



Austin City Council/ Capital Metro Board

# JOINT WORK SESSION

OCTOBER 30, 2019

# AGENDA

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## AUSTIN STRATEGIC MOBILITY PLAN

Implementing the ASMP  
Austin's Mobility Challenges  
Mode Share Goal

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## PROJECT CONNECT

Program Objectives  
Community Engagement  
Peer City Research  
High Capacity Transit – Orange and Blue Lines  
Alternatives Analysis

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## LOOKING FORWARD

Policy Consideration  
Next Steps





# IMPLEMENTING THE ASMP VISION

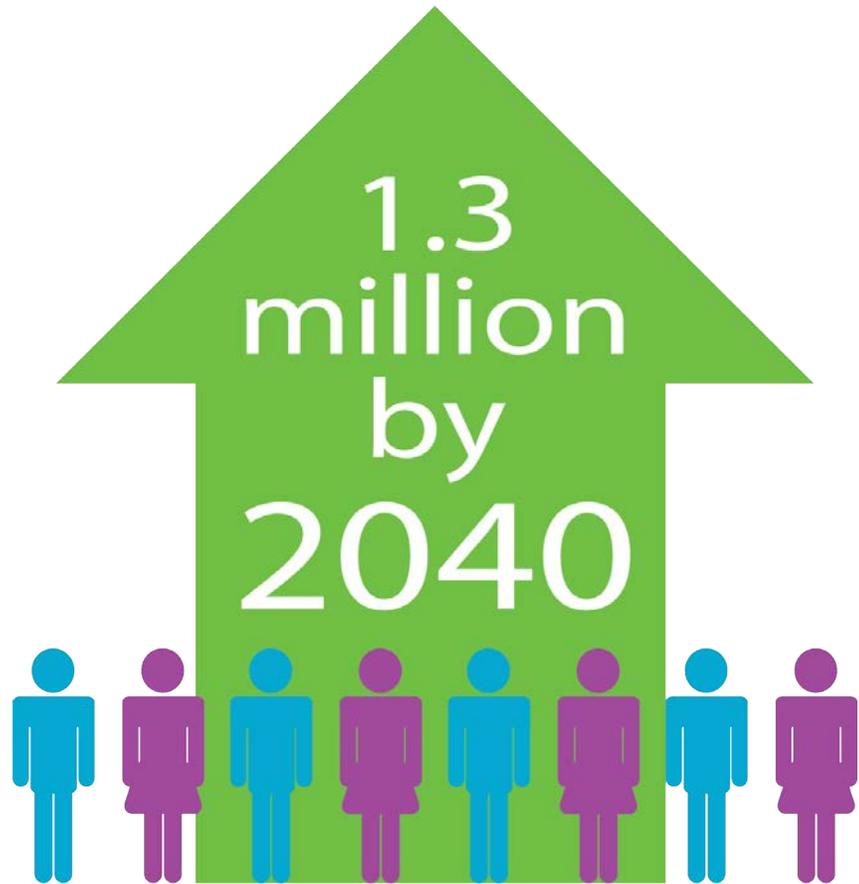


# AUSTIN'S MOBILITY CHALLENGES

- Lowering the risk of travel-related injury
- Preparing for innovative transportation technology opportunities
- Ensuring financial and environmental sustainability on our transportation network
- Collaborating effectively with other agencies, organizations, and our community to make mobility decisions
- Supplying multimodal transportation options as we grow

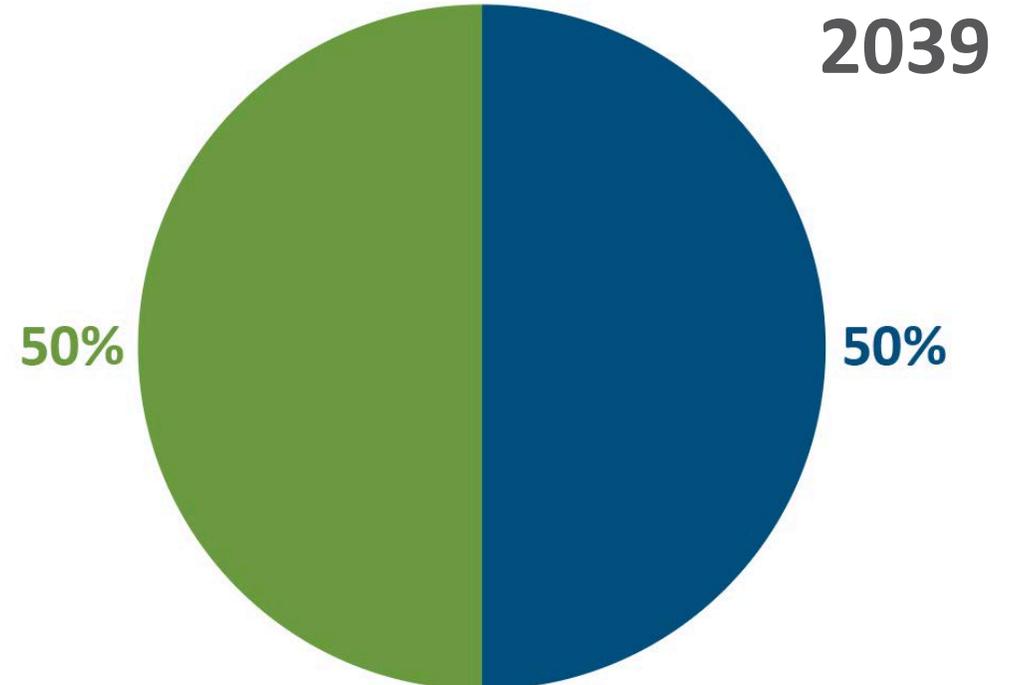
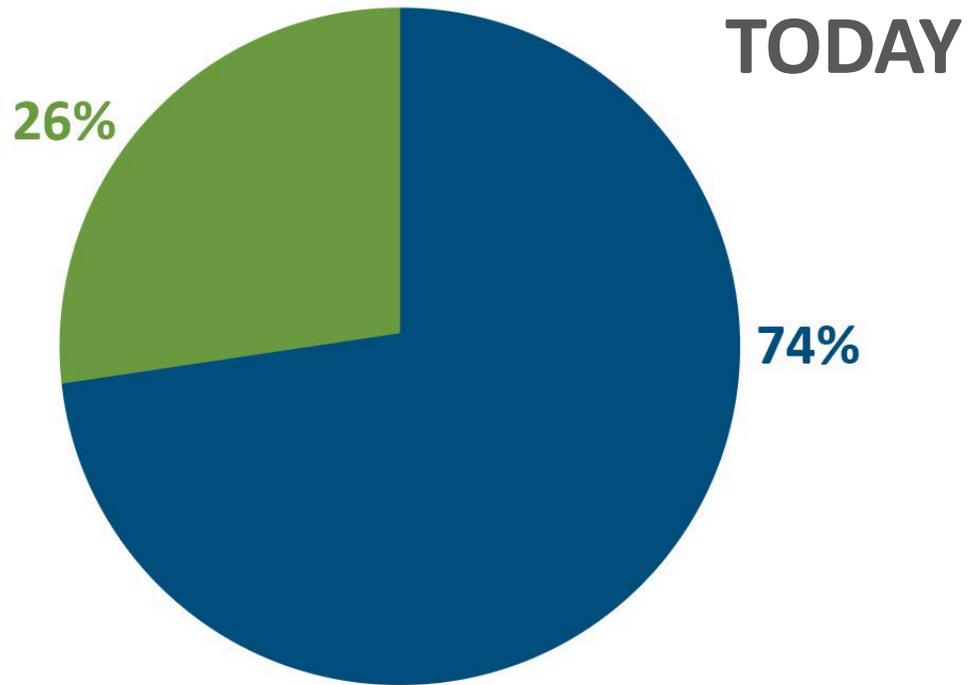
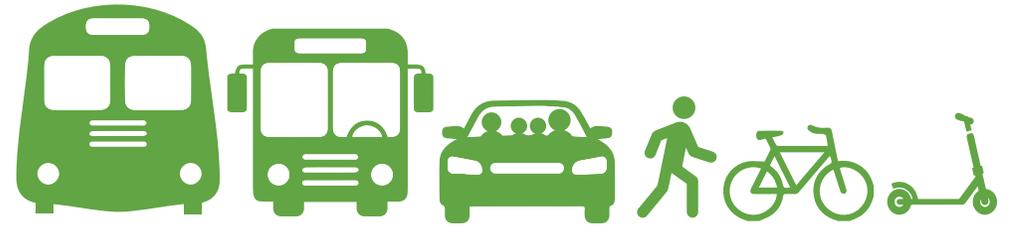


# LOCAL AND REGIONAL GROWTH



	2019	2040	% CHANGE BY AREA
AUSTIN	985K	1.3M	32% ↑
AUSTIN-ROUND ROCK MSA	2.2M	4.1M	86% ↑

# AUSTIN'S MOBILITY CHALLENGE



# HOW DO WE GET TO 50/50?

- Prioritizing Our Safety
- Managing Our Demand
- Supplying Our Transportation Infrastructure
- Operating Our Transportation Network
- Protecting Our Health and Environment
- Implementing the Plan

## Austin Strategic Mobility Plan

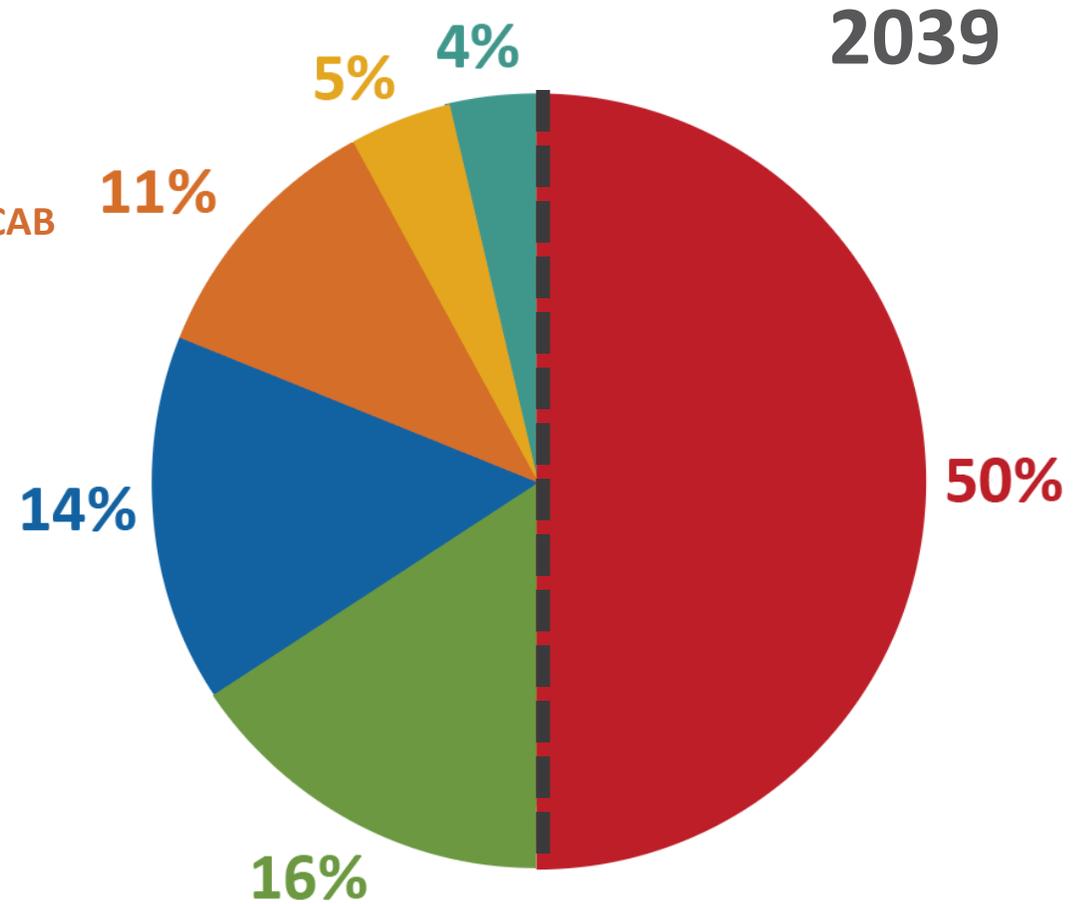


Adopted April 11, 2019



# MANAGING DEMAND

- Programming
  - Get There ATX
  - Smart Trips Program
  - Modernizing Telework Policy
- Regulations
  - Land Development Code
  - Transportation Criteria Manual
  - Street Impact Fee
- Partnerships
  - Movability
  - Commute Solutions
  - Telecommunications Industry
- Invest in Mobility as a Service (MAAS)
- Setting Goals by Mode



# AUSTIN'S TOP STRATEGIES

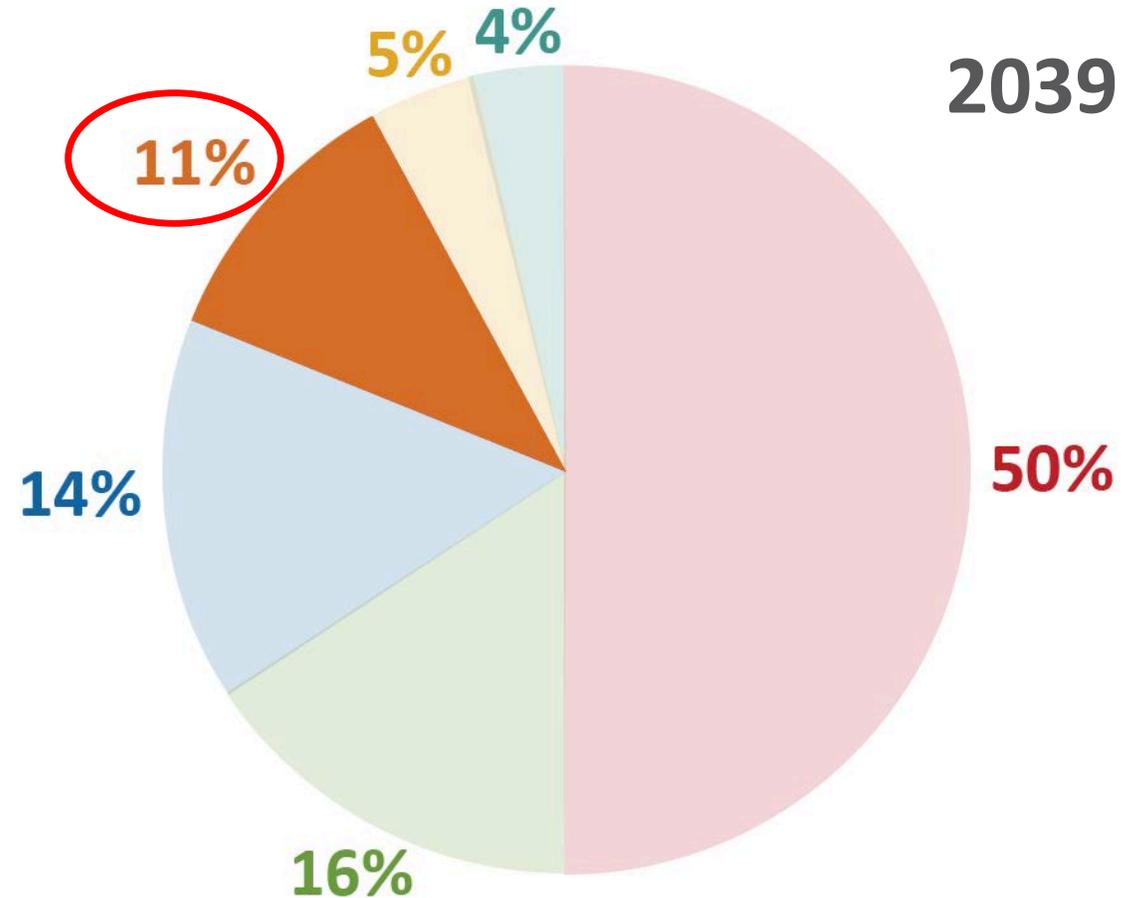
- **Reduce traffic fatalities, serious injuries** by focusing on safety culture, behaviors
- Manage congestion by **managing demand**
- **Build active transportation access for all ages and abilities** on sidewalk, bicycle, and urban trail systems
- **Strategically add roadway capacity** to improve travel efficiency
- **Connect people to services and opportunities** for better health
- **Address affordability** by linking housing and transportation investments
- **Right-size and manage parking supply** to manage demand
- **Develop shared mobility options** with data and emerging technology
- **Build and expand community relationships** with plan implementation
- **Move more people** by investing in public transportation



