

# Alternatives Analysis Update



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

---

*December 14, 2022*


*Prepared by Kimley-Horn and Associates*



# Agenda

---

- Alternatives Analysis Technical Evaluation Recap
- East Corridor Considerations
- Policy Discussion
- Next Steps: Select Phase (Locally Preferred Alternative)
- 2023 Look-Ahead

The background features a grayscale line-art illustration of a train at a station platform. The train is positioned on tracks that recede into the distance. To the left of the train, there is a white line-art overlay of a platform edge and a circular feature, possibly a manhole or a small structure. The overall style is technical and architectural.

# ALTERNATIVES ANALYSIS UPDATE



# Alternative Analysis (AA) Process



## 1 DISCOVER

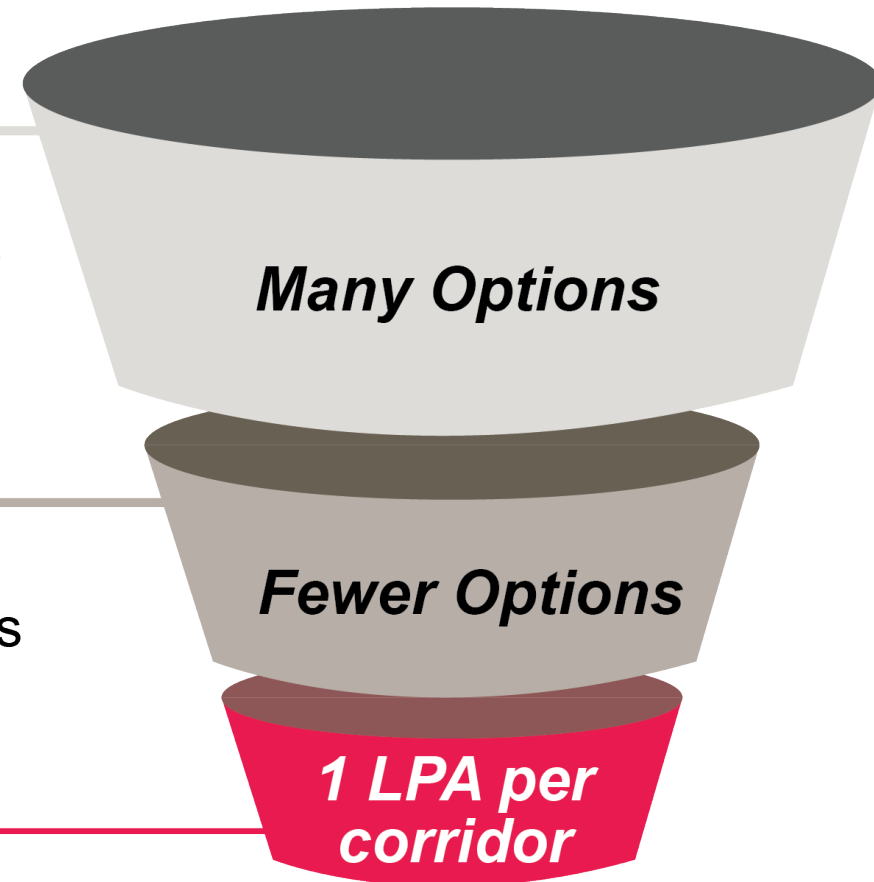
- Define all reasonable alternatives
- Screen against goals & objectives

## 2 REFINE

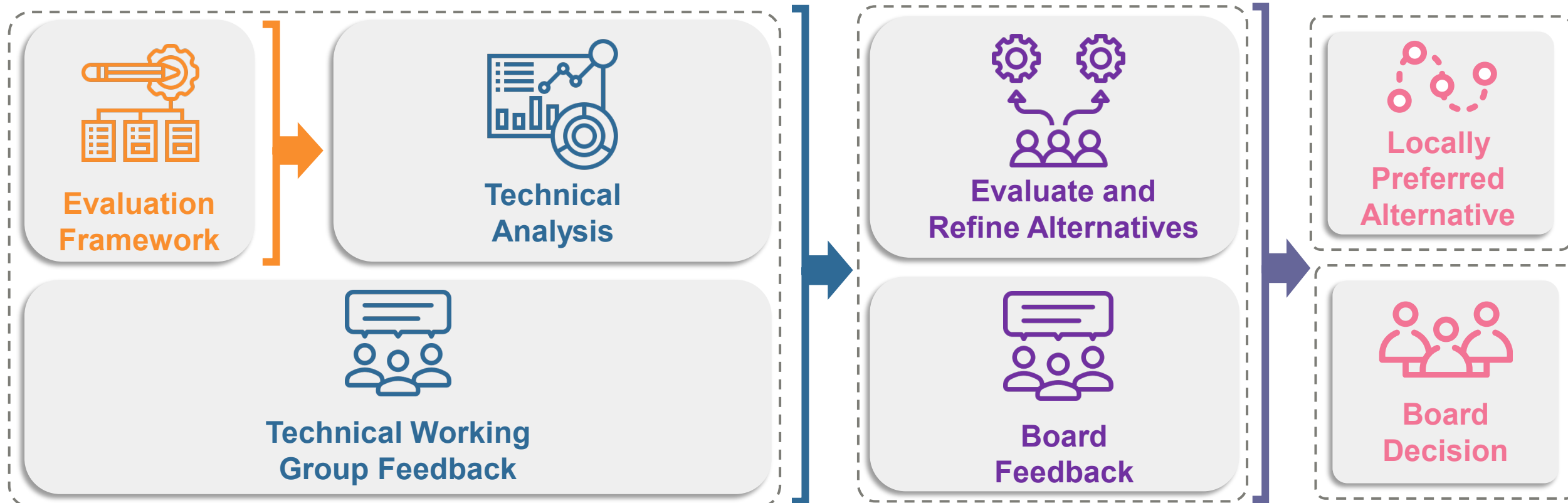
- Advance remaining alternatives
- Perform detailed technical analysis

