

# Sustainability: What We've Learned

## ★ Key Takeaways

- + Environmental risk “hotspots” are concentrated in the western and southern portions of the corridor due to:
  - + *High impervious surface coverage (like parking lots)*
  - + *Low tree canopy coverage*



### General High-Risk Area:

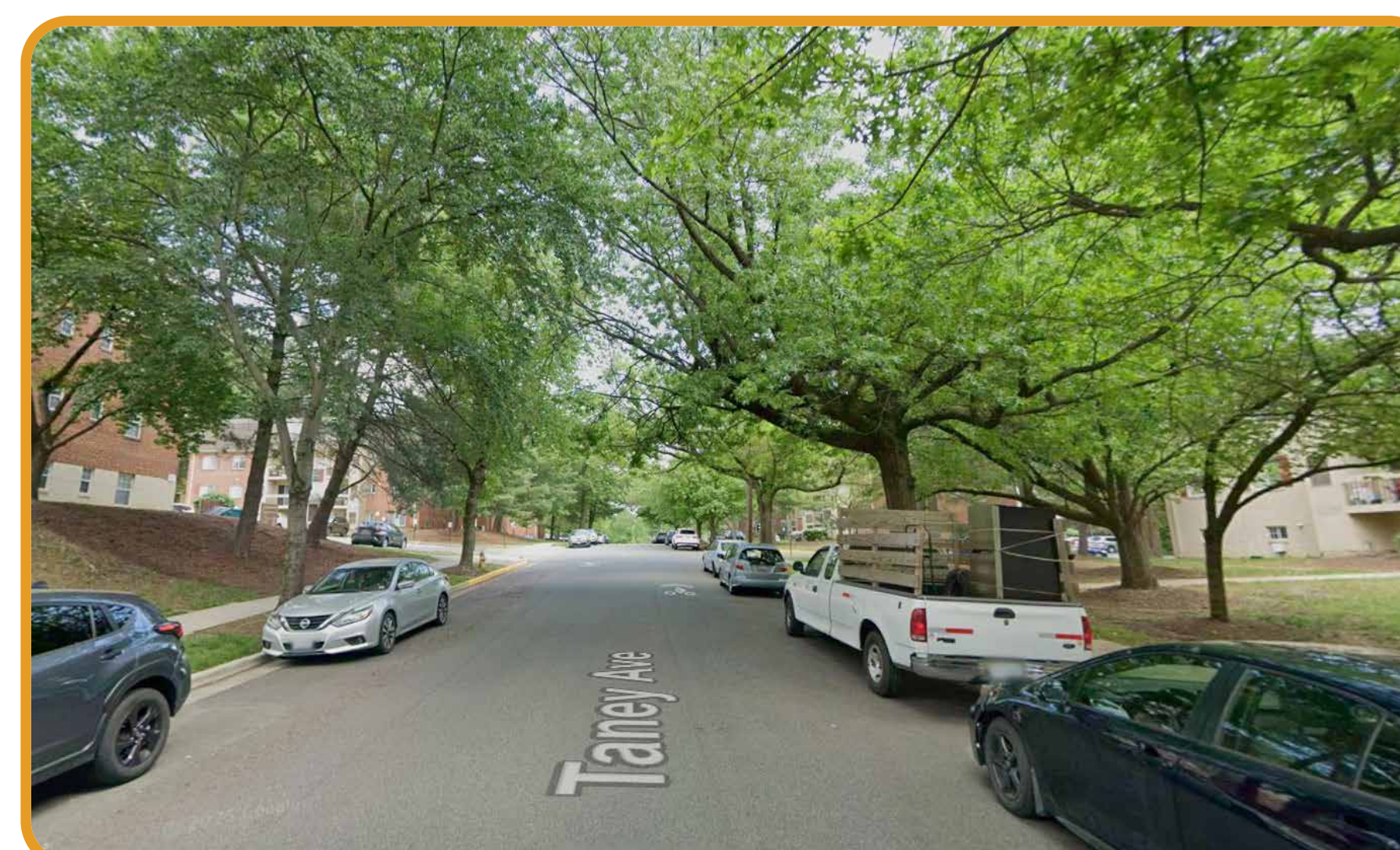
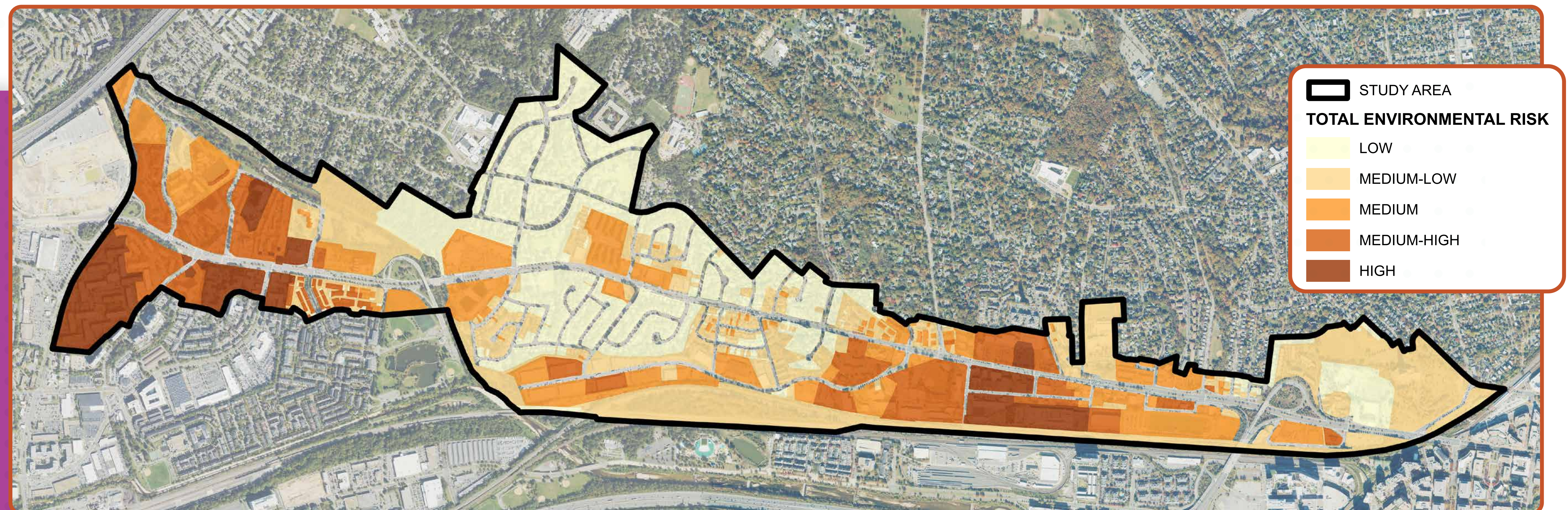
- + Large surface parking lots
- + Low tree canopy coverage