# SUPPORTING CARPOOLING

 **CARPOOLING** 11% → 11%

- Commute Solutions
- New shared technologies
- Movability
- Get There ATX website
- Smart Trips Program
- Capital Metro Vanpooling - MetroRideShare



# SUPPORTING CARPOOLING

 **CARPOOLING** 11% → 11%

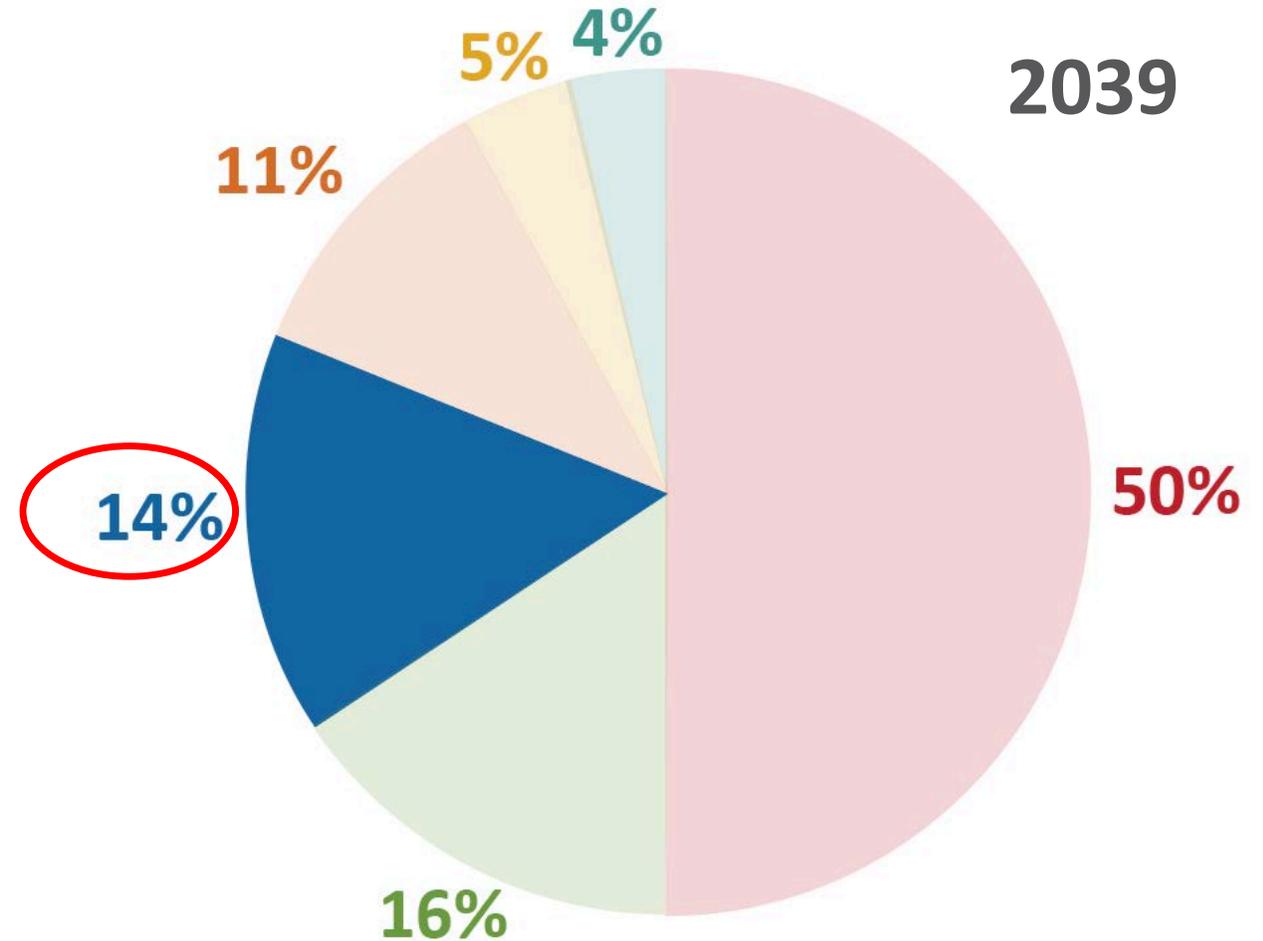
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- Get There ATX website
- Smart Trips Program
- Capital Metro Vanpooling - MetroRideShare



# SUPPORTING TELEWORK

 TELEWORK 8% → 14%

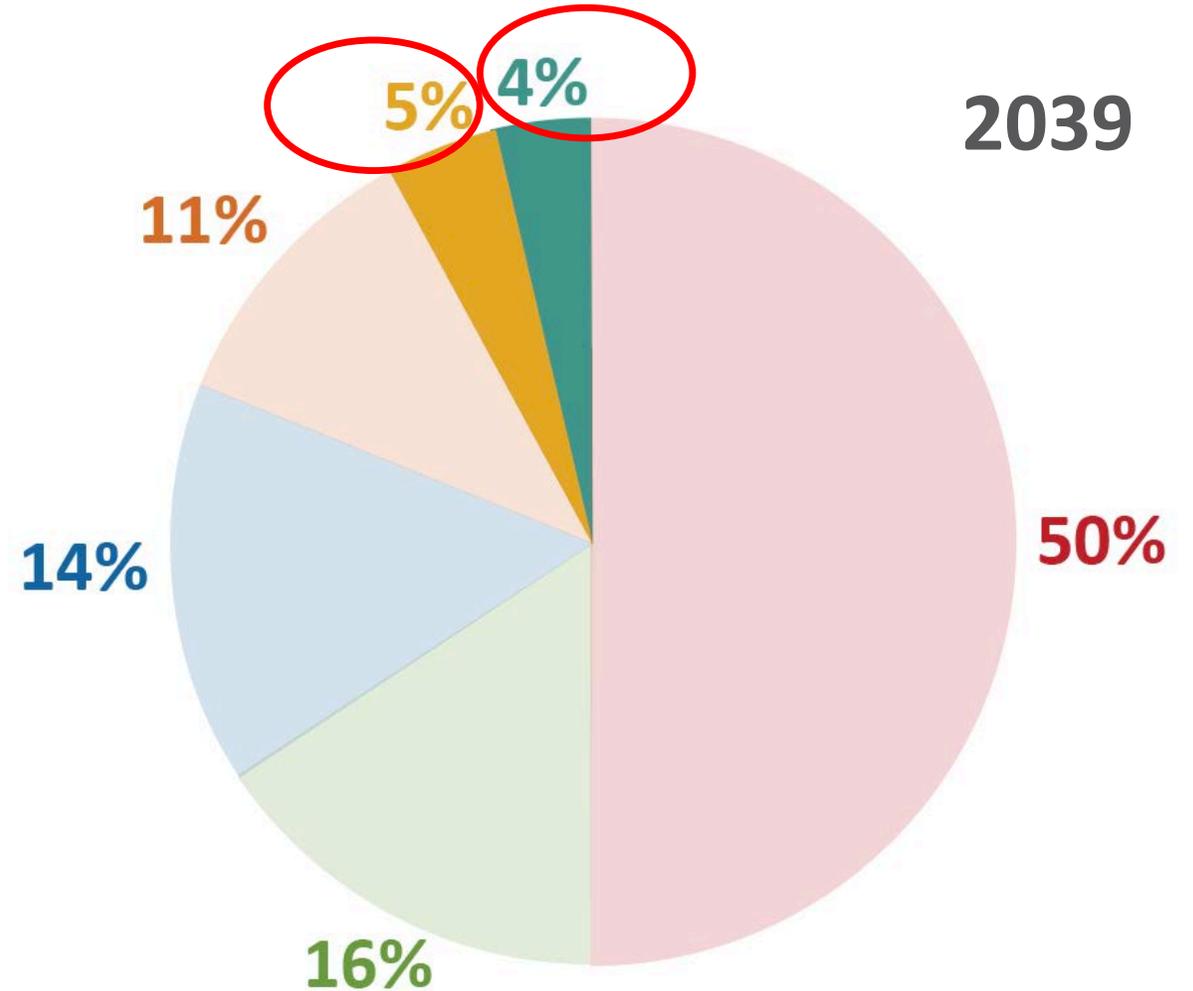
- Movability
- Modernize Telework Policy
- Work with Telecommunications Partners to expand infrastructure and access



# SUPPORTING ACTIVE TRANSPORTATION



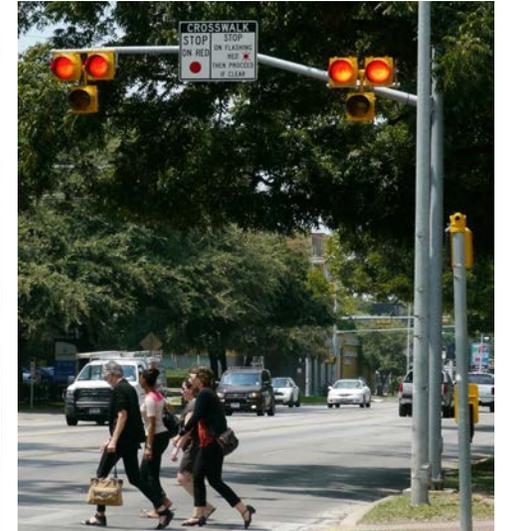
- 2012, 2016, 2018 bond programs
- All Ages and Abilities Network expansion
- Sidewalk/Trail program
- Wayfinding, lighting, and crossings
- Micromobility
- Safe Route to School program



# SUPPORTING ACTIVE TRANSPORTATION

 BICYCLE 1% → 5%  WALK 2% → 4%

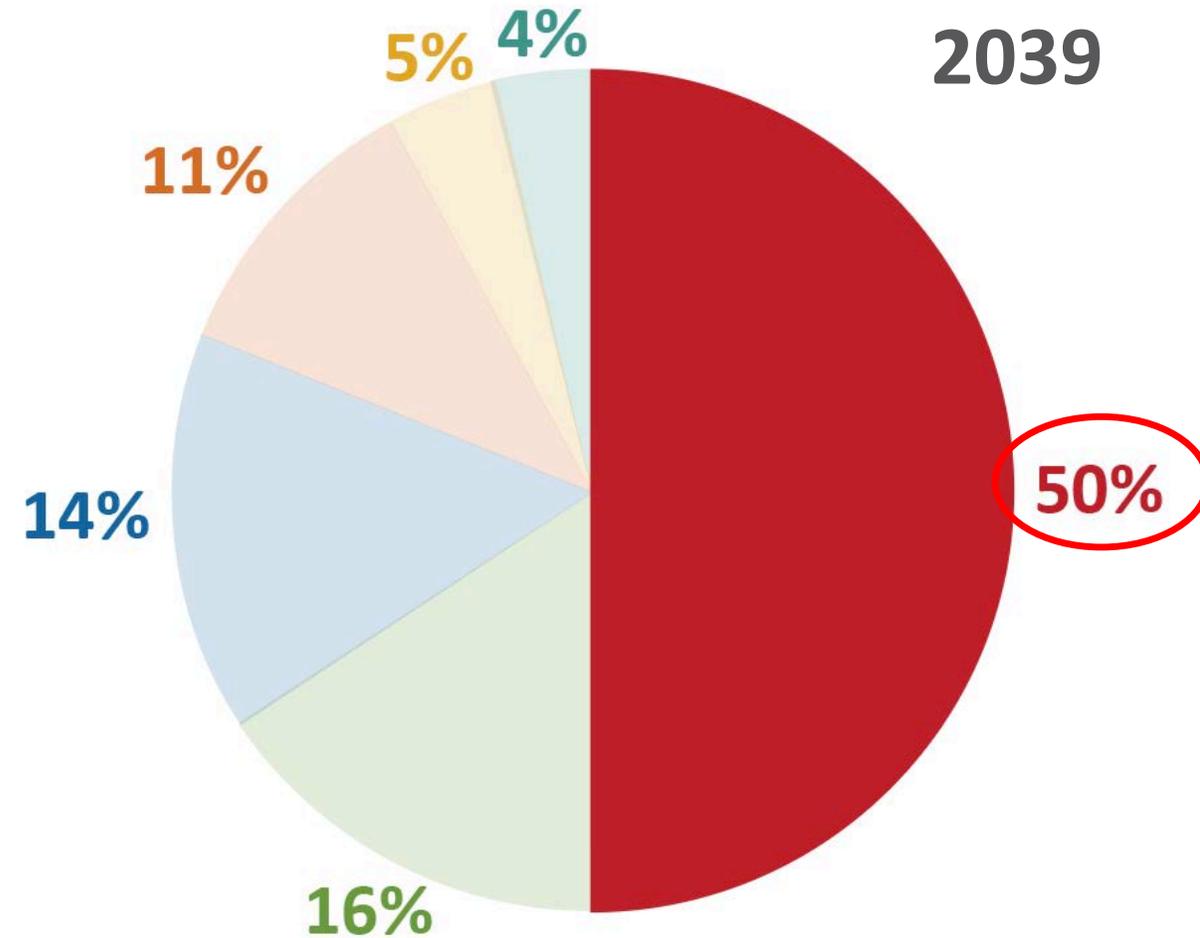
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# SUPPORTING EFFICIENT MOVEMENT OF AUTOS AND FREIGHT

**DRIVE ALONE** 74% → 50%

- Regional and Corridor Mobility Programs *(on time and on budget)*
- Strategic Partnerships
  - I-35 Capital Express project
  - MoPac North and South Express
  - US 183 North
  - US 183 South
  - US 290
- Smart parking facilities
- Interchange completions and Bottleneck projects
  - Loop 360
  - RM 620



# SUPPORTING EFFICIENT MOVEMENT OF AUTOS AND FREIGHT

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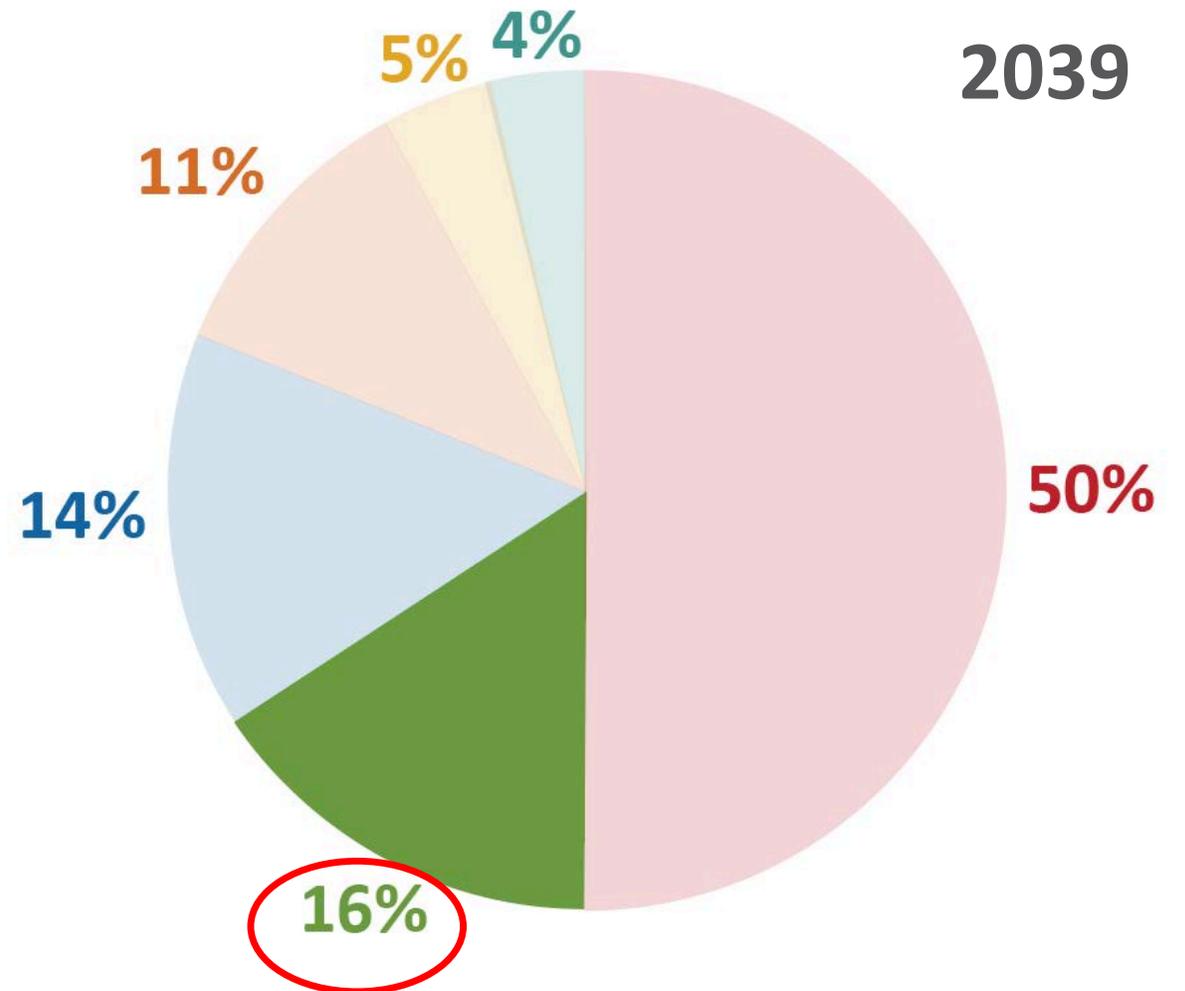
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# HOW TRANSIT FITS IN THE ASMP

