



WSTA Route Study

Progress to Date – Oct 2022



- WSTA Route Study Overview
- Key Activities to Date
 - Data Collection
 - Route Ride-Arounds
 - Amenities Standards & Service Standards Development
 - Commuter Data Analysis from Census
 - Bus Operator Survey
- Future Activities
 - “Quick Wins” service change recommendations – near term (~ 3 months)
 - Updated system plan recommendations – longer term (2023)
 - Public Engagement (date TBD, likely 2023)

- WSTA Data:
 - Stop database listing stops and amenities
 - Ridership by:
 - Day of Week
 - Route
 - Month of the Year
 - Stop
- Third-Party Data
 - Census Journey to Work / Employment commuting data
 - American Community Survey Demographic Data (Income, Race/Ethnicity, Housing status, more)



- Service Effectiveness (how much passenger travel is obtained per unit of service)
- Cost Effectiveness (how much cost is incurred per unit of passenger travel)
- **Cost Efficiency (how much cost is incurred per unit of service)**

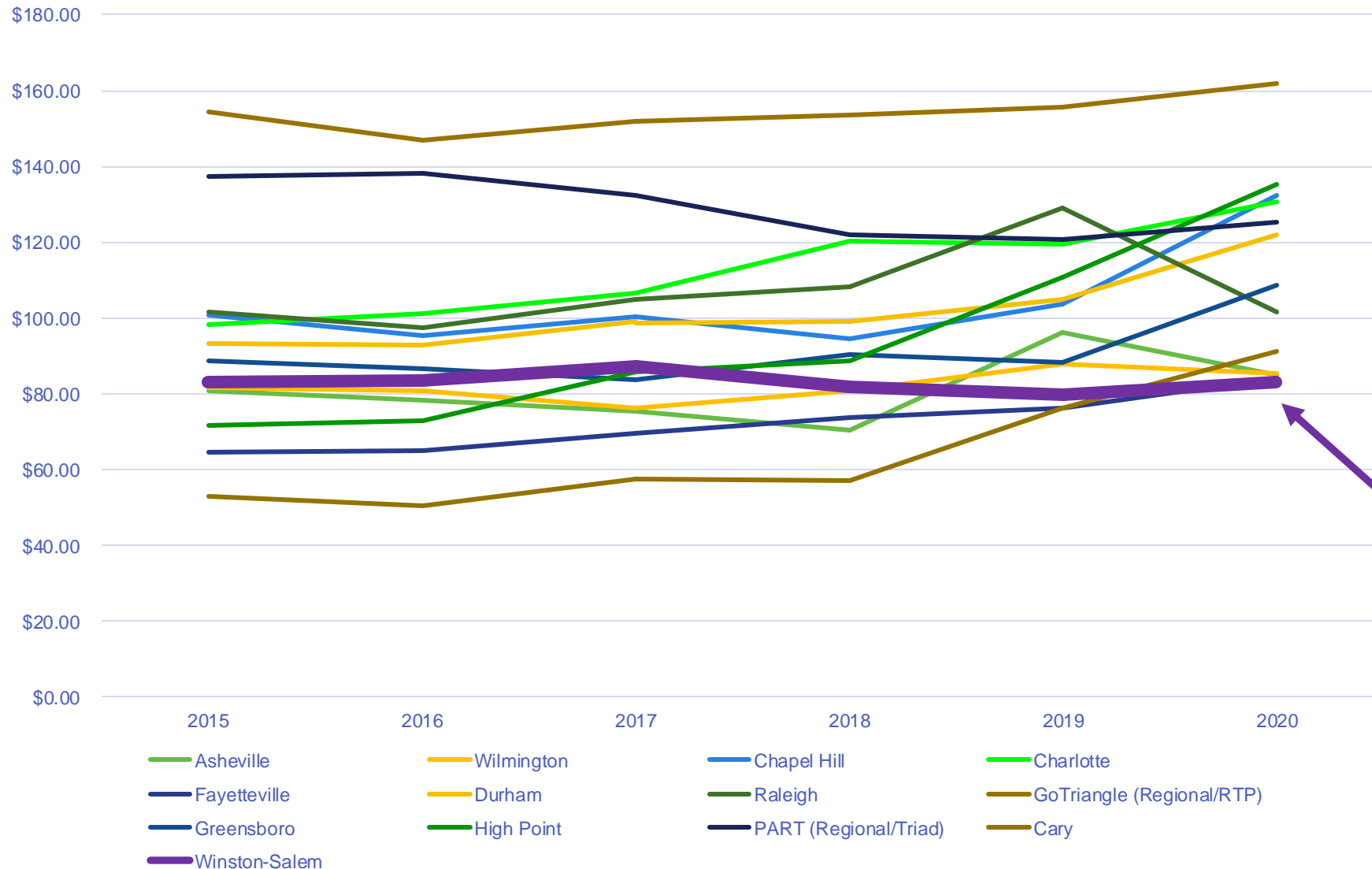


**WSTA is doing well on this metric.
But how well compared to peer agencies?**

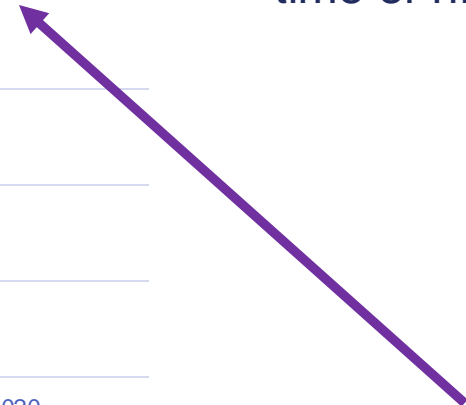


WSTA leads *ALL* NC Peer Agencies in Cost-Efficiency

Operating Cost Per Vehicle Revenue Hour, NC Transit Agencies



- **WSTA had the lowest cost per hour** of service of 13 large NC transit agencies in 2020
- **WSTA has done a better job containing cost growth** than most in a time of high inflation



WSTA in Purple

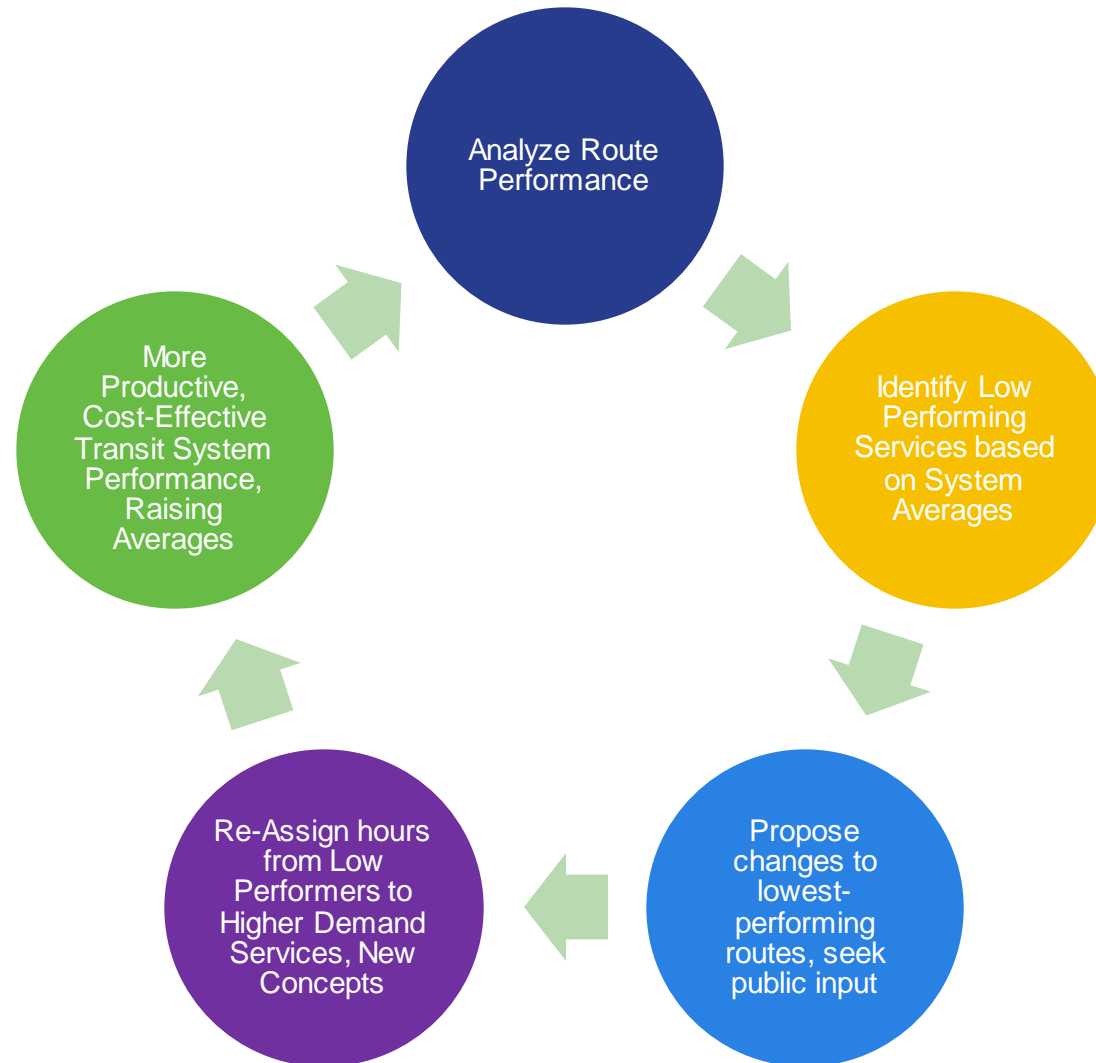
- May 12th: Experience the system, listen to passengers and operators, & LEARN



- Creating Tiers of Stops to prioritize investment in shelters, benches and other amenities
- Maximizes usefulness of resources to customers

	Base Level	Level 1	Level 2	Level 3
Qualification Criteria				
Daily Boardings	None	10 - 19	20 - 39	40+