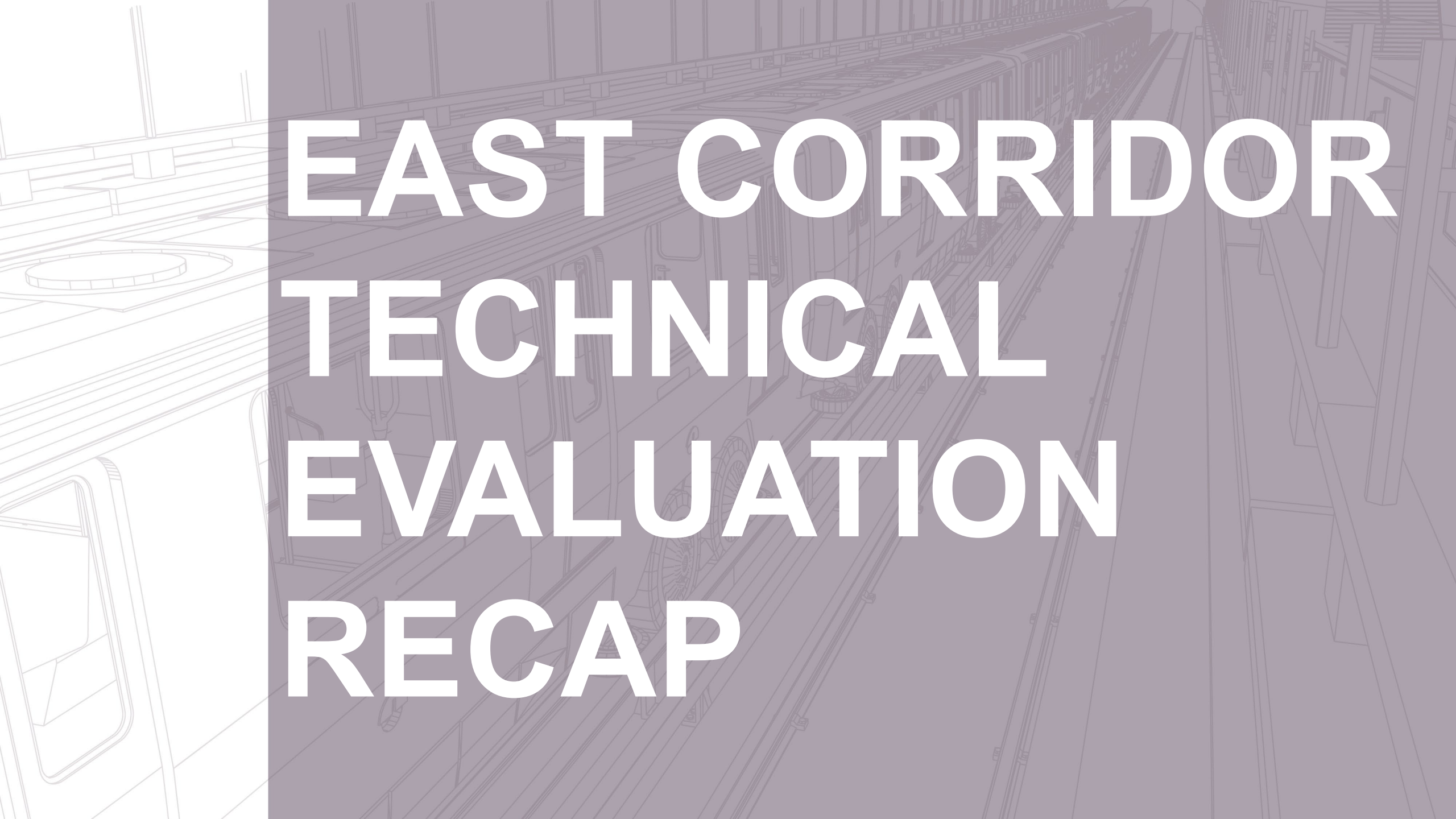
## 3 SELECT

- Board consideration of LPA



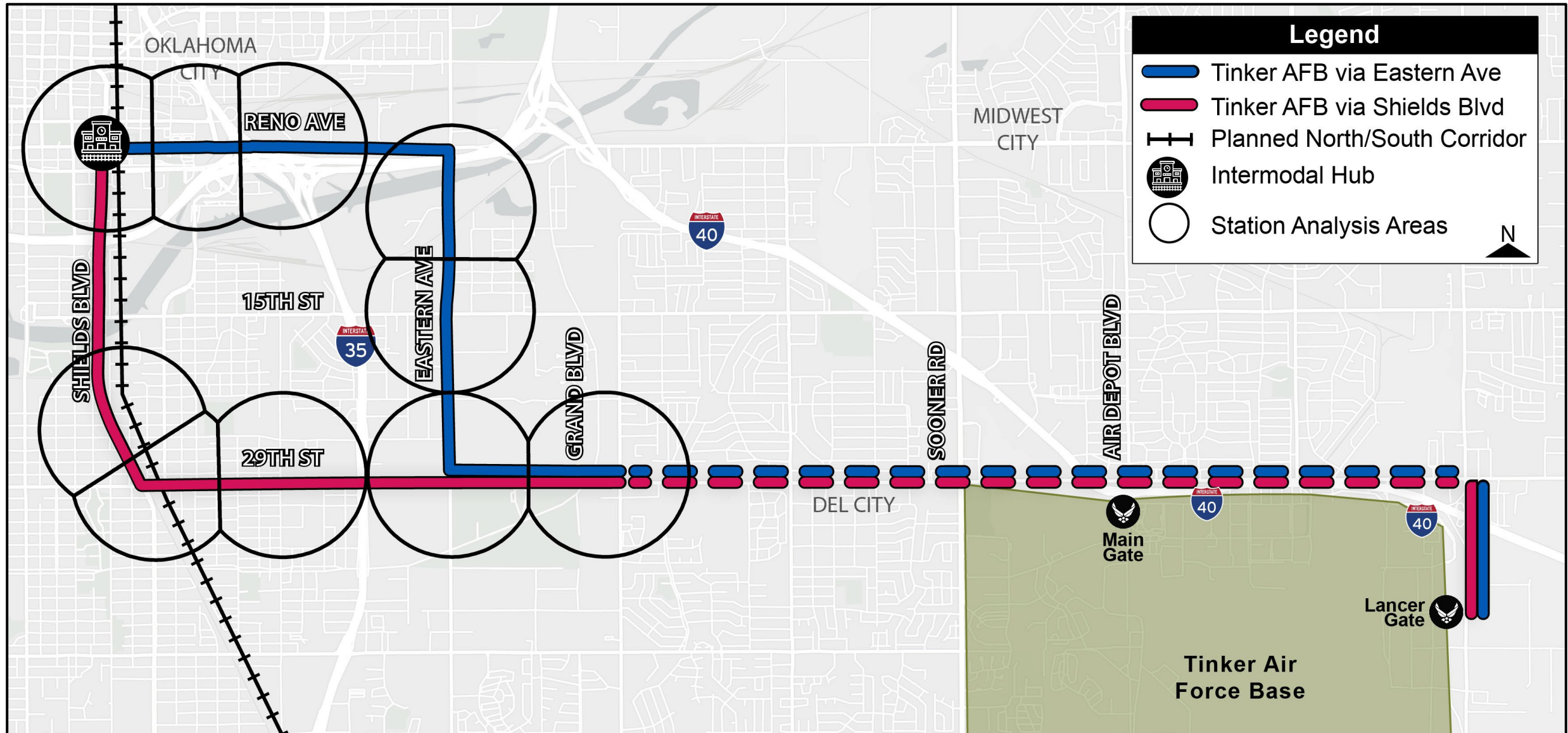
# Refine and Select Phase Process

























# EAST CORRIDOR TECHNICAL EVALUATION RECAP

# Alternatives for Technical Evaluation



	Reno – Eastern <i>Mixed-Traffic</i>	Reno – Eastern <i>Dedicated Guideway</i>	Shields – 29 <sup>th</sup> <i>Mixed-Traffic</i>	Shields – 29 <sup>th</sup> <i>Dedicated Guideway</i>
<div><p>Corridor Based Findings</p></div>	<div><p>Serves a diverse population</p></div> <div><p>Provides access to large future developments</p></div>	<div><p>Serves a diverse population</p></div> <div><p>Provides access to large future developments</p></div>	<div><p>Serves transit markets</p></div>	<div><p>Serves transit markets</p></div>
<div><p>Mode Based Findings</p></div>	<div><p>Is cost effective</p></div> <div><p>Minimize impact to adjacent properties</p></div> <div><p>Minimizes traffic operations impacts</p></div>	<div><p>Quick travel