

# MICROTRANSIT IN DC STUDY

## About the Service and TLC Study

Prepared for:

**DFHV**

Government of the District of Columbia  
Department of For-Hire Vehicles

Prepared by:

 FOURSQUARE ITP

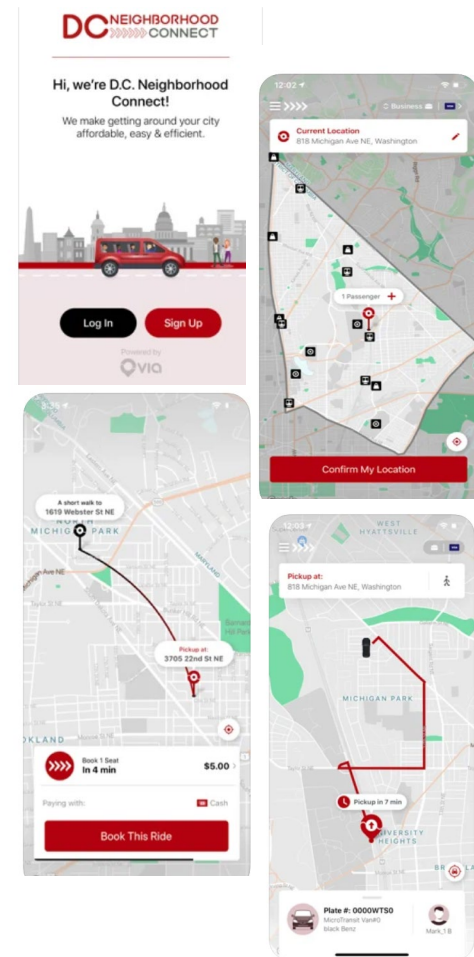


# ABOUT DC NEIGHBORHOOD CONNECT AND THE STUDY

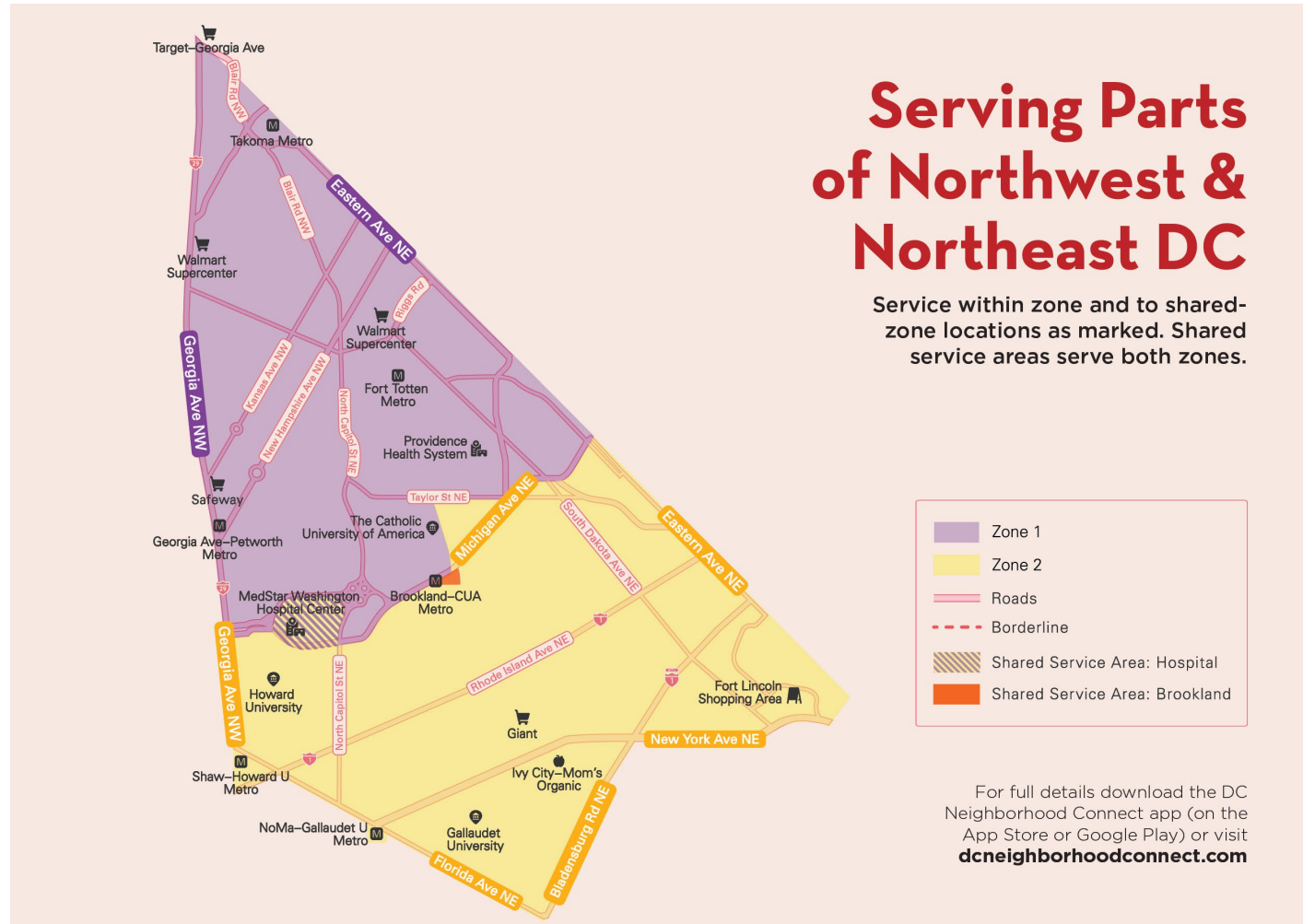


# ABOUT DC NEIGHBORHOOD CONNECT

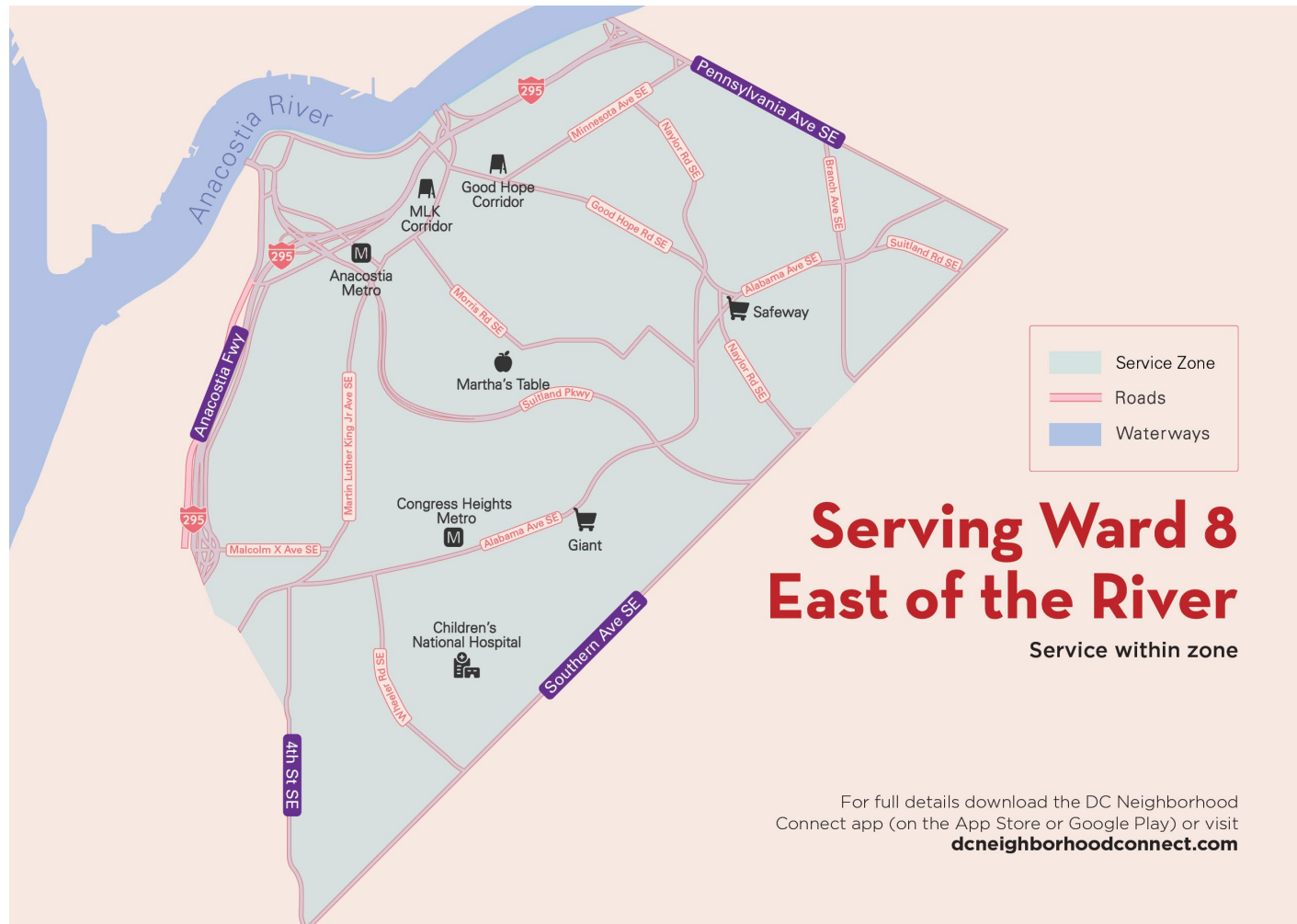
- **Shared microtransit service** supported by mobile booking (with call-in option) operated by the DC Department of For-Hire Vehicles
- Started in 2019 in NE DC, expanded to a zone in Ward 8 in 2021
- Operates in **three zones** in NE (primarily) and SE DC
- Currently **zero-fare**
- **Service goals**
  - Make affordable, curb-to-curb transit service available to residents in less accessible parts of the District
  - Connect residents to key destinations and high-frequency bus and rail services
  - Serve low-income residents, unbanked residents, and residents with disabilities.



# ZONES 1 AND 2 (NE AND NW)



# ZONE 3 (WARD 8)



# ABOUT THE STUDY

- Funded by the MWCOG TLC Program
- Directed by the District Department of For-Hire Vehicles (DFHV) in collaboration with DDOT
- Completed between October 2021 and June 2022; most data shown in this presentation are from late 2021.

# STUDY PURPOSE

Identify ways for DC Neighborhood Connect microtransit service to:

- Enhance or maintain existing service quality (wait times and reliability)
  - Flexible technical assistance (driver shift support)
- Increase ridership among the target populations
- Support connections to and ridership on buses and Metrorail
- Use financial resources efficiently



