

# + UTA Future of Light Rail Study Phase 2 Scenario Development Workshop



August 31, 2021

Future of Light Rail Study





# Overview - Study Goals

- Grow ridership
- Define appropriate span and frequency of service for current and projected demand
- Recommend necessary fleet modifications and facility needs
- Recommend projects that improve speed, reliability and safety of existing system
- Refine and define LRT expansion proposals or concepts



# Purpose of Today's Workshop

- In support of the concluding phase of the Future of Light Rail Study, identify four future scenarios for study of ridership, operations, capital and operating cost, project impacts
- These scenarios may have common elements but should be broadly diverse in terms of emphasizing study goals -- growing ridership, defining service levels for current and projected demand, selecting projects that best improve speed and reliability, refining LRT expansions
- Results of the analysis of the four scenarios will be used to “mix and match” improvements to develop the 5<sup>th</sup> scenario, which then forms the basis of the UTA Light Rail Strategic Plan



# Scenarios Workshop Agenda

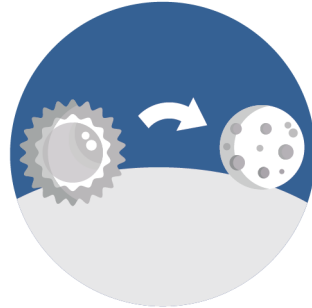
- 8:45 AM – 9:00 AM: Coffee and Bagels
- 9:00 AM – 9:15 AM: Welcome and Overview
- 9:15 AM – 9:30 AM: Introduction to Activity #1 - Identifying Goals for Scenarios
- 9:30 AM – 10:15 AM: Activity #1
- 10:15 AM – 10:30 AM: Break
- 10:30 AM – 10:45 AM: Introduction to Activity #2 - Create Scenarios Reflecting Prioritized Goals
- 10:45 AM – 11:30 AM: Activity #2 – Create Scenarios Reflecting Prioritized Goals
- 11:30 AM – 11:55 AM: Report Back
- 11:55 AM – 12:00 PM: Wrap Up

# Potential Goals of Long List Improvements

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ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



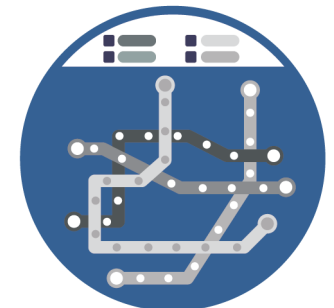
IMPROVED TRAVEL TIME



INCREASED EFFICIENCY



MORE ACCESS TO JOBS, SERVICES, & HOUSING



SERVES NEW MARKETS

# Potential Benefits of Long List Improvements

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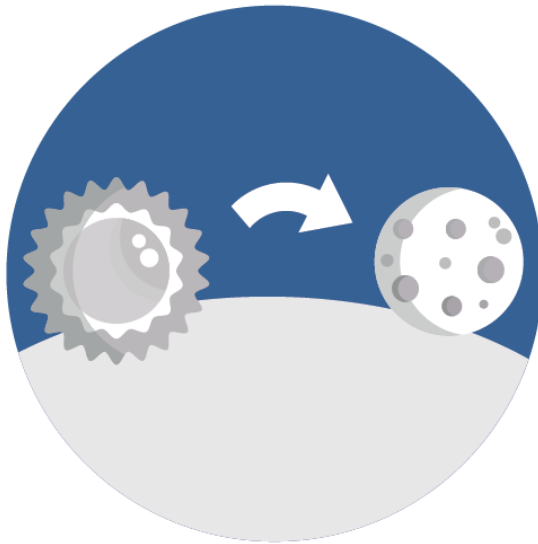


**ECONOMIC  
DEVELOPMENT**

Spurs growth in the region through real estate development, launch of new businesses, creation of new jobs, enhanced competitiveness versus other regions

# Potential Benefits of Long List Improvements

Future of Light Rail Study



**GREATER  
SERVICE SPAN**

Light rail service that starts earlier in the morning and/or ends later at night, providing greater mobility for shift workers and greater flexibility for discretionary riders attending sporting events, entertainment and cultural events

# Potential Benefits of Long List Improvements

Future of Light Rail Study



IMPROVED  
FREQUENCY

Light rail service that operates more often, requiring shorter waits on average



# Potential Benefits of Long List Improvements

Future of Light Rail Study



**IMPROVED  
RELIABILITY**

Light rail service that operates closer to schedule, meaning that waiting times and connections between lines or to buses/FrontRunner are more predictable

# Potential Benefits of Long List Improvements

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**IMPROVED  
TRAVEL TIME**

Shorter trip duration from origin to destination on light rail, achieved through speed improvements, delay reductions, more direct routing and/or elimination of required transfers

# Potential Benefits of Long List Improvements

Future of Light Rail Study



**INCREASED  
EFFICIENCY**

Changes to the way light rail service is delivered so that the cost per rider served goes down

# Potential Benefits of Long List Improvements

Future of Light Rail Study

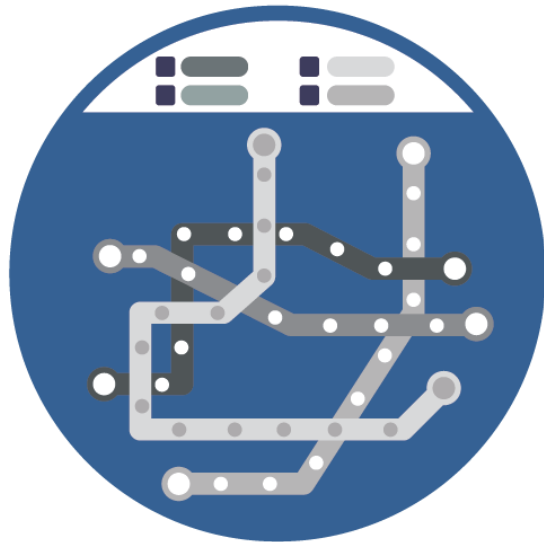


**MORE ACCESS TO  
JOBS, SERVICES, &  
HOUSING**

Enhanced ability to provide competitive travel times via light rail (and connections to/from other modes if needed) to reach employers, residences, medical providers, social service agencies and other destinations (geographic expansion covered separately)

# Potential Benefits of Long List Improvements

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**SERVES  
NEW MARKETS**

Light rail service offered for the first time to new neighborhoods/activity centers in the region, as well as new “one seat ride” service that replaces existing service requiring a transfer

# Activity #1 – Determine How Scenarios Should be Organized



- What do we want to make sure that we achieve with a future LRT system?
- We are looking for 4 scenarios with contrasts in the types of benefits they provide

# Activity #1 – Determine How Scenarios Should be Organized

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- Breakout groups will discuss which 4 of the 8 goals are most important
- Identify them in order of priority
- Each group will report back on what they prioritized



# Activity #1





# Activity #2 – Create Scenarios Reflecting Prioritized Goals

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- Purpose: create four broadly contrasting scenarios that reflect the multiple priorities and goals identified by Activity #1.
- Scenarios reflect improvements identified during Phase 1 of the Study
- Some improvements are complementary, some are mutually exclusive
- Some improvements may end up in all 4 Scenarios.

# Activity #2 – Create Scenarios Reflecting Prioritized Goals

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- Breakout group membership different than Activity #1
- Each Table will focus on one goal, adding secondary goals as appropriate
  - More Access to Jobs, Services & Housing
  - Improved Travel Time
  - Improved Frequency
  - Greater Service Span
- Packets on each table will help you identify which improvements provide benefits for which study goals
- Scenarios are cost-constrained – please limit your scenario to 15 dollars



# Types of Long List Improvements

- Capital improvements on existing TRAX (CAP)
- Light Rail service changes (SVC)
- Light rail and streetcar extensions (EXT)
- Intersection priority changes (INT)
- Fleet upgrades and replacements (Not Considered Today)

# Capital Improvements (On Existing TRAX)

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# CAP-1

## Trunk Line Curve Speed Improvements

APPROXIMATE CAPITAL COST **\$\$\$\$\$**

### DESCRIPTION

Upgrade Draper-Ballpark from 55 MPH to 65 MPH where feasible, requires replacement of oldest TRAX fleet to accrue full benefits.

### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



INCREASED EFFICIENCY

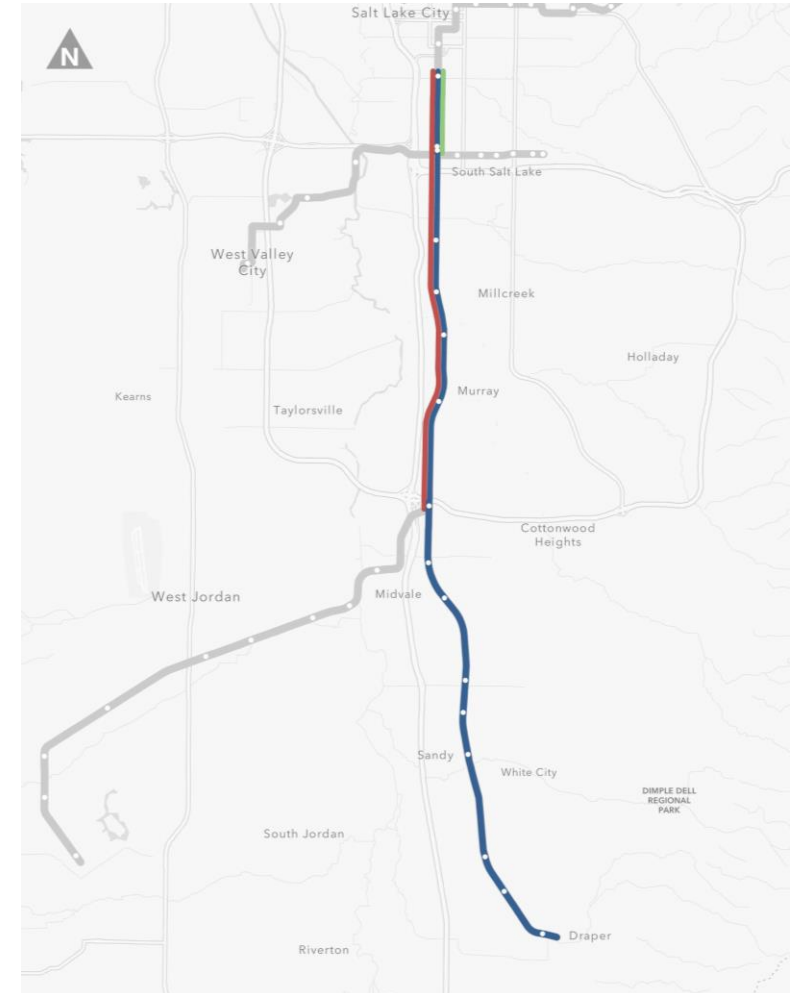


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# Light Rail Service Changes

