

Stakeholder Advisory Group 2: Initial Scenario Concepts

presented by

Cambridge Systematics

Connetics Transportation Group

Kimley-Horn

K Strategies

Marlene Connor Associates



**North Central Texas
Council of Governments**

November 19, 2020

Agenda

- Team and Study Background
- Market Analysis
 - » Demographics
 - » Transit Facilities & Services
 - » Travel Behavior
- Public Engagement
- Scenario Development
 - » Scenario Focus Exercise 1
- Funding and Finance
 - » Scenario Focus Exercise 2

Team Introductions

Cambridge Systematics

Scott Boone & Hannah Santiago



Kimley-Horn

Brad Lonberger



CTG

Jim Baker



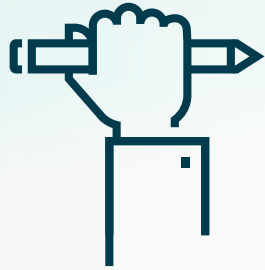
Marlene Connor Associates

Marlene Connor

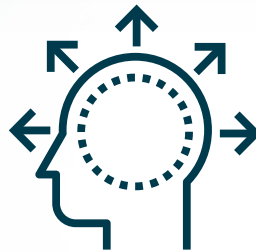


Study Purpose

Identify, analyze, prioritize and develop a comprehensive approach to planning and implementing transit services outside of transit authority services areas.



Implement Strategic and
Near-Term Strategies



Review Transportation
Options



Identify Funding
Options



— Advisory Board

Helps guides the study by developing the project goals, objectives, defines the project outcomes and provides technical advice; while supporting and encouraging participation in the community.

Study Background

The Tarrant County Transit Study will be built from previous studies conducted over the last several years.



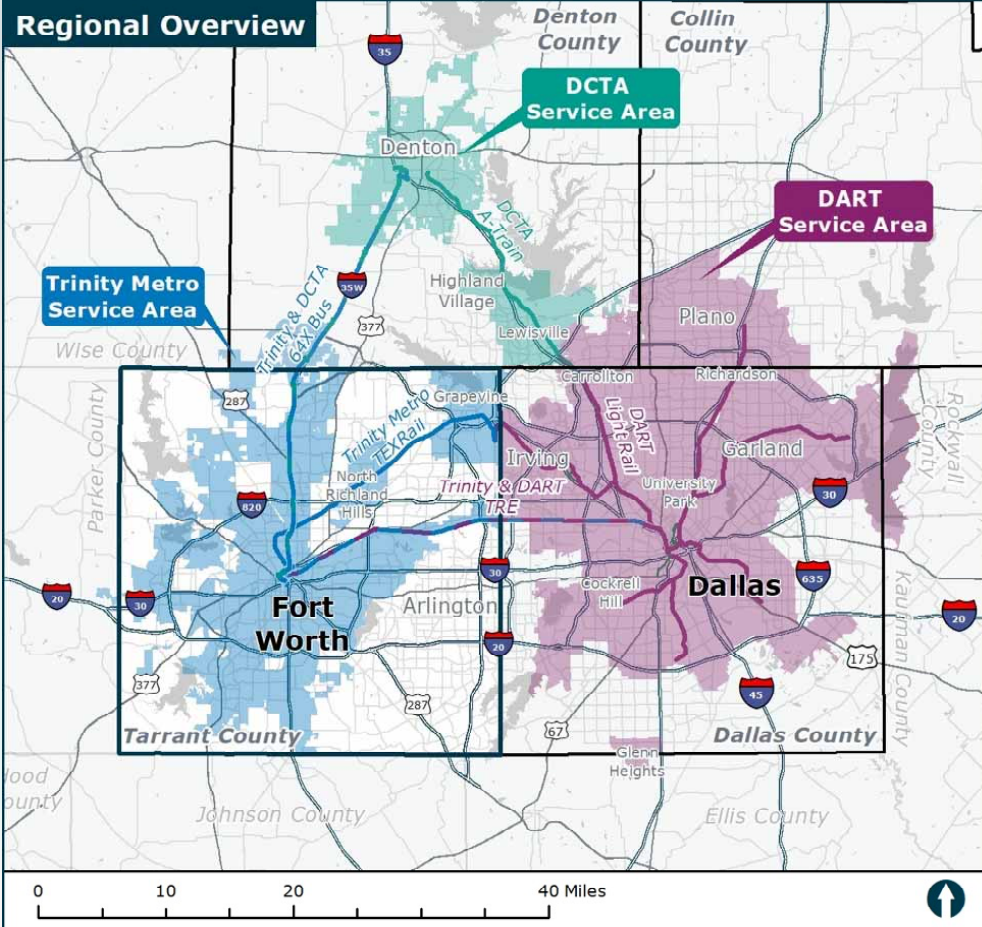
Study Background



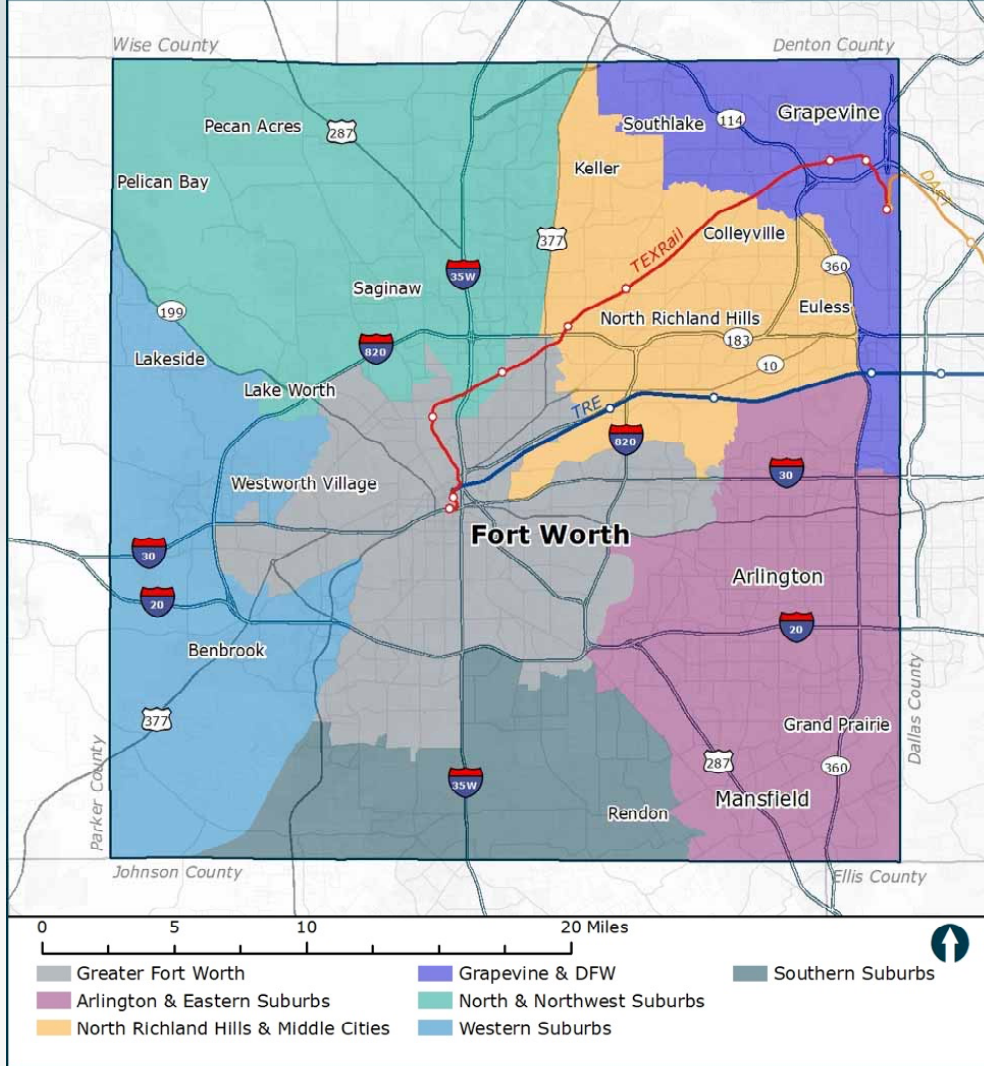
Geographic Focus	NCTCOG Region	NCTCOG Region	Tarrant County (outside Trinity Metro service Area)
User Focus	All Users	Vulnerable Users	All Users
Travel Types	Car, High Intensity Bus, Commuter Rail	Bus, Demand Response, and Paratransit	Bus and Demand Response
Vision	Long Range	Short-Medium Range	Short-Medium Range

MARKET ANALYSIS





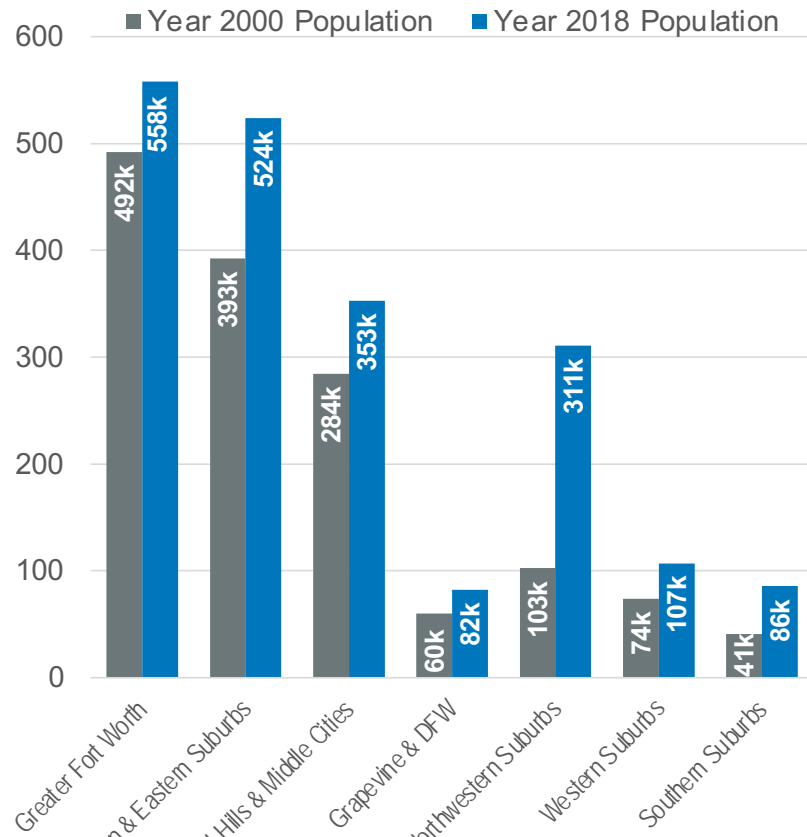
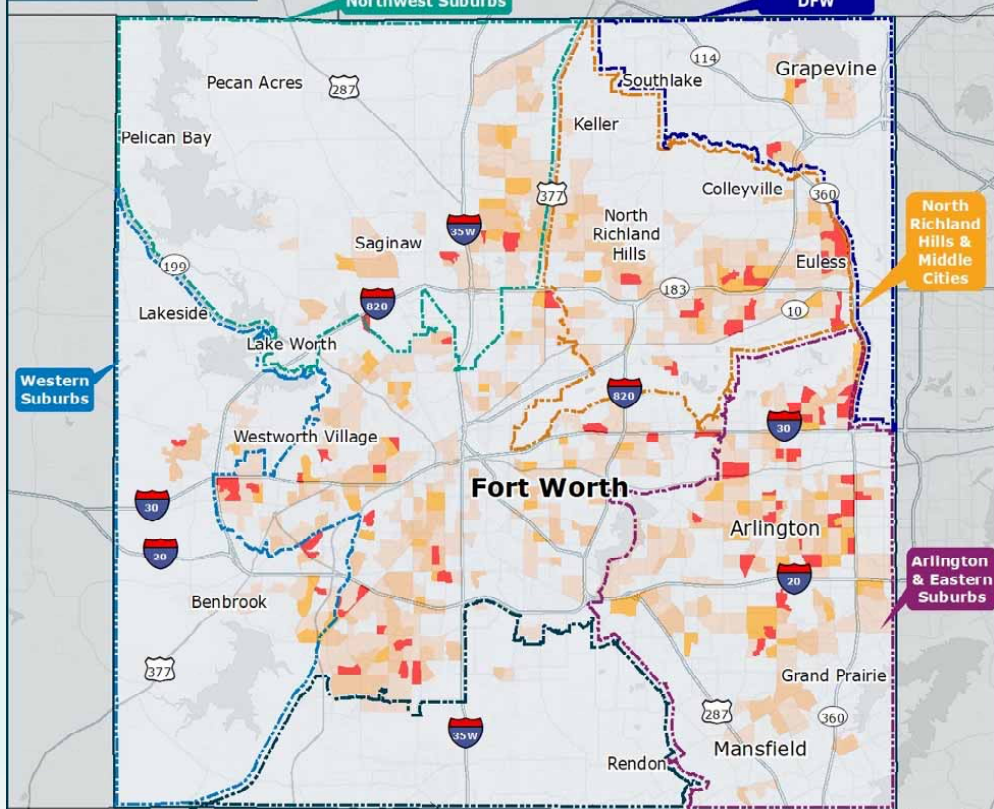
- Regional Agencies
- Trinity Metro
 - DART
 - DCTA
 - Arlington (Via)

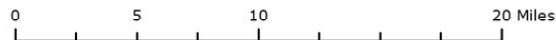
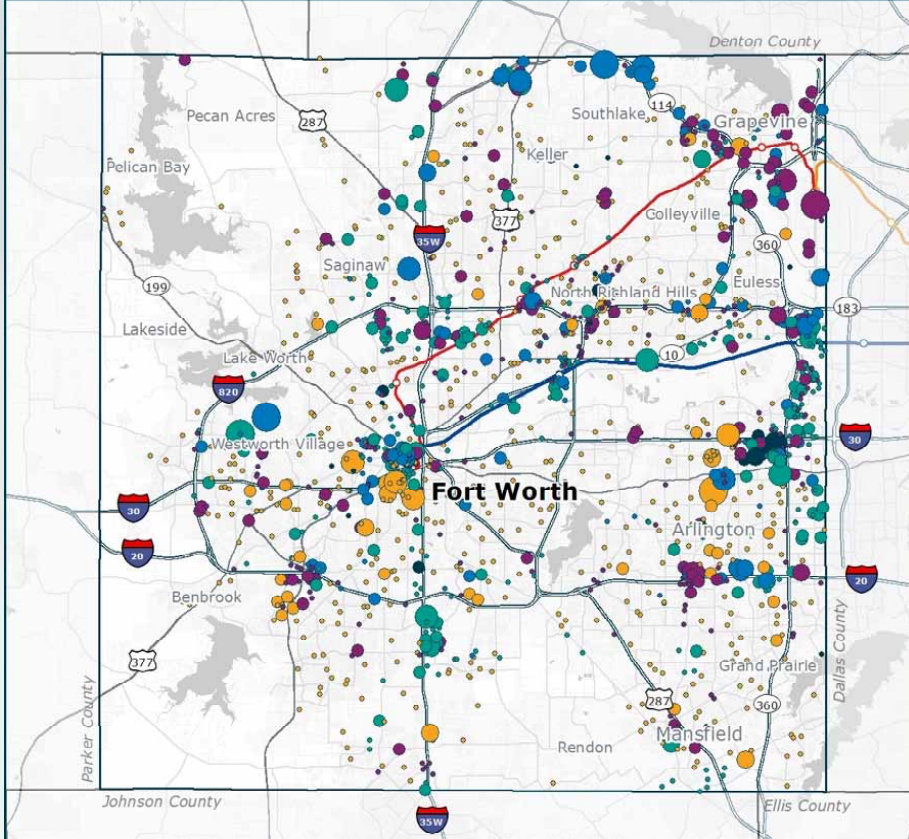


Sector-based Market Analysis

- Seven sectors
- Identify commonalities in geography, demographics and travel patterns
- Support a “menu-based” approach in scenario development
- Provide options for communities without being prescriptive