 **TRANSIT** 4% → 16%

- Guadalupe/Lavaca transit priority
- MoPac North and South Express
- Transit priority signals
- Transit data integration with traffic operations (swiftly)
- I-35 Capital Express project
- Transit Enhancement Program
- Park and Rides
- Transit Incentives Program
- Bike and Sidewalk infrastructure
- Project Connect



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# HOW TRANSIT FITS IN THE ASMP

**TRANSIT** 4% → 16%

1. Give public transportation priority
2. Enhance commuter public transportation service
3. Support local public transportation service
4. **Invest in a high-capacity transit system**
5. Improve the public transportation experience
6. Improve access to public transportation



# HIGH CAPACITY TRANSIT AND 50/50

- “In order for the City of Austin to accomplish our mode share goals, it must create a **complete transit system**, including **investing in high-capacity transit**.”
- “High-capacity transit service is intended to be fast, frequent, and convenient, and is differentiated by other public transportation service by operating in **fully dedicated space separate from the rest of traffic**, or in ‘dedicated transit pathways.’”
- “**Where** these dedicated pathways would be, **what they would look like**, and the **specific mode** of public transportation traveling in them are all questions that Capital Metro, the City, and the community are working on answering together.”

- *Austin Strategic Mobility Plan, 2019*





**METRO**



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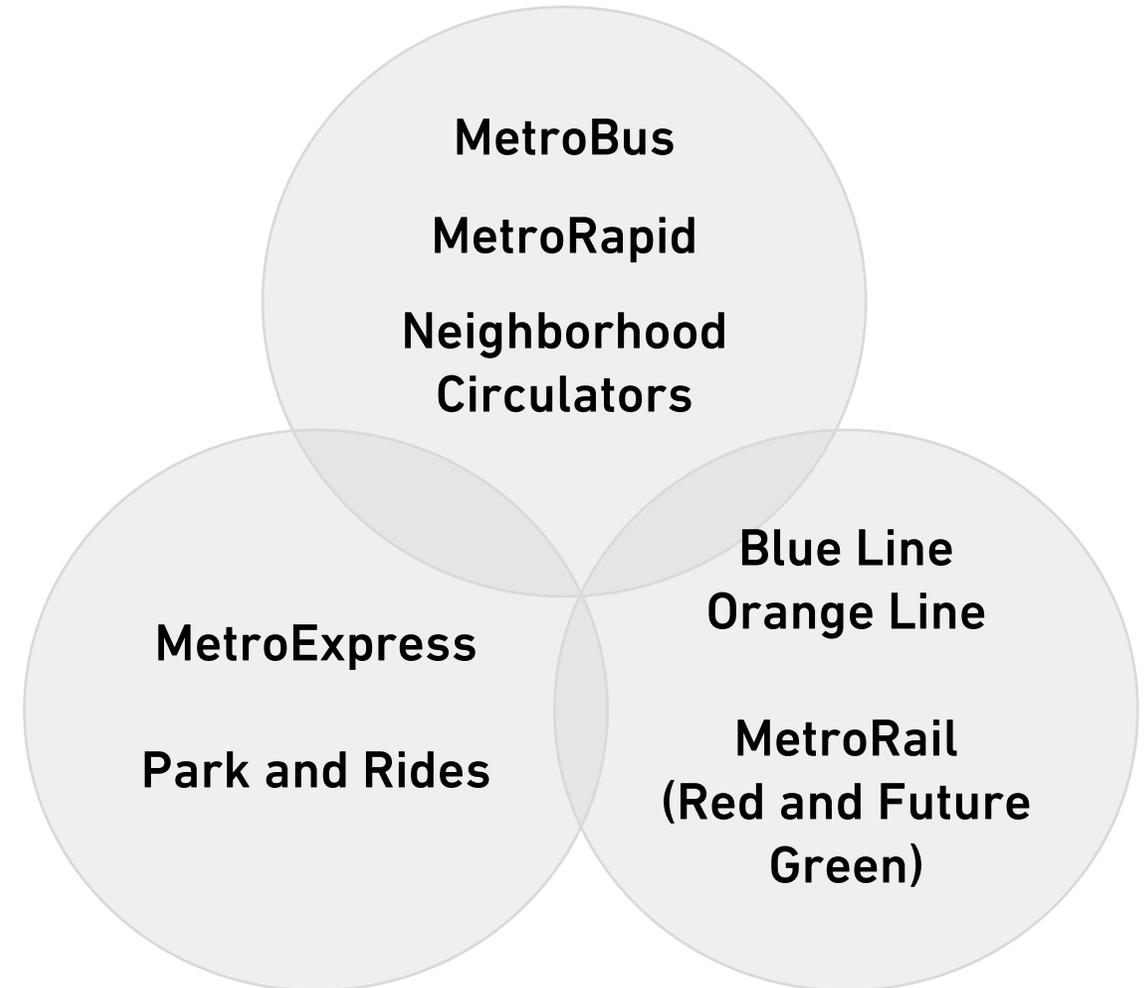
# System Components

# Planning Milestones



# Expanding the Austin Rapid Transit System

## Key System Components



# Developing a Balanced System

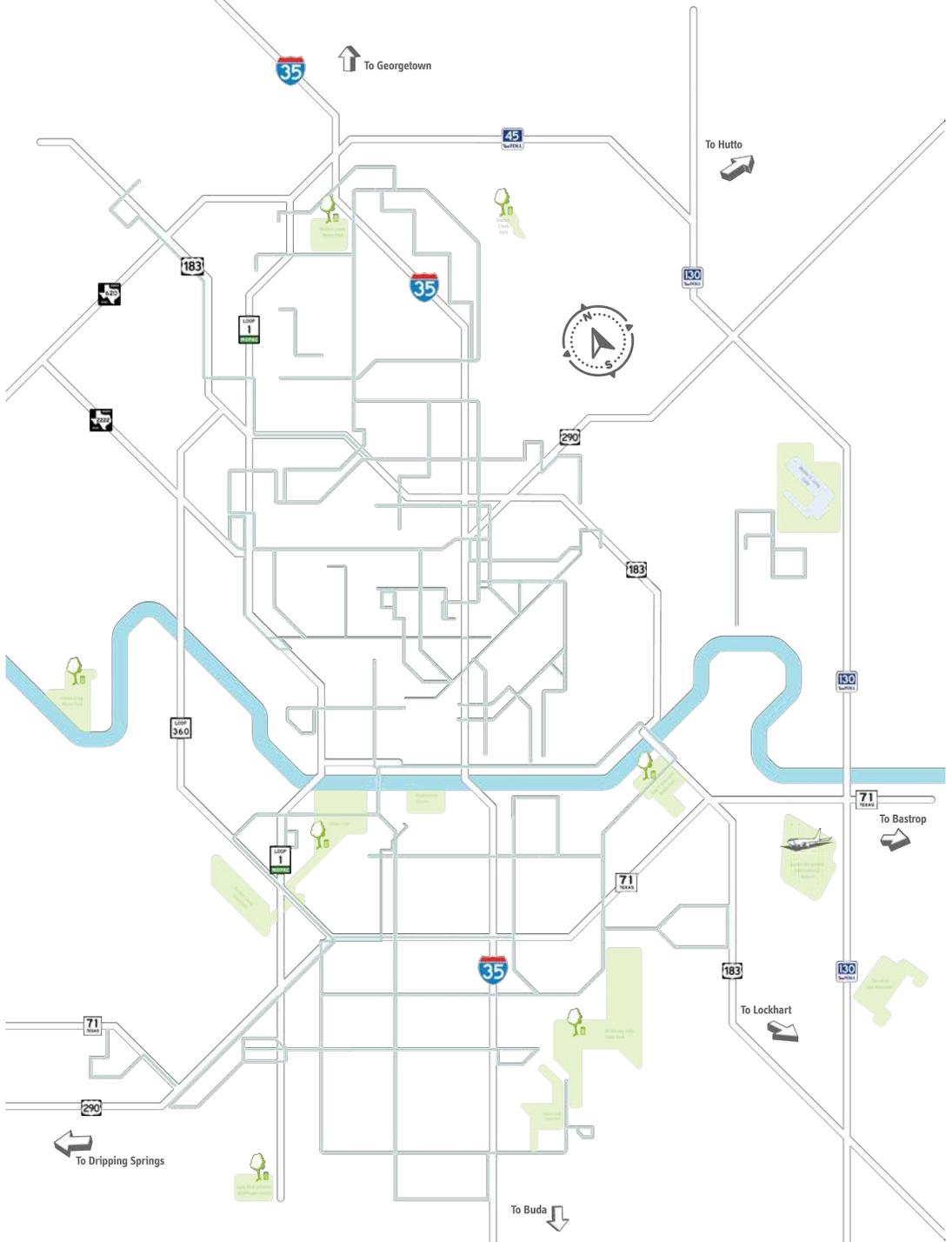
- Decisions that represent community input and public policy
- Should shape the future of mobility and be supportive of other initiatives
- Balance outcome with ability to fund and operate in a state of good repair