times</p></div> <div><p>Scalable service</p></div> <div><p>Prepares corridor for LRT conversion</p></div>	<div><p>Is cost effective</p></div> <div><p>Minimize impact to adjacent properties</p></div> <div><p>Minimizes traffic operations impacts</p></div>	<div><p>Quick travel times</p></div> <div><p>Scalable service</p></div> <div><p>Prepares corridor for LRT conversion</p></div>



# Transit System Plan Goals & Objectives

## Mobility & Connectivity

### Objective:

Increase regional transportation choices by connecting activity centers with high-capacity transit that is fast and reliable.



## Equity & Accessibility

### Objective:

Implement a safe and accessible system for all people that creates a community with options.



## Land Use & Economic Development

### Objective:

Develop a transit system that inspires economic development to promote growth in the region and national competitiveness.



## Sustainability & Viability

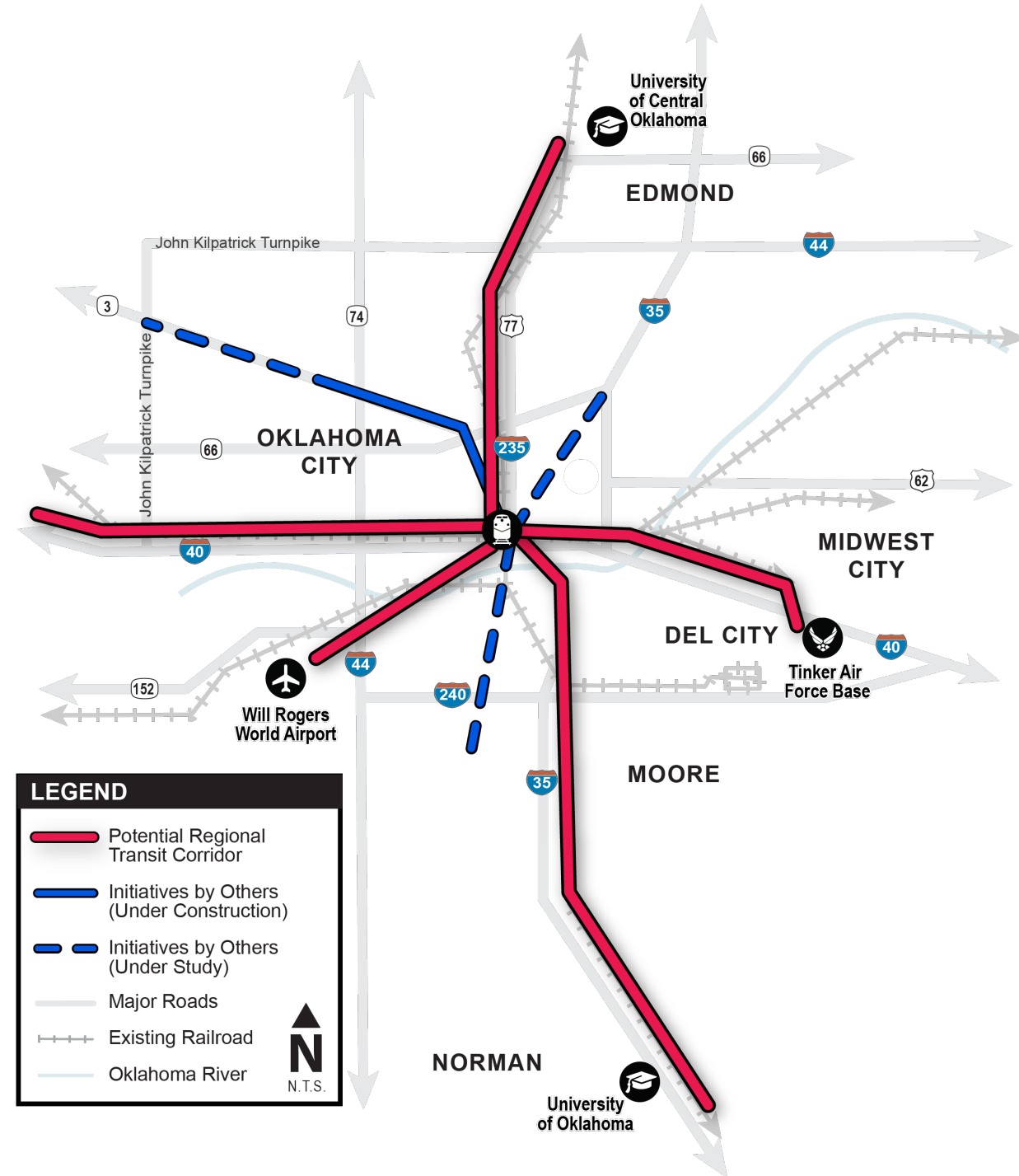
### Objective:


Provide a cost-effective and sustainable system that invests resources responsibly.



# Regional Transit Network

- RTA System Plan
  - 1 commuter rail corridor (N/S)
  - 3 modes undecided (East, West, Airport)
- Initiatives by MAPS 4/EMBARK
  - 3 BRT corridors



The background features a detailed line drawing of a train at a station platform. The train is composed of several connected cars, each with multiple windows and doors. It is positioned on tracks that recede into the distance. To the right of the train, there are vertical support structures for the platform. On the far left, a white vertical line separates a white area from a grey-shaded area where the rest of the illustration is located.

# EAST CORRIDOR CONSIDERATIONS

## Should this service prioritize:

**Competitive  
travel times to  
Tinker?**

**Significant  
access to local  
communities?**

**Meaningful  
economic  
development?**

**Cost  
effectiveness?**

### **Mobility & Connectivity**

**Objective:**

*Increase regional  
transportation choices by  
connecting activity centers  
with high-capacity transit  
that is fast and reliable.*

### **Equity & Accessibility**

**Objective:**

*Implement a safe and  
accessible system for all  
people that creates a  
community with options.*

### **Land Use & Economic Development**

**Objective:**

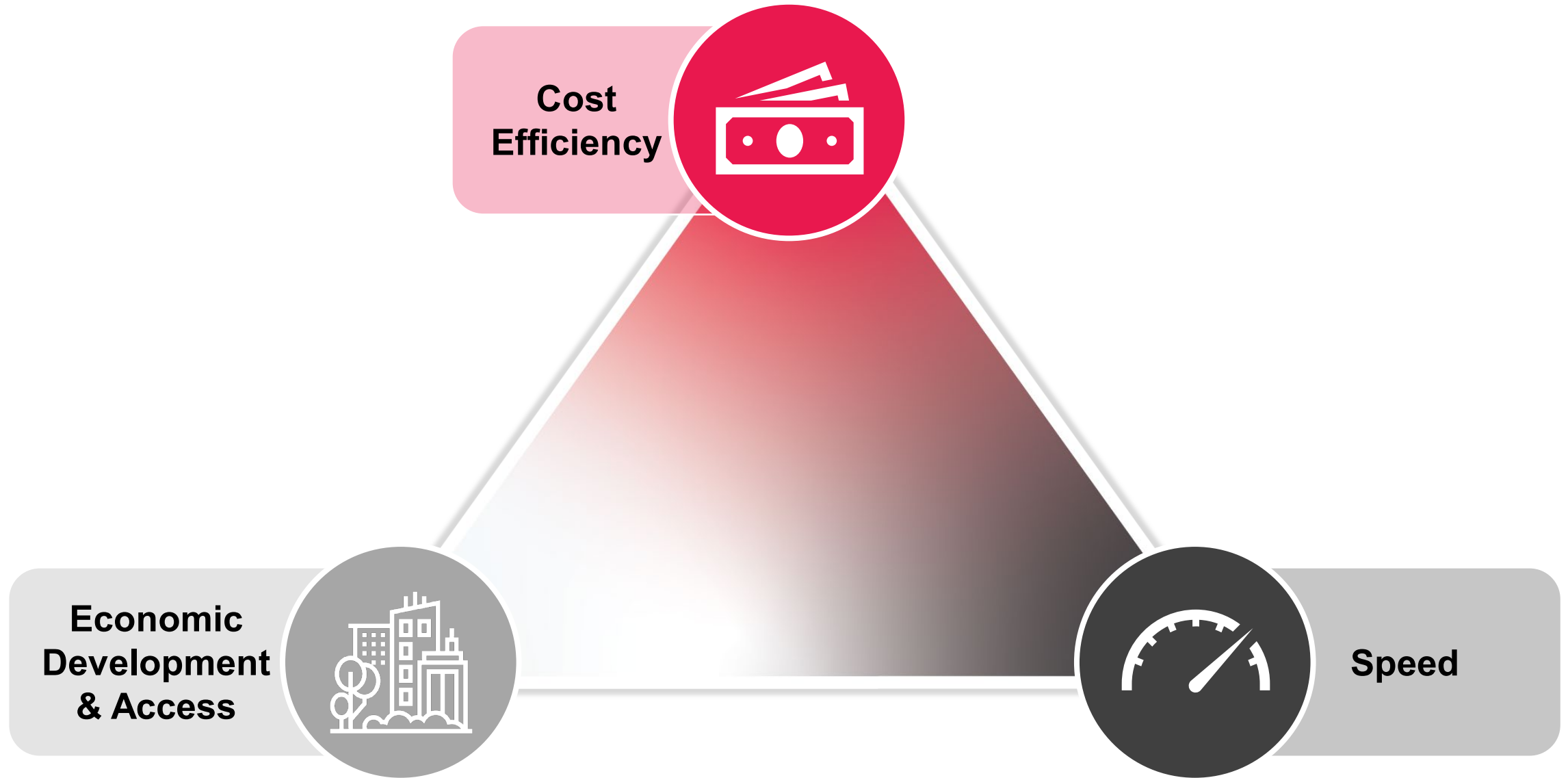
*Develop a transit system  
that inspires economic  
development to promote  
growth in the region and  
national competitiveness.*

