CENTRAL CORRIDOR ADVISORY GROUP

MEETING #9

February 21, 2014 1:30 pm – 3:30 pm

Austin City Hall, Council Chambers

projectconnect
central corridor

1 Agenda

1) Welcome & Introductions
2) Public Involvement Update
3) Project Purpose & Service Profile
4) Mode Screening
5) Alignment Screening
6) Recommended Final Alternatives
7) Next Steps
8) Citizen Communication
9) Next Meeting – March 21, 2014

1 CCAG Charge

The CCAG will:

- Ensure open and transparent public process
- Advise Mayor and project team in prioritizing and defining a preferred alignment for the next high-capacity transit investment for the Central Corridor
- Assist project team in a meaningful dialogue with the community

1 Capital Metro and Lone Star Action

- Capital Metro Board, January 29th
- Lone Star Rail Board Executive Committee, February 7th
- Resolved (CMTA @ 7-0 & LSRD @ 4-0):
  - Endorsed Phase 1 Recommendation of East Riverside and Highland
  - Identify needs and sources for more Central Corridor project development activities (NEXT TIER S-Cs)
  - Continue to work with FTA for future HCT investments in Lamar

1 Phase 2 Work Plan & Schedule

Decision-Making Process

- Phase 2: Select Locally Preferred Alternative (LPA)

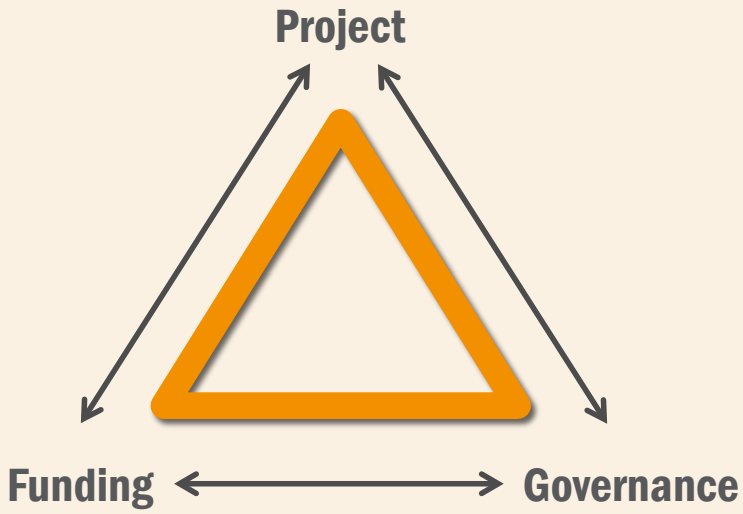
Current Progress

Central Corridor High-Capacity Transit Study Work Plan

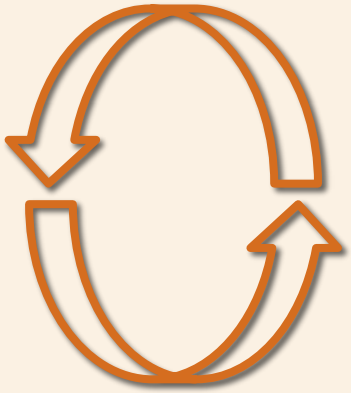
				2013			2014			
				6	7	8	9	10	11	12
				Dec	Jan	Feb	Mar	Apr	May	Jun
Phase 2 Select Draft Locally Preferred Alternative (LPA)	Step 4: Identify Preliminary Alternatives	Task 9	Project Purpose							
		Task 10	Process – Methodology & Criteria							
		Task 11	Identify & Screen Preliminary Alternatives – Service, Mode & Alignment							
	Step 5: Define Final Alternatives	Task 12	Define Final Alternatives – Mode & Alignment							
	Step 6: Evaluate Alternatives	Task 13	Evaluate Final Alternatives							
	Step 7: Select LPA	Task 14	Select Draft Locally Preferred Alternative (LPA)							
			Decision							*

1 Phase 2 Objectives

- Project Definition
  - Service, mode, alignment, stops
- Funding Plan
  - Capital and O&M costs, funding sources
  - *Within* overall Project Connect Plan
- Governance Structure (TWG)

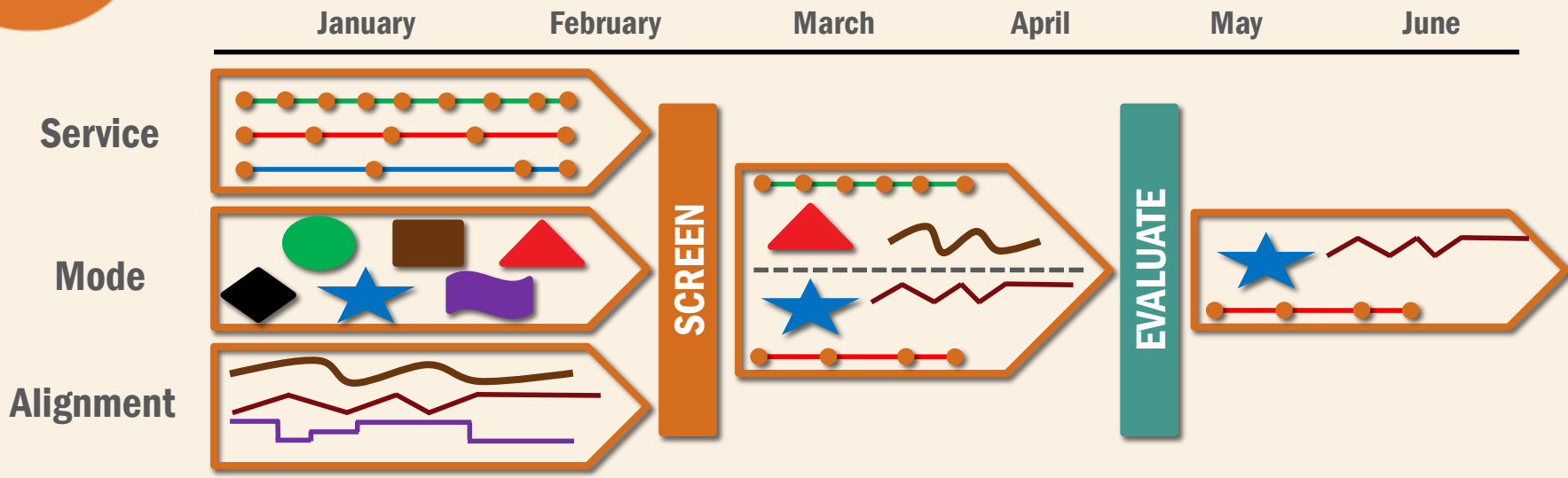


1 Evaluation Process



- Identify Preliminary Alternatives
- Screen Preliminary Alternatives
- Define Final Alternatives
- Evaluate Final Alternatives
- Select Draft LPA

1 Evaluation Process



Activities	Qualitative	Quantitative	Quantitative
	Meet Purpose?	*Best Meets Purpose?*	*Competitiveness/ Benefits?*
	• Demographics	• Ridership	• Economic Impacts
	• Destinations	• Detailed Costs	• Prelim FTA Rating
	• Logical Termini	• Stations	
	• Technical Feasibility	• FTA Criteria	
		• Maintenance Facility	

2 Public Involvement Update

2 Public Outreach Update: Recent Activities

- 1/17 Mueller Neighborhood Association
- 1/22 Austin Neighborhoods Council (ANC)
- 1/23 Greater Austin Black Chamber of Commerce
- 1/27 UT Faculty Senate
- 2/3 South River City Citizens
- 2/4 Central Texas Chapter of the American Council of Engineering Companies (ACEC)
- 2/5 Capital Metro Access Advisory Committee
- 2/11 Urban Transportation Commission (UTC)
- Oak Hill Association of Neighborhoods (OHAN)

2 Public Outreach Update

- February 8th Public Workshop at ACC Highland
  - 166 participants
  - Topics: Purpose, service, modes and alignments
- Online Engagement Tool
  - MetroQuest
  - Opened Wednesday, February 12th
  - Input incorporated thru Wednesday, February 19th
  - Continue to use for input on Final Alternatives
- Input Report Published Today
  - Includes <u>all</u> survey responses and comments

2 Public Outreach: Online Input

Purpose Statements	
Congestion	1.62
System	1.98
Core	2.02
Growth	2.16
Centers	2.20
Funding	2.21
Constraints	2.33

Service Characteristics	
Reliability	1.90
Frequency	1.93
Speed	2.47
Stop Spacing	3.04

2 Public Outreach Update: Upcoming Activities

- 2/21 Feria para Aprender
- 2/26 Austin Homebuilders Association
- 3/4 OWANA (Old West Austin/Clarksville quarterly meeting)
- 3/4 Interfaith Environmental Network
- 3/5 Circle C Annual meeting
- 3/5 Allandale Neighborhood Association
- 3/11 South Austin Civic Club
- 3/11 Urban Transportation Commission (UTC)

3 Project Purpose & Service Profile

3 Project Purpose

Congestion
1

Core
3

Centers

Constraints

Growth

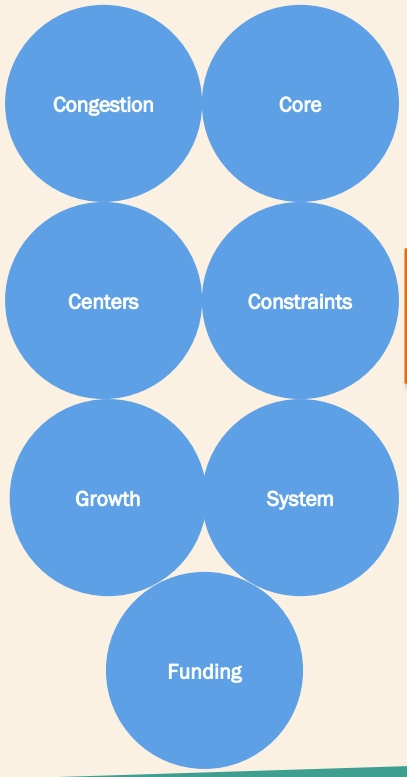
System
2

Funding

Congestion is the number one citizen priority by a wide margin.