Amenity	Base	Level 1	Level 2	Level 3
Key Feature	Sign	Seating	Shelter	Enhanced Shelter
Bus stop sign	•	•	•	•
Pad	•	•	•	•
Information display		•	•	•
Shade		•	•	•
Trash bin		•	•	•
Lighting		•	•	•
Seating		•	•	•
Standard bus shelter			•	•
Landscaping/planting			•	•
Safety bollards			•	•
Bike rack			•	•
Larger shelter, or other specialized features				•
Emergency call button				•





- Four Primary Service Indicators
 - Unlinked Passenger Trips Per Vehicle Revenue Hour
 - Farebox Recovery Ratio
 - Operating Cost Per Unlinked Passenger Trip
 - Unlinked Passenger Trips Per Vehicle Revenue Mile
- Evaluation of Unlinked Passenger Trips Per Vehicle Revenue Hour at right

Table 4 Service Standards Application: Unlinked Passenger Trips Per Vehicle Revenue Hour - Weekday Service

	Oct 21 Weekday Revenue Hours	Oct 21 Weekday Unlinked Passenger Trips	Oct 21 Trips/RevHR
Route 100	11.25	11	1.0
Route 99	12.25	28	2.3
Route 110	7.00	24	3.4
Route 108	13.45	68	5.1
Route 98	13.00	66	5.1
Route 88	13.00	69	5.3
Route 102	5.00	28	5.6
Route 82	6.50	38	5.9
Route 97	13.70	87	6.3
Route 109	18.33	122	6.6
Route 95	12.62	94	7.4
Route 104	14.00	129	9.2
Low-Performance Threshold (Low Performers Above)			9.7
Route 90	14.42	146	10.1
Route 101	13.50	137	10.1
Route 80	17.62	214	12.2
Route 85	15.42	191	12.4
Route 94	18.58	237	12.7
System Average			13.0
Route 84	13.42	179	13.3
Route 106	13.58	191	14.0
Route 91	18.08	266	14.7
Route 107	17.75	262	14.7
High-Performance Threshold (High Performers Below)			16.2
Route 86	18.16	271	14.9
Route 105	14.00	247	17.6
Route 89	18.00	320	17.8
Route 93	13.58	248	18.3
Route 103	18.00	332	18.4
Route 96	18.58	343	18.5
Route 92	17.91	341	19.1
Route 81	6.50	127	19.6
Route 87	31.93	667	20.9
Route 83	18.00	437	24.3

Where Do People Work and Live?

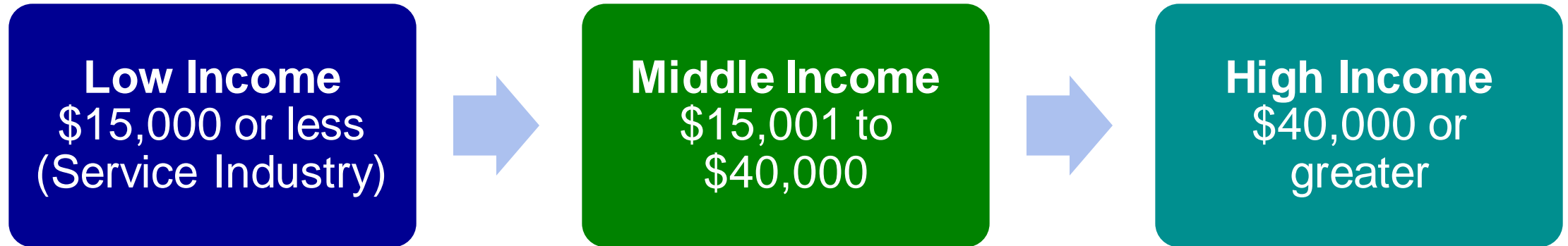
Mapping the residential locations of employees working in various job centers