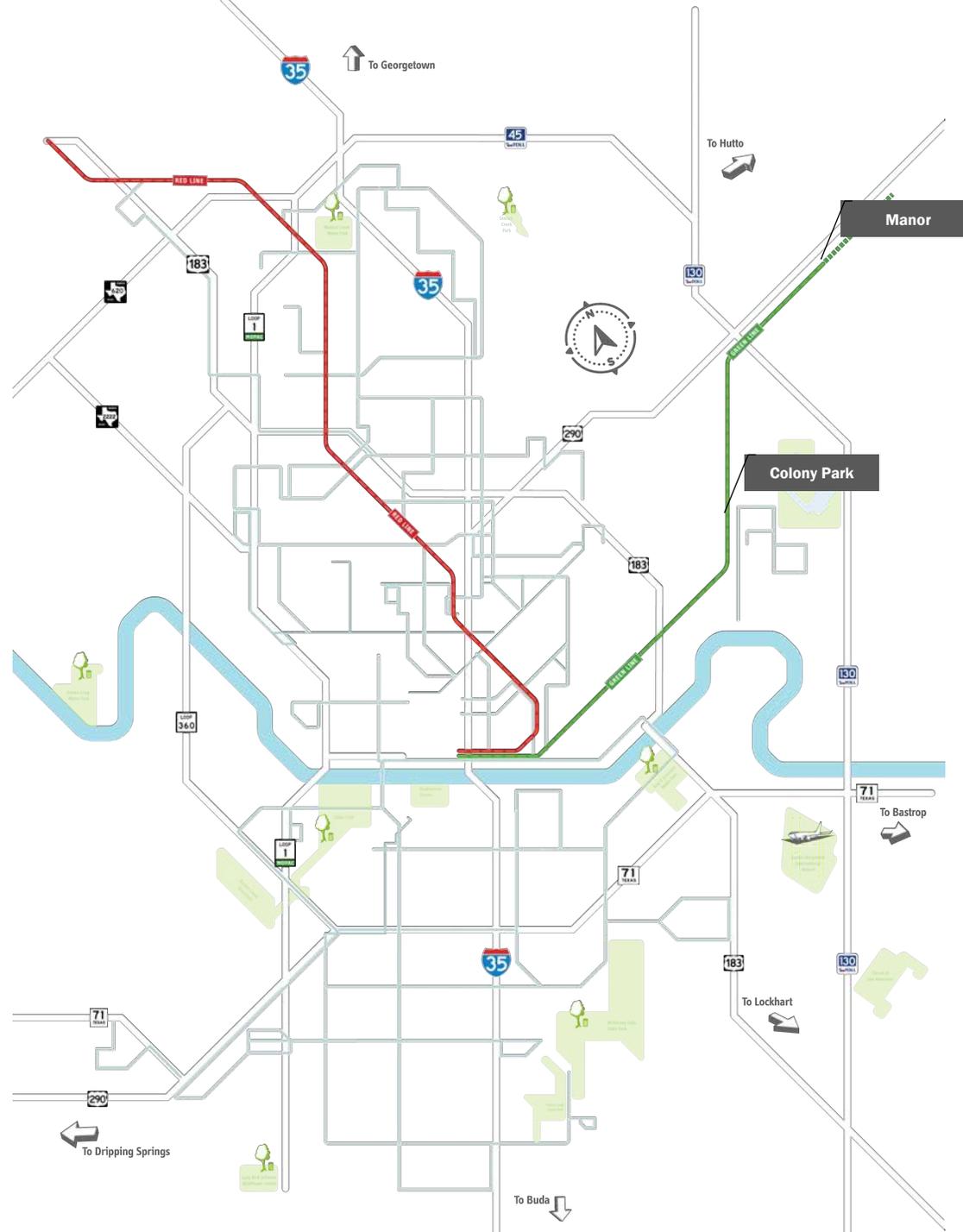


# LONG TERM VISION PLAN

Local Bus Service

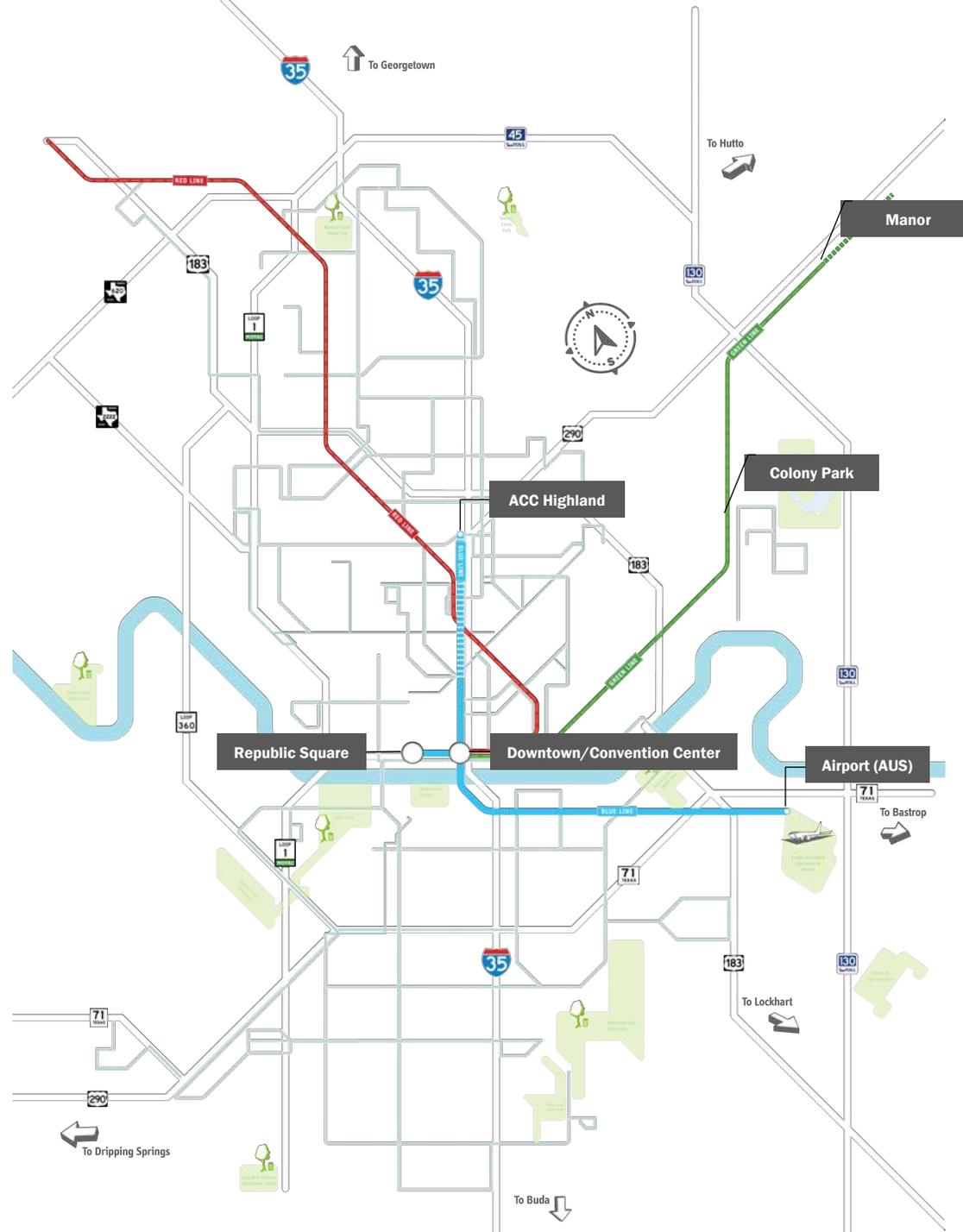


# LONG TERM VISION PLAN



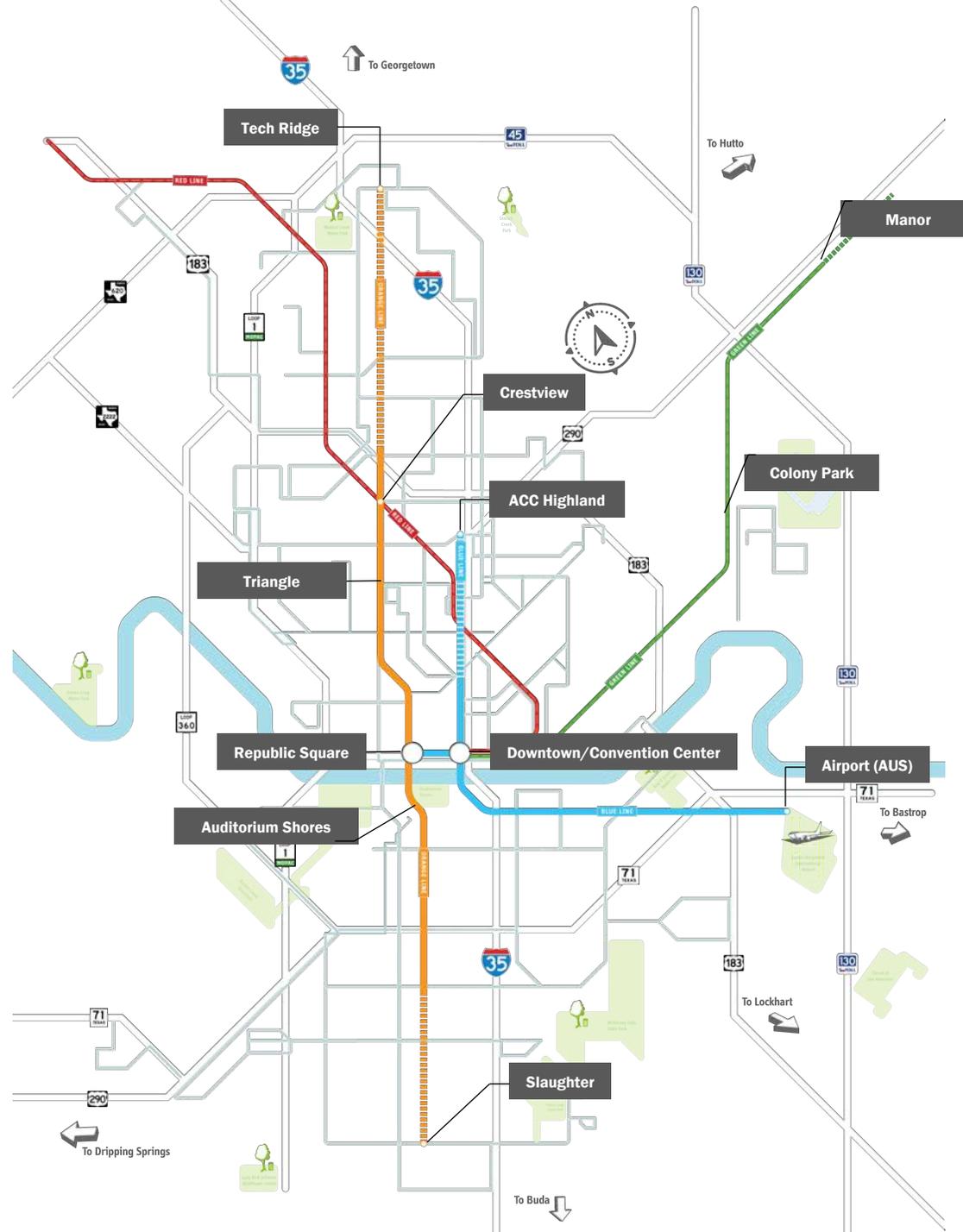
- Local Bus Service
- Commuter Rail
- Red & Future Green Lines

# LONG TERM VISION PLAN



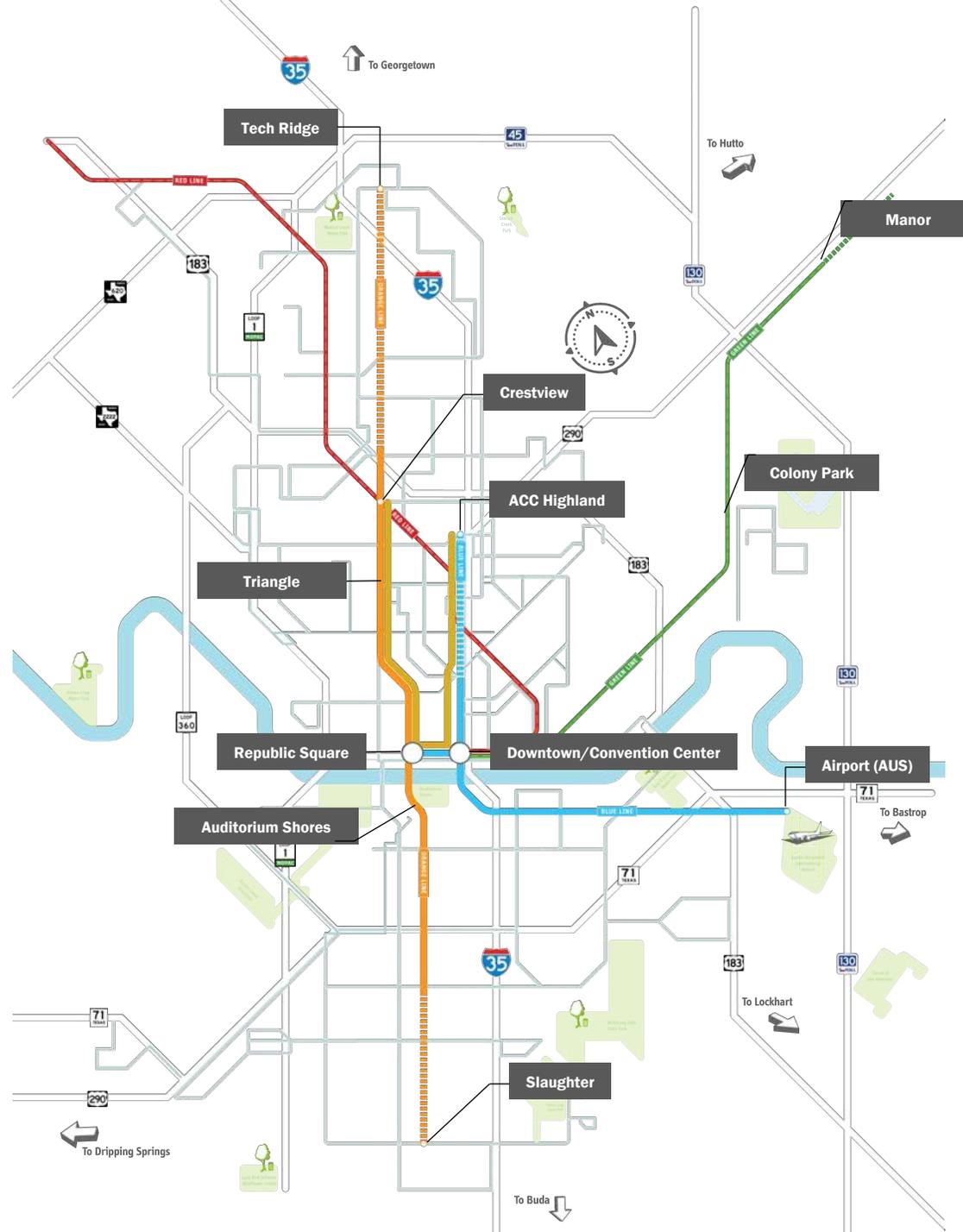
- Local Bus Service
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- High Capacity Rapid Transit Dedicated Pathways

# LONG TERM VISION PLAN



- Local Bus Service
- Commuter Rail
- Red & Future Green Lines
- High Capacity Rapid Transit
- Dedicated Pathways

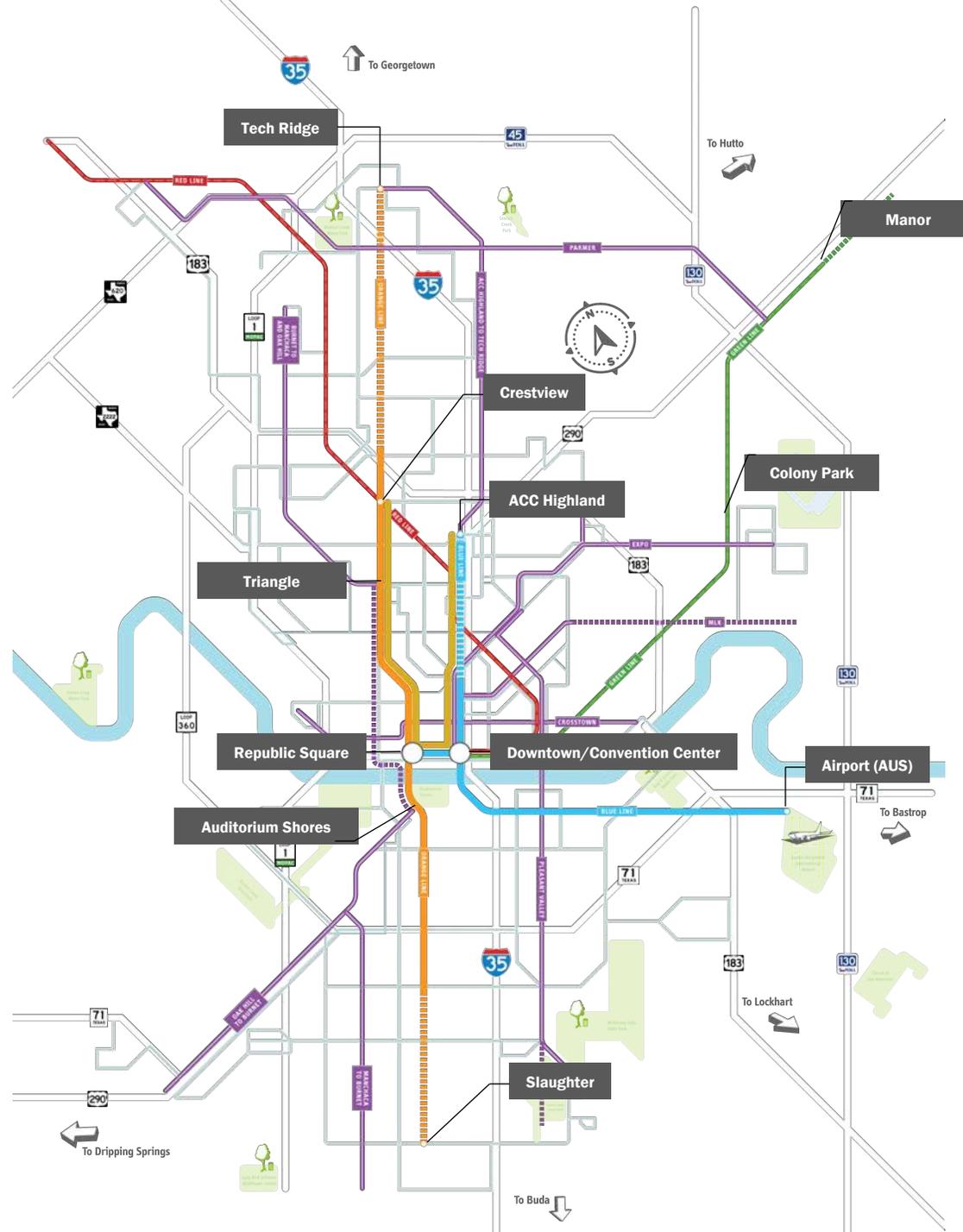
# LONG TERM VISION PLAN



- Local Bus Service
- Commuter Rail
- Red & Future Green Lines
- High Capacity Rapid Transit
- Dedicated Pathways
- - - Alternative Operating Route

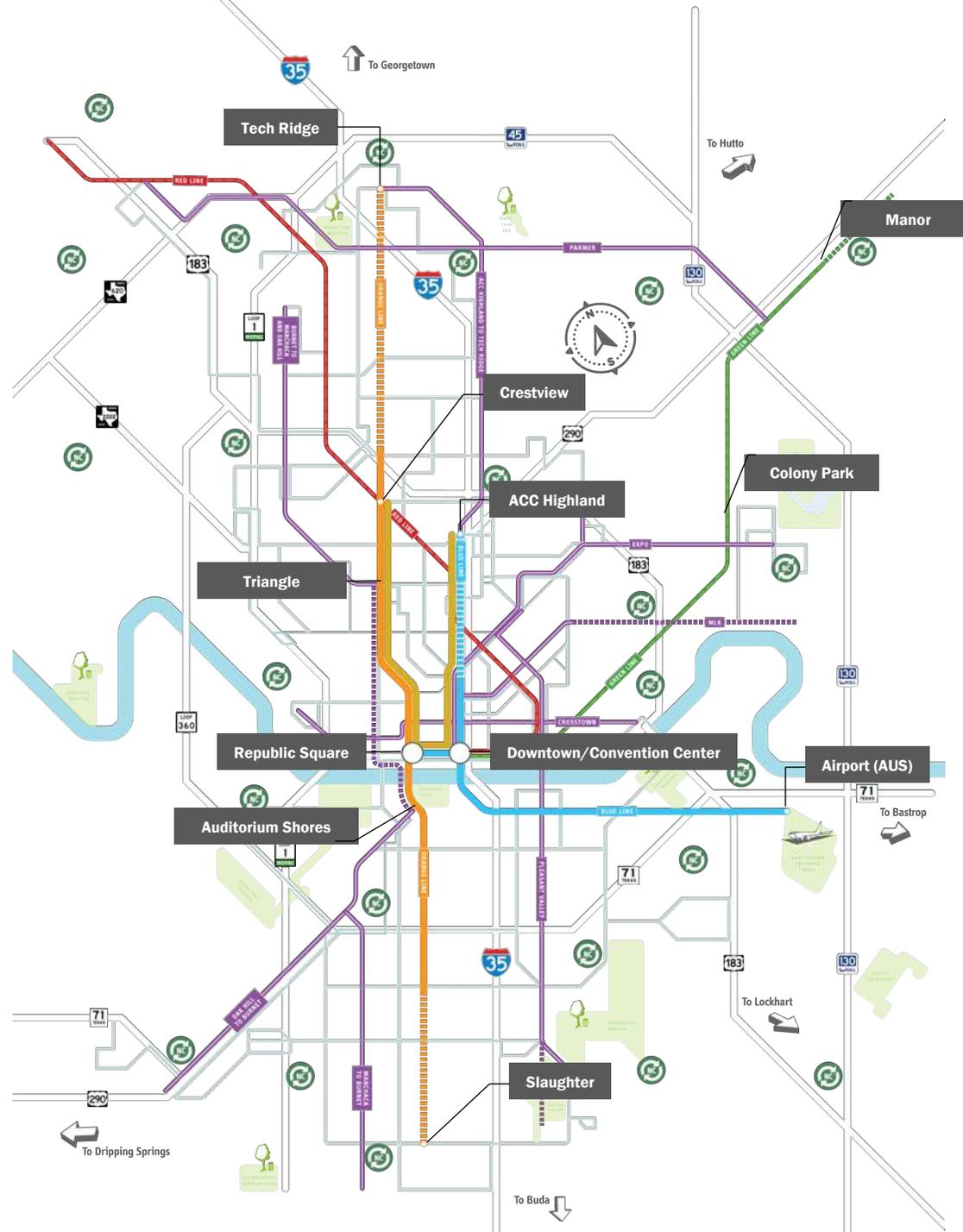
# LONG TERM VISION PLAN

- Better bus stops
- Greater frequency
- Real time arrival info
- Greater capacity



