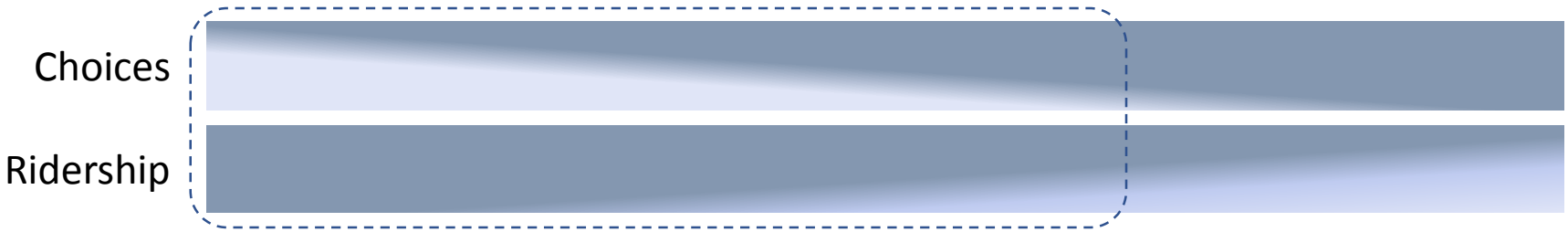
Expanding Options for Better Mobility

Understanding Ridership

How a deeper understanding can influence policy and network design decisions

The transit user spectrum

Dependent or Captive Rider	Choice Rider	Non Rider
"No matter the challenges it presents public transportation is my only choice."	"What's my day look like today."	"I'm leaving the car in the driveway."



All people are in different situations with different options

Influencers

Ridership Influencers

- Behavioral
- Accessibility / Markets
  - Who
  - How many
  - Stops and Transfers
- Frequency & Reliability
  - Headways
  - On-time Performance
- Speed
  - Route Directness
  - Travel Time
- Simplicity
  - Consistency
  - Span
- Route Type

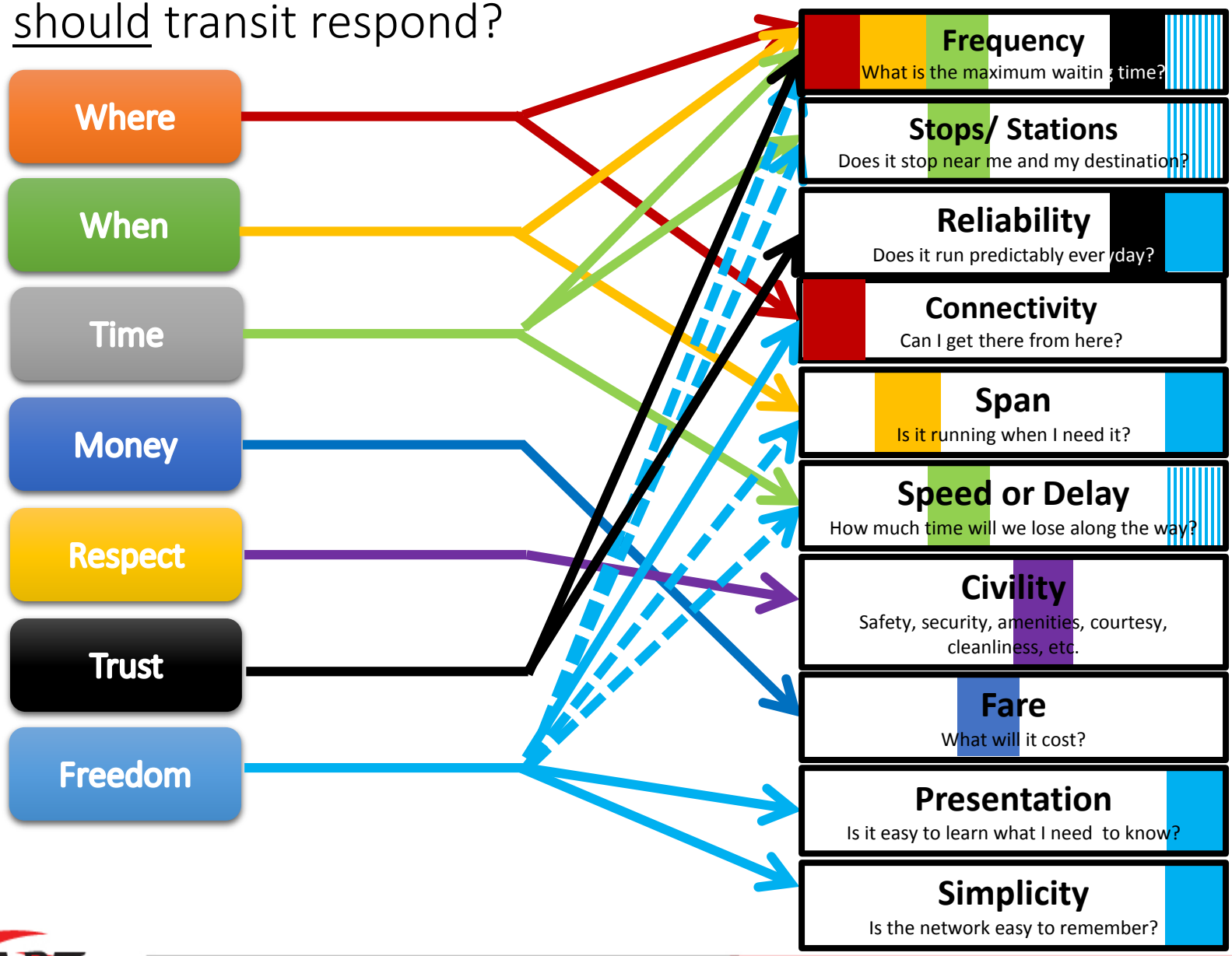
Behavioral Mobility Influencers

- Economics
  - Income
  - Employment
- **Time**
- **Convenience**
- **Flexibility**
- Physical
  - Age
  - Disabilities
- Biases
- Options

The 7 demands on transit service

Credit: Eric Orozco and Jarrett Walker

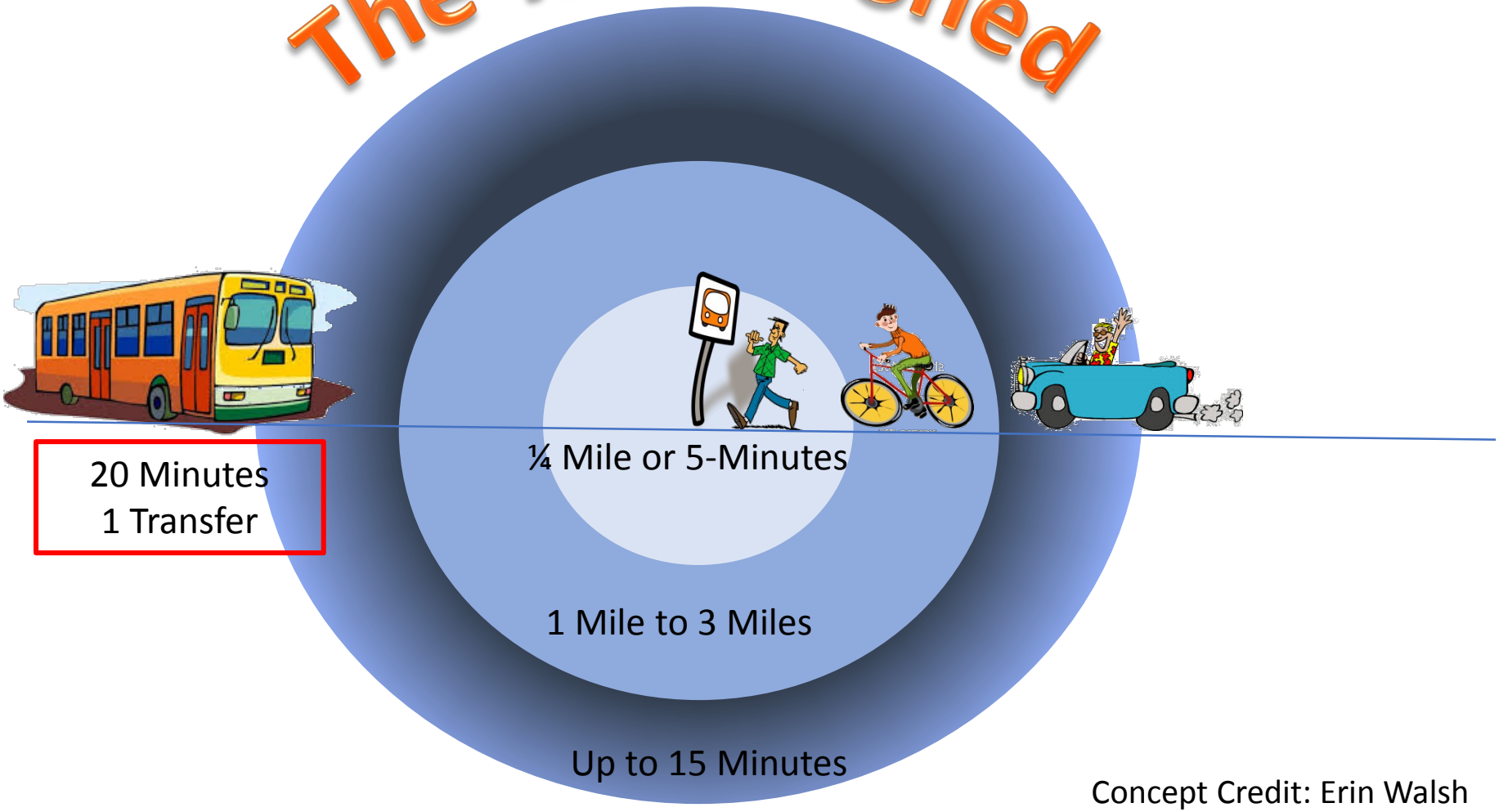
How should transit respond?