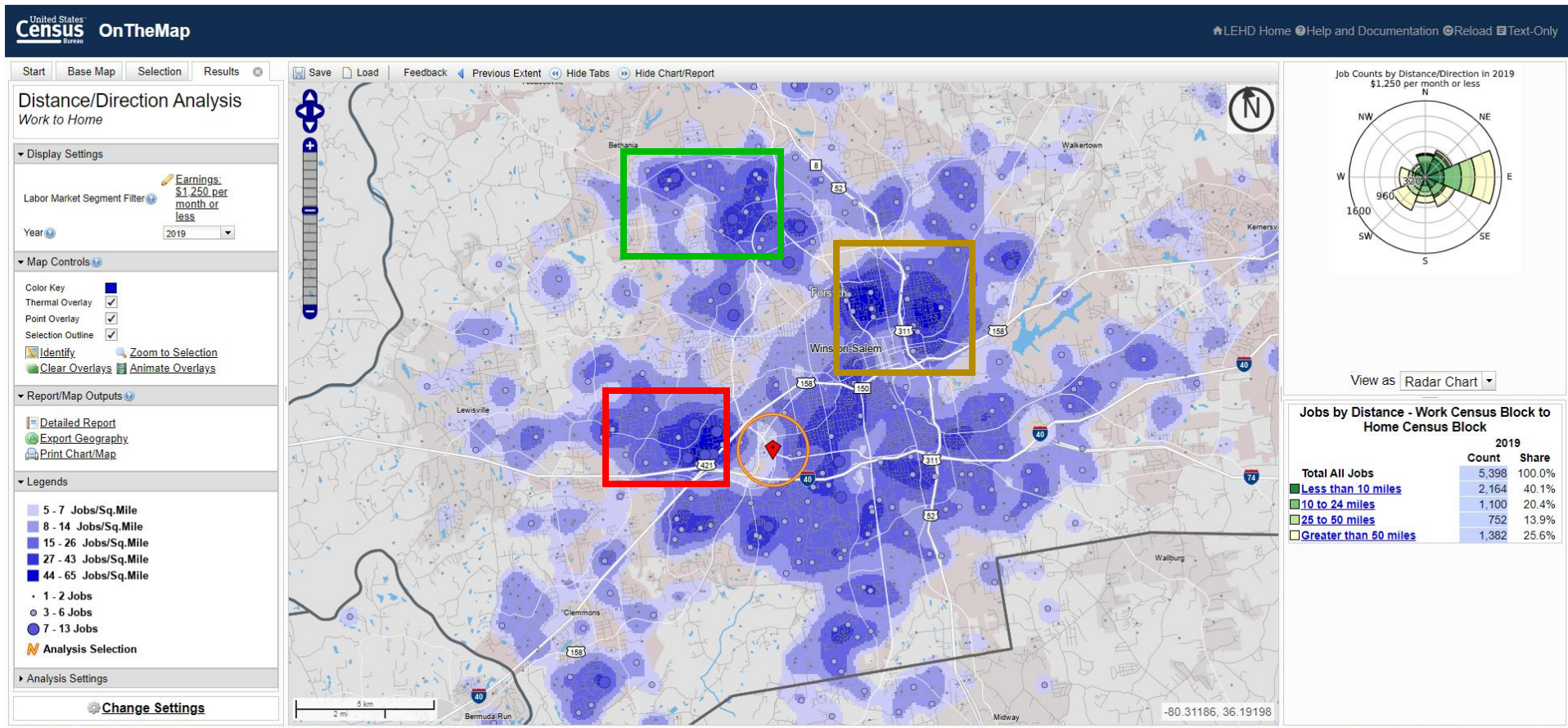


- The City has four major employment hubs (# of low & mid income workers in parentheses)
 - Hanes Mall / Forsyth Hospital (~11,500)
 - Downtown (~7,700)
 - Wake Forest Baptist Medical Center / Atrium Health (~7,100)
 - Hanes Mill Rd Area (~6,500)
- Hanes Mall / Forsyth County hospital area is the largest employment cluster



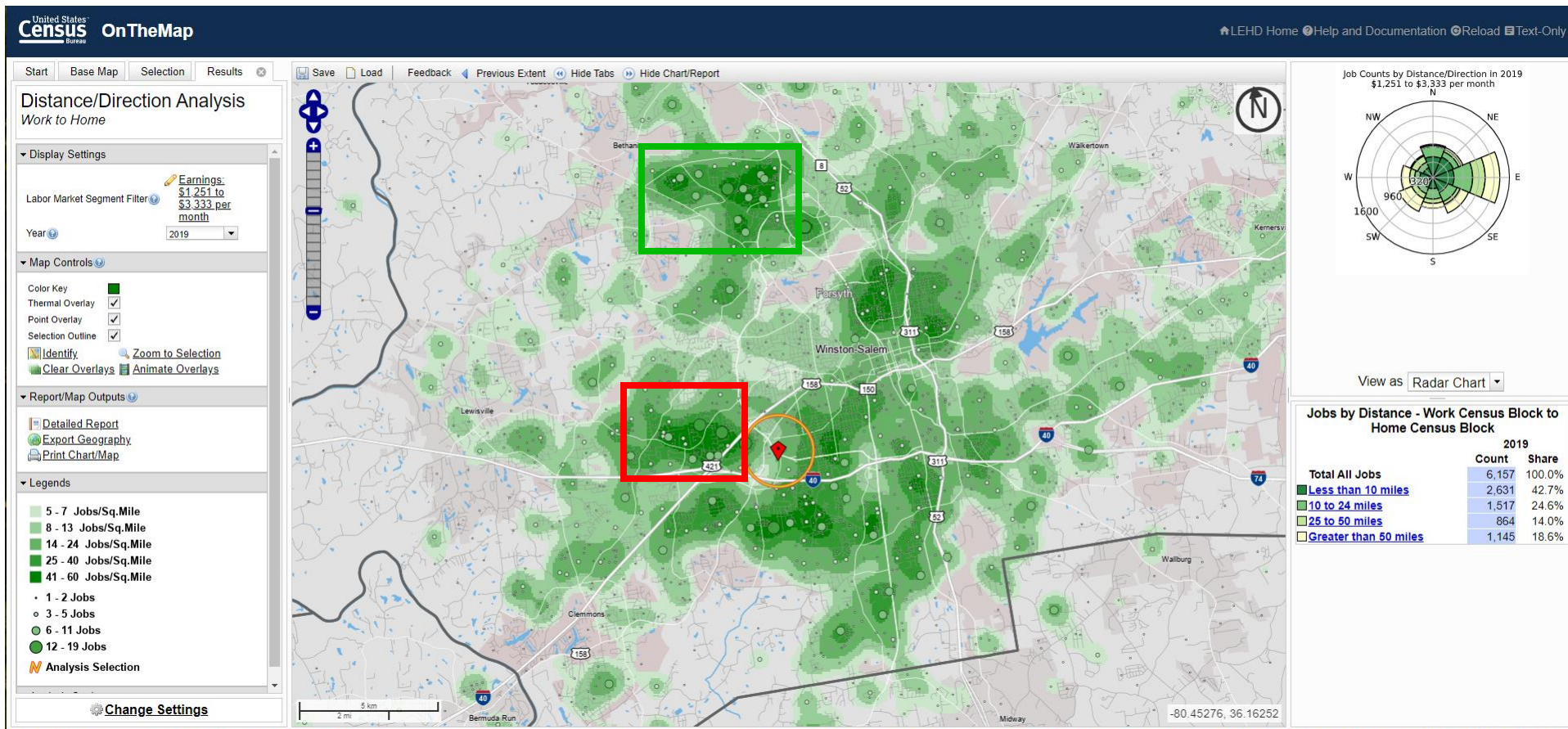
- Retail jobs are more likely to attract low-income workers
- Medical jobs are more likely to attract middle-income workers
- High-income workers are most heavily concentrated in West Winston-Salem. Bus ridership is lowest there.
- Different employment centers have relationships of varying strength with different residential clusters





