

Appendix G

Mobility Experiential Guide

REGION CENTRAL

Mobility Experiential Guide



**REGION
CENTRAL**

October 27, 2021

What is Region Central?

The Region Central study area was conceptualized to capture the neighborhoods most immediately adjacent to the Scajaquada Expressway.

The 8 sub-neighborhoods are customized by data availability and informed by existing political boundaries, such as Council Districts. The eight areas include four to the north of the Expressway and four to the south.

The Guide looks at three different primary geographic levels:

- Region Central as a whole
- The Scajaquada Expressway
- And 8 sub-neighborhoods within Region Central

Region Central is the area outlined in **brown** in the map below. It includes an area one-half to one miles north and south of the Scajaquada Expressway and divided into 8 sub-neighborhoods.



Purpose of Experiential Guide to the Corridor

This guides is intended to provide a much broader perspective on all forms of mobility in and around Region Central, including the Scajaquada Expressway. It is meant to inform a deeper understanding of how travelers behave so that potential solutions can comprehensively address the full range of mobility needs.

By merging new data sources with traditional modeling data, this guide provides a complete view of transportation using all modes and all times of day and new insights into how people move around in Region Central.

Structure of the Guide:

- *Region Central Mobility Experience*
- *Expressway Corridor Experience*
- *Expressway Performance and Use*
- *Crossing the Expressway*
- *Neighborhood Mobility Experience*
- *Regional Destinations*
- *Transit Experience*
- *Access to the Park and Creek*
- *Commercial Vehicles*

Methodology

This document pulls together traditional and emerging data sources to take a wholistic and multimodal look at mobility in Region Central.

Traditional Data Sources

- *Traffic counts*
- *Crash Data*
- *Transit ridership and surveying*
- *Aerial imagery*
- *Archival research*
- *GIS Data*

Emerging Data Sources

- *Streetlight Data*
- *Replica*

All data analyzed for the Guide has established guardrails around privacy. This includes following best practices around deanonymization and aggregation so that no personal identifiable information is included with any data analyzed.

Emerging Data Sources

Replica and Streetlight Data

Emerging data sources were used to expand the reach of this guide and understand mobility at broader more multimodal level than was possible in the past.

What are these data sources?

- *Anonymized and aggregated smartphone location data from millions of travelers to understand travel flows*
- *Available as far back as 2018*
- *Includes more details than traditional data sources!*
 - How many people are traveling, by time of day, day of week, and mode (drive, freight, walk, bike)?
 - How many people travel to/from trip origin and destinations?
 - What routes do travelers use to access destinations?
 - Why are people traveling? For work? Or for some other reason?
 - How long to trips take?
 - What is the traveler demographic profile for income, race, family status, etc.?

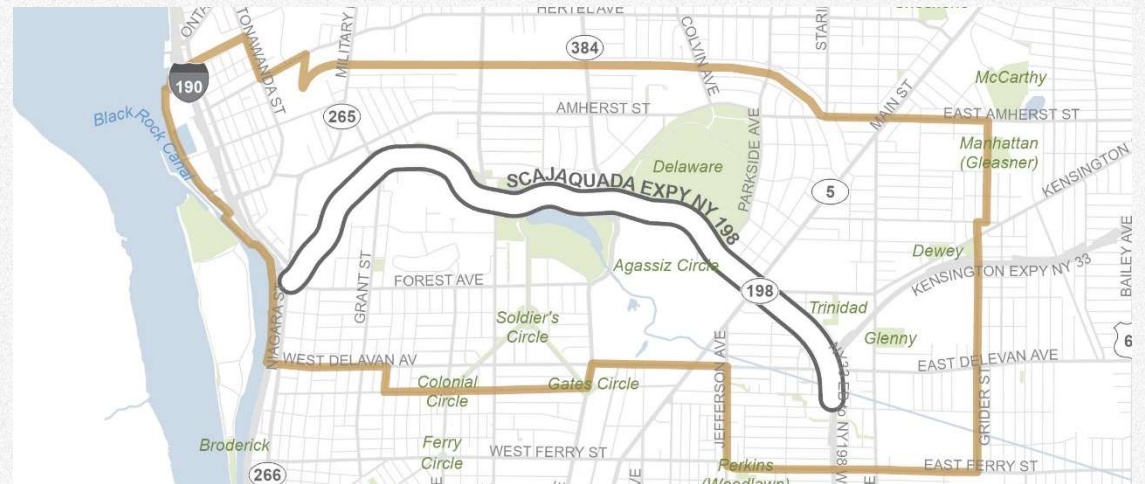


Region Central Mobility Experience

Region Central Mobility Experience

This section illuminates the mobility experience of the Region Central study area, as a whole.

The Region Central study area was conceptualized to capture the neighborhoods adjacent to the Scajaquada Expressway. It includes an area one-half to one miles north and south of the Expressway. This section provides a basis for understanding Region Central, and subsequent sections dive into sub-areas of Region Central.



The following pages examine:








- *How people travel in Region Central*
- *Where people travel in Region Central*
- *How vehicle volumes have changed over time in Region Central*
- *When people travel in Region Central*

35% of all daily trips in Region Central are made by walking.

Looking at all trips (rather than just work trips as was done in past studies), reveals that although driving is important, almost half of Region Central trips are not driving.

Replica:

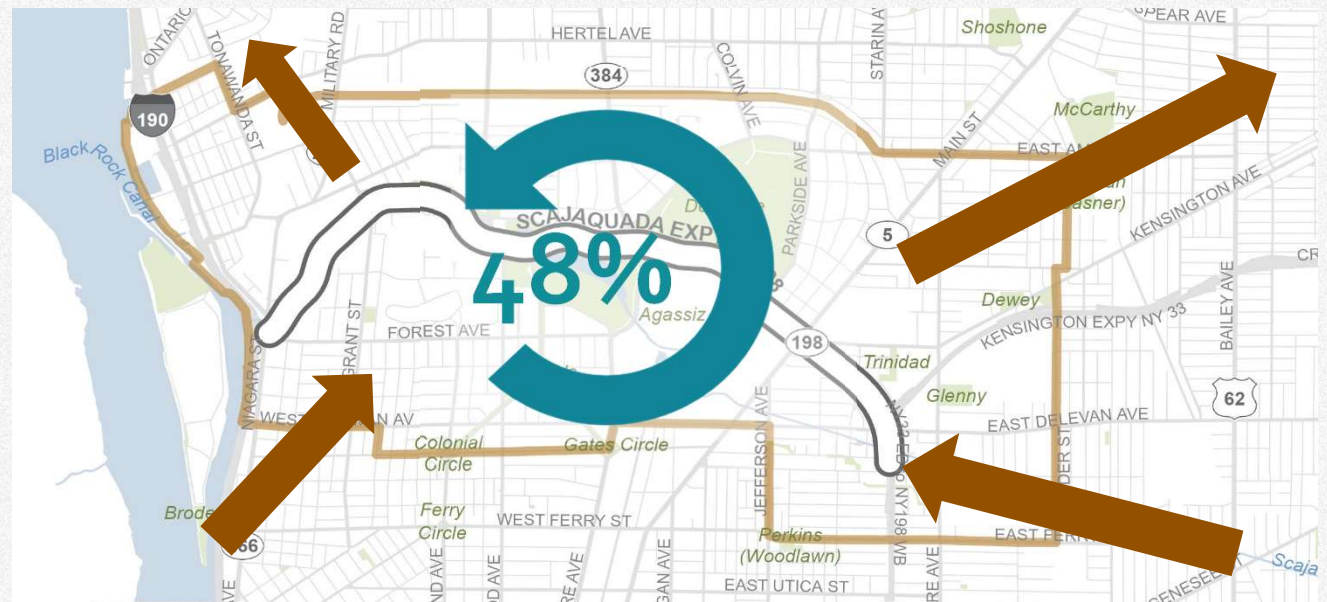
- Multimodal trips
- Based on Census Tracts comprising the study area
- Thursdays
- September-November 2019

 Drive, alone	54%
 Walk	35%
 Transit	3%
 Commercial	3%
 Drive, passenger	1%
 Bike	<1%
 Other	4%

Other includes Taxi, TNC, Private Shuttles, paratransit, scooters.

Almost half of the trips (48%) starting/ending in Region Central, stay within Region Central and half (52%) travel in and out of Region Central.

Access to destinations within Region Central is just as important as access to destinations outside Region Central.



86%

Most walking trips stay within Region Central.



24%

Less than a quarter of the driving trips that start in Region Central, stay within Region Central.



45%

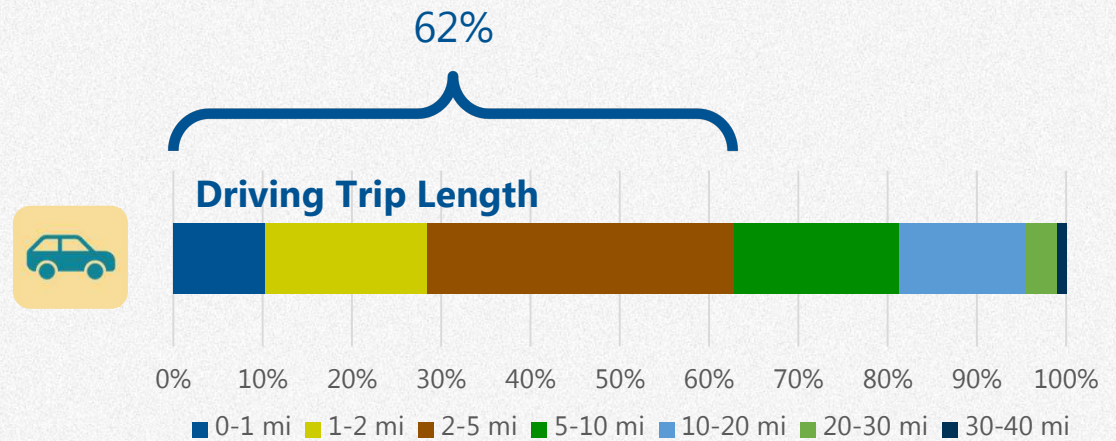
Almost half of the bike trips stay within Region Central.

Replica:

- Multimodal trips
- Based on Census Tracts comprising the study area
- Thursdays
- September-November 2019

Almost two-thirds (62%) of all Region Central driving trips are less than 5 miles.

Driving trips less than 5 miles are most easily convertible to biking, walking, or shared mobility trips, including transit, scooters, and on-demand ridesourcing.

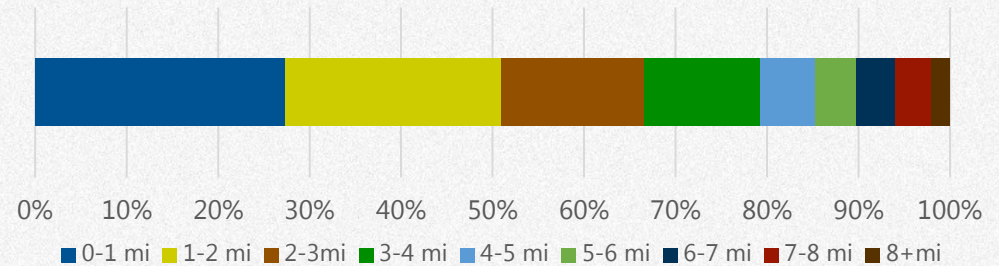
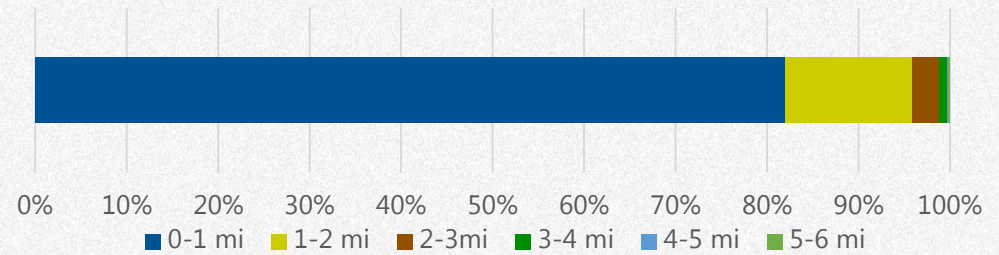


Streetlight Data Parameters:

- Average vehicle trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019

The vast majority of walking trips that begin in Region Central are <1 mile.

Investment in local pedestrian infrastructure and connections is critical to support many short walking trips in Region Central.



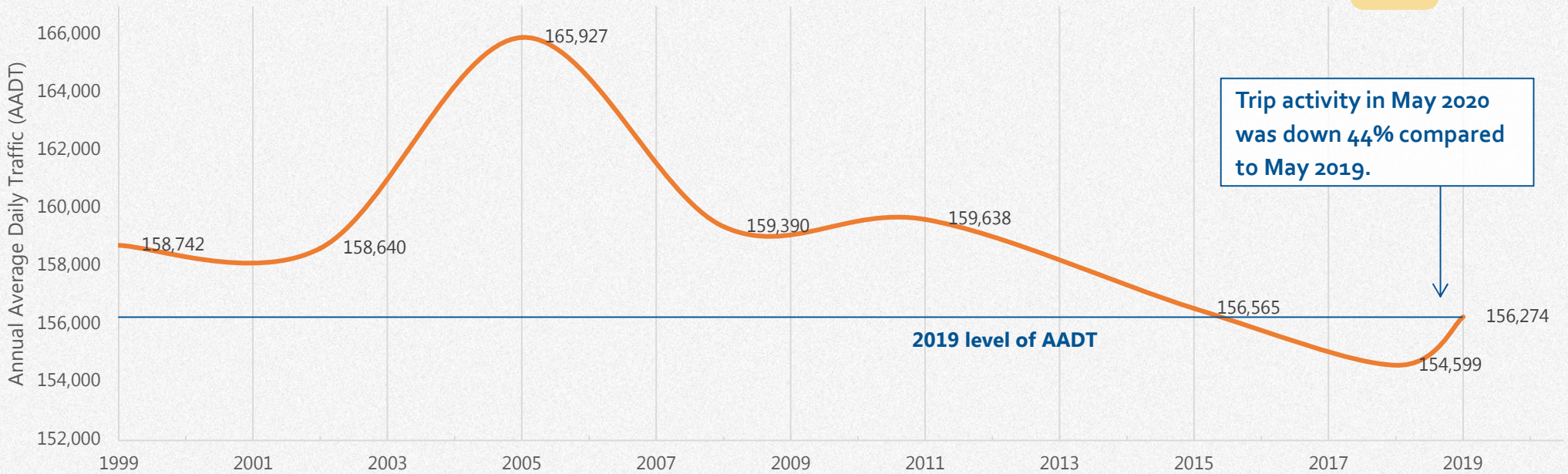
Streetlight Data Parameters:

- Average bike/ped trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019

Since 2016, vehicle volumes are lower than they have been in two decades.

Plans for Region Central should not assume continual growth in vehicle volumes.

Aggregate Daily Vehicle Counts on the Expressway and Key Roads in Region Central



Roads included:

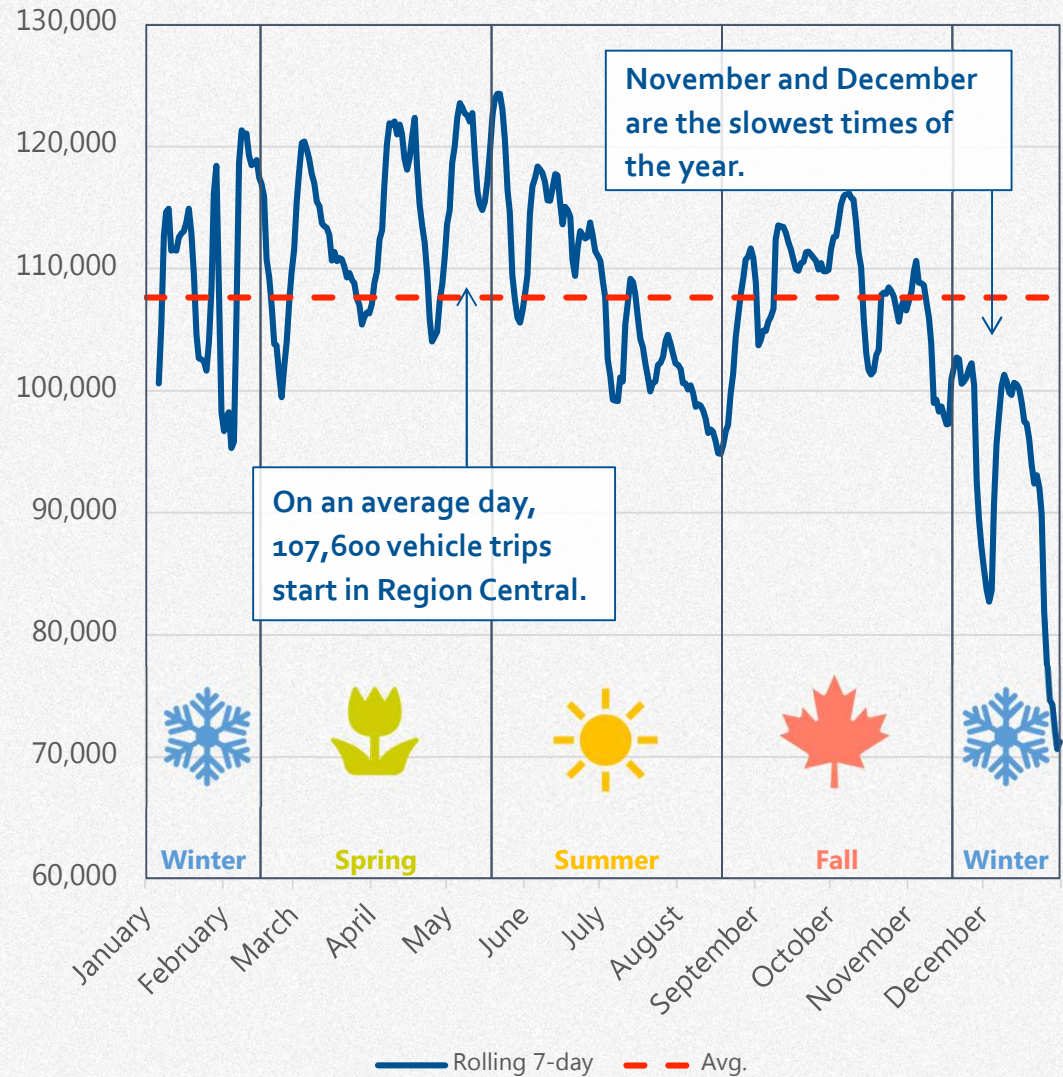
- NYS Route 198 (Scajaguada Expressway)
- Grant St, Elmwood Ave, Delaware Ave, Parkside Ave, Main St, Delavan Ave, Forest Ave, Amherst St

Source: NYSDOT & GBNRTC Historic Traffic Data

Spring and early summer are the busiest seasons in Region Central.

Activity levels and trip patterns can vary significantly throughout the year.

Vehicle Trips Starting in Region Central
(2019 Daily Average)



Streetlight Data Parameters:

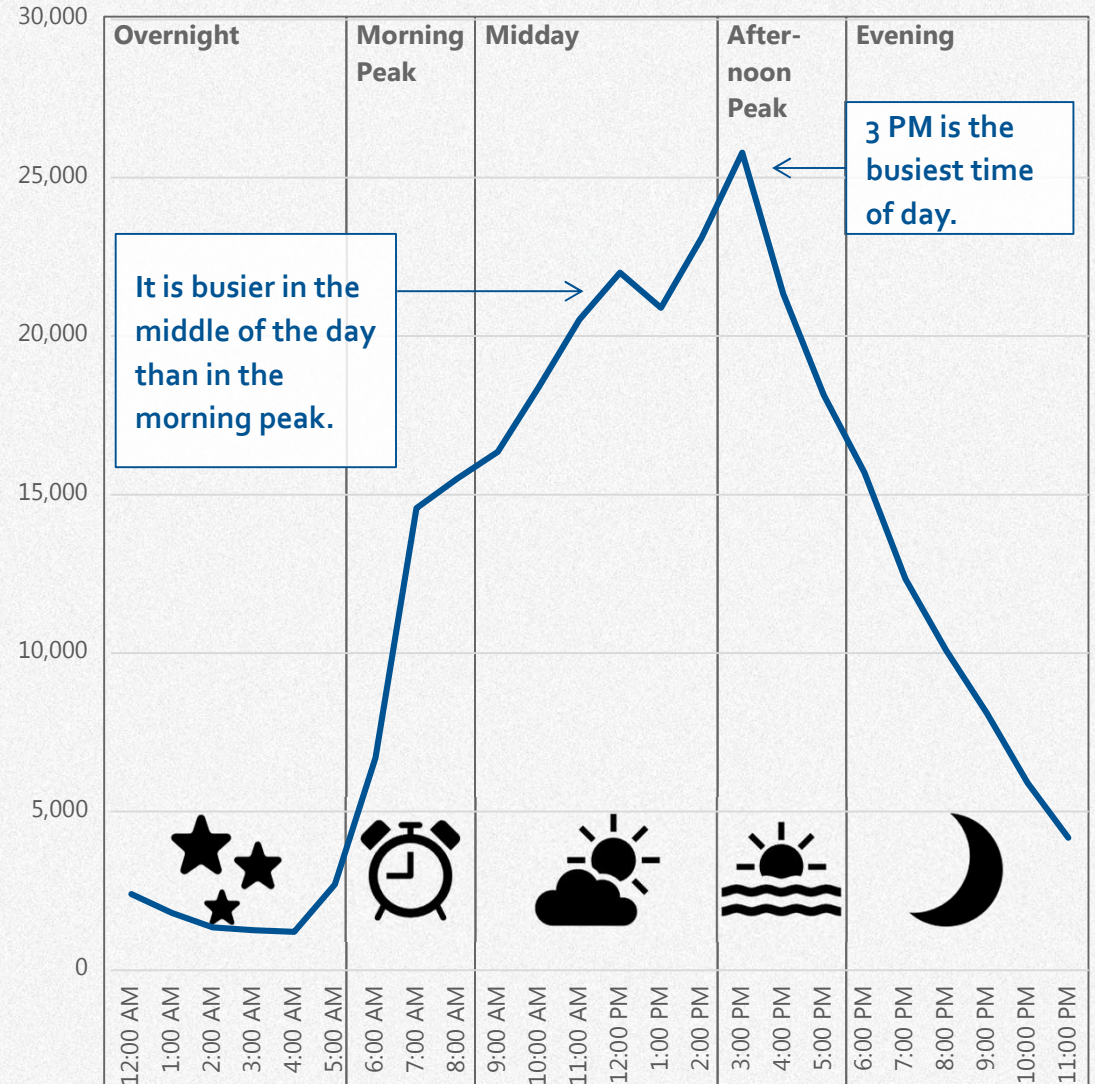
- Average vehicle trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on 2019

The afternoon peak is the busiest time of day in Region Central.