### **Sustainability & Viability**

**Objective:**

*Provide a cost-effective and  
sustainable system that  
invests resources  
responsibly.*





## Mixed Traffic BRT



- ✓ ADA Accessibility at Stations

## Center-Running Dedicated Guideway BRT/LRT

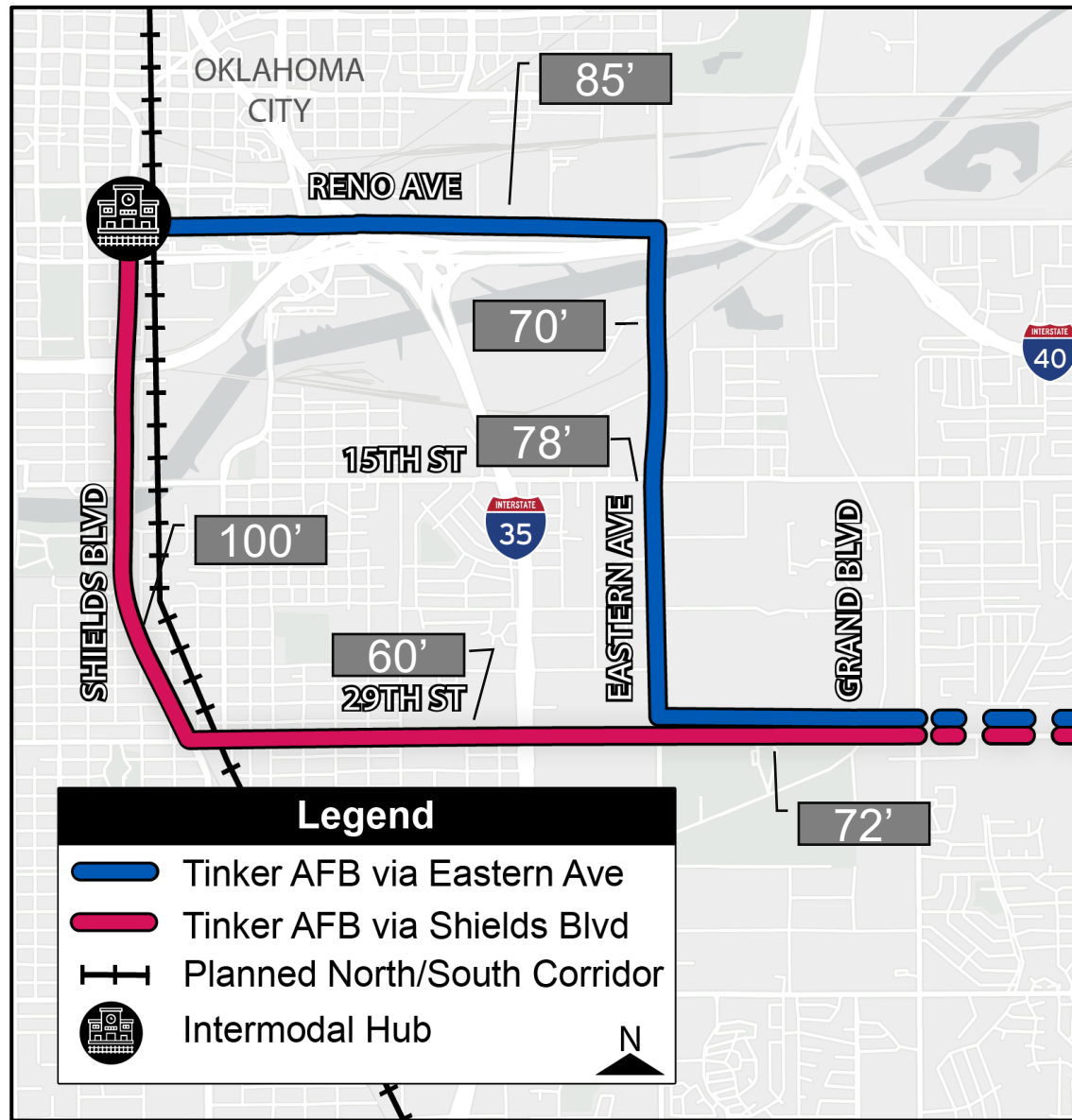


- ✓ ADA Accessibility at Stations
- ✓ Right of Way Feasibility
- ✓ Station Platform Feasibility



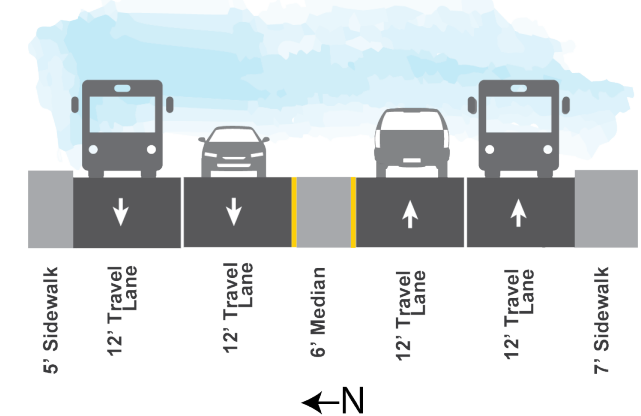
- ✓ ADA Accessibility at Stations
- ✓ Right of Way Feasibility
- ✓ Station Platform Feasibility
- ✓ Necessary Grade Separation
- ✓ Turn Radii