3 Recommended Service Profile

Project Purpose used to define Service Profile



- Service Characteristics
  - Reliability
  - Frequency
  - Stop Spacing
  - Speed

Recommended Service Profile

Medium Reliability

Medium-High Frequency

Medium-High Stop Spacing

Medium Speed

3 Service Profile: Reliability

- Does the service arrive according to its timetable and is it affected by congestion?

Will the transit service arrive on time?

Does it run on time during rush hour as well as during other times?

3 Recommended Service Profile: "Medium" Reliability

Recommended Service Profile
- **Medium** Reliability
- **Medium-High** Frequency
- **Medium-High** Stop Spacing
- **Medium** Speed

Reliability

Mostly Dedicated

Mixed Traffic	Transit Priority/ Pre-emption	Dedicated Guideway	Separated Guideway	Fully Separated Guideway

- Advantages of higher reliability
  - Predictable; competitive alternative to driving
  - Improved connectivity to other modes
- Disadvantages of higher reliability
  - Guideway elements may not be compatible with physical environment
  - Increased capital cost; reduced cost-effectiveness

Congestion	System
Predictability	Improved Connectivity

Constraints	Funding
Incompatible Guideway Elements	Increased Capital Cost

2 Service Profile: Frequency

- What is the frequency of the transit service? Is the service frequent enough to allow for multiple connections when trips require transfers?

How long do I have to wait before the next vehicle comes around?

Can I transfer quickly and easily?

3 Recommended Service Profile: "Medium-High" Frequency

Recommended Service Profile
- Medium Reliability
- **Medium-High Frequency**
- Medium-High Stop Spacing
- Medium Speed

Peak Frequency

10 – 15

5 minutes — **60 minutes**

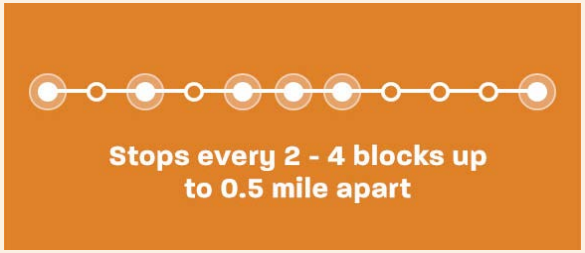
- Advantages of higher frequency
  - Improved access to the core results in greater convenience
  - Better accommodates transfers
  - Better supports current and future demand
- Disadvantages of higher frequency
  - Increased operations and maintenance cost; may require higher level of separated guideway

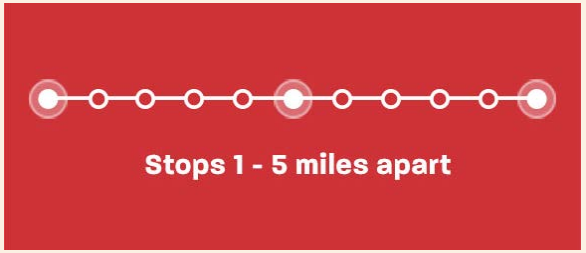
Core	System
Access and Convenience	Improved Connectivity
Growth	**Funding**
Supports Demand	Increased O&M Cost

3 Service Profile: Stop Spacing

- How far apart are the stations? What is the connectivity between multiple transit routes?

How far will I have to walk from the station to my destination?





3 Recommended Service Profile: "Medium-High" Stop Spacing

Stop Spacing

½ – 1 mile

< ¼ mile **> 5 miles**

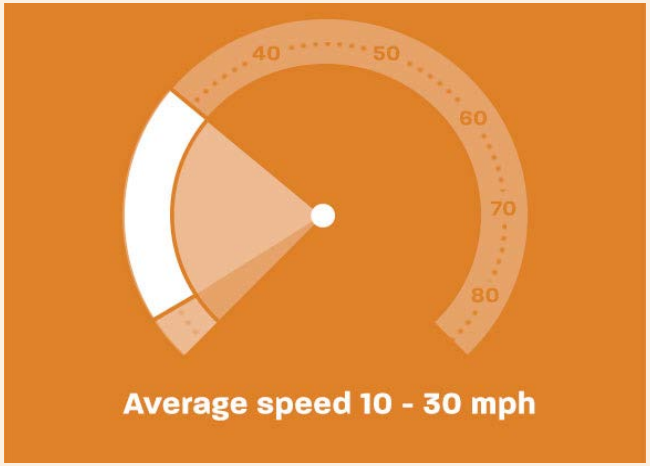
- Advantages of closer stop spacing
  - Improved access to activity centers
  - Supports additional economic development opportunities
- Disadvantages of closer stop spacing
  - Reduced operating speeds results in less competitive travel time
  - Increased O&M and capital costs

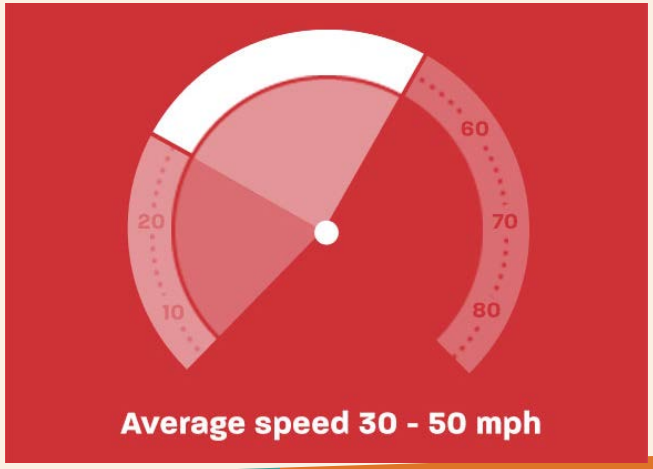
Centers	Growth
Improved Access	Supports Economic Development
Congestion	**Funding**
Increased Travel Time	Increased Cost

3 Service Profile: Speed

- What is the operating speed between stations? Is travel time competitive with automobile and what does that comparison look like for future year?

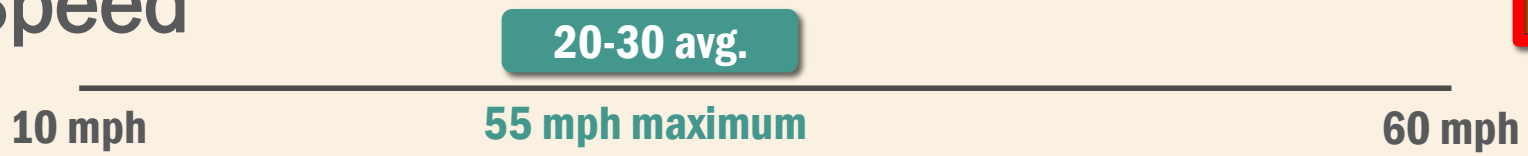
Will my total trip take about as long as taking my car?





3 Recommended Service Profile: "Medium" Speed

Speed



- Advantages of higher speed
  - Travel time is competitive with congested roadways
- Disadvantages of higher speed
  - Requires separation of guideway elements that may not be compatible with physical environment
  - Increased capital cost; reduced cost-effectiveness

Congestion
Better Travel Time

Constraints	Funding
Incompatible Guideway Elements	Increased Capital Cost

3 Recommended Service Profile

Recommended Service Profile

- **Medium** Reliability
- **Medium-High** Frequency
- **Medium-High** Stop Spacing
- **Medium** Speed

Reliability

Mostly Dedicated

Mixed Traffic | Transit Priority/ Pre-emption | Dedicated Guideway | Separated Guideway | Fully Separated Guideway

Frequency

10 – 15

5 minutes — 60 minutes

Stop Spacing

½ – 1 mile

< ¼ mile — > 5 miles

Speed

20-30 avg.