Region Central activity climbs through the day and traditional peaks do not always apply.

- Streetlight Data Parameters:*
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

Vehicle Trips Starting in Region Central
(2019 Daily Average)



Key Takeaways

Non-auto travel is as important as driving travel in Region Central.

Most driving trips in Region Central are relatively short (less than 5 miles).

Traffic levels vary by day and season but have not been growing.



Expressway Corridor Experience

Expressway Corridor Experience

This section assesses the mobility experience for people using and crossing the Expressway.

The Scajaquada Expressway was constructed in the 1960s and has served as both a connection and a barrier throughout its history. With new data sources available, this section takes a fresh look at how the Expressway both serves and inhibits mobility today.

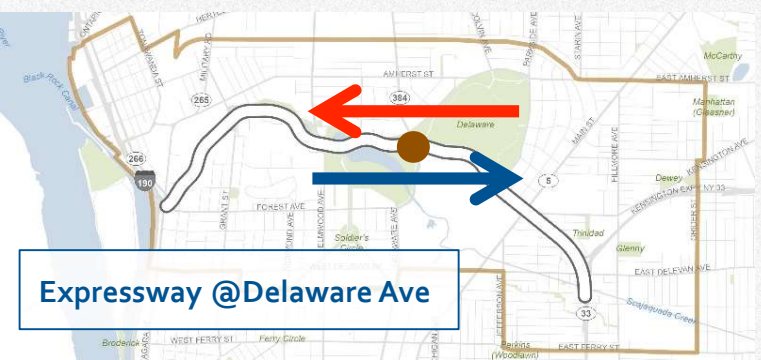


The following sections examine:

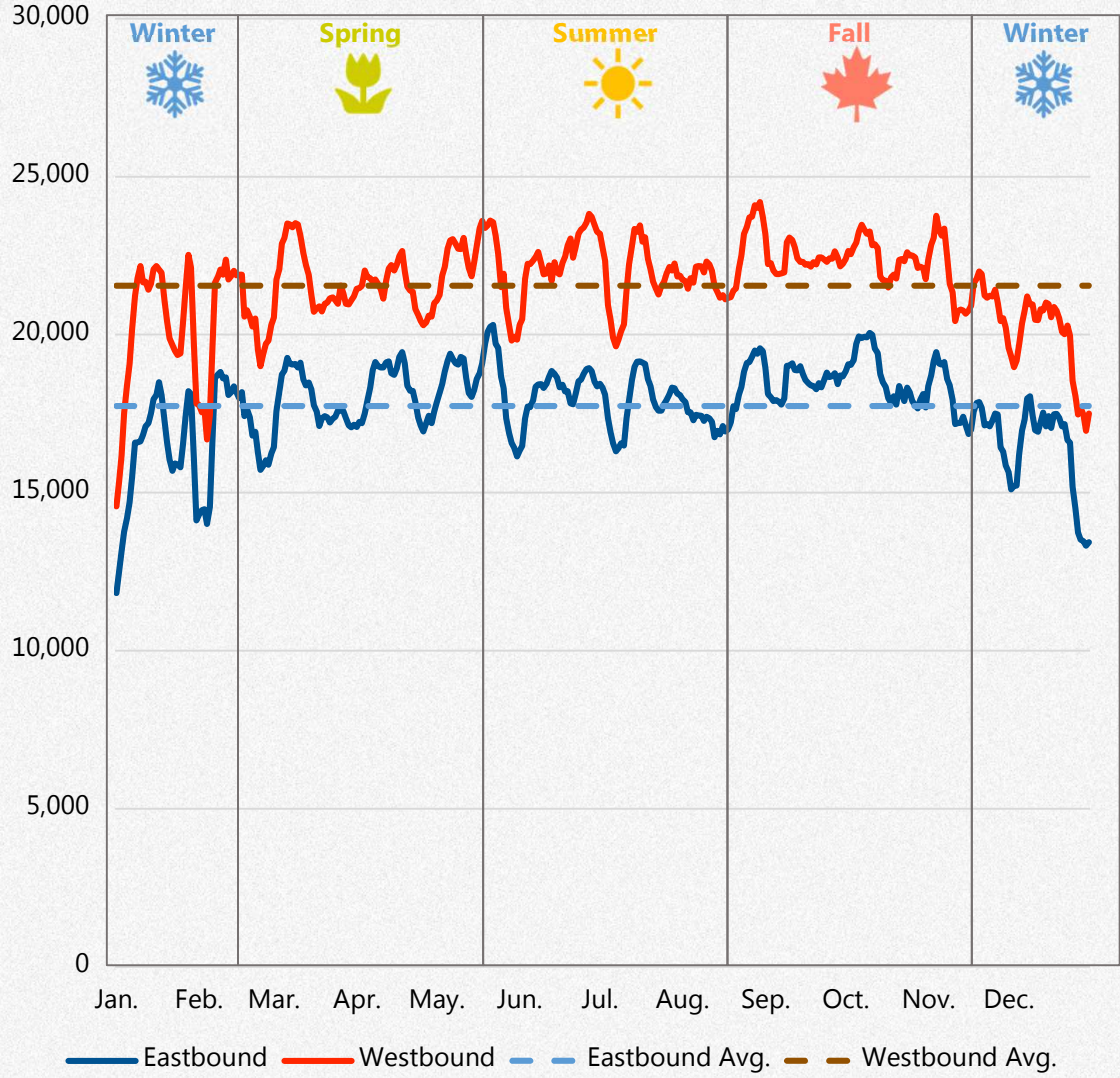
- *Trips on the Expressway*
- *Expressway Integrity and Use*
- *Crossing the Expressway*

May and September are the busiest times of year on the Expressway.

Variation in travel within seasons is greater than variation between seasons.



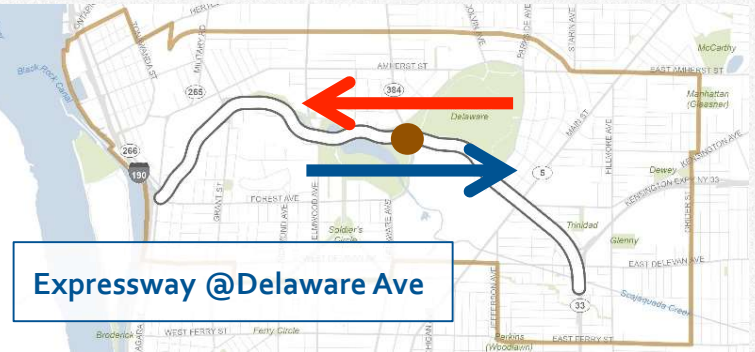
Vehicle Trips on the Expressway (@Delaware Ave.) (7-day rolling avg)



- Streetlight Data Parameters:
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on 2019

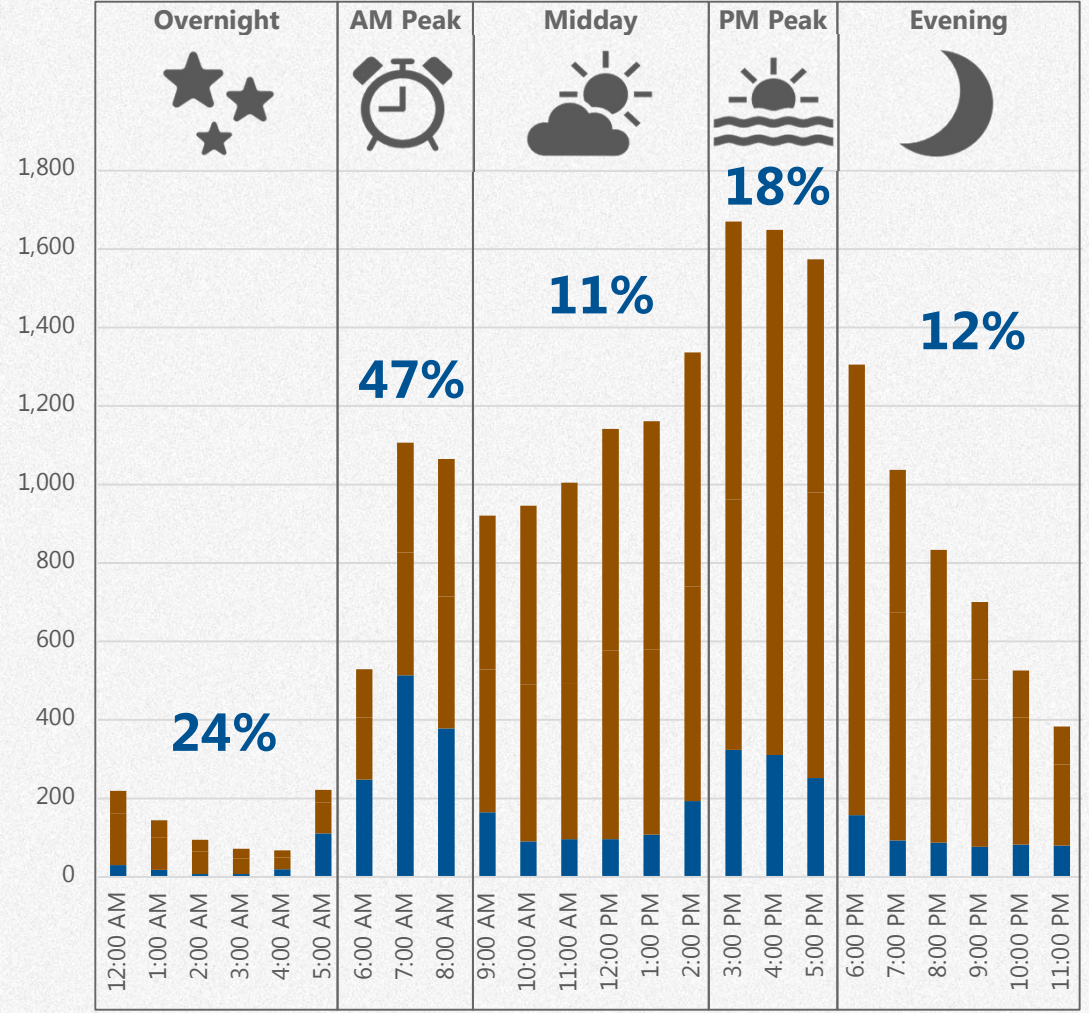
Only 18% of trips on the Expressway are for work.

Plans for Region Central must look beyond commuting.



- Streetlight Data Parameters:
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

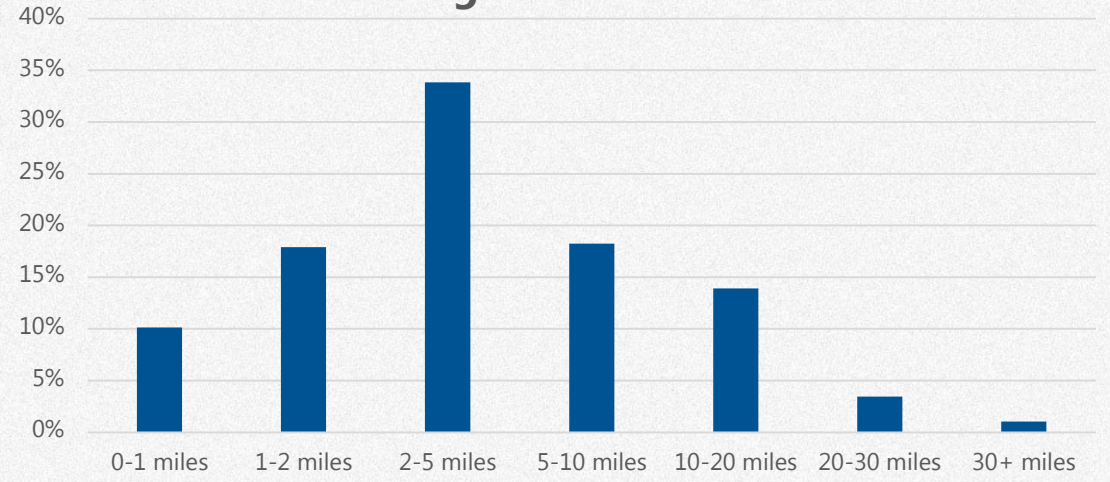
Vehicle Trips on the Expressway, by Trip Purpose (2019 Daily Average)



- Trips to/from work
- Other trips

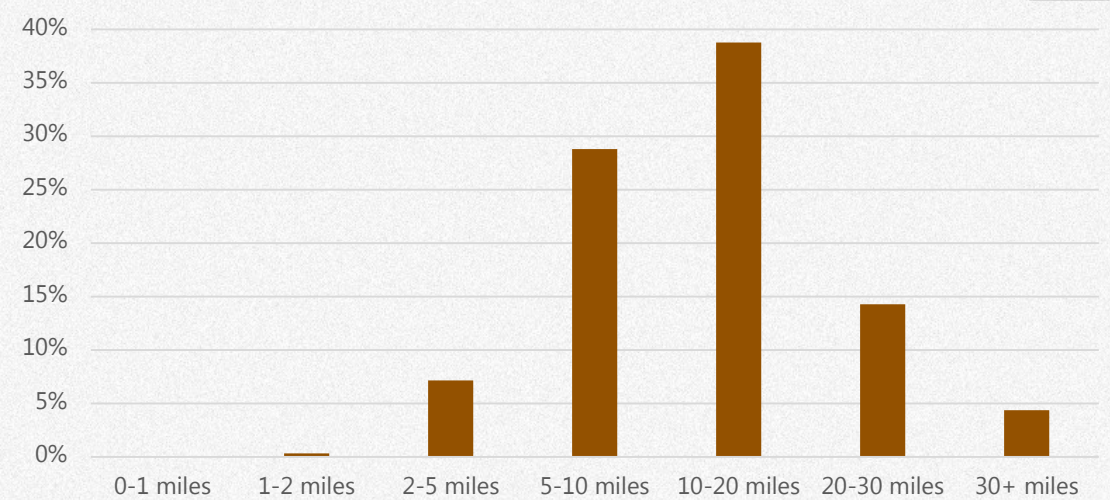
Trips on the Expressway are longer than other trips in Region Central.

Trip Length: All Vehicles Trips Starting in Region Central



Expressway Trips can differ significantly from other Region Central Trips.

Trip Length: All Vehicles on the Expressway



Note: the two graphs above are based on different datasets.

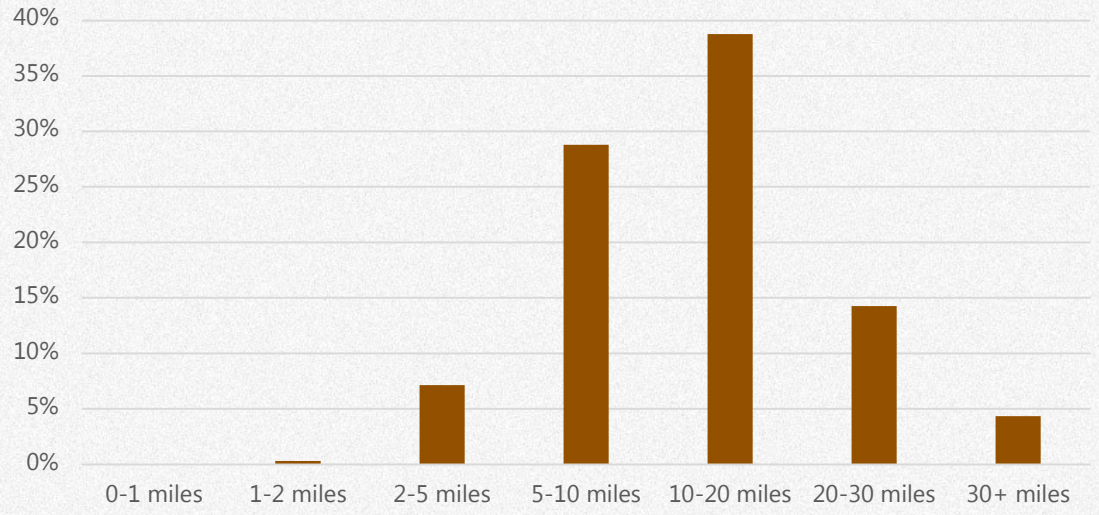
- Streetlight Data Parameters:
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

For trips on the Expressway, most of the trip (71% of the miles) occurs on roads other than the Expressway.

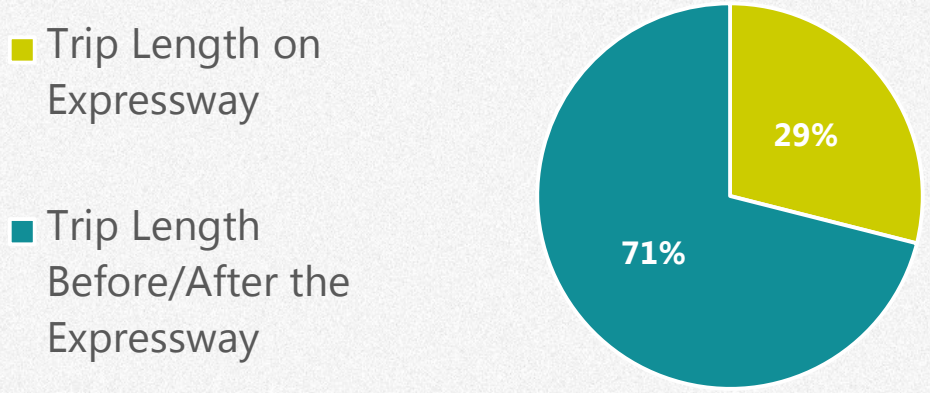
Changes to the Expressway may have a smaller effect on an overall trip, because the Expressway is generally a small part of a longer journey.

- Streetlight Data Parameters:*
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

Expressway Driving Trip Length 



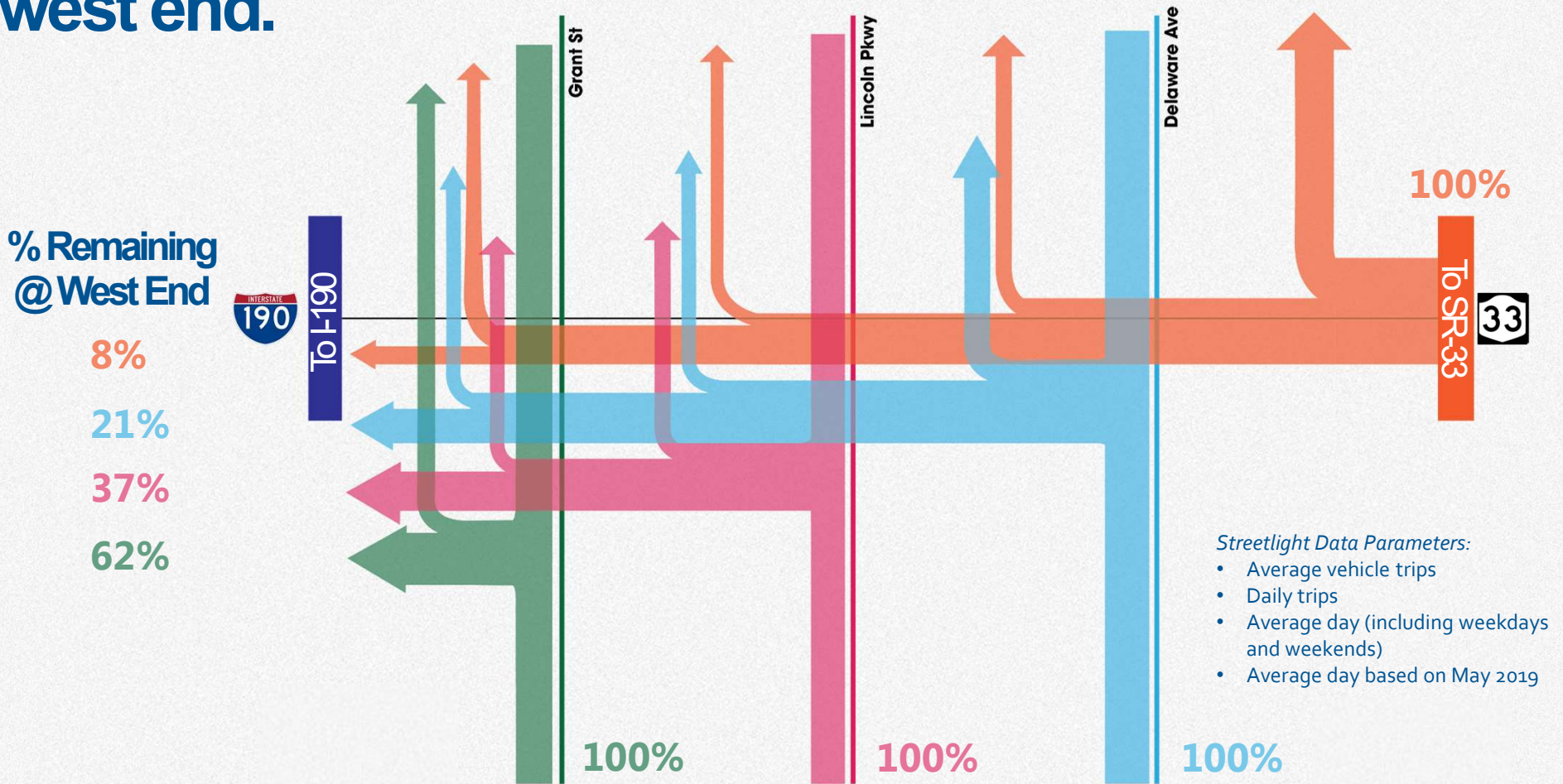
How much of the trip occurs on the Expressway?



Only 8% of vehicles at the east end of the Expressway travel all the way to the west end.

Westbound

The Expressway primarily functions as a long on/off ramp for the 33 and I-190.



Most travel on the Expressway is to places outside Region Central.