# STUDY FINDINGS

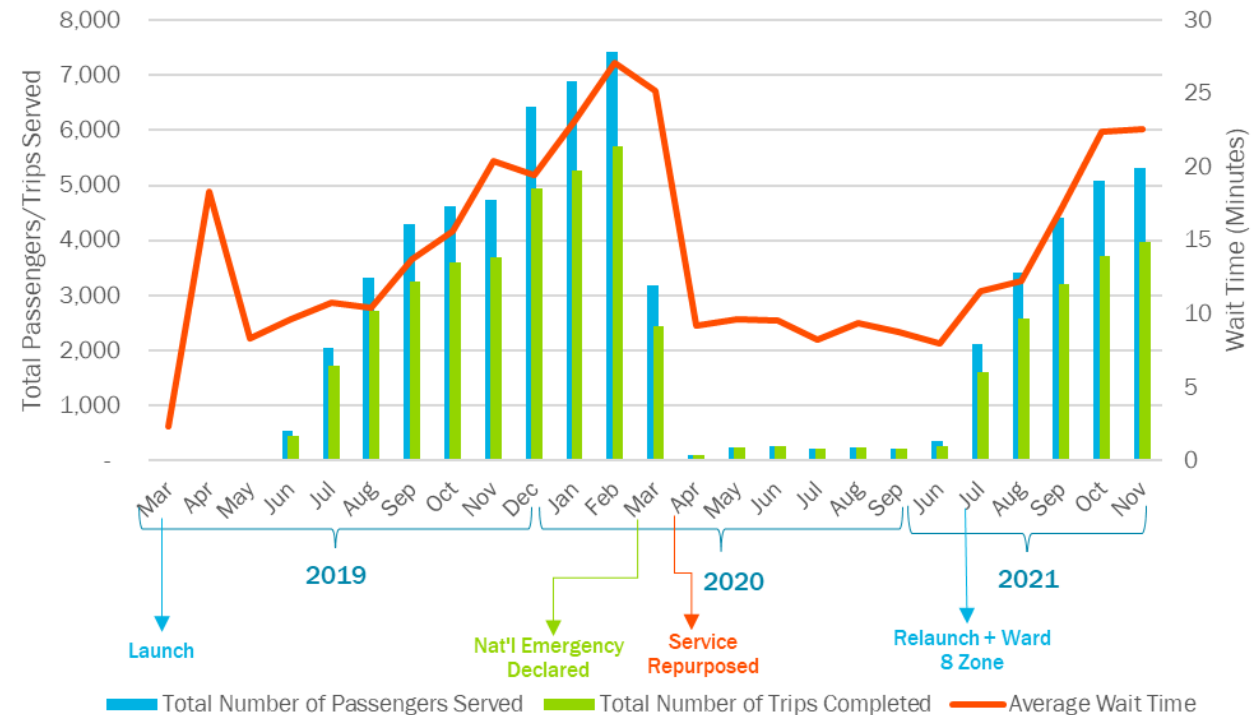




# EXISTING CONDITIONS

- Wait times increased significantly in all zones during 2021, particularly in Ward 8 – wait times in both zones were around 30 minutes.
- In 2021, 759 individual riders used service for an average of 3+ trip/week.
- No existing service standards
- Potential opportunities to adjust service to optimize performance

Ridership and Wait Time Trends from Mid 2019 to Late 2021

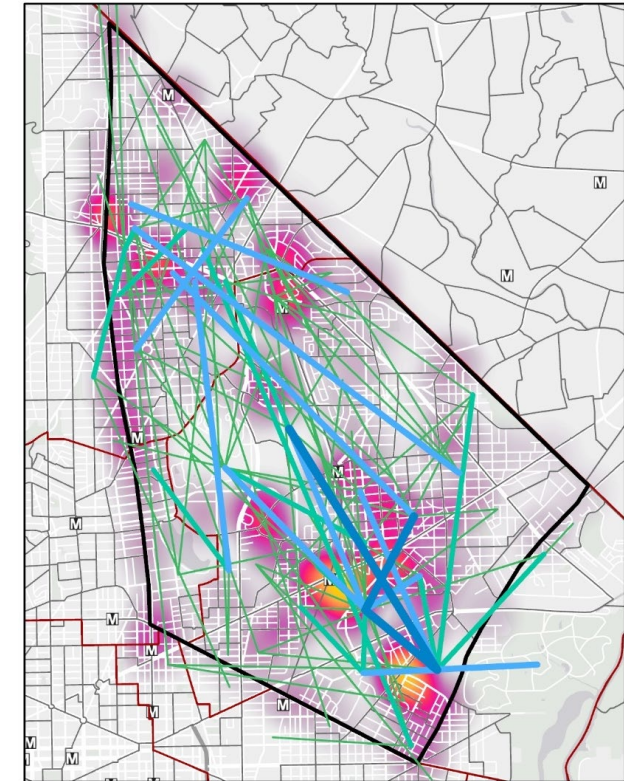


\* In December 2021

# EXISTING CONDITIONS IN NE/NW ZONE

- The original NE zone (now Zones 1 and 2) was too large.
  - Too-large zones result in less efficient service (measured in passenger trips per revenue hour).
  - Raised concerns about competing with rather than supporting fixed-route transit
- Analysis of trip origins and destinations showed over 75 percent of trips were within the northern or southern halves of the zone.
  - A small handful of riders were making a very large portion of the cross-zone trips.

2021 DCNC Travel Patterns and Destinations



Northeast Zone

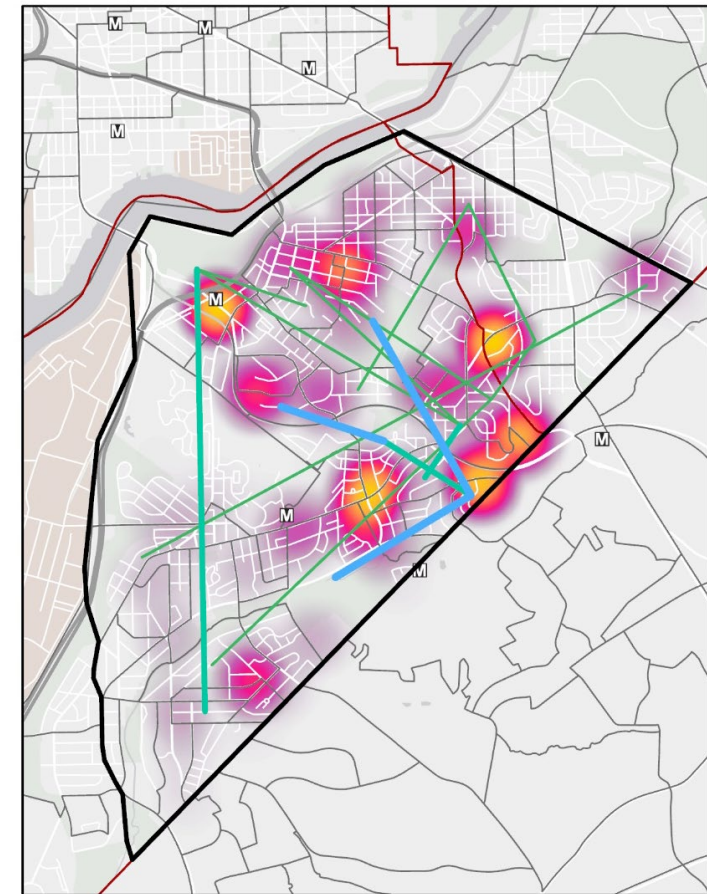
0 0.5 1 Miles

Lines = Common Trip Patterns  
Pink/Yellow = Common Trip Start/ End Points

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# EXISTING CONDITIONS IN WARD 8 ZONE