## What's Next: Developing Strategies and Adaptation Measures

Identifying how the plan can address these key challenges and opportunities, such as:

- **Green infrastructure and planting trees along roadways**
- **Underground utilities to allow for mature trees**
- **Green roofs/cool roofs to existing buildings**
- **Promotion of mixed-use development and green building practices**

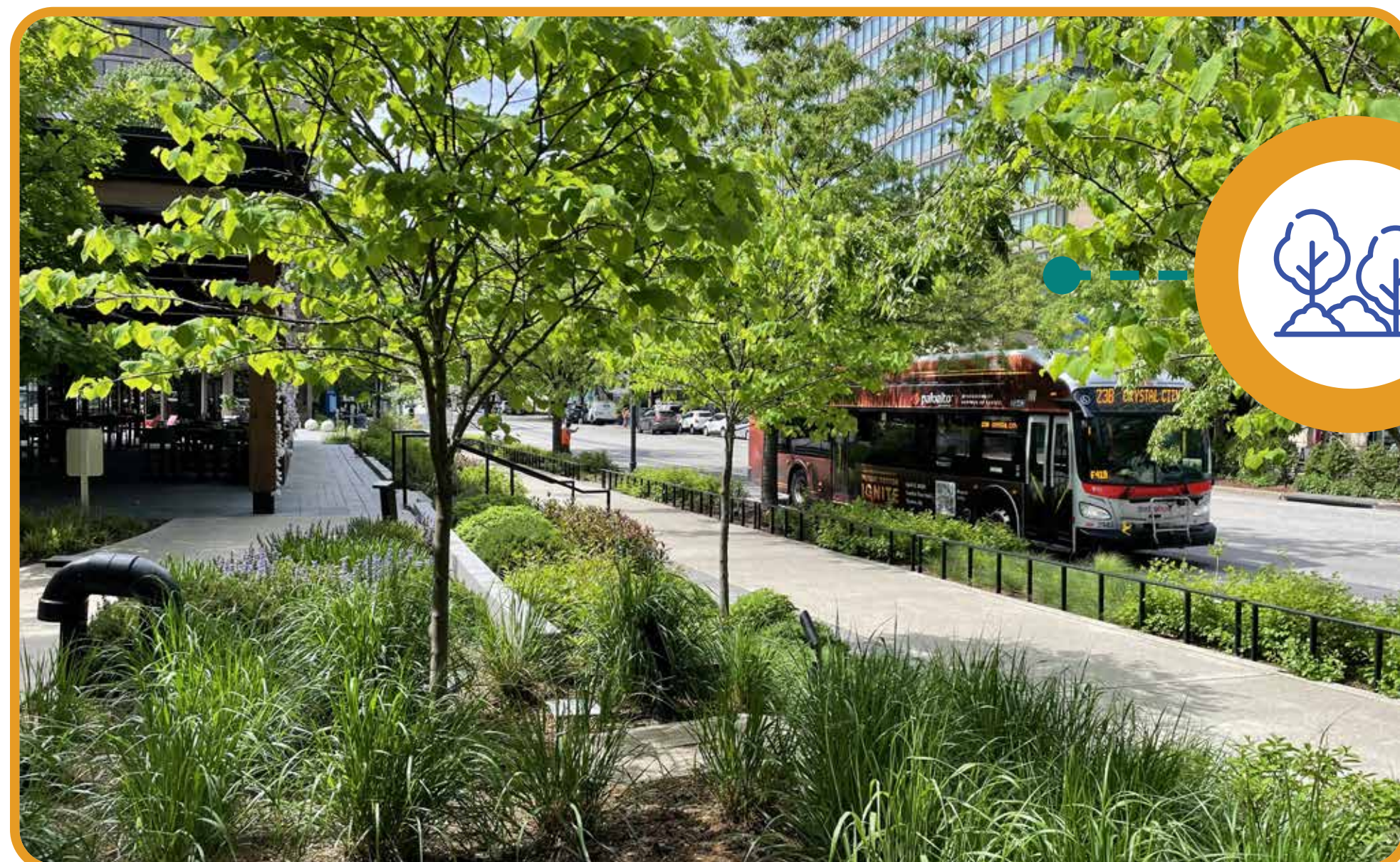


### General Low-Risk Area:

- + Dense tree canopy coverage and shade
- + Limited surface parking

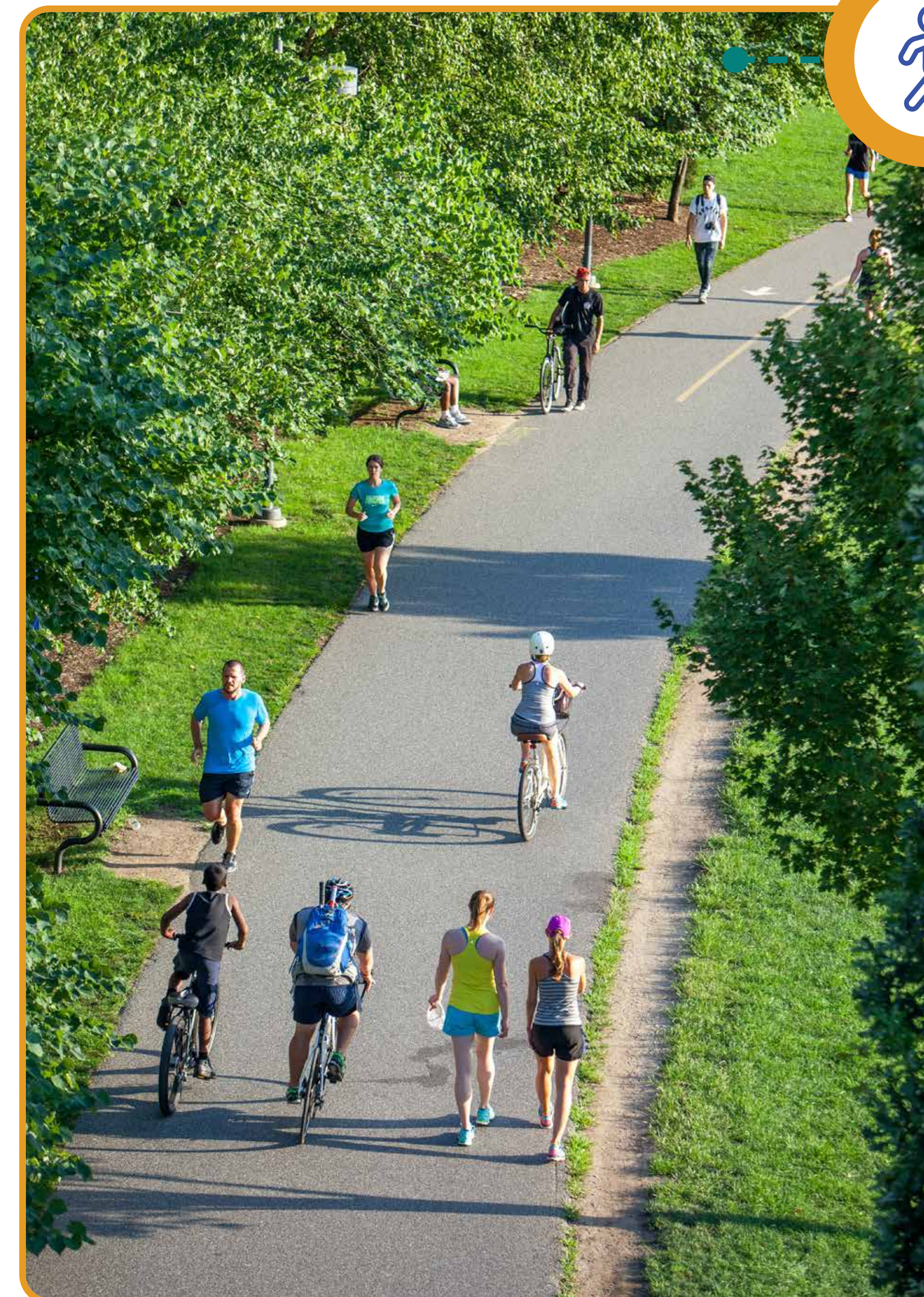


# How Can the Plan Positively Impact Sustainability and the Environment?



## Impervious Surface + Tree Canopy

- + Reduce impervious surfaces through development within opportunity sites
- + Require tree canopy percentage onsite
- + Minimize loss of existing trees, expand where possible



## Land Use

- + Minimize displacement of existing market-rate and committed affordable housing
- + Proximity and safe access between housing, jobs, transit, and amenities
- + Flexible land uses and walkable, neighborhood-serving uses

## Stormwater



- + 100% of new buildings will treat and detain stormwater onsite
- + Improve water quality, including within the RPAs
- + Slow runoff



## Green Building



- + 100% of new buildings will be consistent with the City's latest Green Building Plan




## Mobility



- + Maximize use of transit
- + Safer street design
- + More opportunities for biking and walking