Accessibility and Markets

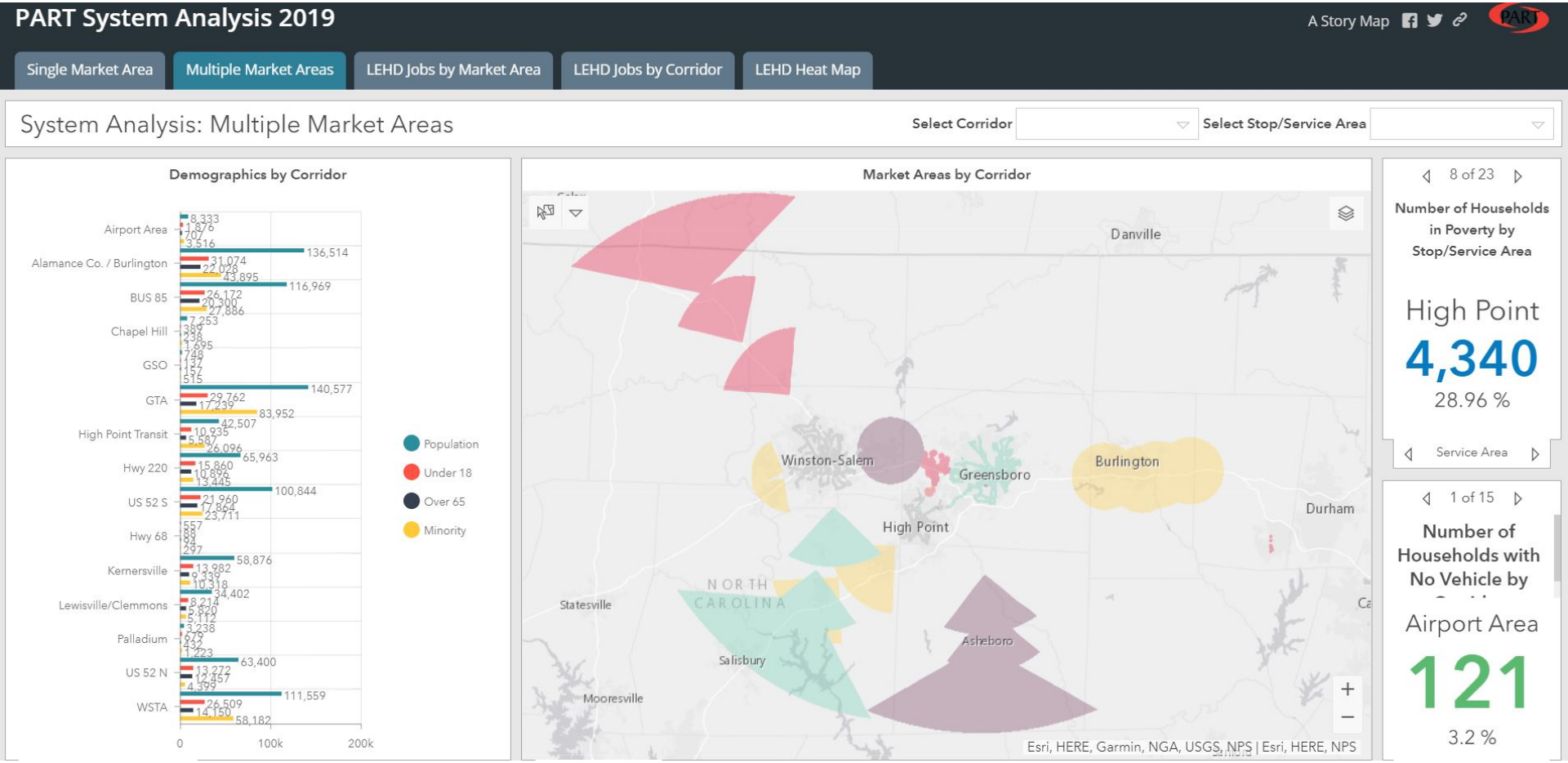
Ridership Influencers

The Transit Shed



Concept Credit: Erin Walsh

Market or service areas



Ratio of Ridership to Population in Market Area for the PART System

Route	Population in Market Area Who Work Within a Half Mile of a PART Stop	Aug - Oct 2018 AVG Daily Boardings	% of Population in Market Area Who Work Within Half Mile of a PART Stop Riding PART Bus
Winston-Salem	10,430	369	3.54
Greensboro	14,969	557	3.72
High Point	3,320	397	11.96
Burlington-Alamance	6,763	295	4.36
Surry	2,908	109	3.75
Davidson	5,647	54	0.96
Randolph	4,939	28	0.57

Frequency

Ridership Influencers

Take the Bus or Drive Your Car?: Using Remix's Jane to Measure Mobility

Select a Beginning Location for Jane to Start Her Trip:

- Northwest Blvd & Trade St (Winston-Salem)
- Summit Ave & Charter Pl (Greensboro)
- 800 S Main St (High Point)
- None

Select City to See How Far Jane Can Go Using Public Transit and Current Schedules:

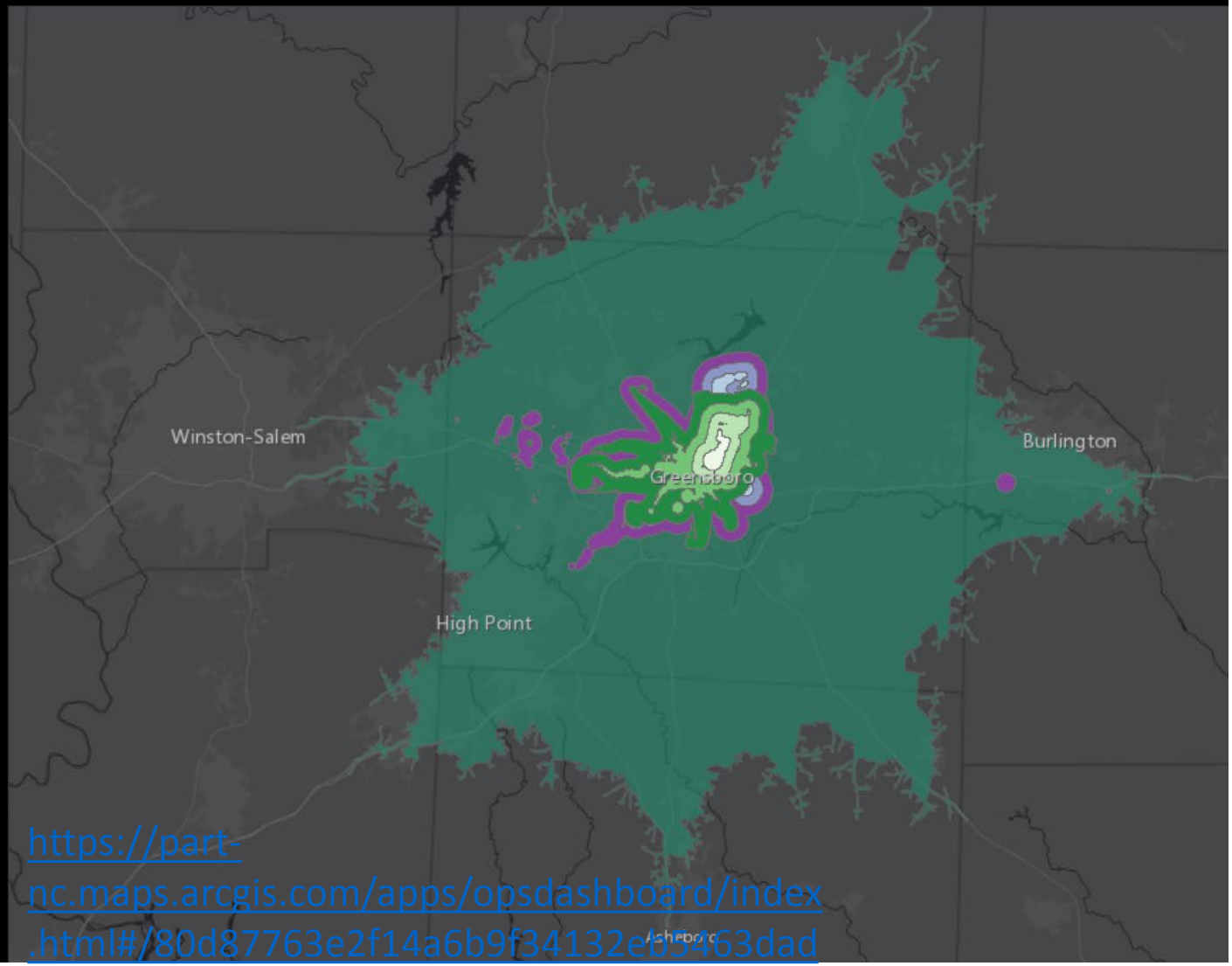
- Winston-Salem
- Greensboro
- High Point
- None

Select City to See How Far Jane Can Go Using Public Transit with Increased Frequency:

- Winston-Salem
- Greensboro
- High Point
- None

Select City to See How Far Jane Can Go in 30 Minutes Driving a Car:

- Winston-Salem
- Greensboro
- High Point
- None

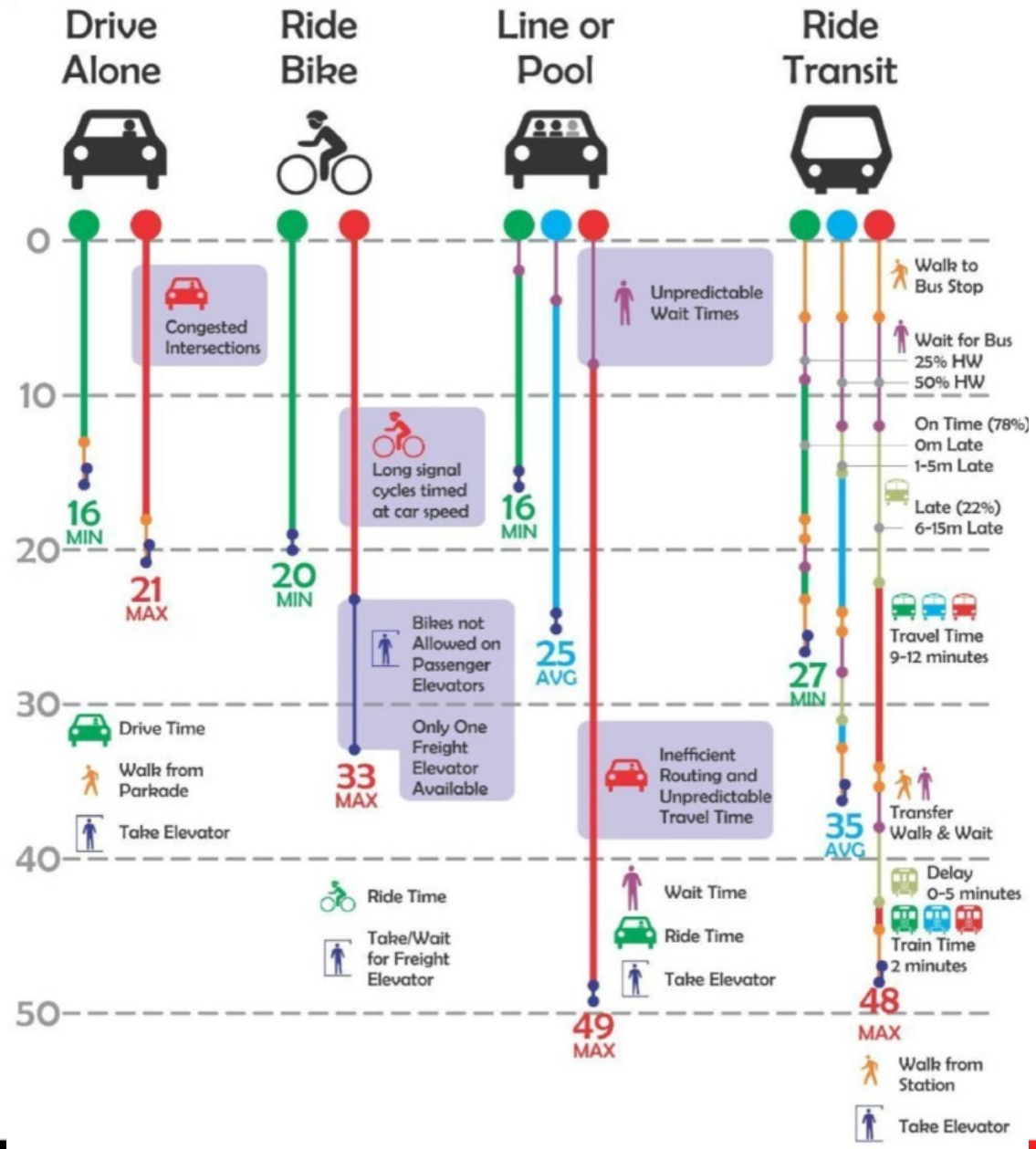


https://part-nc.maps.arcgis.com/apps/opsdashboard/index.html#/80d87763e2f14a6b9f34132eb5463dad