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# SVC-1

## All-night Green Line Service to Airport



APPROXIMATE CAPITAL COST \$\$\$\$\$

### DESCRIPTION

Would provide 24-hour service between West Valley, Downtown and Airport

- Would support early morning/late night travelers as well as first and third shift workers.
- Would require “buy out” to relocate rail freight service of one customer just north of Central Pointe Station

### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



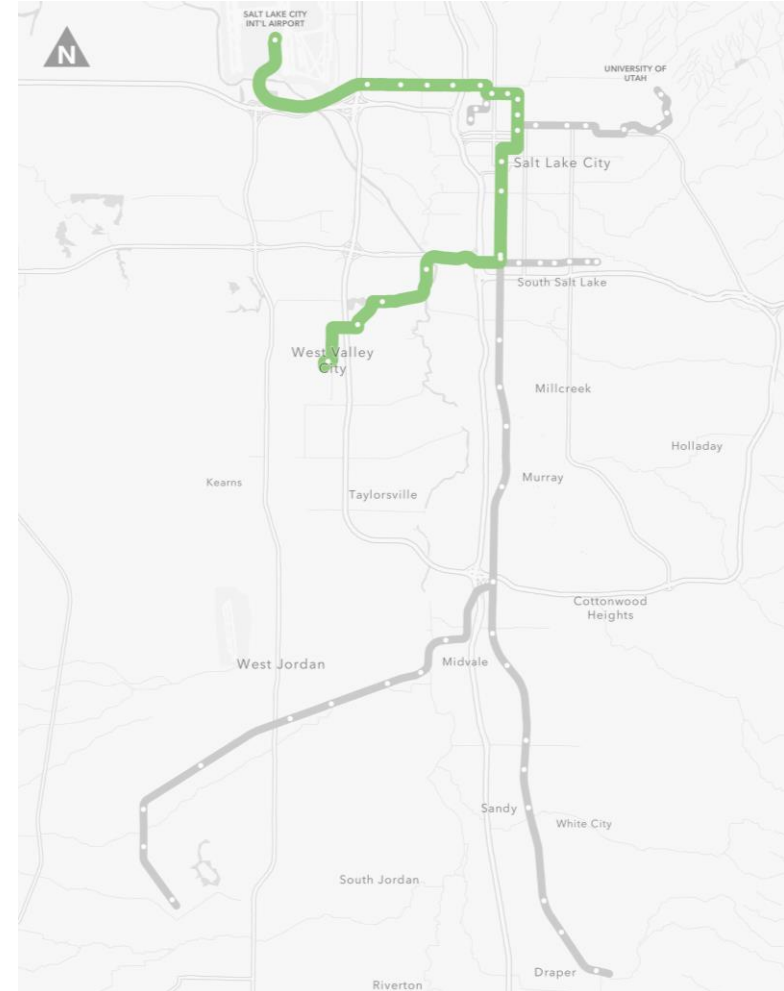
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SERVES NEW MARKETS



# SVC-2

Operate all TRAX Lines Later in Evening and/or Start Earlier in Morning



APPROXIMATE CAPITAL COST **\$\$\$\$\$**

### DESCRIPTION

Requires negotiation with freight railroads using UTA tracks to reduce allowed time for freight service, providing that time to TRAX operation.

- Could apply to full TRAX network except for Red Line, Fashion Place West to Daybreak (too much freight activity there for any change)

### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



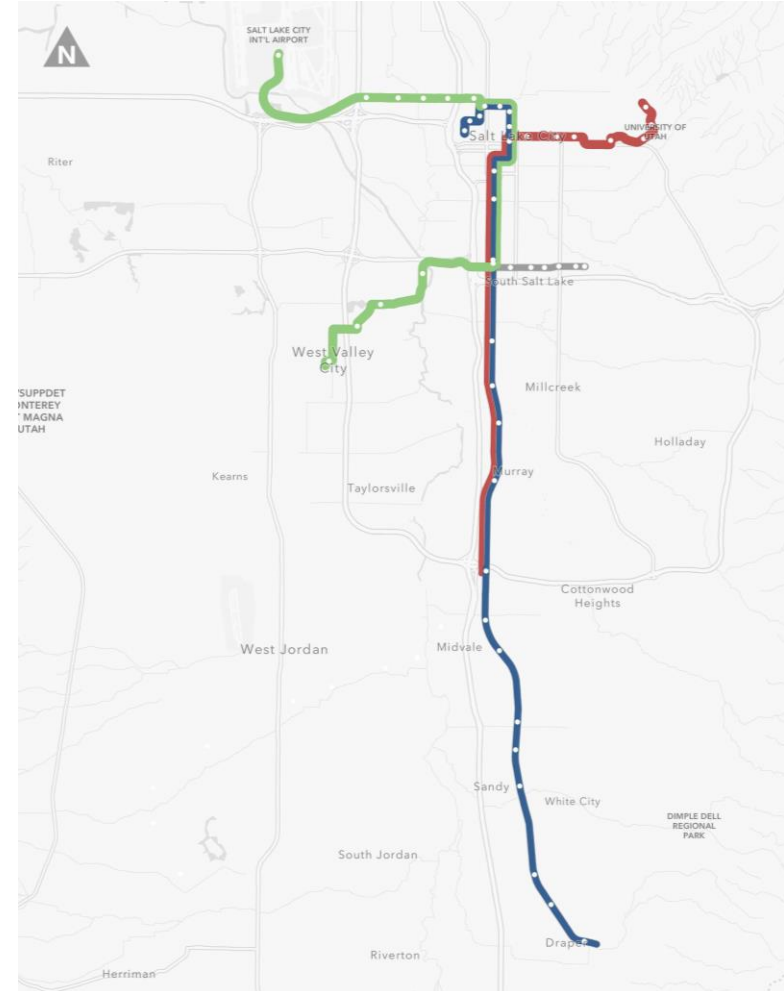
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# SVC-3

Improve Branch Headways from 15 Minutes to 12 Minutes

APPROXIMATE CAPITAL COST **\$\$\$\$\$**

## DESCRIPTION

25% increase in service all day long,

- Phase 1 Study found signal system can support this
- Separate UTA Study found that traction power upgrades required
- Requires additional fleet

## BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



INCREASED EFFICIENCY

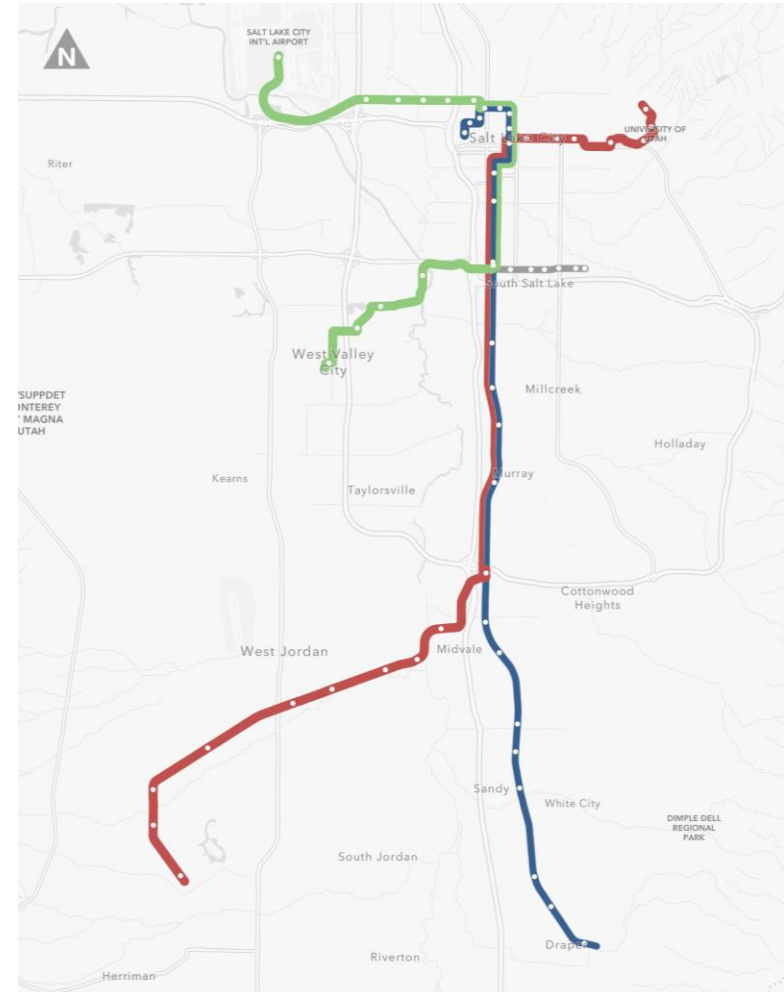


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# SVC-4

## New Direct Service, University to Salt Lake Central



APPROXIMATE CAPITAL COST **\$\$\$\$\$**

### DESCRIPTION

Would provide direct (“one seat ride”) service between University and Salt Lake Central, eliminating need to transfer and reducing trip times. Requires additional fleet.

### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



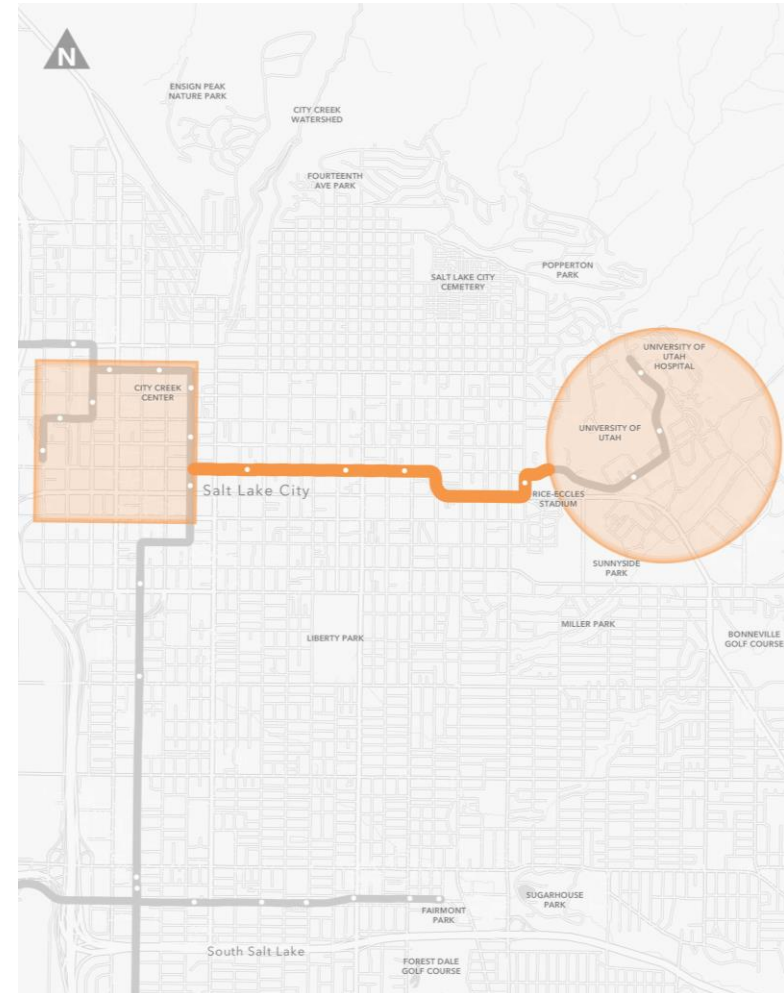
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# SVC-5

## New Direct Service, University to Salt Lake City International Airport



### DESCRIPTION

Would provide direct (“one seat ride”) service between University and the Airport, eliminating need to transfer and reducing trip times. Could be achieved through a new service or by rerouting existing service. Requires additional fleet.

APPROXIMATE CAPITAL COST

\$\$\$\$\$ REROUTE

\$\$\$\$\$ NEW

### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



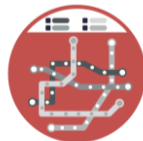
IMPROVED TRAVEL TIME



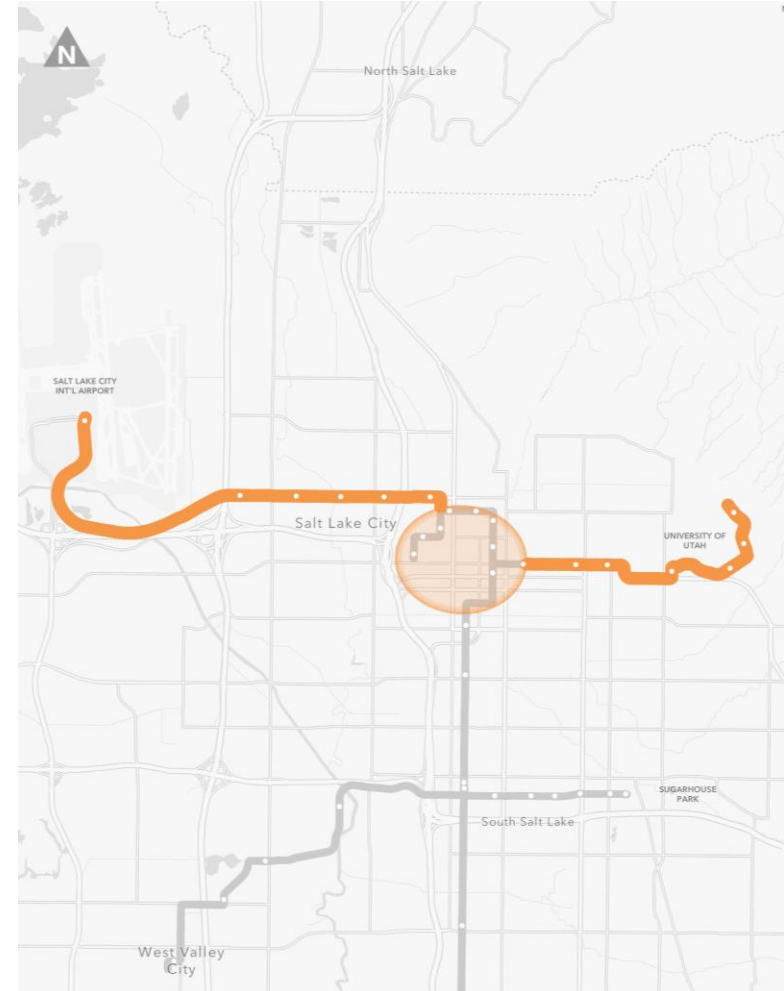
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# Intersection Priority Changes

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## INT-1

### Intersection Priorities - Modest Improvements

APPROXIMATE CAPITAL COST \$\$\$\$\$

#### DESCRIPTION

Additional Salt Lake City and UDOT intersection changes to improve Light Rail priority identified by UTA Light Rail Business Unit, likely to be acceptable even though it may cause additional vehicle delay at these intersections.

#### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



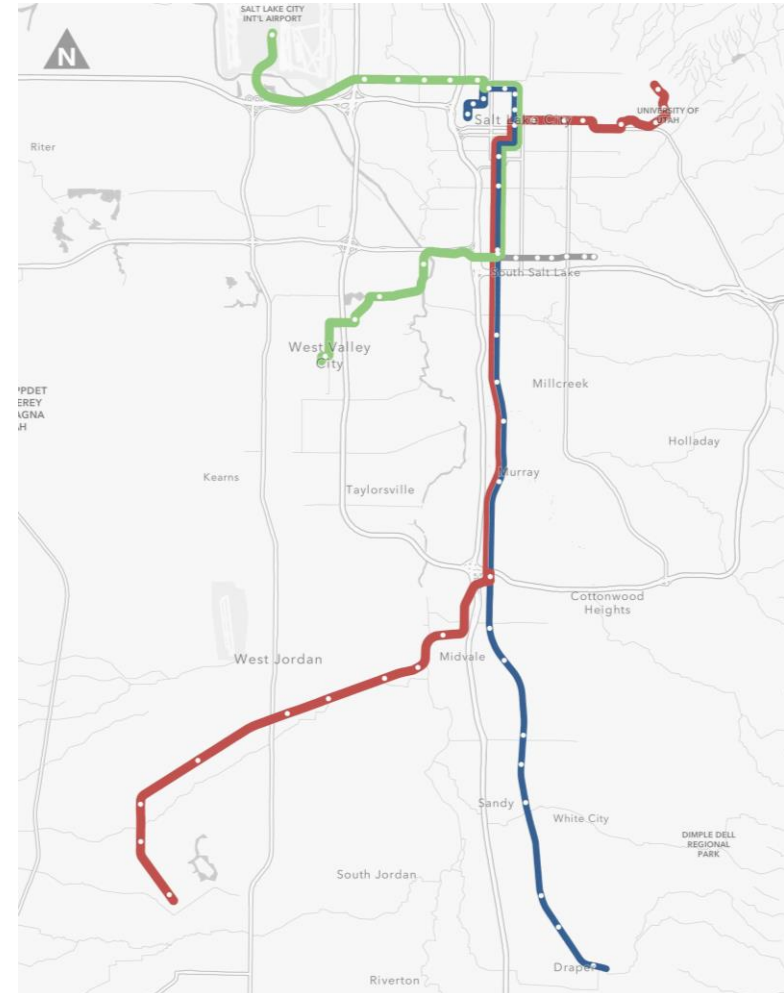
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# INT-2

## Intersection Priorities - Medium Improvements

APPROXIMATE CAPITAL COST **\$\$\$\$\$**

### DESCRIPTION

Salt Lake City and UDOT intersection changes to improve Light Rail priority identified by UTA Light Rail Business Unit, may not be acceptable because of the amount of delay it may add to vehicles at these intersections.

### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



INCREASED EFFICIENCY

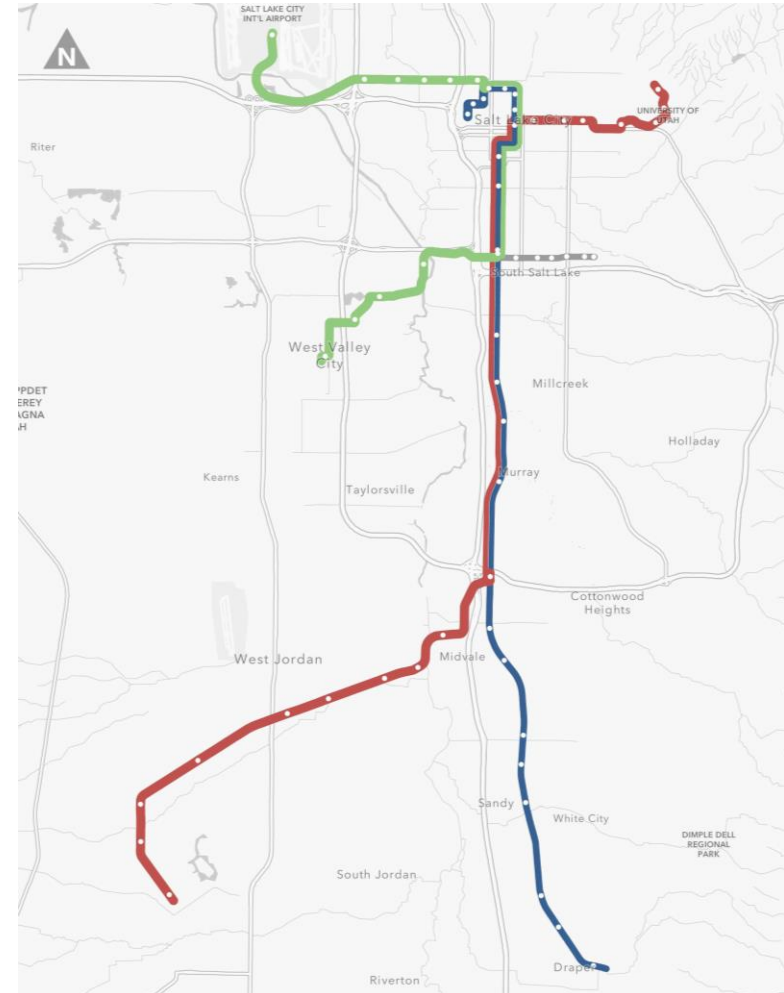


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# INT-3

## Intersection Priorities - Extensive Improvements

APPROXIMATE CAPITAL COST **\$\$\$\$\$**

### DESCRIPTION

Salt Lake City and UDOT intersection changes to improve Light Rail priority, likely not acceptable because of the amount of delay it may add to vehicles at these intersections.

### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



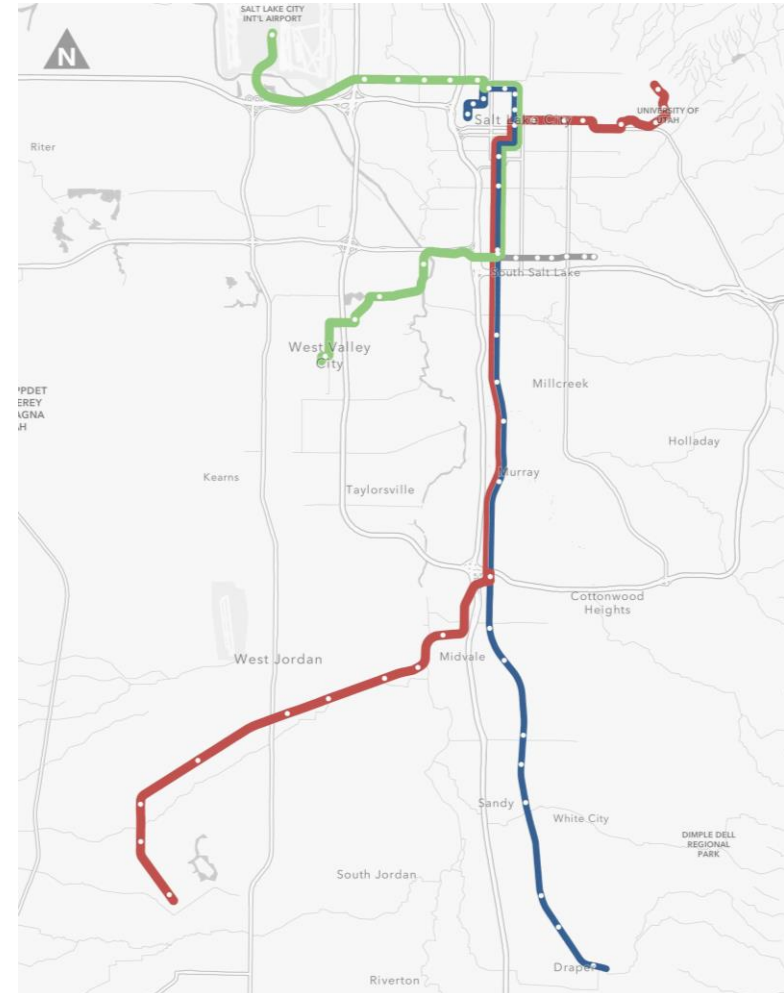
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# Light Rail and Streetcar Extensions

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# EXT-1

## Connection to Depot / Salt Lake Central

APPROXIMATE CAPITAL COST **\$\$\$\$\$**

### DESCRIPTION

Extend rail line from 400 South to connect with Salt Lake Central station.

### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



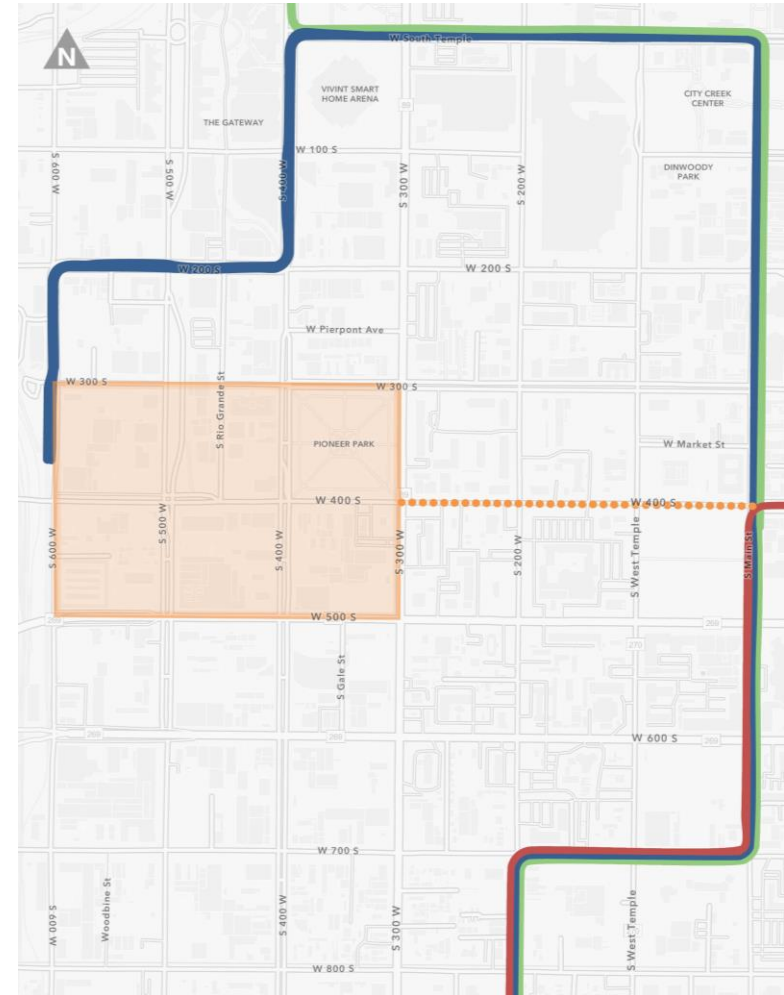
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## EXT-2

### Granary District Along 400 West to 900 South

APPROXIMATE CAPITAL COST **\$\$\$\$\$**

#### DESCRIPTION

Provide an extension through the Granary District. The Downtown Salt Lake City Rail Extension & Connections Feasibility Study included multiple alignment alternatives. One of the current lines would diverge from the existing alignment just north of the Ballpark Station using abandoned railroad right-of-way to 400 West. It would then proceed north along 400 West. Depending on exact alignments, this could either provide a direct connection to Salt Lake Central station or proceed north or east, requiring a short walk for riders to Salt Lake Central station.

#### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



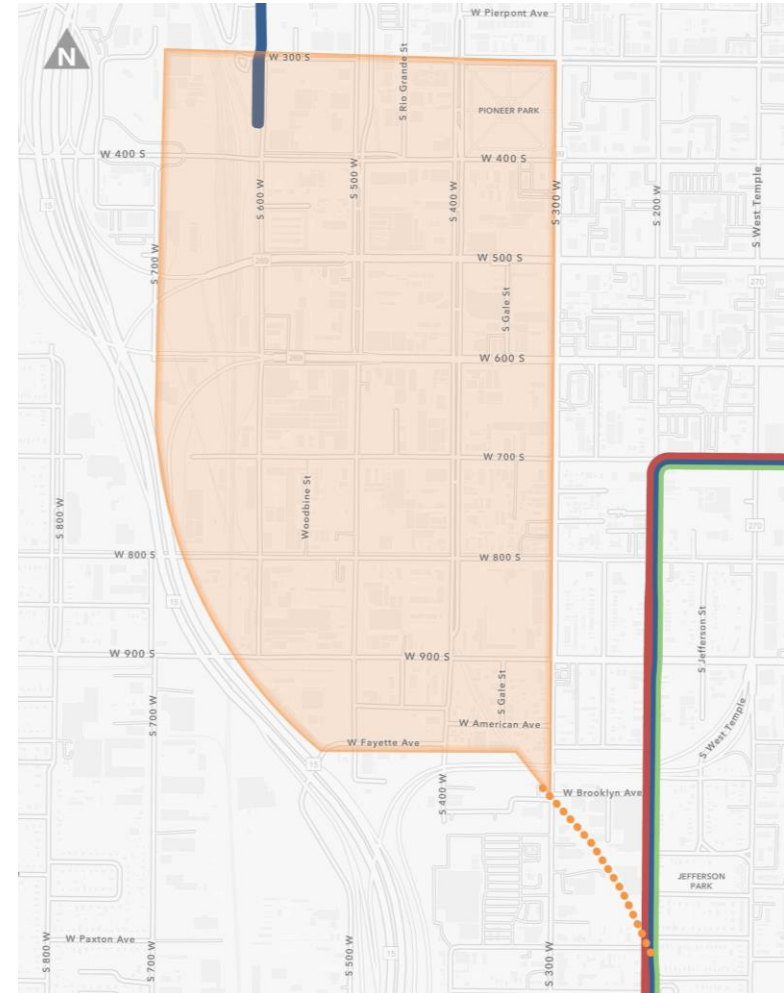
INCREASED EFFICIENCY



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## EXT-3

### Millcreek Streetcar / "Local Link"

APPROXIMATE CAPITAL COST **\$\$\$\$\$**

#### DESCRIPTION

Extension of the S-line that would connect Sugar House, Millcreek and Holladay. This is currently under study through the Salt Lake City Local Link Study.

#### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



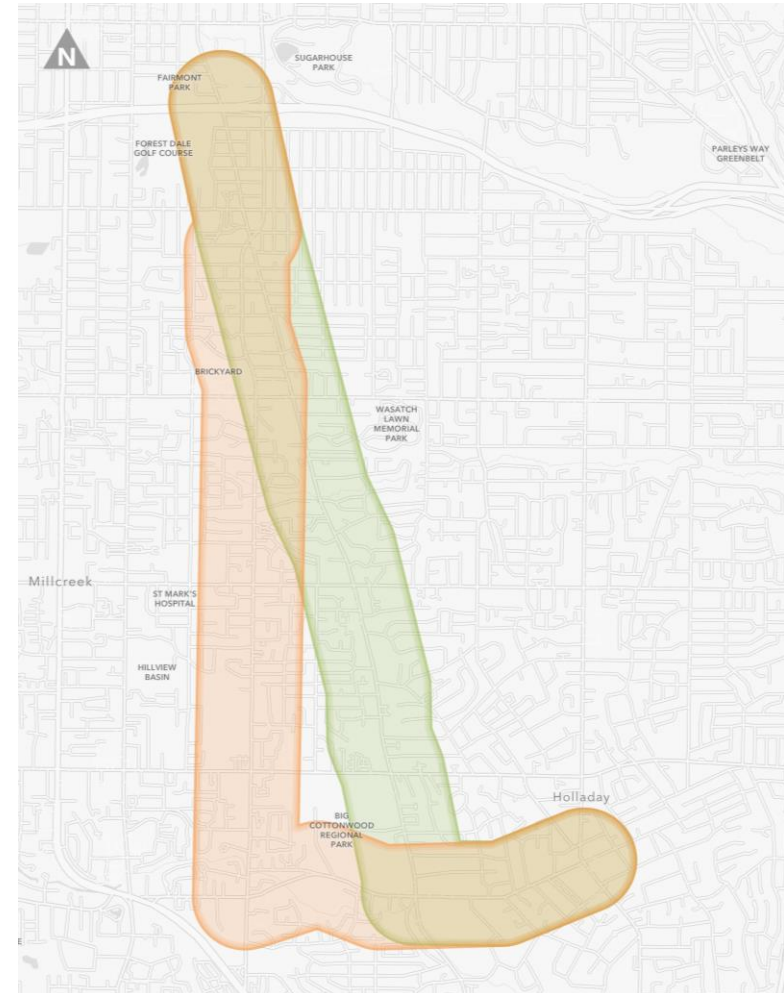
INCREASED EFFICIENCY



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SERVES NEW MARKETS





## EXT-4

### Red Line Connection – 1100 East to 900 East Station

APPROXIMATE CAPITAL COST **\$\$\$\$\$**

#### DESCRIPTION

Extension of the S-line that would turn north and connect to 1700 South and the Westminster College area and also extend further north, connecting to the 900 East TRAX station. This is not currently under study, but is identified as unfunded in the WFRC Regional Transportation Plan.

#### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



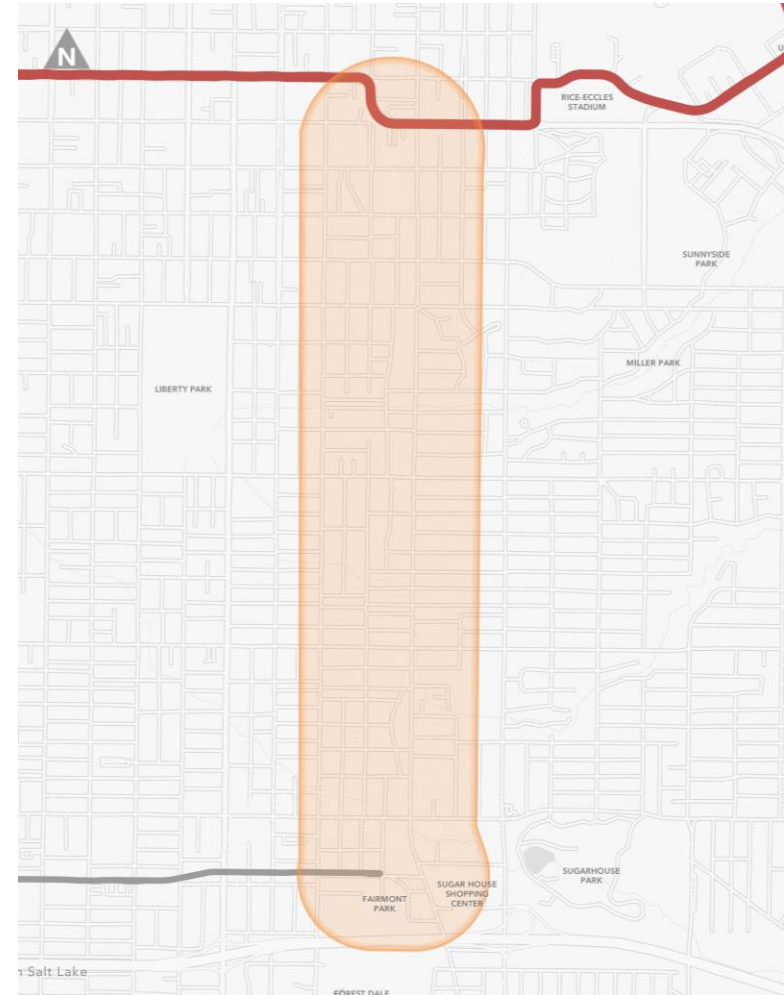
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SERVES NEW MARKETS



# EXT-5

## Downtown-University Streetcar – on 100 or 200 South

APPROXIMATE CAPITAL COST **\$\$\$\$\$**

### DESCRIPTION

A stand-alone streetcar line that connects Salt Lake Central Station, downtown Salt Lake City and the University of Utah. Not currently under study, but is identified in the WFRC RTP and has been previously studied by Salt Lake City.

Requires complex rail/rail crossings of existing TRAX and rail connection to support access to vehicle Service Center.

### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



INCREASED EFFICIENCY

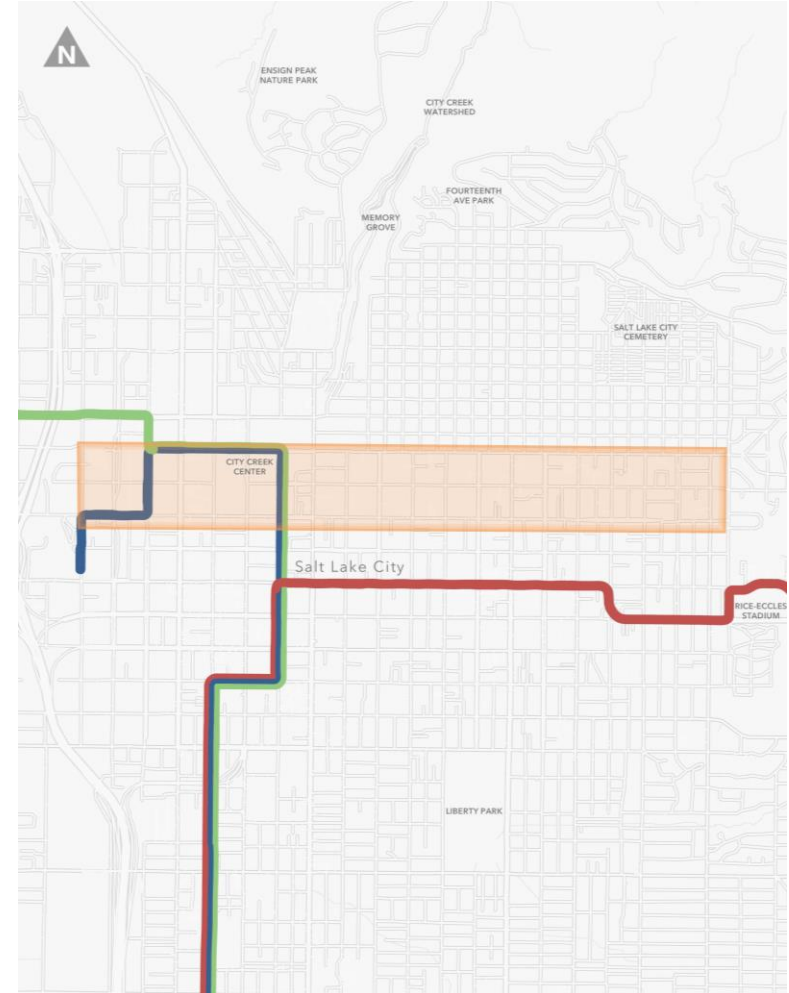


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## EXT-6

### Extension to Research Park from South Campus Drive

APPROXIMATE CAPITAL COST **\$\$\$\$\$**

#### DESCRIPTION

Extension that would serve the Research Park Area. Project partners are currently seeking RAISE grant funding to study this extension. This would require a second service to the University of Utah as service to the Medical Center would remain.

#### BENEFITS



ECONOMIC DEVELOPMENT



GREATER SERVICE SPAN



IMPROVED FREQUENCY



IMPROVED RELIABILITY



IMPROVED TRAVEL TIME



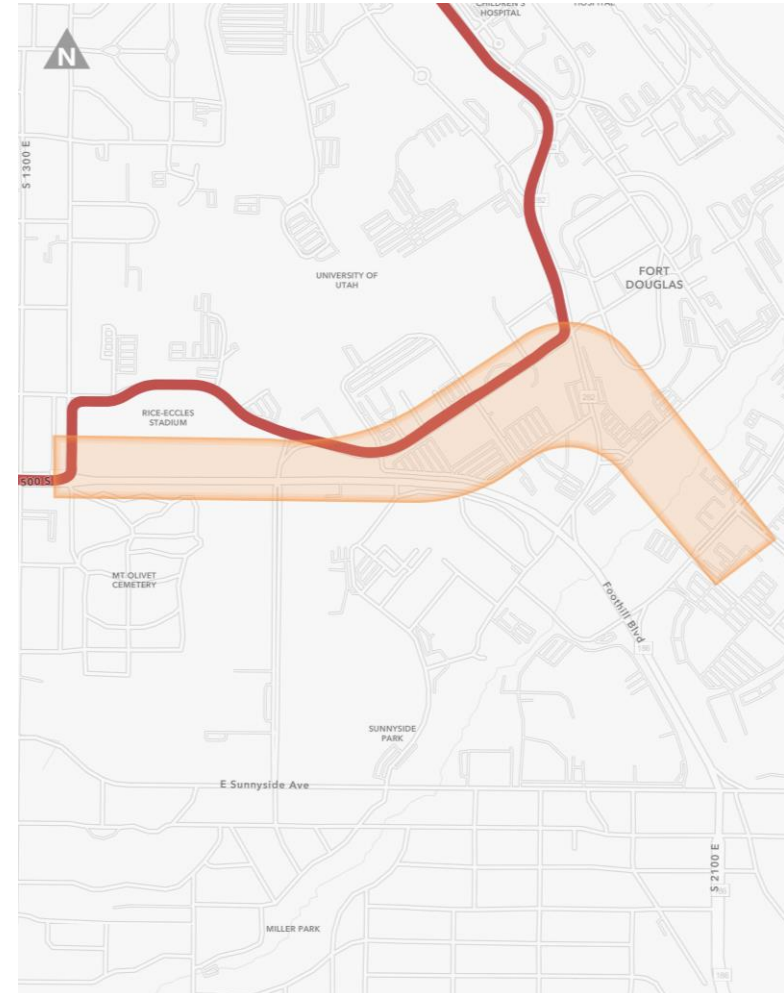
INCREASED EFFICIENCY



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SERVES NEW MARKETS



# Activity #2



# Discussion



- Presentation of 4 draft final Scenarios
- Did anything you heard today surprise you?
- Did anything you heard today concern you?
- Study next steps