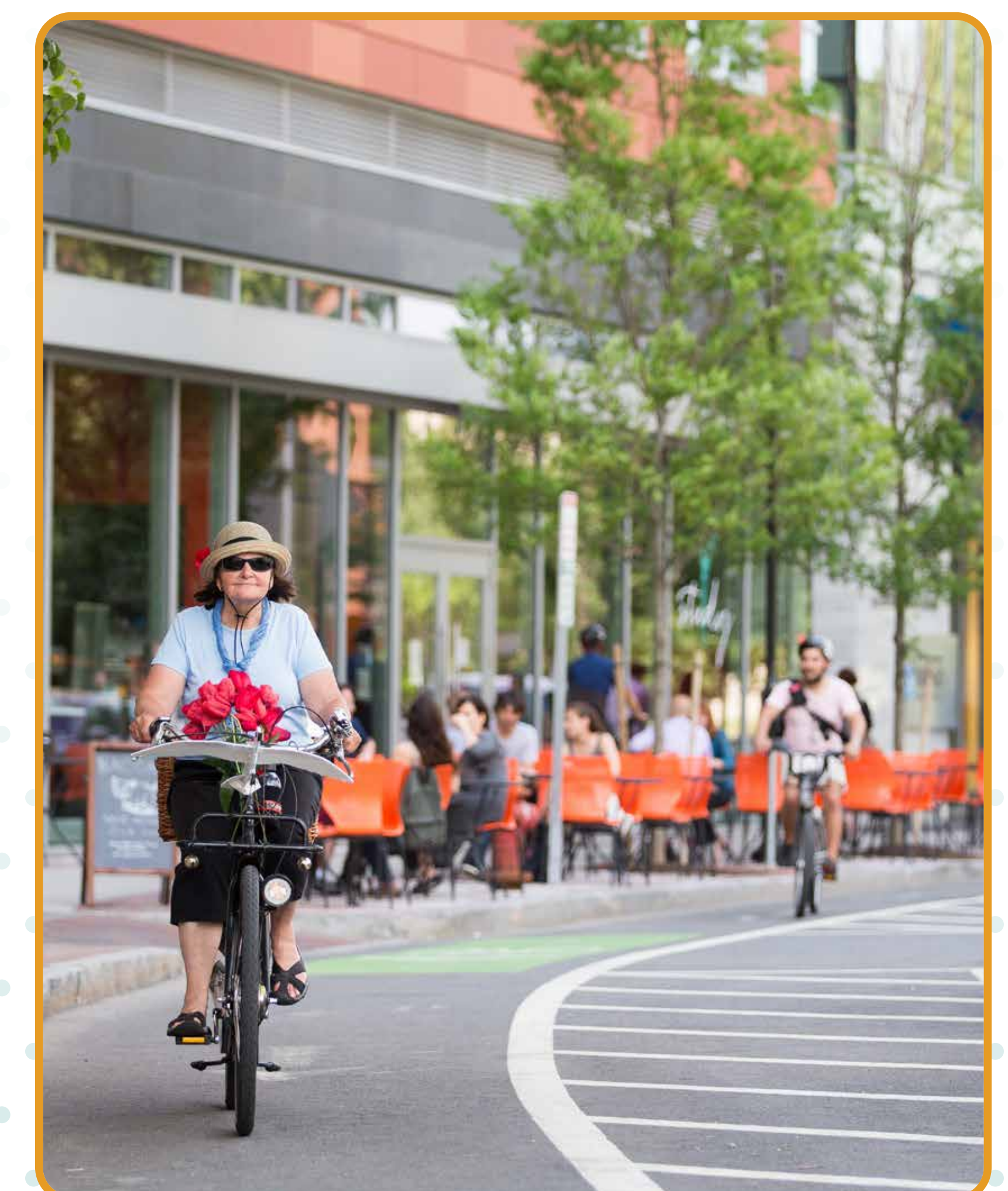
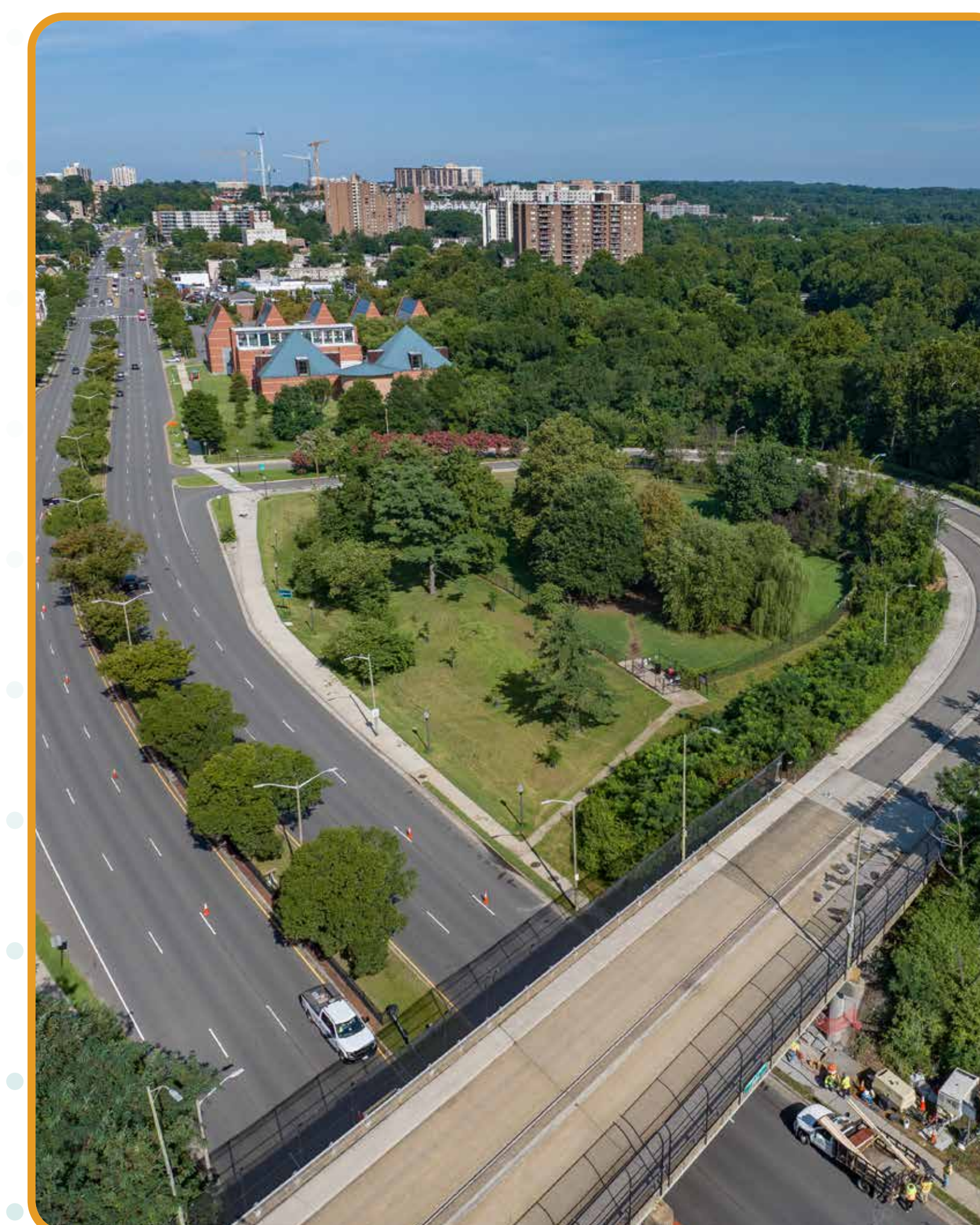