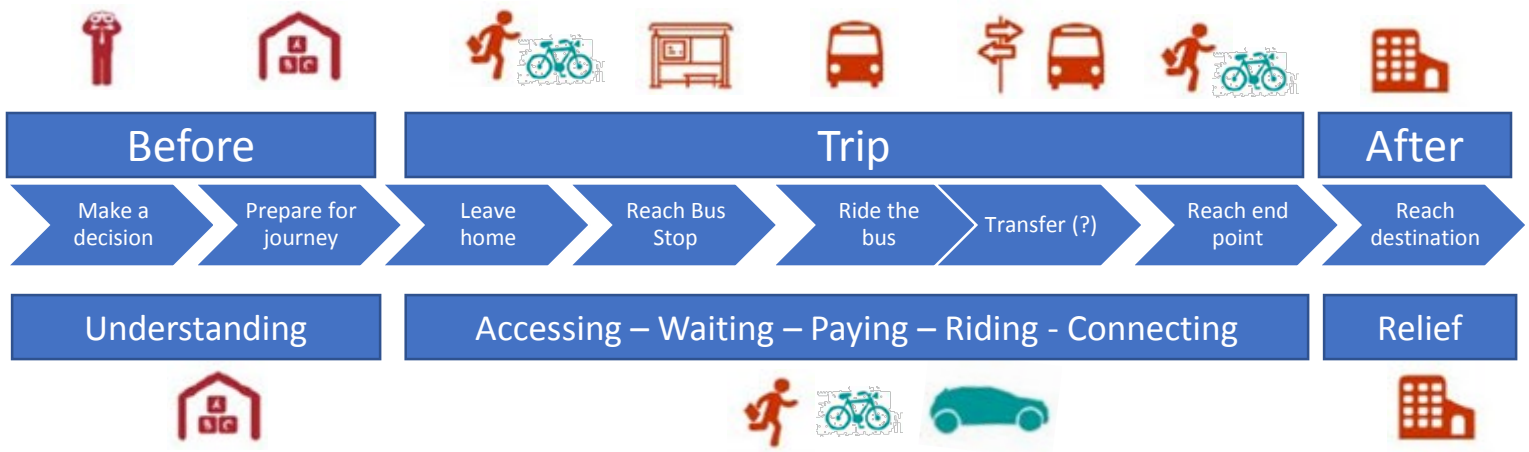
Speed

Ridership Influencers

Transit Vs. the SOV



The Seven Phases of a Trip



Simplicity

Ridership Influencers

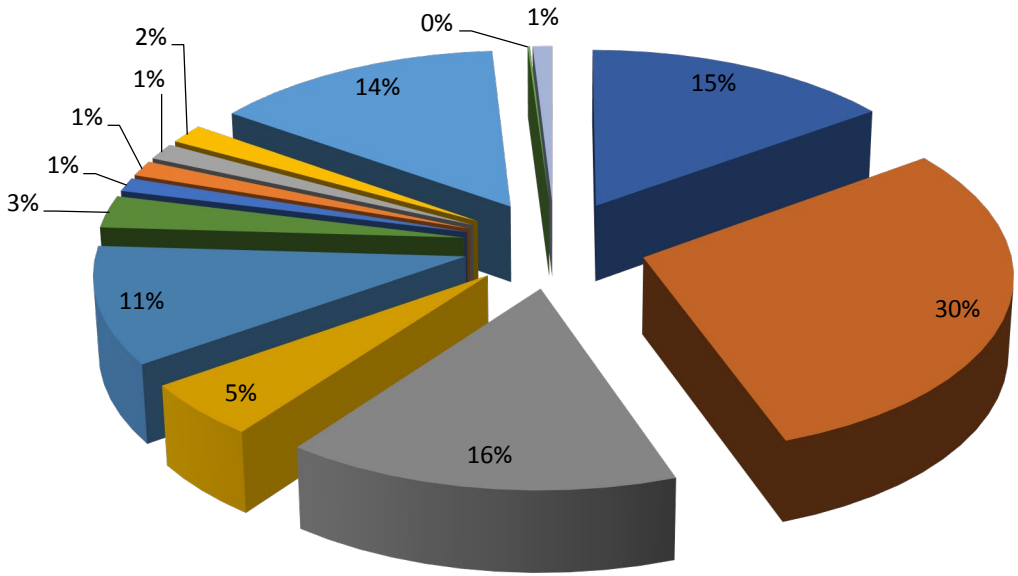
Simplicity

- **Consistent headways** throughout the day? (Rt 1, 2 and 3 “when does it switch to hourly?”)
- Are there **service gaps**? (rural routes)
- Are there **route pattern variations** throughout the day? (Rt. 4 for example)
- Are there **uncontrollable schedule** delays beyond normal traffic incidents and congestion? (Rt 5)
- Where and how do I **buy a ticket** or pay the fare?
- How are **service changes** and weather delays communicated?

Route type

Ridership Influencers

Percentage of Ridership By Route



- Winston-Salem
- Greensboro
- High Point
- Saturday
- Alamance-Burlington
- Surry
- Davidson
- Randolph
- Amtrak Conector
- Kernersville Shuttle
- Airport Area Shuttles
- West Forsyth
- Palladium Circluator