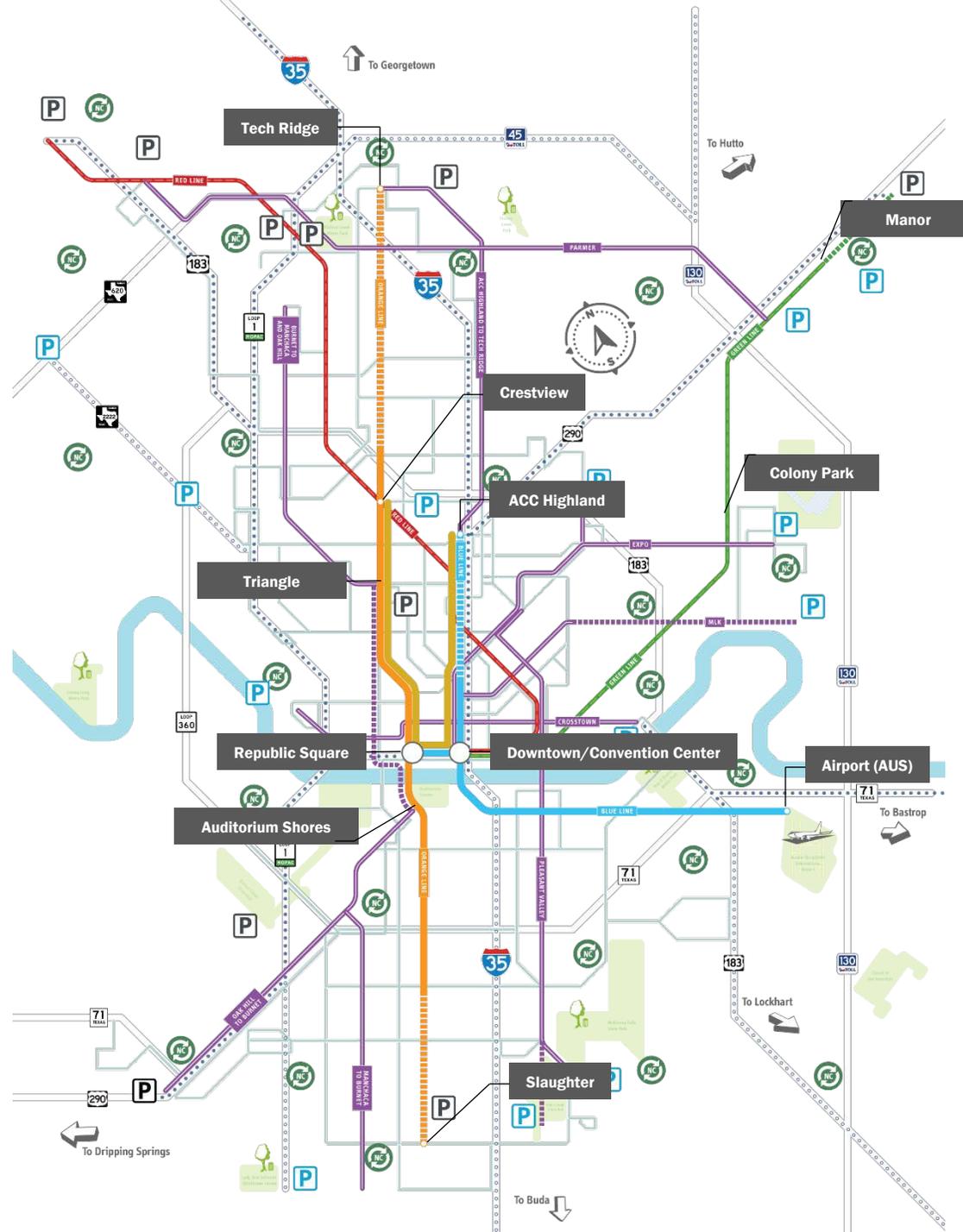
- Local Bus Service
- Commuter Rail
- Red & Future Green Lines
- High Capacity Rapid Transit
- Dedicated Pathways
- Alternative Operating Route
- MetroRapid Routes Transit Priority Treatments

# LONG TERM VISION PLAN



-  Local Bus Service
-  Commuter Rail
-  Red & Future Green Lines
-  High Capacity Rapid Transit
-  Dedicated Pathways
-  Alternative Operating Route
-  MetroRapid Routes  
Transit Priority Treatments
-  Neighborhood Circulators

# LONG TERM VISION PLAN



-  Local Bus Service
-  Commuter Rail
-  Red & Future Green Lines
-  High Capacity Rapid Transit
-  Dedicated Pathways
-  Alternative Operating Route
-  MetroRapid Routes
-  Transit Priority Treatments
-  Neighborhood Circulators
-  Existing Park & Ride
-  Proposed Park & Ride
-  Existing Regional Express Routes
-  Proposed Regional Express Routes



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# Community Engagement

# Learning, Listening & Collaborating

APRIL 11, 2019

**ASMP ADOPTION** Sets policy direction for dedicated transitways.



## LOCAL OUTREACH

Community and business meetings

Neighborhood association meetings

Street teams established

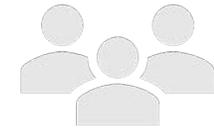


## ADVISORY GROUPS ENGAGED

Technical Advisory Committee

Project Connect Ambassador Network (PCAN)

## Weekly Corridors Program Coordination



## City Council & CapMetro Work Sessions

AUG  
6

NOV  
28

MAR  
4

OCT  
30

JAN  
9

## PEER CITY VISIT

 Fact finding missions to learn about other communities

Los Angeles



Seattle



Denver



Indianapolis

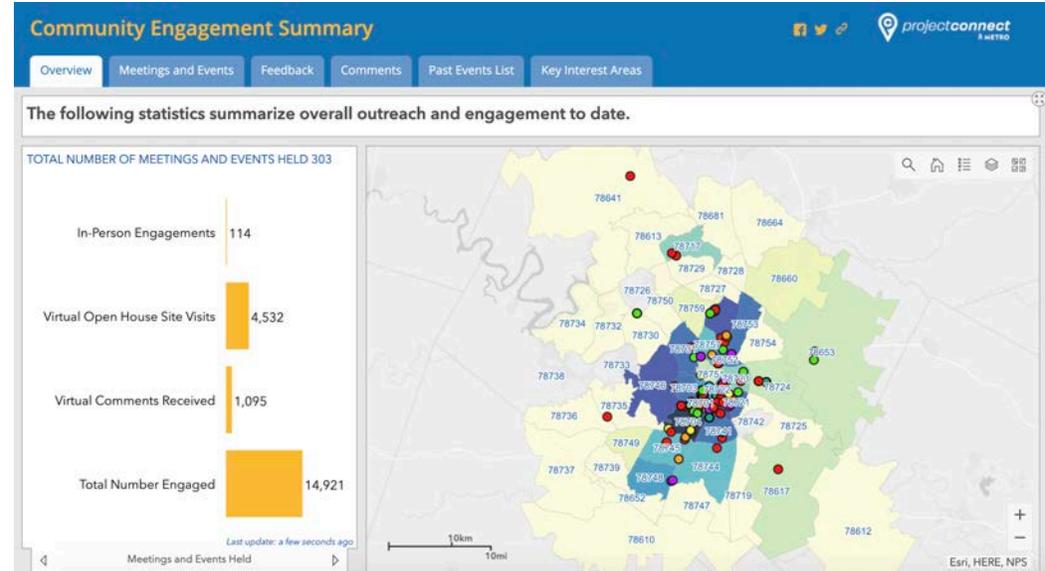


Minneapolis

# Where We've Been

## CONNECTING WITH THE COMMUNITY

- Nearly 15,000 People Engaged
  - Neighborhood, arts, business, faith, education, and health-related events
- Street Team outreach
- Community Office events
- Stakeholder group conversations
- Live & virtual open houses
- One-on-one discussions



# Project Connect Advisory Network (PCAN)

- Group of over 150 community organizations and stakeholders
- Meeting monthly to receive update and provide input to process
- Three subcommittees:
  - Technical
  - Communications
  - Placemaking



# Technical Advisory Committee Members

MONTHLY COORDINATION WITH TECHNICAL STAKEHOLDERS





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# Peer City Research

# Peer City Visits

## LOS ANGELES

- Dedicated ROW for BRT
- LRT system expansion
- Mature Art-in-Transit program

Recent Capital Investments:  
**Measure M - \$120 Billion (40 years)**



# Peer City Visits

## SEATTLE

- Bus only arterials in CBD
- Expansion of LRT system
- Integrated regional fare system

Recent Capital Investments:  
**Sound Transit 3 - \$54 Billion**



# Peer City Visits

## DENVER

- Integration of transit into buildings, public spaces
- Placemaking and art around stations

Recent Capital Investments:  
**FasTracks - \$8 Billion**



# Peer City Visits

## INDIANAPOLIS

- Dedicated lanes through major corridors
- Level-boarding, all-door boarding, real-time information

Recent Capital Investments:  
**Red Line BRT - \$100 Million**



# Peer City Visits

## MINNEAPOLIS

- Mixing bus and LRT in dedicated ROW
- Expansion of LRT and BRT

Recent Capital Investments:  
**System Expansion- \$3.1 Billion**





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# High Capacity Transit: Orange and Blue Lines