- Trip patterns in Zone 3 in 2021 reflected lower overall usage compared to Zones 1 and 2.
- Significant activity at Anacostia Metrorail station, grocery stores, and several residences.



2021 DCNC  
Travel  
Patterns and  
Destinations

Ward 8 Zone

0 0.5 1 Miles



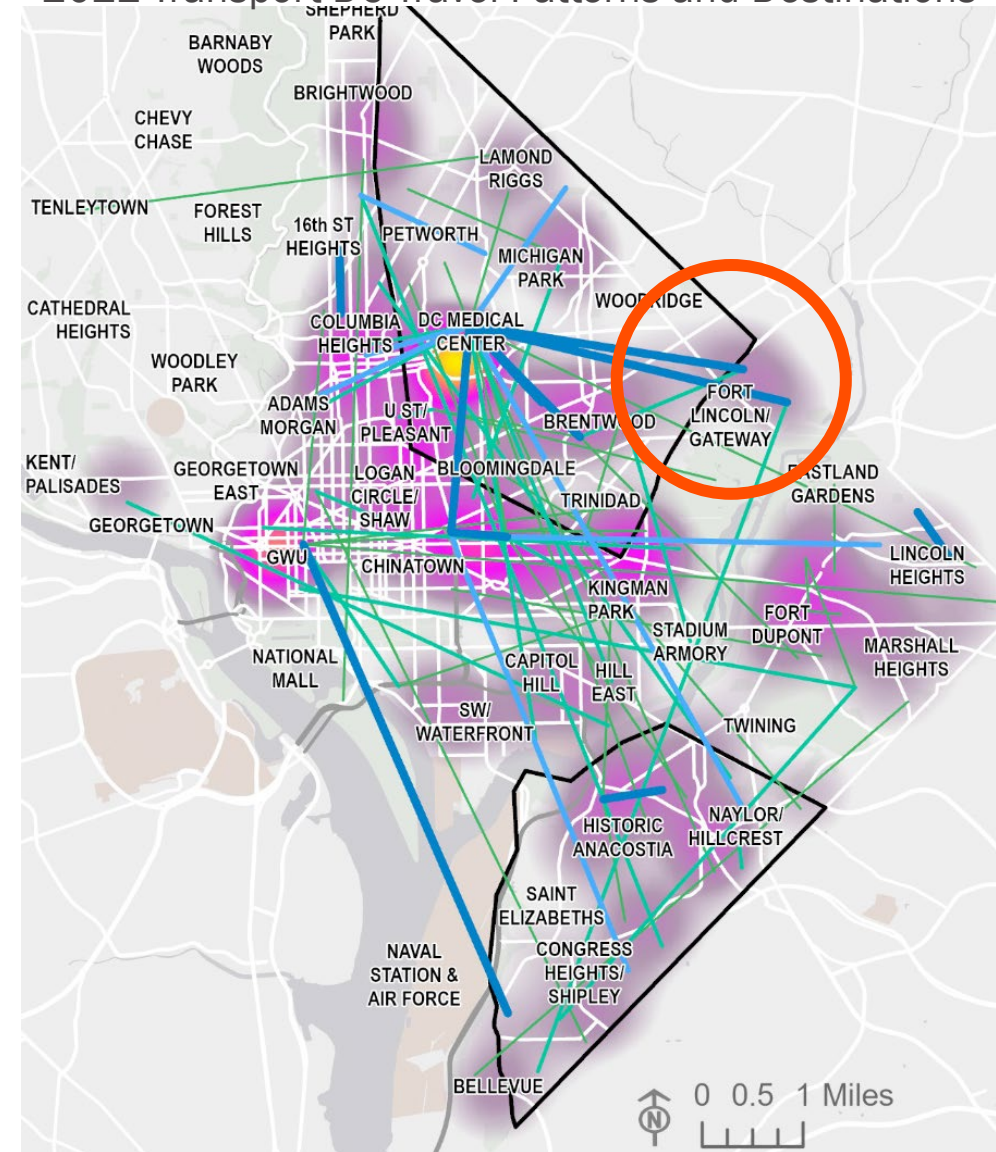
Government of the District of Columbia  
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Lines = Common Trip Patterns; Pink/Yellow = Common Trip Start/ End Points

# TRIP ORIGIN/ DESTINATION FINDINGS

- A review of trips from TransportDC – same-day DFHV service for people with disabilities – indicated high demand for trips to and from the Fort Lincoln retail area.

