:29	18:29	19:29	21:29
NORTHBOUND												
EDMOND STATION	6:31	7:31	8:31	9:31	10:31	12:31	14:31	16:31	18:31	20:31		
NORTHBOUND												
OKLAHOMA CITY	7:01	8:01	9:01	10:01	11:01	13:01	15:01	16:01	17:01	18:01	19:01	21:01
NORTHBOUND												
MOORE STATION	7:16	8:16	9:16	10:16	11:16	13:16	15:16	16:16	17:16	18:16	19:16	21:16
NORTHBOUND												
NORMAN	7:29	8:29	9:29	10:29	11:29	13:29	15:29	16:29	17:29	18:29	19:29	21:29

Outputs

Identify the capacity of the corridor with the existing infrastructure

Identify future capacity and infrastructure needed to operate passenger service while protecting the freight franchise



Develop an operating plan to support passenger and freight volumes on the current as well future infrastructure

Freight Pathing Project Plan

			Status
1	Build standard freight train	» Identify average Ton, Length, HPT, Locos, train types	✓
2	Signal System	» Determine headways, including capacity consumption	Work in Progress
3	Bottleneck throughput	» Determine traffic throughput at bottleneck(s)	Late November
4	Slot allocation	» Identify existing capacity	Early December
5	Passenger slot availability	» Determine slots available for passenger service	Late December
6	Infrastructure needs	» Identify infrastructure improvements to meet plans	Early January

The background of the slide features a photograph of a train at a station platform, viewed from a low angle looking down the tracks. Overlaid on this 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, white, sans-serif font.

OPERATING COST MODEL



Step 2: Standardize Cost Units :

- Per hour
- Per train mile
- Per Station
- Per Car Mile
- Total Fleet Count

Step 3: Develop Model

[illegible]

Step 4: Model Service Concepts

	SOUTHBOUND																			
EDMOND STATION	6.31	7.31	8.31	9.31	10.31	12.31	14.31			16.31		18.31	20.31							
OKLAHOMA CITY	7.01	8.01	9.01	10.01	11.01	13.01	15.01	16.01	17.01	18.01	19.01	20.01								
MOORE STATION																				
	SOUTHBOUND																			
EDMOND STATION	6.31	7.31	8.31	9.31	10.31	12.31	14.31			16.31		18.31	20.31							
NORMAN	OKLAHOMA CITY	7.01	8.01	9.01	10.01	11.01	13.01	15.01	16.01	17.01	18.01	19.01	20.01							
	SOUTHBOUND																			
MOORE STATION	EDMOND STATION	6.31	7.31	8.31	9.31	10.31	12.31	14.31			16.31		18.31	20.31						
NORMAN	OKLAHOMA CITY	7.01	8.01	9.01	10.01	11.01	13.01	15.01	16.01	17.01	18.01	19.01	20.01							
	SOUTHBOUND																			
MOORE STATION	NORMAN	EDMOND STATION	6.31	7.31	8.31	9.31	10.31	12.31	14.31			16.31		18.31	20.31					
OKLAHOMA CITY	7.01	8.01	9.01	10.01	11.01	13.01	15.01	16.01	17.01	18.01	19.01	20.01	21.01							
	SOUTHBOUND																			
MOORE STATION	NORMAN	OKLAHOMA CITY	7.01	8.01	9.01	10.01	11.01	13.01	15.01	16.01	17.01	18.01	19.01	21.01						
EDMOND STATION	MOORE STATION	7.16		9.16		11.16	13.16	15.16	16.16	17.16	18.16	19.16	20.16							
	NORMAN	EDMOND STATION	7.29		9.29		11.29	13.29	15.29	16.29	17.29	18.29	19.29	21.29						
	MOORE STATION	NORMAN	7.29		9.29		11.29	13.29	15.29	16.29	17.29	18.29	19.29	21.29						
	OKLAHOMA CITY																			
	NORMAN	EDMOND STATION	6.31	7.31	8.31	9.31	10.31	12.31	14.31		16.31		18.31	20.31						
	MOORE STATION	6.45	7.45	8.45	9.45	10.45	12.45	14.45		16.45		18.45	20.45							
	OKLAHOMA CITY	7.01	8.01	9.01	10.01	11.01	13.01	15.01	16.01	17.01	18.01	19.01	21.01							
	EDMOND STATION	7.29		9.29		11.29	13.29	15.29	16.29	17.29	18.29	19.29	21.29							

O&M Costs by Scenario

Operating Cost Model

Status

1	Develop cost inputs from comparable systems	»	Identify relevant costs: fuel, maintenance, wages, etc... from peer systems	Work in Progress
2	Standardize Cost Units	»	Convert comparable costs into scalable unit costs	November
3	Develop Input Calculations	»	Develop model calculations for inputs	December
4	Model Concept Costs	»	Estimate operating concepts costs	January

Recap

What We Have Done



***Understanding
Ridership
Potential***



***Understanding
Peer Operating
Costs***



***Using data to develop
base assumptions for
N/S corridor***

Coming Up Next (January 2022)