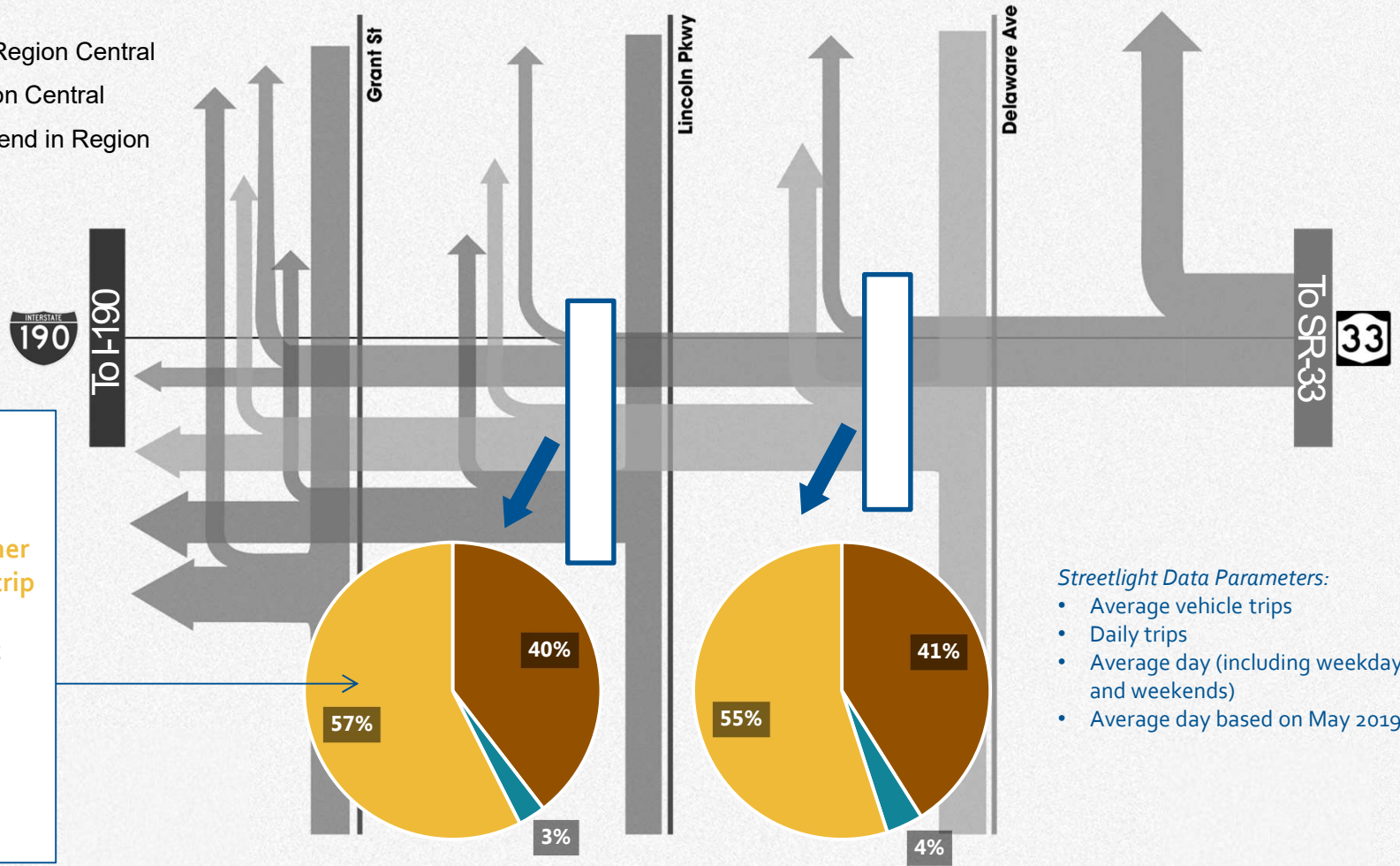
Westbound

Although most Expressway trips use on/off ramps in Region Central (82%), many of these trips neither start nor end in Region Central (57% @Lincoln Pkwy).

- Start OR end in Region Central
- Stay within Region Central
- Neither start nor end in Region Central

On the Expressway @Lincoln Pkwy:

- 57% of people neither start nor end their trip in Region Central
- 40% of people start OR end their trip in Region Central
- Only 3% of people start AND end in Region Central

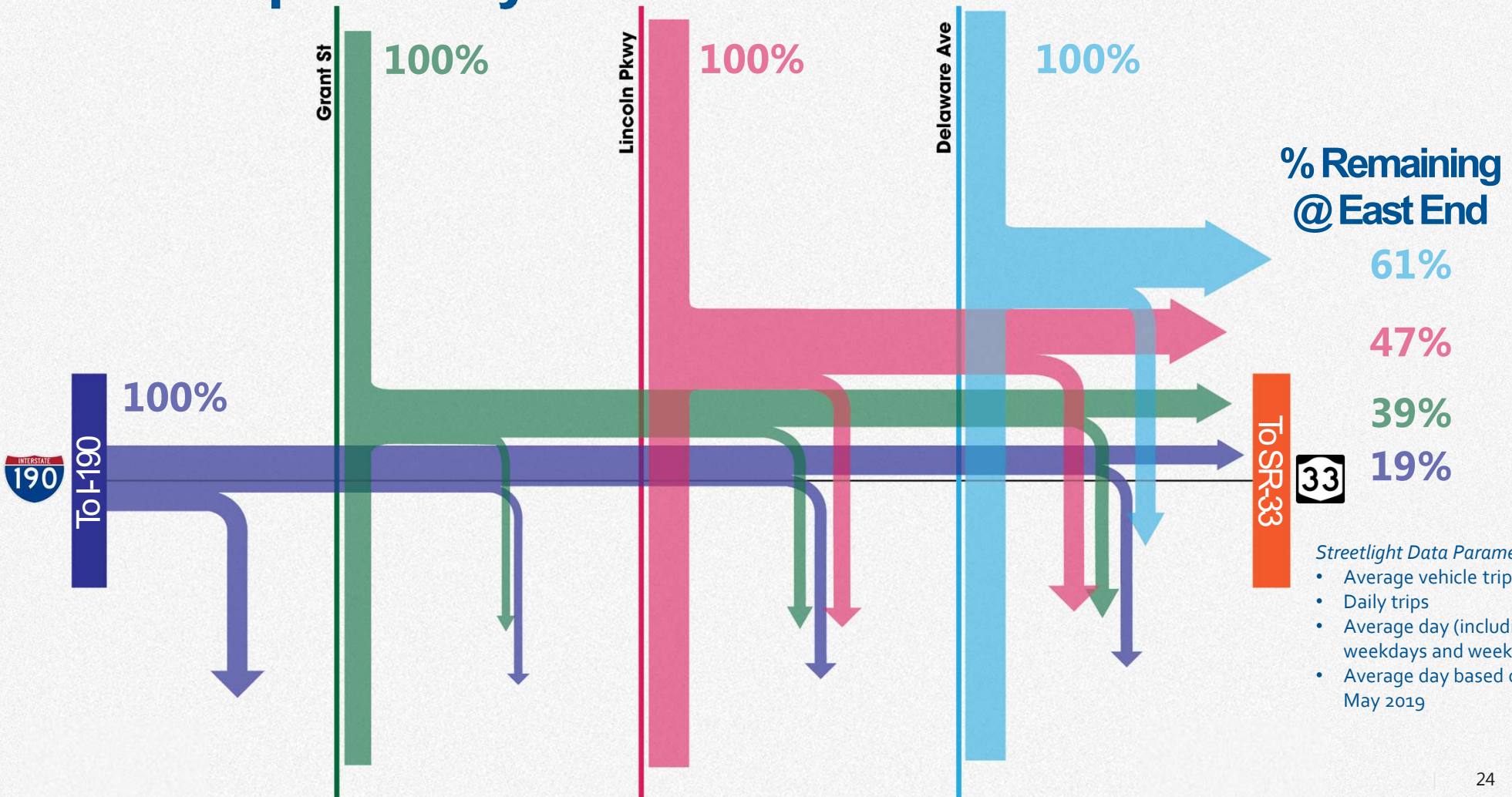


- Streetlight Data Parameters:*
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

Only 19% of eastbound travelers drive the full length of the Expressway.

Eastbound

The Expressway primarily functions as a long on/off ramp for the 33 and I-190.



- Streetlight Data Parameters:*
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

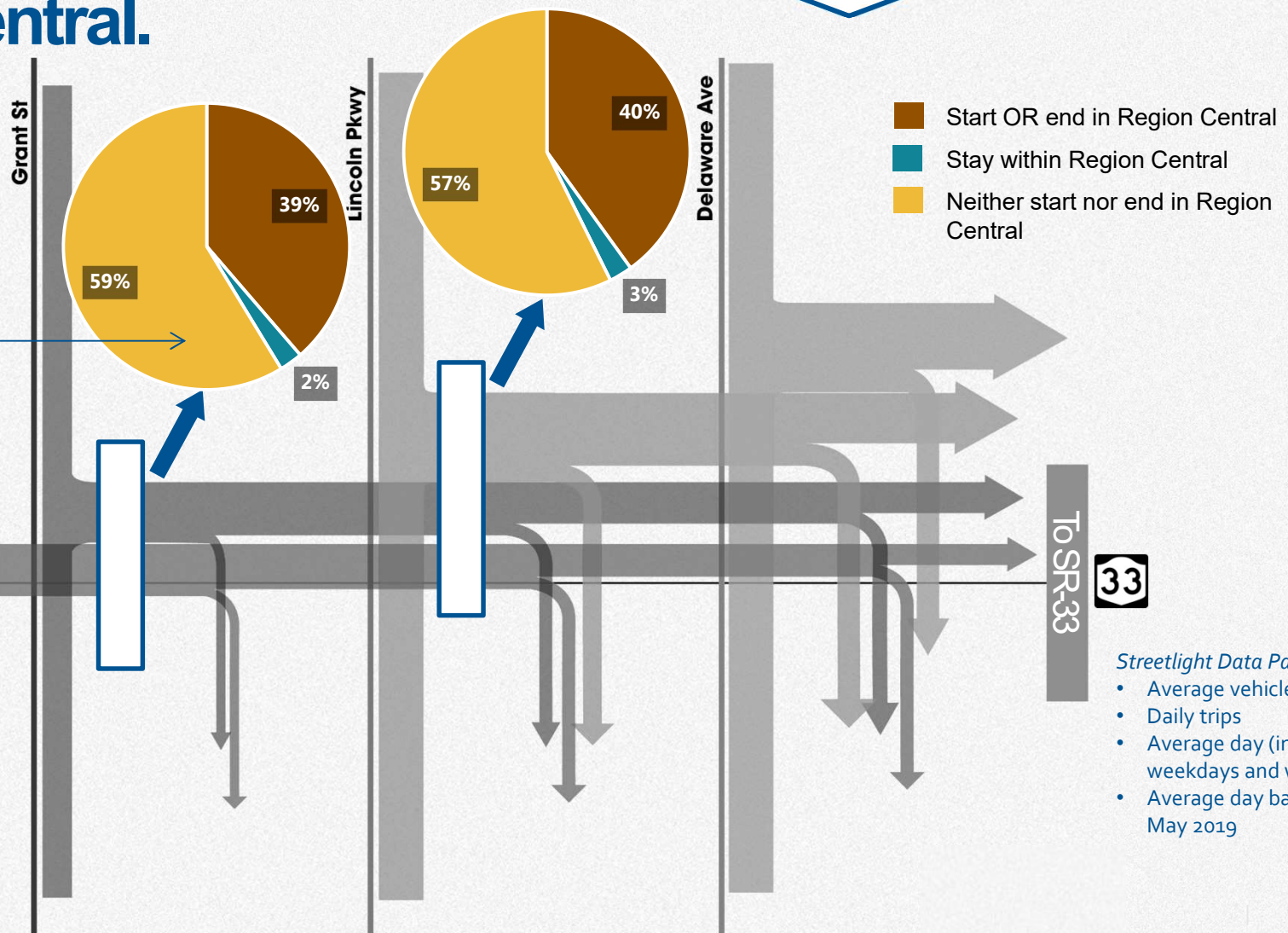
Most travel on the Expressway is to places outside Region Central.

Eastbound

Although most trips (90%) use on/off ramps in Region Central, most trips on the Expressway neither start nor end in Region Central (59% @Grant)

On the Expressway @Grant St:

- 59% of people neither start nor end their trip in Region Central
- 39% of people start OR end their trip in Region Central
- Only 2% of people start AND end in Region Central



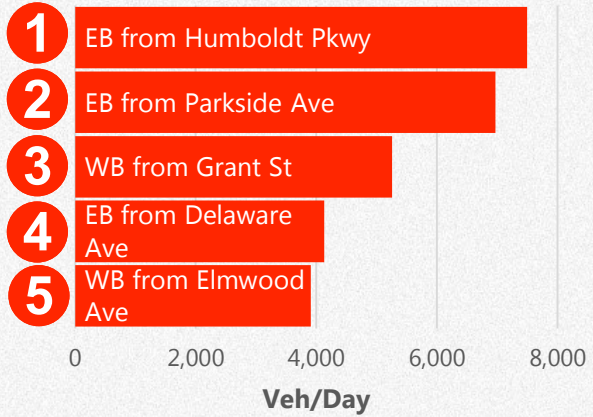
- Start OR end in Region Central
- Stay within Region Central
- Neither start nor end in Region Central

Streetlight Data Parameters:

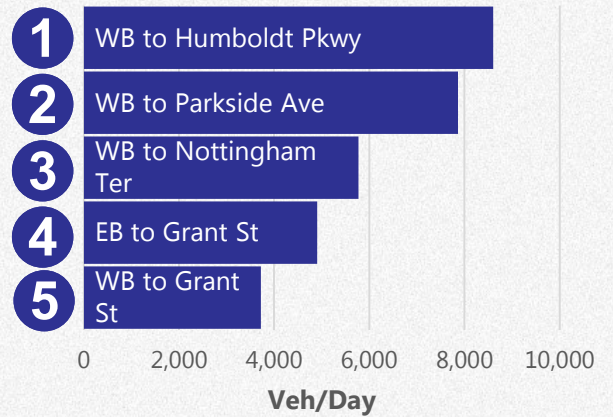
- Average vehicle trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019

Humboldt Parkway is the most common location to get on and off the Expressway.

On-Ramps



Off-Ramps



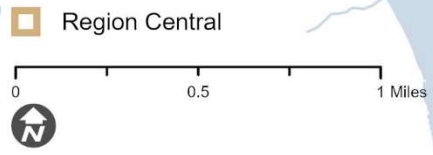
Top 5 on-ramps and off-ramps

Plans for Region Central must accommodate and manage the high vehicle volumes on these ramps.



Most used access point: Humboldt Parkway (7,500 veh/day on, 8,065 veh/day off)

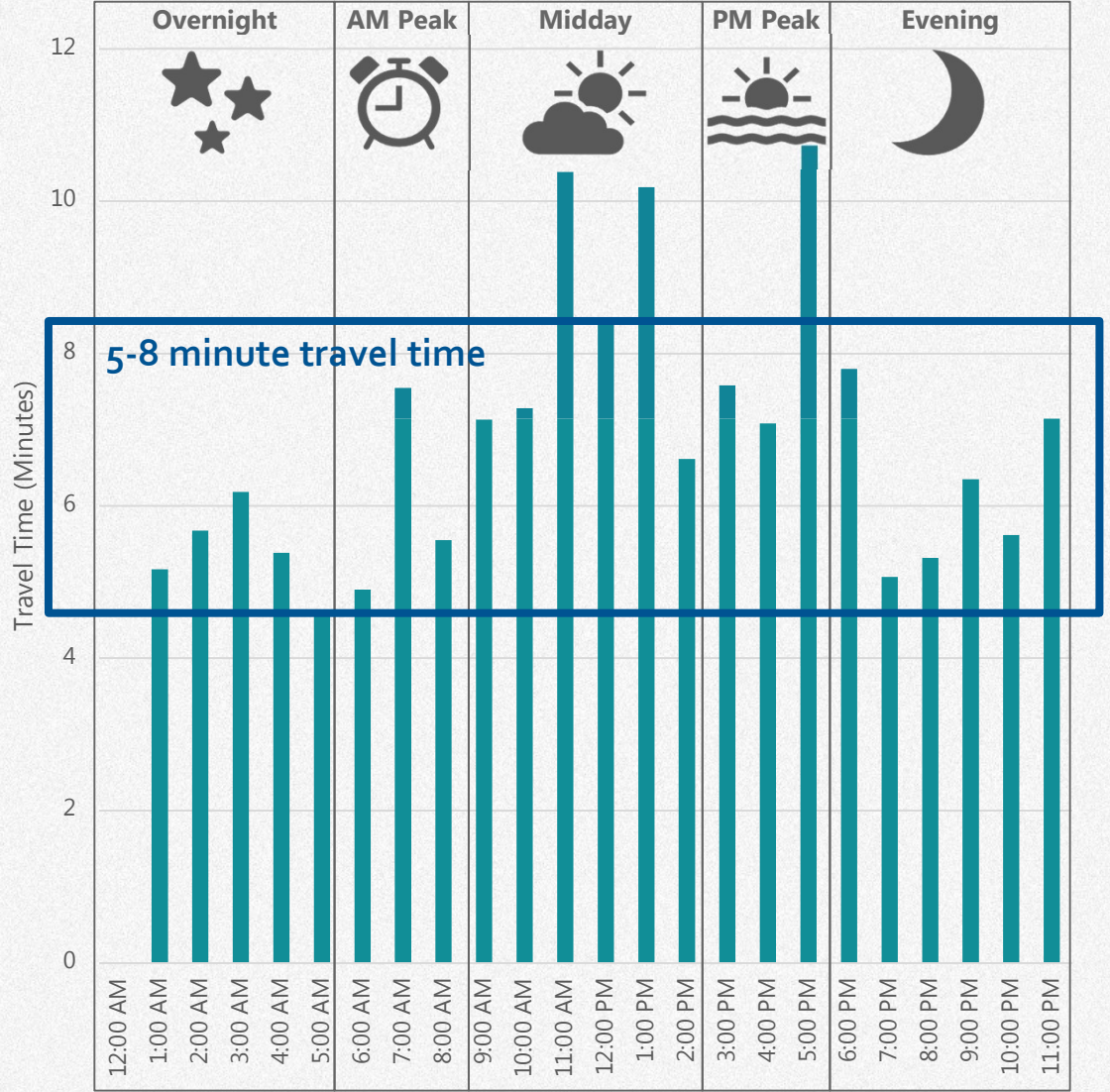
Source: NYSDOT & GBNRTC Historic Traffic Data



Travel time on the Expressway is typically longest during the midday and afternoon.

Travel time on the Expressway is generally stable between 5 and 8 minutes, other than a few hours of the day.

Westbound Travel Time on the Expressway



- Streetlight Data Parameters:
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

Delay typically occurs at locations with non-standard intersection types (stop sign vs. signal vs. free flow) or awkward intersection configurations.

Design improvements at these locations are crucial to reduce delay and improve safety along the Expressway.

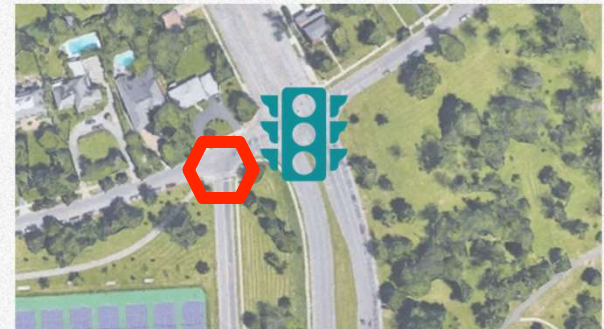
Parkside Ave: This is a signalized intersection, that forces vehicles to stop, on a roadway otherwise designed like an expressway.



Elmwood Ave and Delaware Ave: These on-ramps have a stop sign where the ramp meets the Expressway, which requires drivers to sharply turn their heads to observe oncoming traffic.



Nottingham Ter at Delaware Ave: The off-ramp on Nottingham Ter is very close to the Nottingham Ter intersection with Delaware Ave which created extensive queuing and delay.



The most common crash locations on the Expressway are the on/off ramps.

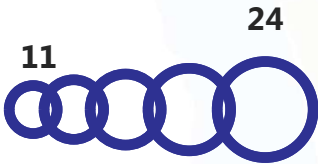
Non-standard interchanges contribute to (mostly rear-ended) crashes.