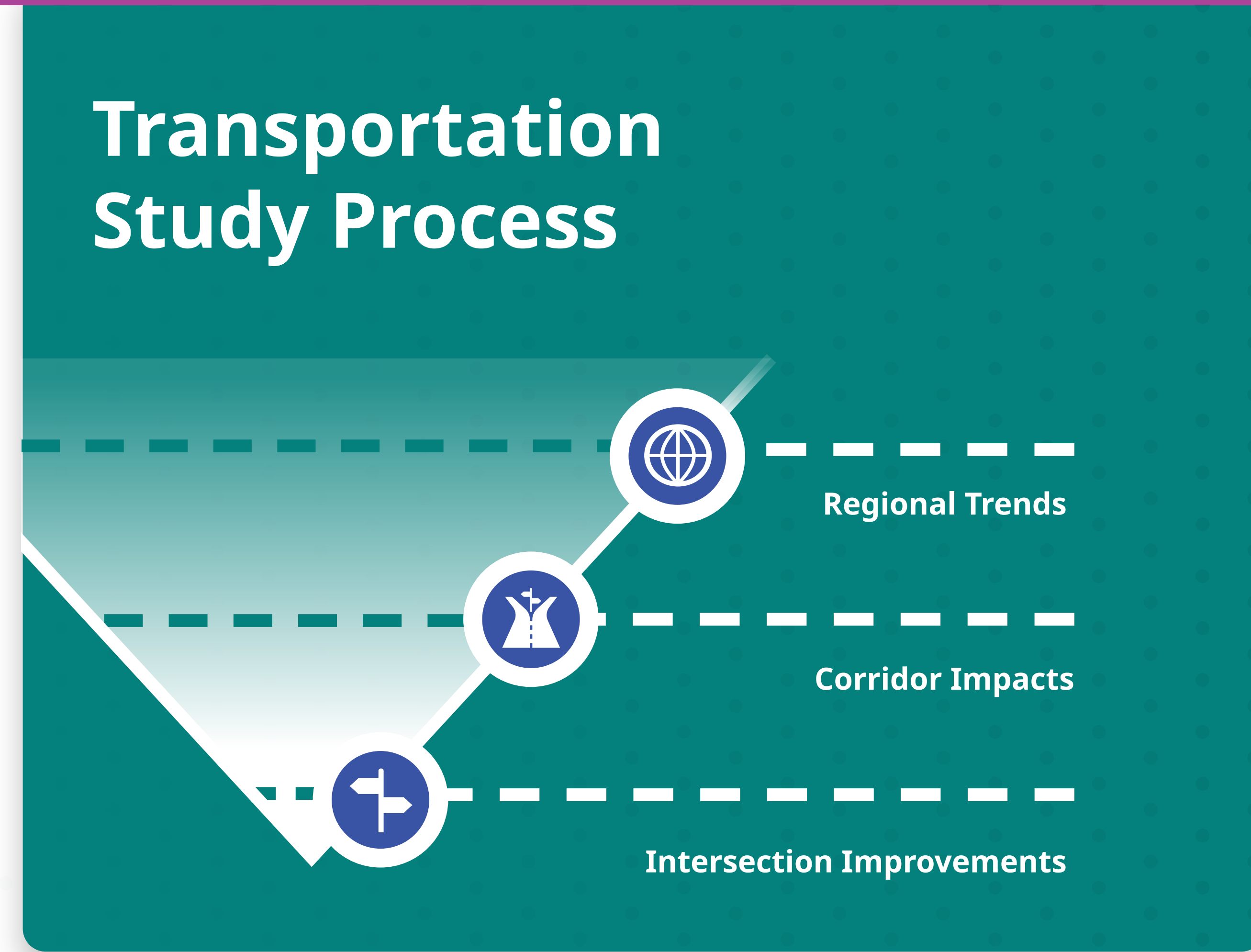
# Mobility: What We're Studying