***Initial Outcomes of
Freight Pathing
Discussions with BNSF***



***Initial costing
analysis results***

Work Plan



Oct
2021



BOARD: ALTERNATIVES ANALYSIS UPDATE



Nov
2021



COMMUNICATORS GROUP MEETING



TECHNICAL WORKING GROUP MEETING



BOARD: ALTERNATIVES ANALYSIS UPDATE

Q3
FY 22

TECHNICAL WORKING GROUP MEETING - REVIEW ANALYSIS RESULTS

Q3
FY 22



TECHNICAL WORKING GROUP MEETING – REFINE SERVICE PLAN

Q4
FY 22



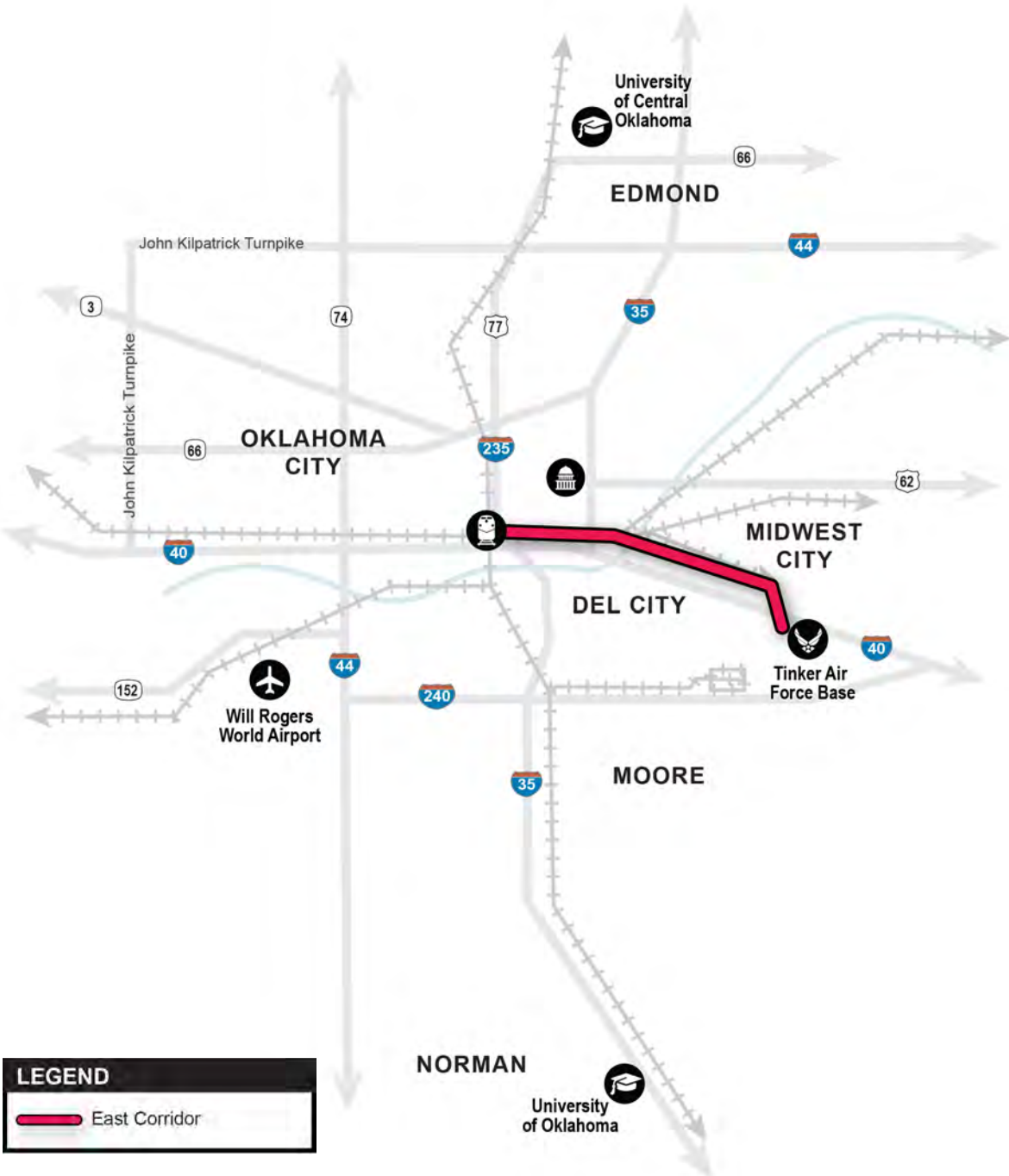
BOARD: RECOMMENDATION OF LOCALLY PREFERRED ALTERNATIVE

The background of the image is a photograph of a train at a station platform, rendered in a monochromatic purple-grey tone. A white line-art overlay is present on the left side of the image, showing a technical drawing of a train car's interior or exterior structure. The text "PART 2" is centered in the middle of the image in a large, white, bold, sans-serif font.