Highest frequency crash locations

 **2 crashes**



 **11**

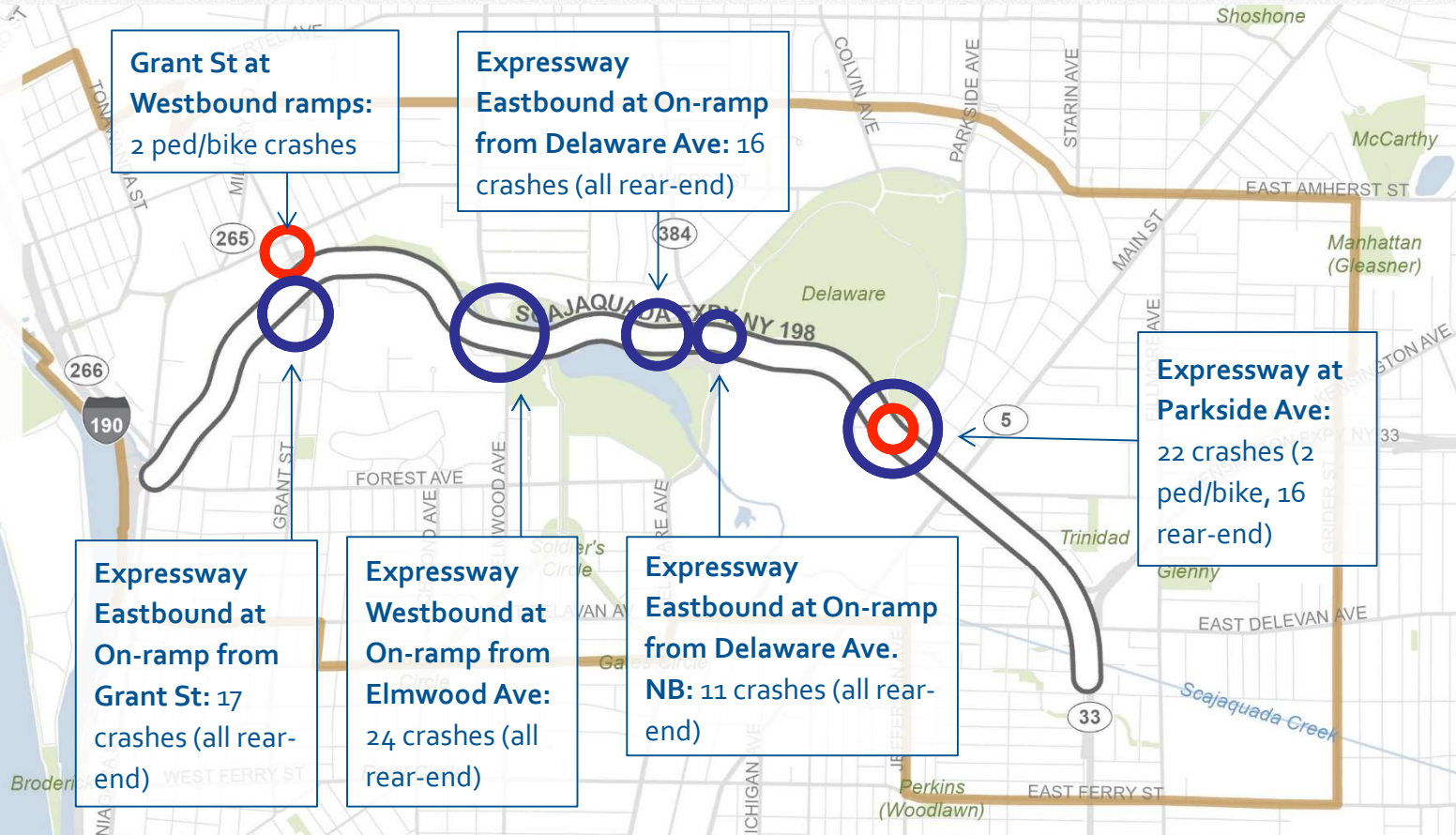


24

2017 NYS Rt. 198 FEIS - Crash Study Period 6/15 - 3/17

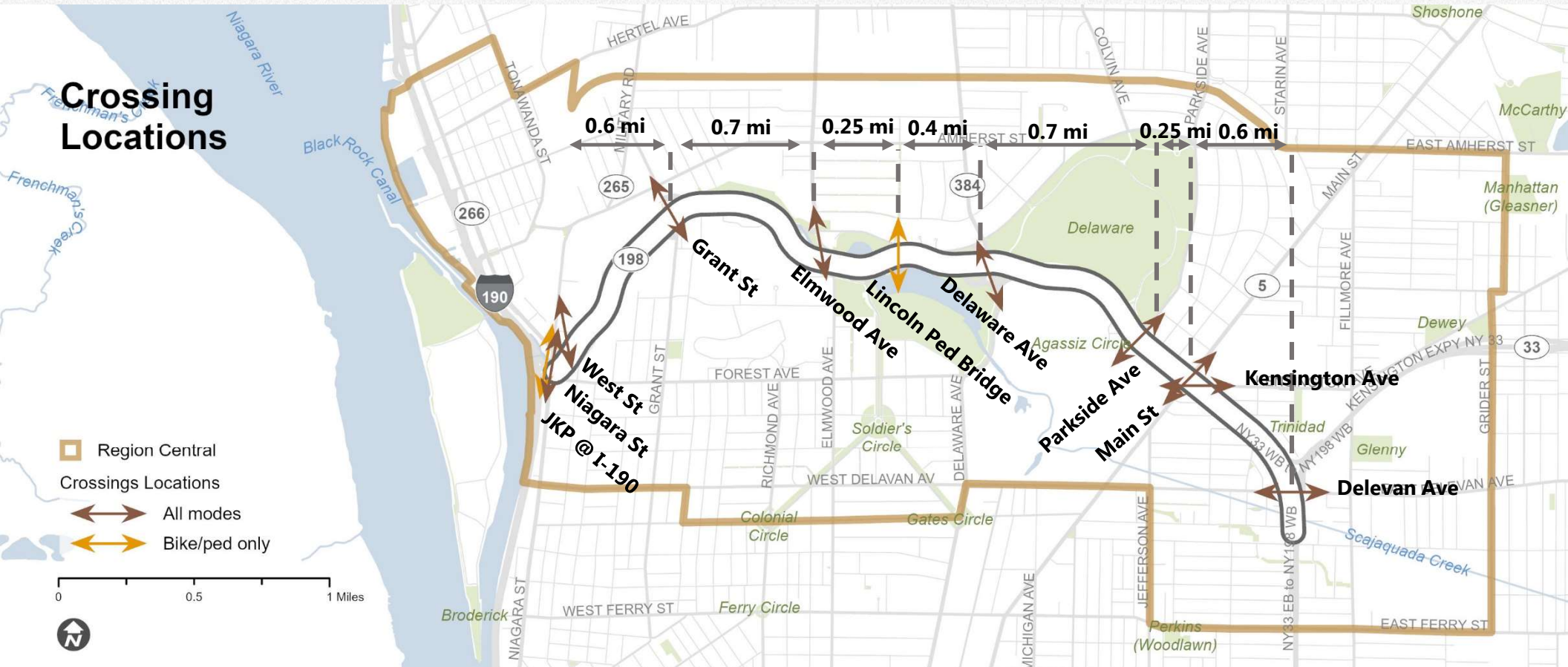
Region Central

0 0.5 1 Miles



The Scajaquada Expressway and Creek have only 11 crossing locations.

Crossing opportunities at regular intervals along the Expressway could improve connectivity for all modes.



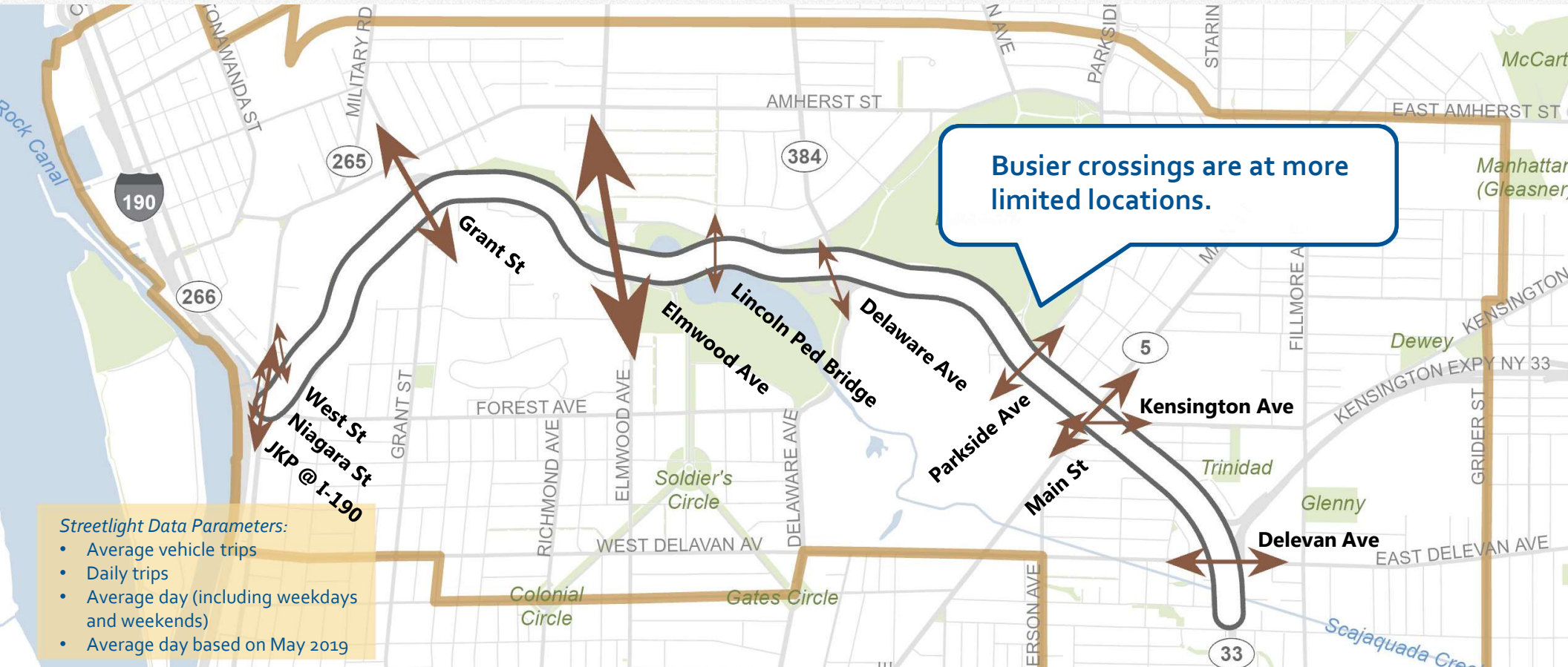
Elmwood Ave is the most used crossing for people walking and biking.

Top Multi-Modal Crossings



1. Elmwood Ave
2. Grant St
3. Delavan Ave

1. Elmwood Ave
2. Grant St
3. Niagara St



Streetlight Data Parameters:

- Average vehicle trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019

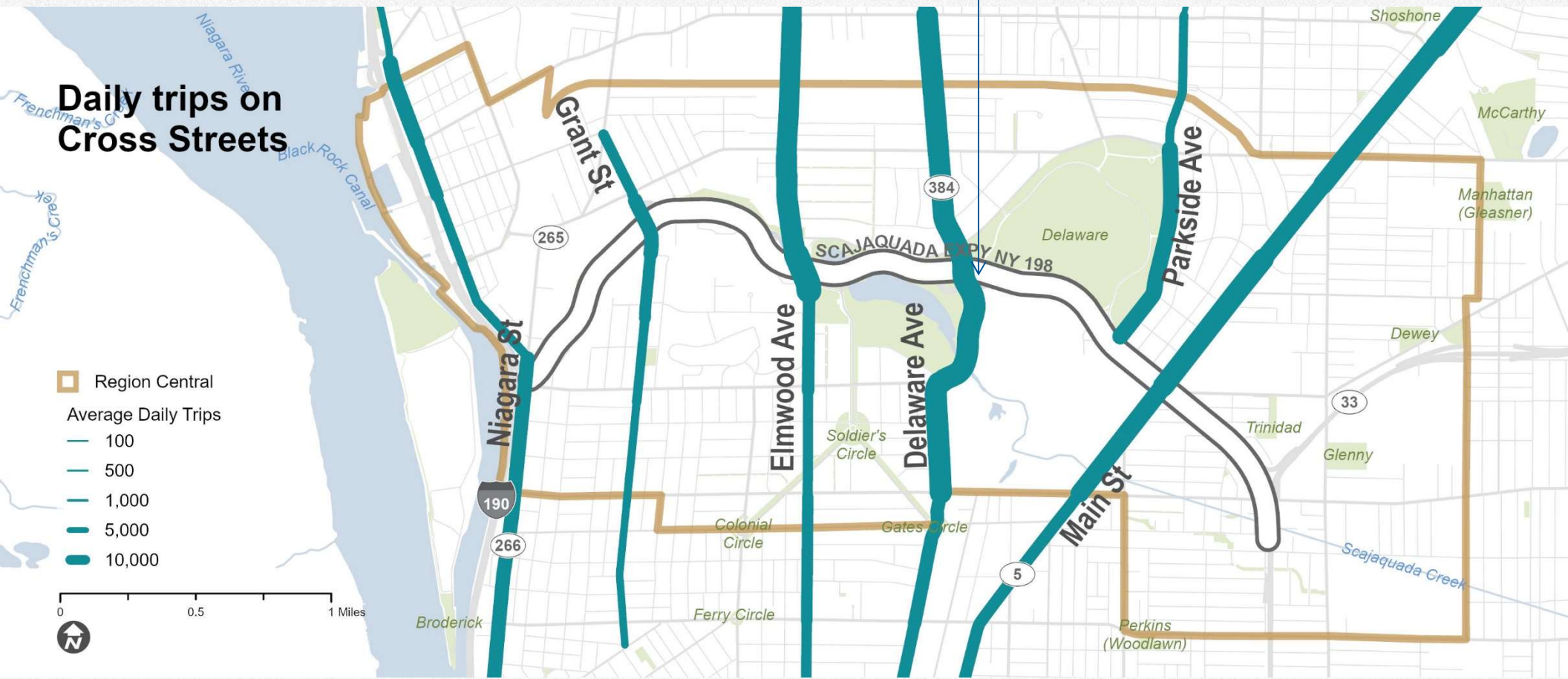
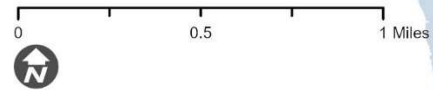
Delaware Ave is the most used vehicle crossing.



Limited crossings funnel vehicles to through streets with far reaching impact.

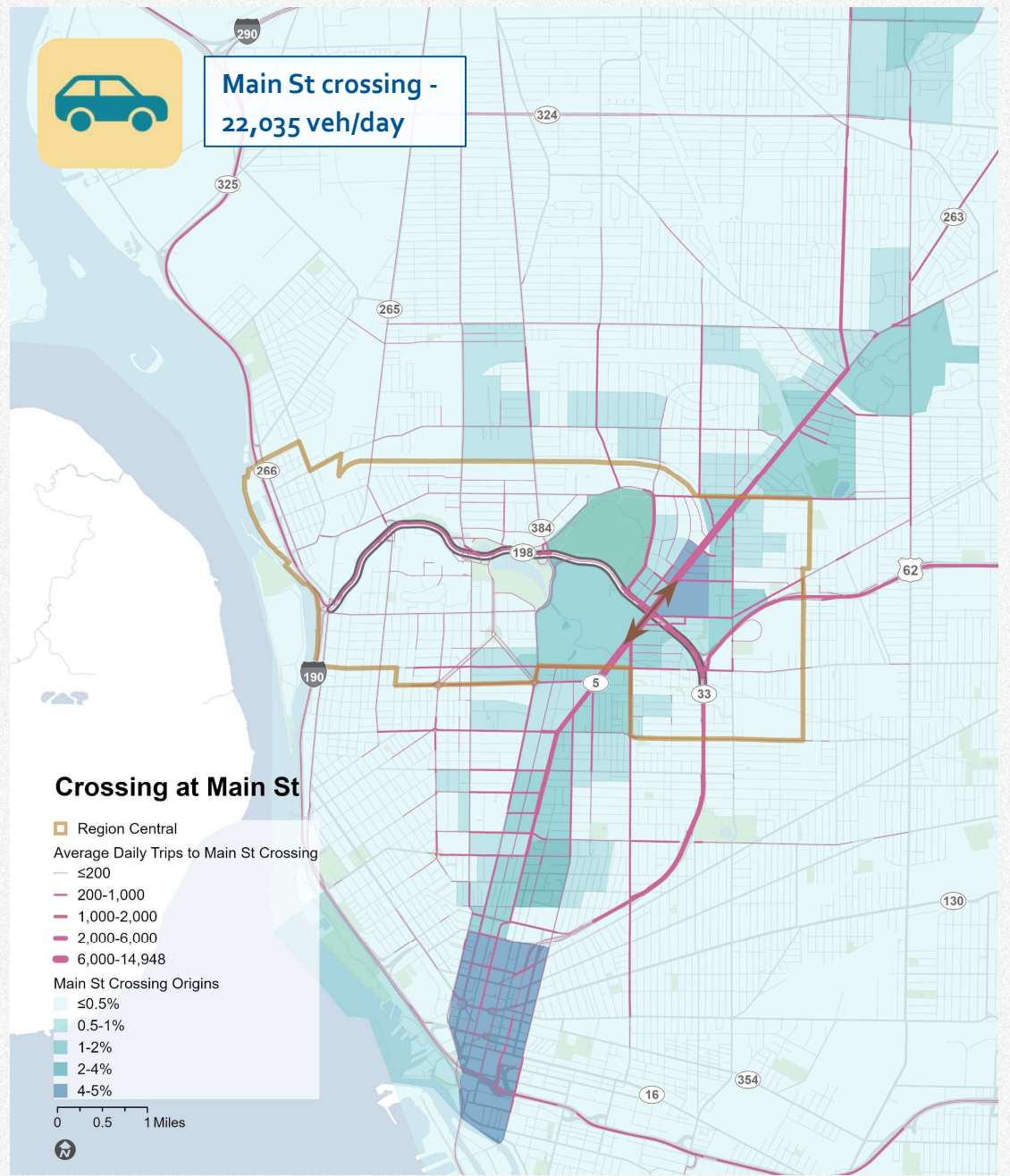
Delaware, the cross street with the highest volume (24,430 veh/day) is 40% below the Expressway volume @Delaware (41,500 veh/day)

Daily trips on Cross Streets



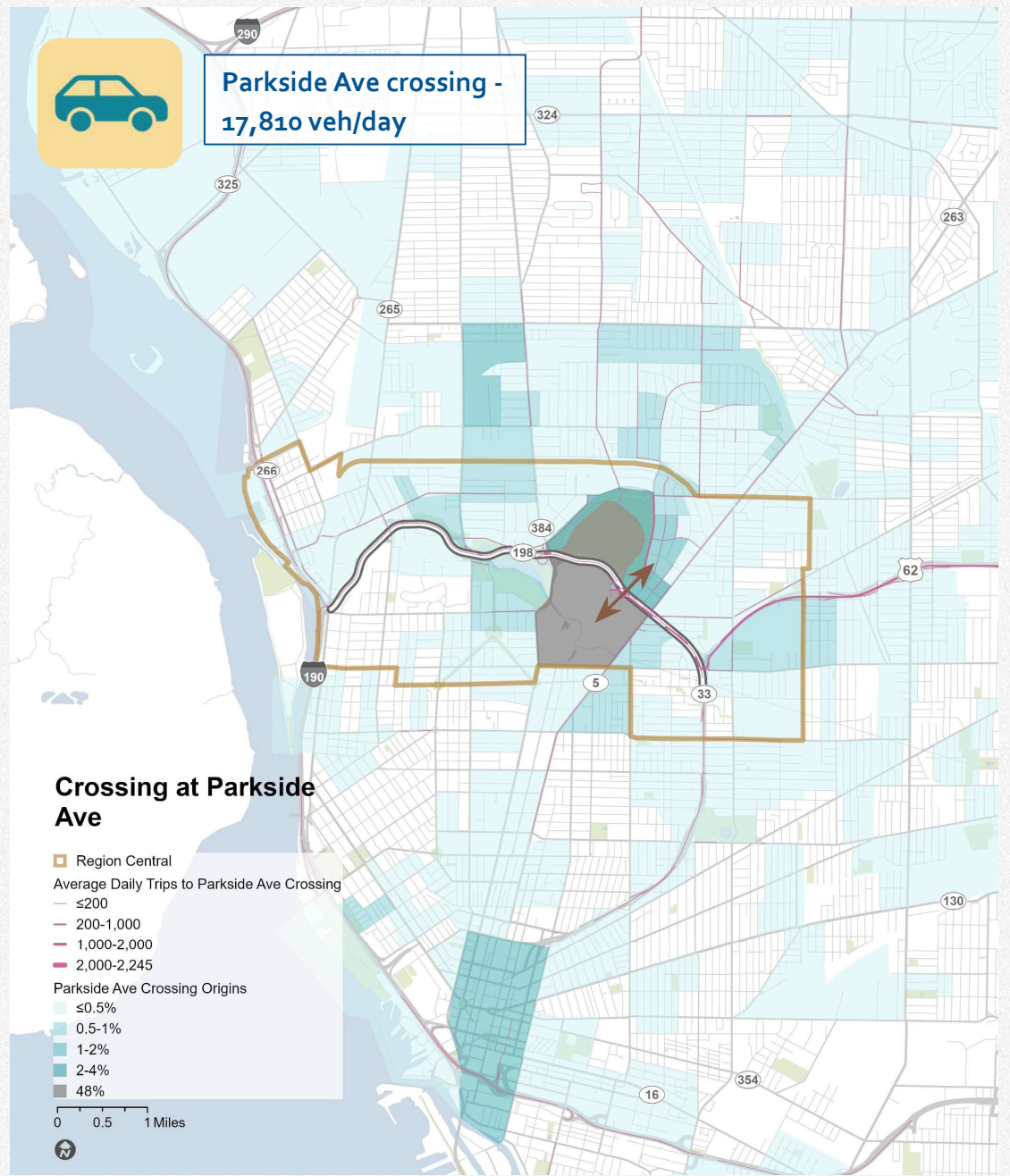
Only 21% of driving trips that cross the Expressway at Main St start their trip within Region Central.

Main Street is as much a regional roadway as the Scajaquada Expressway.



- Streetlight Data Parameters:
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

Compared to Main St, the Parkside Ave crossing serves mostly local trips.