 Better understand **regional traffic trends** and **implications for Duke Street**.

 Research **best practices** from other communities for handling **cut-through traffic**, **high-capacity transit**, and **multimodal safety**.

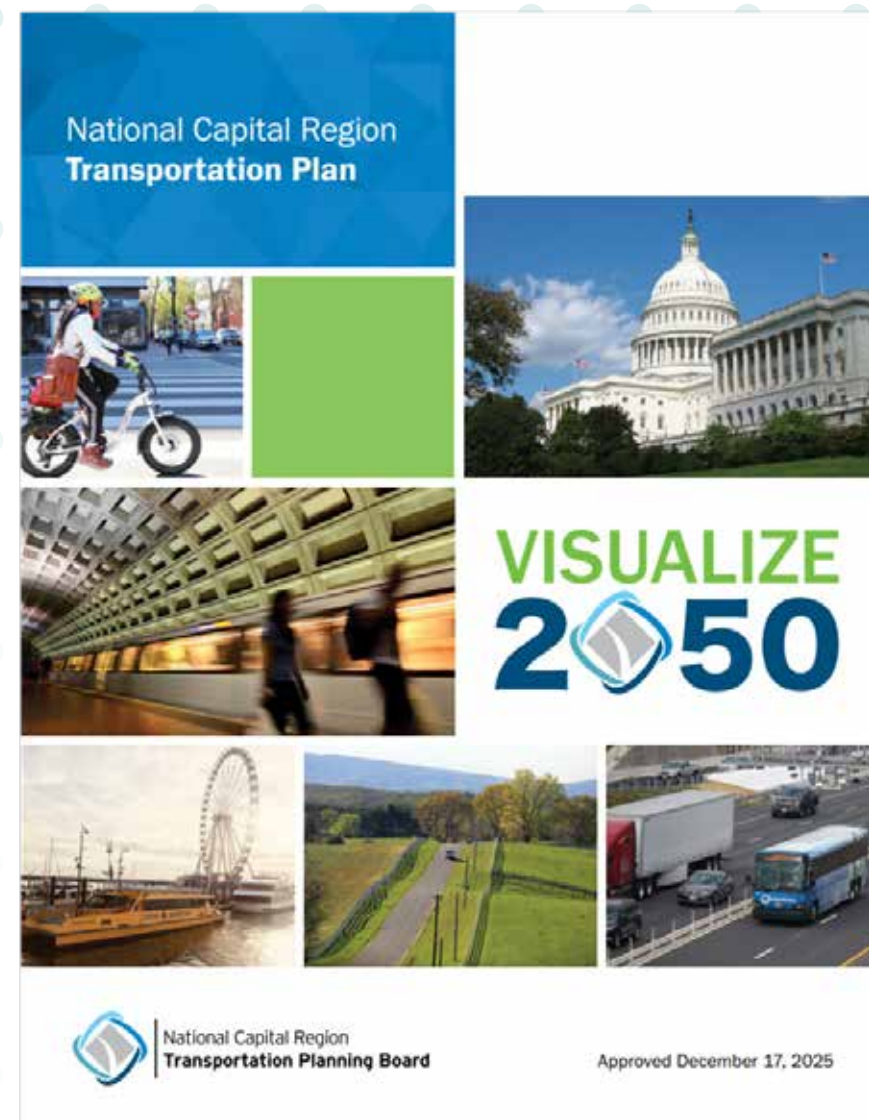
 Evaluate the **traffic impacts of future land use and development** along Duke Street.