Tarrant County



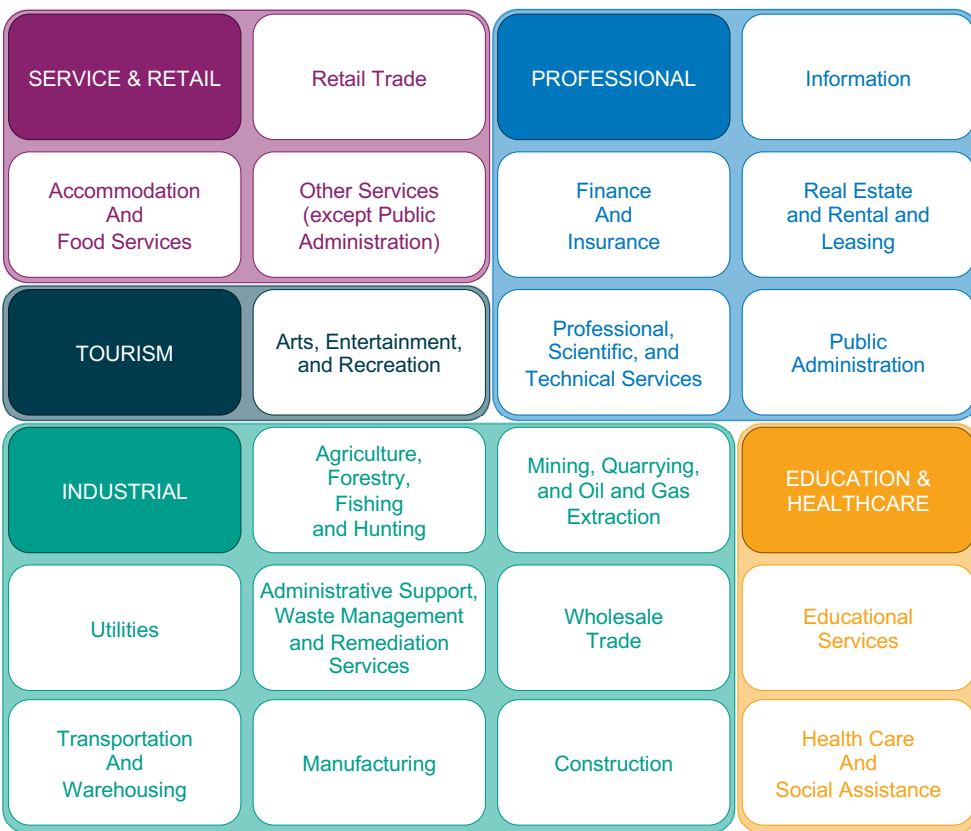


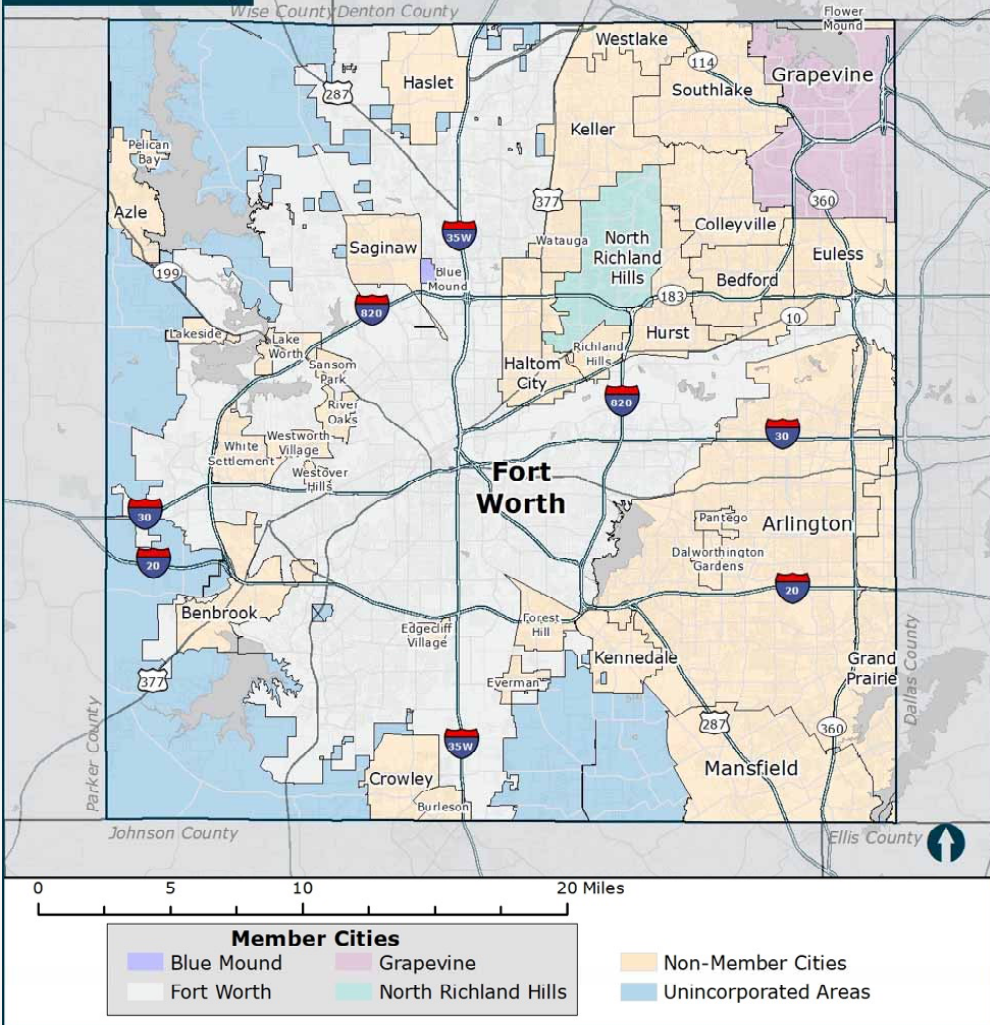
Employees

- 1 - 200
- 201 - 1,000
- 1,001 - 2,500
- 2,501 - 5,000
- > 5,000

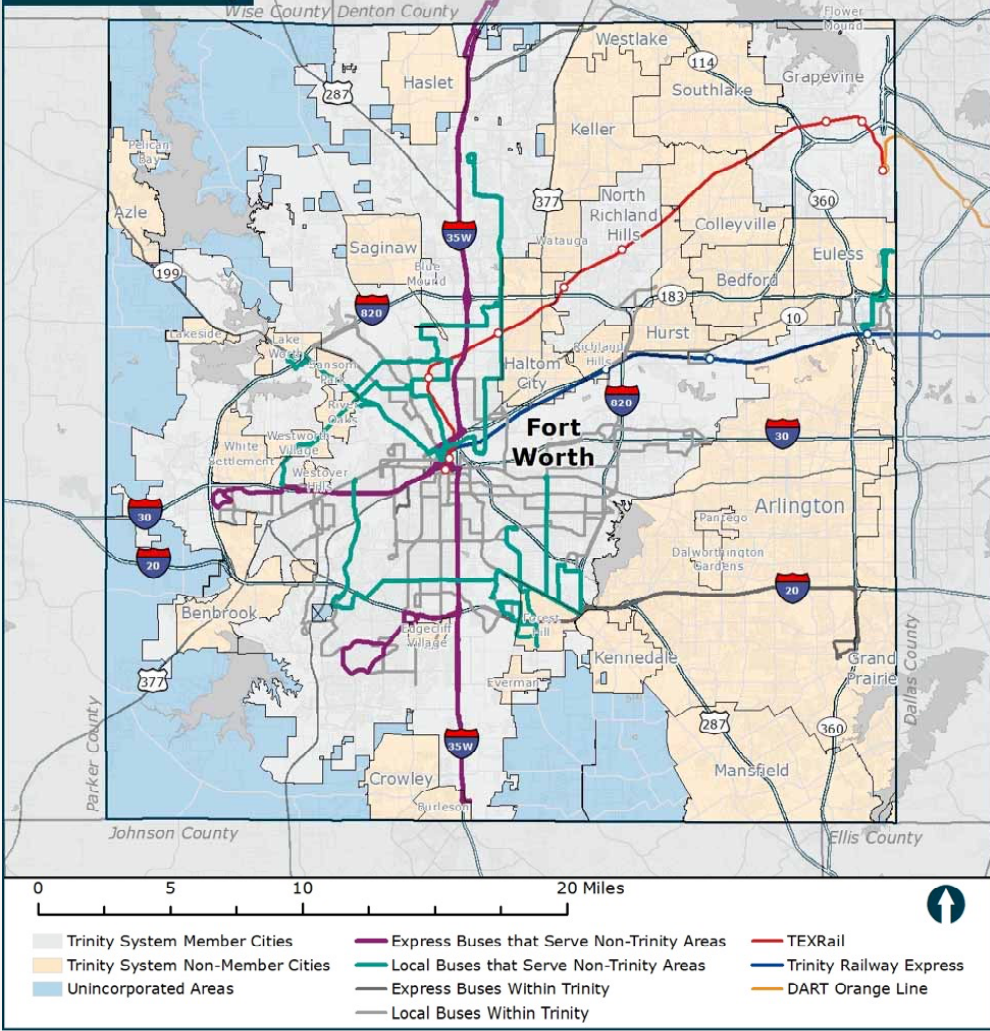
Sector

- Industrial
- Service & Retail
- Education and Healthcare
- Professional
- Tourism



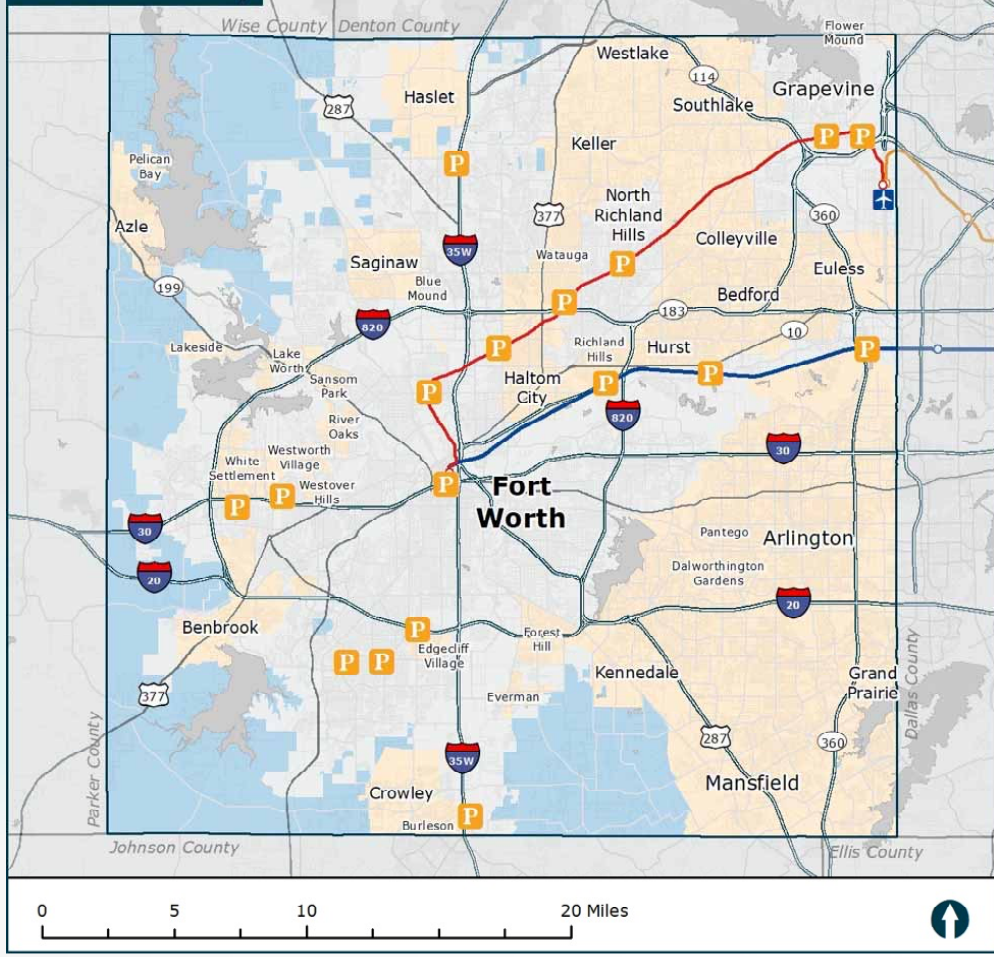


- ### Cities by Membership & Transit Access
- Trinity Metro Member cities
 - Fort Worth
 - North Richland Hills, Blue Mound, Grapevine
 - Municipalities
 - Arlington (Via)
 - Mansfield & Burleson (Potential Mobility 2045 corridors)
 - Others
 - Unincorporated areas



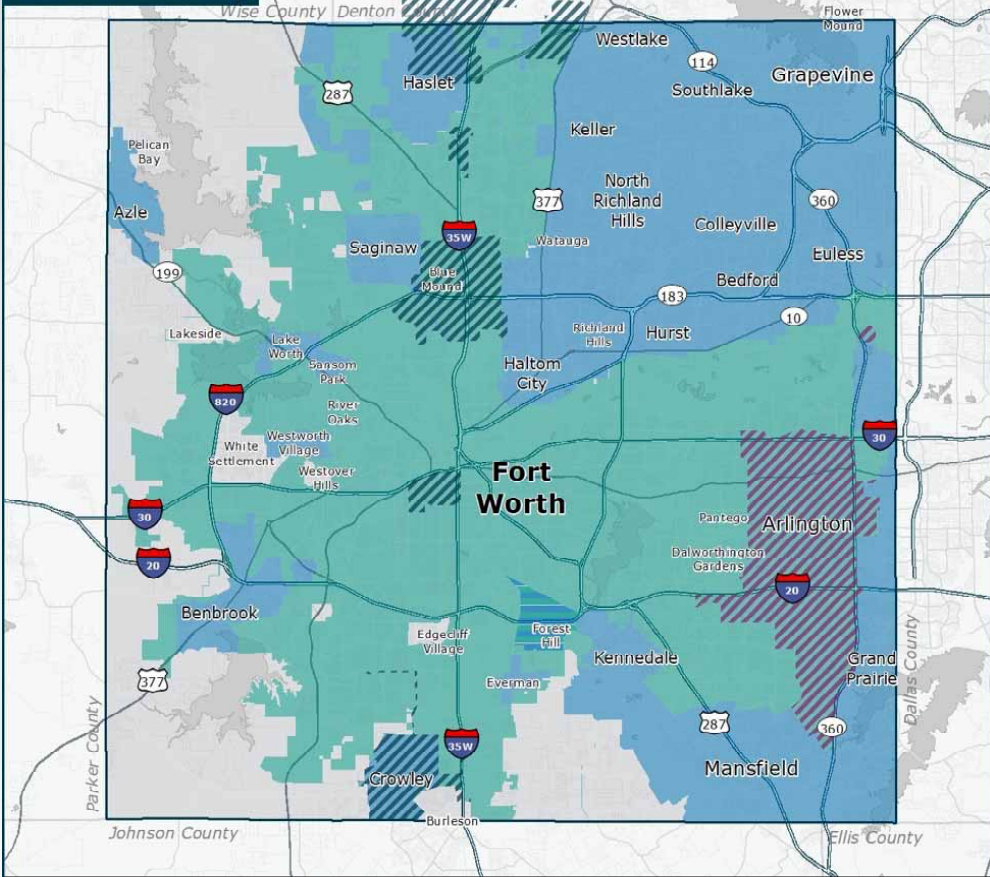
Fixed-Route Access

- Local Bus
- Commuter Bus
- Commuter Rail

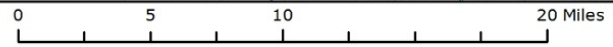


Multimodal Access

- Park & Ride Facilities



- ### Demand-Response Access
- Arlington Via Partnership
 - Trinity Metro ZipZones (Via and Lyft)
 - Paratransit & Pre-Qualified Demand-Response



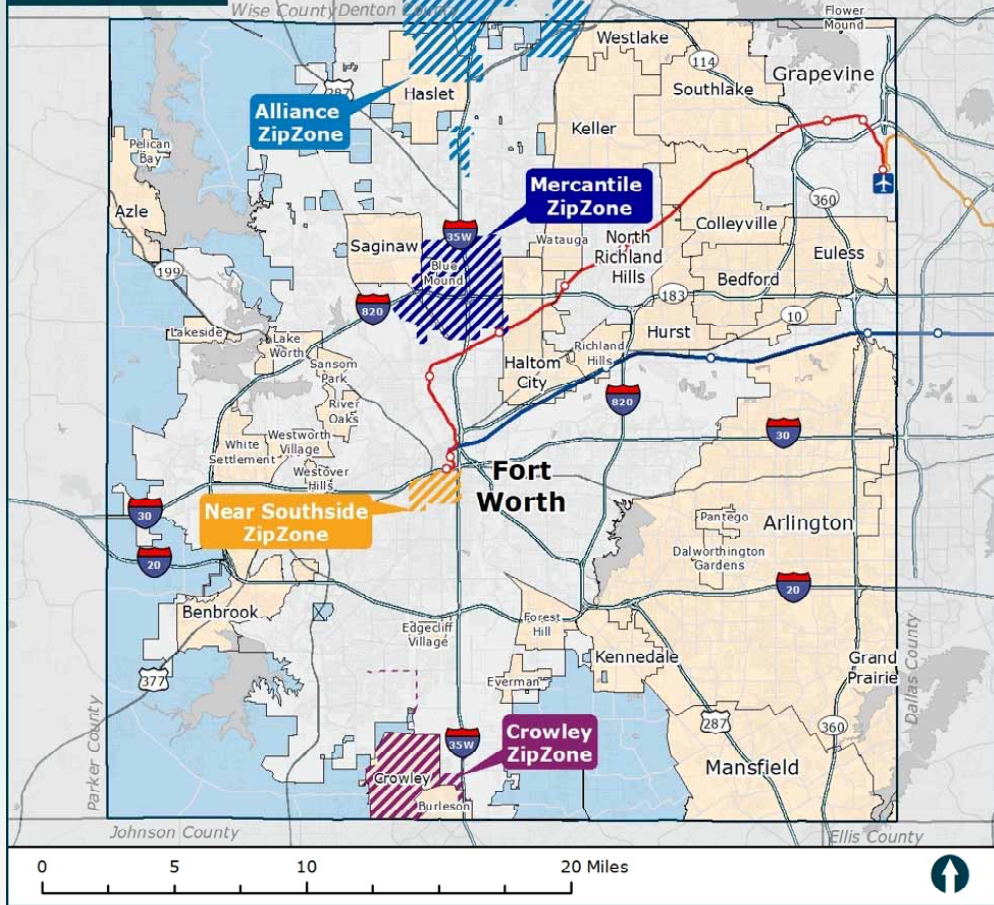
On-Demand Services

- /// ZipZones
- /// Via Arlington

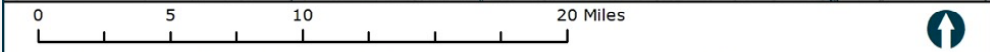
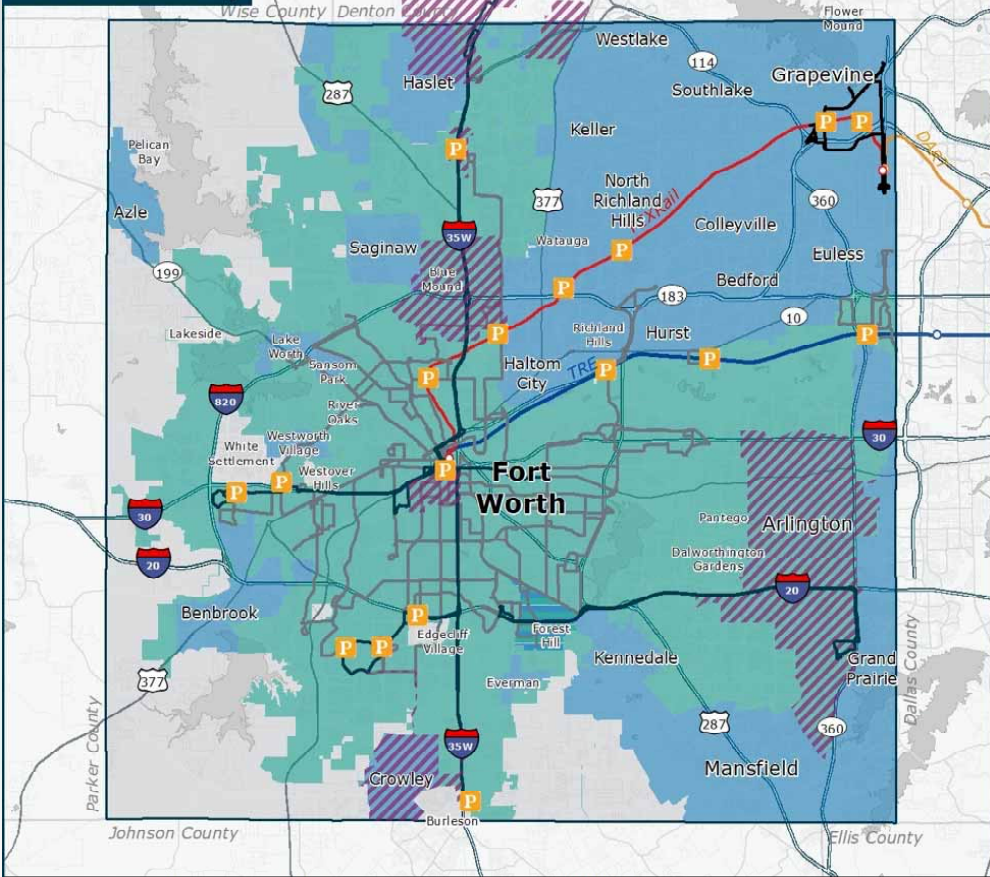
Demand-Response Services

- Pre-Qualified Demand-Response Service Areas
- Paratransit Services Complementary to Fixed-Route Services
- Paratransit and Pre-Qualified Demand-Response Services
- No Demand-Response Services





- Demand-Response Access
- Arlington Via Partnership
 - Trinity Metro ZipZones (Via and Lyft)

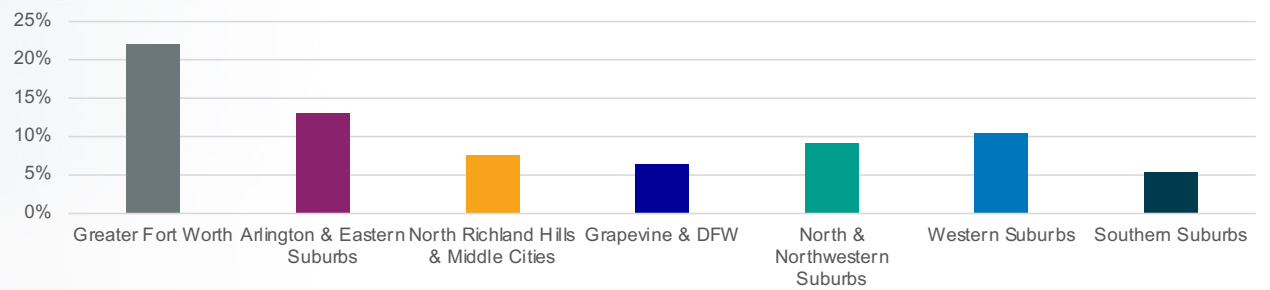


- | | | |
|--|---|---|
| <p>Fixed Route Service</p> <ul style="list-style-type: none"> — Local Buses — Express Buses — Grapevine Shuttles — TEXRail — Trinity Railway Express | <p>On-Demand Services</p> <ul style="list-style-type: none"> ▨ On-Demand Services | <p>Demand-Response Services</p> <ul style="list-style-type: none"> ■ Pre-Qualified Demand-Response Service Areas ■ Paratransit Services Complementary to Fixed-Route Services ■ Paratransit and Pre-Qualified Demand-Response Services ■ No Demand-Response Services |
|--|---|---|
- 19 Park and Ride