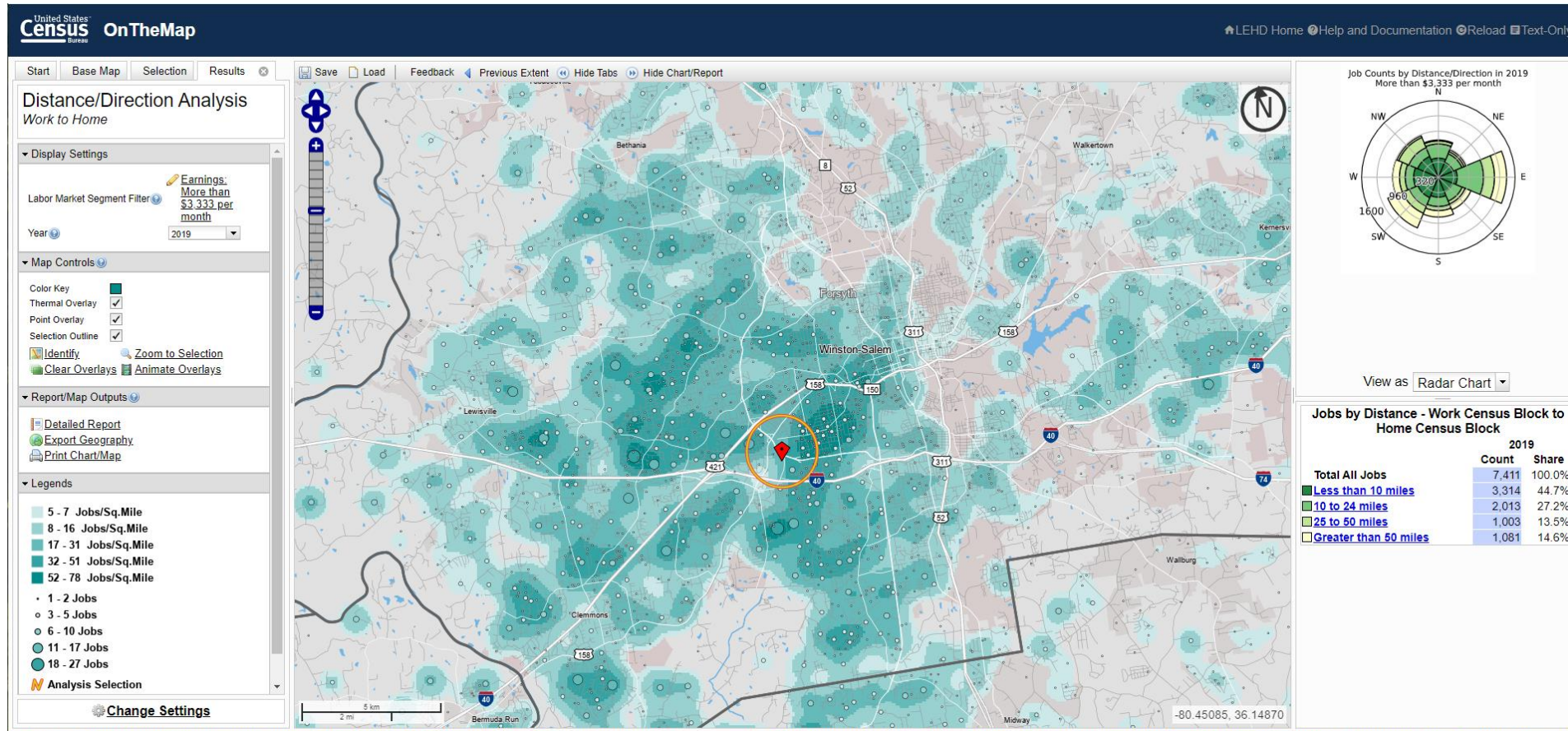
Key Insights

- ~5,300 workers
- Largest low-income work destination
- Residential clusters in:
 - NE Winston
 - Near Hanes Mall / Forsyth Hospital
 - Shattalon / Polo