2021 Transport DC Travel Patterns and Destinations

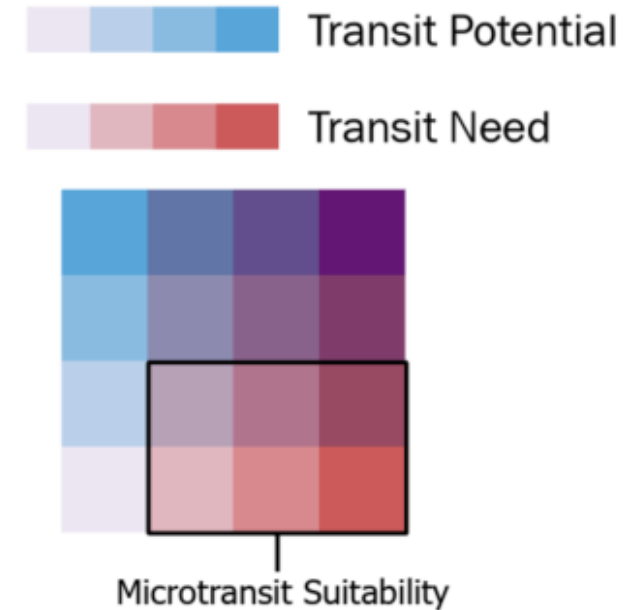
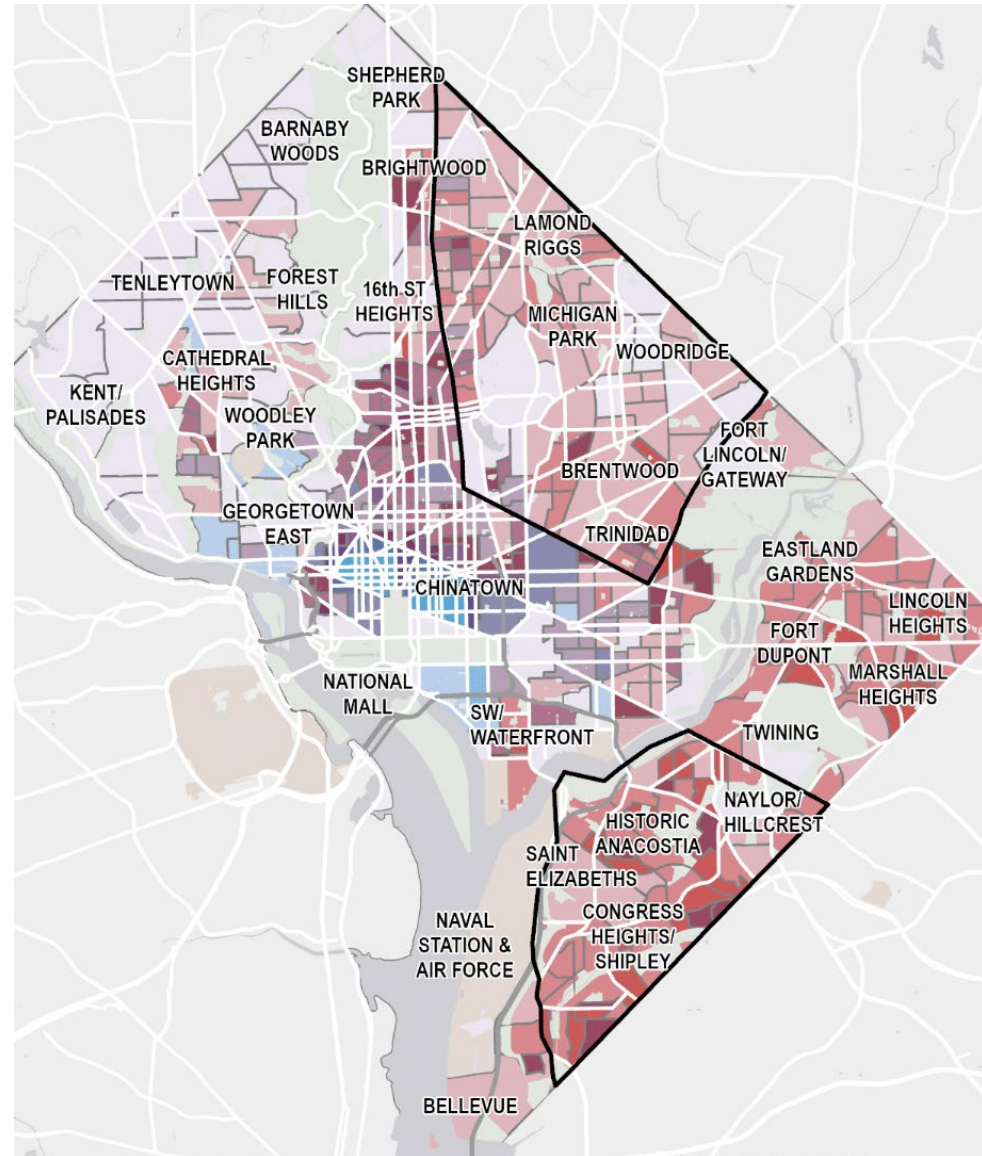




# MICROTRANSIT SUITABILITY ANALYSIS

- Identifies areas most suitable for microtransit based on two variables:
  - The presence of populations with transit need (e.g., low-income, zero-car households)
  - Relatively low overall density (transit potential)