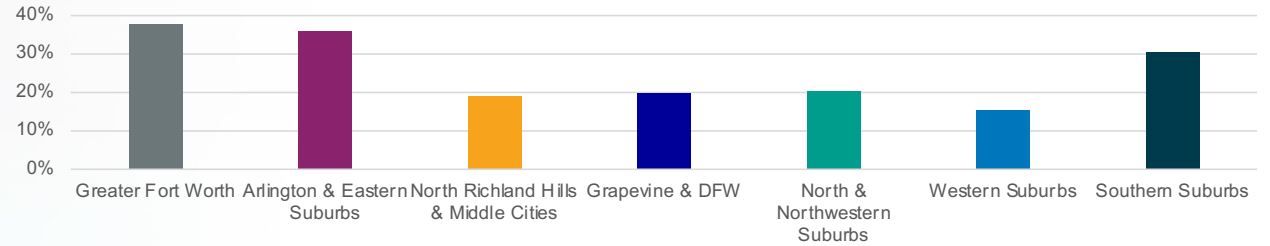
Overall Access



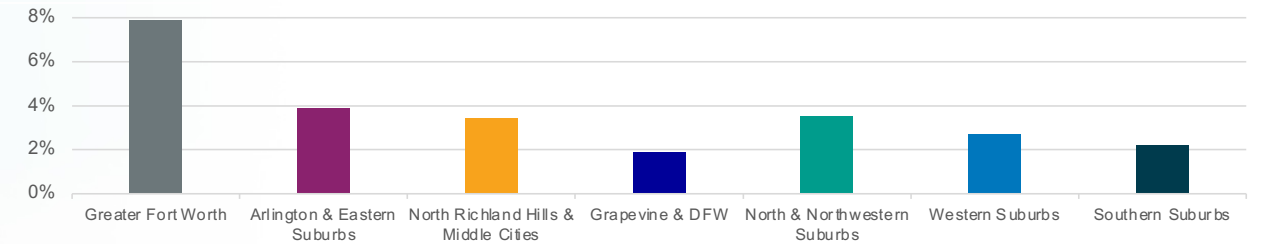
Households in Poverty



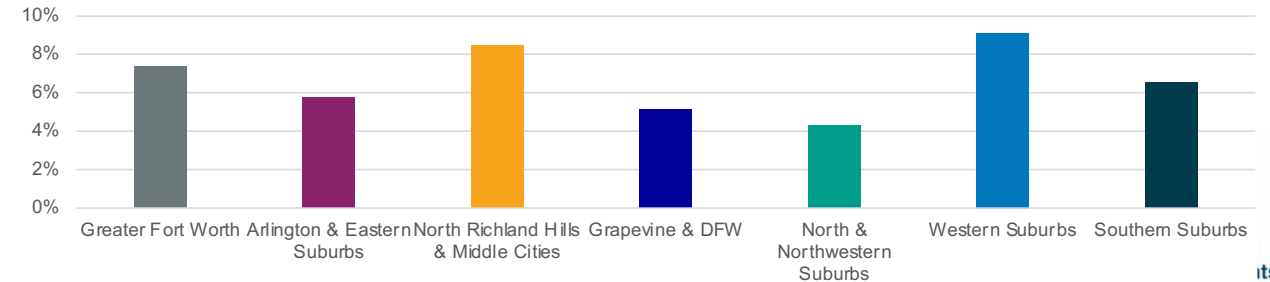
Minority Population

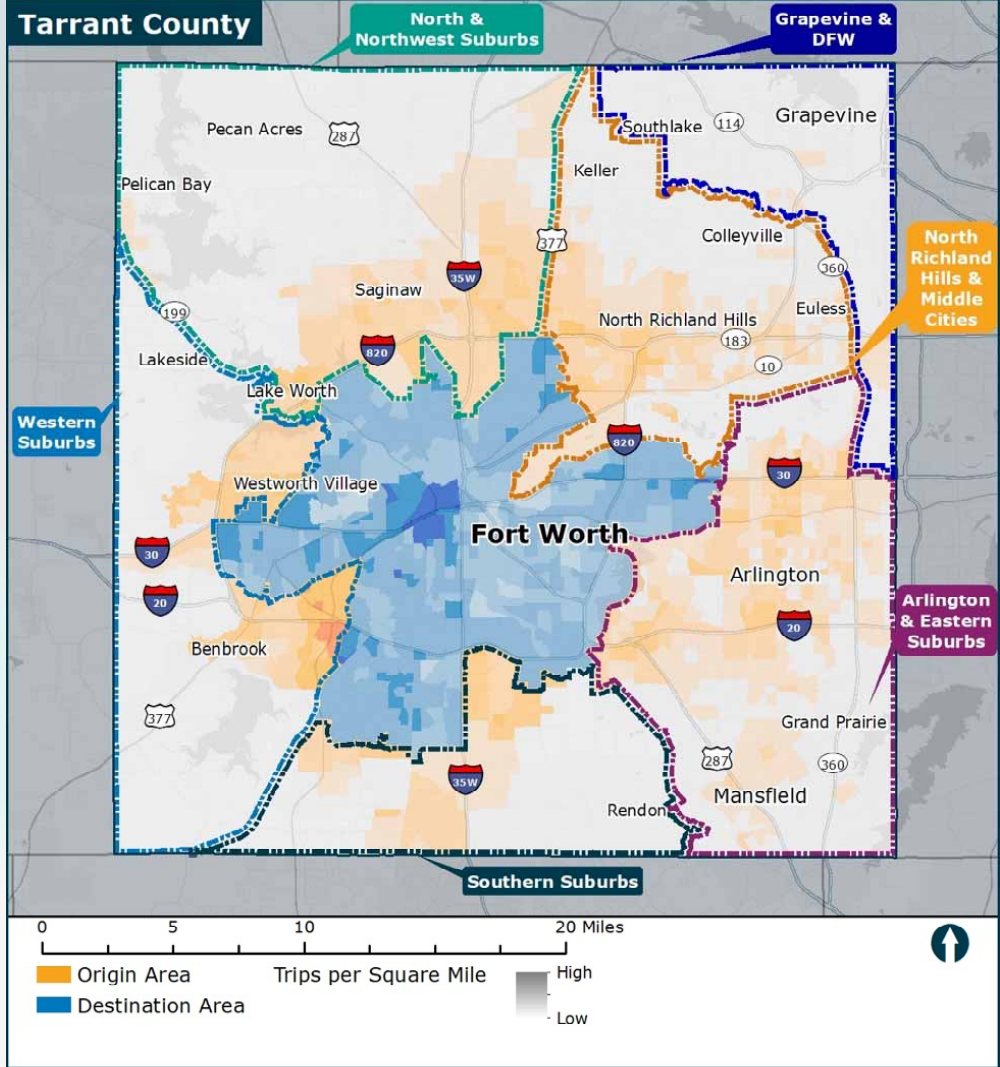


Zero Car Households

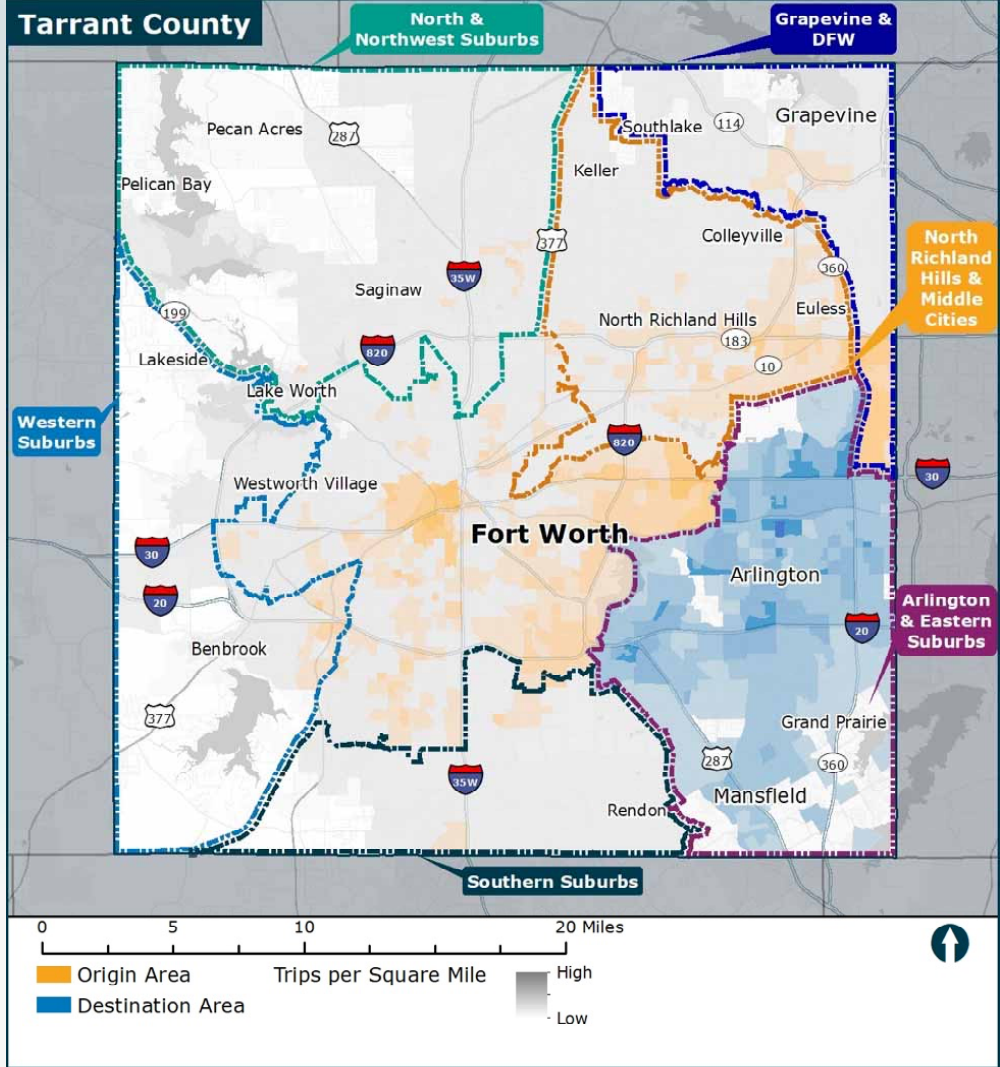


Seniors (65+)

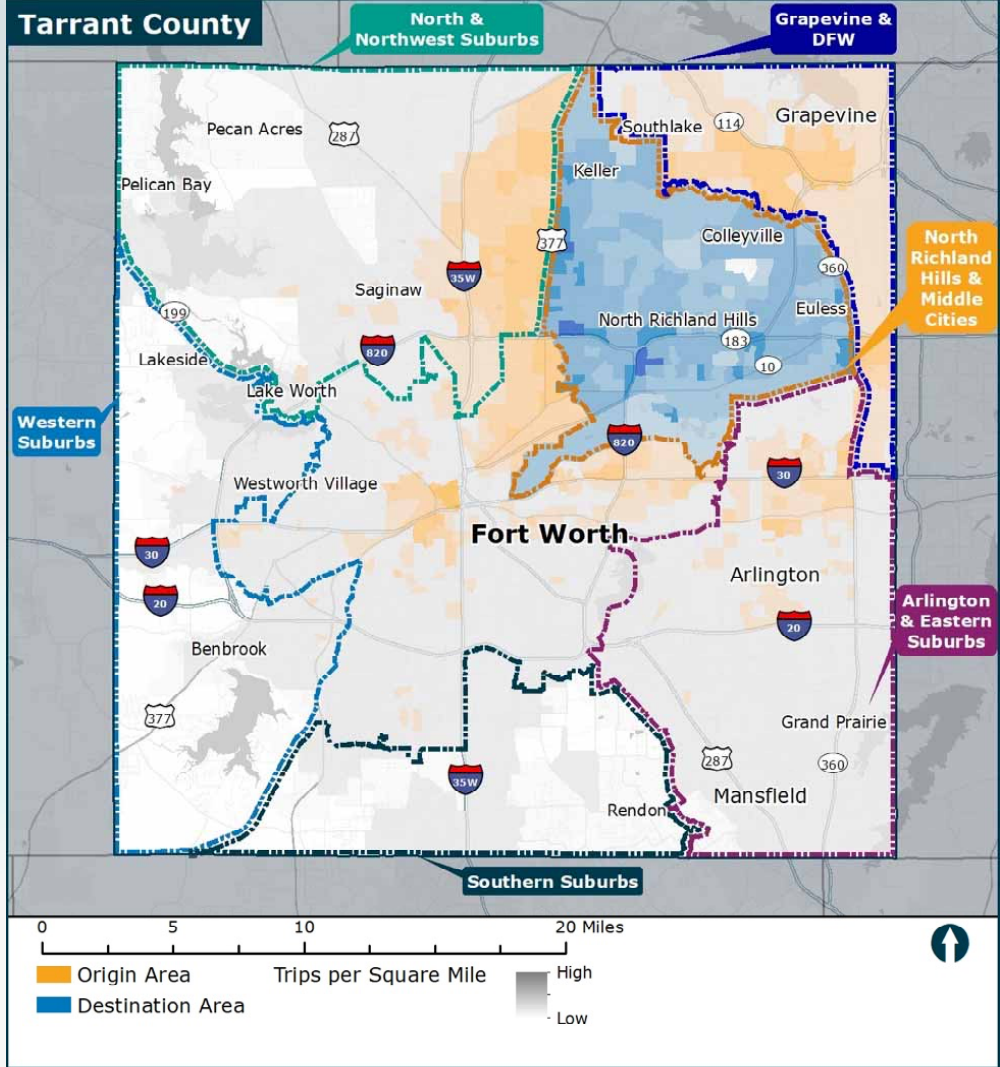




Trip Density to Fort Worth



Trip Density to Arlington/Grand Prairie/Mansfield



Trip Density to North Richland Hills & Middle Cities

PUBLIC ENGAGEMENT



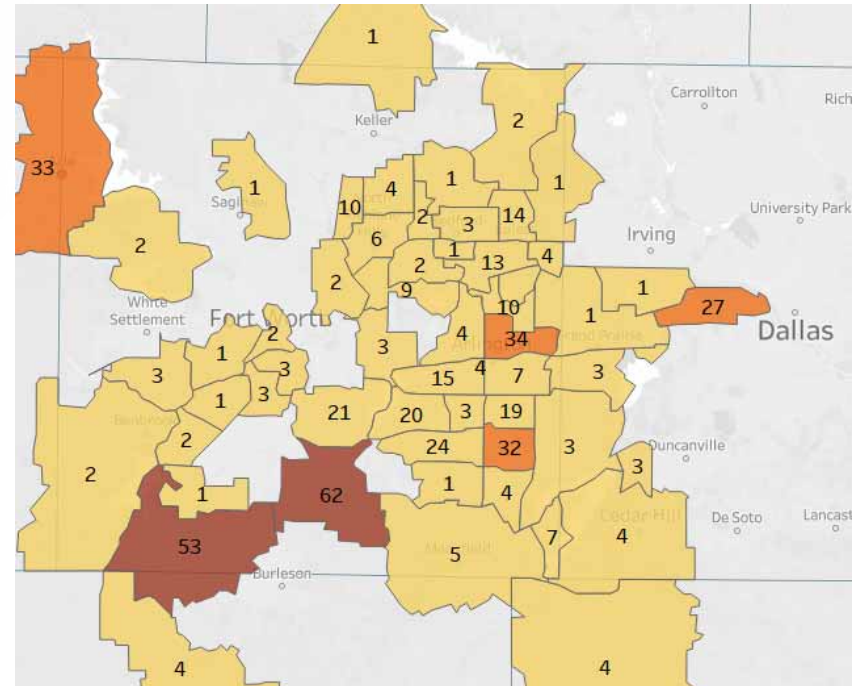
Public Engagement

- Stakeholder Advisory Group 1
 - » July 16th
 - » Take-aways:
 - Vanpool
 - Local options for funding & policy
 - Partnerships and cross-municipal options
- Technical Advisory Group 1: Funding
 - » September 1st
 - » Take-aways:
 - Operational funding matters
 - Sales tax can be vulnerable to economy
 - Infill and parking and TOD: leveraging opportunity
 - Thinking about transit holistically: community values

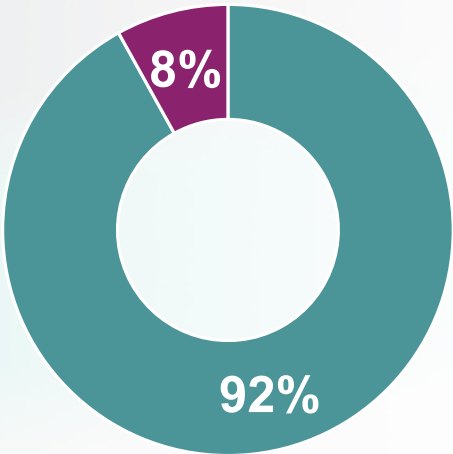
Public Engagement

- Public Meeting 1
 - » September 29th
 - » Zoom Meeting
 - » Strong Arlington Attendance
 - » Takeaways:
 - Equity and Access
 - Transit as way to address (not increase) homelessness

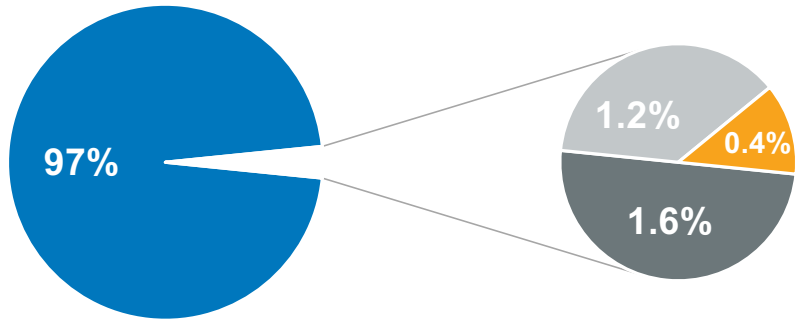
- Survey
 - » September 9th – October 4th
 - » 607 responses



Public Engagement



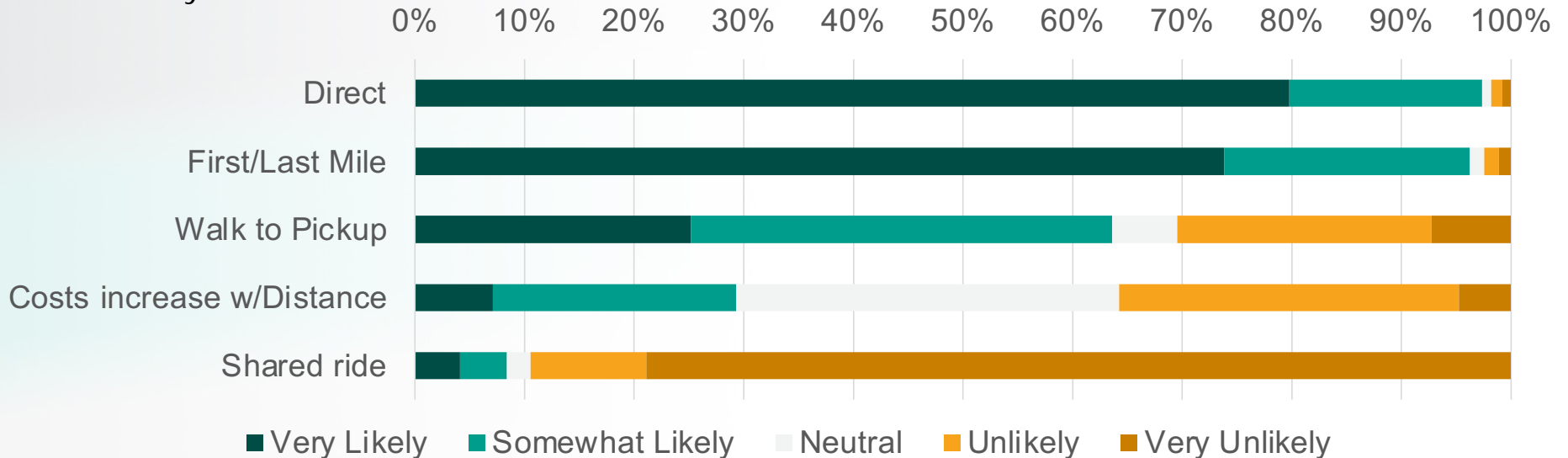
- No, I have not used shared mobility services in Tarrant County.
- Yes, I have used shared mobility services in Tarrant County.



- I do not have access to a vehicle
- No, but I can borrow one whenever I need it
- No, but I can get a ride whenever I need it
- Yes, I own a vehicle

Public Engagement

How likely would you be to use the following shared mobility or demand response services if they were available to you?



SCENARIO DEVELOPMENT



Scenario Development Agenda

1. Market Overview
2. Scenario Development Framework

MARKET OVERVIEW



Needs Identification

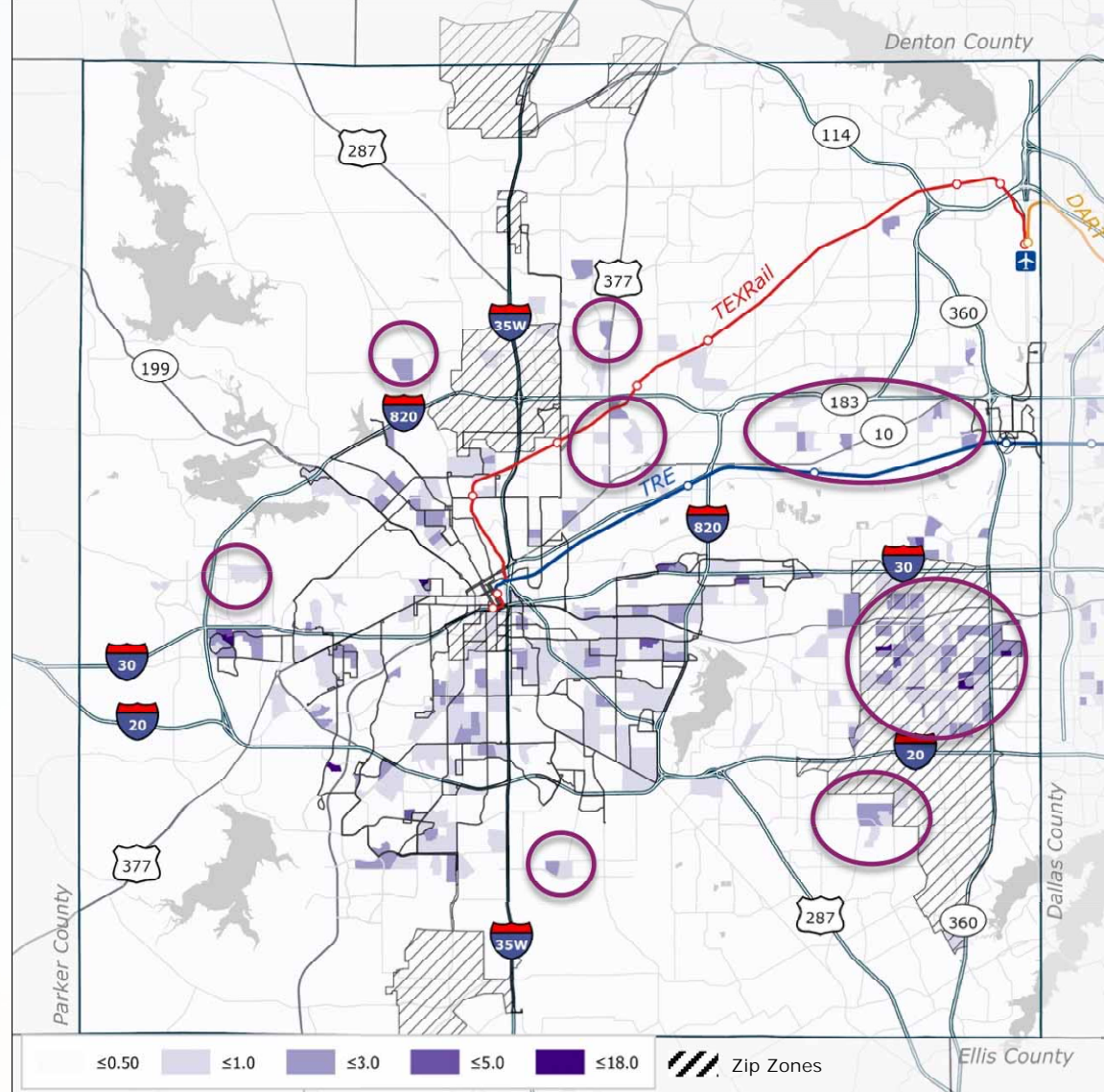
Use Market Analysis Findings to Identify:

- **Local Priorities** (served by local fixed-route, circulators, on-demand modes)
 - » Population / Employment Density
 - » Transportation Disadvantaged Communities
- **Regional Priorities** (served by regional & commuter express modes)
 - » Employment Density
 - » Key Activity Centers
 - » Regional Trip Flows