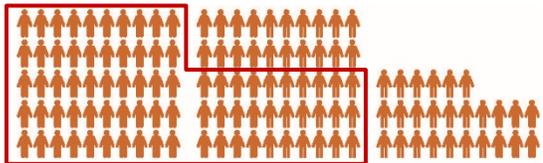
# Project Connect Key Differentiator

## TRANSITWAYS



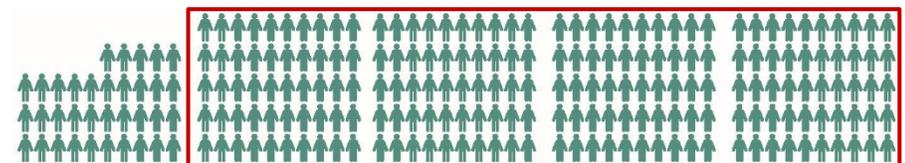
### PEOPLE MOVED PER LIGHT CYCLE

126 People - 80 in transit.



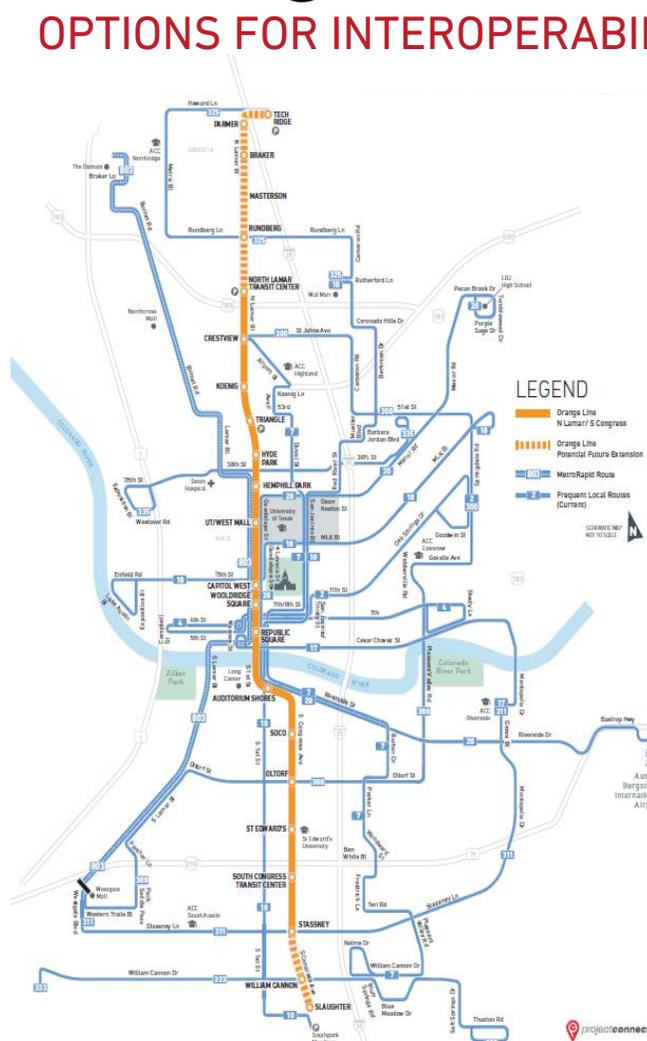
### PEOPLE MOVED PER LIGHT CYCLE

235 People - 204 in transit.

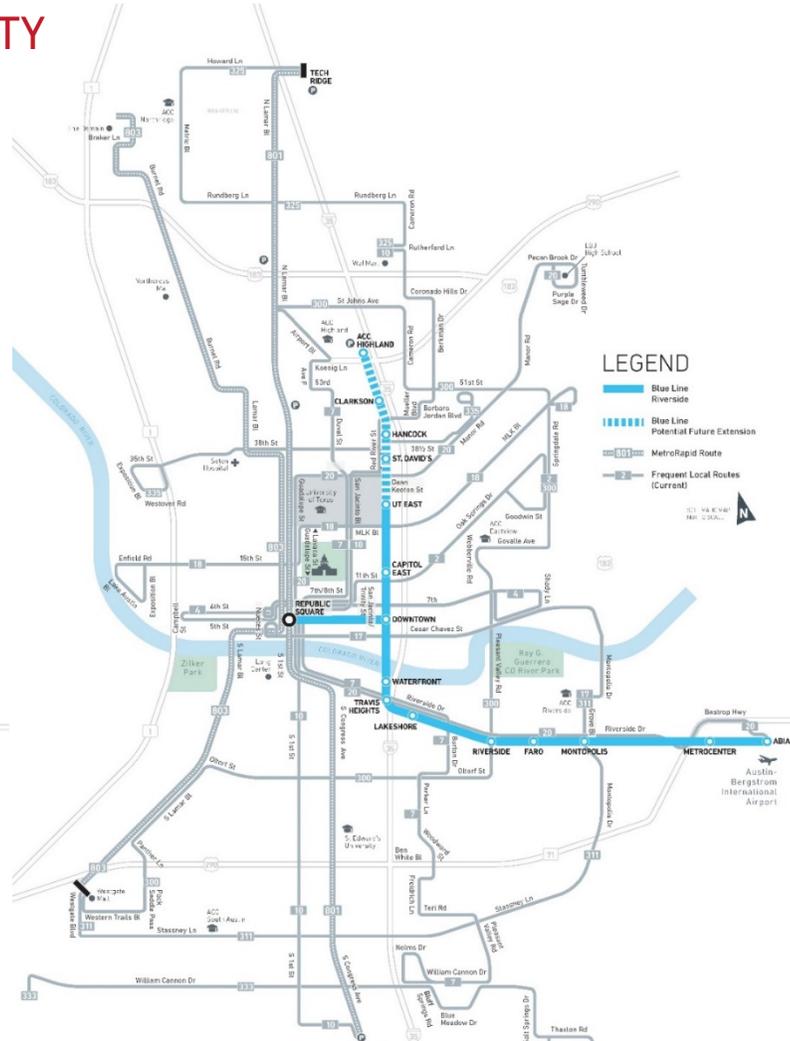


# Orange, Blue and Gold Lines

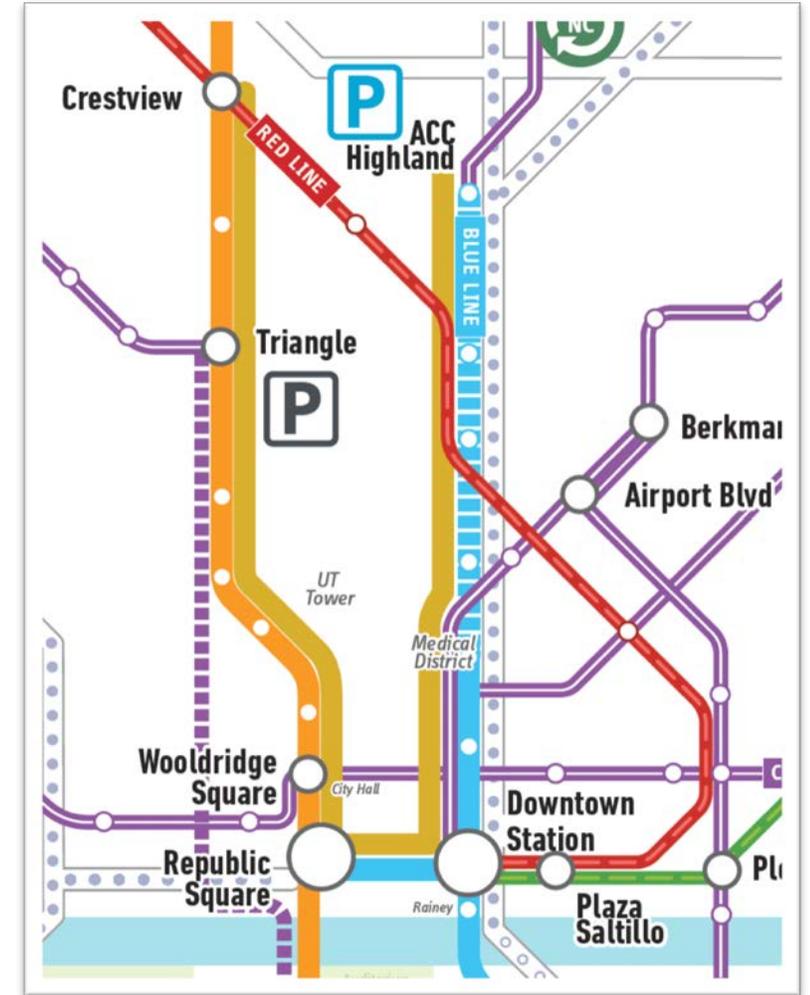
OPTIONS FOR INTEROPERABILITY



Orange Line



Blue Line



Gold Line – Operating Alternative

# Corridor - it's a question of geometry

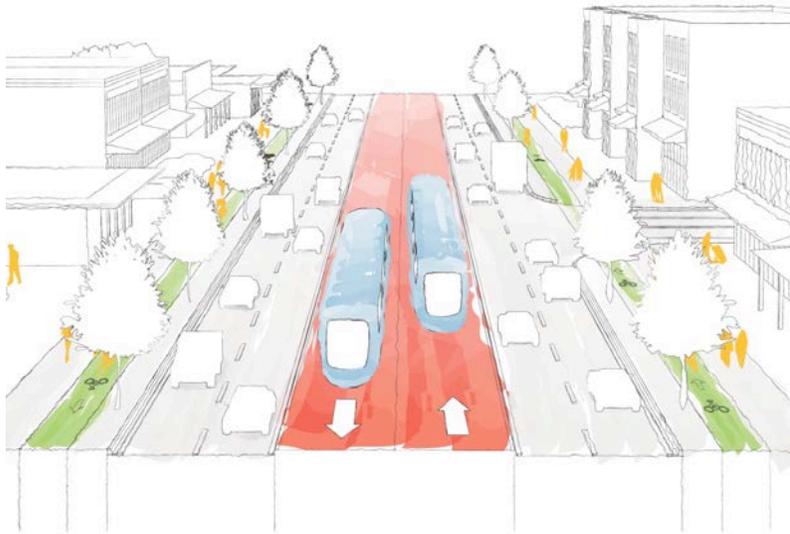


Existing Conditions

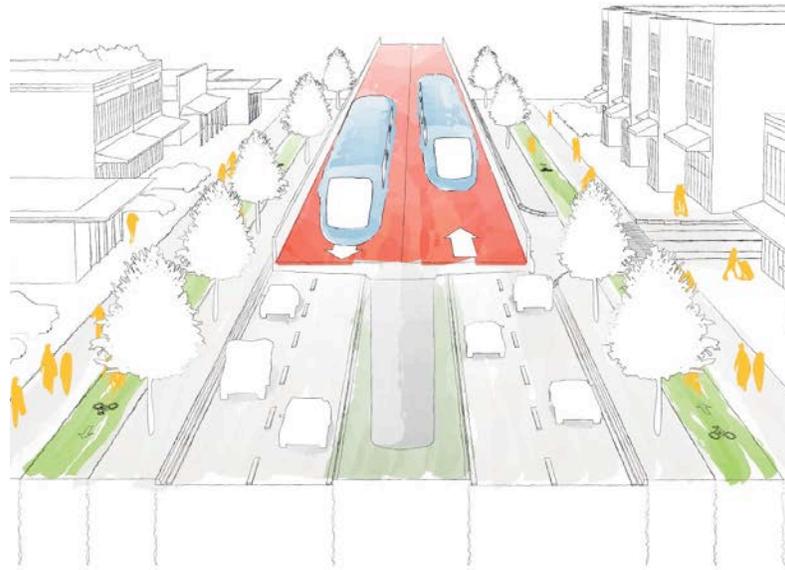
# Potential Corridor Configurations

## CONCEPTUAL ARTIST RENDERINGS

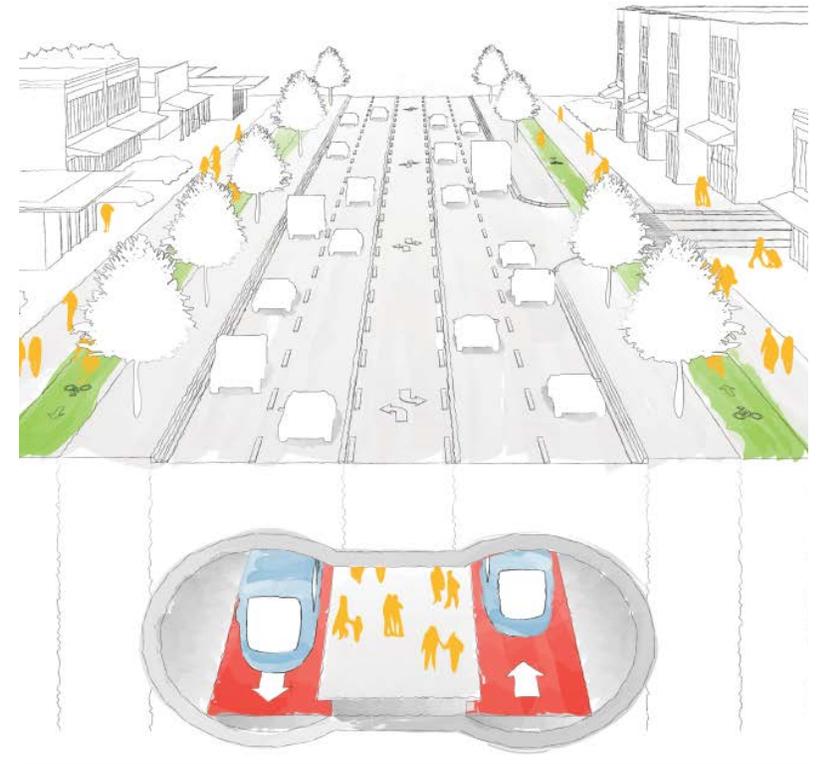
STREET LEVEL



ELEVATED



UNDERGROUND



# Orange Line

## CONCEPTUAL TECHNICAL SCREENING



Street Level



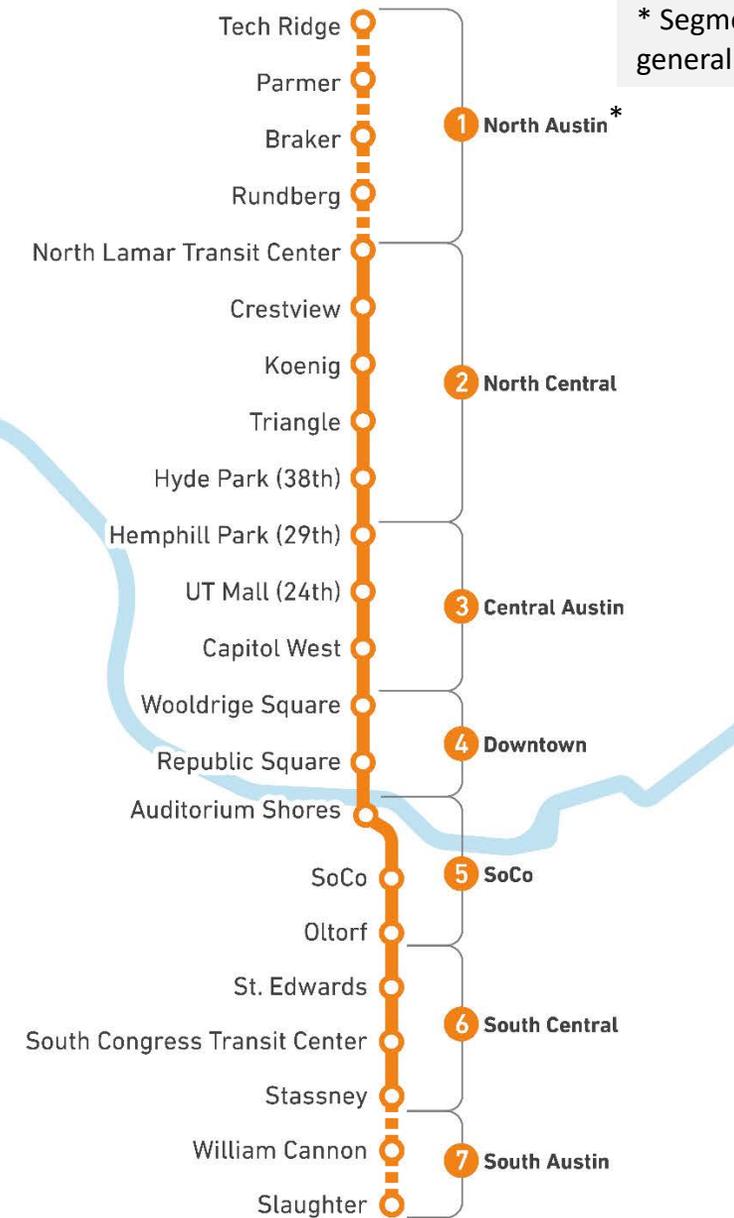
Elevated



Underground

	Street Level	Elevated	Underground
1. North Austin	✓	X <sup>1</sup>	X <sup>1</sup>
2. North Central	✓	✓	✓
3. Central Austin	✓	✓	✓
4. Downtown	✓	✓	✓
5. SoCo	✓	✓	✓
6. South Central	✓	X <sup>1</sup>	X <sup>1</sup>
7. South Austin	✓	X <sup>1</sup>	X <sup>1</sup>

<sup>1</sup> *Elevated and Underground not necessary due to limited street-level tradeoffs*



\* Segments have same general characteristics

# Blue Line

## CONCEPTUAL TECHNICAL SCREENING



Street Level



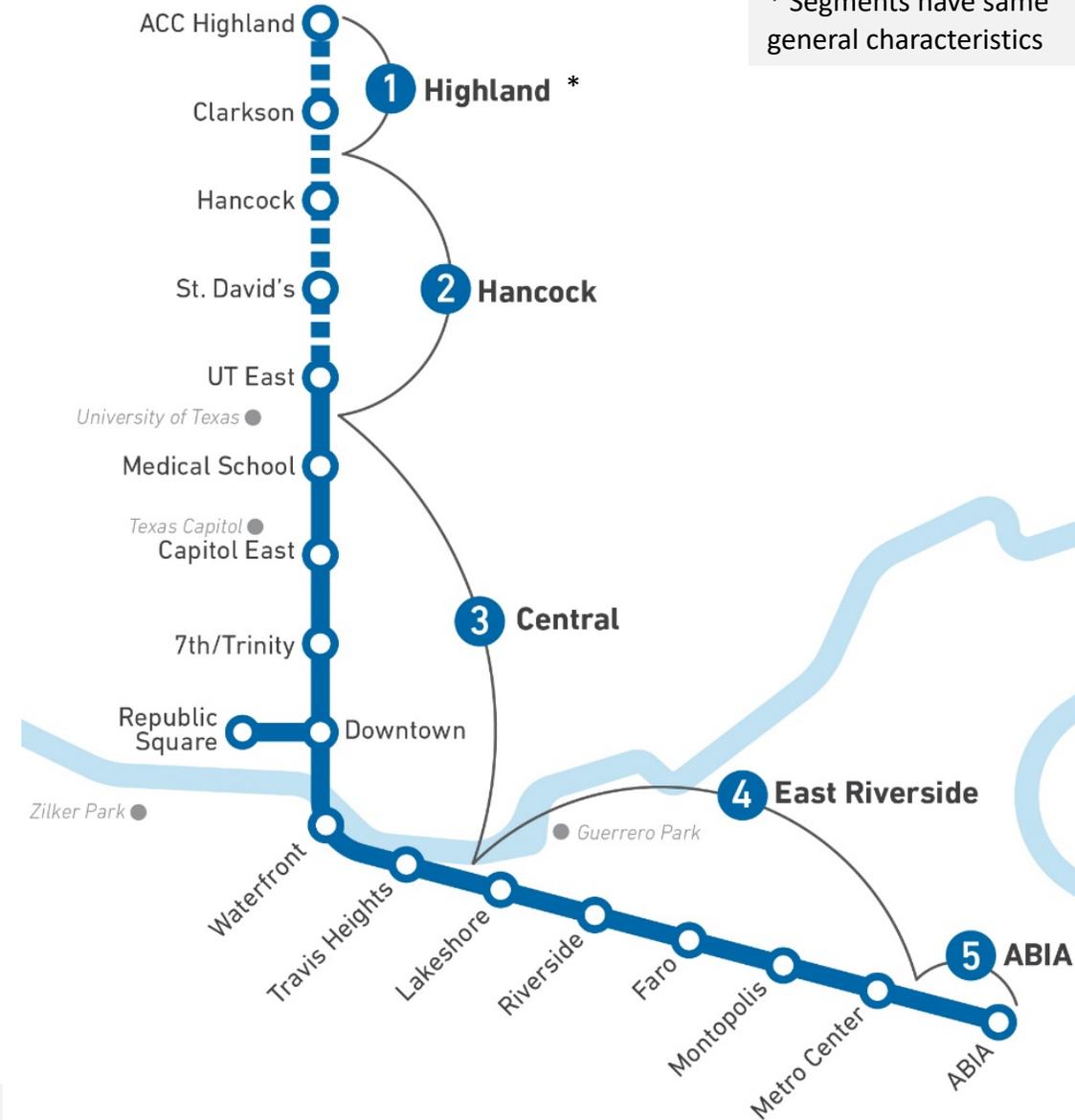
Elevated



Underground

	Street Level	Elevated	Underground
1. Highland	✓	X <sup>1</sup>	X <sup>1</sup>
2. Hancock	✓	✓	✓
3. Central	✓	✓	✓
4. E. Riverside	✓	X <sup>1</sup>	X <sup>1</sup>
5. ABIA	✓	✓	✓

<sup>1</sup> Elevated and Underground not necessary due to limited street level tradeoffs



# Transitway Treatment Examples

Center Running - BRT



Indianapolis, IN

Special Event - LRT



Phoenix, AZ

# Transitway Treatment Examples

Operating at Street Level – LRT



Houston, TX

BRT Dedicated Guideway



Montgomery County, MD

# Art in Transit & Placemaking

Used to integrate transit elements into the community and activate space

Integrated Art Elements - Houston



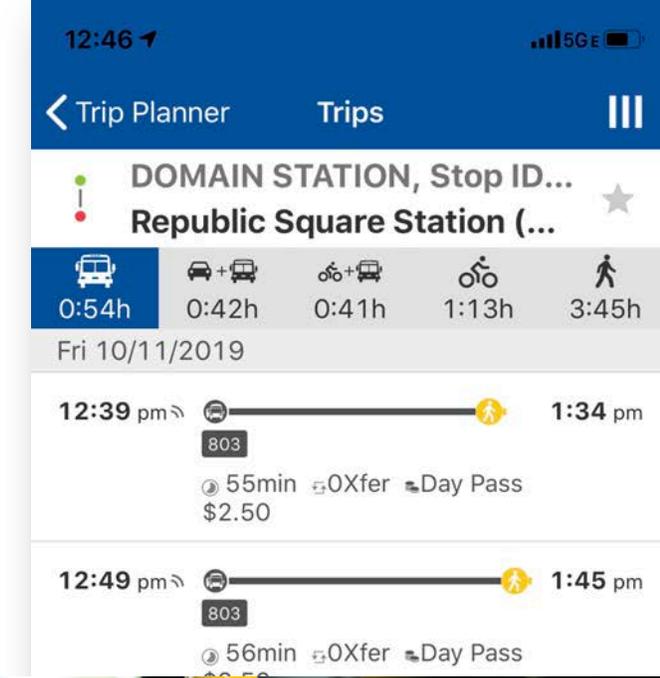
Placemaking - Denver



# One App & Account for Central Texas Mobility

Unified fare collection system across service types.