Route Types

Urban

Saturday

Hybrid

Rural

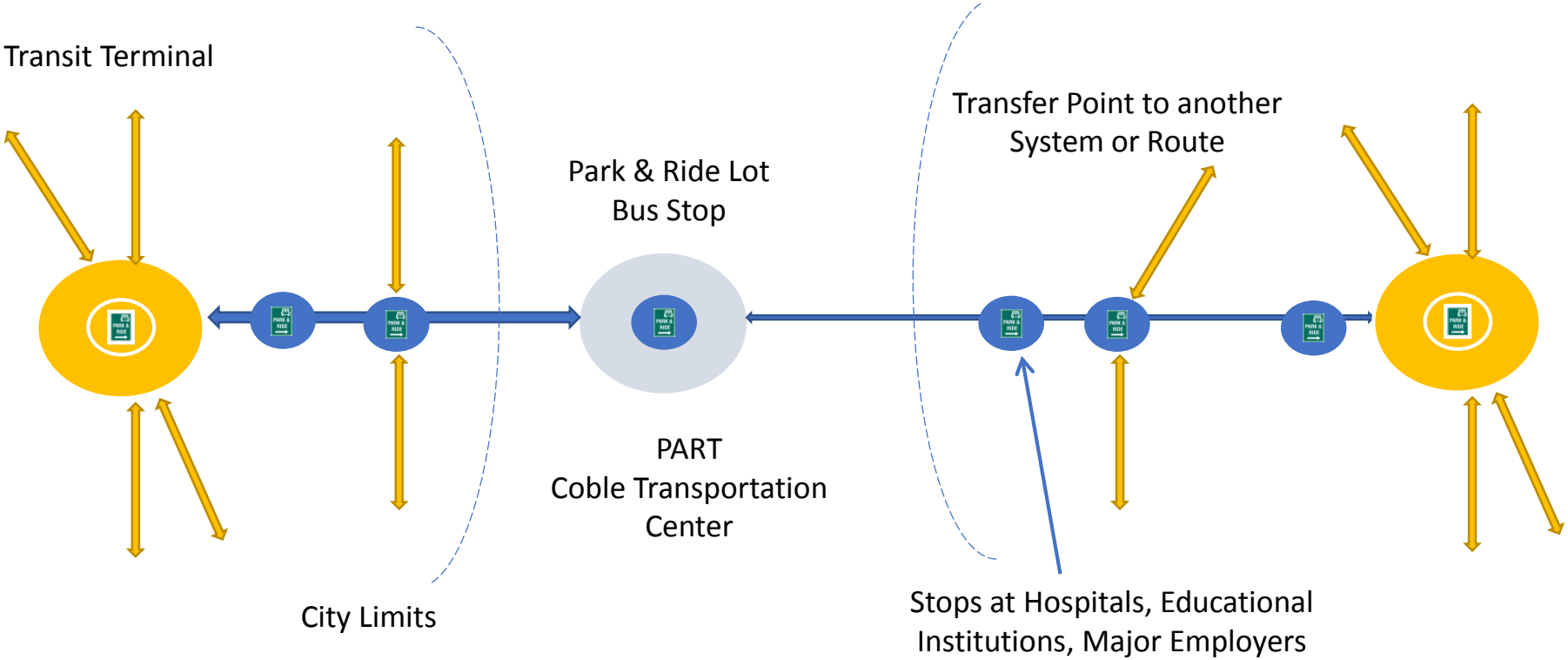
Specialized

Shuttles

Circulator

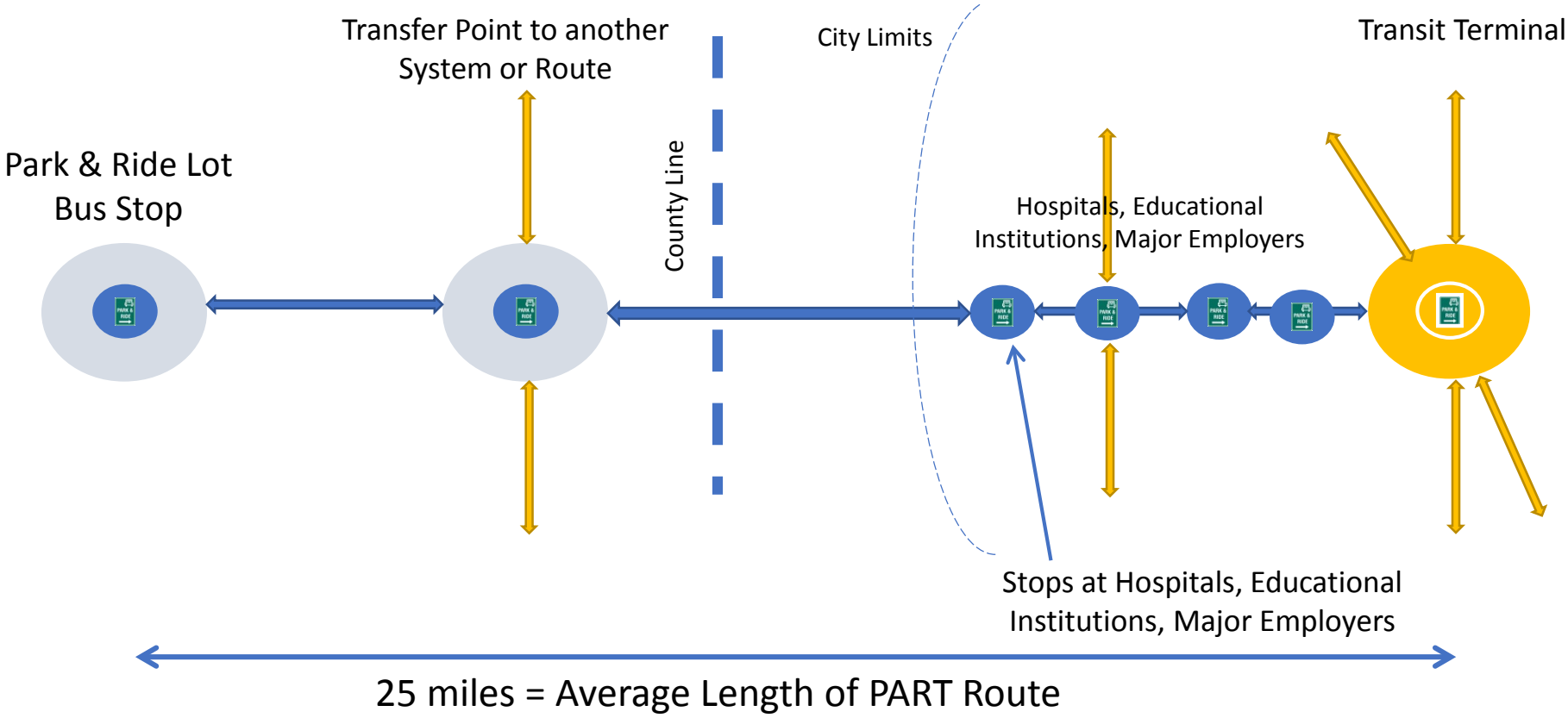
Regional Express

Urban – Primarily Connects Urban Centers



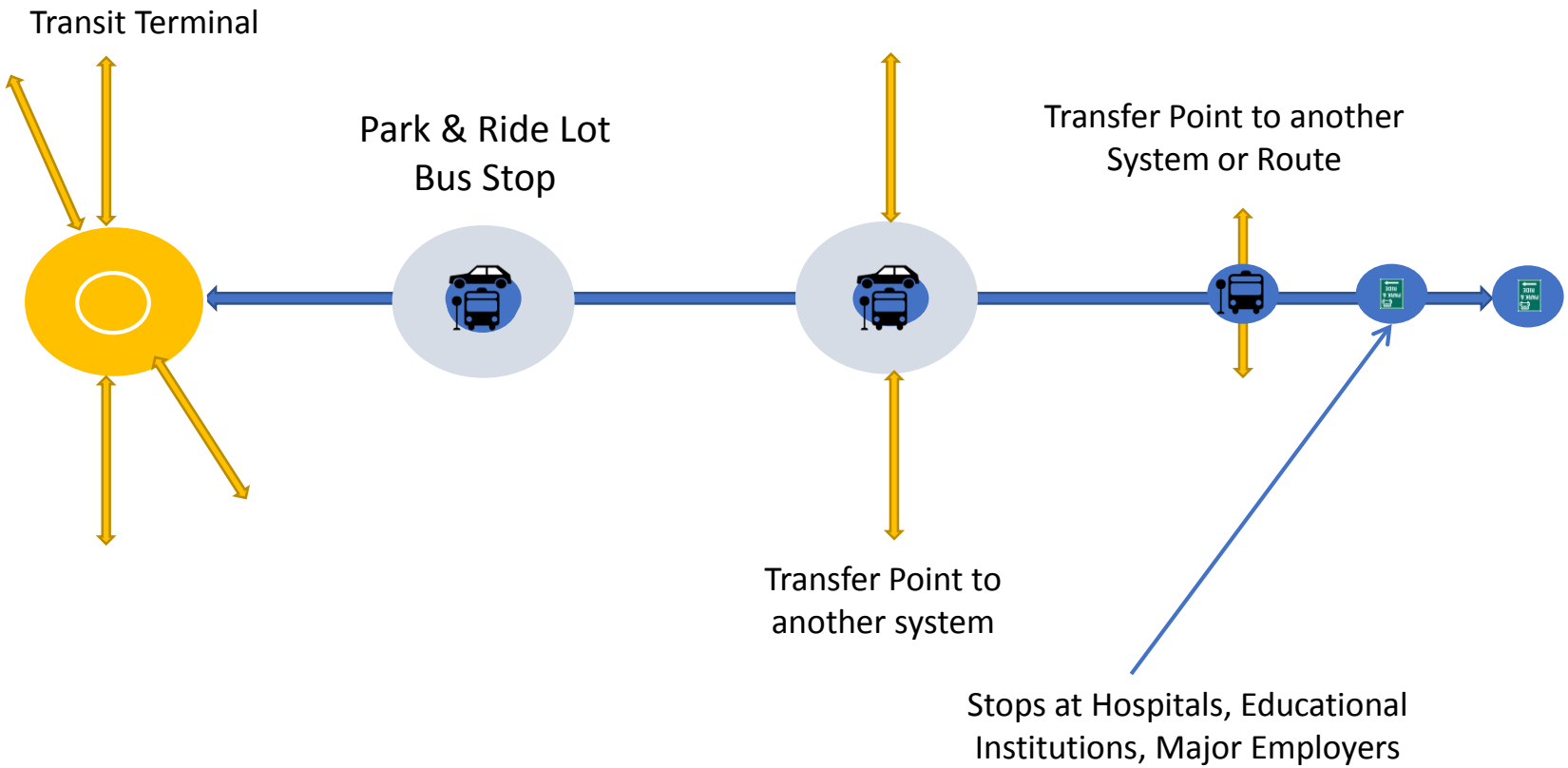
Regional Express

Rural – Primarily Connects Rural Areas to Urban Centers

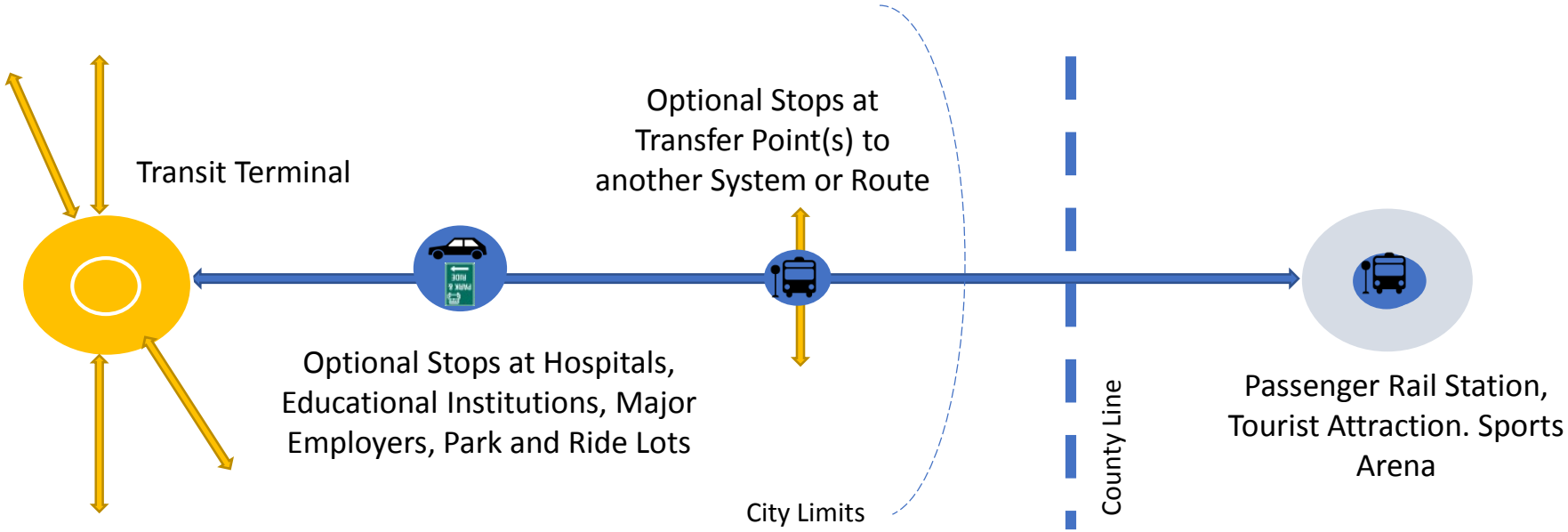


Regional Express

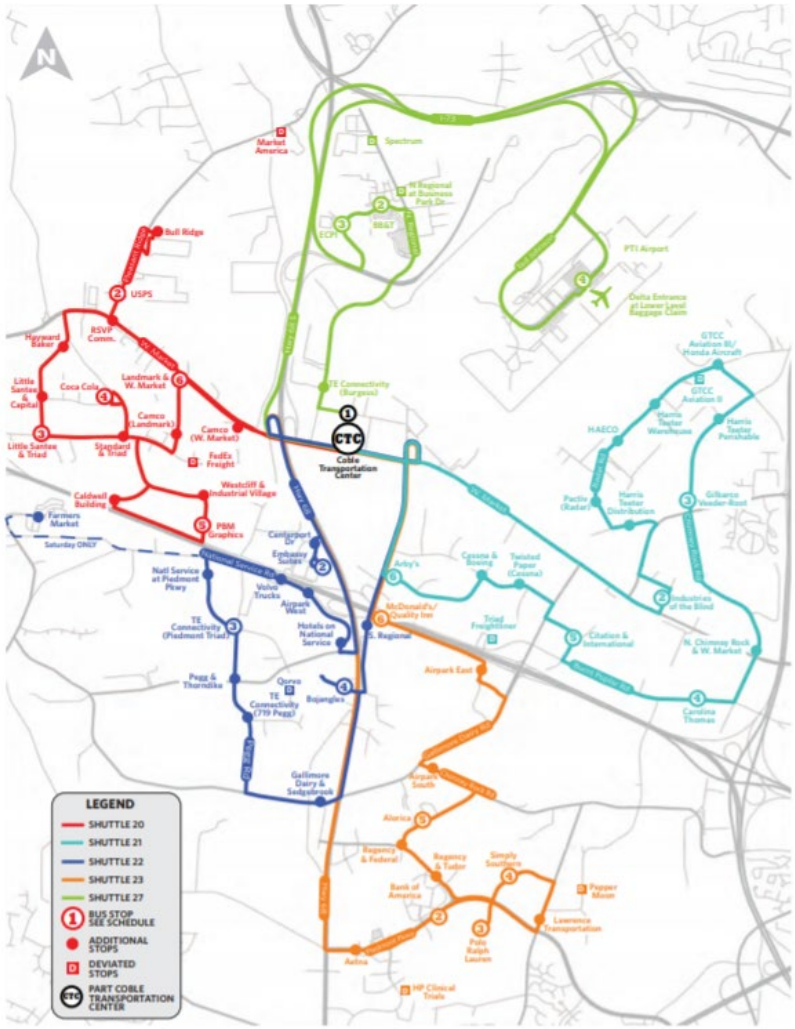
Hybrid – Serves Multiple Urban Areas and Counties



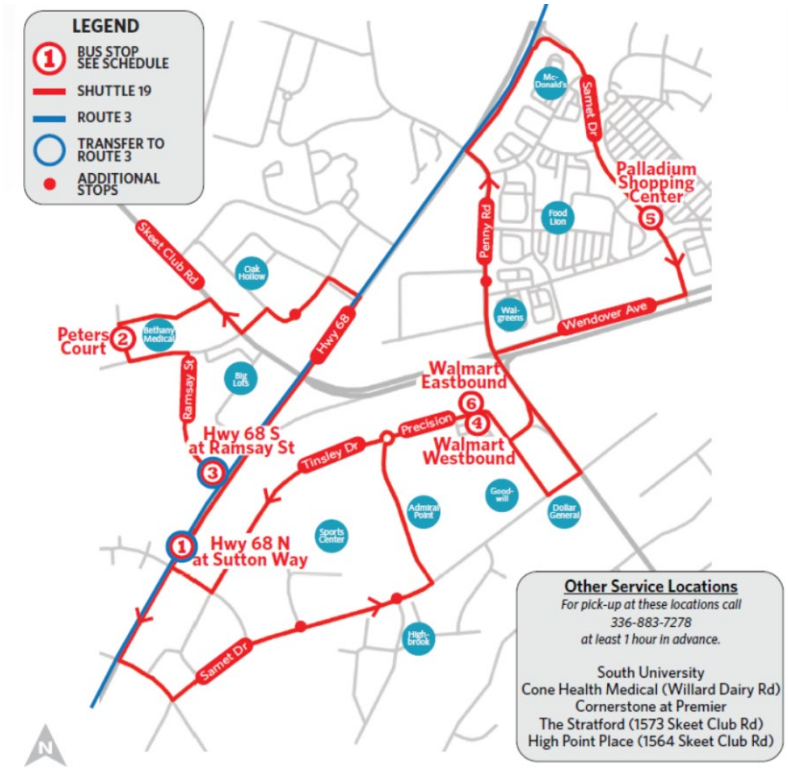
Specialized – Connects Cities to Unique Destinations



First & Last Mile Shuttle Service



Urban Circulator



Understanding our service

Ridership Evaluation

Why people ride PART

Lifestyle – All-day, all-week rider; will not ride unless transit is an attractive option.

62%

Commuters – Workday travel; very tailored demand; want fast, direct travel.

36.9%

Occasional – Use transit for specific purposes, such as special events; how to increase usage?

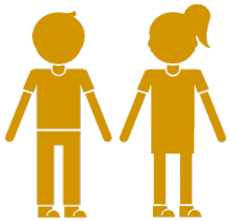
1.1%

Percentages represent PART passengers. Data taken from 2016 On-Board Survey.

Who rides PART

24%