# Reference Slides

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# Public Survey

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# Phase 1 Public Survey Results

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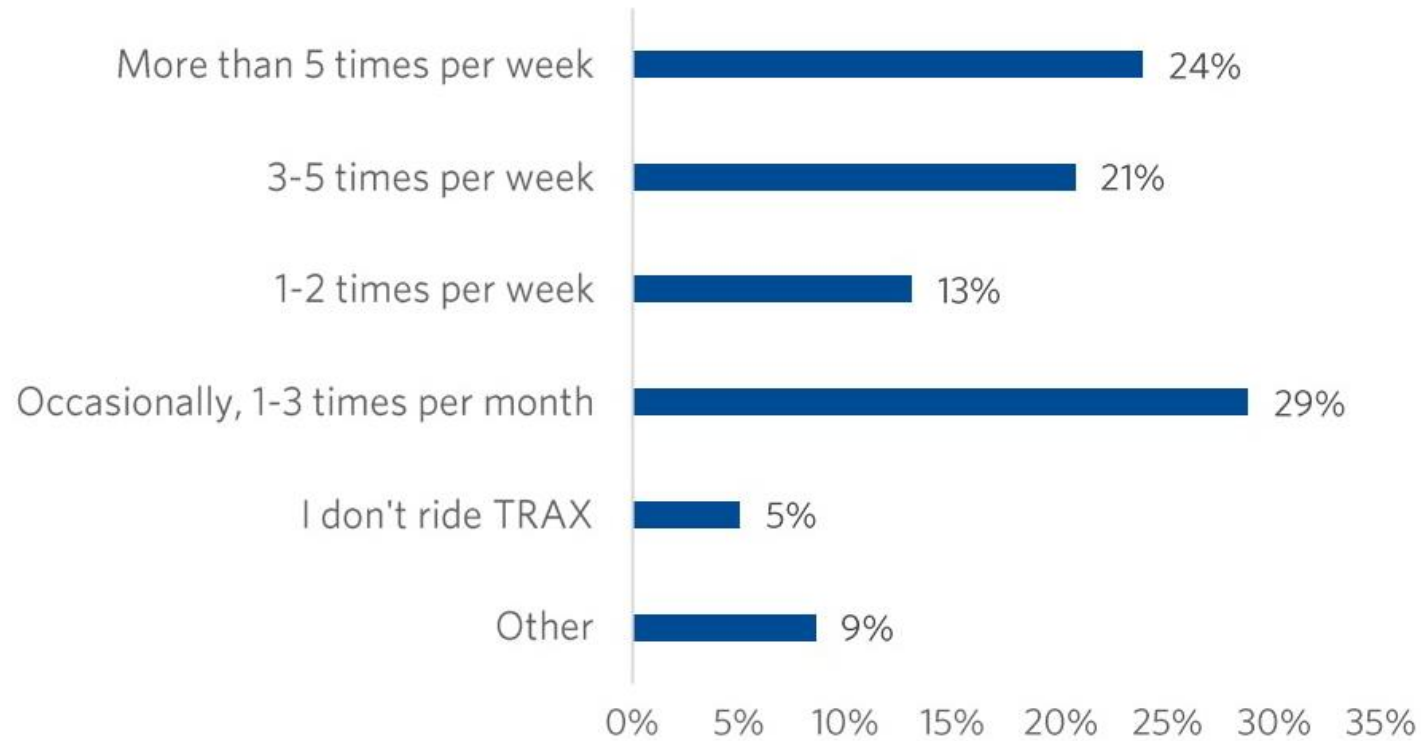
- UTA conducted a survey using the Open UTA Platform on TRAX customer satisfaction
- Survey open from February 8 to March 14, 2021
- 227 respondents

# Phase 1 Public Survey Results (Cont.)



## Ridership

Frequency of S-Line/TRAX Use Prior to COVID-19

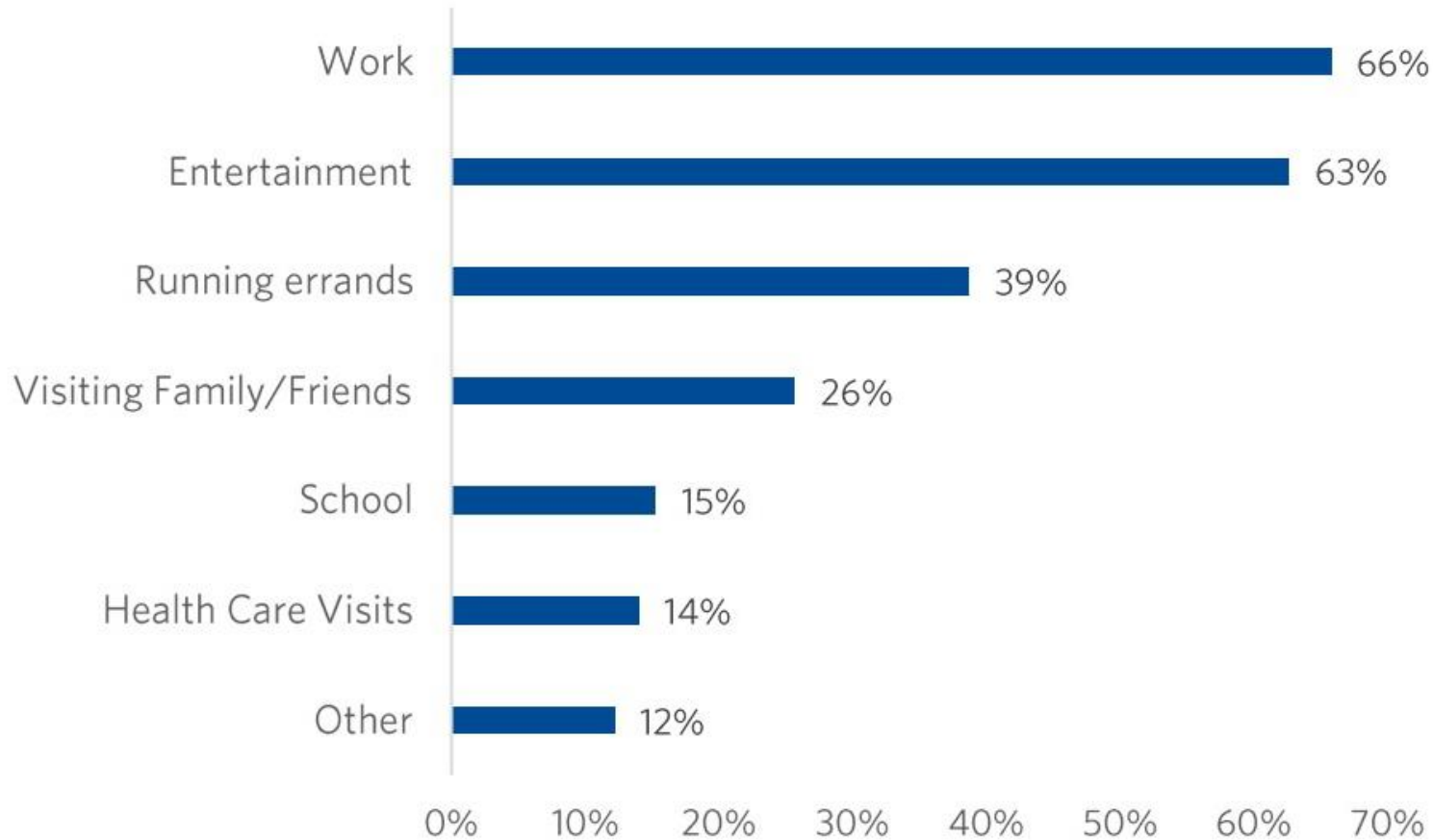


# Phase 1 Public Survey Results (Cont.)

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## Top Reasons for Using TRAX