 Identify **intersection-specific challenges and opportunities for improvement**.



# Mobility: Regional Trends

## Regional Transportation Plan Review



### Visualize 2050

Regional traffic will continue to increase congestion on major roadways.

Telework remains more common than before the pandemic.

16% of the region's population and 40% of the region's jobs are within a ½ mile of a transit station.

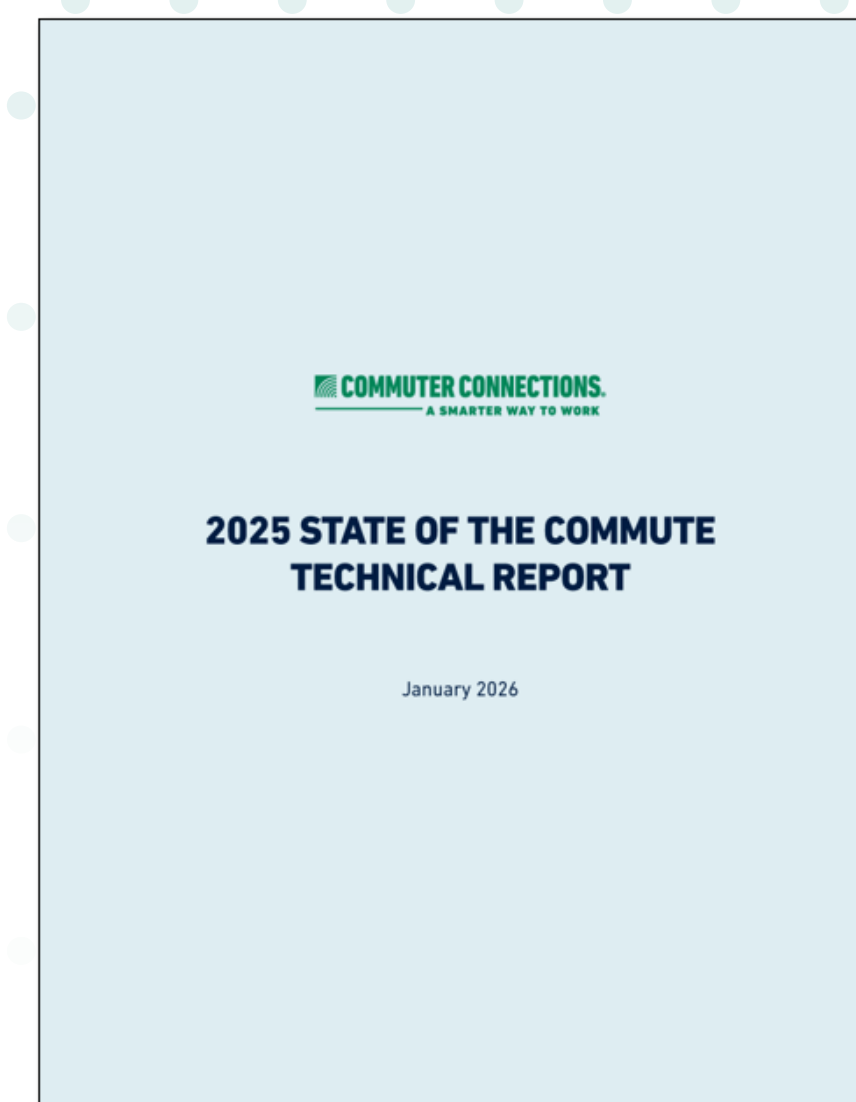


### TransAction 2045

Population and employment is expected to increase by 23% and 33%, respectively. Central suburbs (Arlington, Alexandria) will have the highest population growth.

Peak period delays are forecasted to double (or more) on I-95/I-395/U.S. Route 1 and I-495/the Beltway.

Regional residents have access to four times more jobs by car than by transit within a 45-minute trip.



### 2025 State of the Commute

48% of the region's workers regularly telework, which is down from 65% in 2022 (but still higher than pre-pandemic).

Due to return-to-office mandates, federal workers' telework fell below pre-pandemic levels in 2025.

Driving alone accounts for over half of weekly commute trips region-wide.