# Center-Running Guideway ROW Requirements

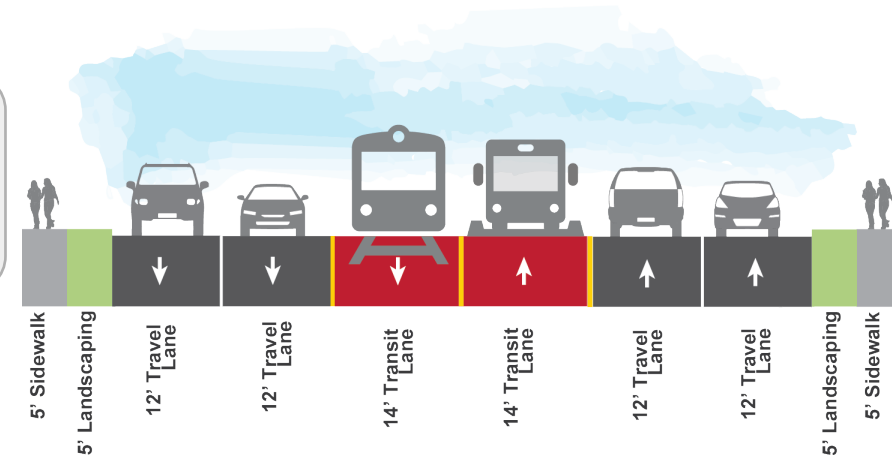


## Example: 29th Street between Shields and Central







Existing  
(Mixed-Traffic)  
66'




Center-Running  
Dedication  
96'+



# Capital Costs

Mode	Percent Dedicated Guideway	Average Capital Cost/Mile (2022 Dollars) <i>National Transit Database</i>	Peer Systems
<b>Bus Rapid Transit</b> <i>Mixed Traffic</i> 	< 50% Dedicated 	\$7 million \$ \$ \$	<i>ORBT</i> , Omaha <i>EMBARC</i> , OKC <i>CapMetro</i> , Austin <i>UTA</i> , Salt Lake City
<b>Bus Rapid Transit</b> <i>Dedicated Guideway</i> 	> 50% Dedicated 	\$47 million \$ \$ \$	<i>PRT</i> , Pittsburgh <i>IndyGO</i> , Indianapolis
<b>Light Rail Transit</b> 	100% Dedicated 	\$105 million \$ \$ \$	<i>DART</i> , Dallas <i>CapMetro</i> , Austin <i>RTD</i> , Denver <i>Valley Metro</i> , Phoenix



The background is a detailed line drawing of a train station. A train is stopped at the platform, and the tracks recede into the distance. The drawing is in a light, sketchy style. Overlaid on the right side of the image is a semi-transparent purple rectangle. The text 'ADDITIONAL OPTIONS' is written in large, white, bold, sans-serif capital letters across the center of this rectangle.

# ADDITIONAL OPTIONS

## Mixed-Traffic BRT



Lanes that are used by both buses and regular traffic

## Center Running Dedicated Guideway BRT/LRT



Transit-only lanes, physically separated along the road median with median stops



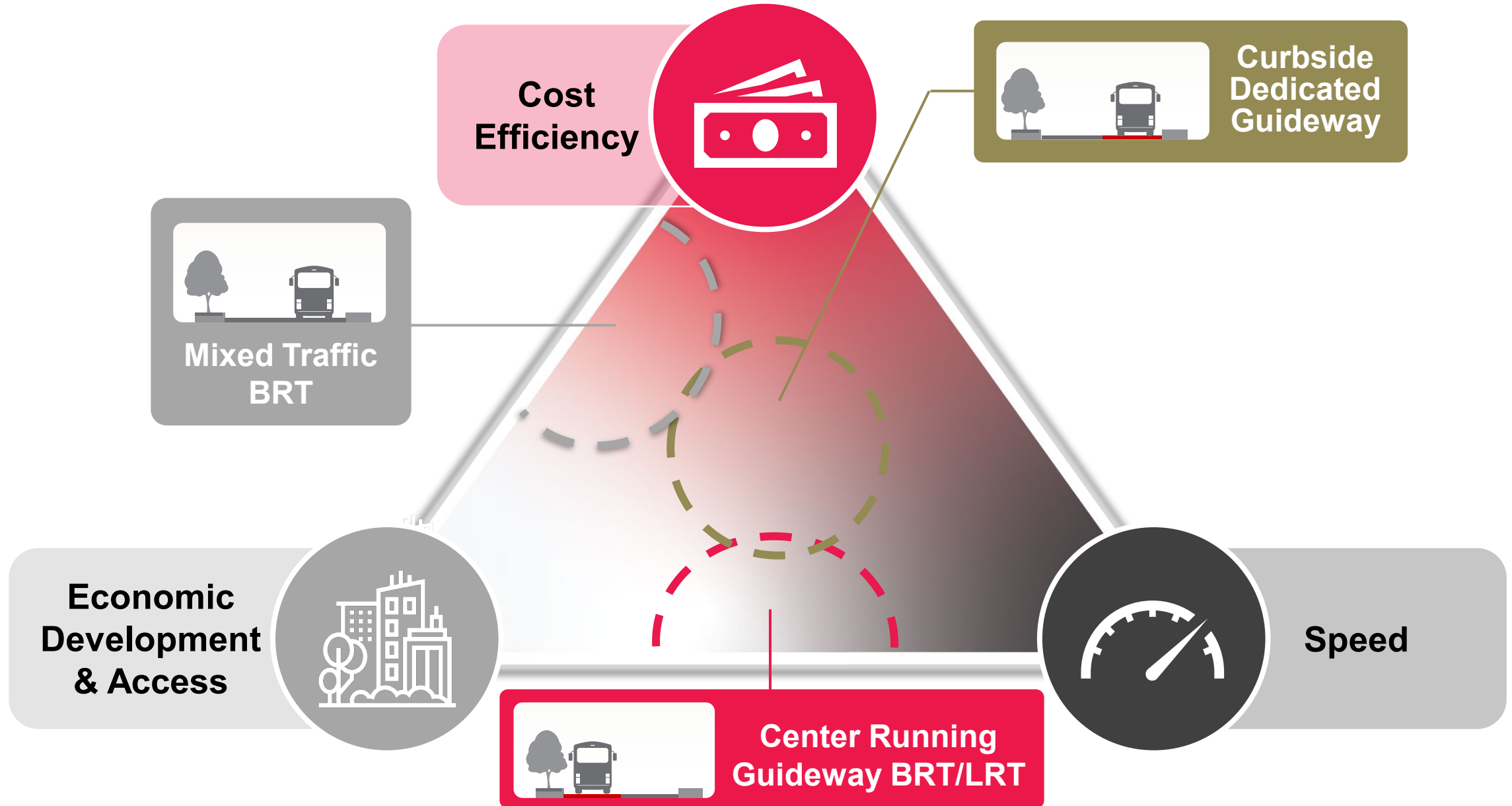
## Curbside Dedicated Guideway BRT



Bus-only lanes, possibly physically separated along the curb

# Transit Operating Tradeoffs

RTA





The background is a detailed line drawing of a train station. A train is stopped at the platform, with its doors open. The drawing is in a light purple or grey tone. Overlaid on the center of the image is the text "SYSTEM COSTS" in a large, white, bold, sans-serif font.