Key Insights

- ~6,200 workers
- Fewer NE Winston origins
- Largest Residential clusters:
 - Near Hanes Mall / Forsyth Hospital
 - Shattalon / Polo



Key Insights

- ~7,400 workers
- West Winston clustering
- Least likely to use transit

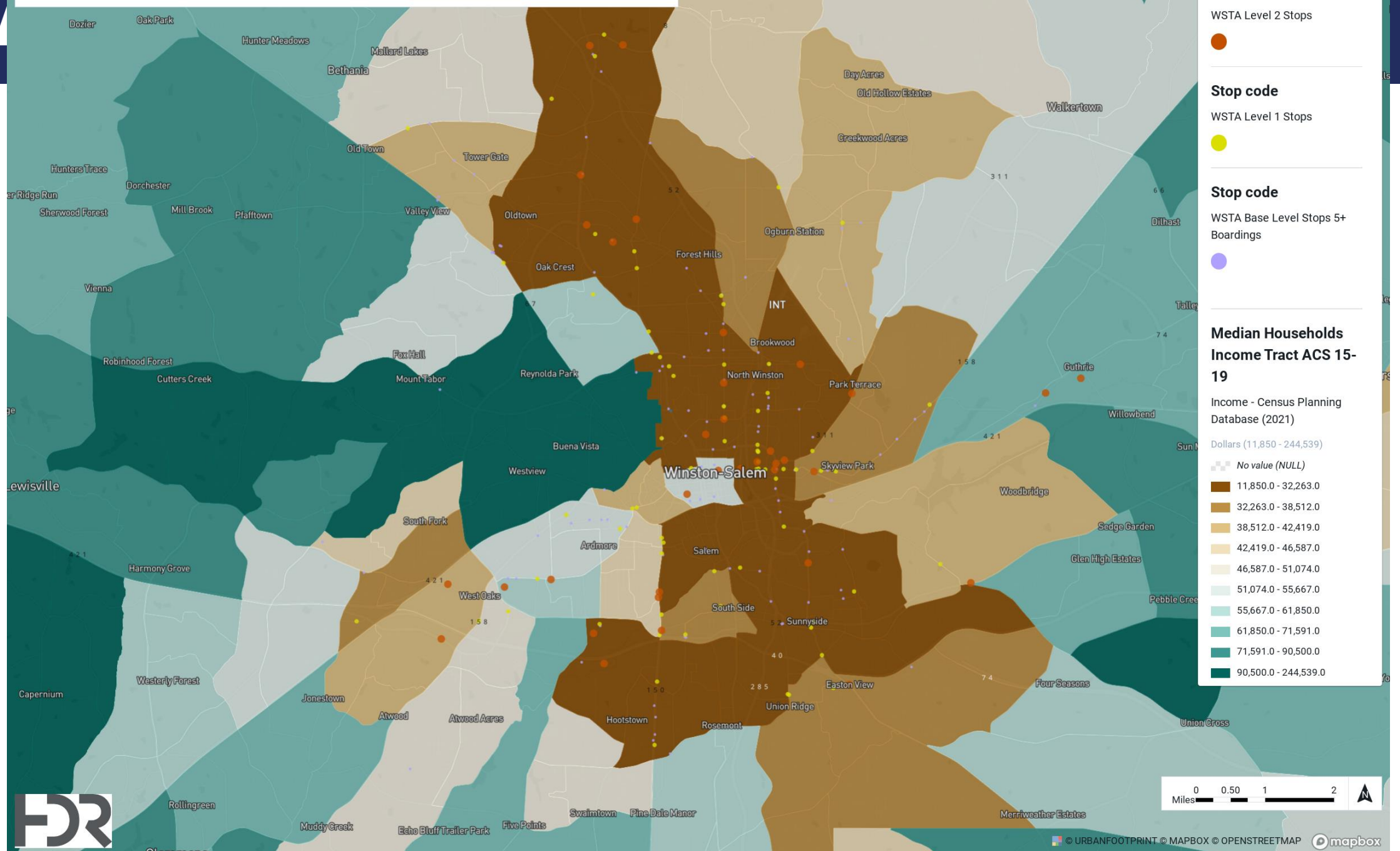
WSTA Productivity

Mapping route performance and bus stop ridership together



- Income correlates very highly with existing ridership
- High-performing routes highlight the four major employment centers and neighborhoods with greater numbers of lower-income residents
- Low-performing routes in Western Winston-Salem do not have a large residential market to serve
- Low-performing routes in South Central and South Eastern Winston-Salem have more favorable demographics for transit ridership, but indirect routing may be limiting usage