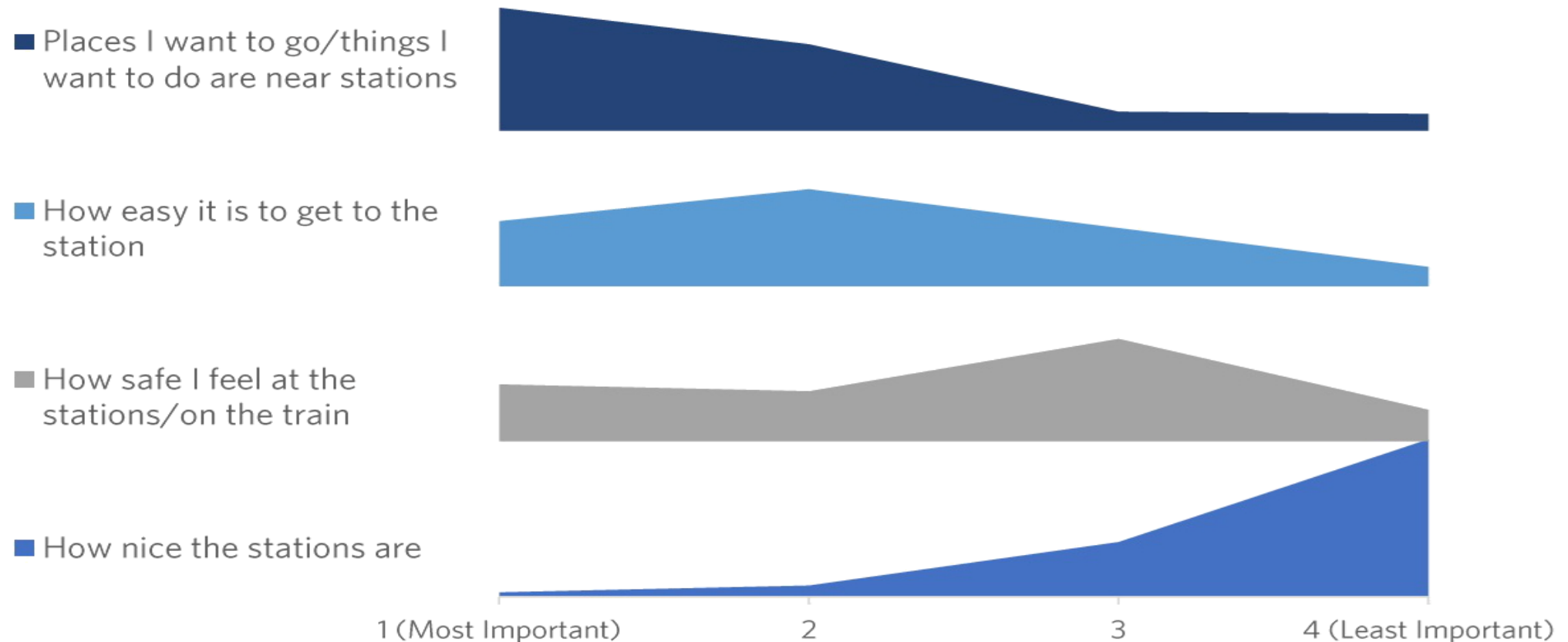


# Phase 1 Public Survey Results (Cont.)

Future of Light Rail Study



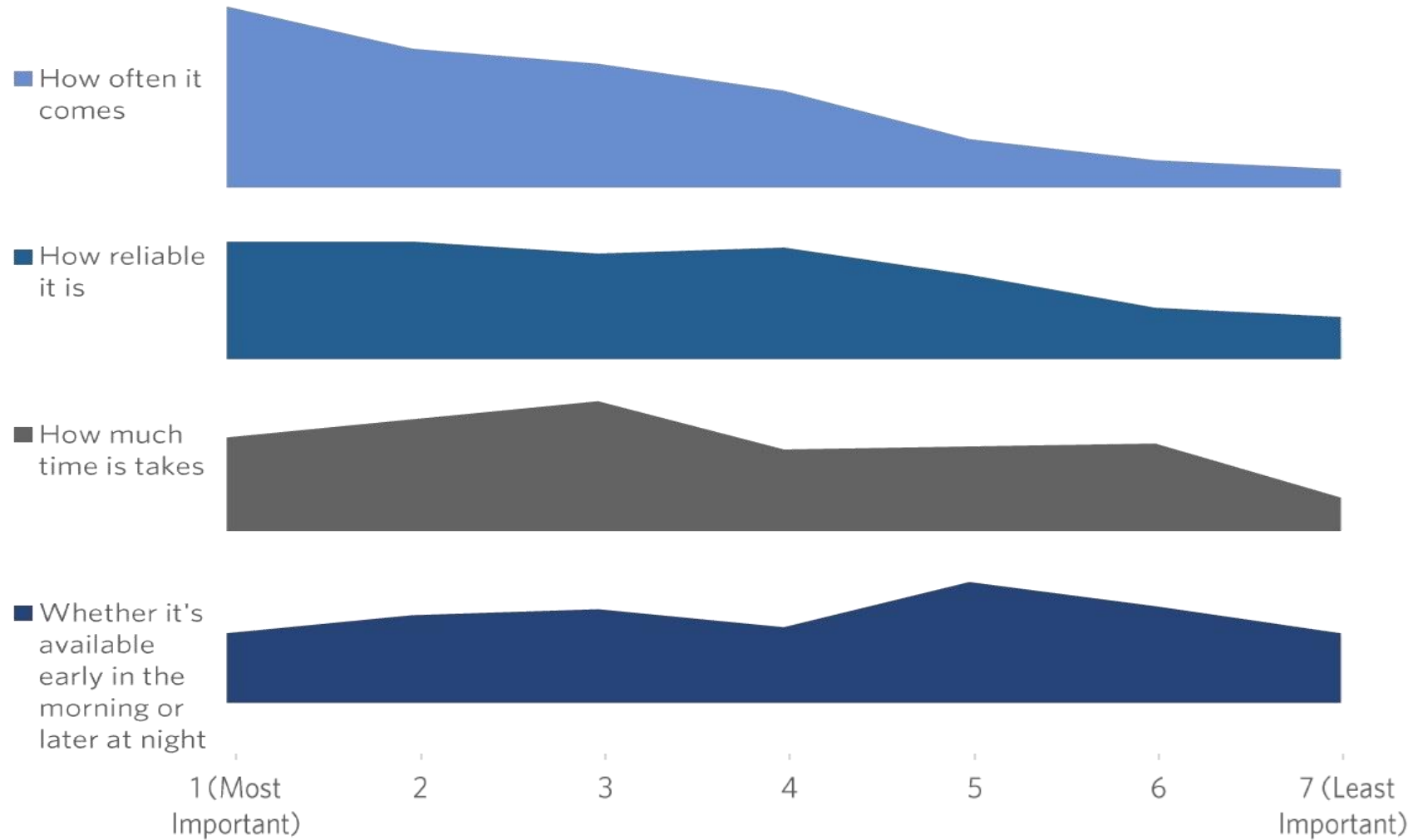
## Ranking Importance of Non-Service Factors



# Phase 1 Public Survey Results (Cont.)

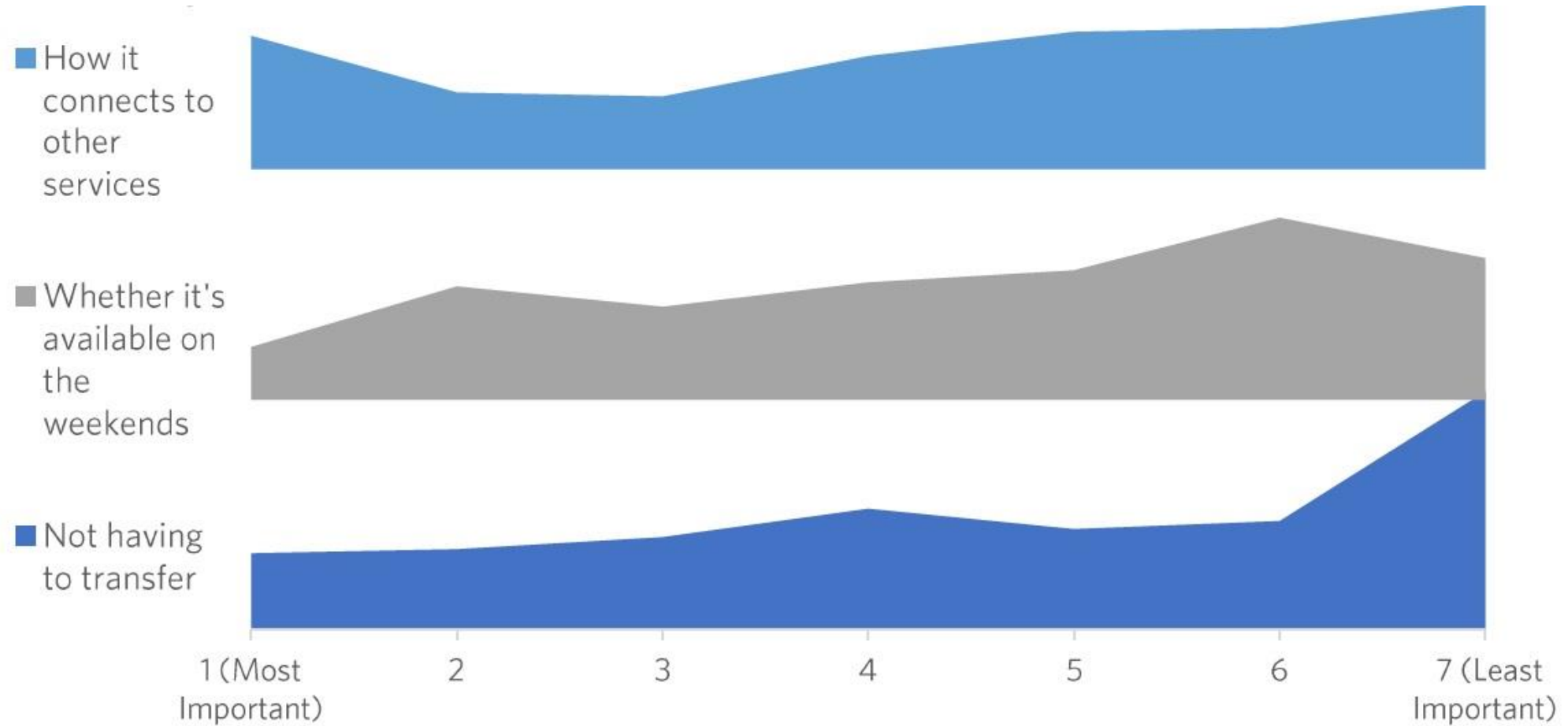


## Ranking Importance of Service Factors



# Phase 1 Public Survey Results (Cont.)

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# Span of Service

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# Span of Service Improvements