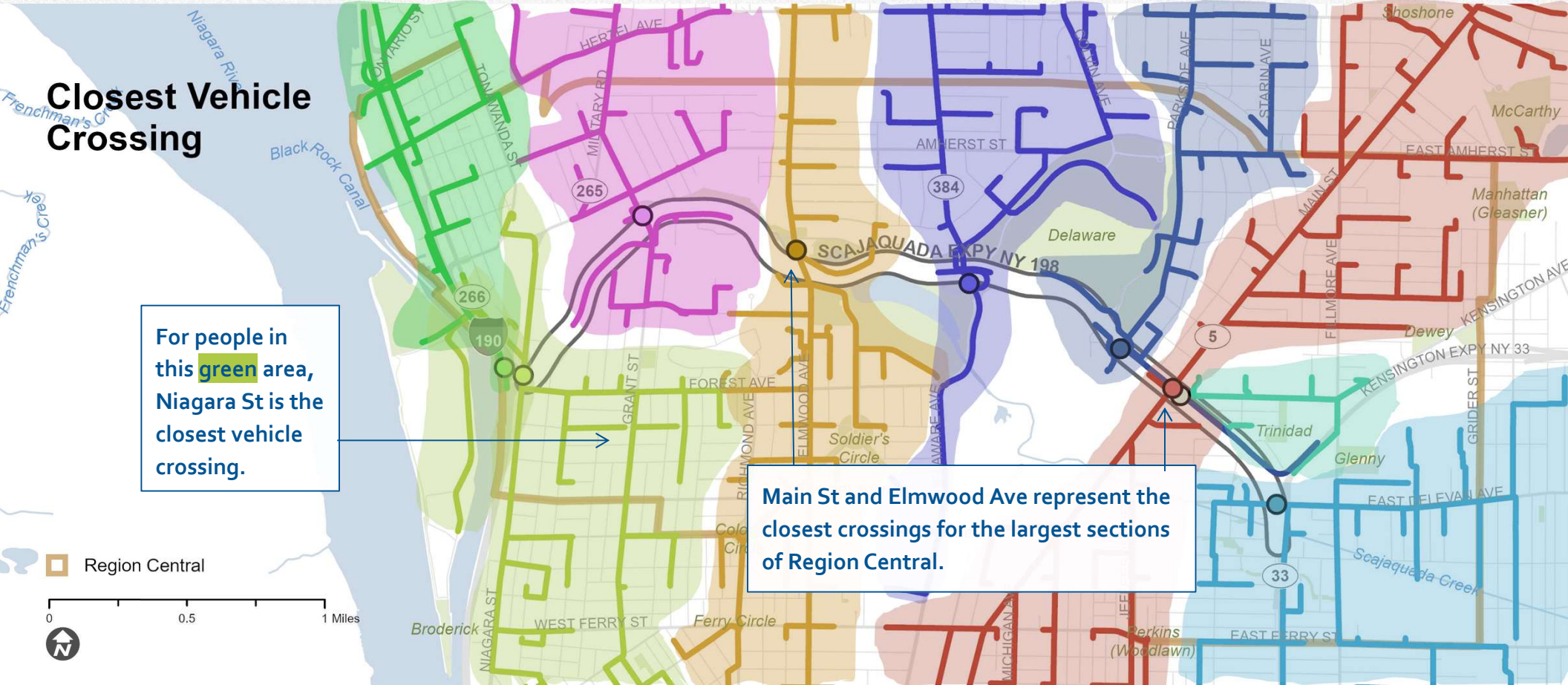


- Streetlight Data Parameters:*
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

Without traffic or other barriers people would cross the Expressway at the closest crossing.

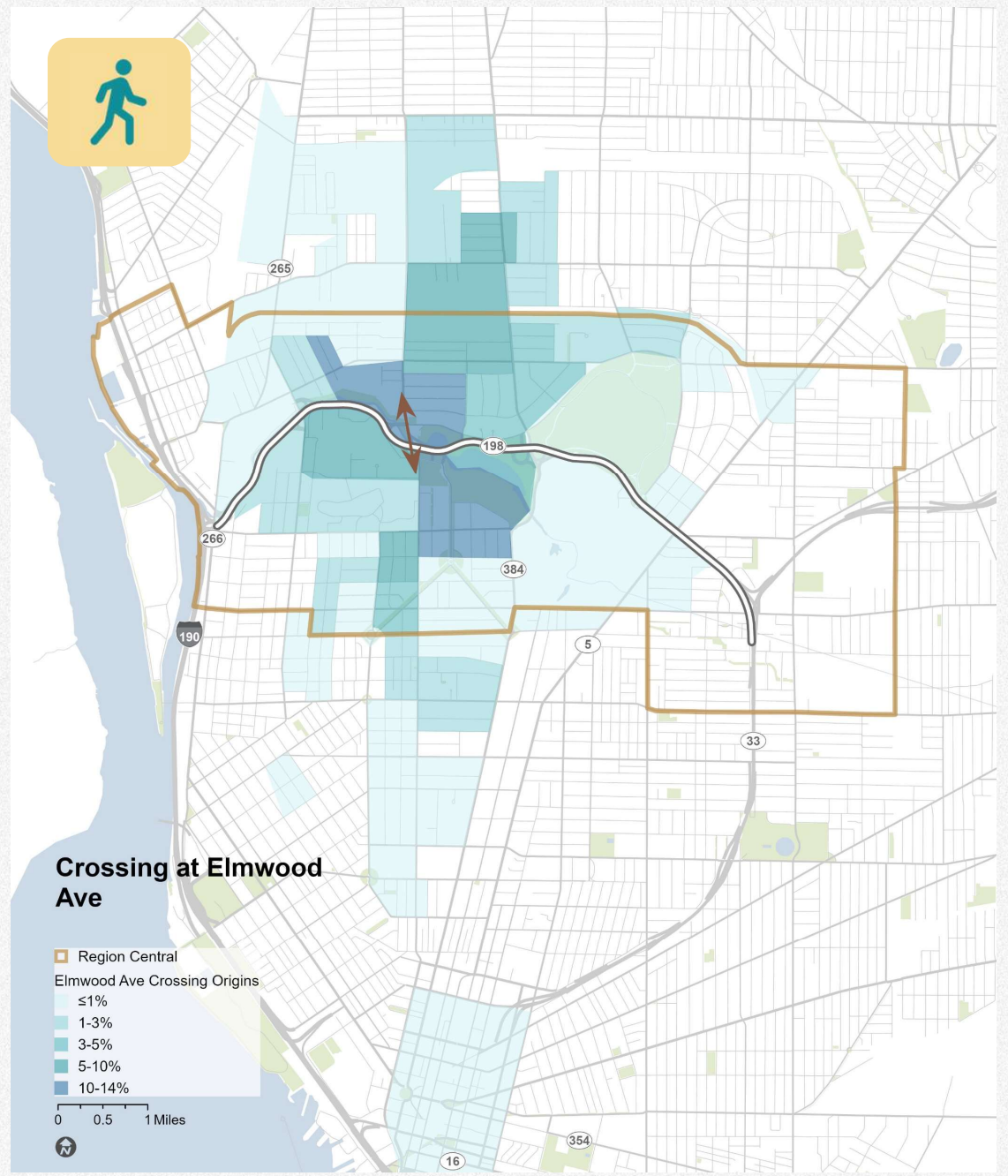


The "catchment area" for each crossing shows the lack of connectivity by neighborhood.



27% of walking trips crossing the Expressway at Elmwood Ave start just north of the Expressway and 20% start just south of the Expressway.

Most pedestrians only cross the Expressway for nearby trips.



- Streetlight Data Parameters:*
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

Key Takeaways

Less than 20% of vehicles travel the entire length of the Expressway.

The Scajaquada Expressway primarily serves as a long on/off ramp from Region Central to I-190 and SR-33.

Almost 60% of vehicles that access Expressway in the Study Area are from outside of Region Central.

Limited crossings and non-standard access creates issues for all users.



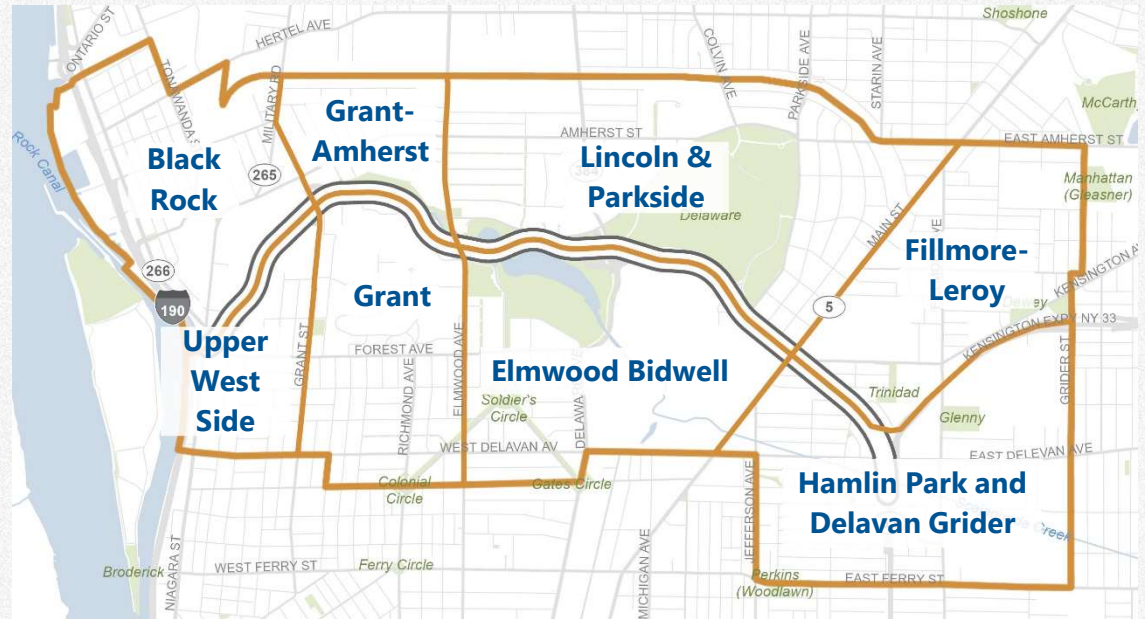
Neighborhood Mobility Experience



Neighborhood Mobility Experience

This section dives deeper into the Region Central mobility experience through mobility patterns in sub-neighborhoods within Region Central.

The neighborhoods used to understand Region Central mobility are customized by data availability and informed by existing political boundaries, such as Council Districts. The eight areas include four to the north of the Expressway and four to the south.



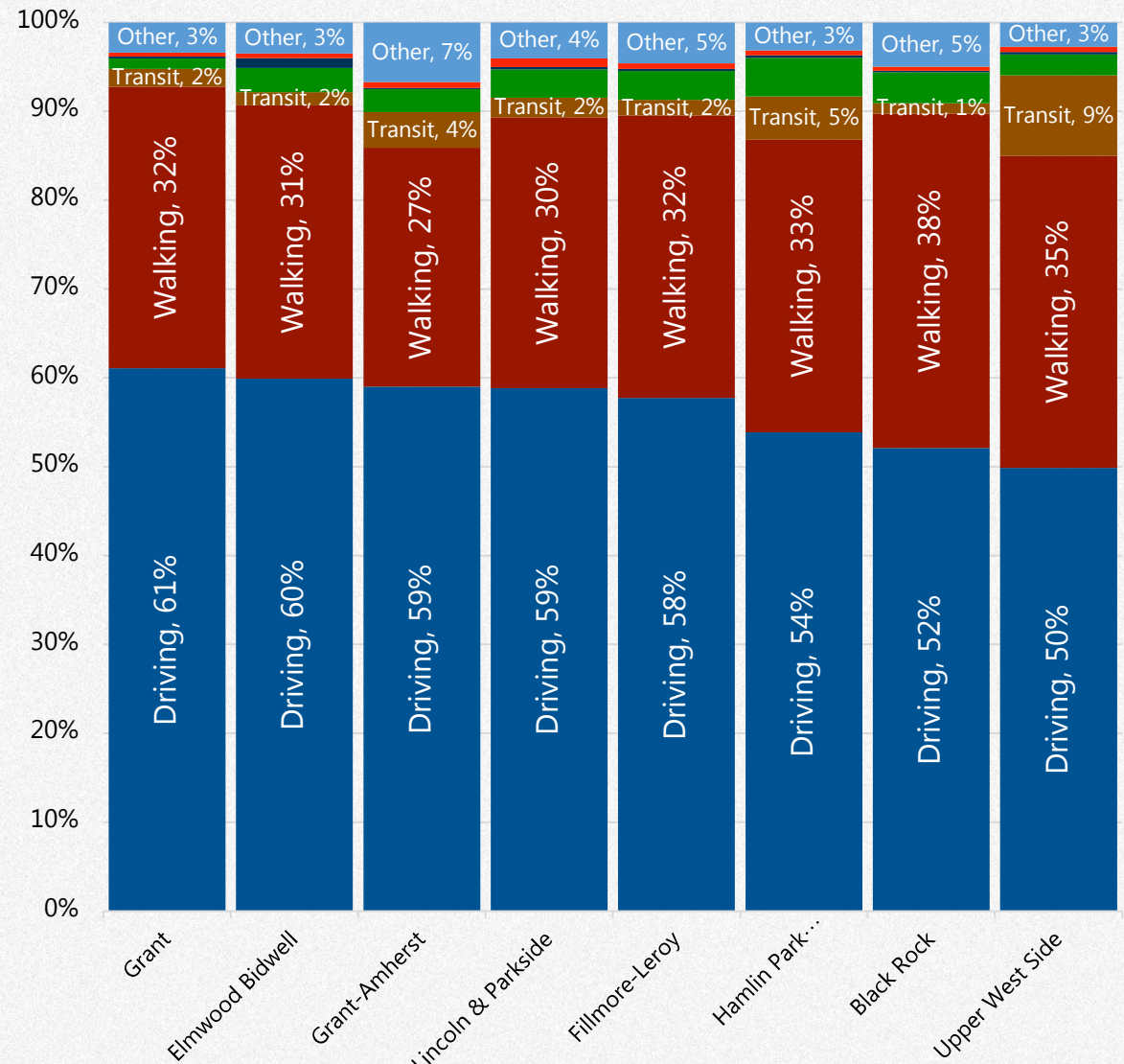
The following pages examine:

- *Neighborhood connectivity and context*
- *Neighborhood travel patterns*
- *Neighborhood travel modes*



Across all neighborhoods, 40-50% of trips are not driving alone.

Mode Share by Neighborhood



This page shows the mode share of trips to/from each neighborhood.

Across all neighborhoods, planning for Region Central must account for significant non-motorized trips.



Other includes Taxi, TNC, Private Shuttles, paratransit, scooters. 40

- Replica:
- Multimodal trips
 - Based on Census Tracts comprising the study area
 - Thursdays
 - September – November 2019



In each neighborhood, more than half of driving trips do not cross the Expressway.

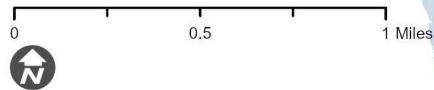
Looking at travel within Region Central, this map divides trips into three categories:



Stay on the same side of the Expressway

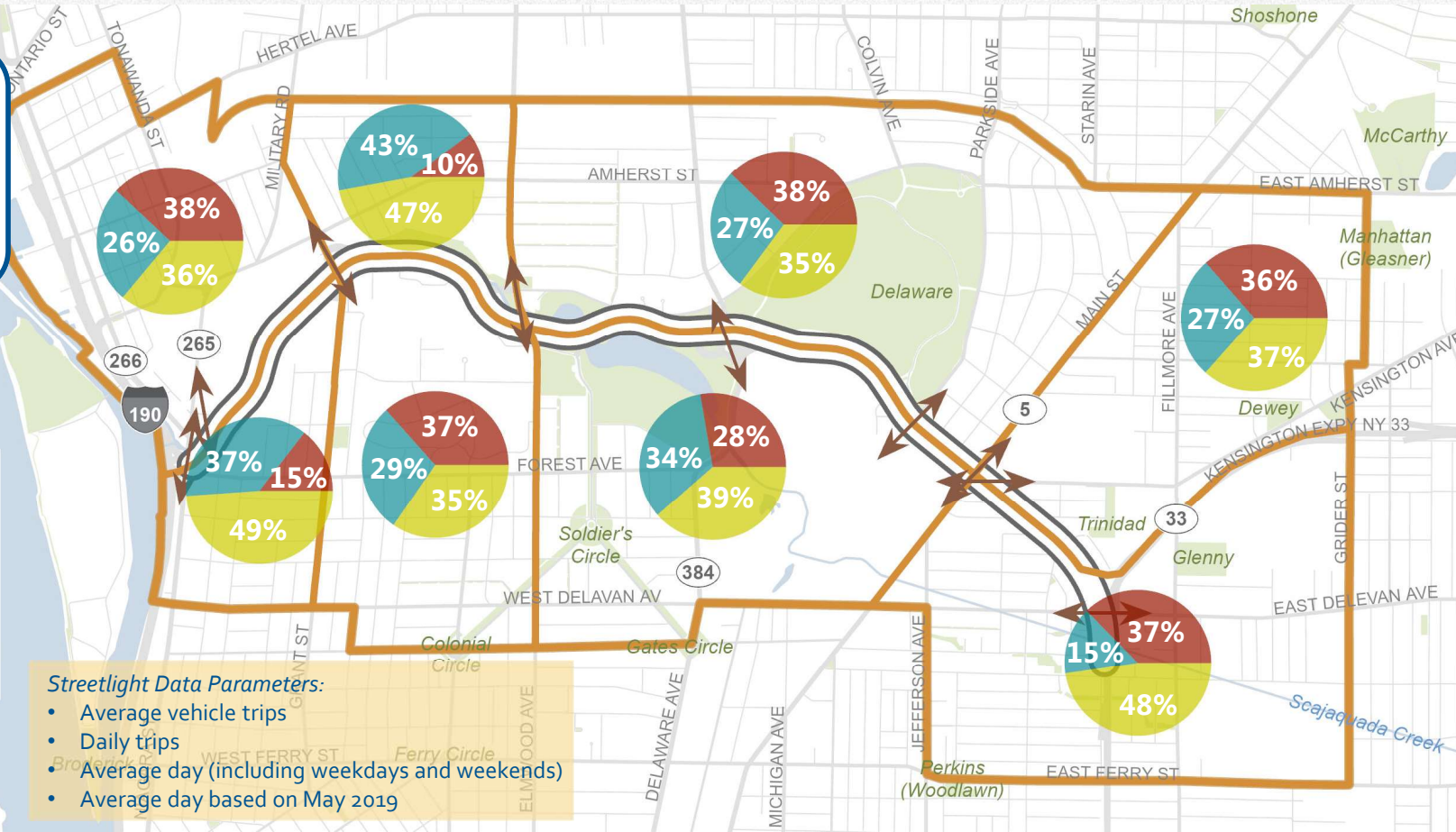
- Trips that stay within their neighborhood
- Trips that go to other neighborhoods on the same side of the Expressway
- Trips that cross to the other side of the Expressway

The Expressway corridor limits where people travel.



Streetlight Data Parameters:

- Average vehicle trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019





In each neighborhood, almost all walking trips stay on the same side of the Expressway.

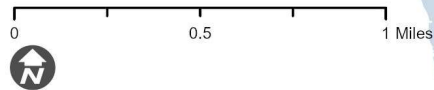
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Stay on the same side of the Expressway

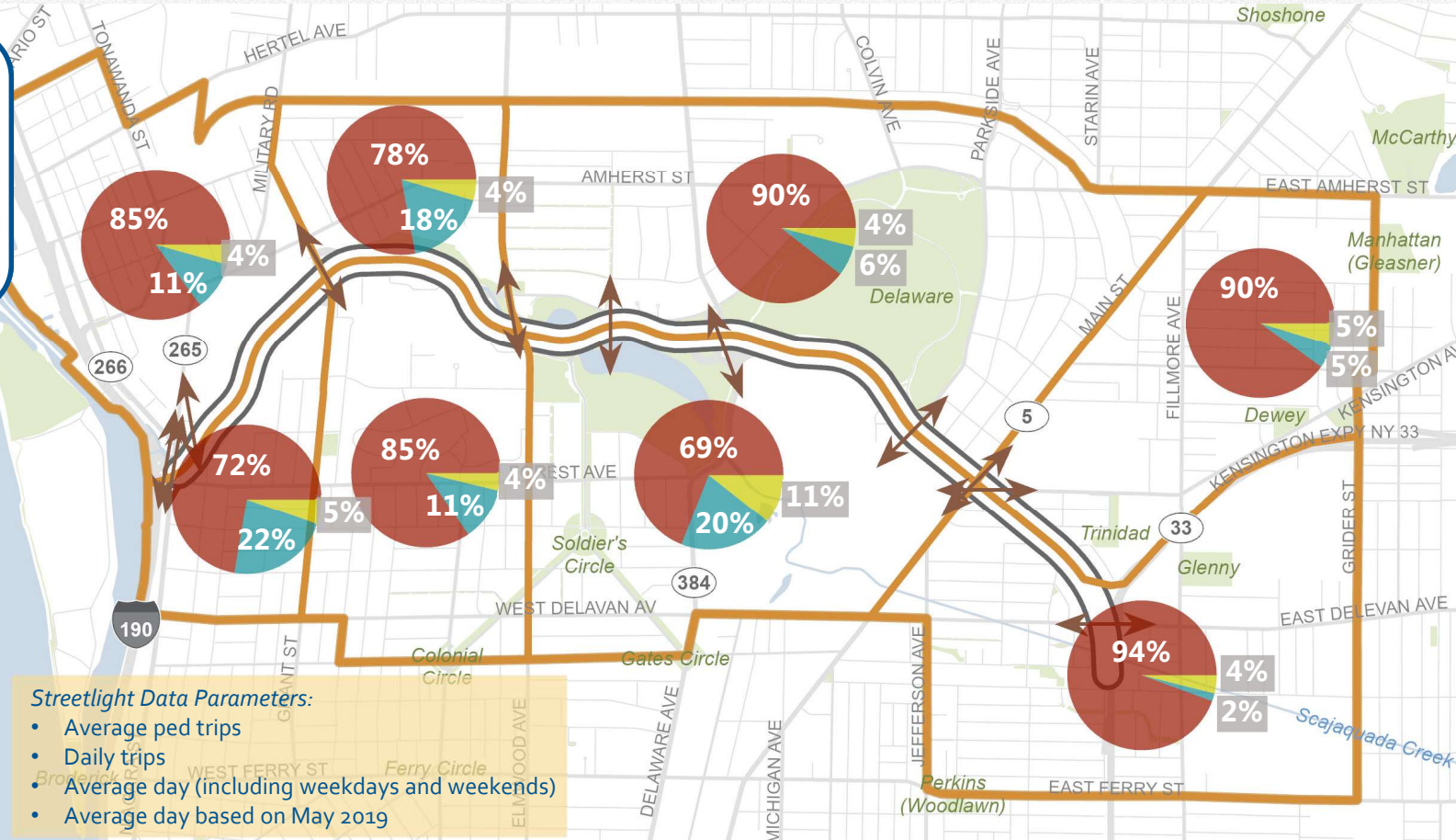
- Trips that stay within their neighborhood
- Trips that go to other neighborhoods on the same side of the Expressway
- Trips that cross to the other side of the Expressway

More crossing opportunities would create more interaction between neighborhoods.