University Students – Travel focused on to campus, shopping, work, and social activities.

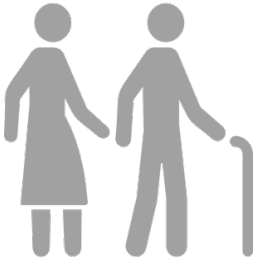


0.9%

Youth – Travel focused on school and social activities.
(thru 12th Grade)

44.8%

Transit Dependent – Need to use transit initially; how to retain once they have choices?



5.7%

Seniors – Increasing challenge as seniors age in place.
(65+ Years Old)

22.2%

Everyone Else – The hardest rider to attract but the greatest potential to impact ridership.

2.4%

Disabled – Impact of network changes, boarding and faring and service coverage

How passengers access and use…

Walked or Biked 24%
Arrive in a car 35.4%

Getting On – How passengers arrived at a bus stop, park and ride lot or transit center.

Multi System Users – Passengers who use more than one transit system during their trip / before getting on a PART bus or after getting off.

35 minutes or greater 80.9%

Length of Trip – How long are passengers riding transit.

Frequency –How often passengers use the system 4 or more days a week.

58.5%

gers. Data taken from 2016 On-Board Survey.

How often, when and where

Ridership Evaluation

PART Shuttle APC Dashboard

Shuttle:

Average Daily Boardings and Alightings

August 1, 2018 - October 31, 2018

Coble Transportation Center (100)
Boardings: 94.23
Alightings: 71.82

Polo (510)
Boardings: 10.4
Alightings: 18.57

Alorica (221)
Boardings: 9.44
Alightings: 9.6

High Point Clinical Trials (146)
Boardings: 8.49
Alightings: 6.89

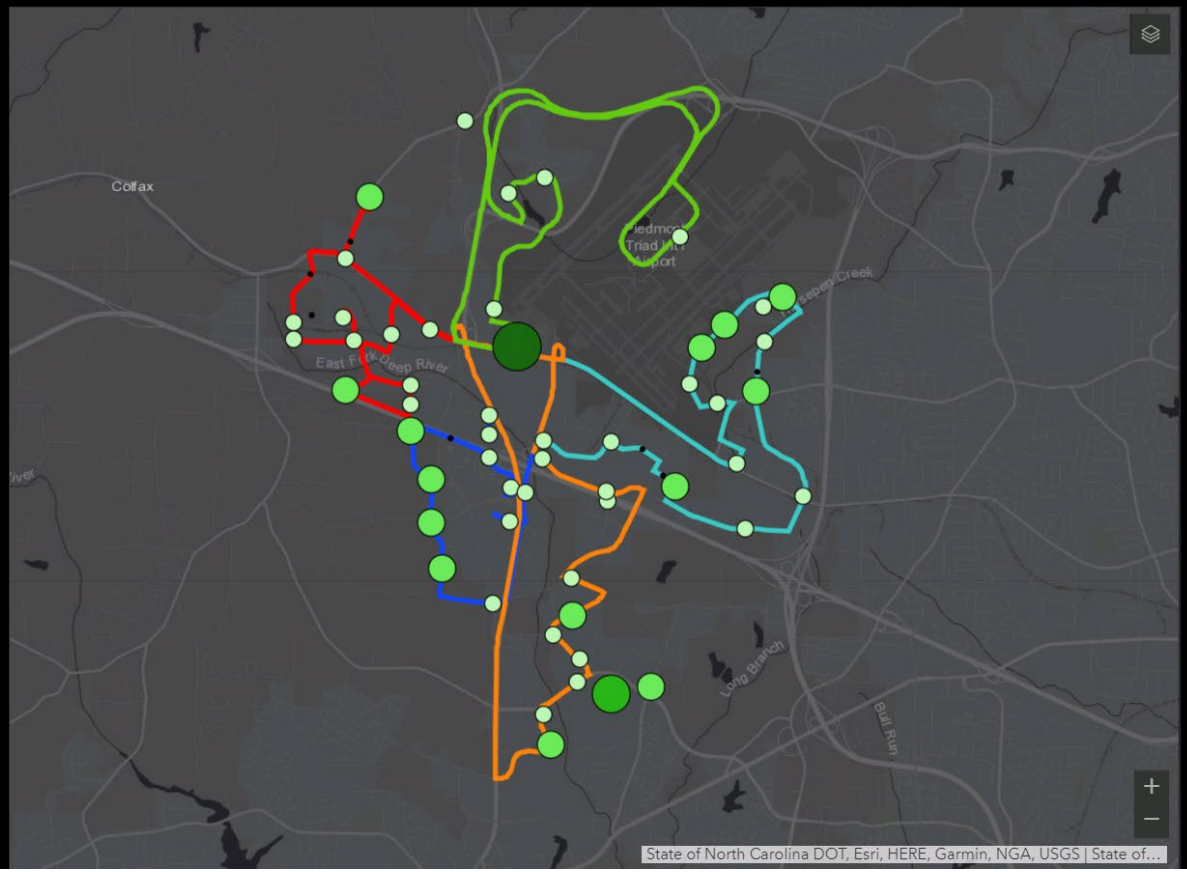
Citation Ct & International Dr (116)
Boardings: 8.24
Alightings: 3.64

Bull Ridge (208)
Boardings: 8.11
Alightings: 10

Pegg Rd & Thorndike Rd (219)
Boardings: 7.24
Alightings: 3.83

GTCC Aviation III / Honda Aircraft (215)
Boardings: 7.12
Alightings: 15.54

Gilbarco Veeder-Root (217)
Boardings: 6.99



PART Shuttle Stops

Boardings

- Greater than 15 Boardings
- 10.01 - 15 Boardings
- 5.01 - 10 Boardings
- 0.01 - 5 Boardings
- 0 Boardings