PART 2



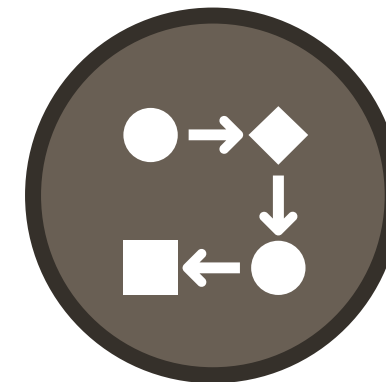
EAST CORRIDOR ALTERNATIVES ANALYSIS



What is being studied?



Demographics

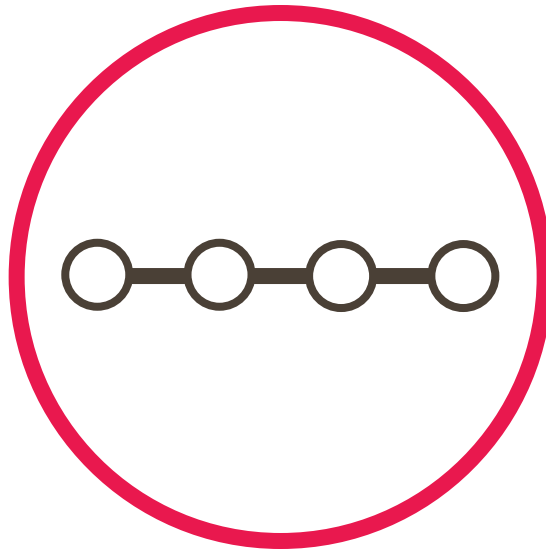


Travel
Patterns

What still needs to be determined?



Options



Alignment



Mode

Alternative Analysis (AA) Process



1 DISCOVER

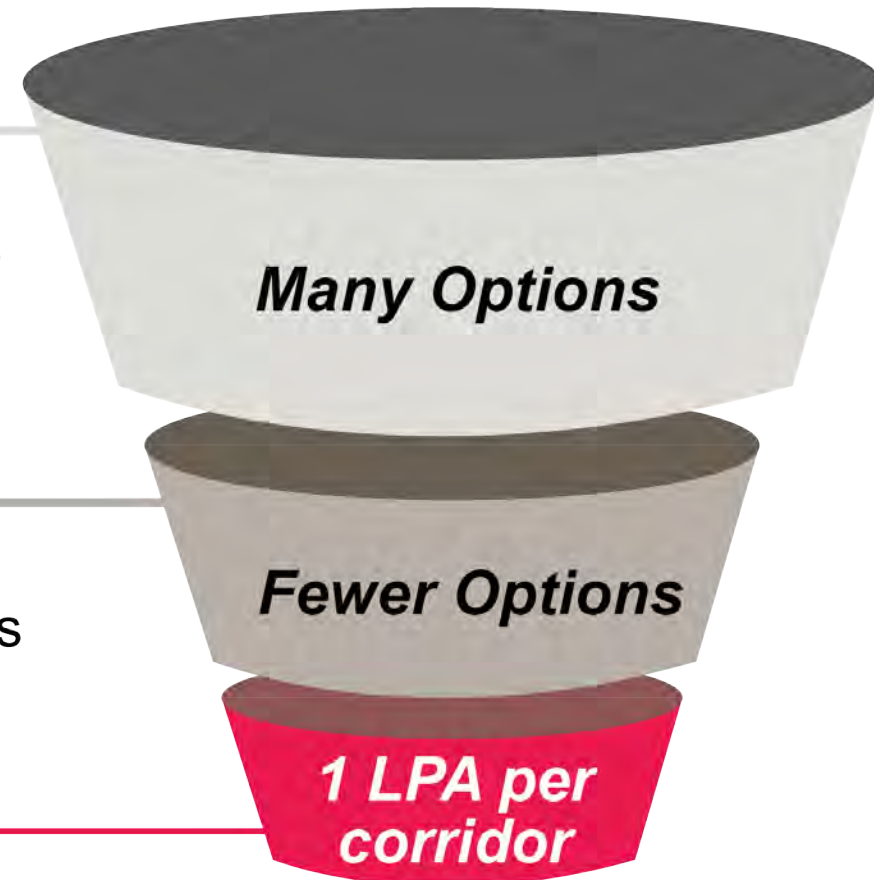
- Define all reasonable alternatives
- Screen against goals & objectives

2 REFINE

- Advance remaining alternatives
- Perform detailed technical analysis

3 SELECT

- Board consideration of LPA



Discover Phase Process



We are here!



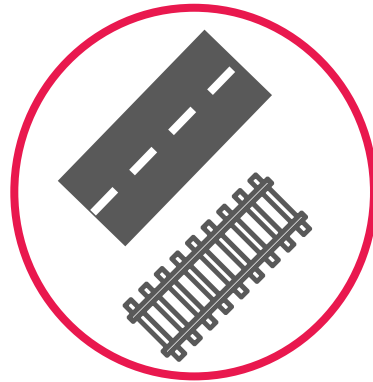
The background features a detailed line drawing of a train on tracks, viewed from a low angle looking down the length of the train. The train has multiple cars with windows and doors. The tracks recede into the distance. A semi-transparent purple rectangular overlay covers the right two-thirds of the image, serving as a backdrop for the title text. The left third of the image is white, showing the continuation of the train's side profile.