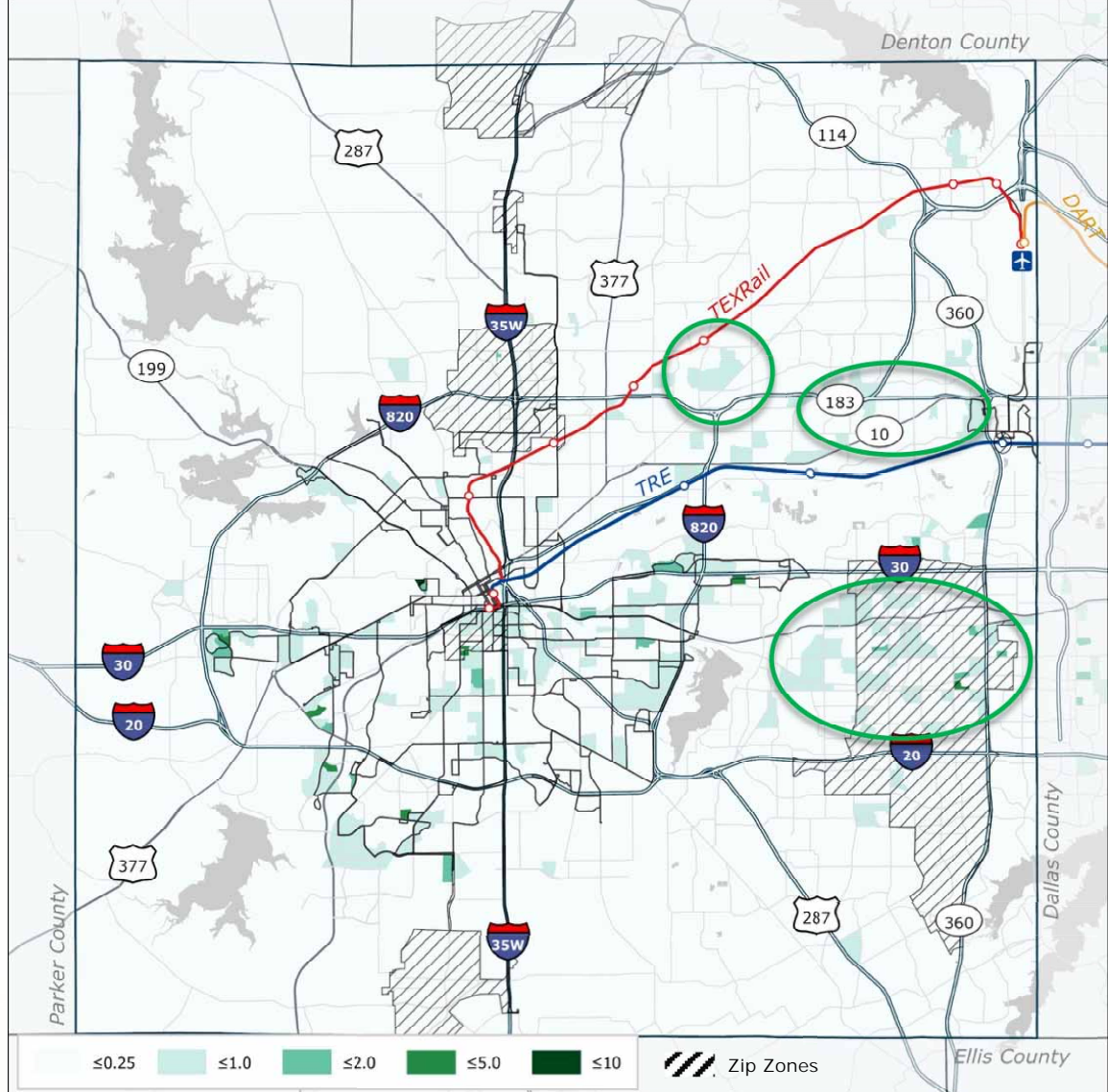
Households in Poverty Densities

- Arlington
- Euless
- North Richland Hills
- Mansfield / Grand Prairie
- Saginaw



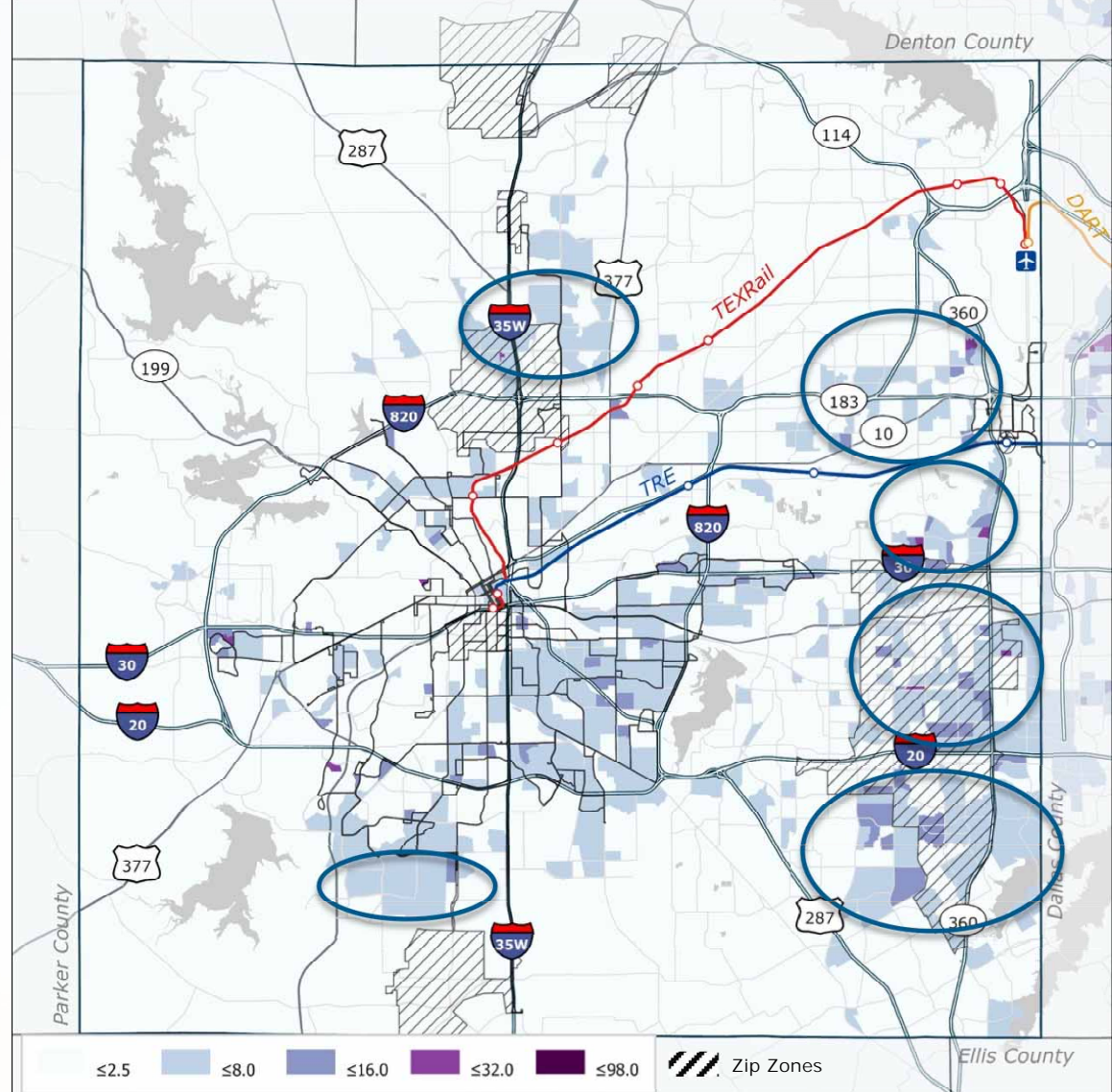
Zero Car Household Densities

- Arlington
- Euless
- North Richland Hills



Minority Population Densities

- Arlington
- Euless
- North Richland Hills
- Mansfield / Grand Prairie



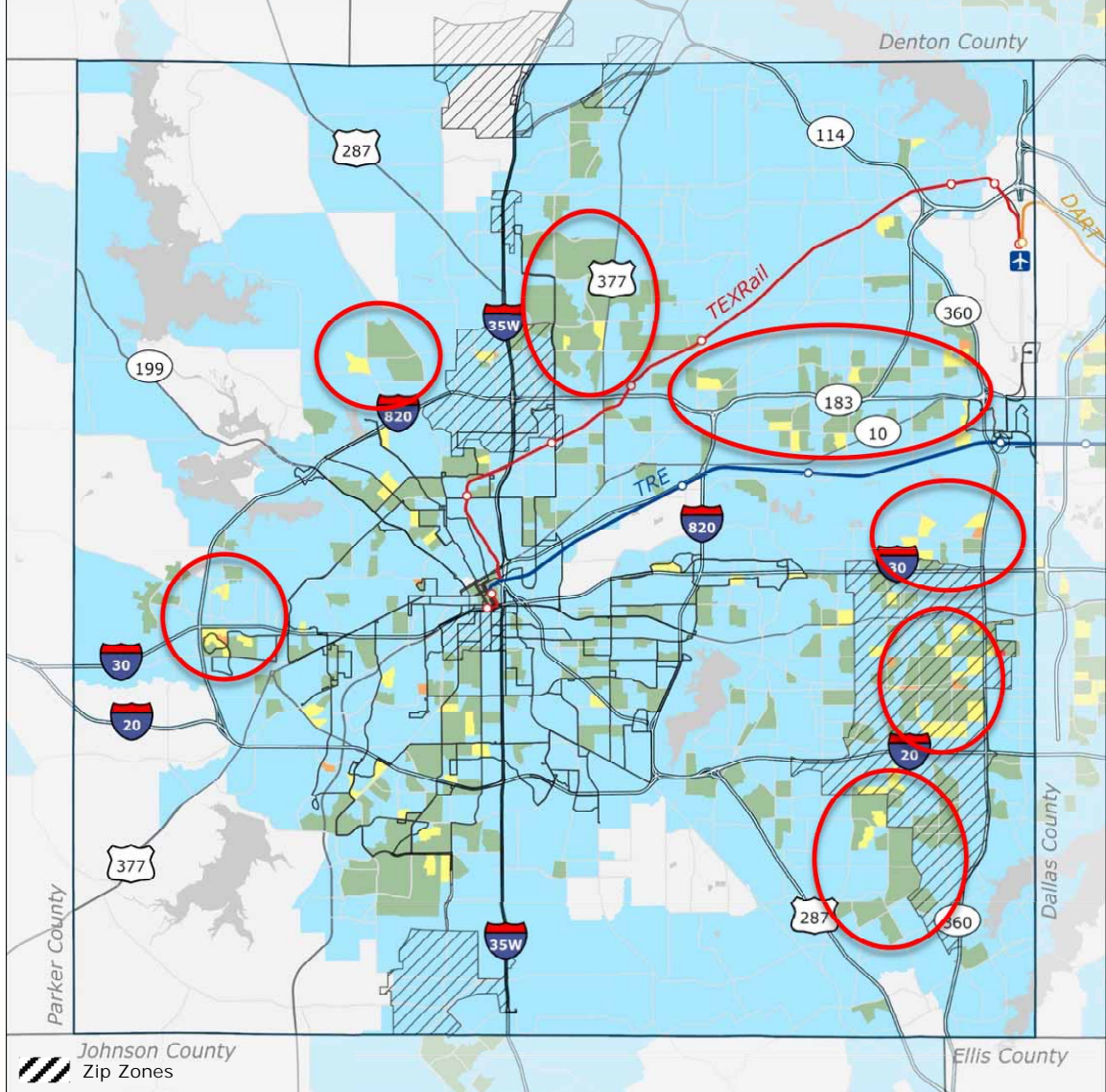
Population Densities

- Arlington
- Euless
- North Richland Hills
- Mansfield / Grand Prairie
- White Settlement
- Saginaw

Transit Supportive Densities

		Jobs per Acre					
		< 2	2 - 4	4-8	8-16	16-24	> 24
Population per Acre	< 0.5	DR	Flex	60 min	30 min	15 min	< 15 min
	0.5 - 8	Flex	Flex	60 min	30 min	15 min	< 15 min
	8-16	60 min	60 min	60 min	30 min	15 min	< 15 min
	16-31	30 min	30 min	30 min	30 min	15 min	< 15 min
	31-47	15 min	15 min	15 min	15 min	15 min	< 15 min
	> 47	< 15 min	< 15 min	< 15 min	< 15 min	< 15 min	< 15 min

Source: *Transit Capacity and Quality of Service Manual, TCRP 165, 2013*
 DR = Demand Response
 Flex = Flex Route



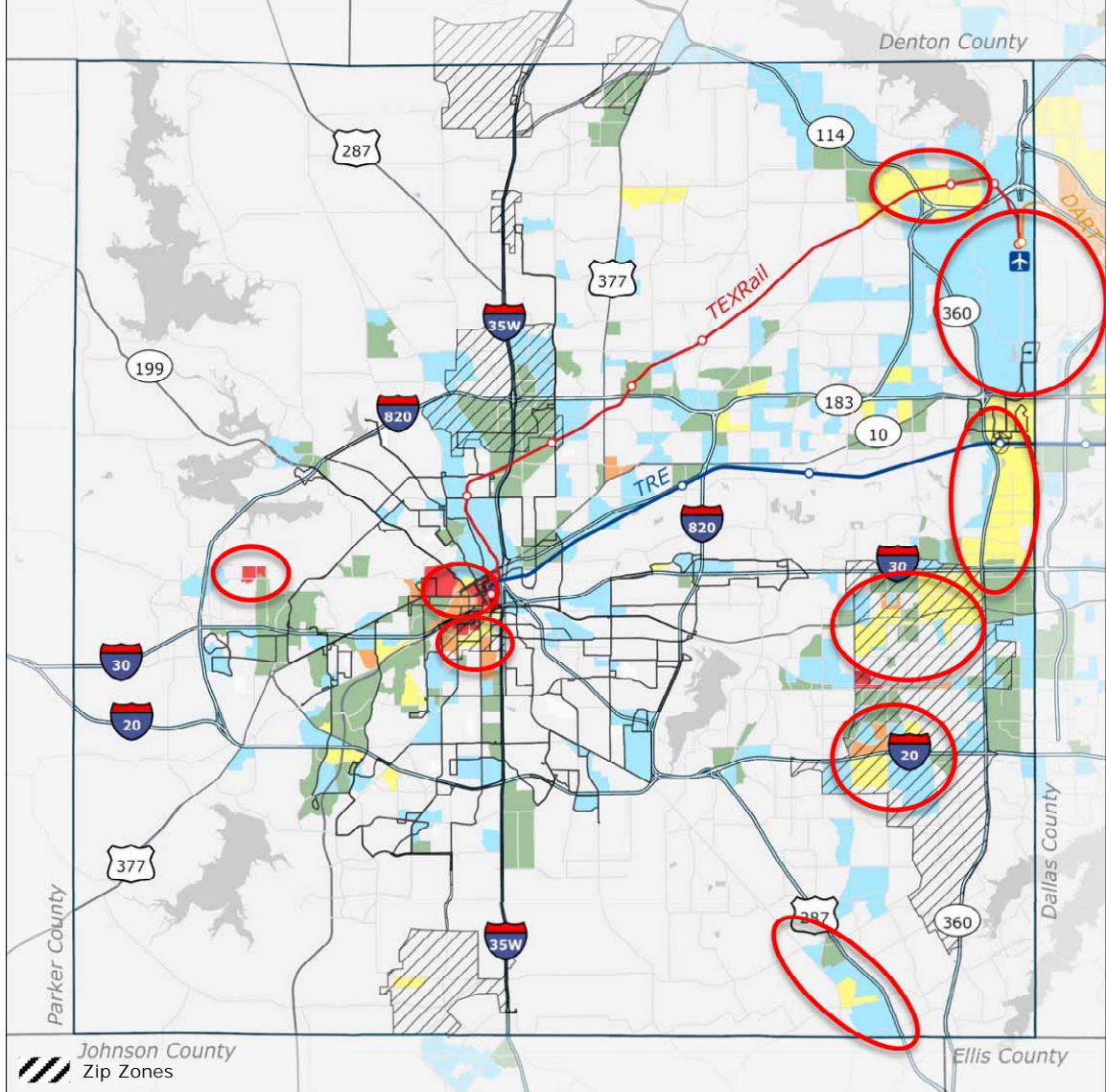
Employment Densities

- DFW
- Centerport
- Downtown Fort Worth
- Arlington
- Medical Center
- Grapevine

Transit Supportive Densities

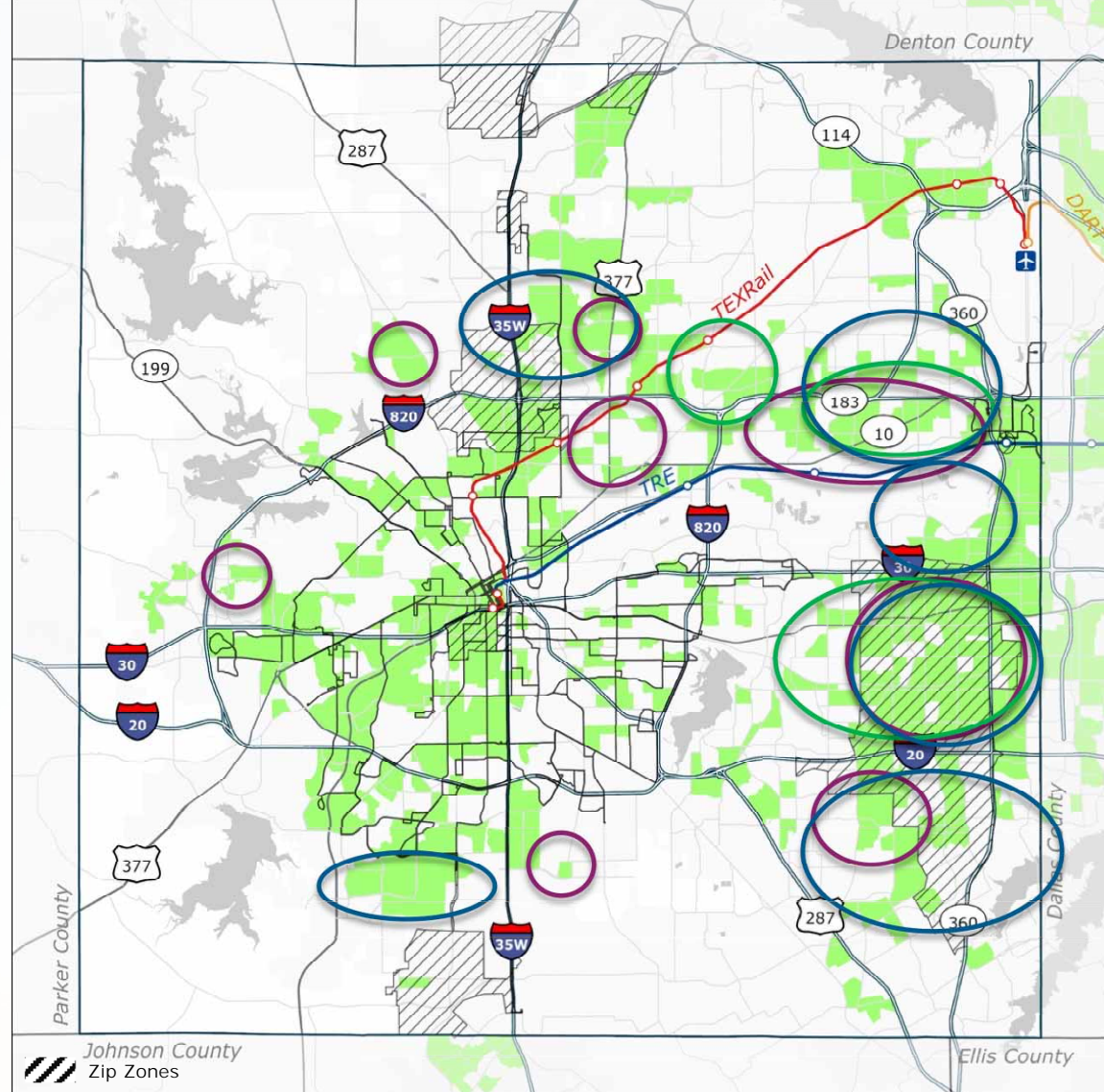
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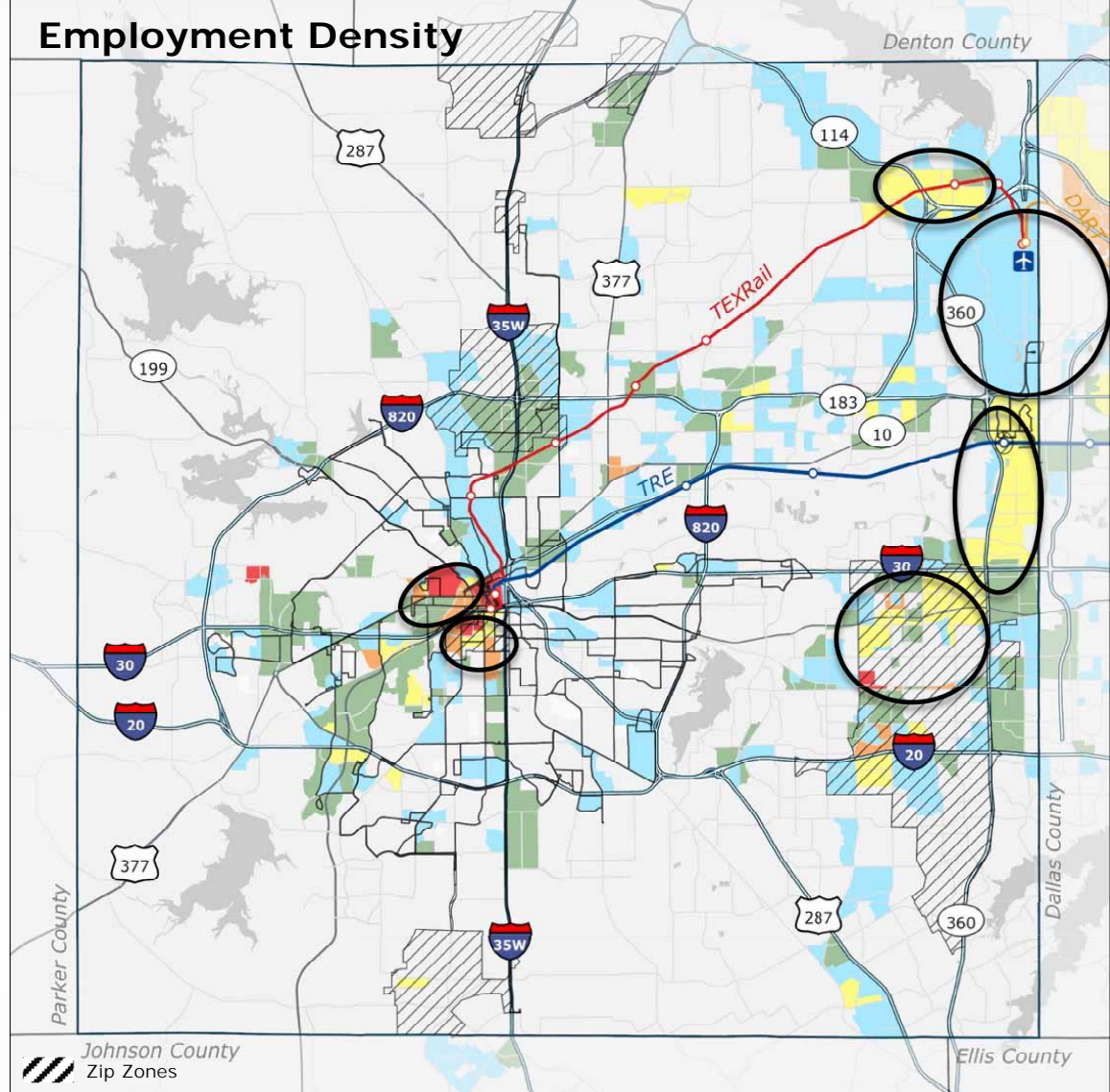
Local Service Priority Areas