PART Shuttle Routes

- 20
- 21
- 22
- 23
- 27

Ridership Evaluation

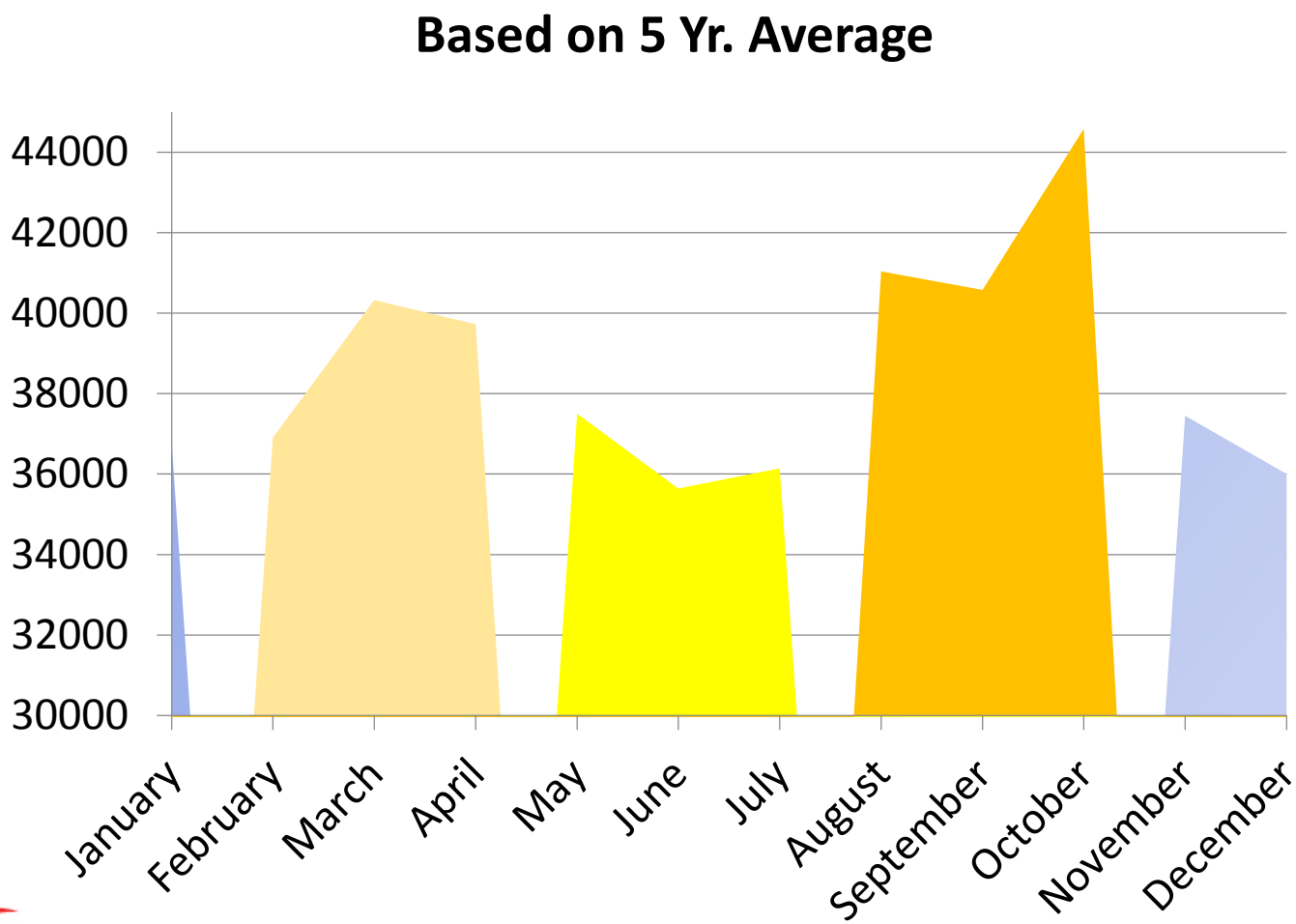
Not Possible

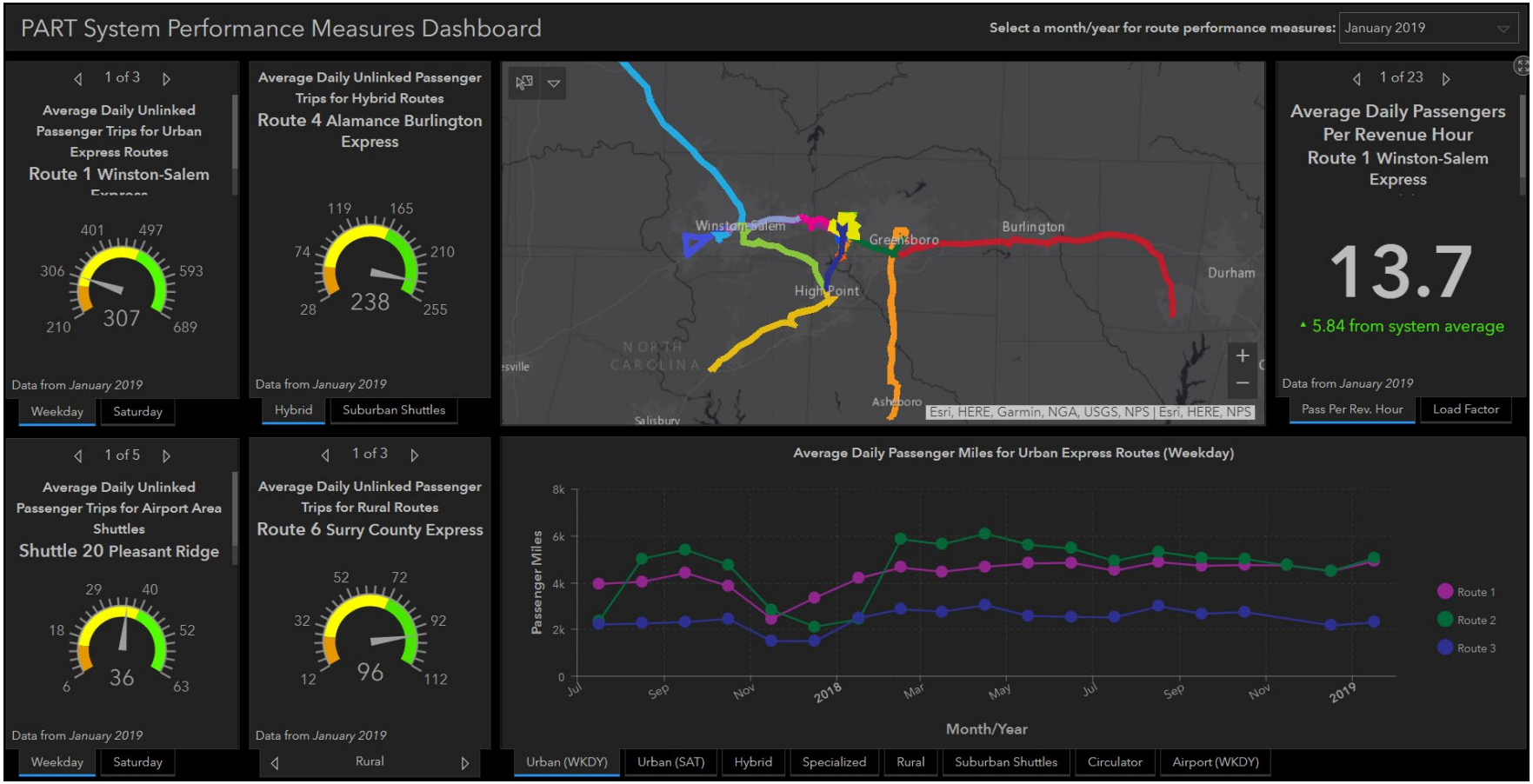
- Comparing Annual Ridership to Years Past
- Comparing Routes to Each Other
- Comparing Route Ridership Month to Month

Possible

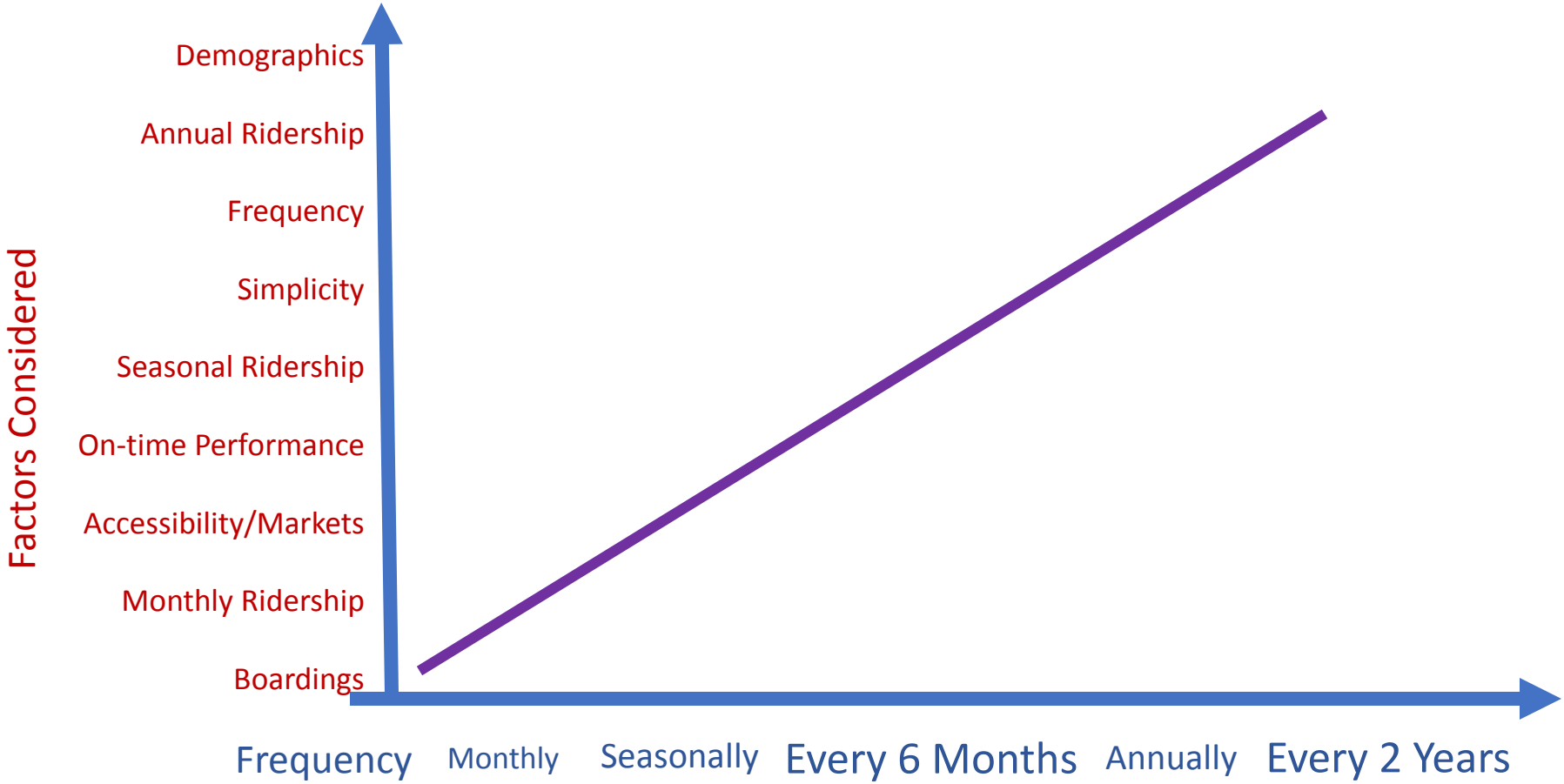
- Evaluating System Ridership and Performance Annually
- Comparing Routes of Similar Type
- Comparing Route Ridership Trends in Six-Month Increments and by Season

Ridership Seasons




PART System Performance Measures Dashboard
Select a month/year for route performance measures: January 2019
1 of 3
Average Daily Unlinked Passenger Trips for Urban Express Routes
Route 1 Winston-Salem
401 497 306 593 210 689 307
Data from January 2019
Weekday Saturday
Average Daily Unlinked Passenger Trips for Hybrid Routes
Route 4 Alamance Burlington Express
119 165 74 210 28 255 238
Data from January 2019
Hybrid Suburban Shuttles
Winston-Salem
Greensboro
Burlington
Durham
High Point
NORTH CAROLINA
Asheboro
Salisbury
Esri, HERE, Garmin, NGA, USGS, NPS | Esri, HERE, NPS
1 of 23
Average Daily Passengers Per Revenue Hour
Route 1 Winston-Salem Express
13.7
5.84 from system average
Data from January 2019
Pass Per Rev. Hour Load Factor
1 of 5
Average Daily Unlinked Passenger Trips for Airport Area Shuttles
Shuttle 20 Pleasant Ridge
29 40 18 52 6 63 36
Data from January 2019
Weekday Saturday
1 of 3
Average Daily Unlinked Passenger Trips for Rural Routes
Route 6 Surry County Express
52 72 32 92 12 112 96
Data from January 2019
Rural
Average Daily Passenger Miles for Urban Express Routes (Weekday)
Passenger Miles
8k 6k 4k 2k 0
Jul Sep Nov 2018 Mar May Jul Sep Nov 2019
Month/Year
Route 1
Route 2
Route 3
Urban (WKDY) Urban (SAT) Hybrid Specialized Rural Suburban Shuttles Circulator Airport (WKDY)

Monitoring Route/Network Performance



Purpose	Record Keeping	Problem Identification	Minor - Major Adjustments	System Evaluation

Understanding Ridership

How a deeper understanding can influence policy and network design decisions

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