POTENTIAL ALIGNMENTS

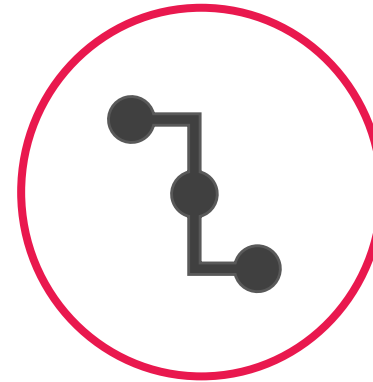
Preliminary Considerations



**Utilize Regional
High-Capacity
Transit Modes**



**Leverage Existing
Infrastructure**



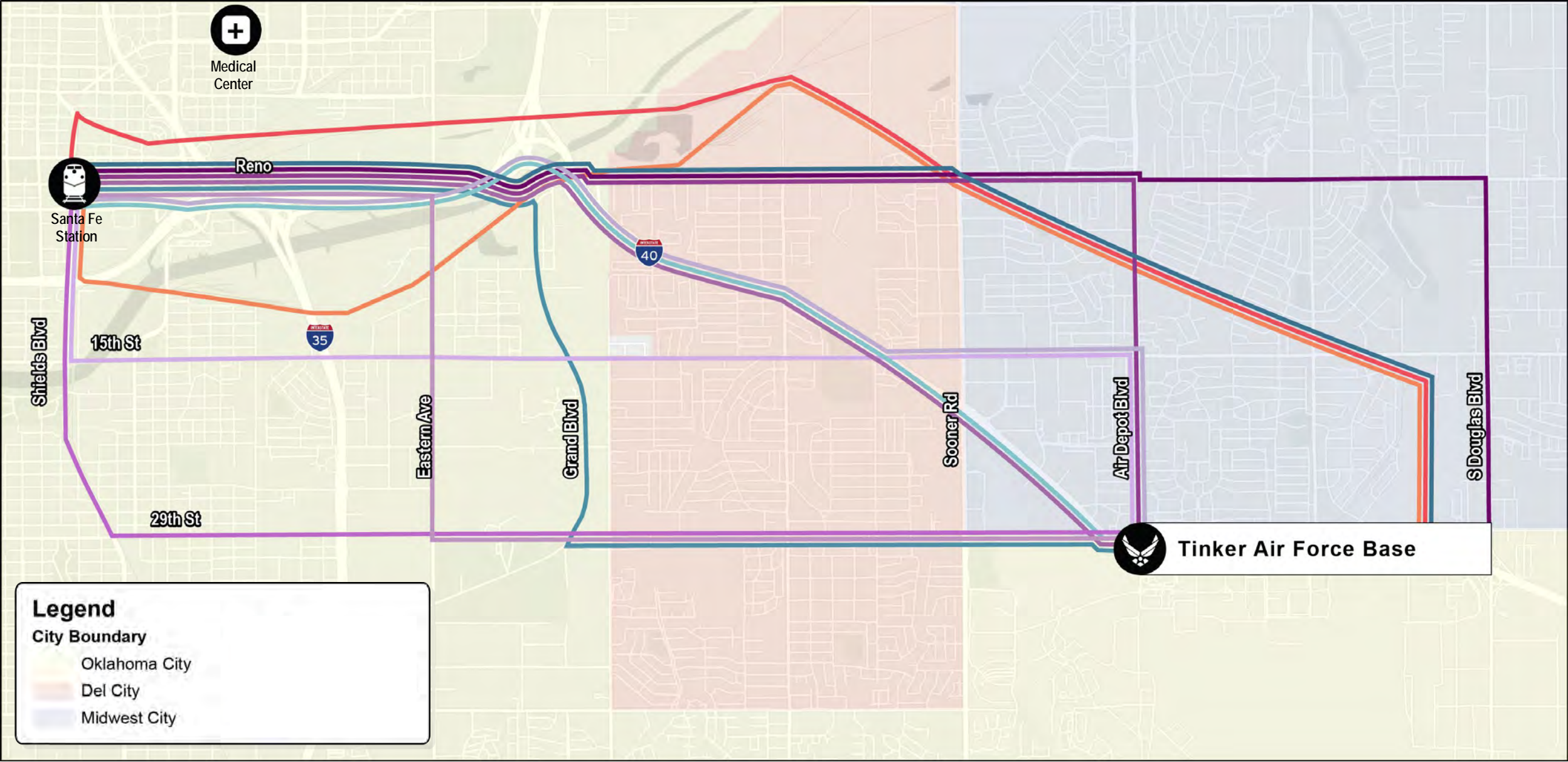
**Connect Centers
of Activity**



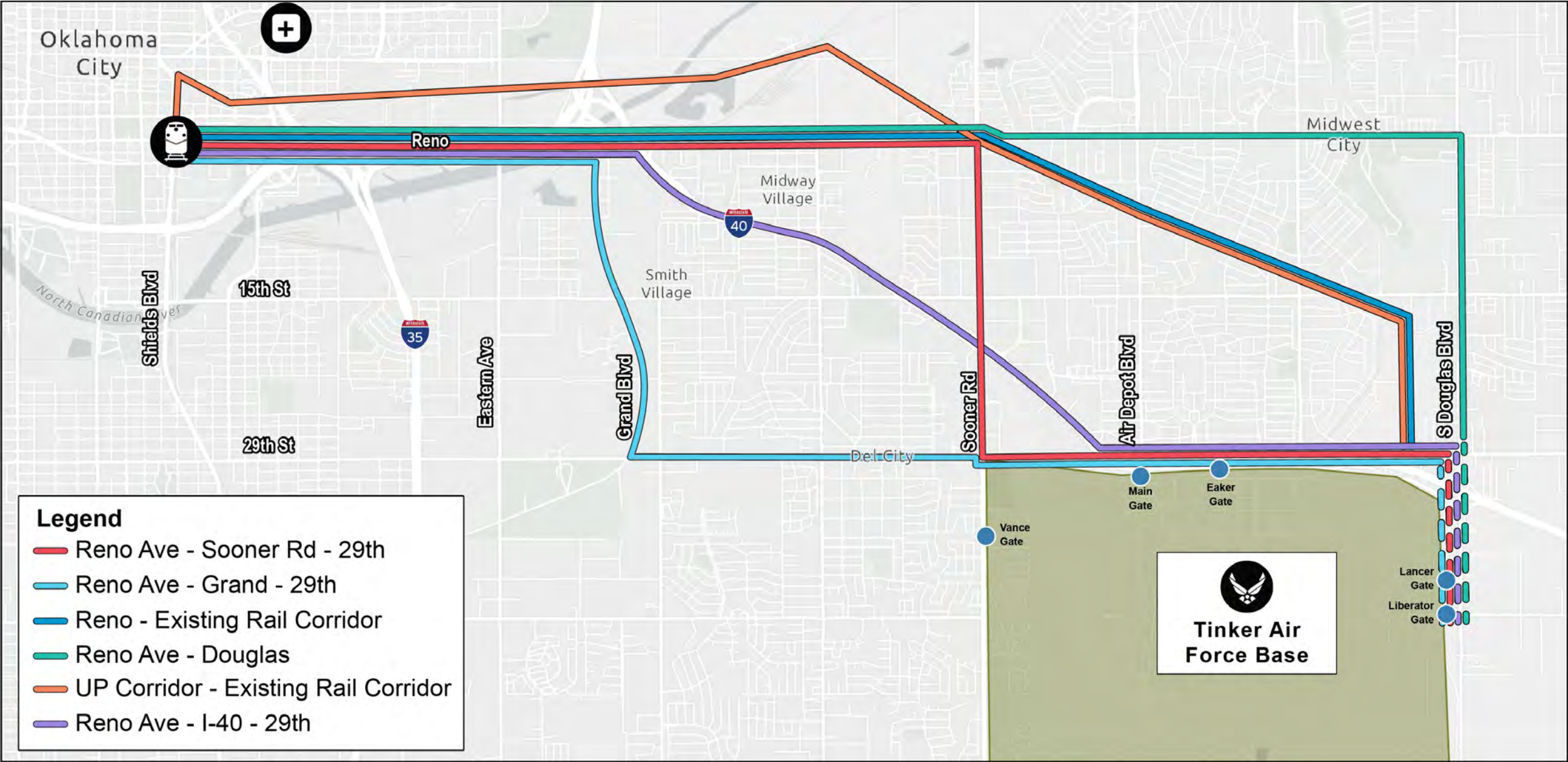
**Serve Each
Community
Meaningfully**

Initial Potential Alignments

RTA



Revised Potential Alignments



The background features a detailed line drawing of a train on tracks, viewed from a low angle looking down the length of the train. The entire image is overlaid with a semi-transparent purple filter. On the far left, there is a vertical white band containing a white line drawing of a train's side profile, including a window and door.

SCREENING CRITERIA

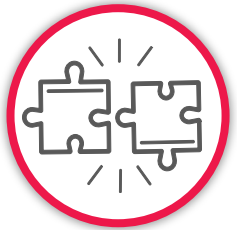
Alternatives Analysis Initial Screening Criteria



Improves Community Connections and Mobility



Interfaces with Major Potential Cost Elements



Compatible with Local Land Use and Transportation Plans



Provides Economic Development Potential



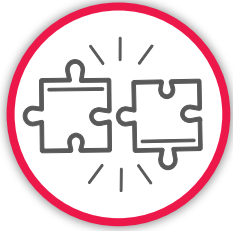
Provides Access to Activity



Improves Community Connections and Mobility

Alignment reasonably serves:

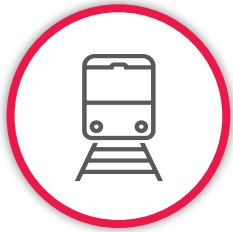
- Low-income populations
- Senior populations
- Zero-car-households