10 mph — 55 mph maximum (including stops) — 60 mph

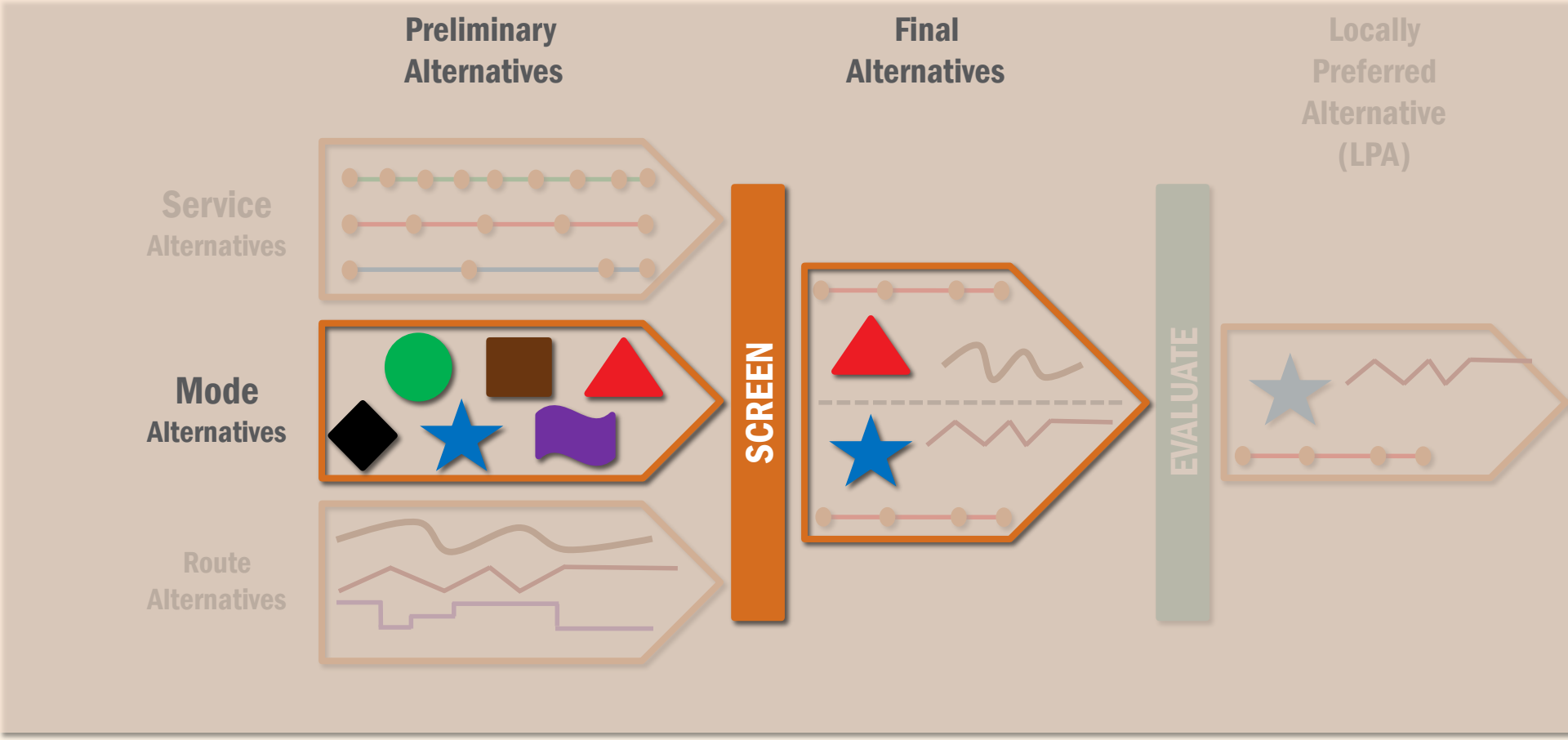
3 Clicker Exercise

The recommended service profile is reasonable for the Central Corridor priority area.

4 Mode Screening

4 Mode Screening

January | February | March | April | May | June



4 Mode Screening

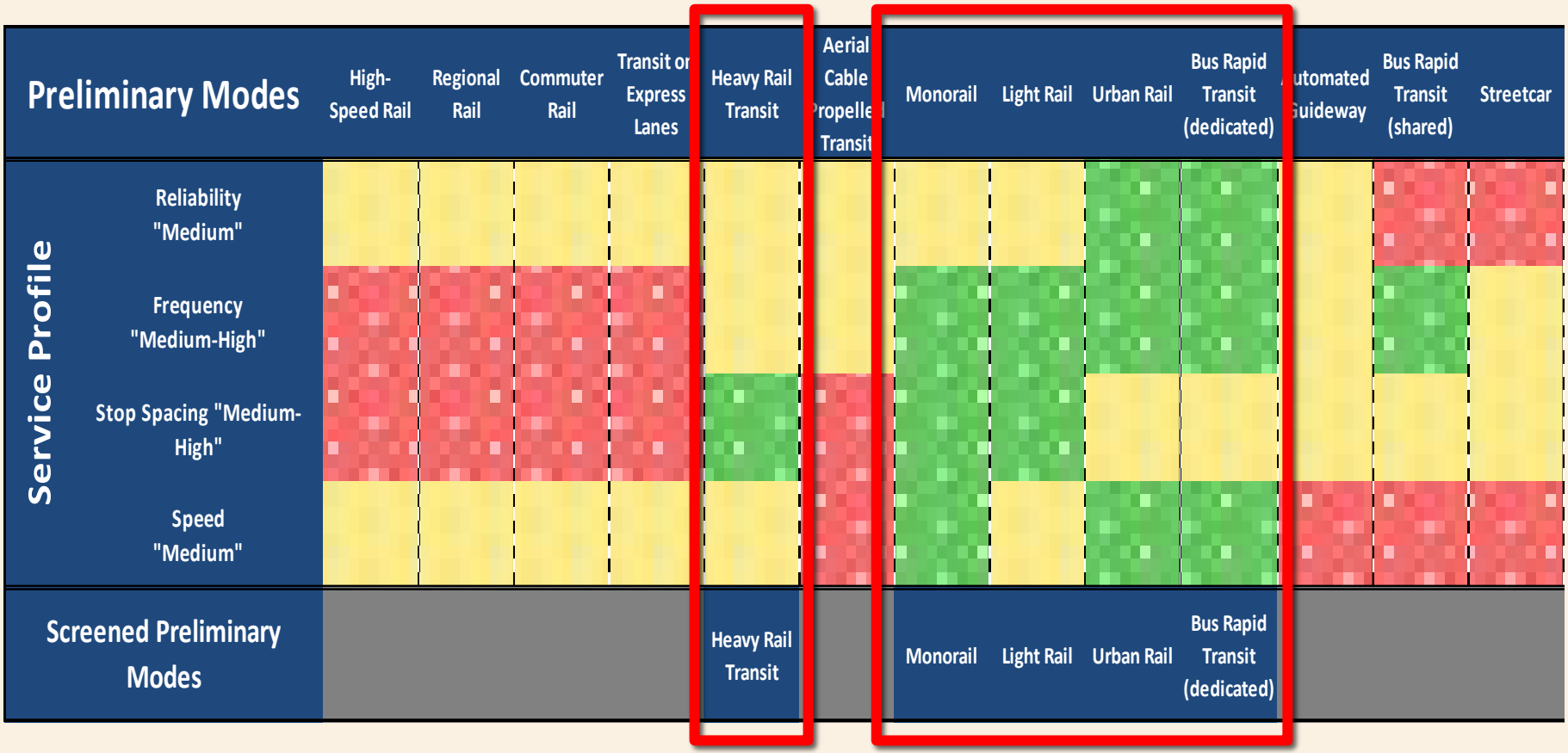
What are our high-capacity options for transit?	What is it, where does it go, and when do I use it?	How many people can it carry per hour during rush hour?*	How fast does it go on average?	How often does it stop?	When can I get on?	Real World Example
High-Speed Rail	 High-Speed Rail uses specialized vehicles to travel at high speeds on fully dedicated and grade-separated tracks or guideway. *Typically used to travel quickly between major urban centers.*	Carries 600 - 1,200 passengers	Average speed 100 - 220 mph	Stops are 50 miles to 100 miles apart	Rail runs every 30 min. rush hour, and every 60 min. all other times	Amtrak Acela
Regional Rail	 Regional Rail service connects different cities and regions, typically using existing railroad lines. *Typically used to travel longer distances between large cities.*	Carries 600 - 2,400 passengers	Average speed 60 - 75 mph	Stops are 3 miles to 15 miles apart	Rail runs every 30 min. during rush hour and every 1 - 3 hours all other times	The Capitol Corridor between San Jose and Sacramento in Northern California is an example of regional rail. Locally, the Lone Star Rail District is planning the LSTAR regional rail line between Georgetown and San Antonio, with nine stops in our Region.
Commuter Rail	 Commuter Rail trains operate on railroad tracks that carry riders to and from work in a region. *Typically used to travel from suburbs to central cities.*	Carries 400 - 1,400 passengers	Average speed 30 - 50 mph	Stops are 1 mile to 5 miles apart	Rail runs every 30 min. during rush hour and every hour all other times	Capital Metro's MetroRail Red Line between Leander and downtown Austin is a local example of commuter rail.
Transit on Express Lanes	 Express, or managed, lanes are highway lanes that are free to registered van pools and transit vehicles, and tolled for all other vehicles. The toll rate changes throughout the day based on how much traffic is on the managed lanes in order to keep the lanes fully used without being too busy. *Typically used to travel within a city and between close-in suburbs and the city.*	Carries 400 - 900 passengers	Varies. Typically toll rate adjusted to maintain a minimum average speed of 50 mph	Multiple stops within close proximity near termini with 5 miles to 25 miles of non-stop service in between	Buses run every 10 min. during rush hour and every 30 min. all other times	Katy Managed Lanes are operated by the Harris County Toll Road Authority in Houston, TX. Locally, the Central Texas Regional Mobility Authority is currently planning express lanes along Mopac Expressway in Austin.
Heavy Rail Transit	 Heavy Rail Transit uses specialized high-capacity electric vehicles on fully-dedicated and grade separated tracks or guideway. *Typically used to travel within very dense urban areas and corridors.*	Carries 10,000 - 30,000	Average speed 40 - 60 mph	Stops are 1 mile to 2 miles apart	Rail runs every 3-5 min. rush hour and every 10 -15 min. all other times	DC Metrorail
Gondola (Aerial	 Gondolas uses small specialized vehicles propelled by a cable suspended from tall masts. *Typically used in the US in mountainous, tourism applications over short distances*					Portland Aerial Tram

4 Mode Screening Process

- Public Input
  - Preliminary mode alternatives a function of public input (e.g. gondola)
  - General agreement on modes considered
  - Added evaluation of Personal Rapid Transit (as part of automated guideway)
- Two Tier Screening Process
  1. Service Profile
  2. Mode Characteristics

4 Mode Screening Tier 1

Screen for Service Characteristics



4 Mode Screening Tier 1: Results

Eliminated

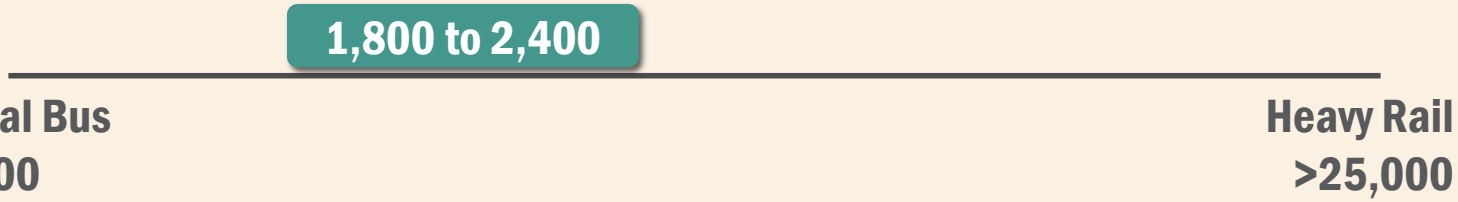
- High Speed Rail
- Inter-city Rail
- Regional Rail
- Commuter Rail
- Transit on Expressway
- Gondola
- Automated Guideway
- BRT (shared)
- Streetcar
- Local Bus