# SYSTEM COSTS



# System Cost Components

RTA

## CAPITAL COSTS, FINANCING, AND FEES



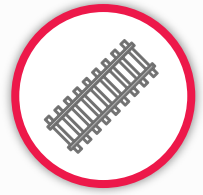
**Equipment and  
Facilities**



**Financing**



**Infrastructure**



**Access Fees &  
ROW Acquisition**

## OPERATIONS AND MAINTENANCE COSTS



**Station  
Maintenance**



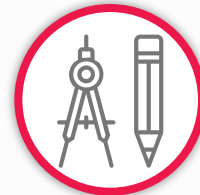
**Transportation  
Operations**



**Equipment  
Maintenance**



**Maintenance of  
Right-of-Way**



**General and  
Administrative**

# System Wide Cost Estimates (2022 USD)

RTA Identified Corridor	Mode	Capital Cost Estimate	Operations and Maintenance Cost** (Initial estimates)
North-South Corridor	Commuter Rail	TBD*	At least \$10M/year
East Corridor	Mixed Traffic BRT OR Center-Running Dedicated Guideway BRT/LRT	~\$7M to \$105M/mile (Based on peers)	~\$3M-\$6M/year
West Corridor	TBD	TBD	TBD
Airport Corridor	TBD	TBD	TBD
Total		\$	\$

*\*N/S Capital Cost Estimate is in development*

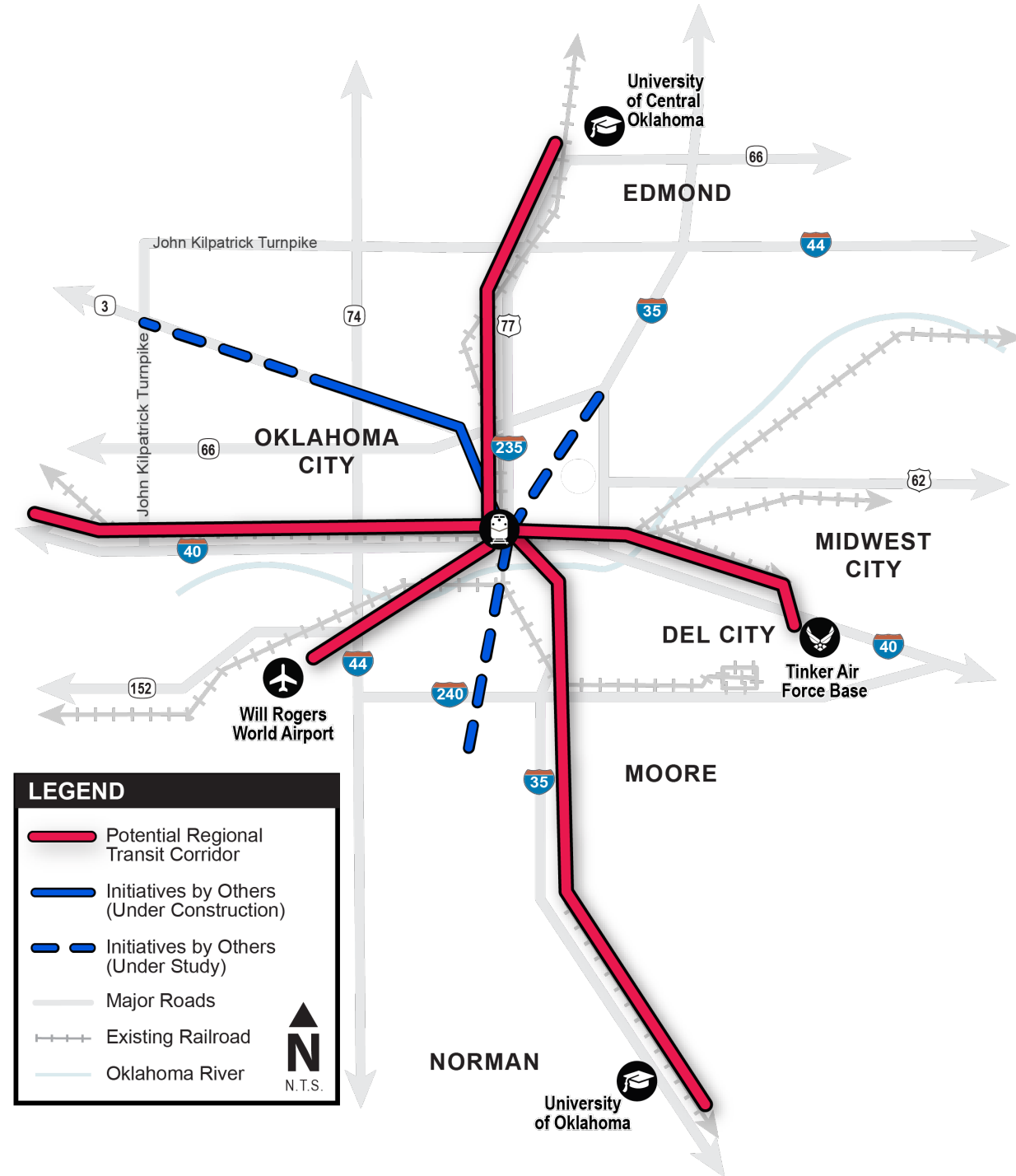
*\*\*Not including necessary financing costs*