## ★ Key Takeaways

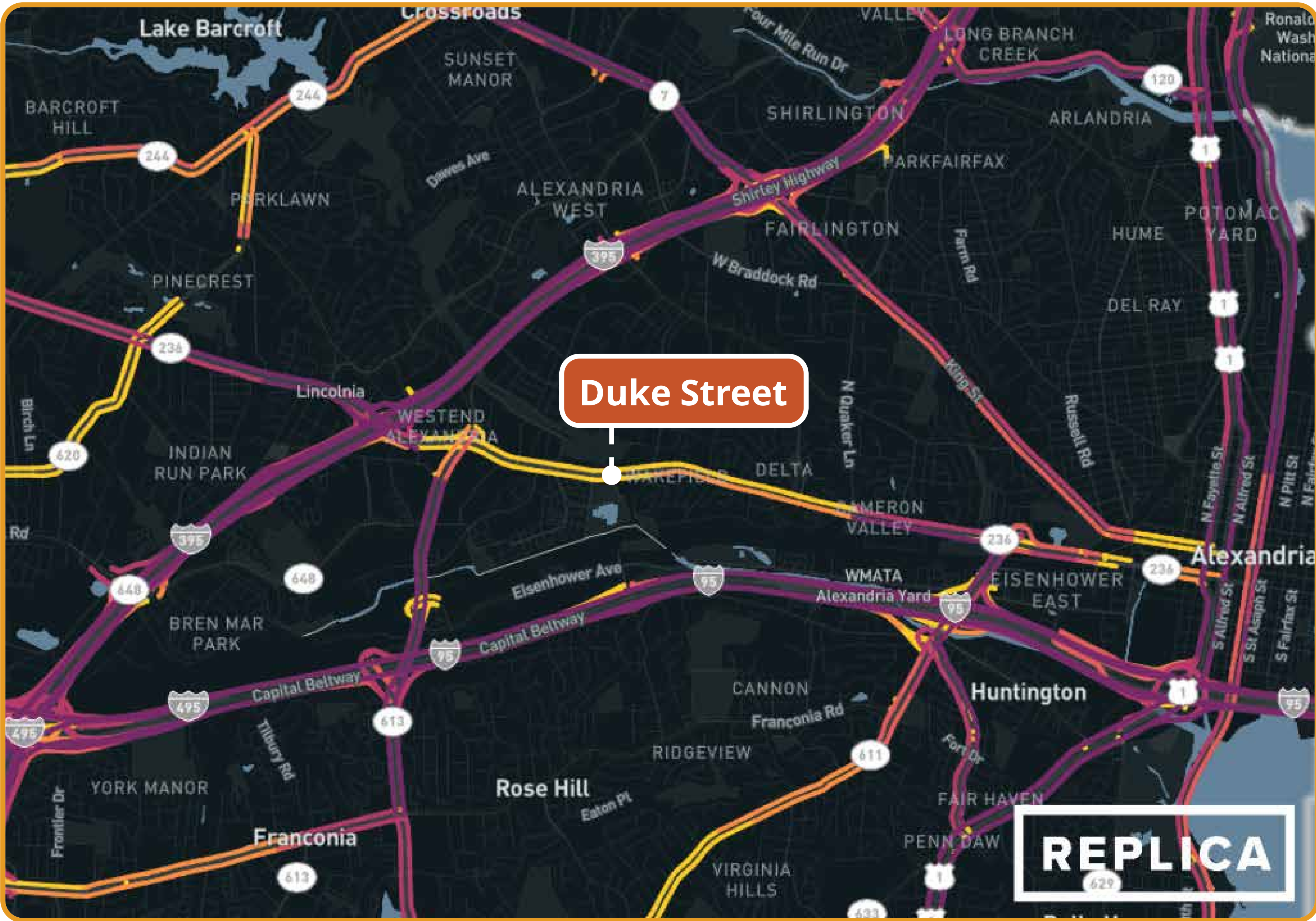
- Regional population and employment growth continues to increase congestion.
- The region faces significant traffic on key corridors, many of which pass through Alexandria.
- Flexible work patterns enable less concentrated traffic during peak periods and distribute congestion throughout the day.

*These regional traffic trends put pressure on Duke Street today and will continue to in the future. Therefore, it will remain important for the City to continue to make transportation and infrastructure improvements that better serve local travel needs.*