Passed

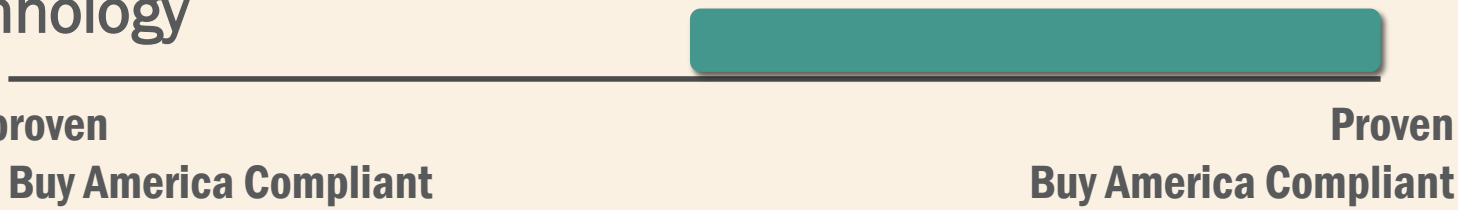
- Heavy Rail
- Monorail
- Light Rail
- Urban Rail
- BRT (dedicated)

4 Tier 2 Recommended Mode Characteristics

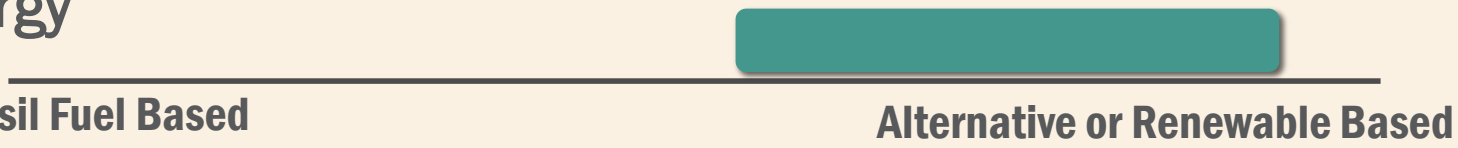
Peak Hour Demand



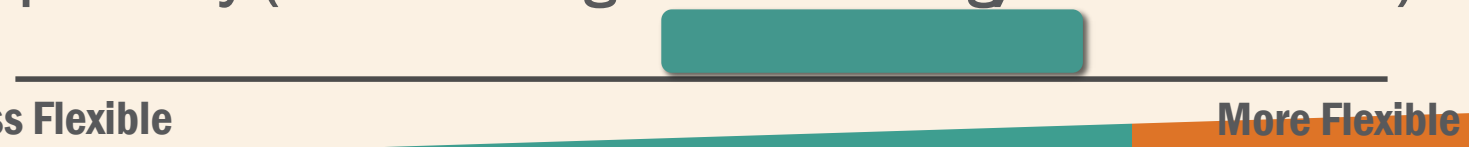
Technology



Energy

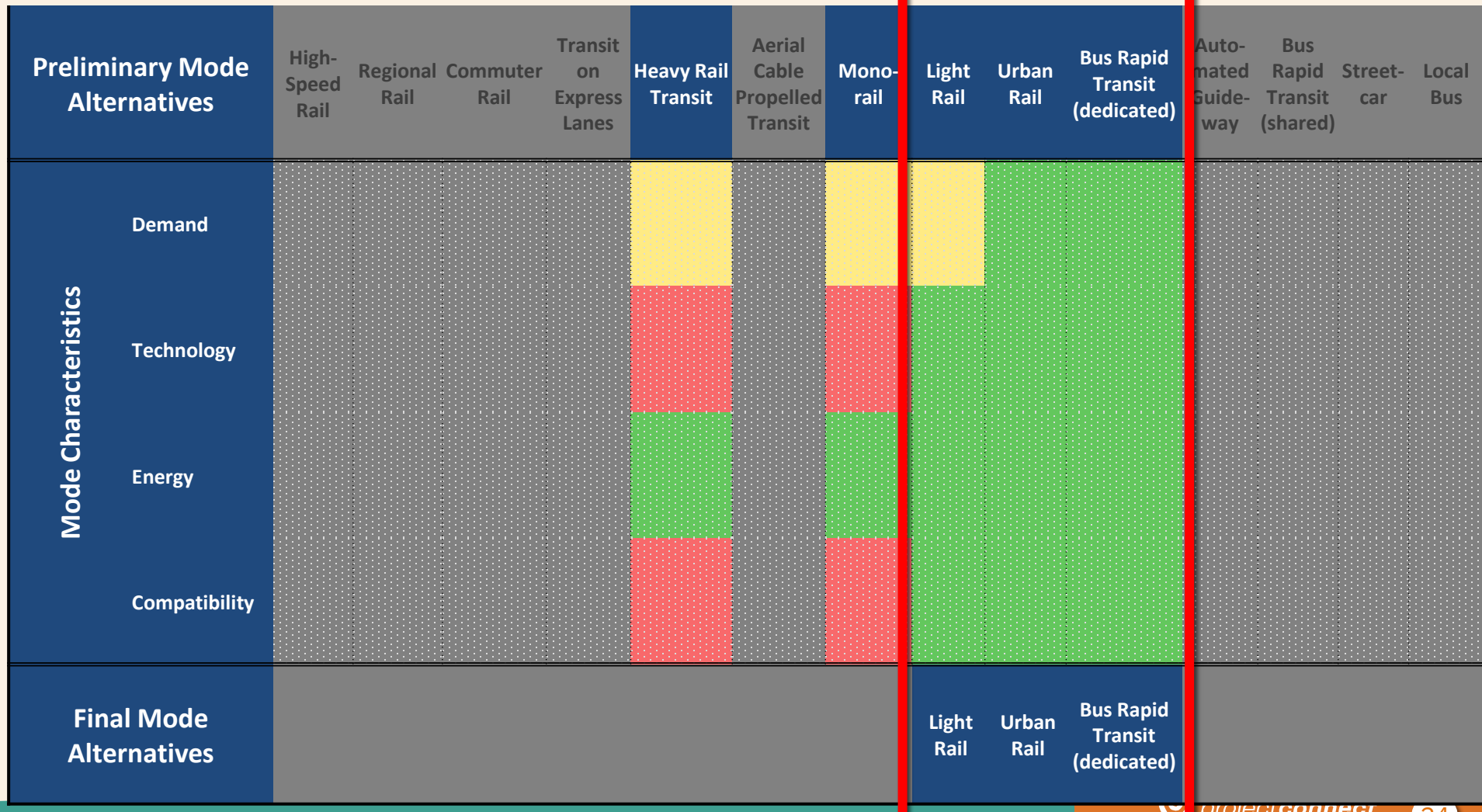


Compatibility (with Existing Urban Setting/Infrastructure)



4 Mode Screening Tier 2

Screen for Mode Characteristics



4 Mode Screening Tier 2: Results

Eliminated

- Heavy Rail
- Monorail

Passed

- Light Rail
- Urban Rail
- BRT (dedicated)

4 Evolution of Urban Rail

Technology/Operations Continuum

- Mixed traffic
- Small vehicles
- Close stops
- Slow

Streetcar

Urban Rail

- Exclusive guideway
- Large vehicles
- Far stops
- Fast

Light Rail

4 Final Mode Alternatives

Urban Rail

Bus Rapid Transit (dedicated)

3 Clicker Exercise

The recommended modes are reasonable for the Central Corridor priority area.

5 Alignment Screening

5 Alignment Screening

January | February | March | April | May | June

Preliminary Alternatives

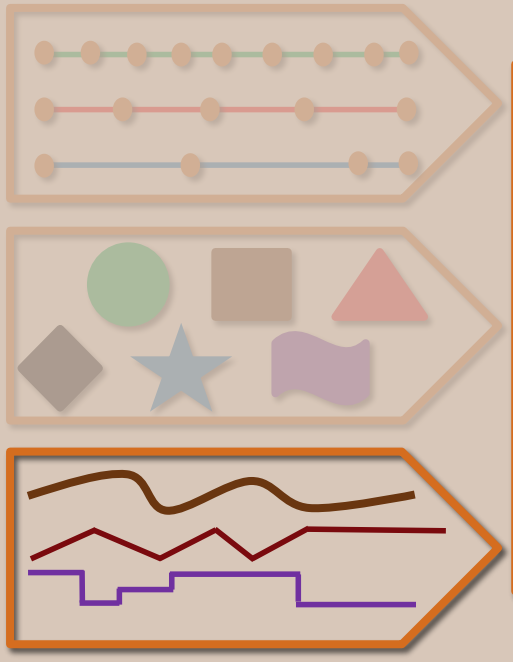
Final Alternatives

Locally Preferred Alternative (LPA)