- Hard plastic cards
- Validators & kiosks; mobile apps
- Potential for TNCs, scooters, bikes, tolls and CARTS, parking
- Account based system with fare capping (equity)
  - Miami, Oakland, Indianapolis, Portland
  - Types: daily, weekly and monthly
- Off-board fare collection to speed up boarding



# Vehicle Characteristics



Stylized	✓	✓
Branded	✓	✓
On-board Bike Racks	✓	✓
Seating Areas and Standee Areas	✓	✓
Electric Powered	✓	✓
Total Capacity	<b>115</b>	<b>172</b>
Multiple Doors for Entry and Exit	<b>Five</b>	<b>Eight</b>
Wheelchair Self Securement	✓	✓

# Infrastructure and Operational Characteristics



Fast and Frequent	✓	✓
Signal Priority	✓	✓
Off-Board Payment Systems	✓	✓
Real-Time Passenger Information	✓	✓
Max Vehicles at Platform	3	3
Boarding at Stations	<b>Near Level / Level</b>	<b>Level</b>
Ride Quality (Concrete Guideway)	<b>Smooth</b>	<b>Smooth</b>
System Downtime for Nightly Maintenance	<b>Minimal</b>	<b>~ 2-4 Hours</b>

# BRT & LRT Maintenance Facilities

- Current facilities are at capacity
  - Maintenance and support facilities are needed for either mode selected
- Facility considerations
  - Size of facility & property need greater for light rail (30+/- acres for LRT versus 10-15 acres for BRT)
  - Light rail facility needs to be connected to system; a bus facility can be off route

Light Rail



Bus





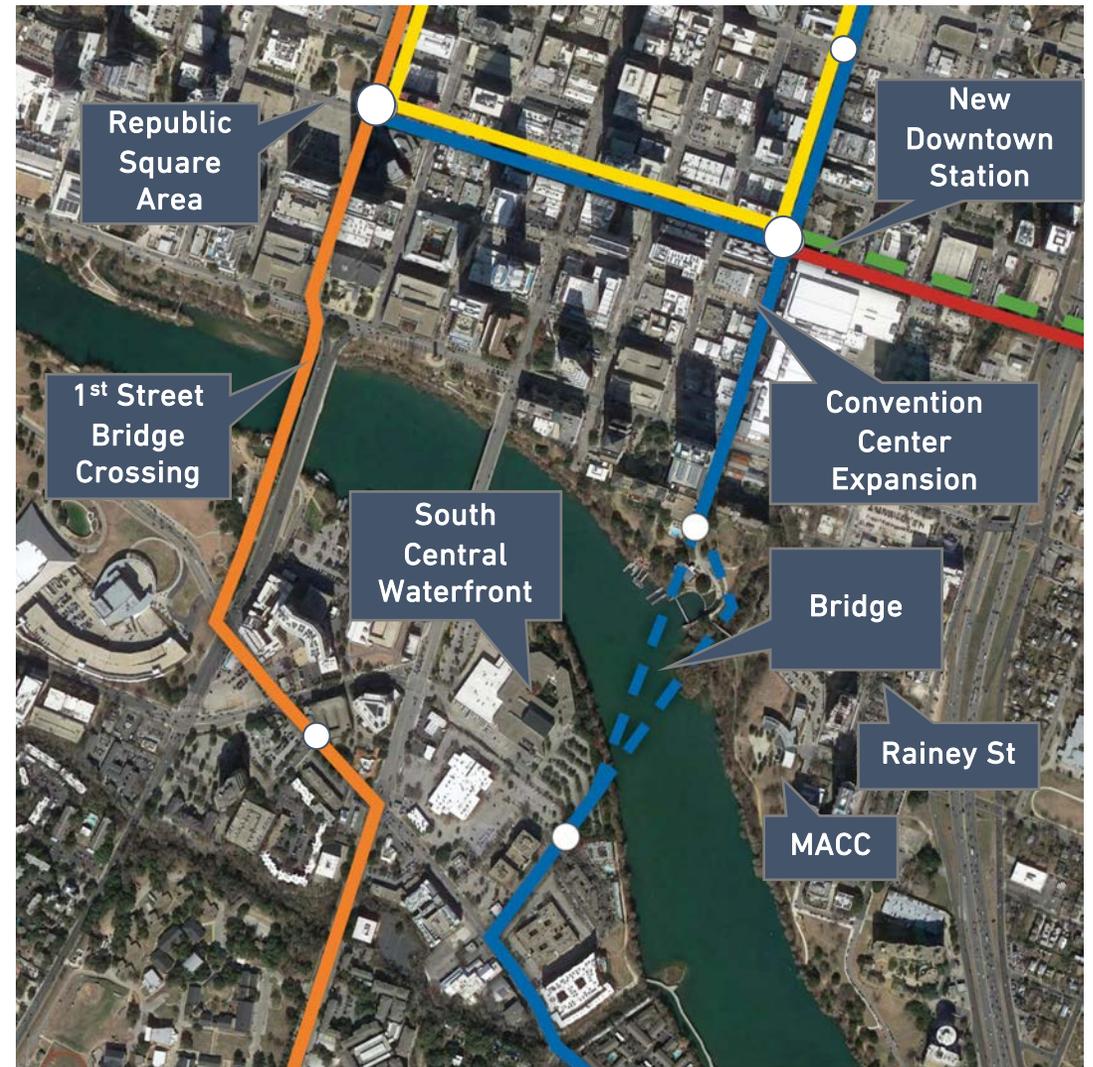
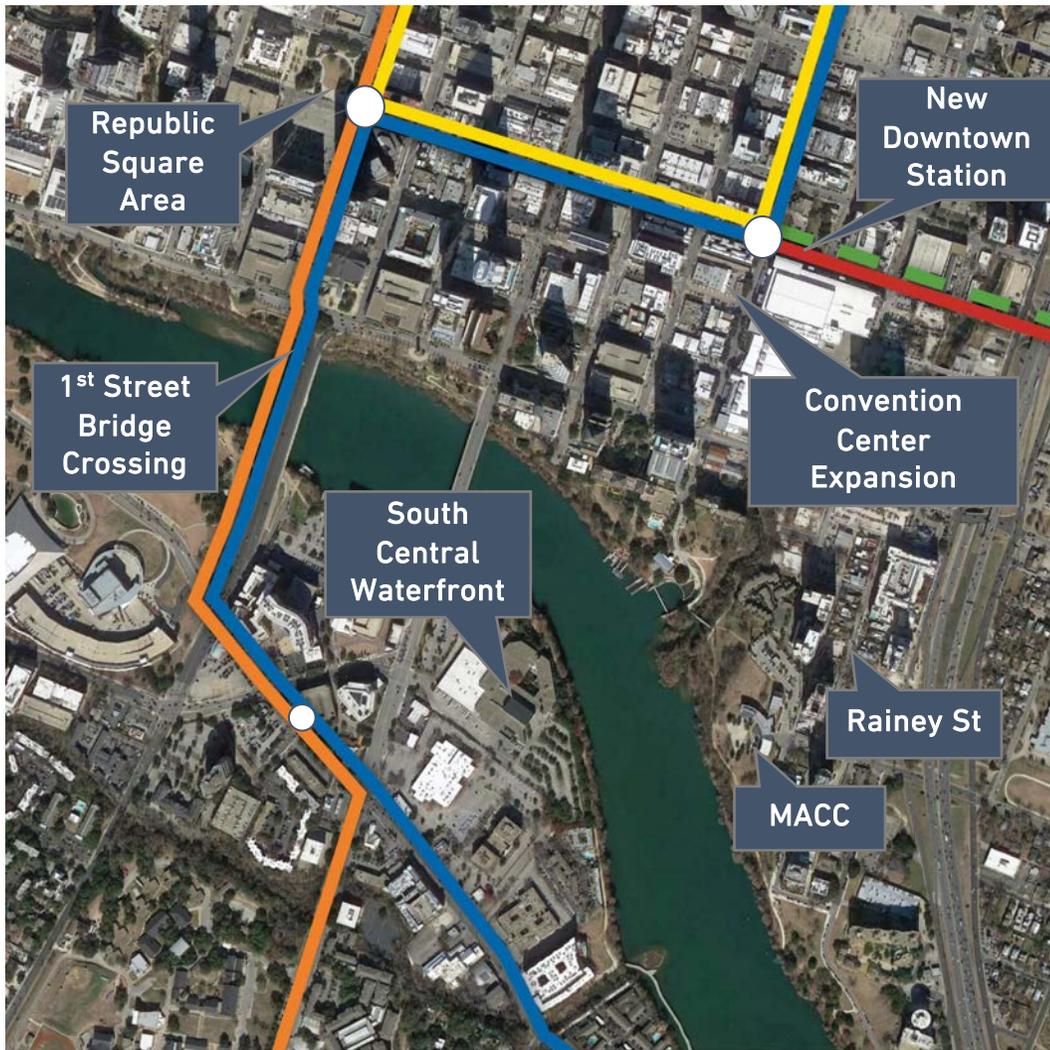
**METRO**



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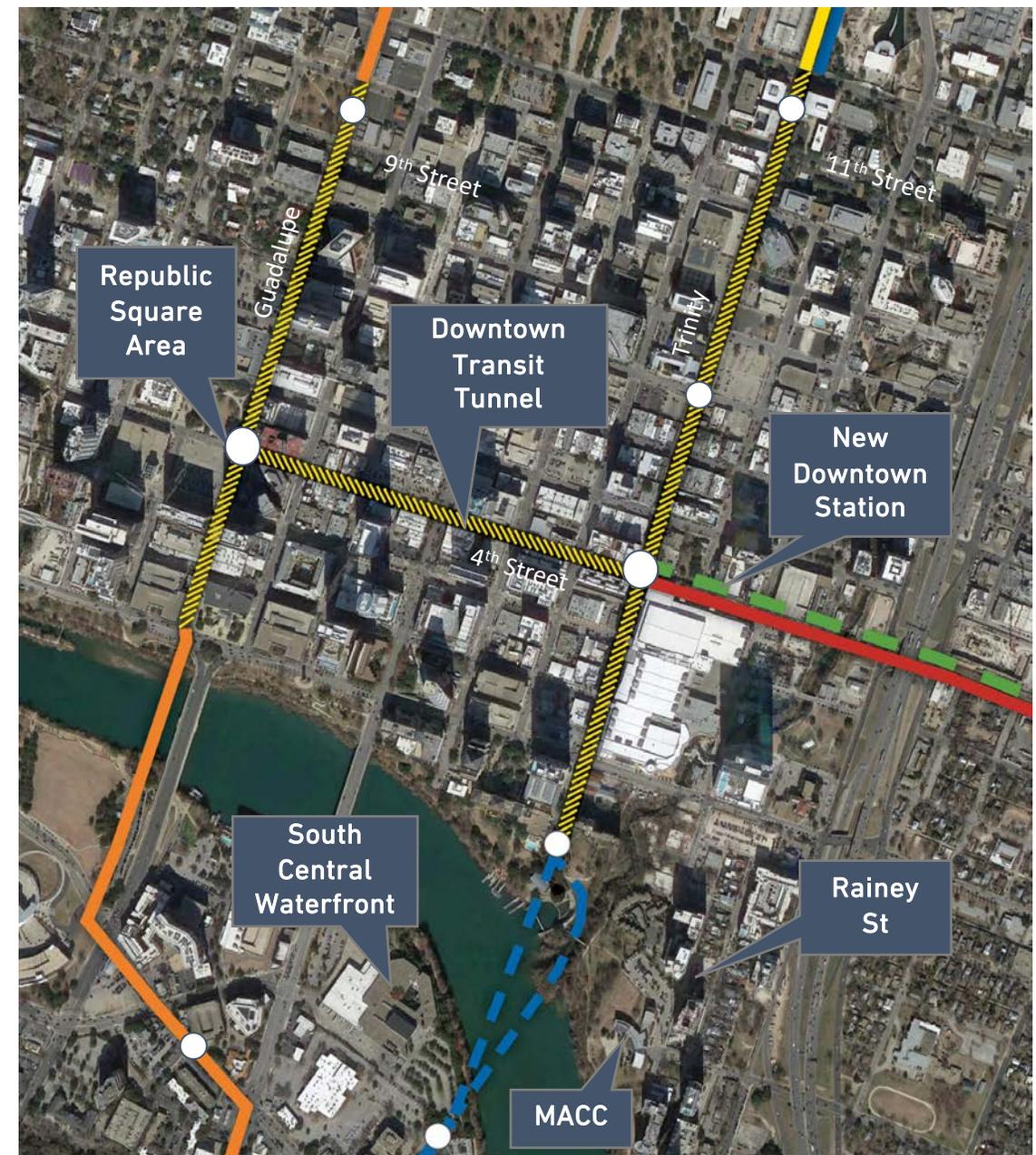
# Alternatives Analysis