Streetlight Data Parameters:

- Average ped trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019



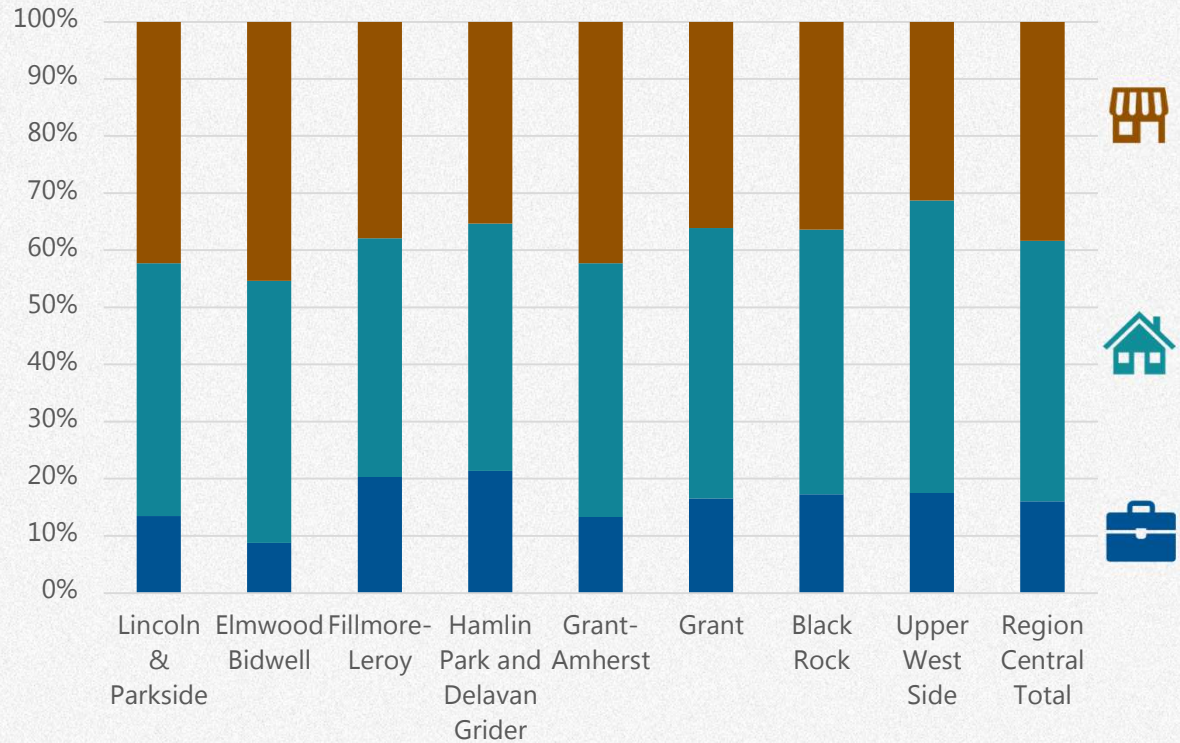


Work trips, are less than 25% of trips in any neighborhood.



Yet people are limited in where they access other activity.

Trip Purpose by Neighborhood



Home-Based Work (HBW): Travel between home and work in either direction.



Home-Based Other (HBO): Travel to or from home, to anywhere other than work.



Non-Home Based (NHB): All travel not to or from home (i.e., all travel other than the above).

Streetlight Data Parameters:

- Average vehicle/bike/ped trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019



People starting their trip in Fillmore-Leroy rarely travel to destinations in Region Central south of the Expressway.

With easier access, Fillmore-Leroy travelers might go to other Region Central destinations south of the Expressway.

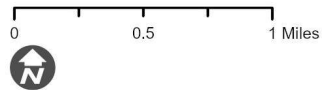
Driving from Fillmore-Leroy



- Region Central
- Fillmore-Leroy

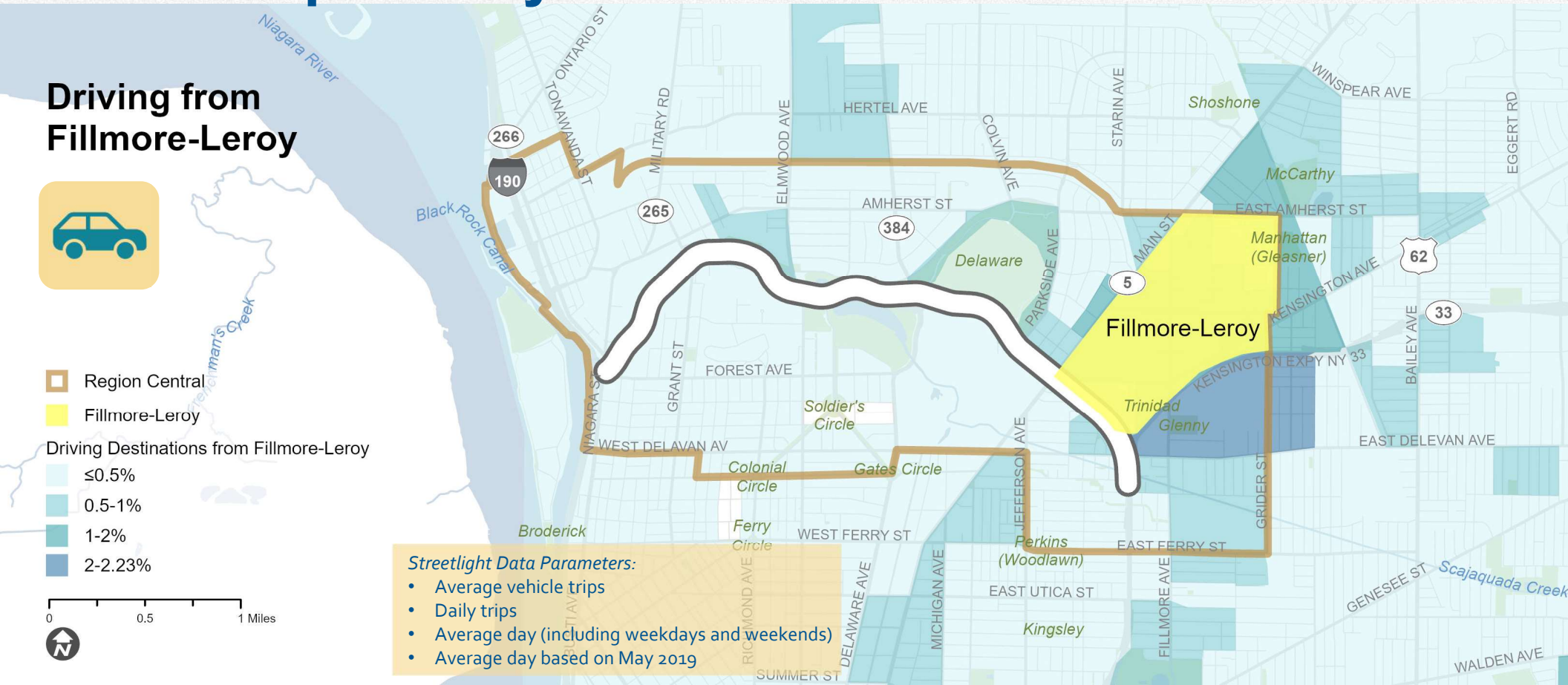
Driving Destinations from Fillmore-Leroy

- ≤0.5%
- 0.5-1%
- 1-2%
- 2-2.23%



Streetlight Data Parameters:

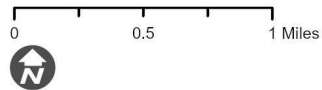
- Average vehicle trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019



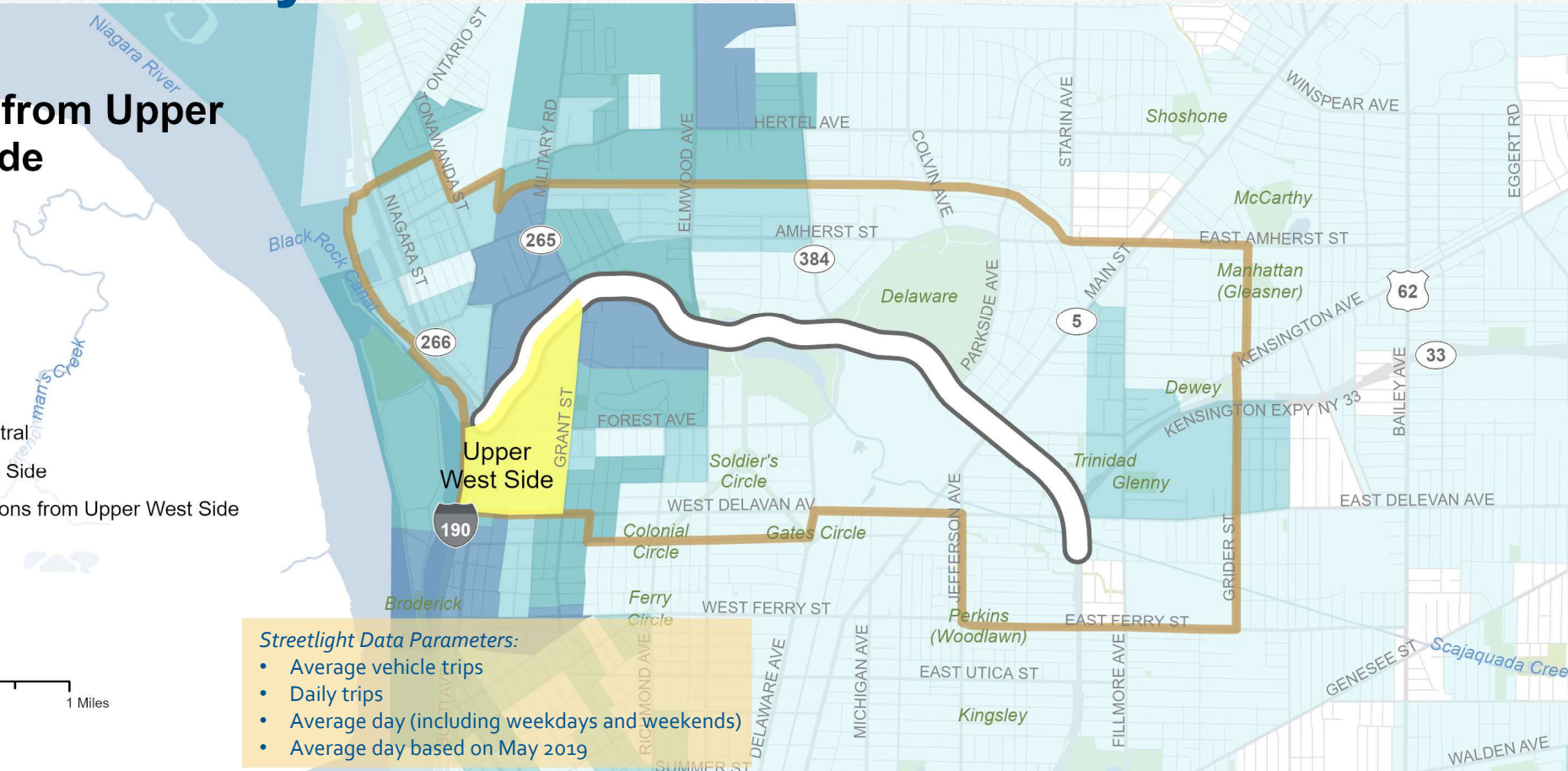


People starting their trip in Upper West Side travel to destinations across the Expressway more often than people coming from Fillmore-Leroy.

Driving from Upper West Side



- Streetlight Data Parameters:**
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019





Key Takeaways

Even most driving trips stay on one side of the Expressway.

Non-work trips are 75%+ of trips in each neighborhood.

The limited connectivity between neighborhoods hinders interaction and isolates areas.



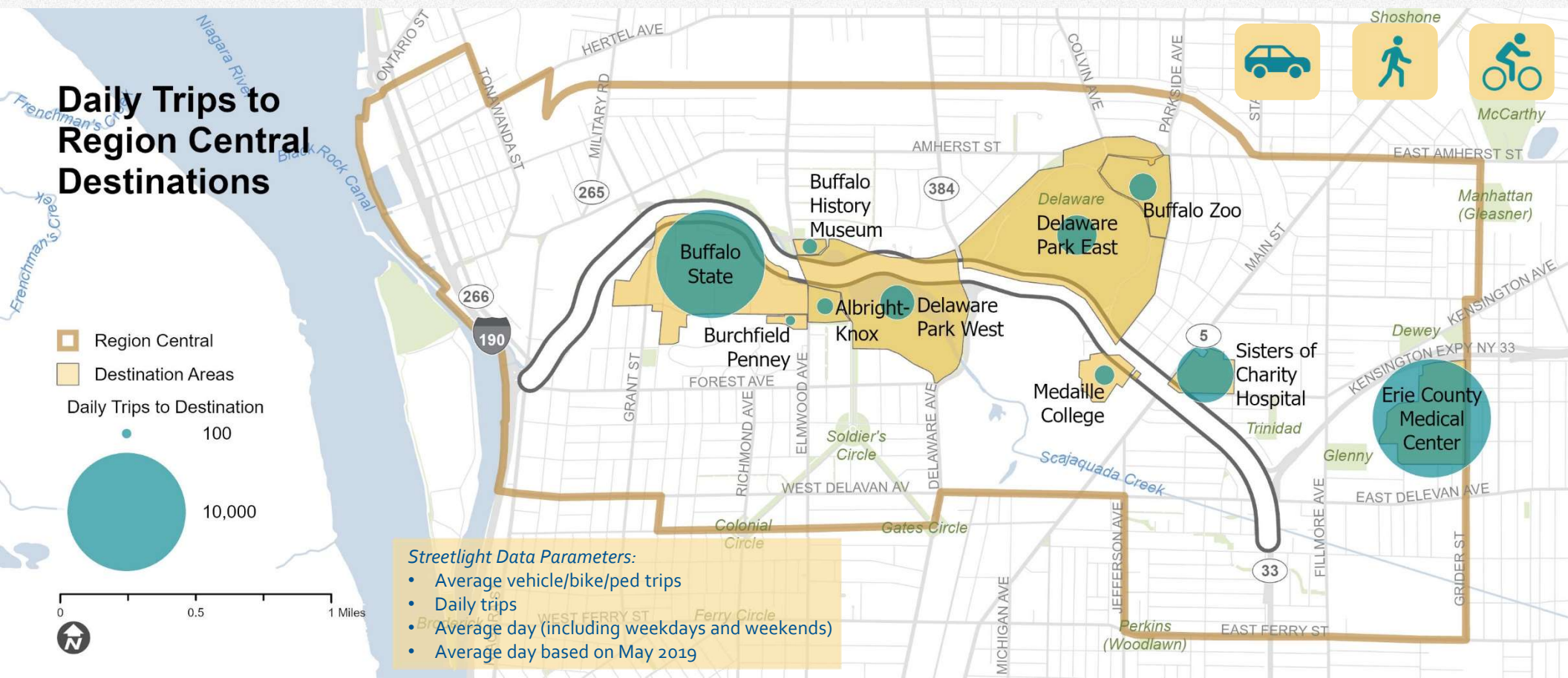
Regional Destinations

Erie County Medical Center and Buffalo State are the top destinations in Region Central.

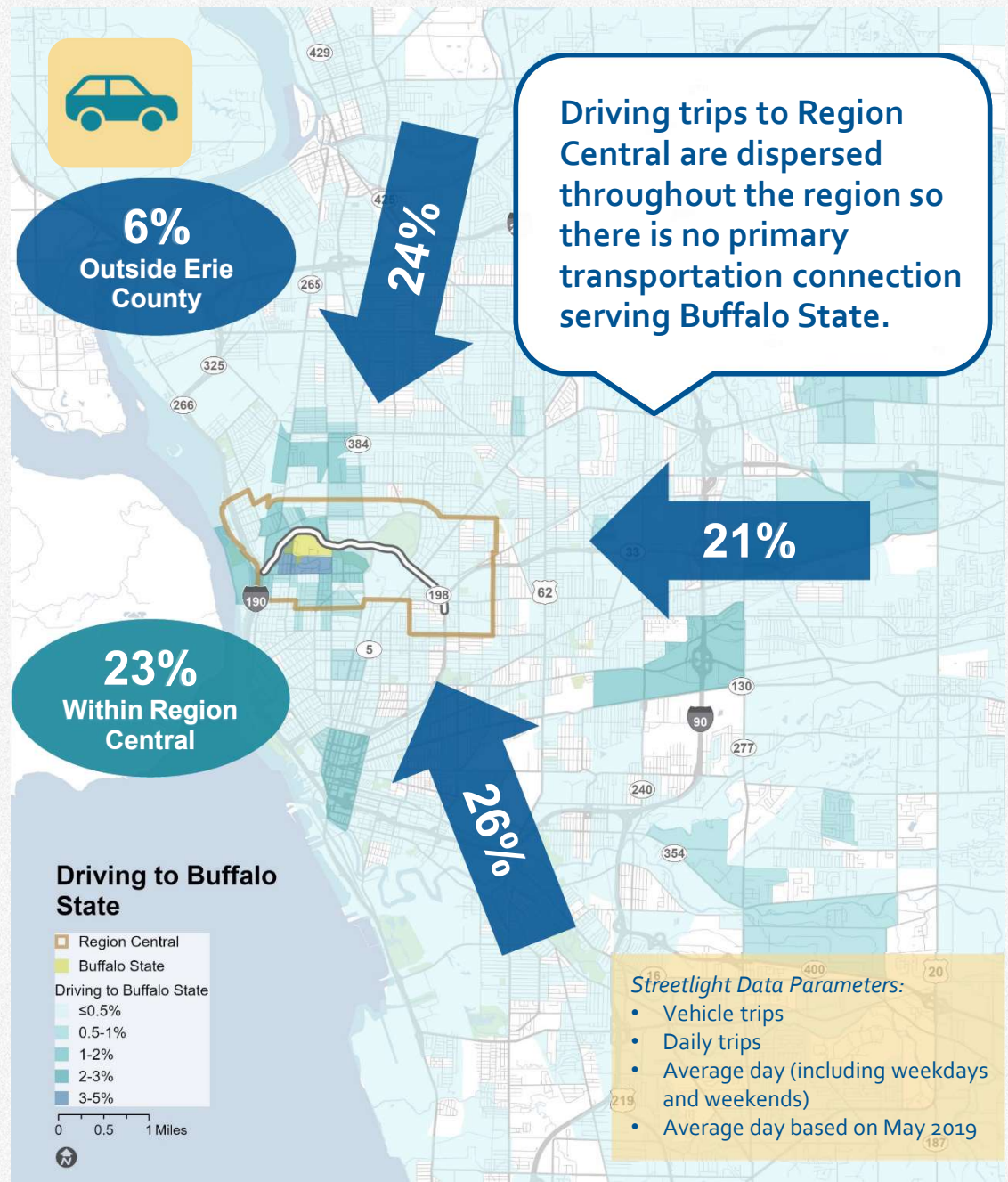
10 regional institutional, educational, and cultural destinations were identified in Region Central.

This maps shows how many trips of all types go to each destination on a typical day.

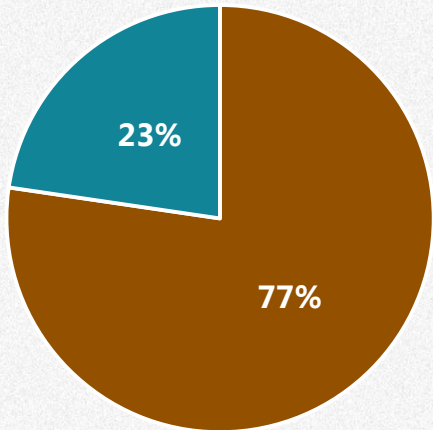
The top destinations in Region Central are medical and educational rather than cultural.



77% of driving trips to Buffalo State come from locations outside of Region Central.



Driving to Buffalo State



- Outside Region Central
- Within Region Central

Streetlight Data Parameters:

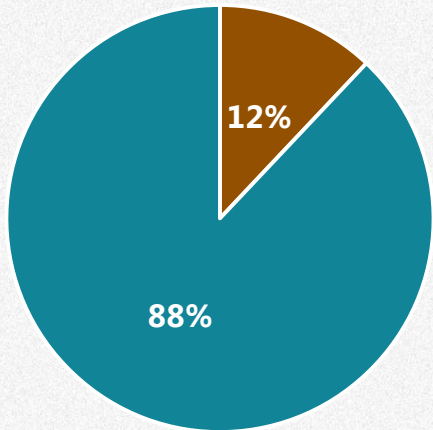
- Average vehicle trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019

88% of pedestrian trips to Buffalo State come from locations within Region Central.