- Population / Employment Densities
- Poverty Densities
- Zero-Car Densities
- Minority Densities



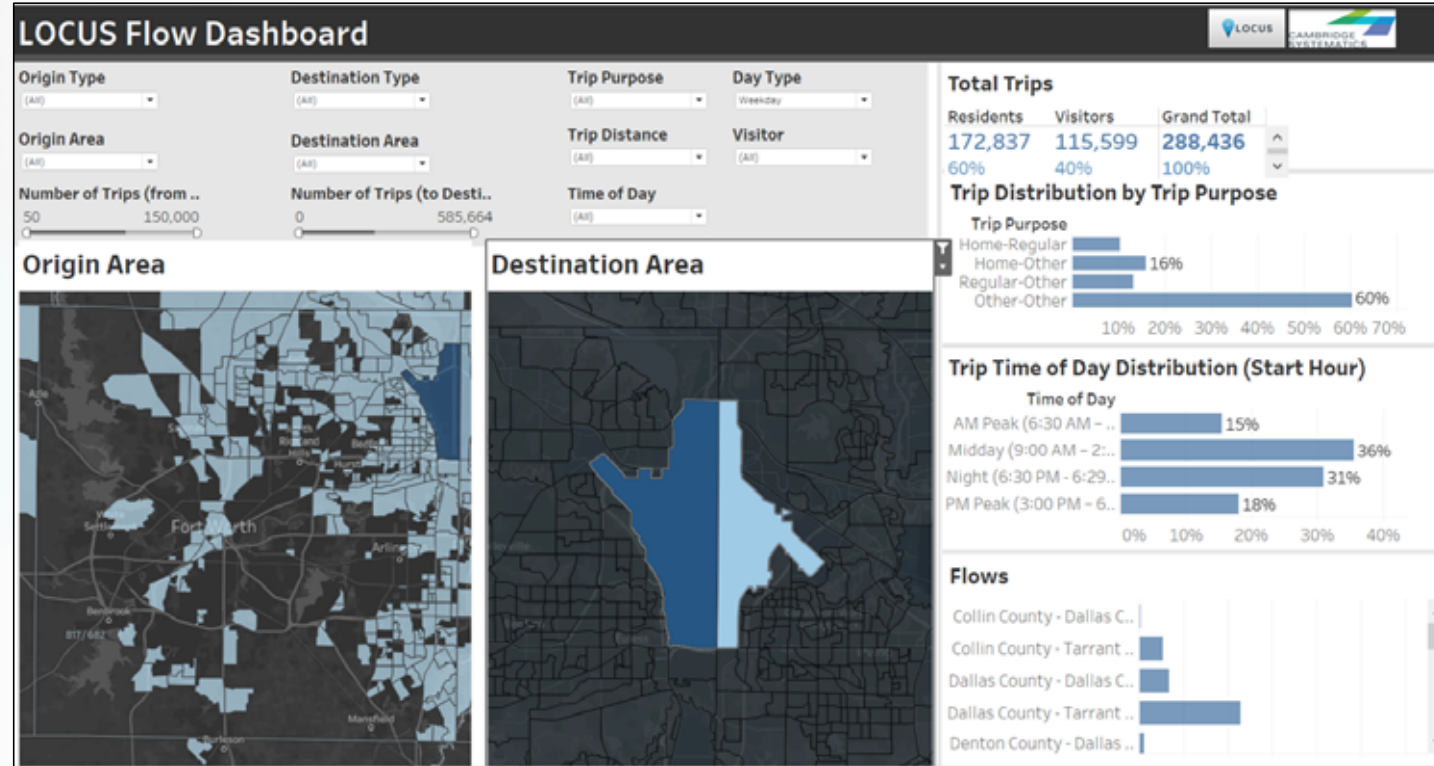
Regional Service Priorities

- DFW
- Centerport
- Downtown Fort Worth
- Arlington
- Medical Center
- Grapevine



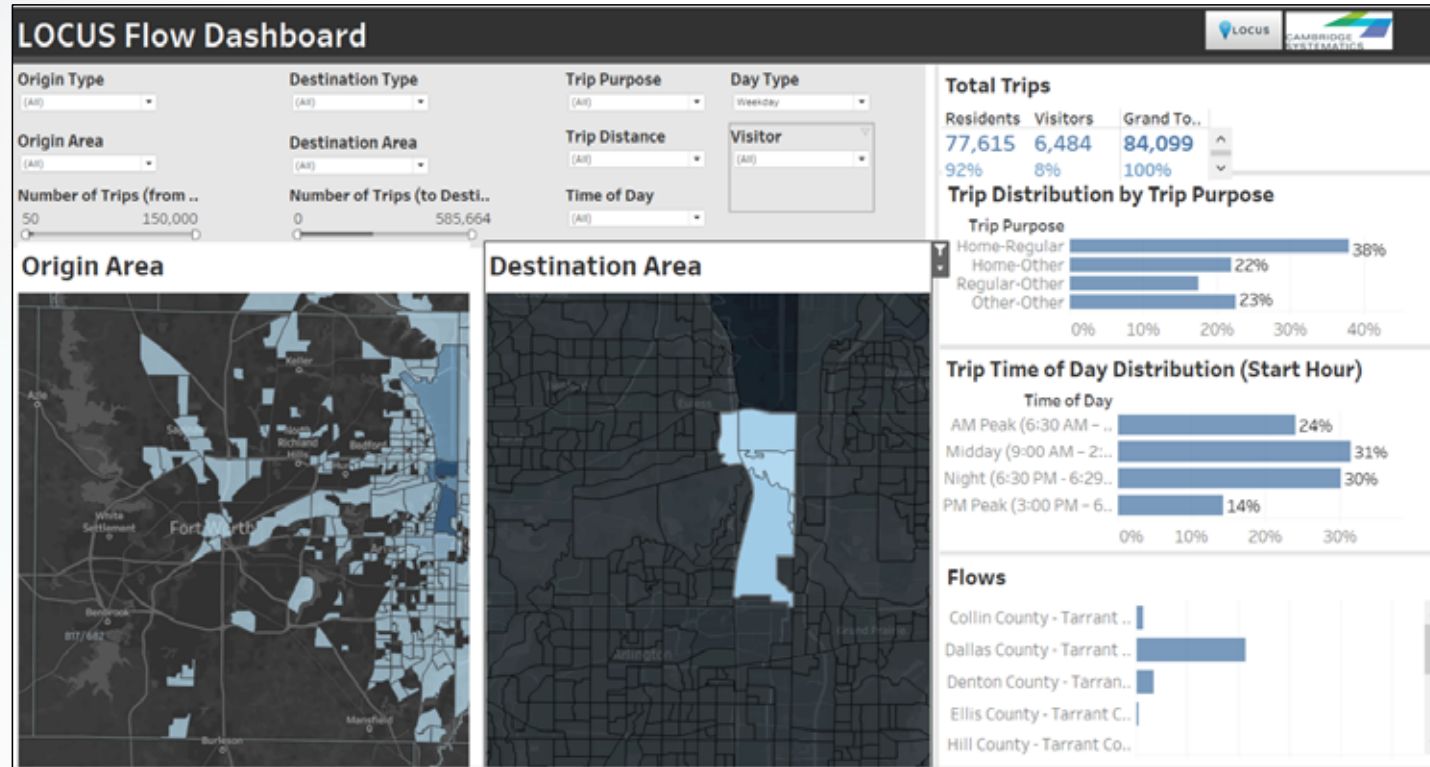
Trip Flows to DFW Airport

- 55,000 jobs
- 49,600 commute trips (LEHD)
- 288,400 total trips (Locus)
- 192,000 external trips (Locus)
- About 37,000 from Tarrant County (19%)



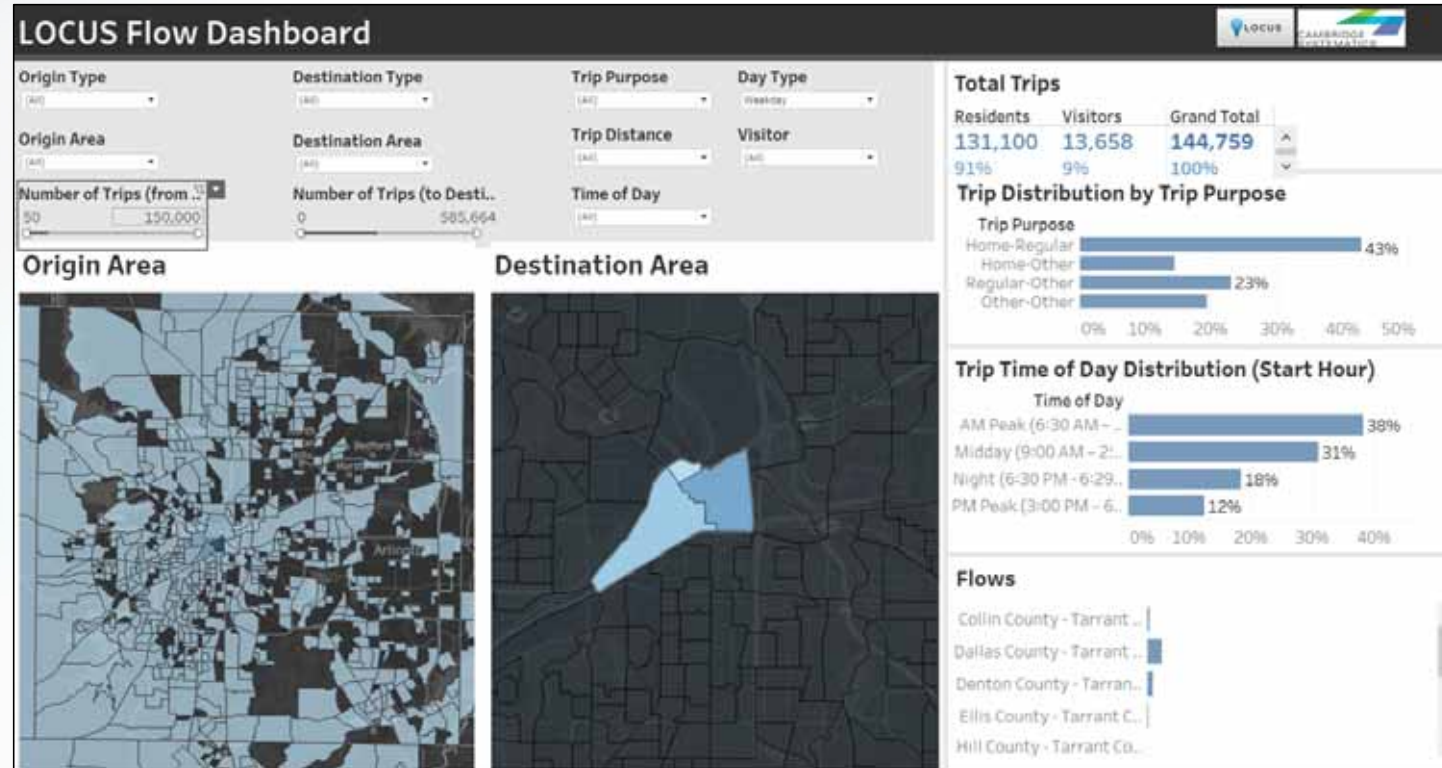
Trip Flows to Centerport

- 48,900 jobs
- 43,800 commute trips (LEHD)
- 84,100 total trips (Locus)
- 71,700 external trips (Locus)
- About 40,800 from Tarrant County (57%)



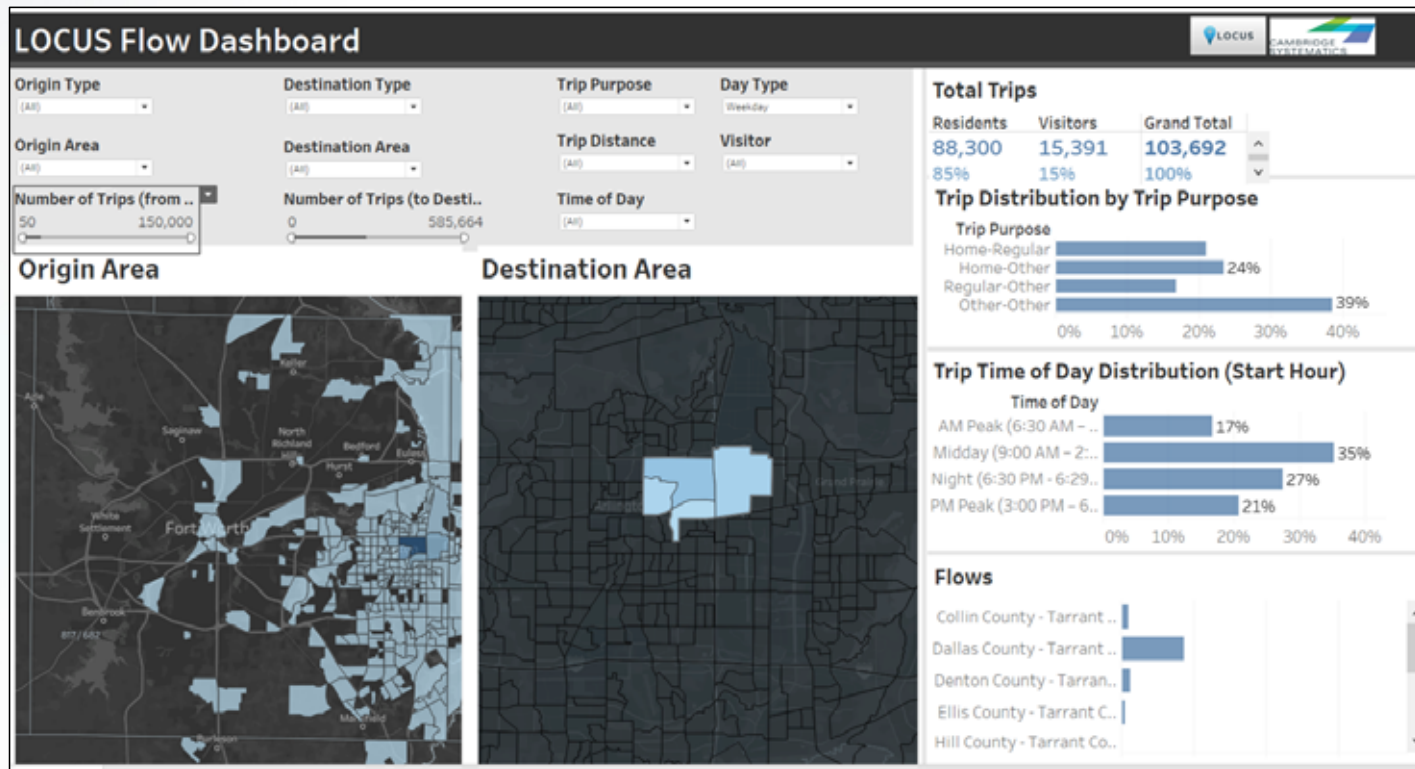
Trip Flows to Downtown Fort Worth

- 46,800 jobs
- 47,000 commute trips (LEHD)
- 144,800 total trips (Locus)
- 123,700 external trips (Locus)
- About 82,600 from Tarrant County (67%)



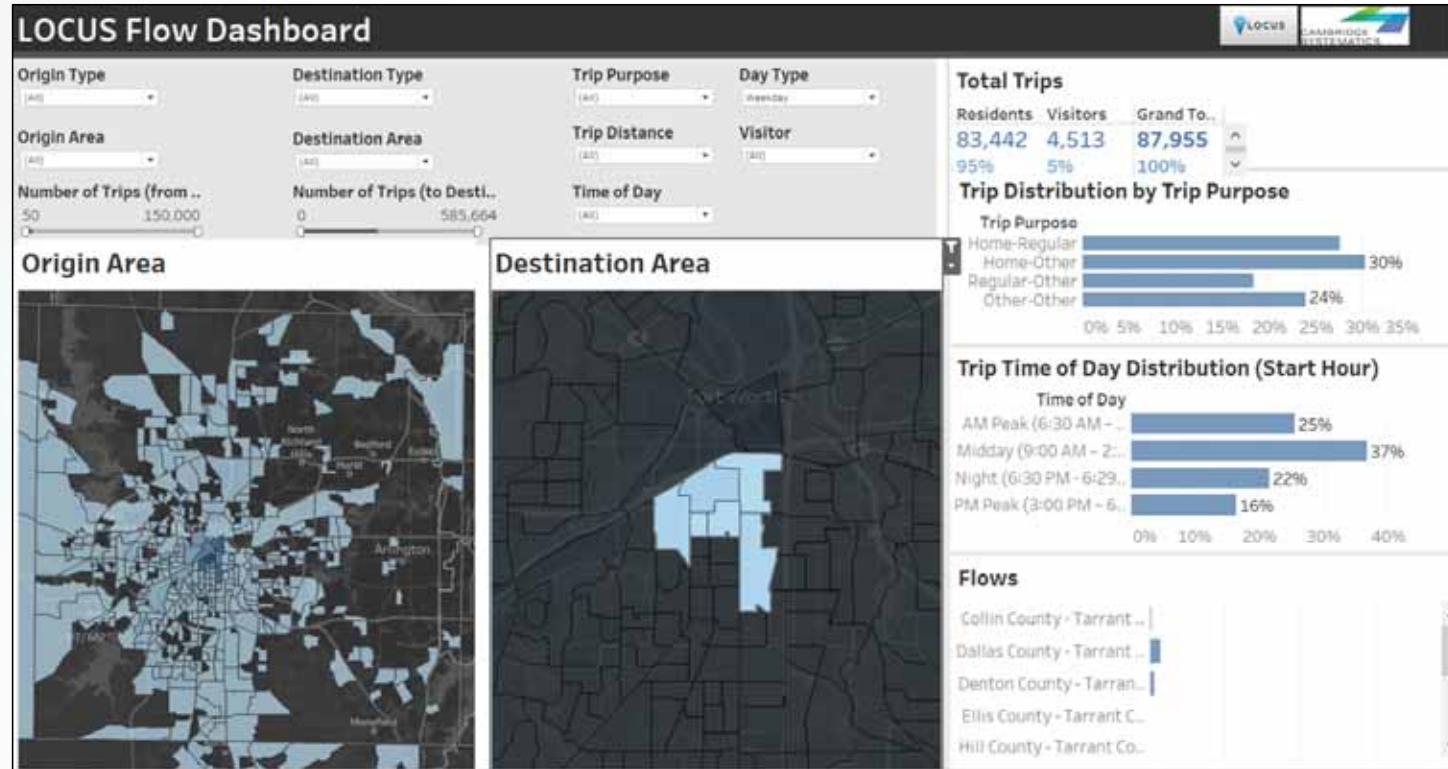
Trip Flows to Arlington

- 36,900 jobs
- 35,900 commute trips (LEHD)
- 103,700 total trips (Locus)
- 78,800 external trips (Locus)
- About 49,300 from Tarrant County (63%)