WSTA Bus Ridership By Stop and Median Household Income



Stop code

WSTA Level 2 Stops

WSTA Level 1 Stops

WSTA Base Level Stops 5+ Boardings

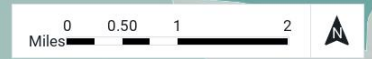
Median Households Income Tract ACS 15-19

Income - Census Planning Database (2021)

Dollars (11,850 - 244,539)

No value (NULL)

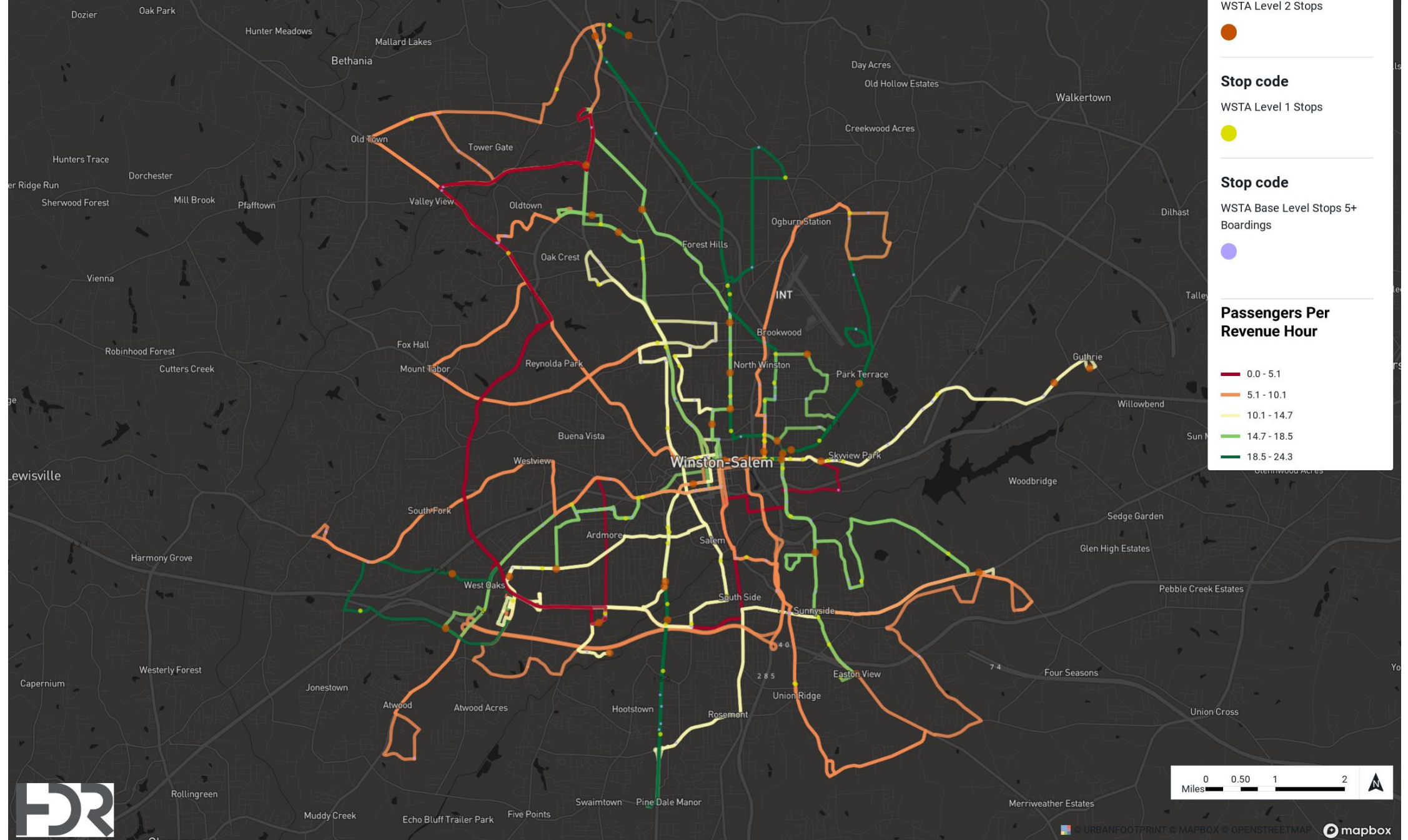
- 11,850.0 - 32,263.0
- 32,263.0 - 38,512.0
- 38,512.0 - 42,419.0
- 42,419.0 - 46,587.0
- 46,587.0 - 51,074.0
- 51,074.0 - 55,667.0
- 55,667.0 - 61,850.0
- 61,850.0 - 71,591.0
- 71,591.0 - 90,500.0
- 90,500.0 - 244,539.0