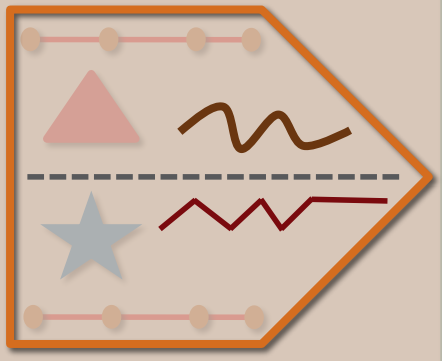
Service Alternatives

Mode Alternatives

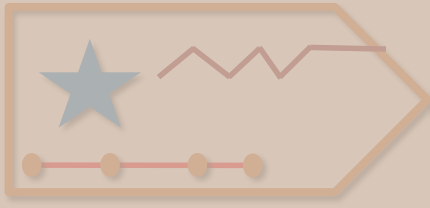
Route Alternatives



SCREEN

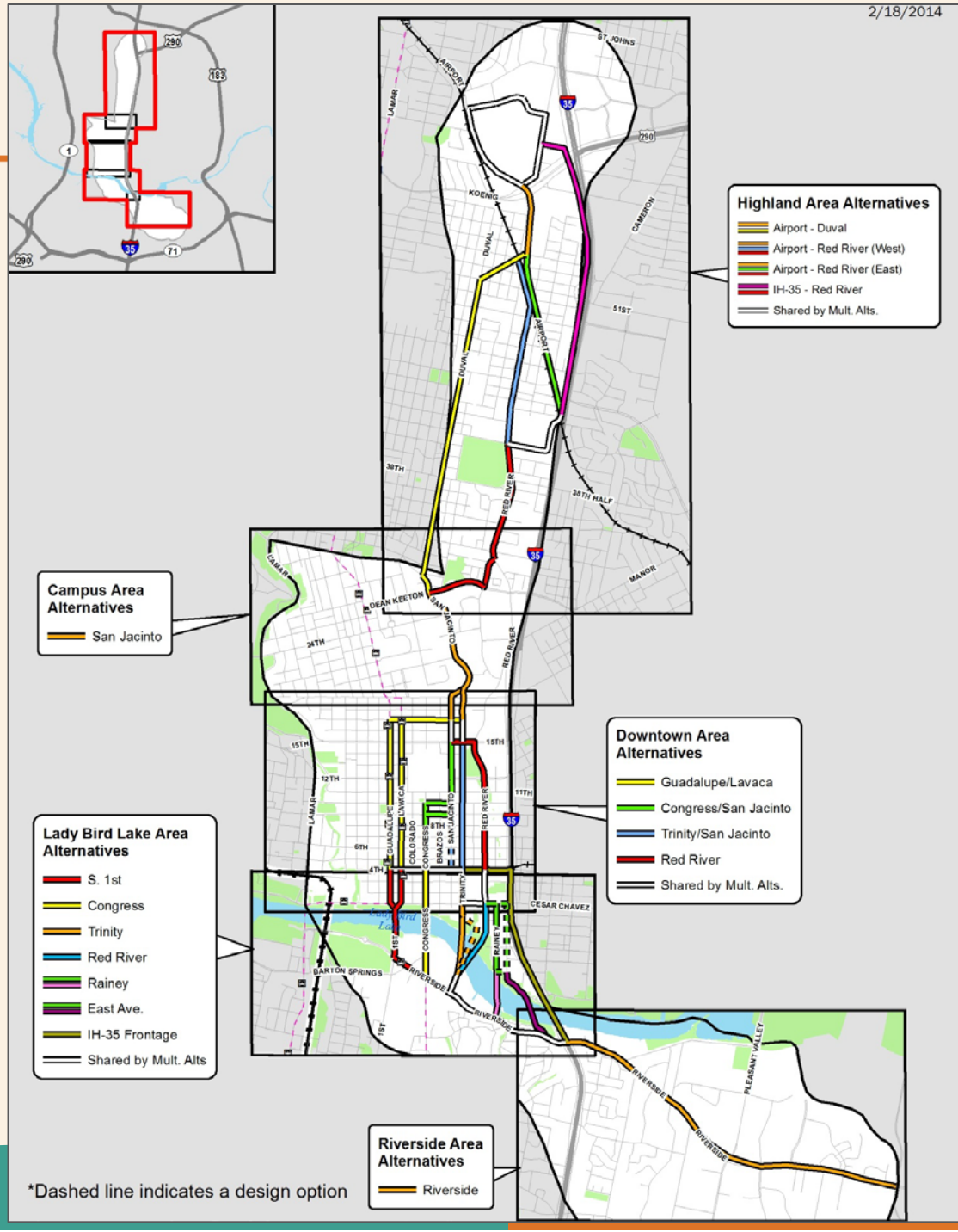


EVALUATE



5 Alignment Screening

- Corridor organized into five areas:
  - East Riverside
  - Lady Bird Lake
  - Downtown
  - Campus
  - Highland



5 Alignment Screening Process

- Public Input
  - Preliminary alignment alternatives a function of public input (e.g. Rainey)
  - Added evaluation of I-35 between Hancock and Highland
- Three Tier Screening Process
  1. Service Characteristics
  2. Alignment Criteria
     - Mobility and Connectivity
     - Compatibility with Plans
     - Technical Feasibility
  3. Logical Connections

5 East Riverside Area

- Consistent with East Riverside Corridor Master Plan
- East Riverside Drive scores high in most criteria

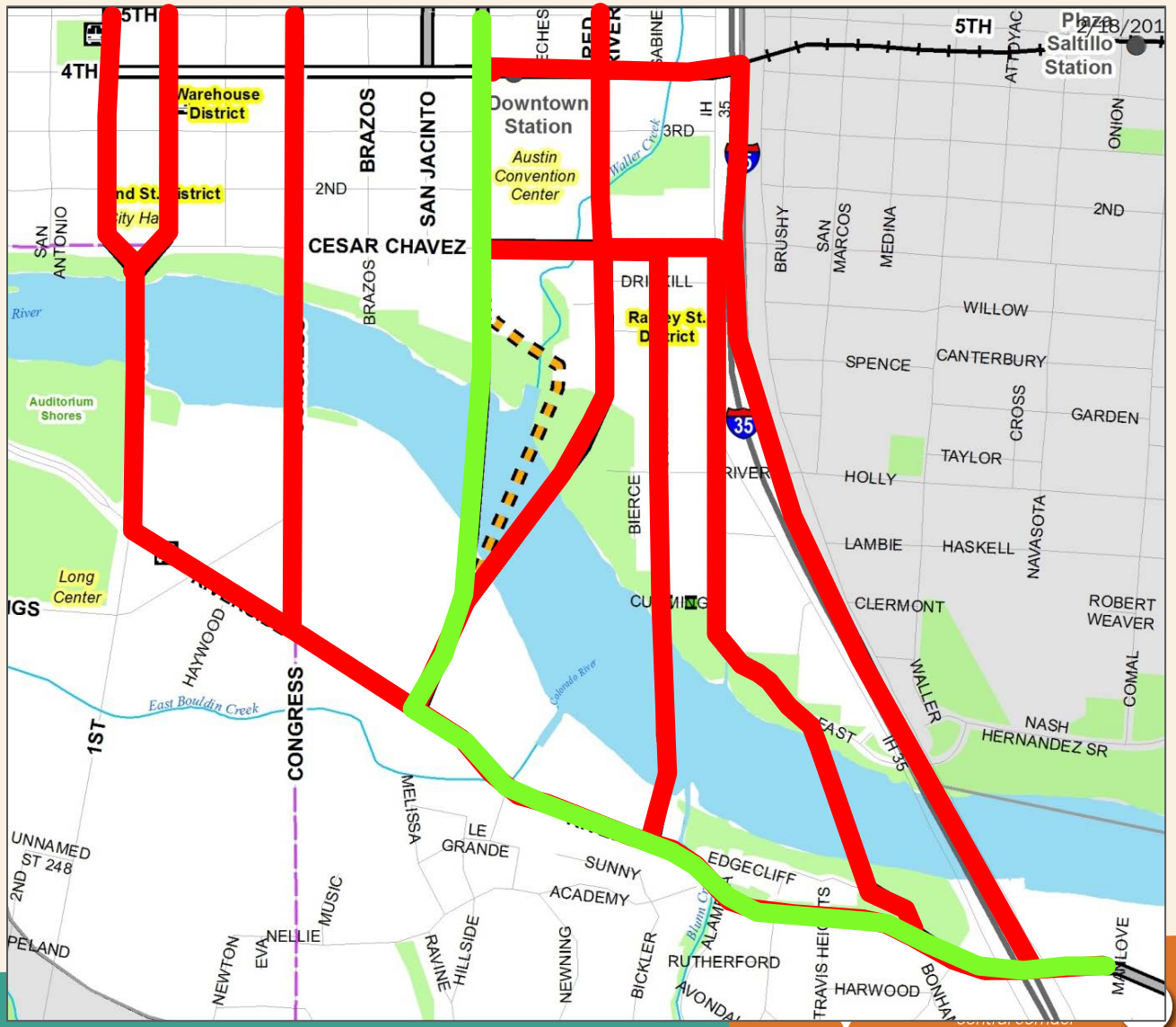
5 Lady Bird Lake Area

Eliminated:

- Congress, South 1st and I-35 Frontage
  - Reliability and Speed
- Red River
  - ROW
- Rainey and East Avenue
  - ROW and Traffic

Passed:

- Trinity
  - Ranks highest in most criteria
  - Tunnel and bridge options to be considered



5 Downtown Area

Eliminated:

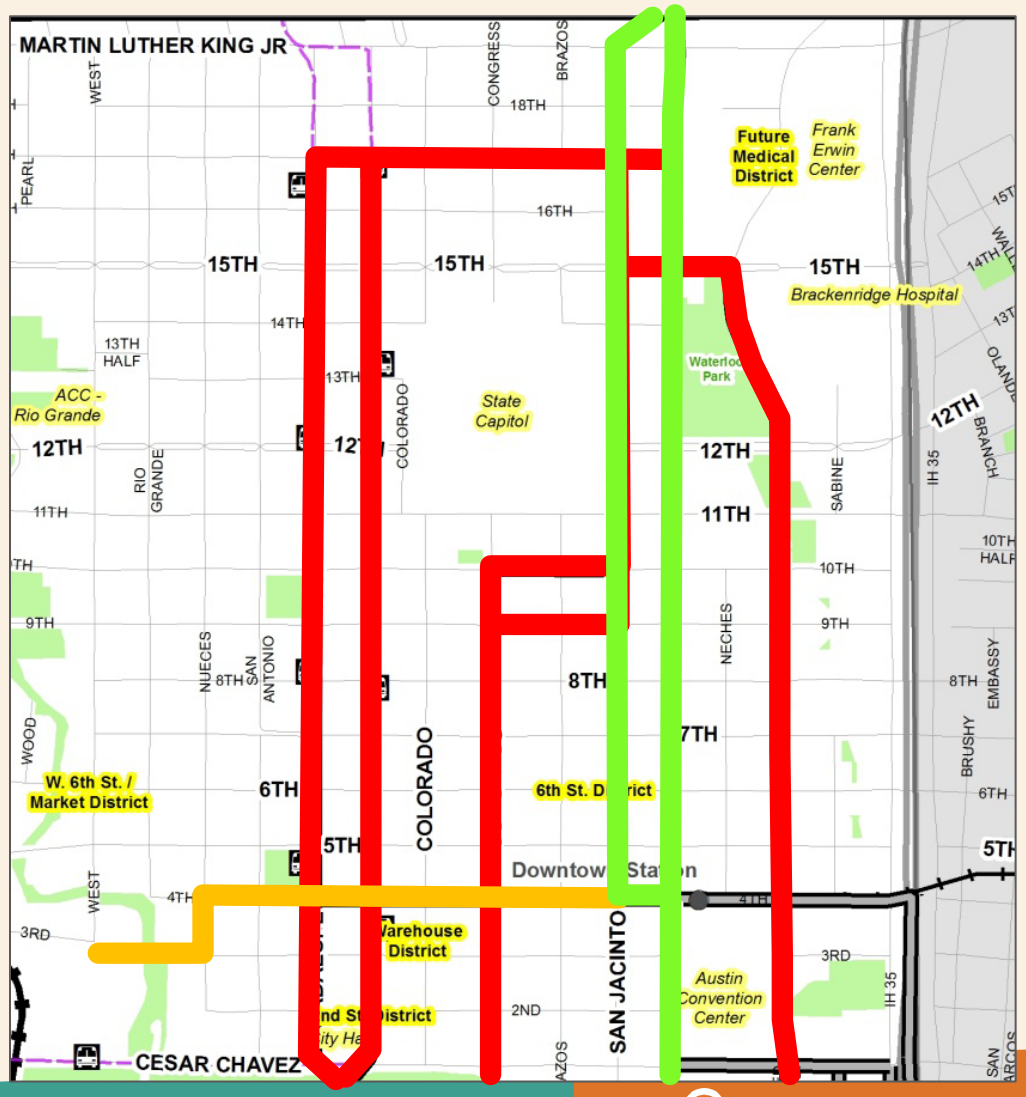
- Guadalupe-Lavaca and Congress-San Jacinto
  - Reliability
  - Speed
- Red River
  - Eliminated in crossing of Lady Bird Lake area; scores much lower than Trinity-San Jacinto

Passed:

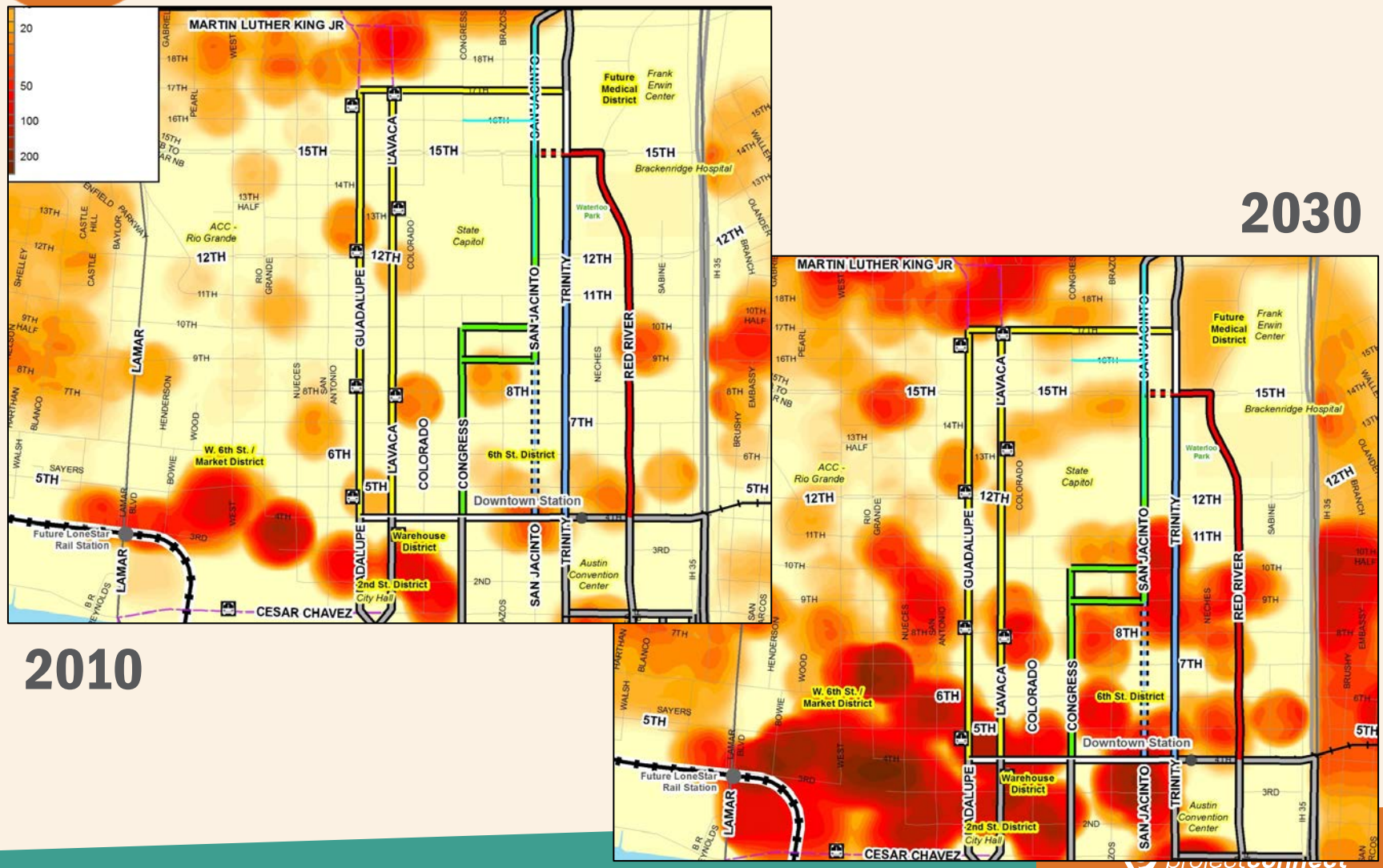
- Trinity-San Jacinto
  - Ranks highest in most criteria
  - Strong in jobs per route mile

Future Consideration:

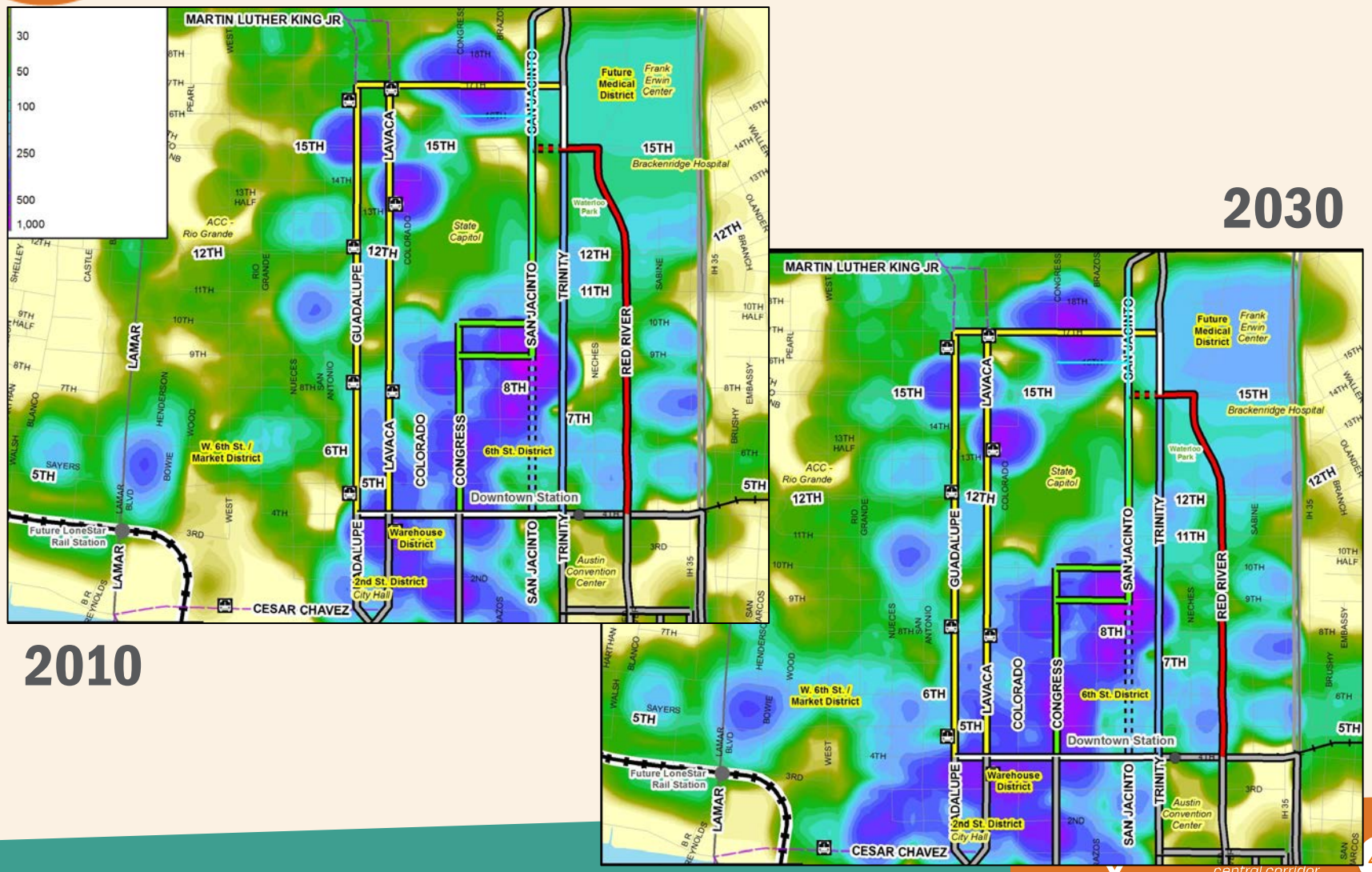
- Seaholm connection



5 Population Density Maps

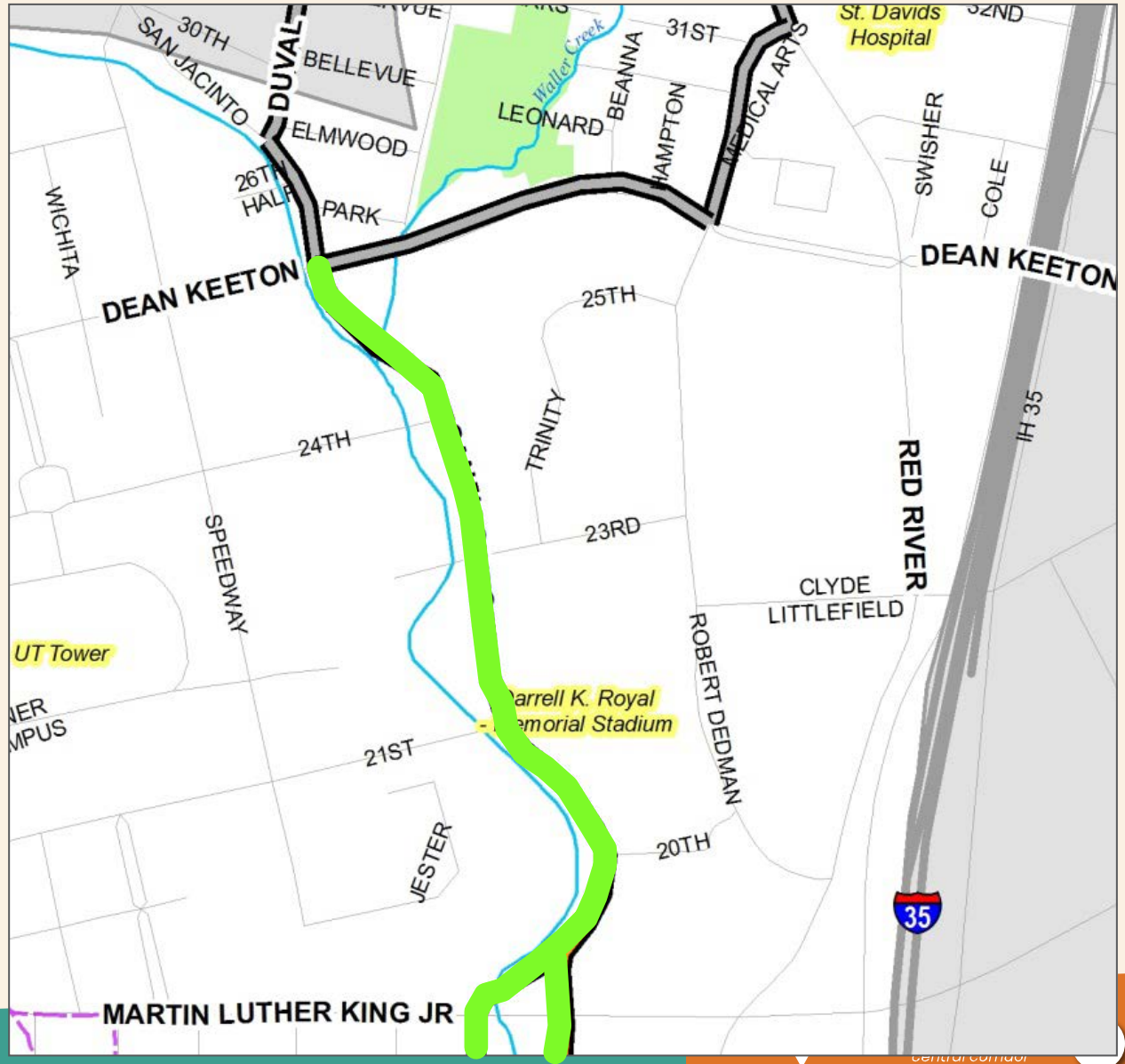


5 Employment Density Map



5 Campus Area

- San Jacinto scores very well in most criteria
- Consistent with UT Campus Master Plan



5 Highland Area

Eliminated:

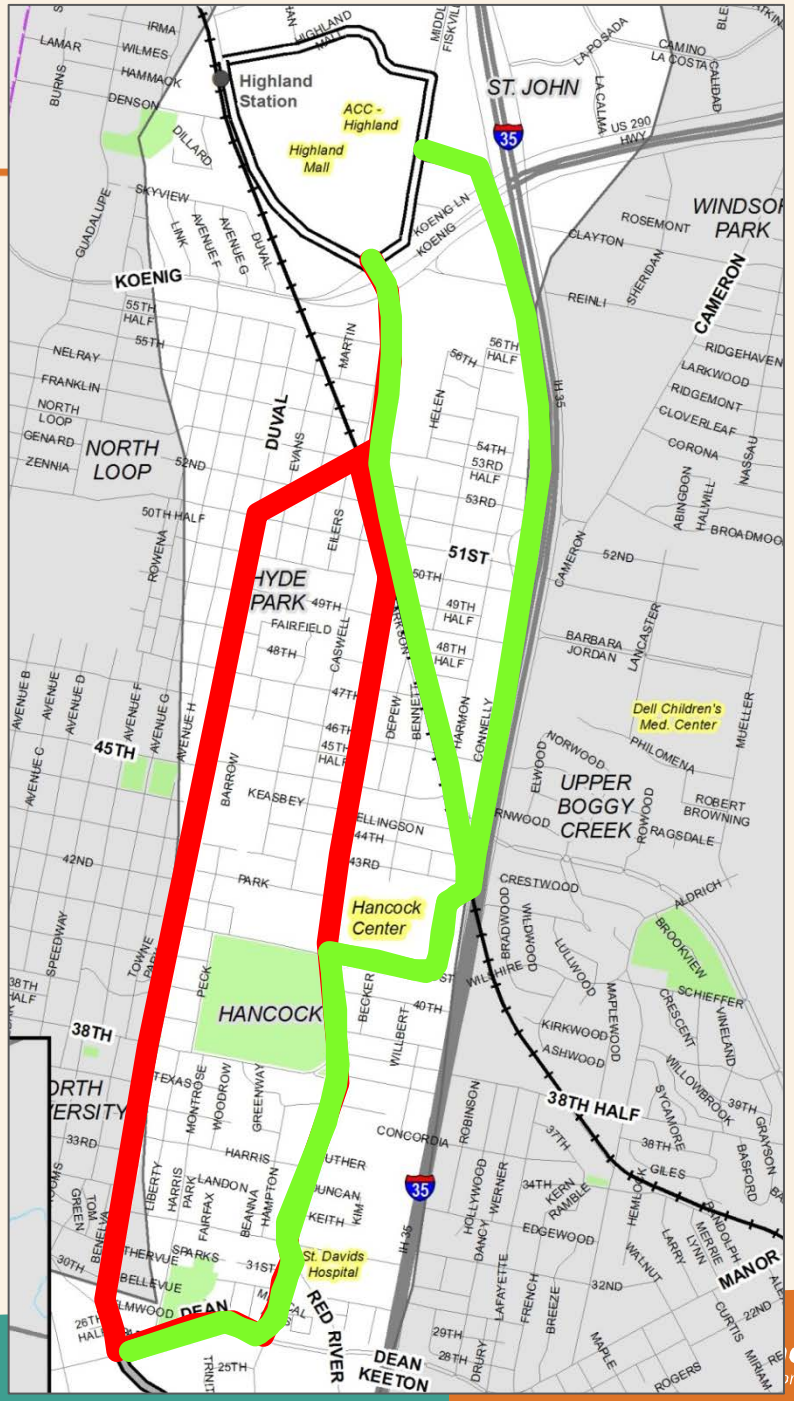
- Airport-Duval and Airport-Red River (West)
  - Reliability
  - Speed
  - Neighborhood/ROW impacts

Passed:

- Airport-Red River (East) and I-35-Red River
  - Ranks highest in most criteria

Other Considerations:

- Potential Grade Separations
  - Hancock Center
  - Red Line
  - I-35



5 Alignment Screening

		Riverside Area	Lady Bird Lake Area							Downtown Area				Campus Area	Highland Area		
Preliminary Alignments		Riverside	S. 1st	Congress	Trinity	Red River	Rainey	East Avenue	IH-35 Frontage	Guadalupe - Lavaca	Congress - San Jacinto	Trinity - San Jacinto	Red River	San Jacinto	Airport - Duval	Airport - Red River (West)	Airport - Red River (East)
Service Characteristics	Reliability "Medium"																
	Frequency "Medium-High"																
	Stop Spacing "Medium-High"																
	Speed "Medium"																
Alignments after Tier 1 Screening		Riverside			Trinity	Red River	Rainey	East Avenue				Trinity - San Jacinto	Red River	San Jacinto			Airport - Red River (East)

Tier 1 Example

5 Alignment Screening Results

Eliminated

Lady Bird Lake
- South 1st
- Congress
- Red River
- Rainey
- East Avenue
- I-35 Frontage

Downtown
- Guadalupe/Lavaca
- Congress/San Jacinto
- Red River

Highland
- Duval/Airport
- Red River/Airport (west)