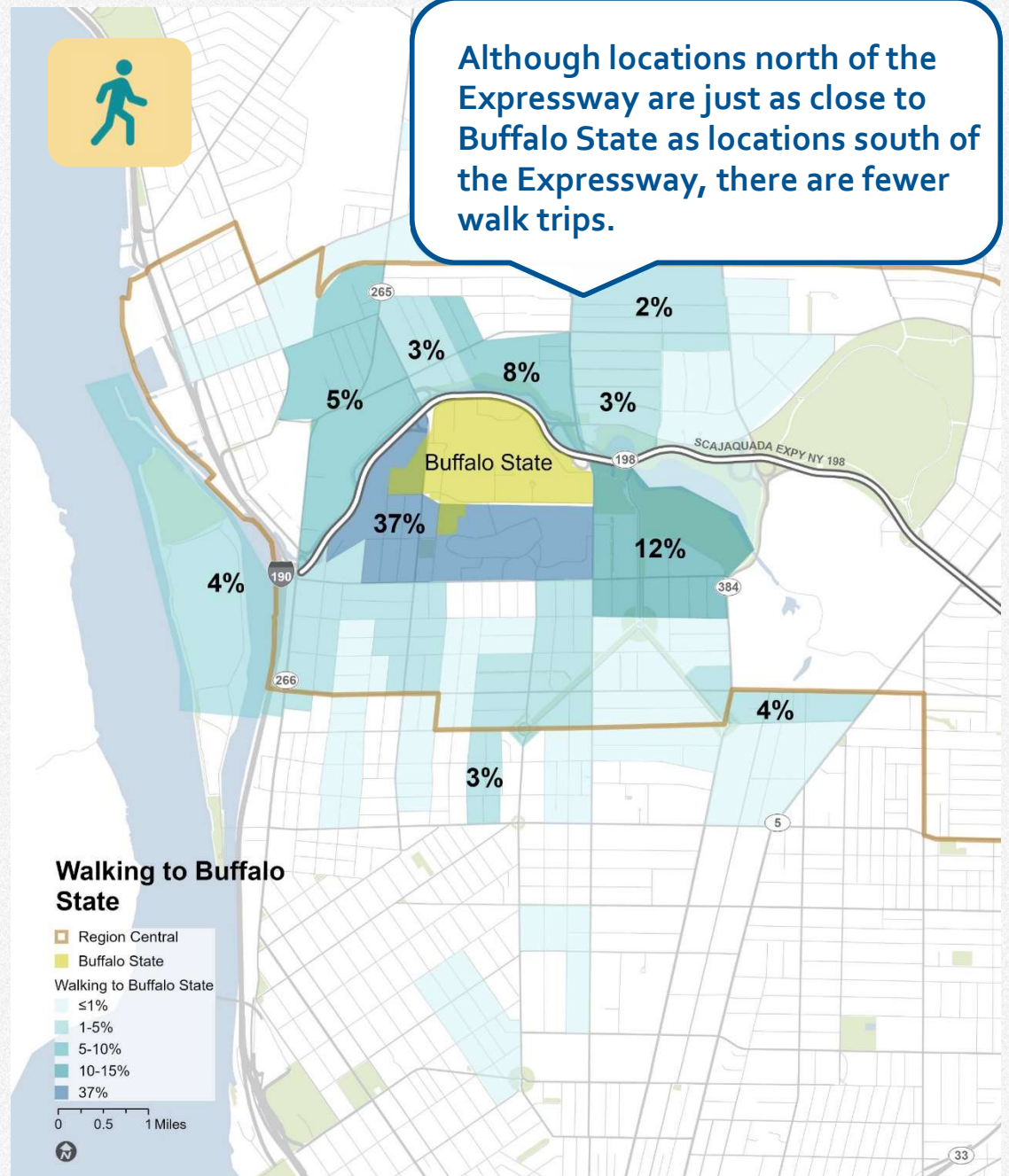


Although locations north of the Expressway are just as close to Buffalo State as locations south of the Expressway, there are fewer walk trips.

Walking to Buffalo State



- Outside Region Central
- Within Region Central



- Streetlight Data Parameters:
- Average ped trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019

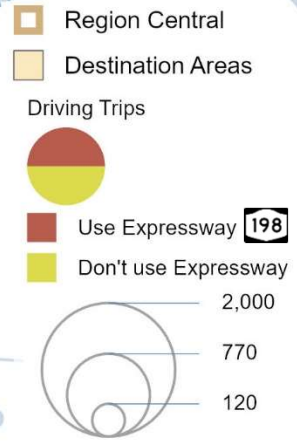
Most drivers do not use the Expressway to visit Region Central destinations.

People travelling to top destinations in Region Central get there without using the Expressway.

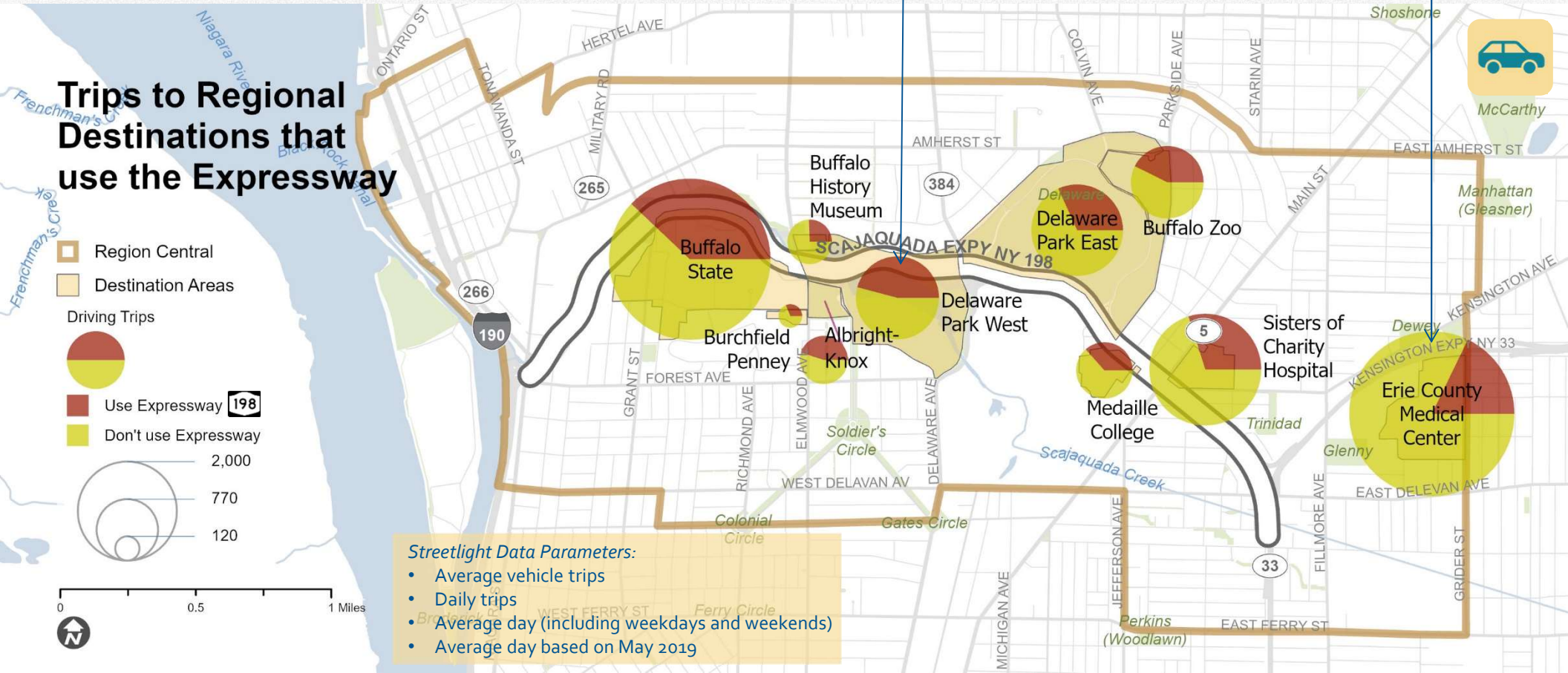
Erie County Medical Center, the top destination in Region Central, has the smallest share (18%) of trips using the Expressway.

Delaware Park West has the largest share (45%) of trips using the Expressway.

Trips to Regional Destinations that use the Expressway

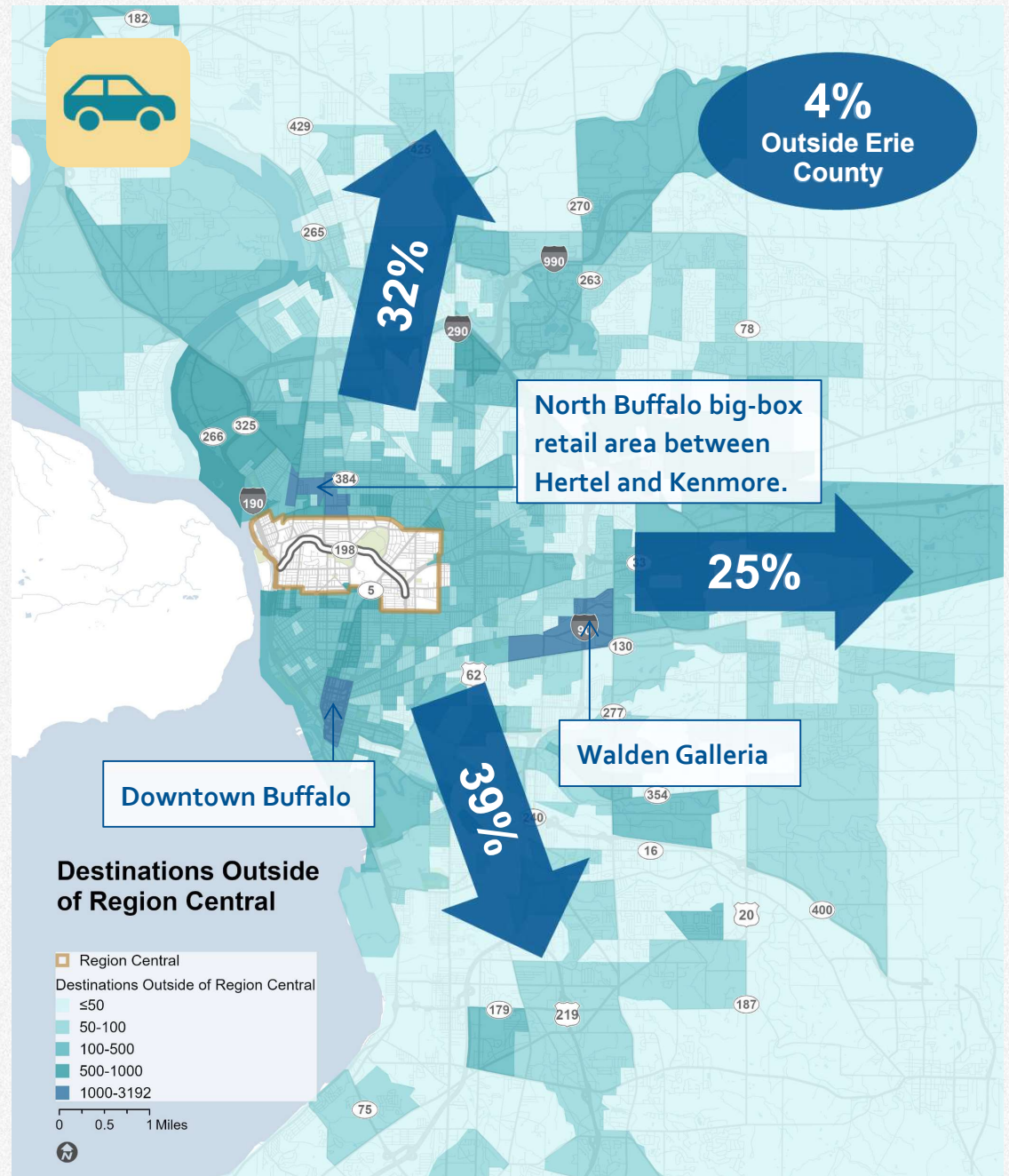


- Streetlight Data Parameters:**
- Average vehicle trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019



The top destination for people driving from Region Central is Downtown Buffalo.

Trips out of Region Central disperse in all directions so there is not just one direction that needs to be supported with transportation infrastructure.



Streetlight Data Parameters:

- Average vehicle trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019

Key Takeaways

There are significant regional destinations in Region Central.

However, most drivers do not use the Scajaquada Expressway to reach them.

Driving trips from Region Central are relatively equally distributed around the Buffalo region, but Downtown is a top destination.



Selective Analysis

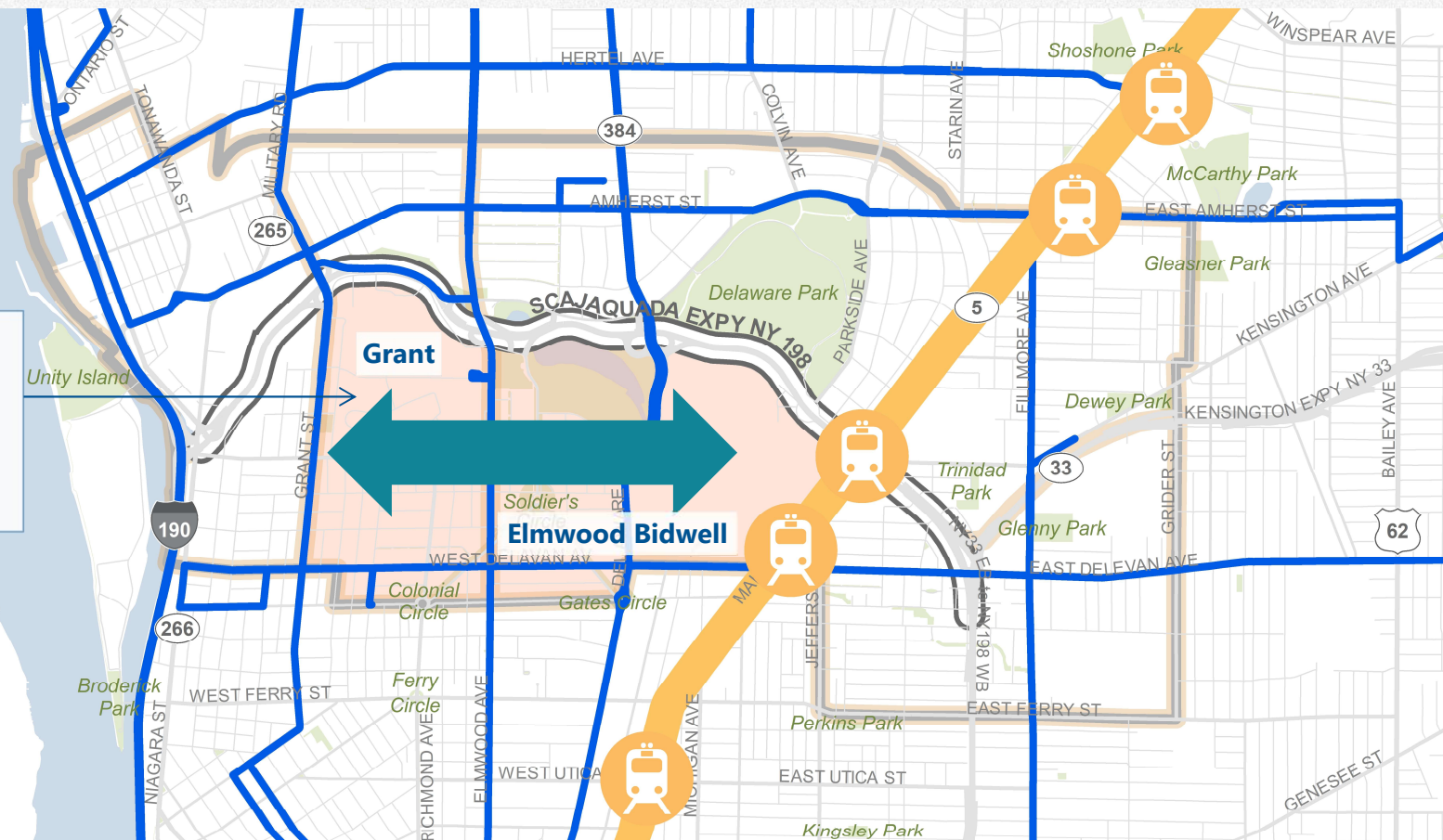
East-west transit connectivity is limited.

Despite the high number of trips between neighborhoods on the same side of the Expressway, transit options are limited for east/west travel, especially south of the Expressway.

There are approximately 4,800 daily vehicle trips between the Grant and Elmwood Bidwell neighborhoods!

— NFTA Routes (Spring 2021)

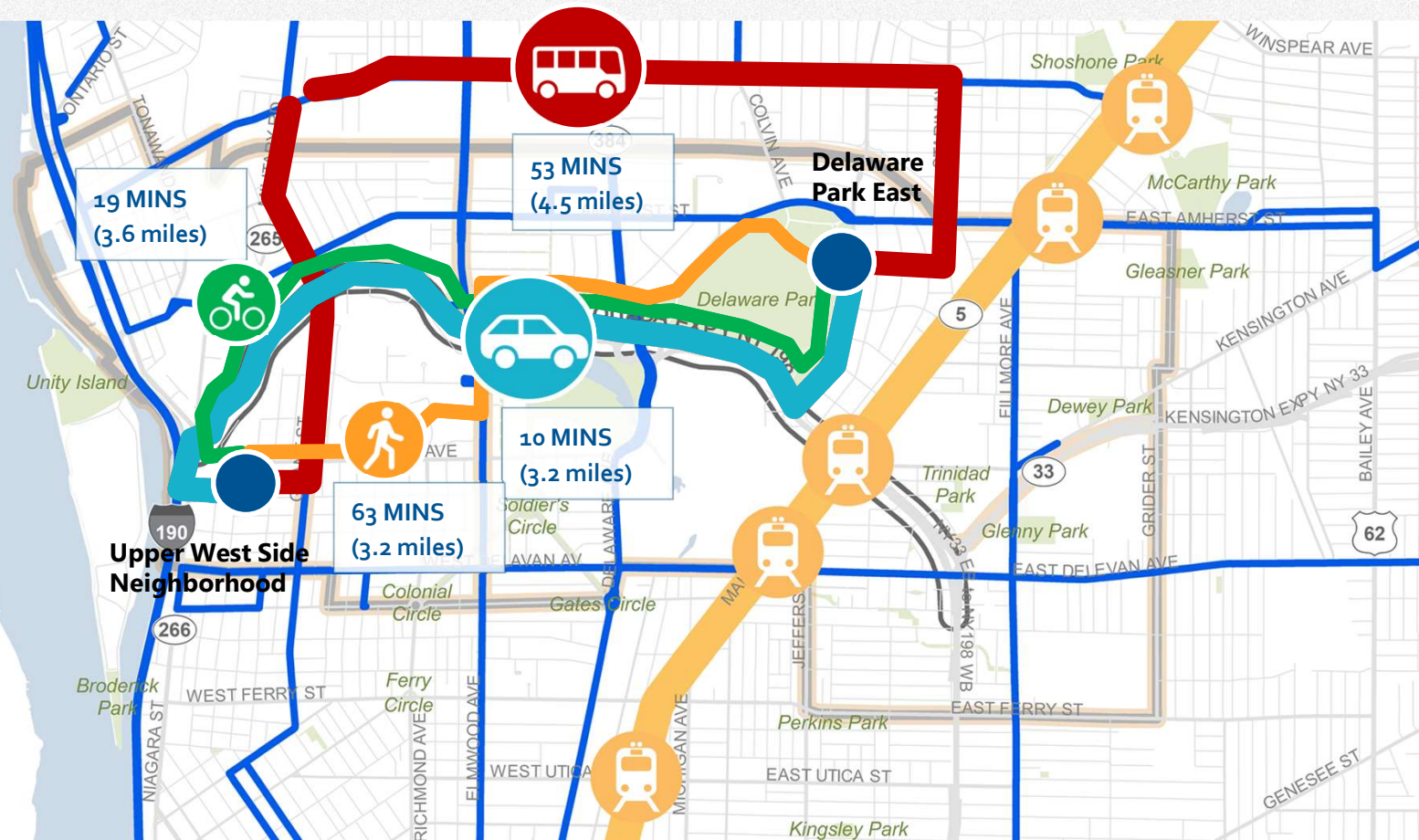
0 0.5 1 Miles



Traveling by transit can take up to five times as long as traveling by car.

Transit is not time or cost competitive for most trips within Region Central.

Based on the 2017 NFTA Onboard Survey, 44% of respondents indicated that they make a transfer as part of their surveyed trip.

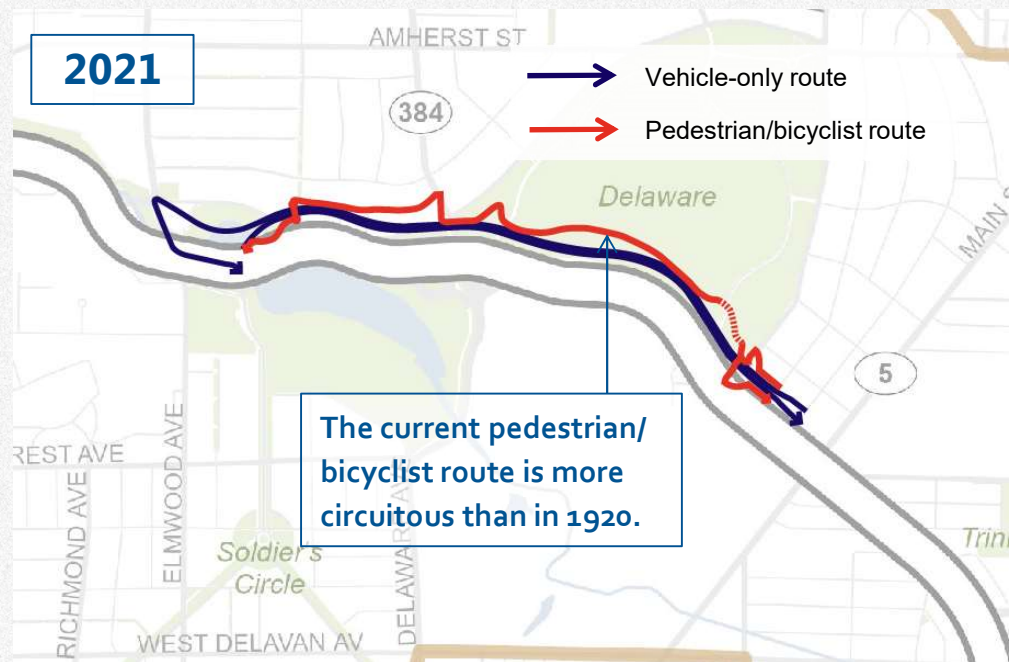
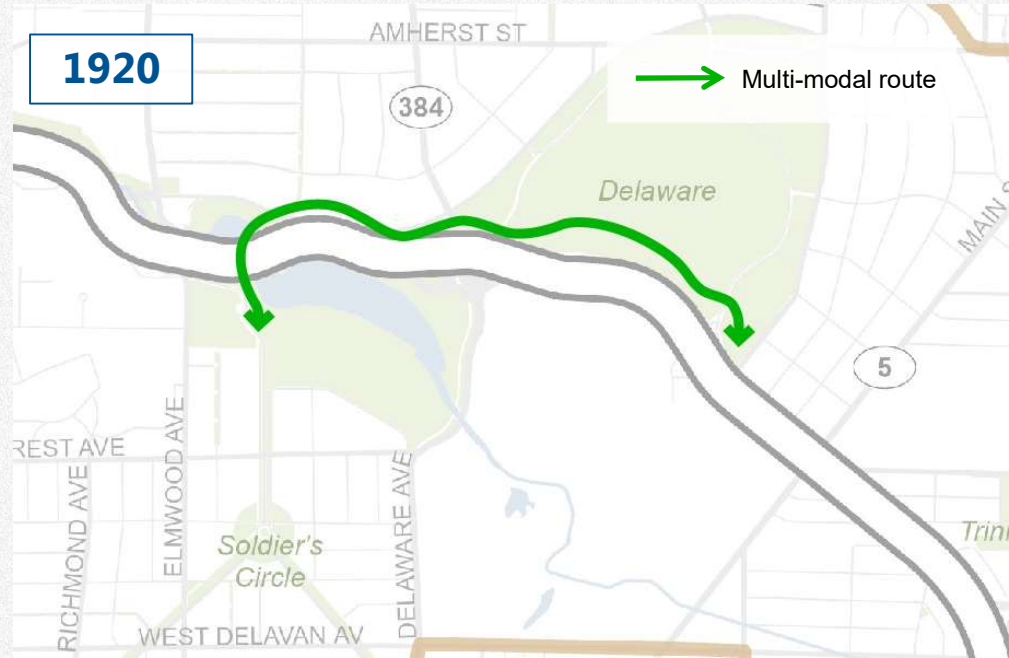


NFTA Routes (Spring 2021)



The Expressway replaced the former multi-modal roadway linking Humboldt and Lincoln Parkways with longer more circuitous routes.