Compatible with Local Land Use and Transportation Plans

Alignment compatibility with:

- Local Planning Efforts
- Transit System Plan (TSP)
- ACOG Regional Transportation Plan (RTP)



Provides Access to Activity

Alignment reasonably:

- Serves areas of higher population along corridor
- Serves local jobs and major employment centers (Tinker AFB)
- Connects to the Intermodal Hub at Santa Fe Depot



Interfaces with Major Potential Cost Elements

Alignment crosses/interfaces with significant infrastructure:


- Major intersections
- Existing and/or potential bridges
- Constrained rights-of-way



Provides Economic Development Potential

Alignment reasonably serves:

- Local activity centers
- Land uses with existing/future potential for Transit Oriented Development

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

INITIAL ALIGNMENT SCREENING

Screening Criteria Scoring Matrix

RTA

SCREENING CRITERIA

	Alignments					
	1 Reno/Sooner/29th	2 Reno/Grand/29th	3 Reno/ Existing Rail Corridor	4 Reno/Douglas	5 UP Corridor/ Exis. Rail Corridor	6 Reno/I-40/29th
Modal Considerations	BRT/LRT	BRT/LRT	BRT/LRT	BRT/LRT	Commuter Rail	BRT/LRT
Improves Community Connections and Mobility	—	—	—	—	—	—
Compatible with Local Land Use and Transportation Plans	—	—	—	—	—	—
Provides Access to Activity	✓	✓	—	—	—	✓
Interfaces with Major Potential Cost Elements	✗	—	—	✗	—	—
Provides Economic Development Potential	✓	✓	—	—	—	—

✗ Lower

— Moderate

✓ Higher

Screening Criteria Scoring Matrix

RTA

SCREENING CRITERIA

	Alignments					
	1 Reno/Sooner/29th	2 Reno/Grand/29th	3 Reno/ Existing Rail Corridor	4 Reno/Douglas	5 UP Corridor/ Exis. Rail Corridor	6 Reno/I-40/29th
Modal Considerations	BRT/LRT	BRT/LRT	BRT/LRT	BRT/LRT	Commuter Rail	BRT/LRT
Improves Community Connections and Mobility	—	—	—	—	—	—
Compatible with Local Land Use and Transportation Plans	—	—	—	—	—	—
Provides Access to Activity	✓	✓	—	—	—	✓
Interfaces with Major Potential Cost Elements	✗	—	—	✗	—	—
Provides Economic Development Potential	✓	✓	—	—	—	—

✗ Lower — Moderate ✓ Higher

Screening Criteria Scoring Matrix

SCREENING CRITERIA

	Alignments					
	1 Reno/Sooner/29th	2 Reno/Grand/29th	3 Reno/ Existing Rail Corridor	4 Reno/Douglas	5 UP Corridor/ Exis. Rail Corridor	6 Reno/I-40/29th
Modal Considerations	BRT/LRT	BRT/LRT	BRT/LRT	BRT/LRT	Commuter Rail	BRT/LRT
Improves Community Connections and Mobility	—	—	—	—	—	—
Compatible with Local Land Use and Transportation Plans	—	—	—	—	—	—
Provides Access to Activity	✓	✓	—	—	—	✓
Interfaces with Major Potential Cost Elements	✗	—	—	✗	—	—
Provides Economic Development Potential	✓	✓	—	—	—	—

✗ Lower — Moderate ✓ Higher

Screening Criteria Scoring Matrix

SCREENING CRITERIA

	Alignments					
	1 Reno/Sooner/29th	2 Reno/Grand/29th	3 Reno/ Existing Rail Corridor	4 Reno/Douglas	5 UP Corridor/ Exis. Rail Corridor	6 Reno/I-40/29th
Modal Considerations	BRT/LRT	BRT/LRT	BRT/LRT	BRT/LRT	Commuter Rail	BRT/LRT
Improves Community Connections and Mobility	—	—	—	—	—	—
Compatible with Local Land Use and Transportation Plans	—	—	—	—	—	—
Provides Access to Activity	✓	✓	—	—	—	✓
Interfaces with Major Potential Cost Elements	✗	—	—	✗	—	—
Provides Economic Development Potential	✓	✓	—	—	—	—

✗ Lower — Moderate ✓ Higher

Screening Criteria Scoring Matrix

SCREENING CRITERIA

	Alignments					
	1 Reno/Sooner/29th	2 Reno/Grand/29th	3 Reno/ Existing Rail Corridor	4 Reno/Douglas	5 UP Corridor/ Exis. Rail Corridor	6 Reno/I-40/29th
Modal Considerations	BRT/LRT	BRT/LRT	BRT/LRT	BRT/LRT	Commuter Rail	BRT/LRT
Improves Community Connections and Mobility	—	—	—	—	—	—
Compatible with Local Land Use and Transportation Plans	—	—	—	—	—	—
Provides Access to Activity	✓	✓	—	—	—	✓
Interfaces with Major Potential Cost Elements	✗	—	—	✗	—	—
Provides Economic Development Potential	✓	✓	—	—	—	—