Districtwide Microtransit Suitability Results



# MAY-JUNE 2022 SURVEY FINDINGS

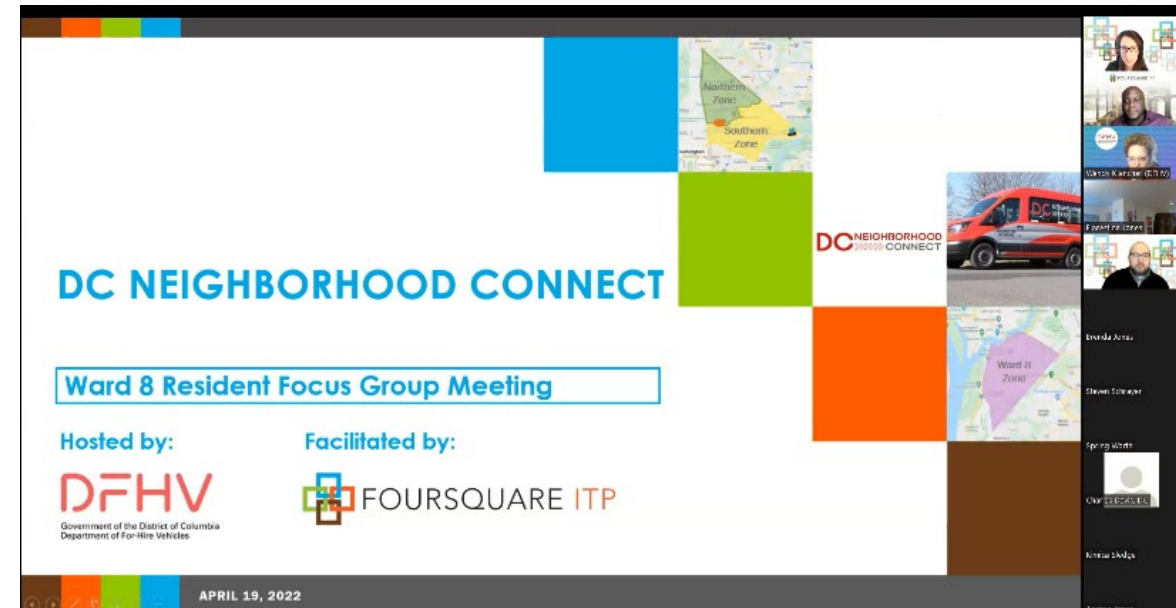
- About the riders (n = 93):
  - 26% have a disability
  - ~60% from households with income under \$25,000; only 7% from households with income above \$85,000
  - 80% people of color
  - 72% female; 5% other
  - 66% said Metrobus was one of their primary modes of travel before using DCNC (38% for Metrorail)

# SURVEY FINDINGS

- Average customer rating (of 10): 7
- Customers are willing, on average, to:
  - Pay up to \$3.46 per trip
  - Wait up to 16 minutes
- 25% said booking a trip is “difficult” or “very difficult” (62% said it’s “easy” or “very easy”)

# WARD 8 ZONE FOCUS GROUP FINDINGS

- Participants who used the service were:
  - Very happy that service exists
  - Eager to know of any fare changes
- Some concerns identified related to:
  - Policies and hours of service
  - App not correctly identifying pick-up locations (e.g., going to the wrong side of a building)
  - Crowding and wait times
- Desires for:
  - Advanced booking option
  - Access to the Bellevue neighborhood, the William O. Lockridge Library (in Bellevue), and other shopping destinations





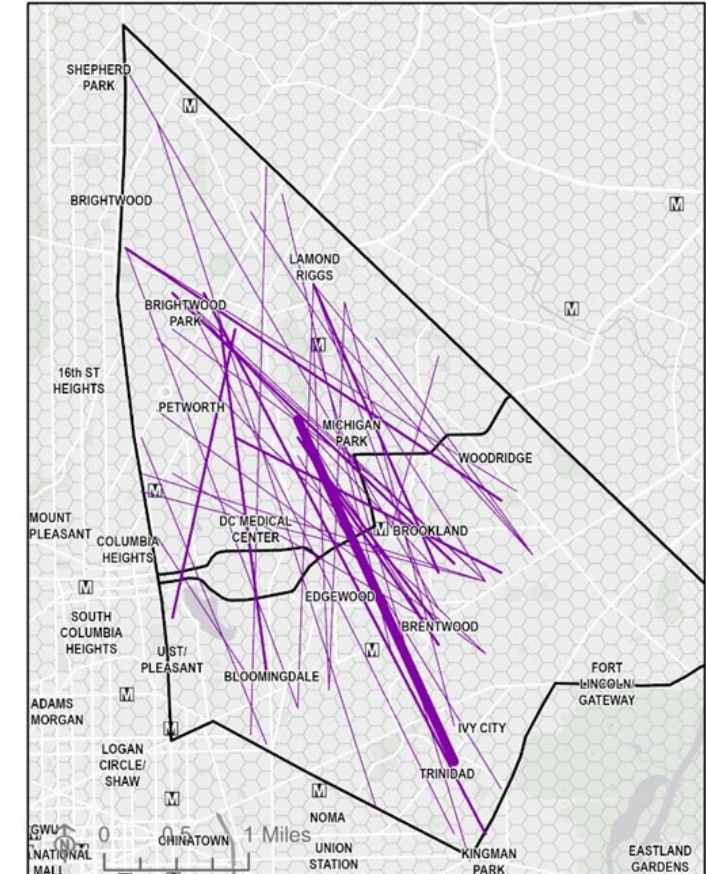


# RECOMMENDATIONS

# NORTHEAST ZONE SPLIT

- Due to the zone size issues (high wait times, long trips = reduced productivity), we identified a border to divide the zone into two while minimizing negative impacts.
- Service in the southern half (new Zone 2) was expanded to Fort Lincoln.
- Targeted outreach to most affected riders.