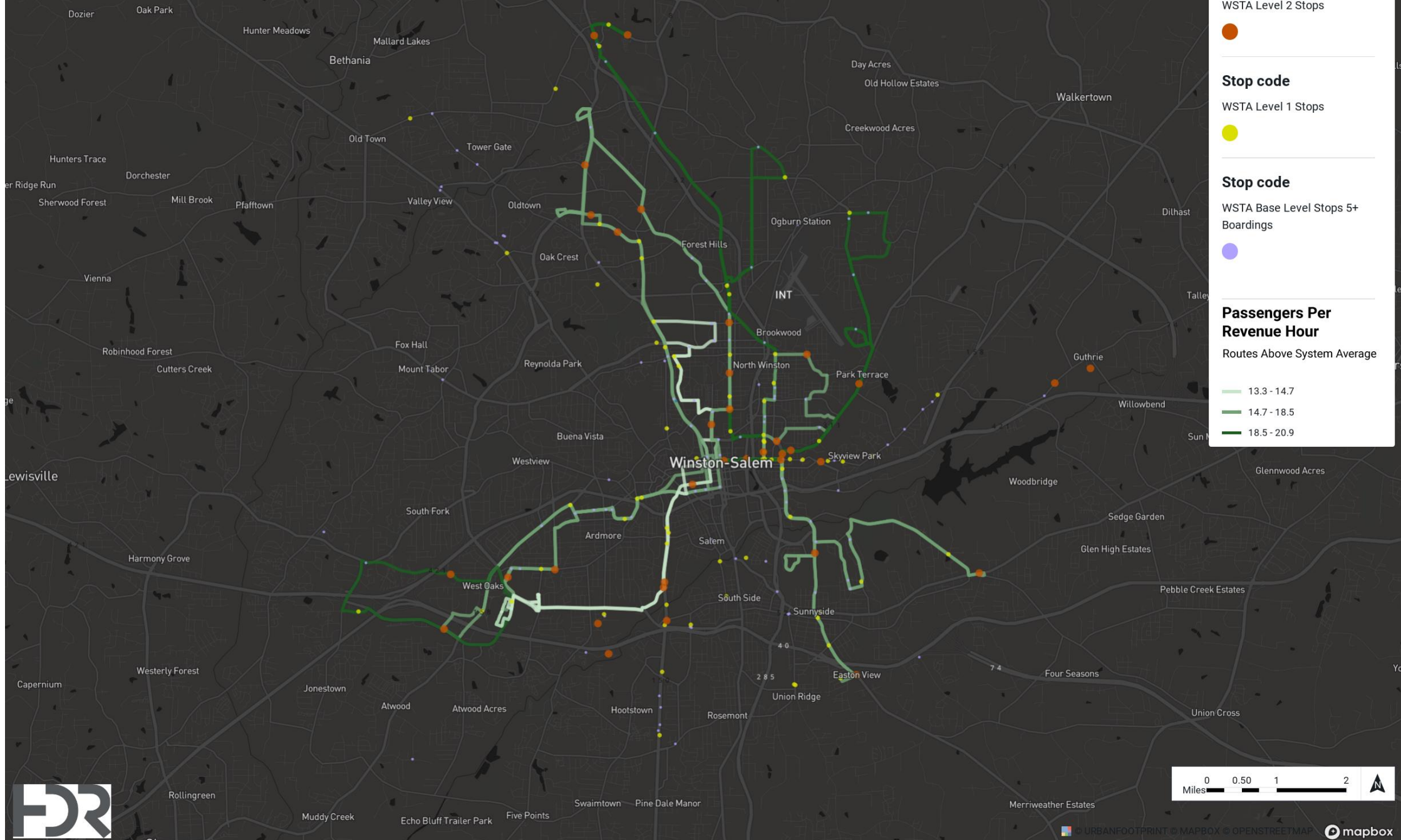
Applying Service Standards

Mapping Passenger Trips Per Hour by Route

Oct 2021 WSTA Above Average Bus Route Productivity and Ridership By Stop



Oct 2021 WSTA Above Average Bus Route Productivity and Ridership By Stop



Bus Operator Survey

Initial Findings



Repeated themes in comments:

- “Run buses at least once every 30 minutes, not every 60 minutes”
- Passengers and operators would both like to see more evening services restored after 7 pm
- Routes 83, 87, 96 and 103 repeatedly recommended for more service
- Route 100 was recommended for elimination by over 25% of operators surveyed

- Operator recommendations and productivity analysis are consistent for routes mentioned most frequently by operators
- Routes most frequently recommended for expansion: 83, 87, 96, 103
- Route most frequently recommended for elimination: 100



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- Quick Wins Recommendations Preview
 - Full re-purposing of Route 100 hours to kick off a Virtuous Cycle of Improvement
 - Additional re-purposing or adjusting possible to improve productivity and cost-effectiveness
 - Exploring routing adjustments to improve directness and shorten travel times
- Implementation Steps
 - Work with staff to share proposed changes with public
 - Deploy Quick Win service changes and continue to track data

Service Change Public Comments: What To Expect

- Every bus route helps someone complete a trip important to them...
- ...but it is possible a different routing could help many more people
- **Current** Riders who may lose service will call, email, and attend meetings to **express** concerns
- A larger group of **Future** Riders who will benefit may not even start using the service until 3 to 6 months after a service change is implemented
- It is impossible to improve service for many people without impacting some others. The best decisions increase the number of people served with the same funds



- Developing Two Different Scenarios for a WSTA Future Route System
- Public Comment in Response to Proposed Scenarios
- Final WSTA Route Master Plan refined after public comment on Scenarios

Discussion