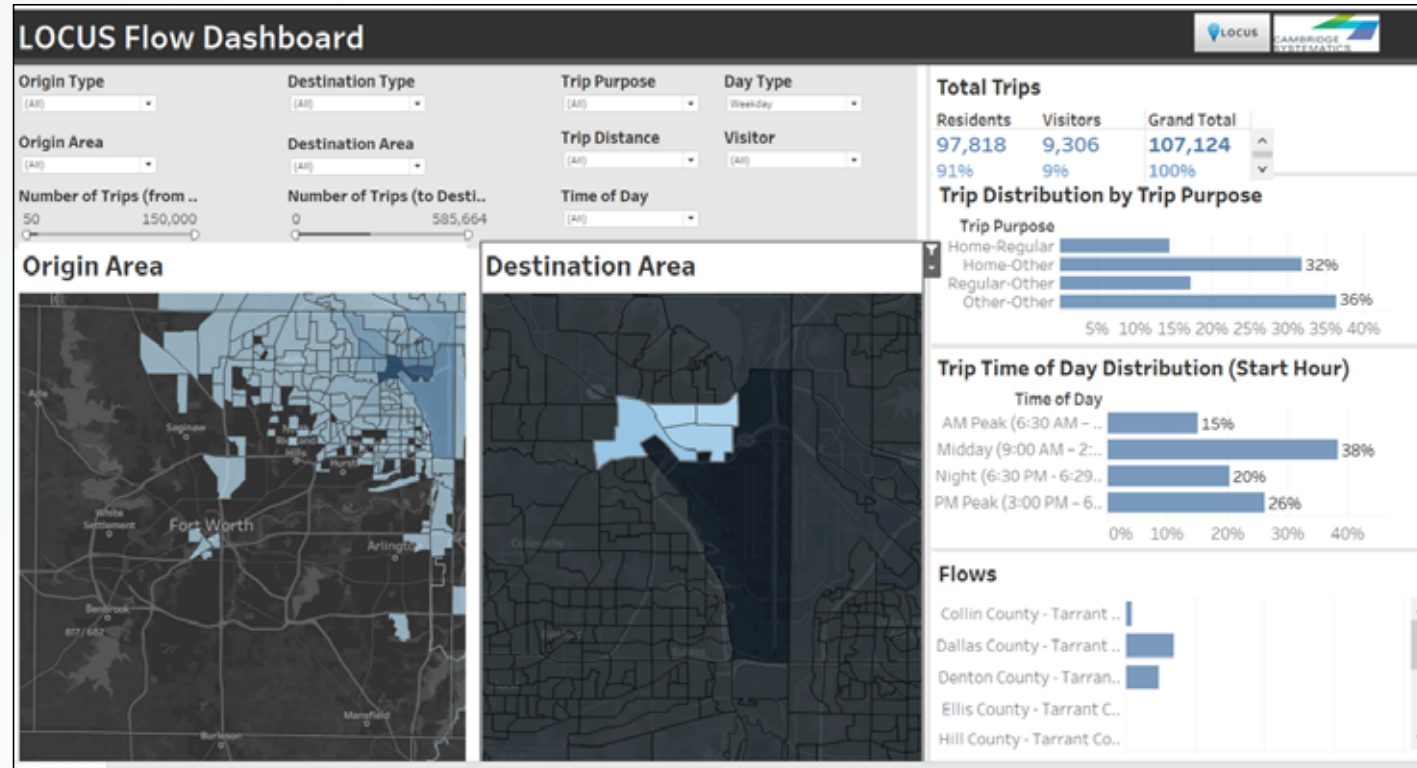
Trip Flows to Medical Center Area

- 33,000 jobs
- 30,500 commute trips (LEHD)
- 88,000 total trips (Locus)
- 77,500 external trips (Locus)
- About 53,300 from Tarrant County (69%)



Trip Flows to Grapevine

- 30,000 jobs
- 27,000 commute trips (LEHD)
- 107,100 total trips (Locus)
- 86,000 external trips (Locus)
- About 47,900 from Tarrant County (56%)



SCENARIO DEVELOPMENT FRAMEWORK



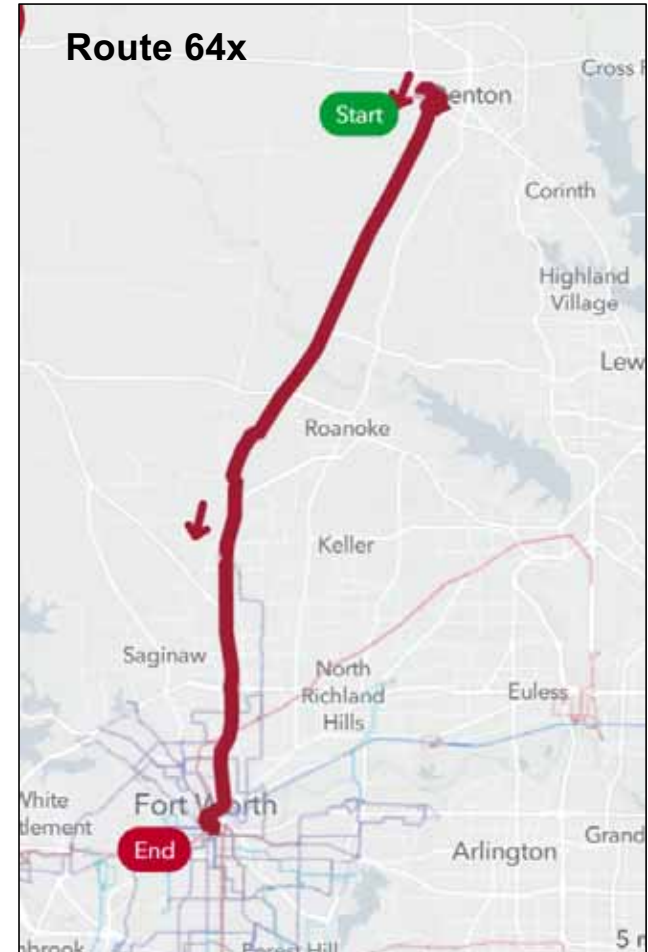
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Methodology

1. Identify Service Layers
2. Apply Service Layers Based on Scenario Objective
 - » Enhance Local Mobility
 - » Enhance Regional Mobility
 - » Hybrid Approach
3. Refine Service Plans Based on Other Factors
 - » Funding Assumptions
 - » Equity
 - » Others?

Regional Services

- **Purpose:** All-day long-distance service to activity centers
- **Application:** Freeways, major arterials
- **General Service Levels:**
 - 5-7 Day
 - 15-30 minute service
 - 16-18 hours / day
- **Focus:** Long regional trips, shorten travel times



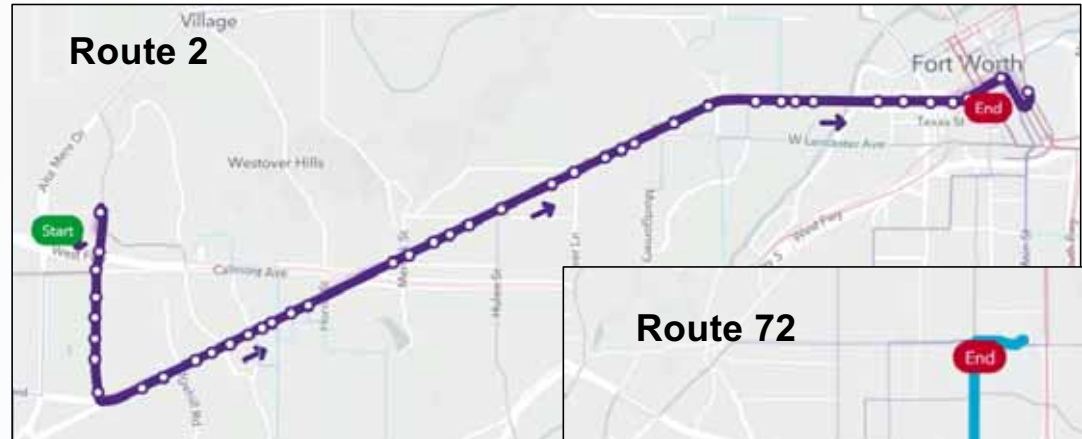
Commuter Express Service

- **Purpose:** Peak period commuter market service to major employment centers
- **Application:** Freeways, major arterials
- **General Service Levels:**
 - 5-Day
 - 20-60 minute service
 - Hours vary based market
- **Focus:** Long regional trips, shorten travel times



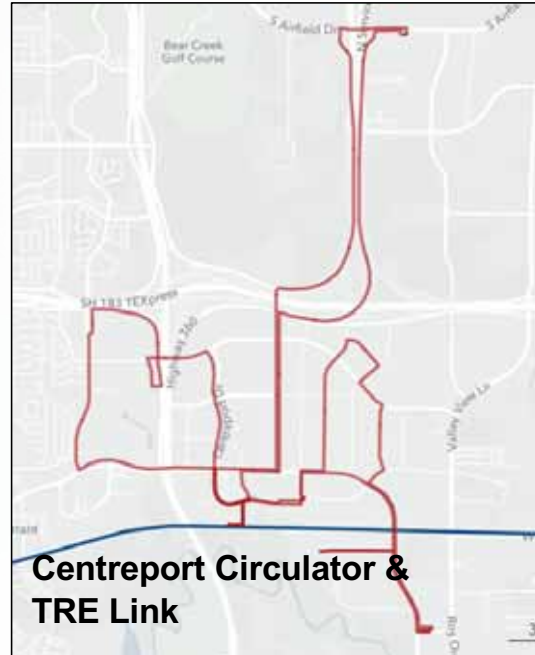
Primary & Secondary Fixed Route Service

- **Purpose:**
 - **Primary:** Service along major roadways / corridors
 - **Secondary:** Service within moderate-density neighborhoods
- **Application:** Arterials & primary neighborhood streets
- **General Service Levels:**
 - 5-7 Day
 - 15-60 minute service
 - 18-22 hours / day
- **Focus:** Local to corridor network connections, localized trips



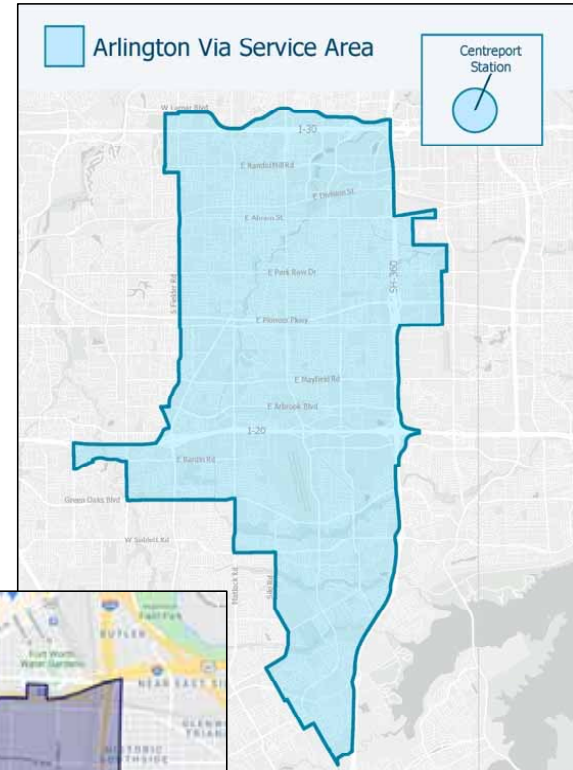
Circulator Service

- **Purpose:** Service in major activity centers
- **Application:** Local streets within an activity center
- **General Service Levels:**
 - 5-7 Day
 - 10-30 minute service
 - 16-22 hours / day
- **Focus:** activity center circulation, distribution from corridor/regional network connections



Flexible / On-Demand Service

- **Purpose:** Service coverage in lower-density areas
- **Application:** First/last mile connections to high-capacity lines; replaces trips during unproductive times of day; replace unproductive routes in low-density areas.
- **General Service Levels:**
 - 5-7 Day
 - On-demand (wait times vary)
 - 16-22 hours / day
- **Focus:** Provide service coverage where fixed-route service is otherwise inefficient.



Vanpool

- North Central Regional Vanpool Program operated by three transit agencies – Trinity Metro, DART, DCTA
- Trinity Metro Vanpool requires groups of five or more commuters
- Trip origination end not limited to Tarrant County – includes Johnson, Parker, Hood, Montague, Erath, Wise, Palo Pinto and Somervell Counties
- Destination can be anywhere within the DFW region
- Includes Guaranteed Ride Home Program



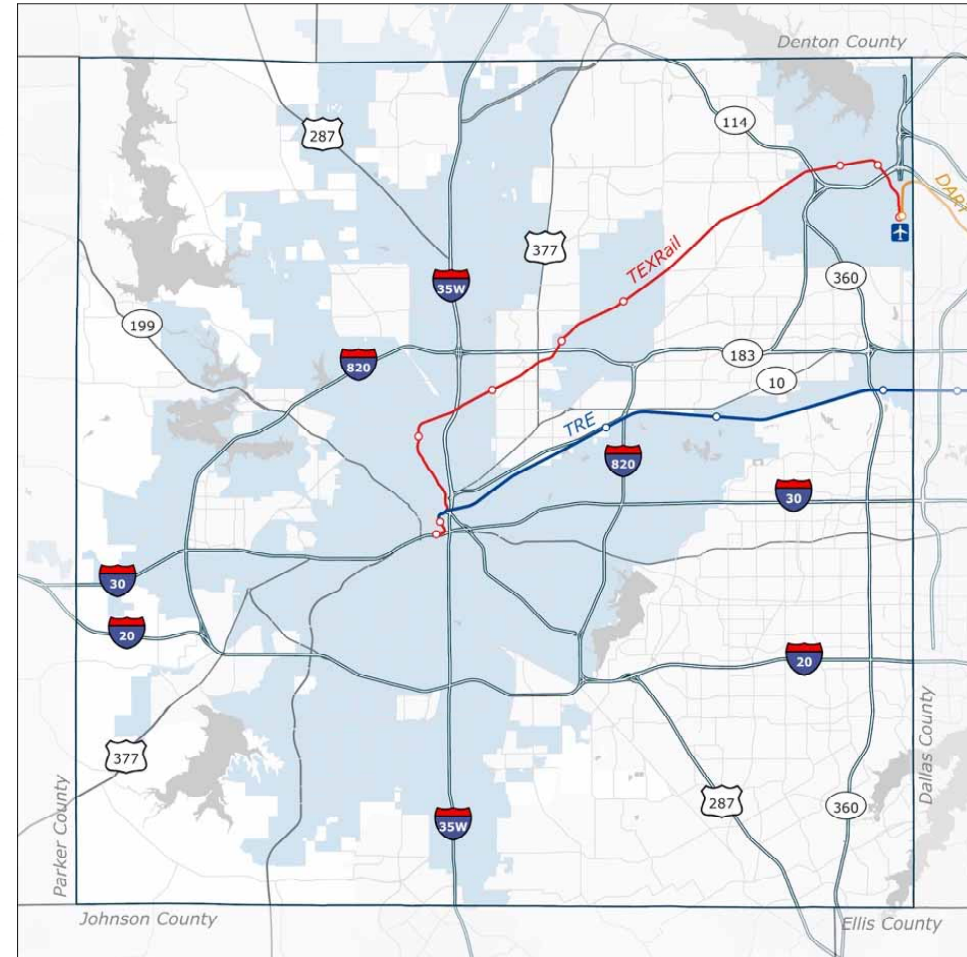
Existing Rail Transit Facilities

TEXRail Stations

- Fort Worth T&P
- Fort Worth Central
- North Side
- Mercantile Center
- North Richland Hills/Iron Horse
- North Richland Hills/Smithfield
- Grapevine/Main Street
- DFW Airport North
- DFW Airport Terminal B

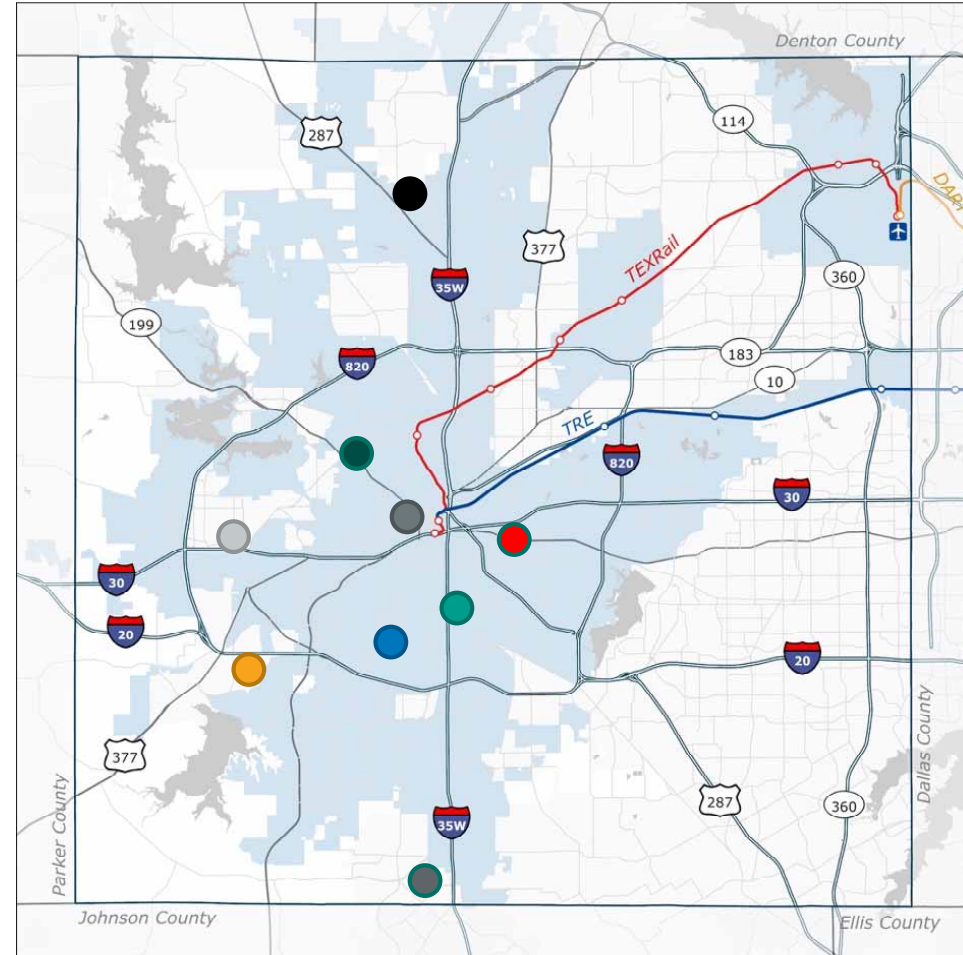
Trinity Railway Express Stations

- Fort Worth T&P
- Fort Worth Central
- Richland Hills
- Bell
- Centreport/DFW Airport



Existing Bus Transit Facilities

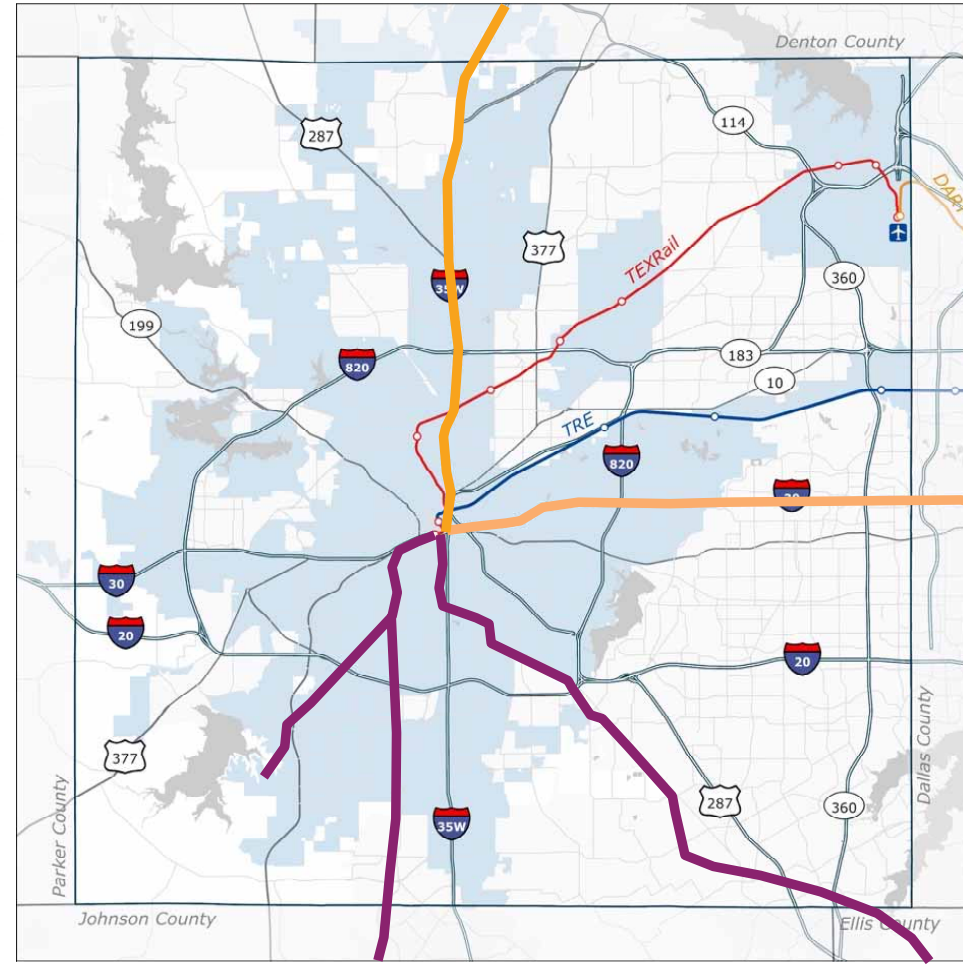
- Fort Worth Central
- Ridgmar Mall Transfer Center
- Hulen Mall Transfer Center
- La Gran Plaza Transfer Center
- Sierra Vista Transfer Center
- East Fort Worth Transfer Center
- Stockyards Transfer Center
- South Park & Ride – Alsbury Blvd. Exit
- North Park & Ride – I-35 South Service Road



Future Regional Transit Investments

Mobility 2045 Projects

- IH 30 High Intensity Express Bus
- IH 35W High Intensity Express Bus
- Mansfield Line Regional Rail
- Southwest TEXRail Extension
- Cleburne Line Regional Rail