✗ Lower — Moderate ✓ Higher

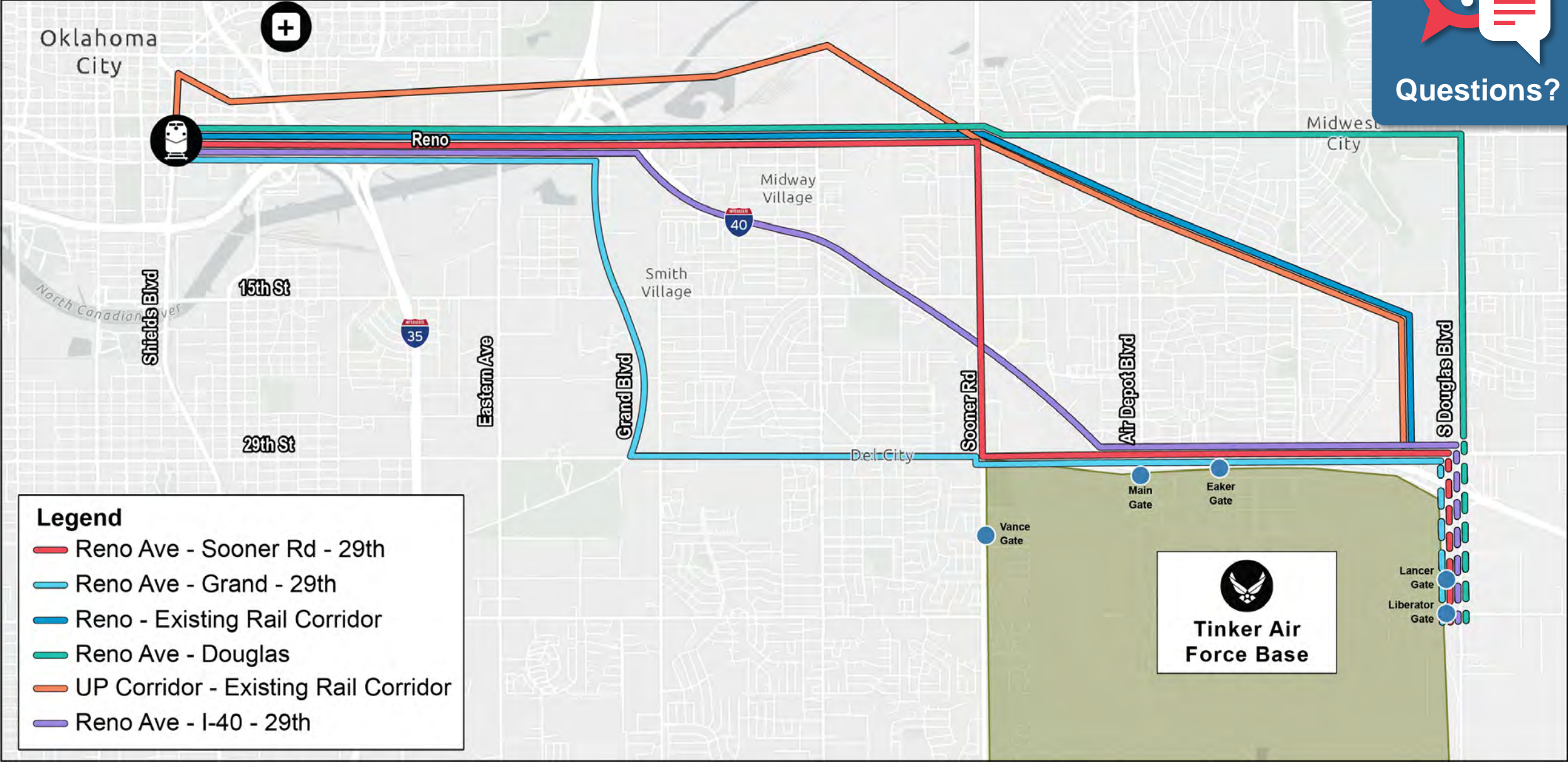
Screening Criteria Scoring Matrix

SCREENING CRITERIA

	Alignments					
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Modal Considerations	BRT/LRT	BRT/LRT	BRT/LRT	BRT/LRT	Commuter Rail	BRT/LRT
Improves Community Connections and Mobility	—	—	—	—	—	—
Compatible with Local Land Use and Transportation Plans	—	—	—	—	—	—
Provides Access to Activity	✓	✓	—	—	—	✓
Interfaces with Major Potential Cost Elements	✗	—	—	✗	—	—
Provides Economic Development Potential	✓	✓	—	—	—	—

✗ Lower — Moderate ✓ Higher

Revised Potential Alignments



The background features a detailed line drawing of a train station. A train is visible on the tracks, with its windows and doors clearly defined. The station platform and tracks extend into the distance, creating a sense of depth. The entire scene is rendered in a dark, muted color palette, with the word 'DISCUSSION' in white text overlaid in the center.