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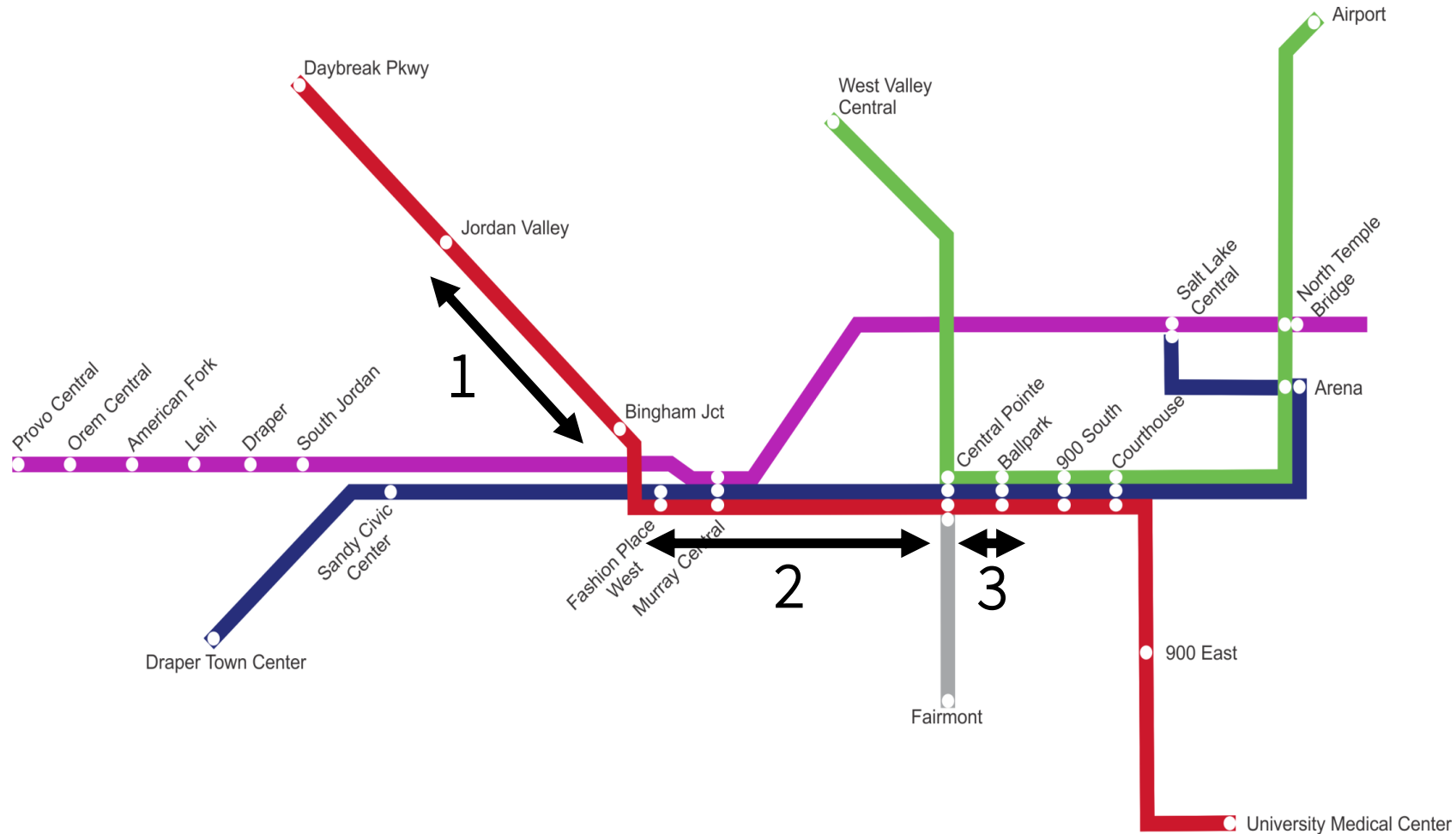


- Span of service refers to how early and how late TRAX carries passengers.
- Span of service is important to early and late shift workers including medical personnel, airport workers, warehouse, and service industry jobs. It also provides flexibility and assured returns from entertainment and sporting events.
- At present, latest trains to downtown leave from branch stations before 10:30 p.m., latest trains from downtown leave before 11:15 p.m.
- Two Span of Service Improvements have been identified.

# Span of Service Improvements

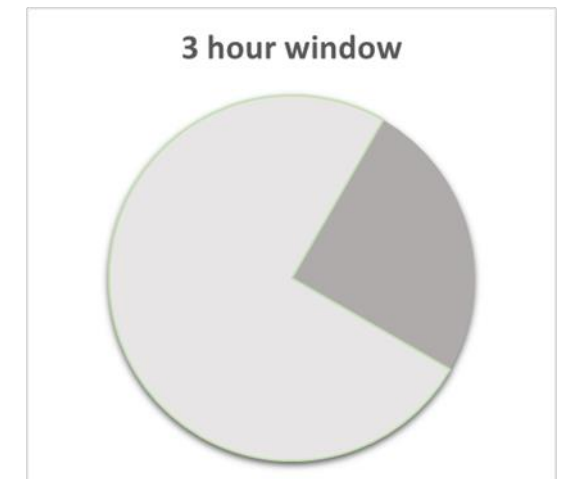
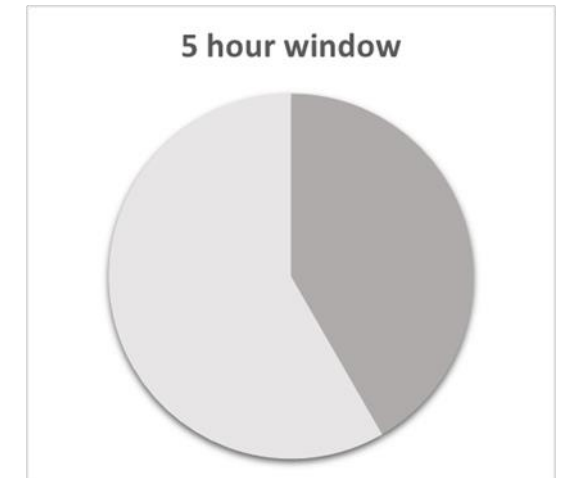


- TRAX span of service is constrained by the need to allow freight service during overnight hours in three segments

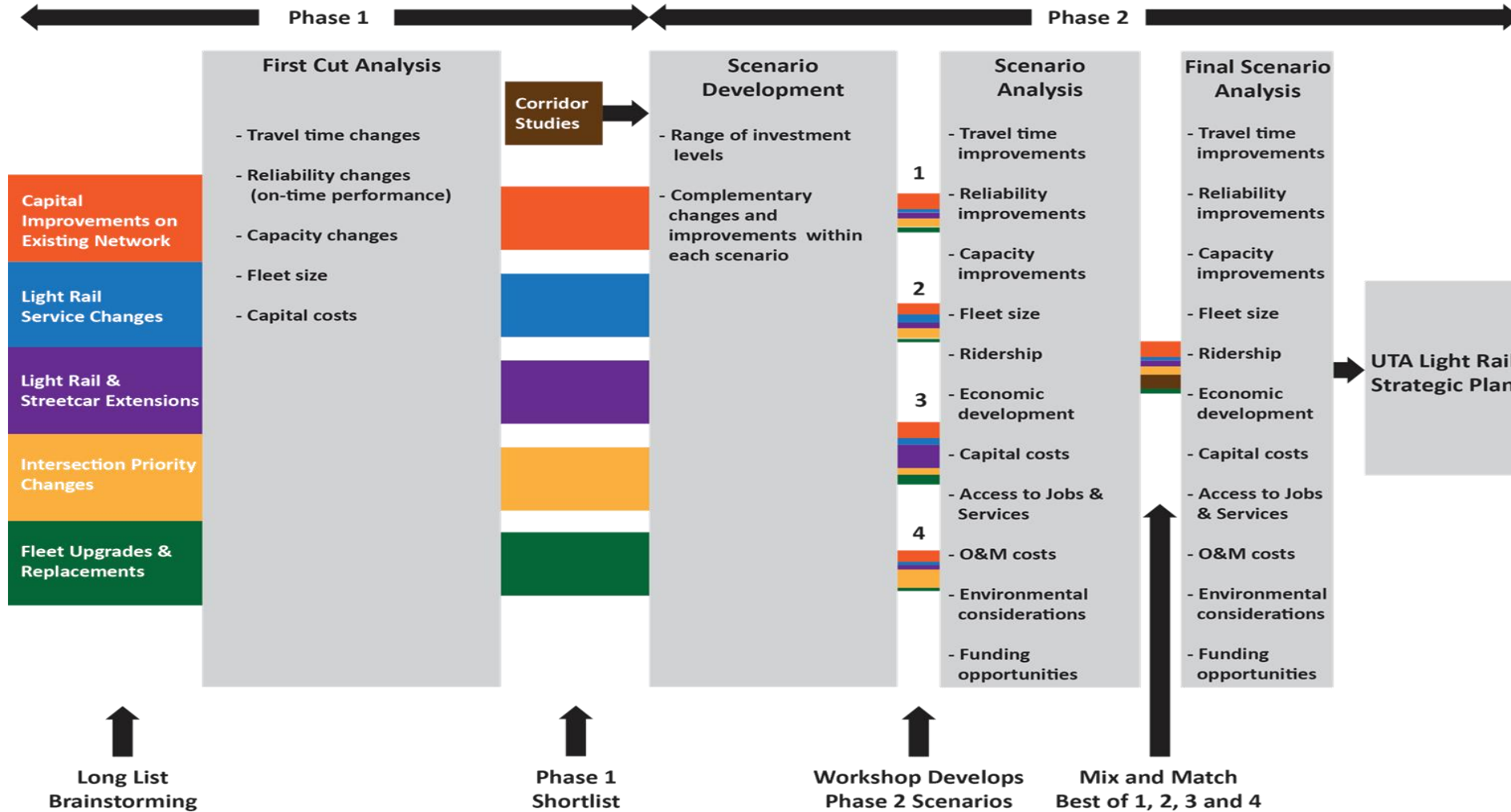


# Span of Service Improvements – Recommended Paths Forward

- Focus on North-South Trunk Line
- Negotiate to reduce North-South Line freight window from 5 hours to 3 hours
  - Red, Blue & Green Line light rail service could operate later and potentially start earlier
  - May impact TRAX maintenance efficiencies in non-temporally separated segments
- The freight carrier will expect to be compensated for any such renegotiation
- Provides opportunity for reinforcing the role of TRAX in regional transportation by serving third shift jobs and late-night entertainment



# Overview - Study Process



# Overview - Phase 1 Accomplishments

Future of Light Rail Study



- Comprehensive TRAX fleet analysis and options for the future
- Created full TrainOps<sup>®</sup> simulation model to benchmark existing performance, analyze future improvements
- Evaluated wide range of capital investments
- Tested two levels of higher intersection priority for TRAX
- Evaluated service changes including 25% system service growth
- Investigated options to start service earlier/end later
- Public survey to understand perceptions of TRAX

# Potential Light Rail and Streetcar Extensions