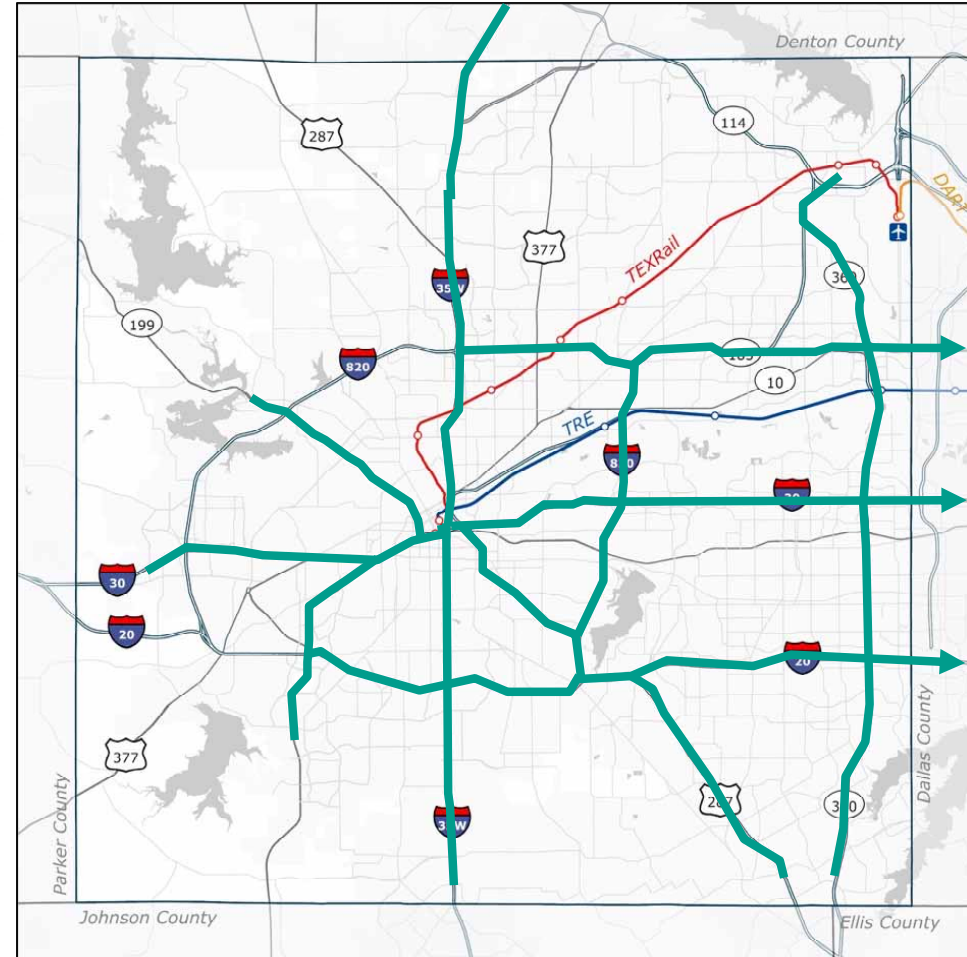


Network Design Concepts

Service Type	Concept 1	Concept 2	Concept 3
	Application / Emphasis		
Regional Service	Low	Moderate	High
Commuter Express Service	Low	Moderate	High
Primary/Secondary Fixed Route Service	High	Moderate	Low
Circulator Service	Low	Moderate	High
On-Demand Services	High	Moderate	Low
Vanpool	Low	Moderate	High
Theme	Local Accessibility	Hybrid	Regional Mobility

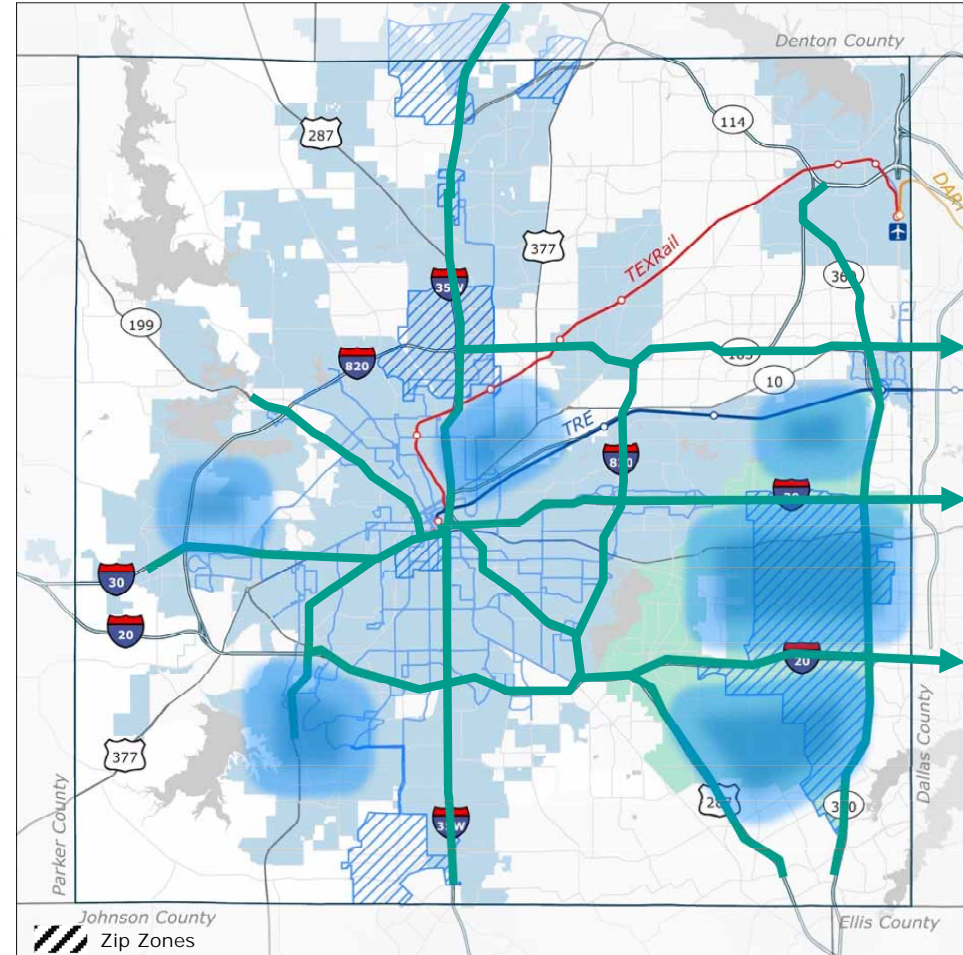
Network Design Concept

- Potential **Regional and Commuter Express Services**
- Compatibility with **Mobility 2045**



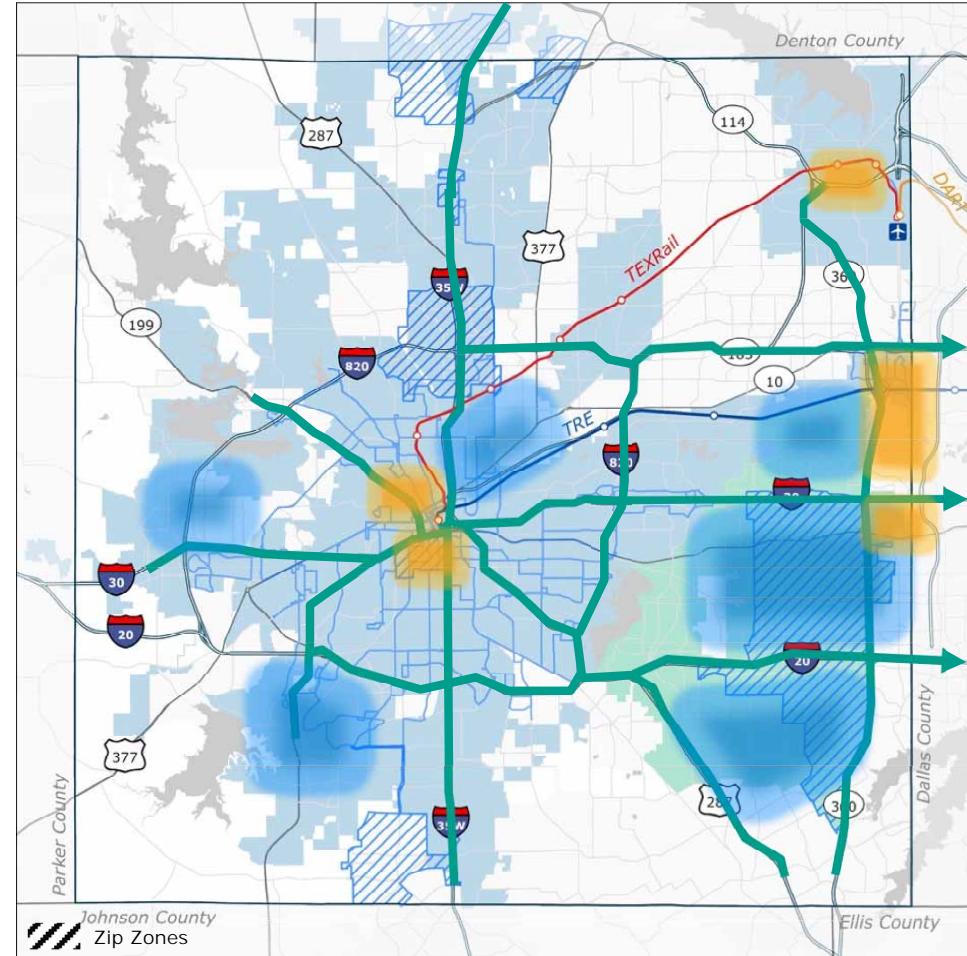
Network Design Concept

- Potential **Regional and Commuter Express Services**
- Countywide **Vanpool Program Expansion**
- Potential expansion of **Fixed Route and Shared Mobility Service Areas**



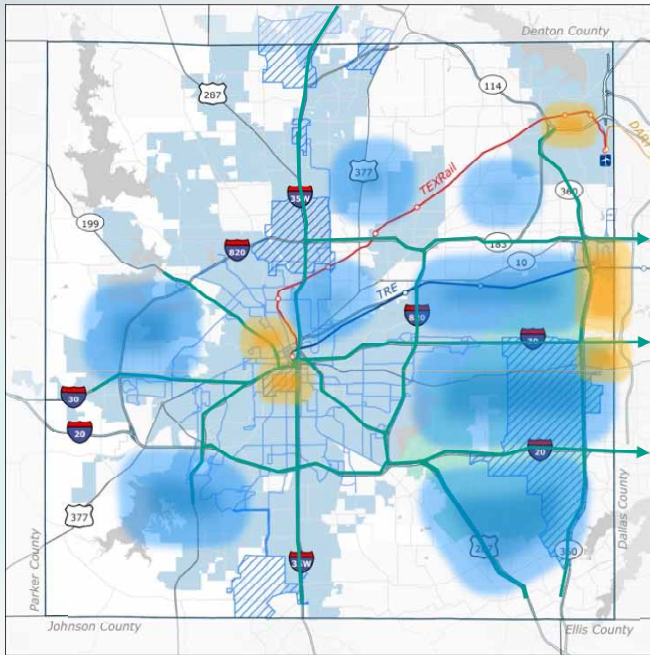
Network Design Concept

- Potential **Regional and Commuter Express Services**
- Countywide **Vanpool Program Expansion**
- Potential expansion of **Fixed Route and Shared Mobility Service Areas**
- Existing and/or new **Circulator Services**

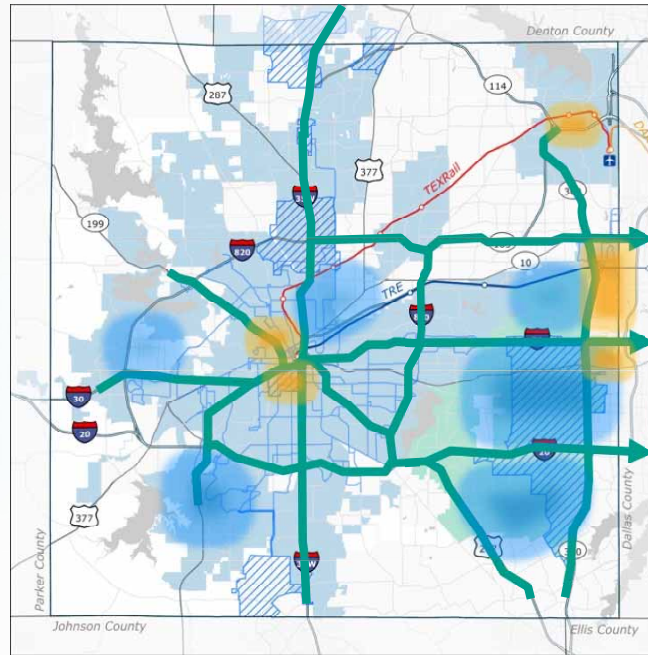


Network Design Concepts

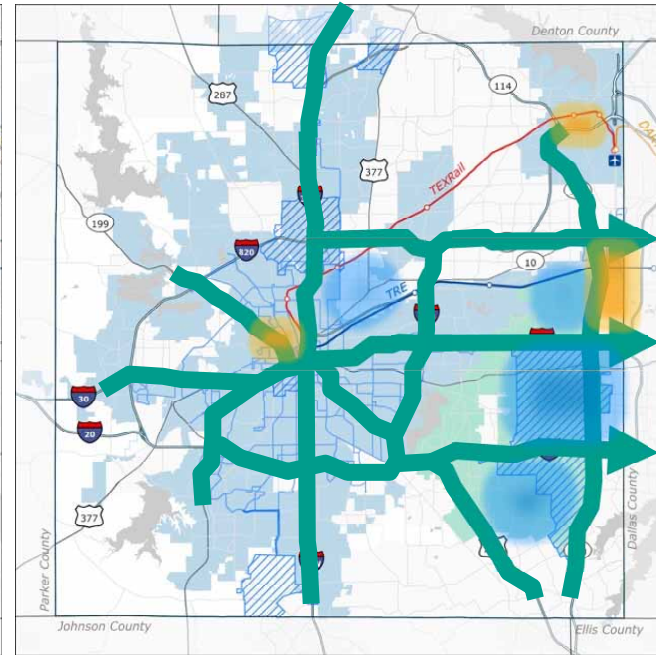
Concept 1: Prioritize Local Mobility



Concept 2: Balanced Approach



Concept 3: Prioritize Regional Mobility



Geographic Coverage \longleftrightarrow Equity

Lower Investment \longleftrightarrow Higher Investment

Scenario Focus Exercise – Part 1

Should we focus more on
statement A...

...or statement B?

1

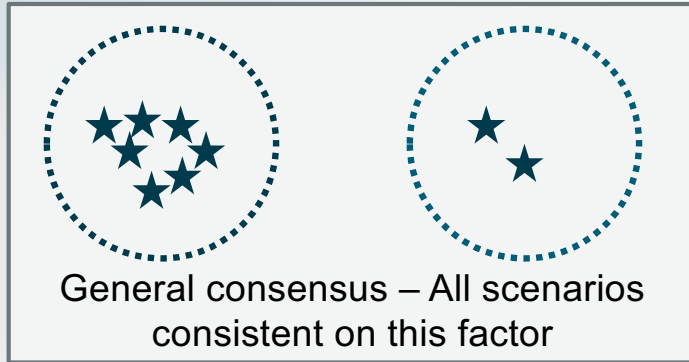
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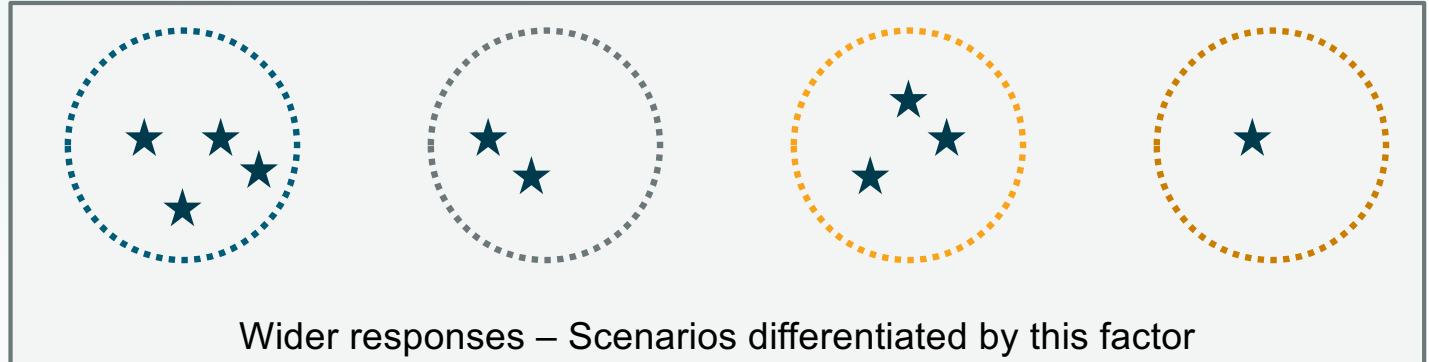
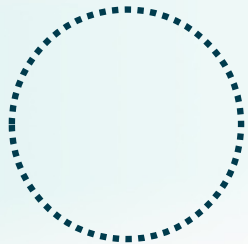
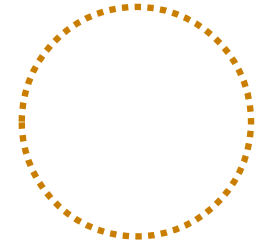
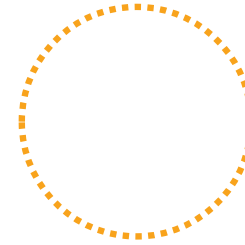
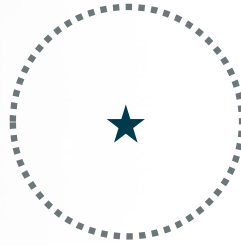
5

Scenario Focus Exercise



General consensus – All scenarios consistent on this factor

The diagram shows two circles with dotted blue borders. The left circle contains seven blue stars clustered together. The right circle contains two blue stars. Below these circles is the text 'General consensus – All scenarios consistent on this factor'.



Wider responses – Scenarios differentiated by this factor

The diagram shows four circles with dotted borders. From left to right: a blue dotted circle with three blue stars; a grey dotted circle with two blue stars; an orange dotted circle with three blue stars; and an orange dotted circle with one blue star. Below these circles is the text 'Wider responses – Scenarios differentiated by this factor'.

Destinations & Mobility

Communities should prioritize **short-range** trips: medical, shopping, and social.

Communities should prioritize **commute and regional** trips: airports, jobs, and business districts.

1

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Coverage & Equity

Communities should focus on providing **broad service** to the entire population.

Communities should focus on **supporting equity groups** and focus their resources on that market.