## Program of Projects Approach

Agency	Grant	Process Type
FTA	New Starts	Capital Investment Grants – Multi-year project development
	Small Starts	
	Grants for Buses and Bus Facilities Formula Program	Yearly grant funding
USDOT	Rebuilding American Infrastructure with Sustainability and Equity (RAISE)	One-time grant funding Competitive applications
	National Infrastructure Project Assistance Program (MEGA)	
	Nationally Significant Multimodal Freight & Highway Projects (INFRA)	
	Reconnecting Communities Pilot Program (RCP)	
FHWA	Surface Transportation Block Grant (STBG)	One-Time Grant Funding
	Congestion Management and Air Quality Improvement Program (CMAQ)	

# Regional Transit Network

- RTA System Plan
  - 1 commuter rail corridor (N/S)
  - 3 modes undecided (East, West, Airport)
- Initiatives by MAPS 4/EMBARK
  - 3 BRT corridors





## Should this service prioritize:

**Competitive  
travel times to  
Tinker?**

**Significant  
access to local  
communities?**

**Meaningful  
economic  
development?**

**Cost  
effectiveness?**

### **Mobility & Connectivity**

**Objective:**

*Increase regional  
transportation choices by  
connecting activity centers  
with high-capacity transit  
that is fast and reliable.*

### **Equity & Accessibility**

**Objective:**

*Implement a safe and  
accessible system for all  
people that creates a  
community with options.*

### **Land Use & Economic Development**

**Objective:**

*Develop a transit system  
that inspires economic  
development to promote  
growth in the region and  
national competitiveness.*

### **Sustainability & Viability**

**Objective:**

*Provide a cost-effective and  
sustainable system that  
invests resources  
responsibly.*

# TWG Meeting Summary

---



## Considering system-wide connections

*Including development opportunities, transfers to the North/South Corridor, and to the Greyhound bus station*



## Evaluating how the RTA serves Tinker AFB

*Including peak commute hours and connections to the Lancer Gate on the East Side*





# POLICY DISCUSSION

The background features a perspective view of a train on tracks, receding into the distance. A semi-transparent purple vertical band covers the right portion of the image. Overlaid on the left side is a white line-art technical drawing of a train car, showing details like windows, doors, and roof-mounted equipment.

**NEXT STEPS:  
SELECT PHASE (LPA)**



# What is a Locally Preferred Alternative?

---

*Community's preferred mode and alignment that meets identified goals and objectives*

## LPA identifies:

- ✓ General service plan
- ✓ General station locations
- ✓ Planning level cost and ridership estimates

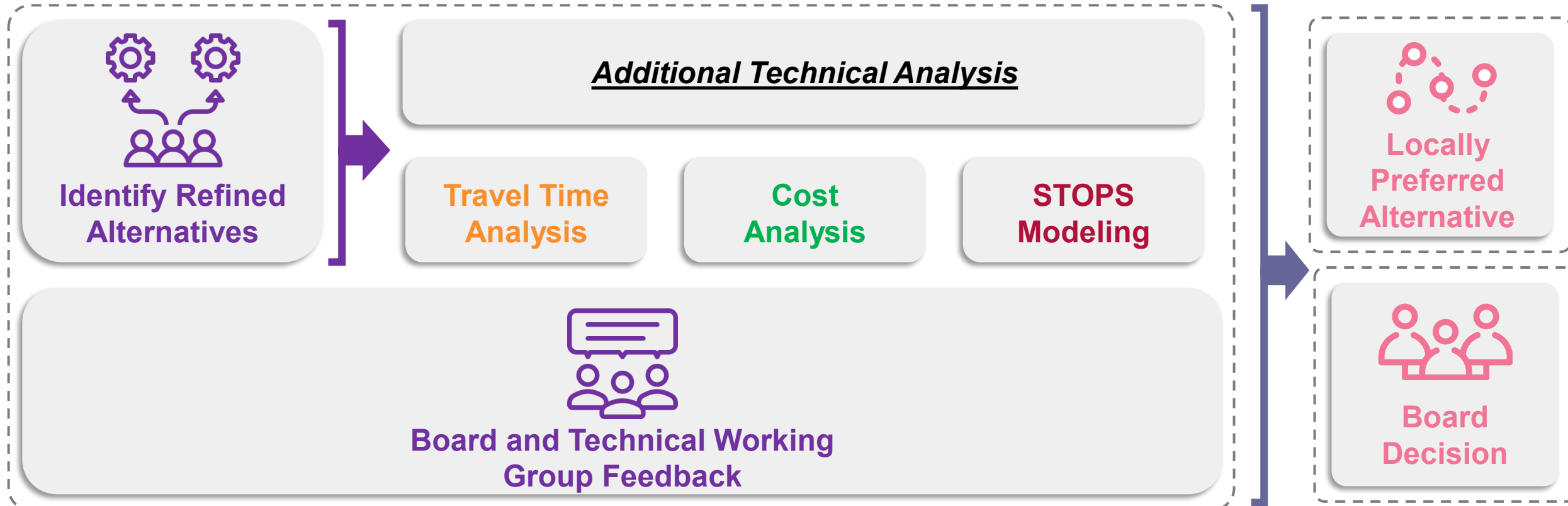
## LPA does not:

- ✓ Result in a fully designed system
- ✓ Preclude modifications to alignments, modes, and stations

# Refine and Select Phase Process



*We are here!*



The background features a detailed line-art illustration of a train station. A train is positioned on the tracks, moving towards the right. The station has a high ceiling with visible structural beams and tracks. On the left side, there is a white line-art overlay that partially obscures the main illustration, showing a close-up of a train's side and a platform area.

# NEXT STEPS

## North-South Corridor



Continued discussions  
with BNSF



Identify Operations and  
Maintenance Facility Locations



Ridership Modeling



Analyze Station Locations

## East Corridor



Travel Time Analysis



Cost Estimating



Ridership Modeling



Analyze Station Locations



Federal Transit  
Administration

Prepare for FTA Process