Passed

East Riverside
- East Riverside

Lady Bird Lake
- Trinity

Downtown
- Trinity/San Jacinto

Campus
- San Jacinto

Highland
- Red River/Airport (east)
- Red River/I-35

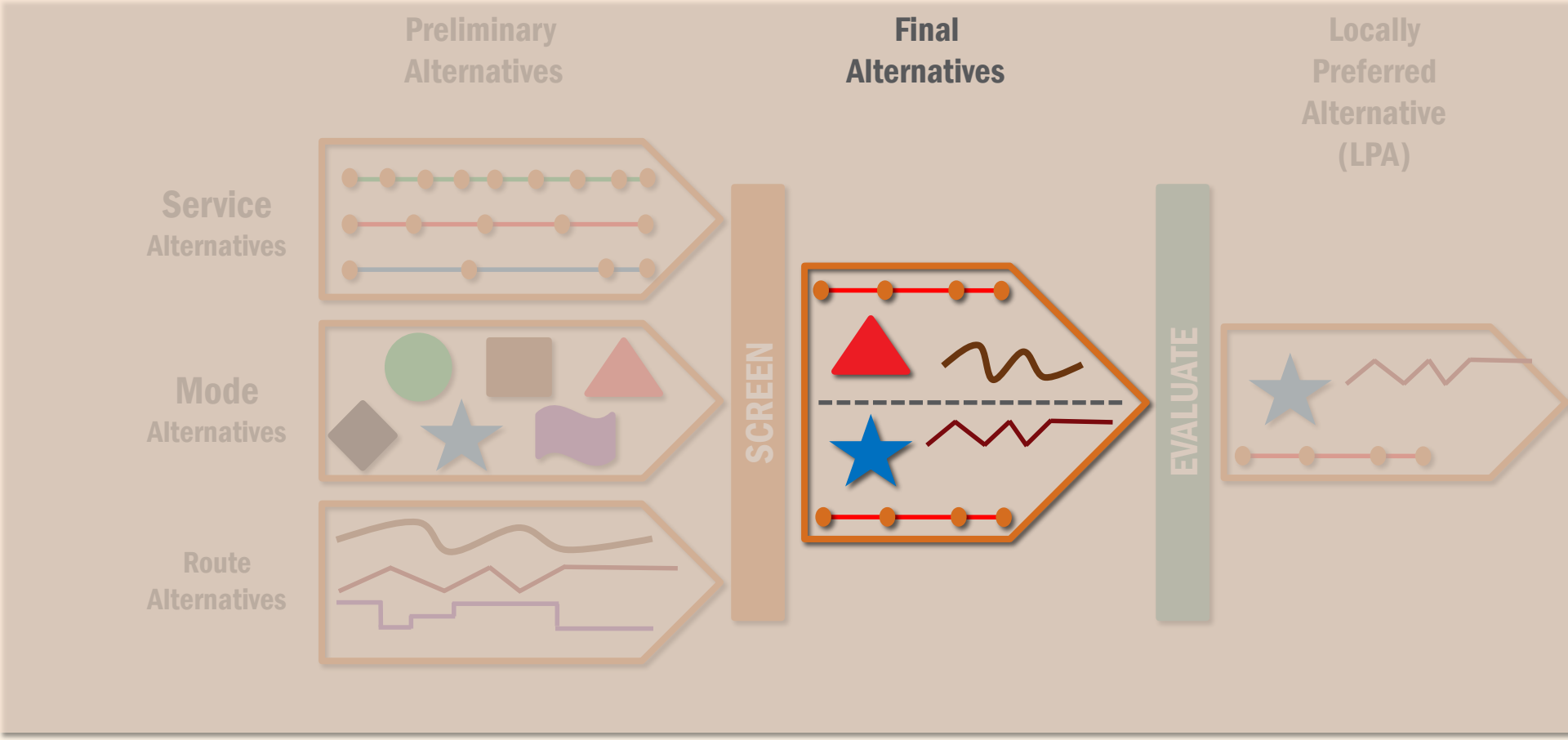
5 Clicker Exercise

The recommended alignments are reasonable for the Central Corridor priority area.

6 Final Alternatives

4 Final Alternatives

January | February | March | April | May | June



3 Final Service Profile

Recommended Service Profile

- **Medium** Reliability
- **Medium-High** Frequency
- **Medium-High** Stop Spacing
- **Medium** Speed

Reliability

Mostly Dedicated

Mixed Traffic | Transit Priority/ Pre-emption | Dedicated Guideway | Separated Guideway | Fully Separated Guideway

Frequency

10 – 15

5 minutes — 60 minutes

Stop Spacing

½ – 1 mile

< ¼ mile — > 5 miles

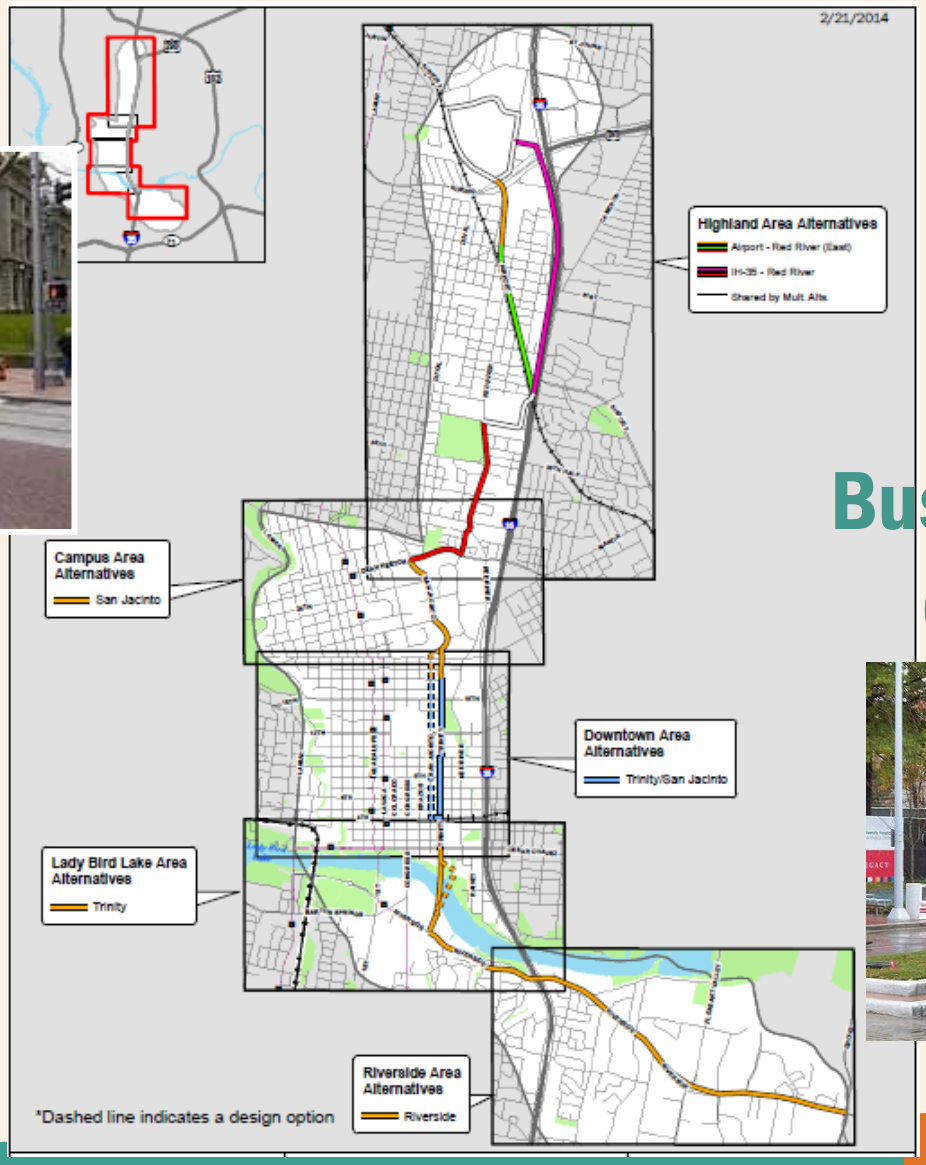
Speed

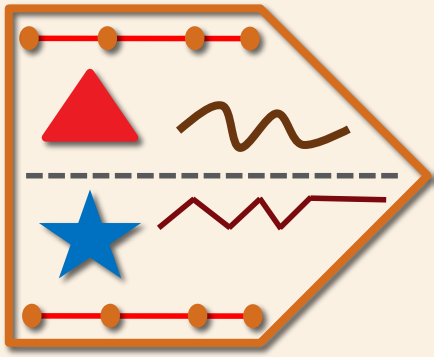
20-30 avg.

10 mph — 55 mph maximum (including stops) — 60 mph

6 Final Alternatives

Urban Rail





Bus Rapid Transit (dedicated)

7 Next Steps

7 Next Steps

- Define Final Alternatives
  - Typical Sections (side vs center), Stop Locations, Grade Separation needs
  - Quantities/Cost Estimates
  - Operating Plan – peak/off-peak frequencies, hours/days of operation, fleet size
  - Maintenance Facility Needs
- Develop Evaluation Methodology

8 Citizen Communication

9

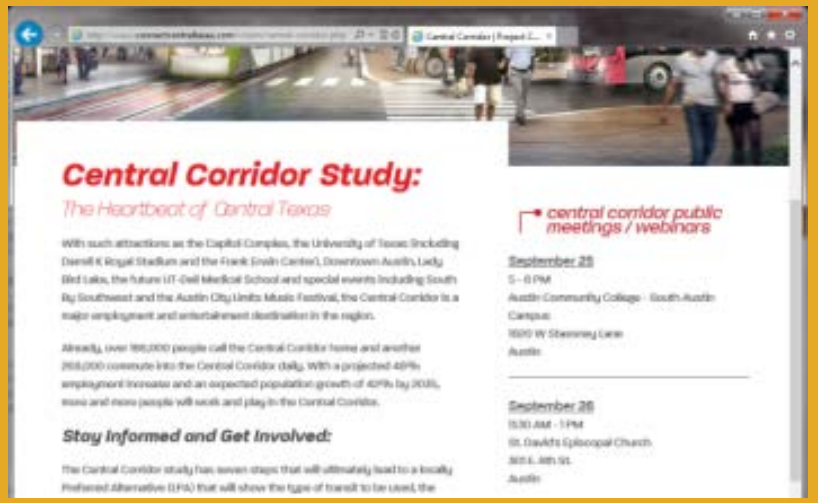
Next Meeting
March 21st

THANK YOU

More Information:

Project Connect &
Central Corridor HCT Study

projectconnect.com



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central corridor