Most Common Observed DCNC Trip Patterns  
between Zones 1 and 2

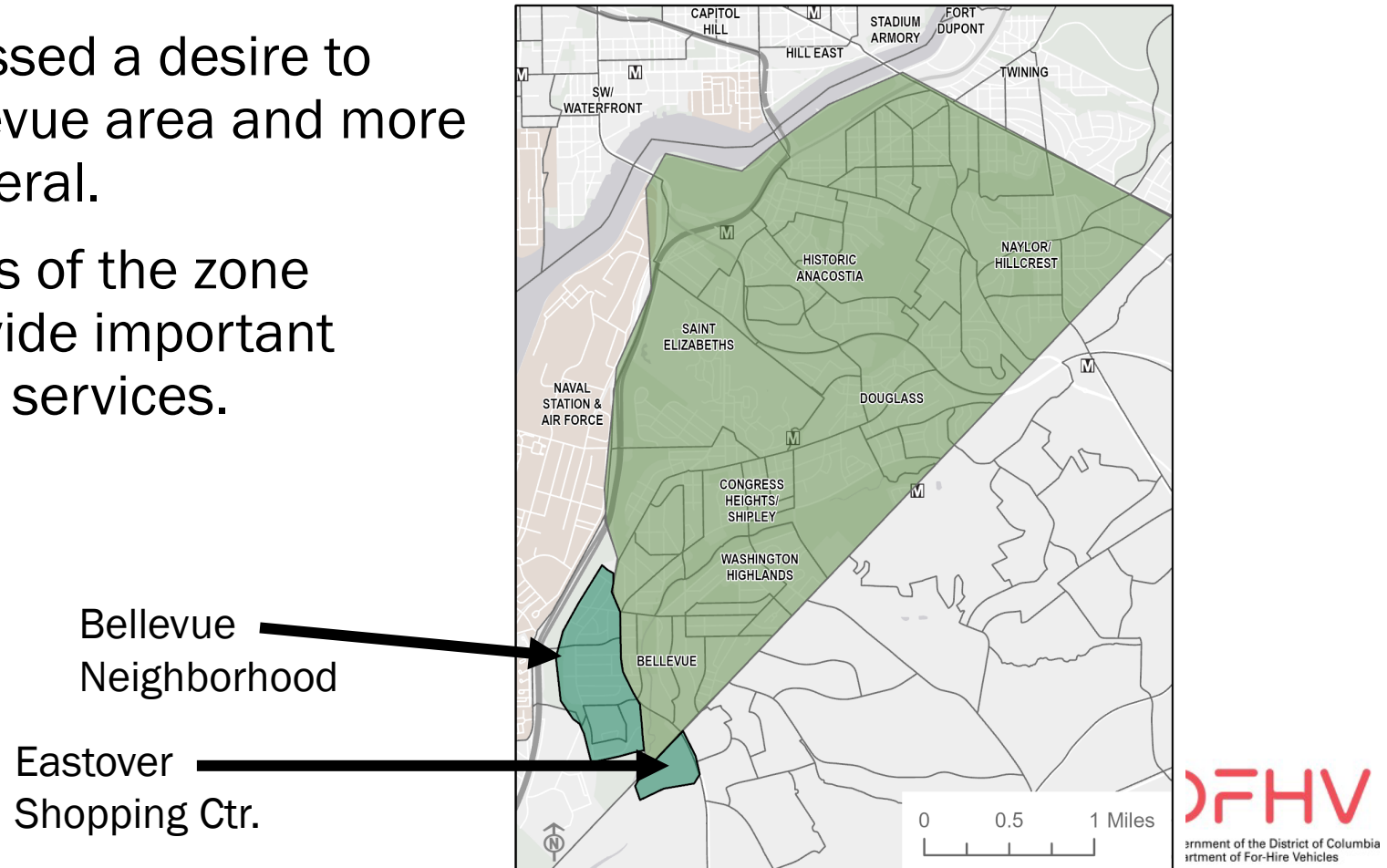


Lines = Common Trip Patterns  
Lines are drawn to census block  
centroid, not actual O/D

# PROPOSED MODIFICATIONS TO WARD 8 ZONE

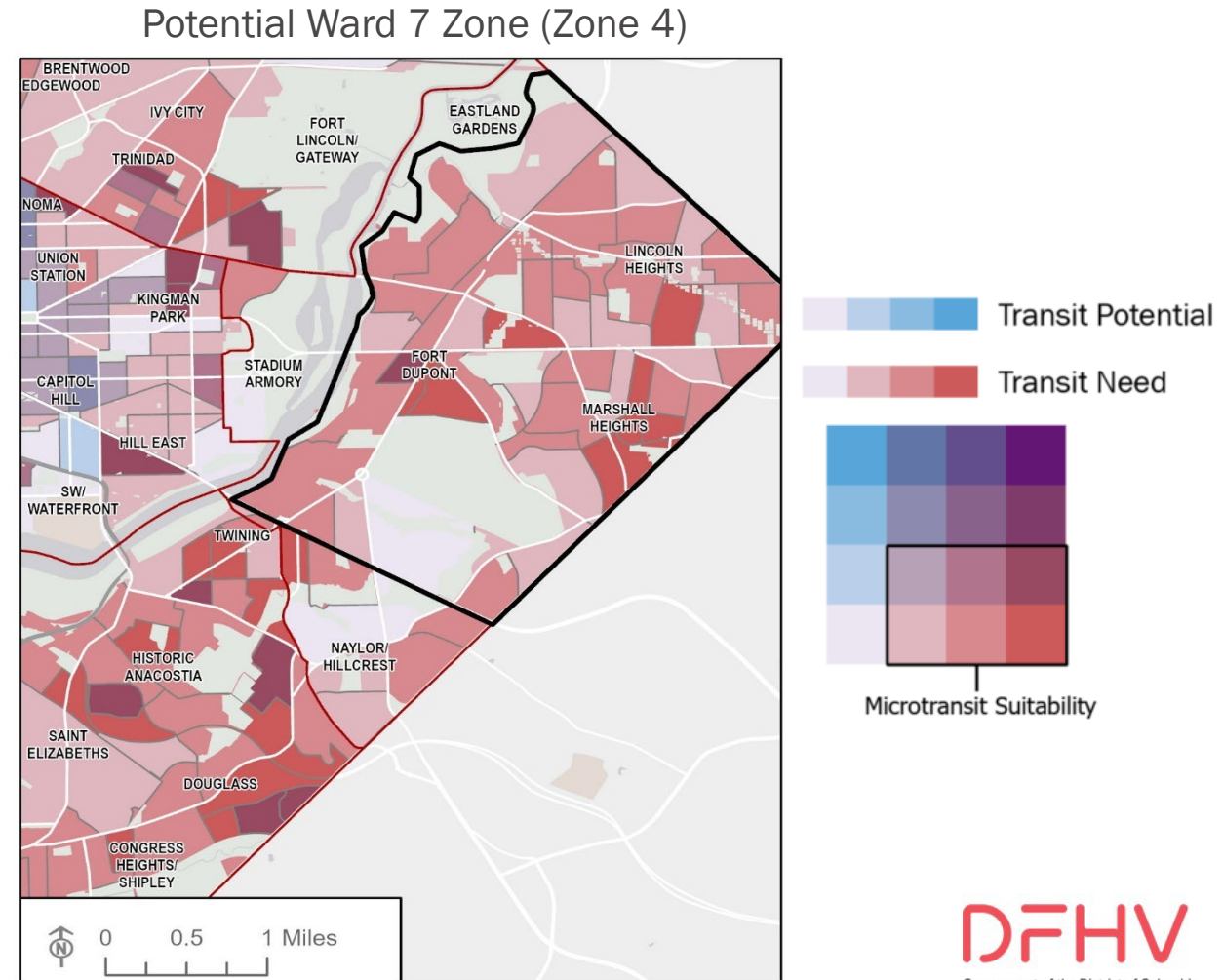
- Focus group participants expressed a desire to access destinations in the Bellevue area and more commercial destinations in general.
- These are very slight expansions of the zone (which is already large) but provide important connective service to important services.