Providing a more direct connection between the Parkways could re-establish the original parkway/park network.



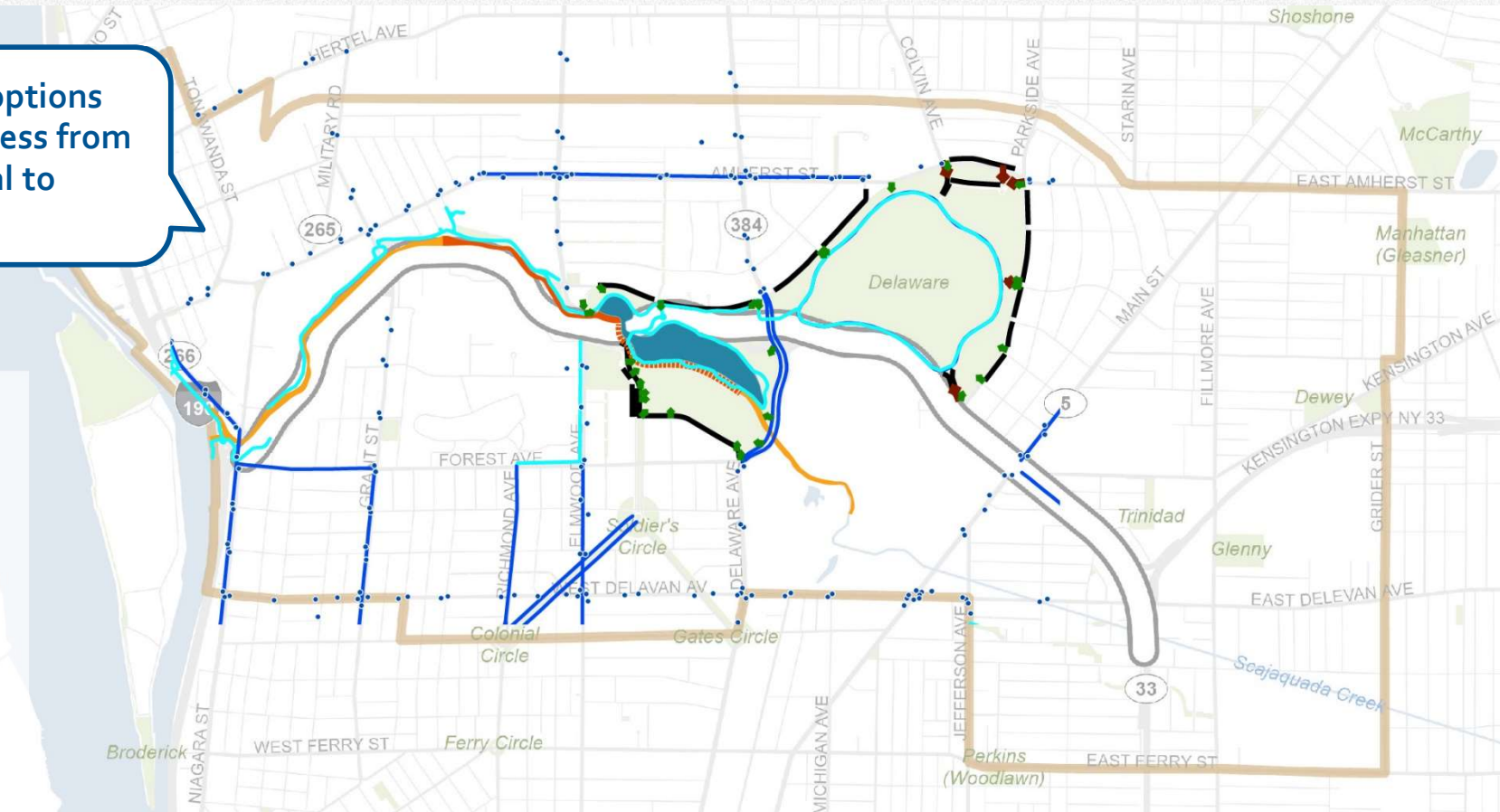


Today there are more ways to get to the Delaware Park than at any other point in its history.

Plans for Region Central should continue to maintain and improve ways for people using all modes to access Delaware Park.

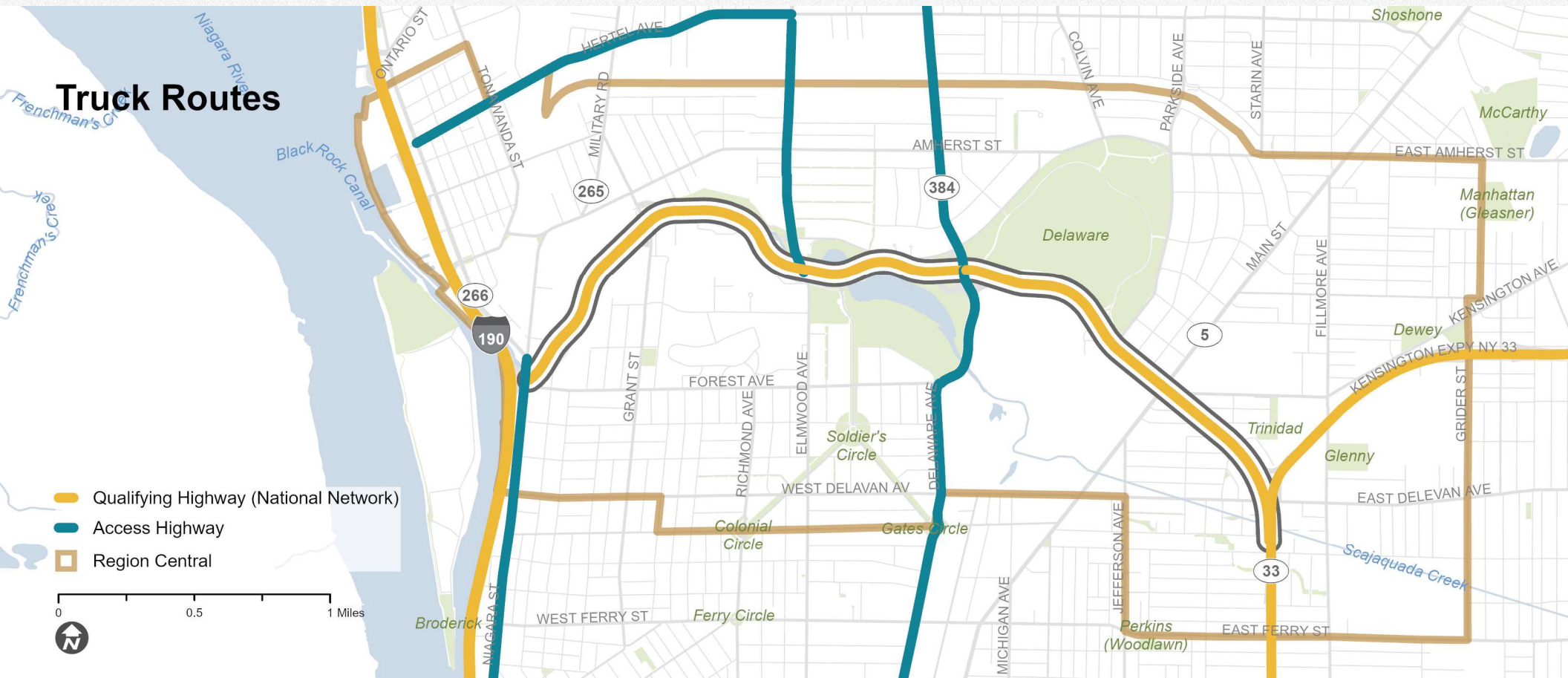
There are multiple options to expand creek access from the Black Rock Canal to Hoyt Lake.

- Bus Stop
 - Perimeter Parking
 - Pedestrian Access Point
 - Vehicle Access Point
 - Off-Street Bike Route
 - On-Street Bike Facility
- Creek and Lake Access
- Limited Access
 - Visual Access Only
 - Direct Access
 - No Access (underground)



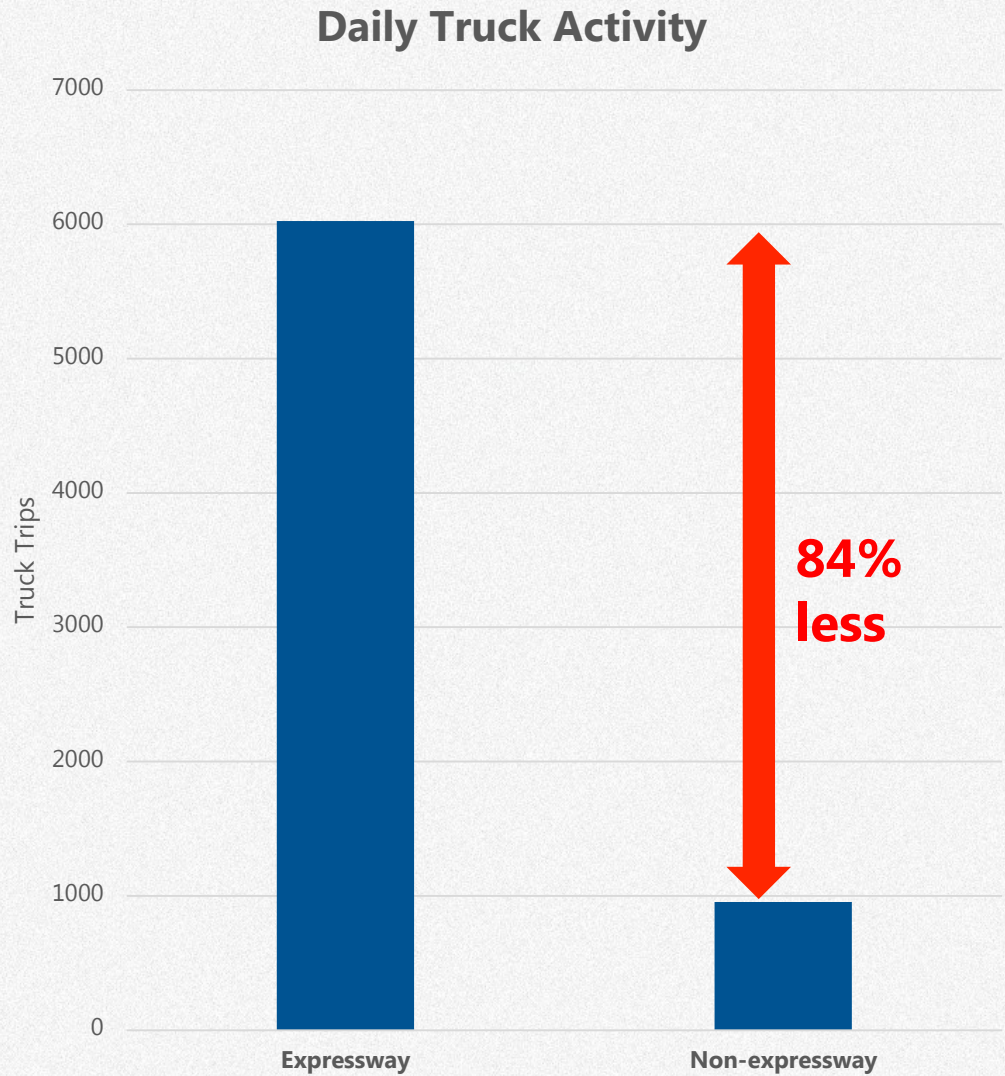
The Expressway and some arterial roadways are part of the designated truck network.

The Scajaquada Expressway (198), the Kensington Expressway (33) and I-190 are part of the National Freight Network.



On average, the Expressway carries 6 times more truck traffic than other Region Central arterial roads.

Emissions and noise from trucks in Region Central mostly comes from the Expressway.



Streetlight Data Parameters:

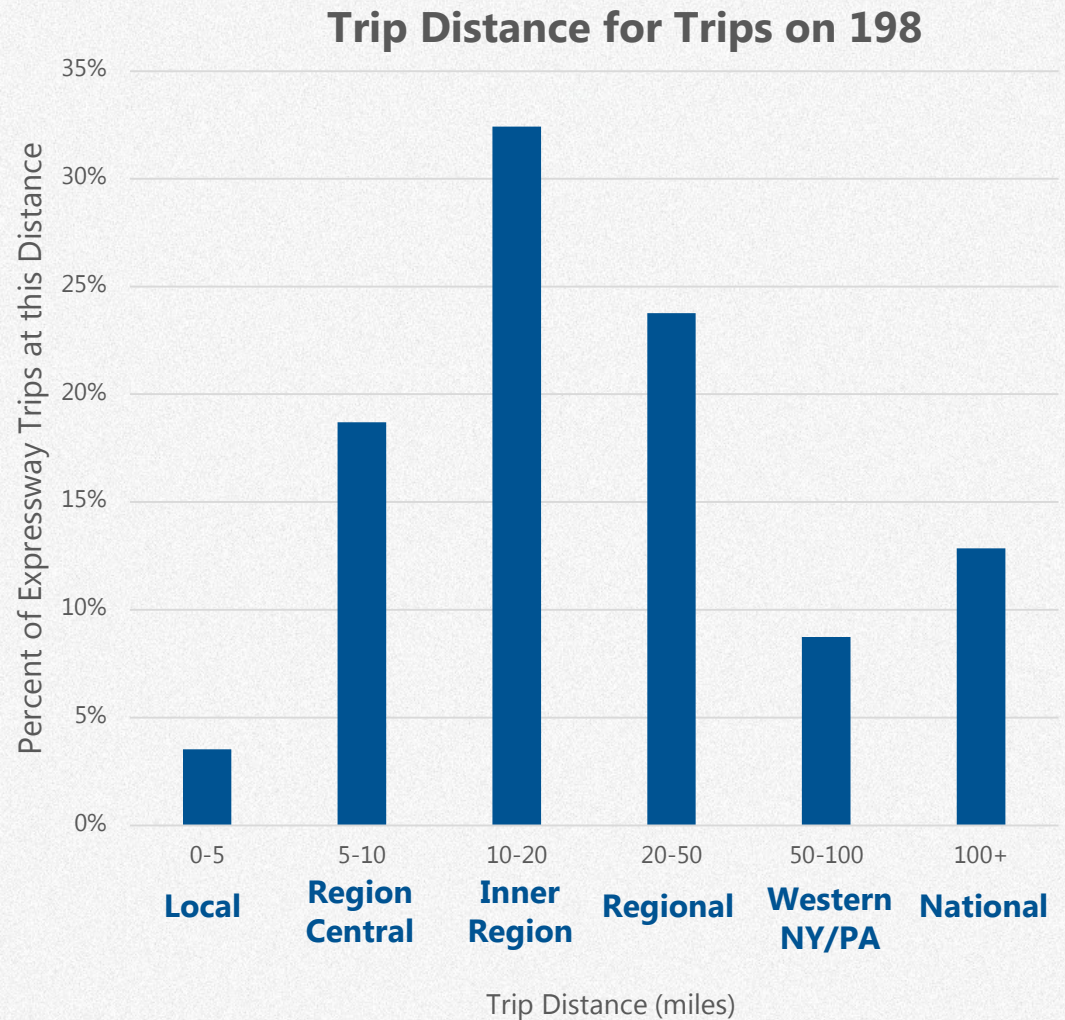
- Truck trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019

Streetlight Truck data based on medium duty and heavy-duty trucks



Almost half (45%) of truck trips on the Expressway are traveling over 20 miles.

Regional and longer truck trips have multiple roadway options that could avoid the three (3.4) miles of the Scajaquada Expressway.

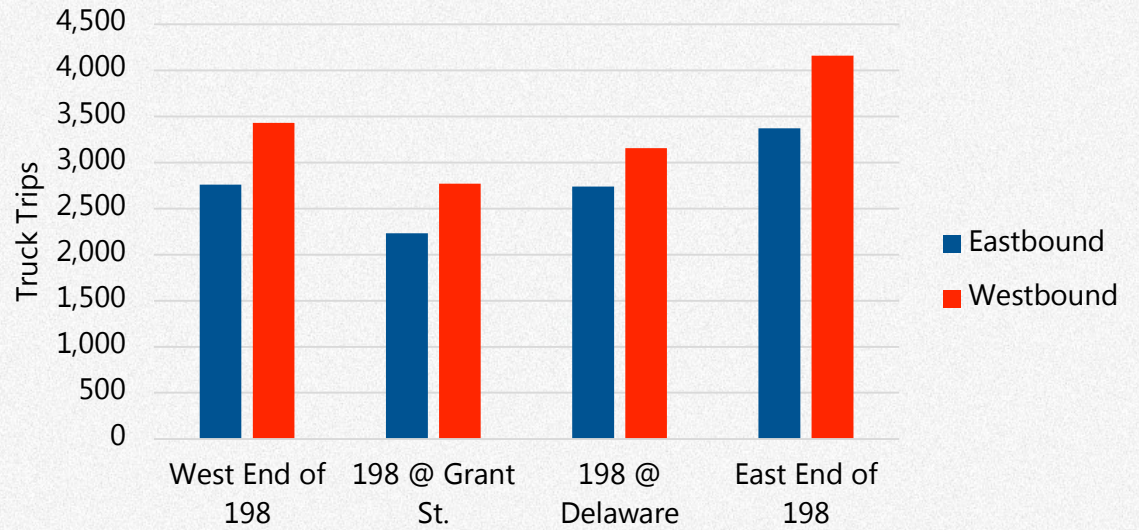


Streetlight Data Parameters:

- Vehicle and Truck trips
- Daily trips
- Average day (including weekdays and weekends)
- Average day based on May 2019

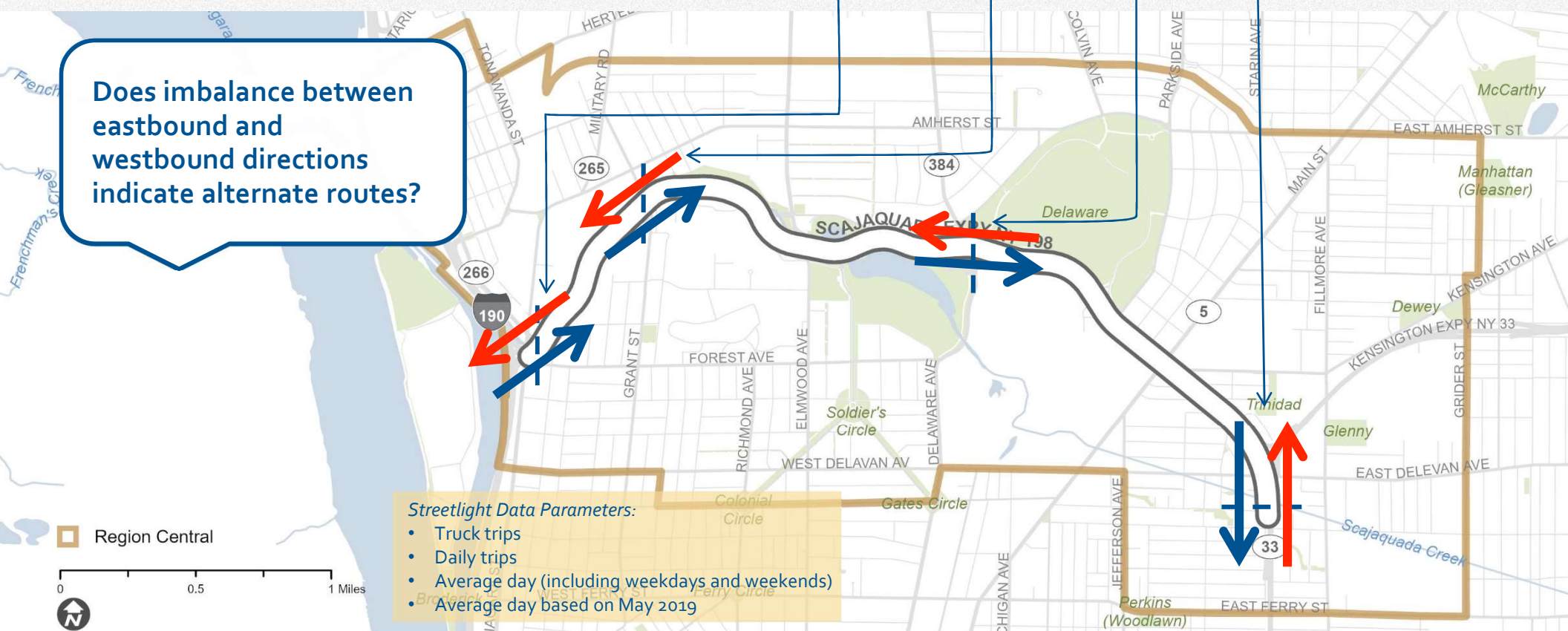
Westbound truck activity is higher than Eastbound truck activity.

Truck Trips on 198



Does imbalance between eastbound and westbound directions indicate alternate routes?

- Streetlight Data Parameters:
- Truck trips
 - Daily trips
 - Average day (including weekdays and weekends)
 - Average day based on May 2019



 Region Central

0 0.5 1 Miles





Key Takeaways

Transit does not provide competitive access for trips within Region Central.

Access to the Scajaquada Creek and Delaware Park has been significantly limited by the Expressway.

Commercial travel on the Expressway is significantly more regional than passenger vehicle traffic.