DISCUSSION

Alternative Analysis (AA) Process



1 DISCOVER

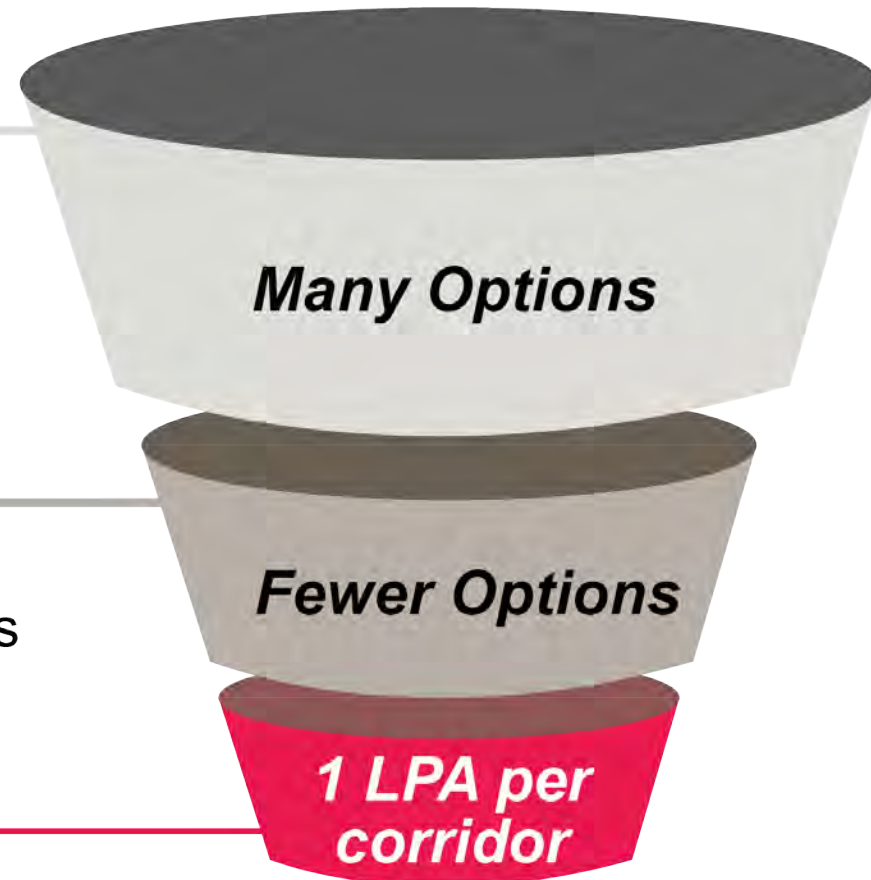
- Define all reasonable alternatives
- Screen against goals & objectives

2 REFINE

- Advance remaining alternatives
- Perform detailed technical analysis

3 SELECT

- Board consideration of LPA





Improves Connections

Connect Activity Centers

Provide Access to Limited Mobility Populations

Connect to Central OKC and Regional Destinations

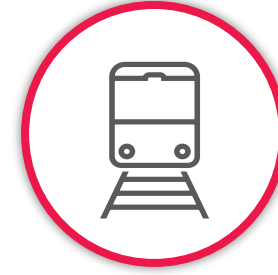


Economic Development

Land Use Compatibility

Population and Employment Density

Redevelopment



Service and System

Ridership Potential

Multimodal Connections

Reliability, Convenience, and Frequency



Feasibility

Capital and Operating Cost

Engineering Constraints

Environmental and Social Justice

Technical Working Group Update

- Technical Work Group (TWG) was briefed on the Screening Criteria and refined Universe of Alignments
- TWG is reviewing and providing feedback on:
 - Initial and Detailed Screening Criteria
 - Revised Potential Alignments
- Next meeting of the East Corridor TWG will be in December



NEXT STEPS

Technical Working Group - Work Plan



Oct
2021



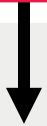
BOARD: ALTERNATIVES ANALYSIS UPDATE & ENGAGEMENT RESULTS



Nov
2021



TECHNICAL WORKING GROUP MEETING – REVIEW SCREENING



BOARD: ALTERNATIVES ANALYSIS UPDATE – REVIEW SCREENING

Dec
2021



TECHNICAL WORKING GROUP MEETING – REVIEW SCREENING



BOARD: ALTERNATIVES ANALYSIS UPDATE
REVIEW SCREENING; RECOMMENDATION FOR DETAILED ANALYSIS

FY 22
Q2/Q3



TECHNICAL WORKING GROUP MEETING – REVIEW DETAILED ANALYSIS

FY22
Q3



TECHNICAL WORKING GROUP MEETING – REVIEW ANALYSIS RESULTS

FY22
Q4



BOARD: RECOMMENDATION OF LOCALLY PREFERRED ALTERNATIVE

The background features a detailed line drawing of a train at a station. The train is positioned on tracks that recede into the distance. To the right of the tracks, there are several vertical support structures, possibly for a platform or overhead power lines. The entire scene is rendered in a light purple or lavender hue. A vertical white line runs down the left side of the image, separating a white area from the purple area. The text 'THANK YOU!' is centered in the purple area.

THANK YOU!