Ward 8 Zone – Proposed Expansion to Bellevue and Eastover



# POTENTIAL EXPANSION ZONE

- This zone encompasses the majority of Ward 7 (some of the ward is covered by Zone 3) east of the river.
- Expansion should occur only after wait times in existing zones are stable and there is sufficient capacity (vehicles, drivers, funding) to increase service.



# OTHER EXPANSION OPPORTUNITIES

- Few other areas in the District have enough contiguous areas of microtransit suitability to recommend creation of a new zone.
- However, there may be opportunities to create occasional services (e.g., once or twice per week) to meet specific resident needs (e.g., senior shopping trips).





# VEHICLE REQUIREMENTS AND SHIFTS

- We used factors such as proposed zone geography, vehicle speeds, deadhead miles, shared trip targets, and target wait times to estimate vehicle requirements.
- Using the estimates, the study team developed proposed driver shift schedules.

Zone 2	Pull Out	Pull-In	6:30-7am	7-8am	8-9am	9-10am	10-11am	11am-12 Noon	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm	7-8pm	8-9pm	9-10pm
Driver 1 - NE Southern	6:15 AM	10:45 AM	0.25	0.5	1	1	1	0.5	0.25								
Driver 2 - NE Southern	6:45 AM	3:15 PM		0.25	1	1	1	1	0.5	1	1	1	0.25				
Driver 3 - NE Southern	6:45 AM	3:15 PM		0.25	1	1	1	1	0.5	1	1	0.25					
Driver 4 - NE Southern	7:45 AM	12:15 PM			0.25	1	1	1	1	0.25							
Driver 6 - NE Northern	12:15 PM	9:15 PM						0.25	0.5	1	1	1	0.5	1	1	1	1
Driver 5 - NE Southern	1:45 PM	10:15 PM							0.25	1	1	1	0.5	1	1	1	1
Driver 6 - NE Southern	3:15 PM	10:15 PM								0.25	0.5	1	1	0.5	1	1	1
Driver 7 - NE Southern	3:15 PM	9:15 PM								0.25	0.5	1	1	1	1	1	0.25

Each row = One driver shift, including time for pull-out/pull-in, deadhead (time spent driving to the service area without carrying passengers), and breaks

# FARE RECOMMENDATIONS

- Free DCNC fares reduces ridership on fixed-route for trips that would be more cost effectively made by bus or rail.
- Recommended a fare for DCNC of \$3.00-\$3.50 per trip.
- DFHV could consider fare discounts (e.g., for low-income riders, or for additional riders making the same trip) to address affordability concerns.

# RECOMMENDED SERVICE STANDARDS

## Performance Metrics

Passenger trips per vehicle revenue hour

Average cost per passenger trip

Percentage of trips shared (aggregated)

Average and maximum wait times

Average trip distance

Percentage of trips starting or ending at a fixed-route hub (e.g., Metrorail station)

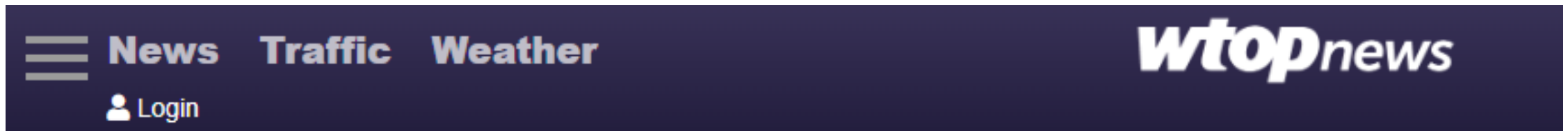
Alignment of rider demographics (based on target populations) with service area

Customer satisfaction



# STUDY RELEVANCE

- Expansion to Fort Lincoln area and division of previous NE/NW zone to create Zones 1 and 2 implemented on March 28, 2022.



## DC expands Neighborhood Connect shuttle service in Northeast and Northwest



# WHAT'S NEXT FOR DCNC

# CURRENT PERFORMANCE TRENDS

- Between January 2022 to December 2022:
  - Average trip distance declined (1.5 to 1.2 miles)
  - Ridership increased by 65%
  - Productivity is up:
    - Passenger trip per revenue hour increased in 2022 (2.6 to 3.4)
    - Deadheading distance decreased (2.4 miles to 1.8 miles)
    - Decreasing per-hour fuel and maintenance expenses
- Customer rating increased from 4.7 to 4.8.

# TAKE-AWAYS

- Customers appreciate the service and its affordability.
- But there are still challenges:
  - Ridership is up; demand is difficult to meet.
  - Wait times are up despite initial decline in wait times after the zone split.
  - Vehicle delivery delays and driver shortages are inhibiting growth
    - Expecting 8 already-purchased vehicles to arrive in the coming months.
  - High rates of cancellations degrade service quality; zero-fare service removes financial penalty for cancellations.
- Zero-fare bus service in the District would reduce the incentive people have today to choose DCNC over taking the bus.



**QUESTIONS?**

**SPECIAL THANKS TO MWCOCG FOR  
FUNDING THE STUDY!**