# Downtown Alignment Options



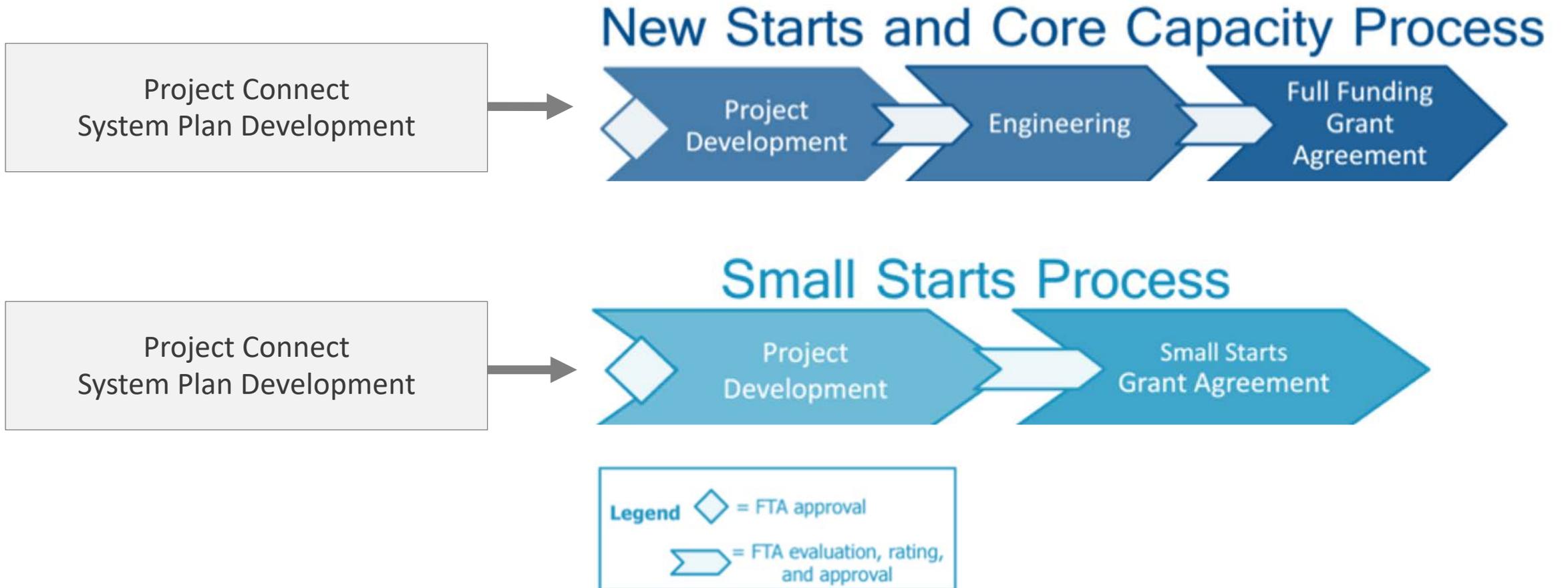
# Downtown Transit Tunnel

- Results
  - Conflict-free transitway
  - Improved frequency
  - Improved reliability
  - Generational investment
  - Portal location conflicts
- Option 1
  - Trinity from Lake to 11<sup>th</sup>, 4<sup>th</sup> from Trinity St. to Guadalupe, and Guadalupe from Cesar Chavez to 9<sup>th</sup>
  - Order of Magnitude cost: \$2.3-\$2.5B
- Option 2
  - Exclude tunnel on Trinity St. from 4<sup>th</sup> to 11<sup>th</sup>
  - Order of Magnitude cost: \$1.9-\$2.0B



# Federal Process

## Project Connect Update and Federal Funding Process



# Timeline to Operation

Service/Mode	Years from Funding Approval & Env. Clearance
Bus Rapid Transit – Orange and Blue	3 – 4 Years
Light Rail Transit – Orange and Blue	4 – 6 Years
MetroRapid	2 – 3 Years
MetroExpress	1 – 2 Years
Neighborhood Circulators	1 Year

- Preliminary timelines after approval of funding and environmental clearance
- Actual timelines will be dictated by final alternatives selected

# Modeling and Cost Methodology

- Ridership and Travel Times utilize 2040 CAMPO data in the FTA STOPS (Simplified Trips-on-Project Software) model
  - Utilizes local information and national data to forecast ridership results
  - Base service plan outlines operational characteristics
  - Model evolves and is upgraded based on results from other programs and projects
- Capital cost estimates were developed using data from other projects and local conditions
  - Capital cost carry a 3.5% per year inflation factor to midpoint of expenditure
- Operations and Maintenance costs:
  - LRT – peer cities and national transit database
  - BRT – based on historical operating and maintenance costs
  - MetroRapid – based on historical operating and maintenance costs
  - Green Line – based on Red Line

**Note:** CAMPO 2040 model does not incorporate all known growth (i.e. Rainey St., South Waterfront Dev., etc.)  
Anticipate updated CAMPO data in May 2020.

# Orange Line - PRELIMINARY RESULTS

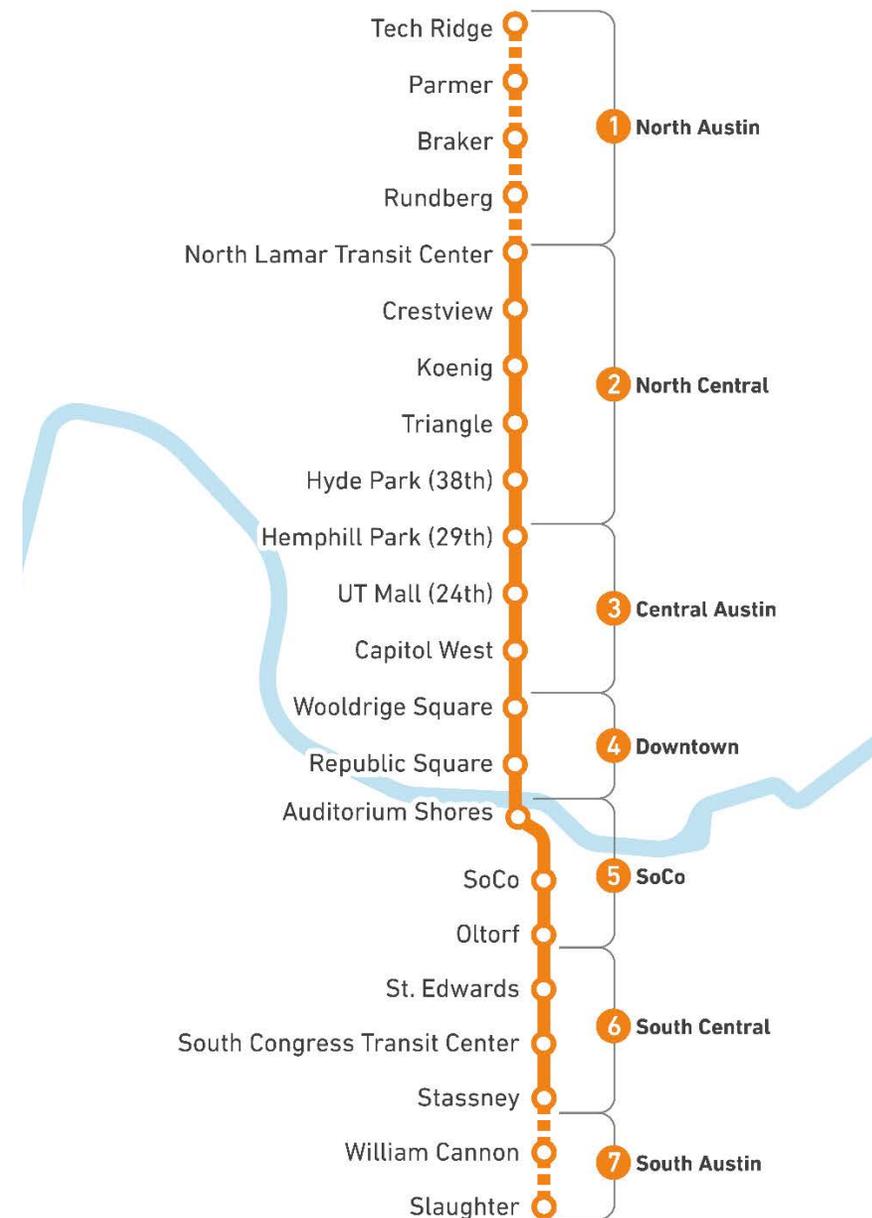
## Street Level

Key Metrics	Bus Rapid Transit	Light Rail Transit
Ridership Potential (2040)	45,000-54,000	54,000-62,000
End-to-End Travel Time (min)	53 min	53 min
Capital Cost, 2025\$ (B)	\$2.0B	\$3.8B
O&M, 2028\$, (M) (Gross)	\$23M-\$25M	\$47M-\$49M

## Elevated (Partial)

Key Metrics	Bus Rapid Transit	Light Rail Transit
Ridership Potential (2040)	54,000-66,000	66,000-74,000
End-to-End Travel Time (min)	42 min	42 min
Capital Cost, 2025\$ (B)	\$3.5B	\$5.1B
O&M, 2028\$, (M) (Gross)	\$29M-\$32M	\$52M-\$57M

Ridership potential is based upon the FTA STOPS model.



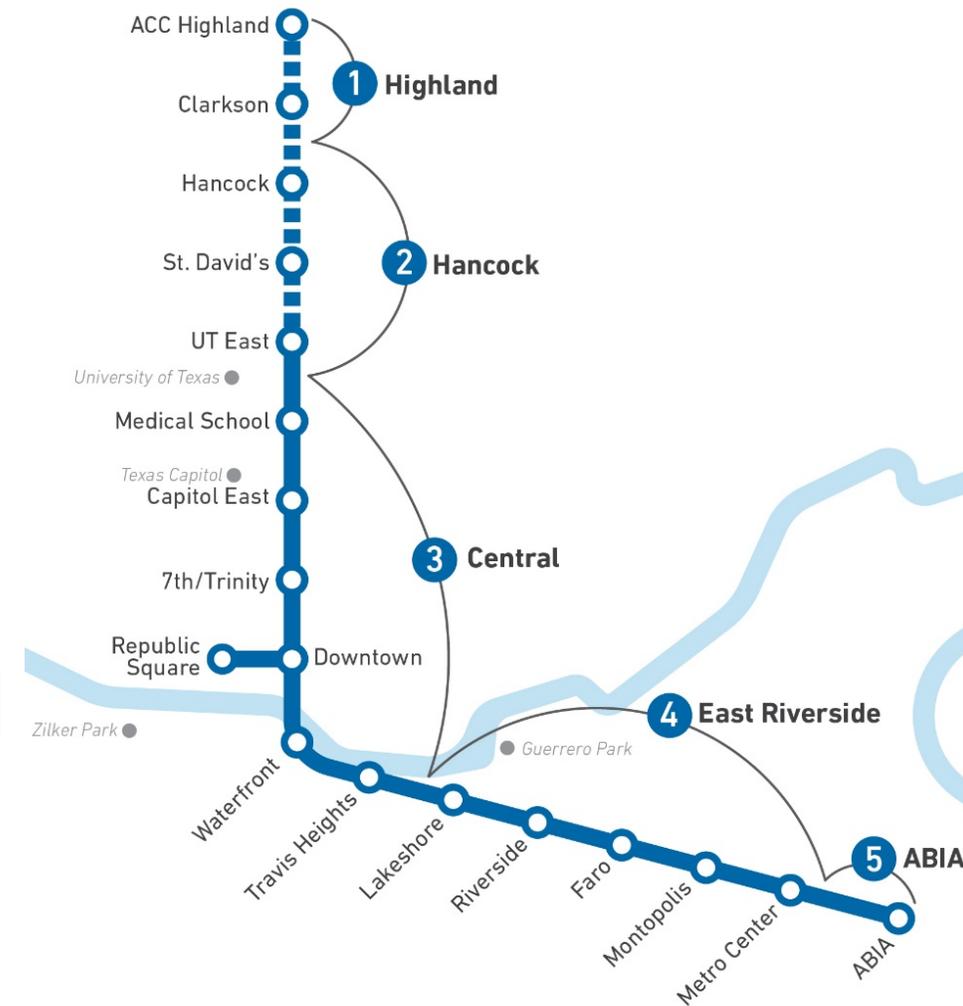
# Blue Line - PRELIMINARY RESULTS

## Street Level

Key Metrics	Bus Rapid Transit	Light Rail Transit
Ridership Potential (2040)	30,000-41,000	38,000-49,000
End-to-End Travel Time (min)	42 min	45 min
Capital Cost, 2025\$ (B)	\$1.2B	\$2.5B
O&M, 2028\$, (M) (Gross)	\$14M-\$16M	\$33M-\$37M

## Elevated (Partial)

Key Metrics	Bus Rapid Transit	Light Rail Transit
Ridership Potential (2040)	36,000-45,000	44,000-52,000
End-to-End Travel Time (min)	35 min	37 min
Capital Cost, 2025\$ (B)	\$2.0B	\$3.0B
O&M, 2028\$, (M) (Gross)	\$18M-\$20M	\$28M-\$30M



Ridership potential is based upon the FTA STOPS model.

# Conceptual Capital Cost

## System Elements

MetroRapid	MetroRail Red	MetroRail Green	MetroExpress & Park and Rides	Neighborhood Circulators	Support Facilities (Bus and/or Rail)	Fare Collection Systems
\$150M-\$170M	\$55M-\$65M (Phase I) \$340M-\$380M (Phase II)	\$460M-\$510M	\$180M-\$220M	\$2M-\$3M	\$250M-\$300M	\$20M-\$30M
System Elements Subtotal			\$1.5B – \$1.7B			

## High Capacity Rapid Transit (2025\$)

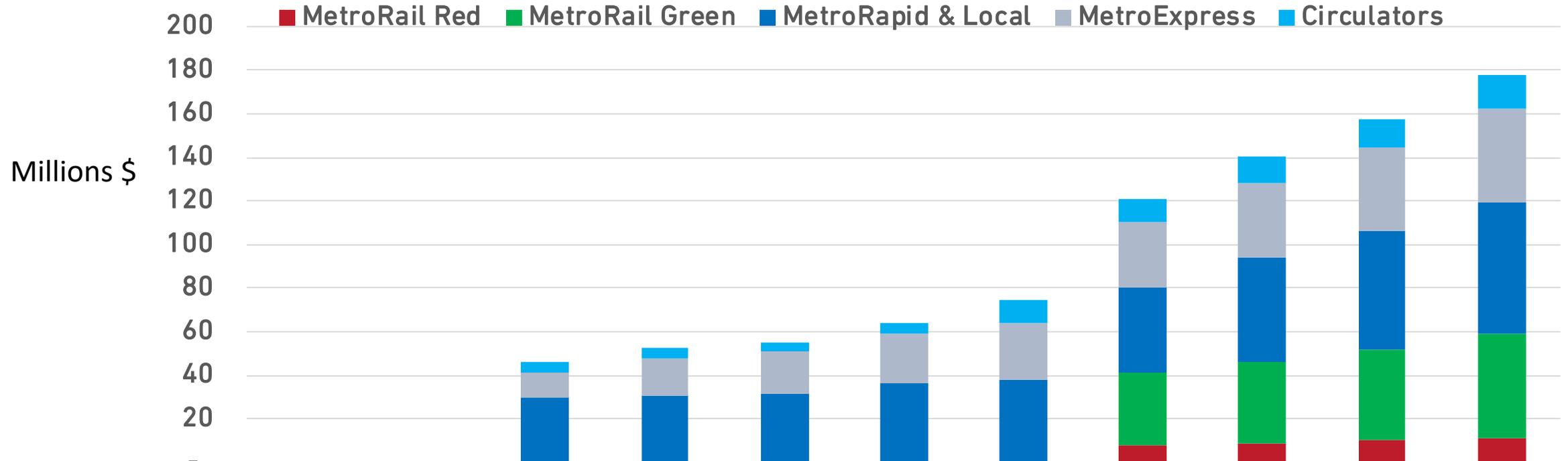
	Bus Rapid Transit	Light Rail Transit
Orange Line	\$2.0B-\$3.5B	\$3.8B-\$5.1B
Blue Line	\$1.2B-\$2.0B	\$2.5B-\$3.0B
High Capacity Rapid Transit Subtotal	\$3.2B - \$5.5B	\$6.3B - \$8.1B

Program Range Grand Total	\$4.7B - \$7.2B	\$7.8B - \$9.8B
40% Federal Funding	\$1.9B - \$2.9B	\$3.1B - \$3.9B
Local Funding	\$2.8B - \$4.3B	\$4.7B - \$5.9B

\*FTA Funding Assumption of 40%

# Conceptual Operating Costs

COSTS EXCLUDE ORANGE AND BLUE LINES



	2021	2022	2023	2024	2025	2026	2027	2028	2032	2036	2040
Circulators	-	-	5	5	5	5	10	10	12	13	15
MetroExpress	-	-	12	17	19	23	26	31	34	39	44
MetroRapid & Local	-	-	30	31	32	37	38	39	48	54	61
MetroRail Green	-	-	-	-	-	-	-	33	37	42	47
MetroRail Red	-	-	-	-	-	-	-	8	9	10	11
<b>Annual Total (M)</b>	<b>0</b>	<b>0</b>	<b>47</b>	<b>53</b>	<b>56</b>	<b>65</b>	<b>74</b>	<b>121</b>	<b>140</b>	<b>158</b>	<b>178</b>



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# Policy and Next Steps

# Planning Milestones



**Community Engagement Ongoing**



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# Discussion



Austin City Council/ Capital Metro Board

# JOINT WORK SESSION

OCTOBER 30, 2019