1

2

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4

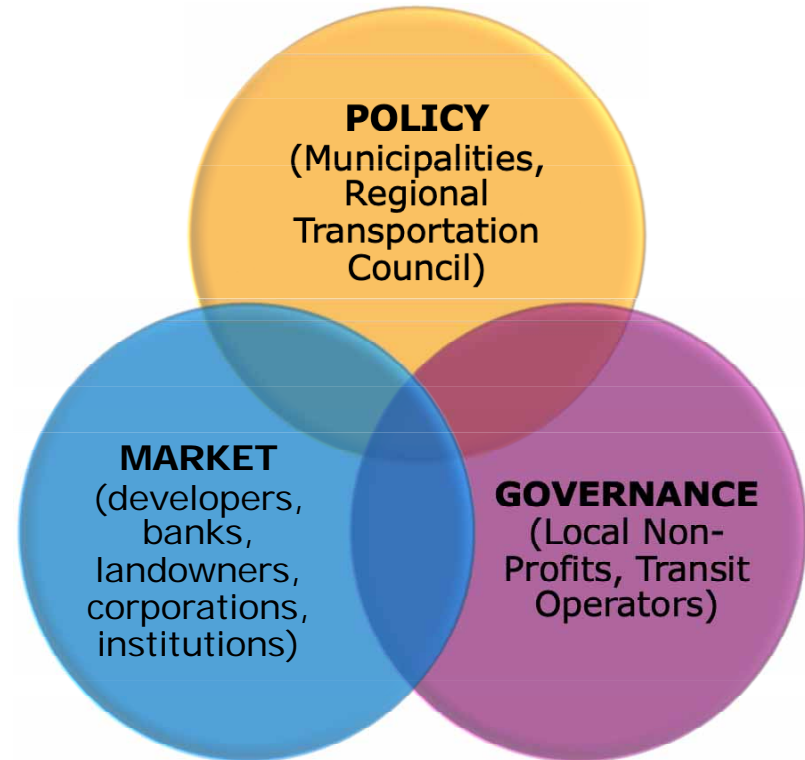
5

FUNDING AND FINANCE



Funding and Finance

- Available Mechanisms
- Outlook and Trends
- Sales tax allocations
- OpEx per capita for agencies



Federal and State Funding Mechanisms

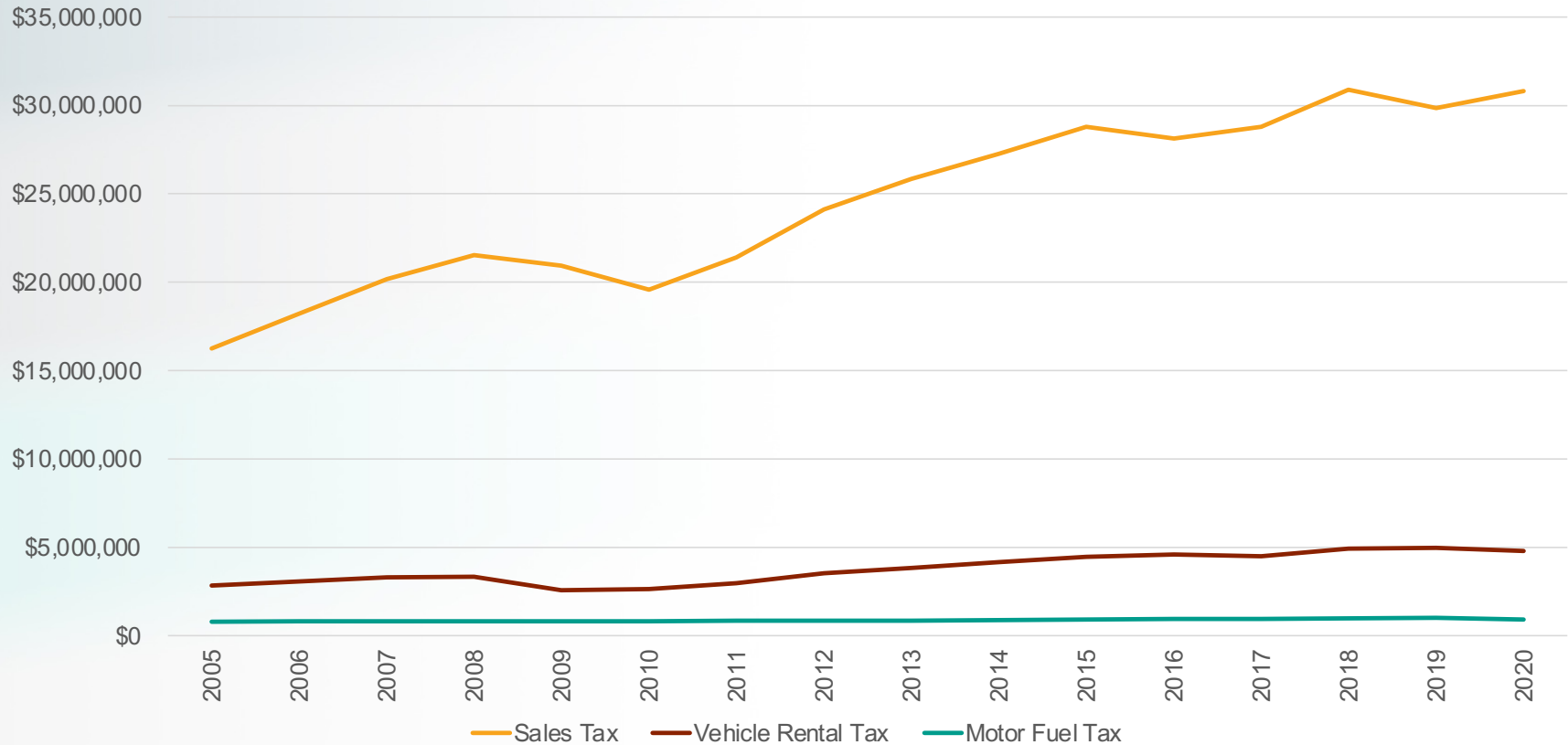
Existing and Potential Funding Mechanisms						
Name	Range (Relative to other funding in category)	Local Match Need	Local Match Apply	Operations & Maintenance (O&M)	Capital Expenditure (CapEx)	Existing Program
Federal						
5307 Urbanized Area Funds	Mid to High	•			•	Yes
5309 Capital Investment Grants	Mid to High	•			•	Yes
5339 Buses and Bus Facilities	Mid to High	•			•	Yes
Better Utilizing Investments to Leverage Development (BUILD) Grants	Mid to High	•			•	Yes
Accelerating Innovative Mobility (R&D)	Low			•		Yes
Access and Mobility Partnership Grant	Low	•			•	Yes
Congestion Mitigation and Air Quality Program (CMAQ) under FAST Act	Mid to High	•			•	Yes
Integrated Mobility Innovation (IMI) Grant	Low				•	Yes
State (Texas)						
*State Infrastructure Bank Loans	Mid to High	•			•	Yes
Gas tax surcharge	Low		•	•	•	Yes
*Vehicle Miles Traveled (VMT) Tax	Mid		•	•		No
Vehicle Weight Tax	Mid			•		No
*Local Option Tax Rate Election Increase	Mid	•		•	•	No
Air Quality Surcharge	Low to Mid			•		No
*Transportation Development Credits	Low to Mid		•		•	Yes

- * Recommended funding options based on feasibility and overall benefit
- Requires significant political support or referendum to enact
- Potentially volatile funding source

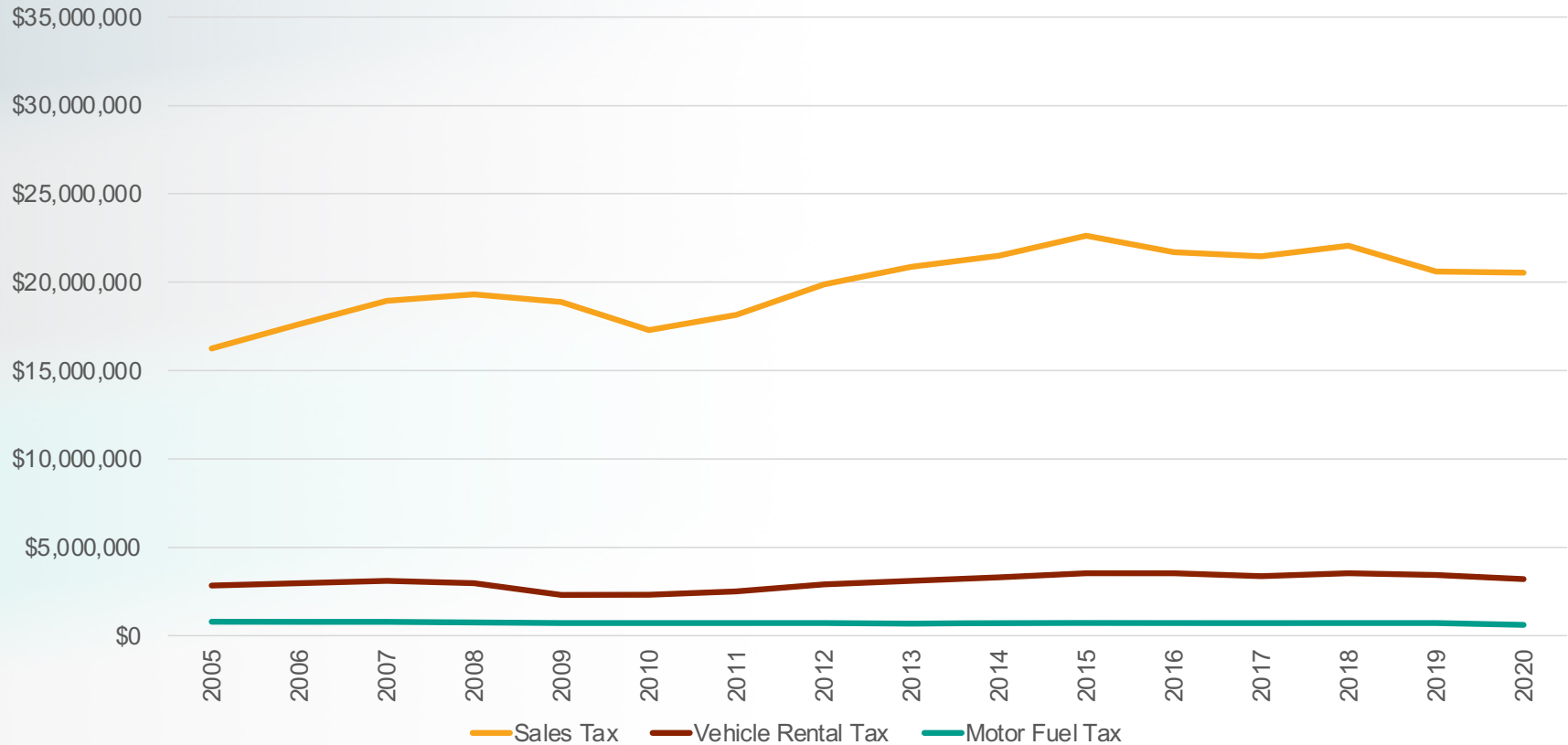
Existing and Potential Funding Mechanisms, continued						
Name	Range (Relative to other funding in category)	Local Match Need	Local Match Apply	Operations & Maintenance (O&M)	Capital Expenditure (CapEx)	Existing Program
Local (Municipality, Transit Authority or County)						
Sales Tax Contributions	Low to High		•	•	•	Yes
*Tax Increment Reinvestment Zone	Mid to High		•		•	Yes
*Transportation Reinvestment Zone	Mid to High		•		•	Yes
General Fund Contributions	Low to Mid		•	•	•	Yes
*Toll Fee Allocation	Low to Mid		•	•	•	No
*Fee for Service (VIA, ZipZone, etc.)	Low to Mid			•		Yes
*Development Fees / Impact Fees	Low			•	•	Yes
Bonds/CIP programming	Low to Mid		•	•	•	Yes
*Pubic Improvement Districts	Low to Mid		•	•	•	Yes
Property Assessments	Low		•	•	•	Yes
*Private Participation (Sponsorship by Corporations)	Low to Mid		•	•	•	No
*Agency Participation (Sponsorship by Institutions)	Low to Mid		•	•	•	No
*Local Motor Vehicle Registration Fee	Low		•	•	•	No
*Transit Fare Revenue	Low to Mid		•	•	•	Yes
*In-Kind Contributions	Low		•	•		Yes
*Joint Development Agreements/Projects	Low to High		•	•	•	Yes
*Luxury Transportation Tax	Low			•		No
*Auxiliary Transit Revenues (Advertising & Concessions)	Mid			•		Yes

- * Recommended funding options based on feasibility and overall benefit
- Requires significant political support or referendum to enact
- Potentially volatile funding source
- Public-Private Partnership Supportive

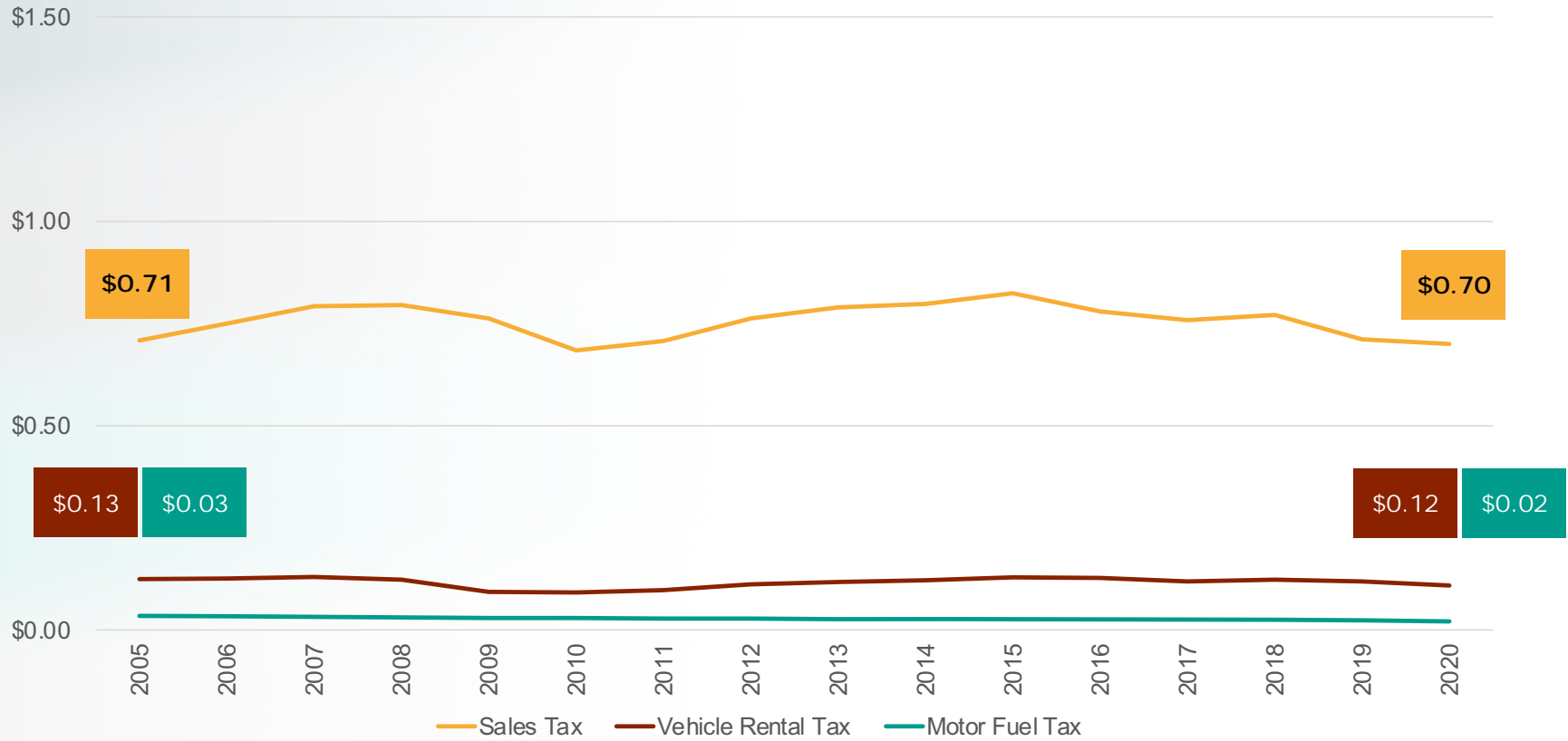
Annual Tax Revenues (Sales, Vehicle Rental, Motor Fuel)

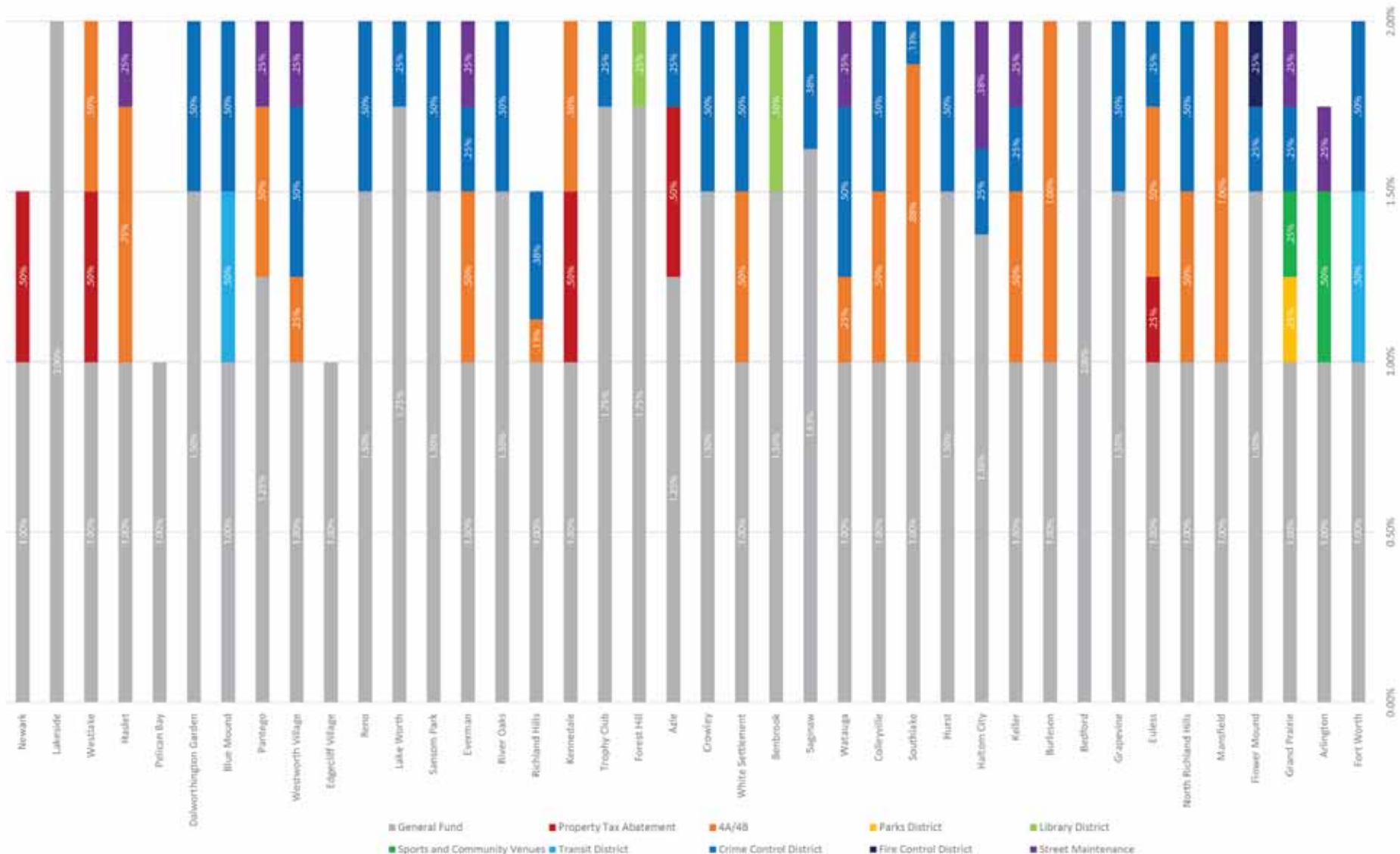


Annual Tax Revenues - Adjusted for Inflation (2005 \$'s)

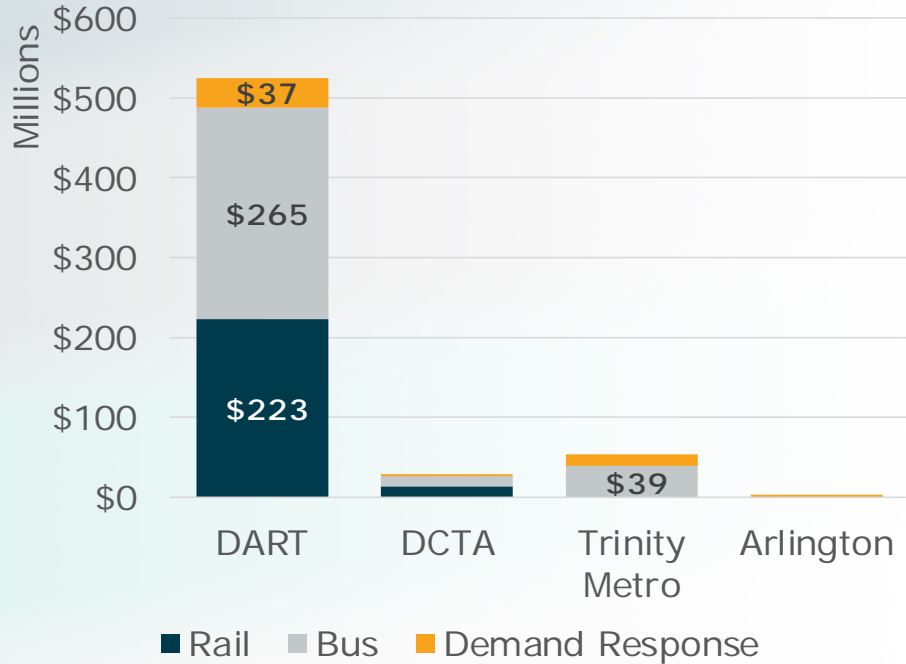


Tax Revenues Per Capita

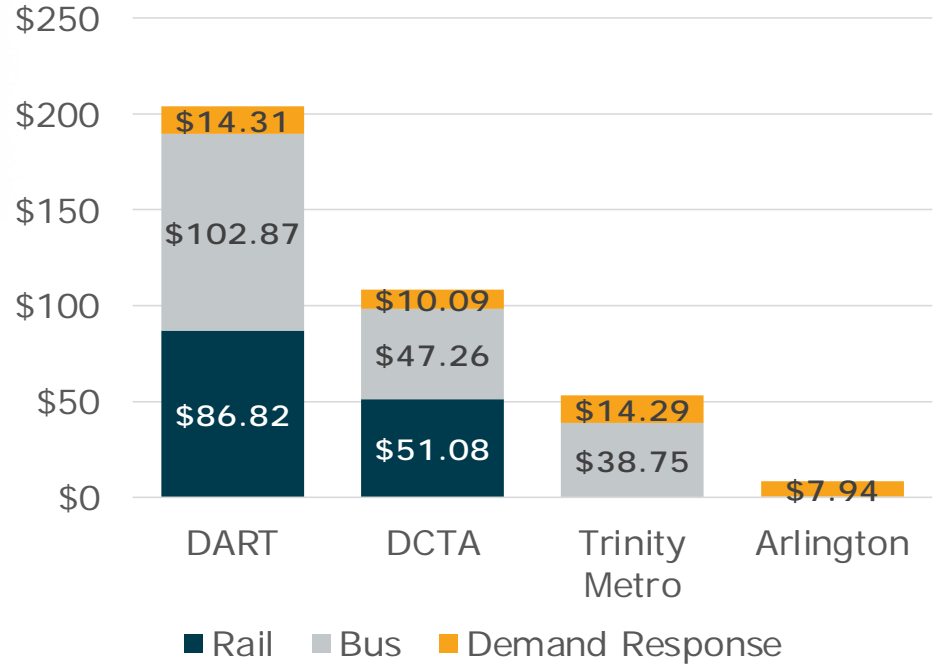




Annual O&M Costs



Annual O&M per Capita



Scenario Focus Exercise – Part 2

Should we focus more on statement A...

...or statement B?

1

2

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5

Revenue

Communities should develop long-range plans that leverage **new sources of revenue.**

Communities should focus on incremental development using **existing revenue.**

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Partnerships

Communities should seek to work with **local agencies** to develop transit solutions.

Communities should focus on **partnerships** with ride-hailing and demand-response providers.

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— Open Discussion