# Mobility: Regional Trends

## Citywide Pass-Through Trips

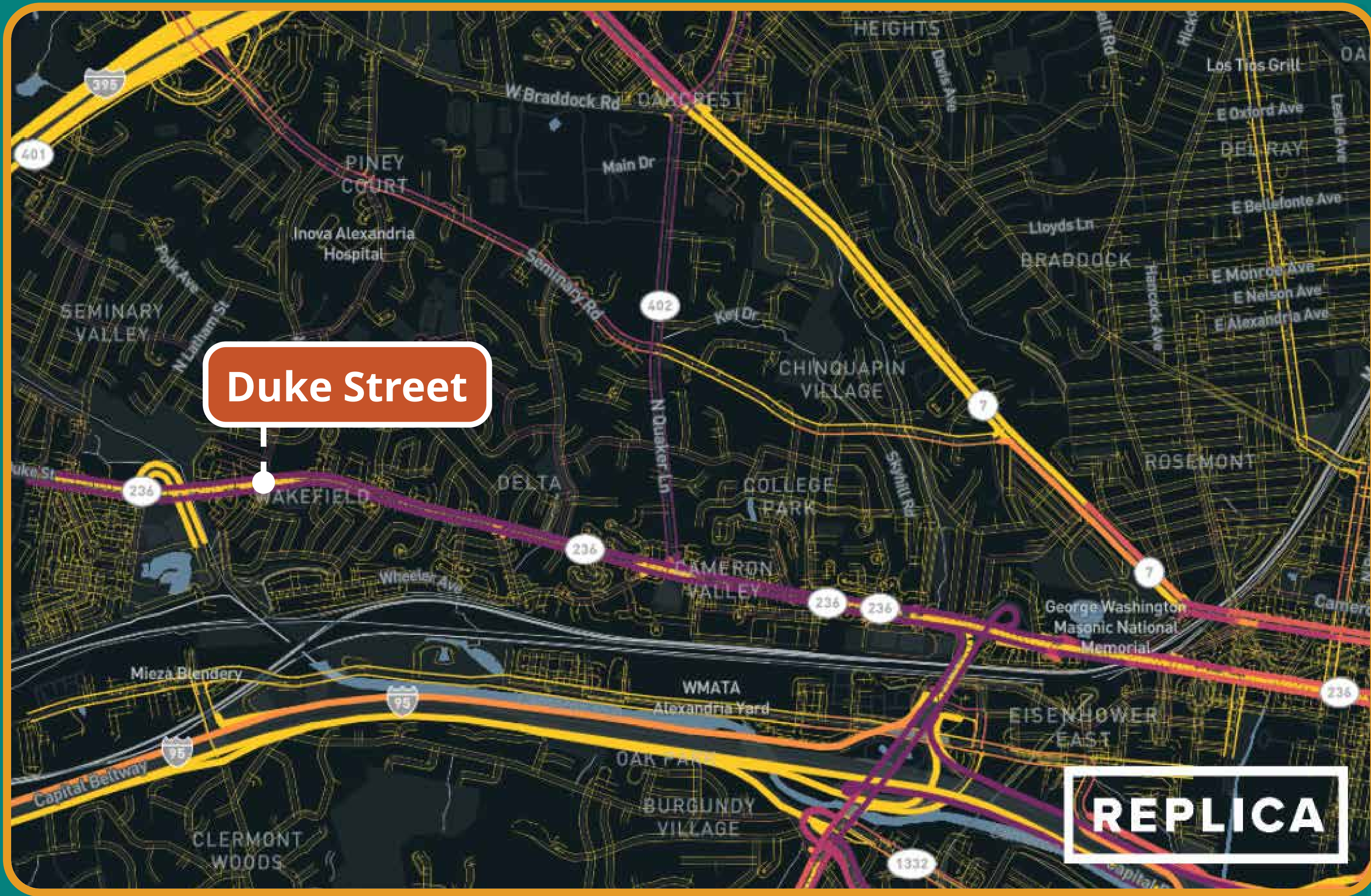


Fewer Trips More Trips

Every day, 587,000 trips pass through (but do not stop in) Alexandria.

Because this data includes long-distance commuters who drive, the average length of these regional trips is nearly 60 minutes and the average distance is more than 40 miles.

## Duke Street Trips



Fewer Trips More Trips

- + 83,900 trips are made along Duke Street every day.
- + Those trips mainly connect to Telegraph Road, N. Quaker Lane, I-495, Seminary Road, and King Street.

Source: Replica, Spring 2025 Weekday; Includes Auto, TNC/Taxi, and Commercial Vehicle Trips

# Mobility: Regional Trends



## Regional Traffic



Daily Trips Along Duke Street



Daily Trips Along Duke Street  
*between Quaker Lane and Telegraph Road*

Source: Replica, Spring 2025 Weekday; Includes Auto, TNC/Taxi, and Commercial Vehicle Trips

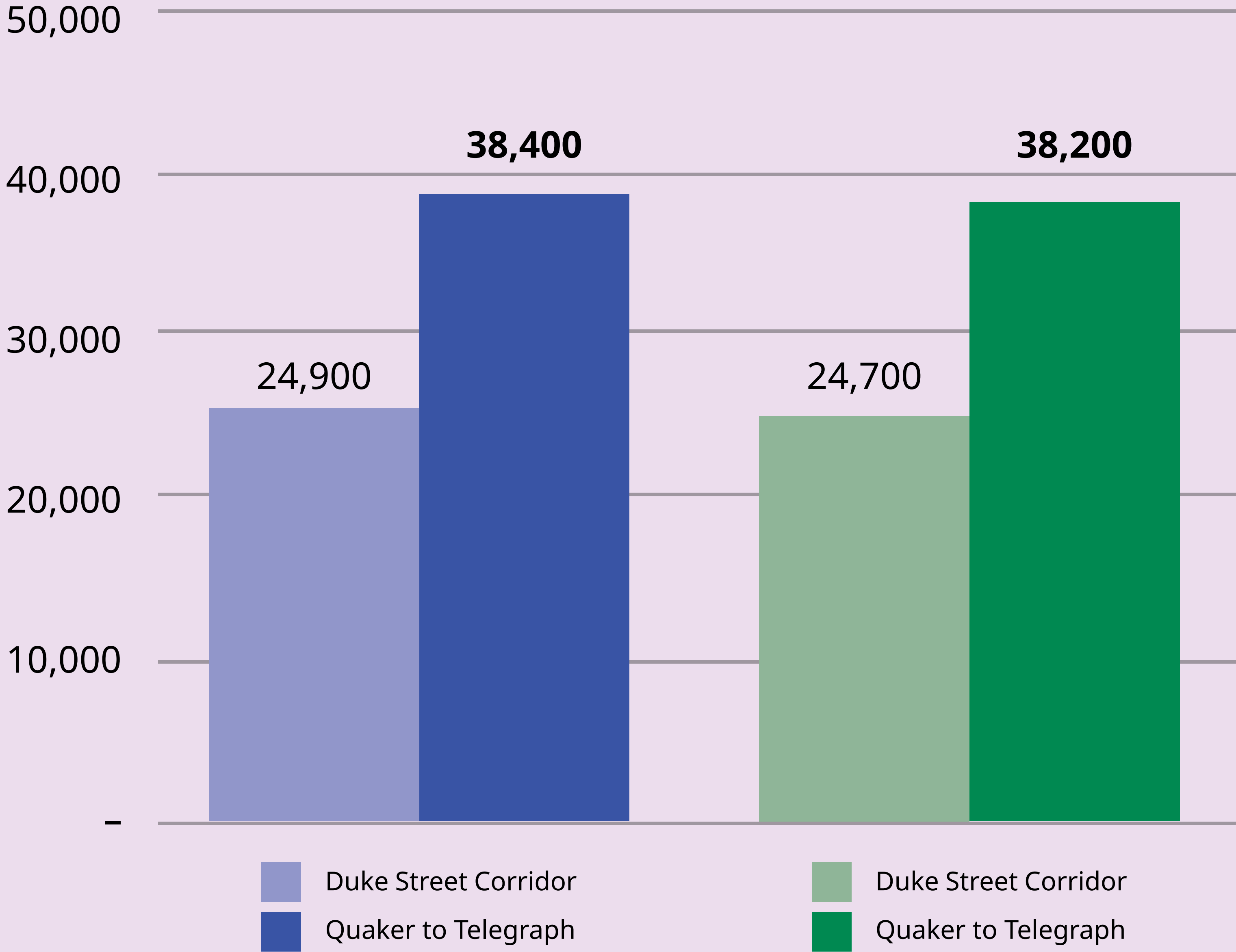
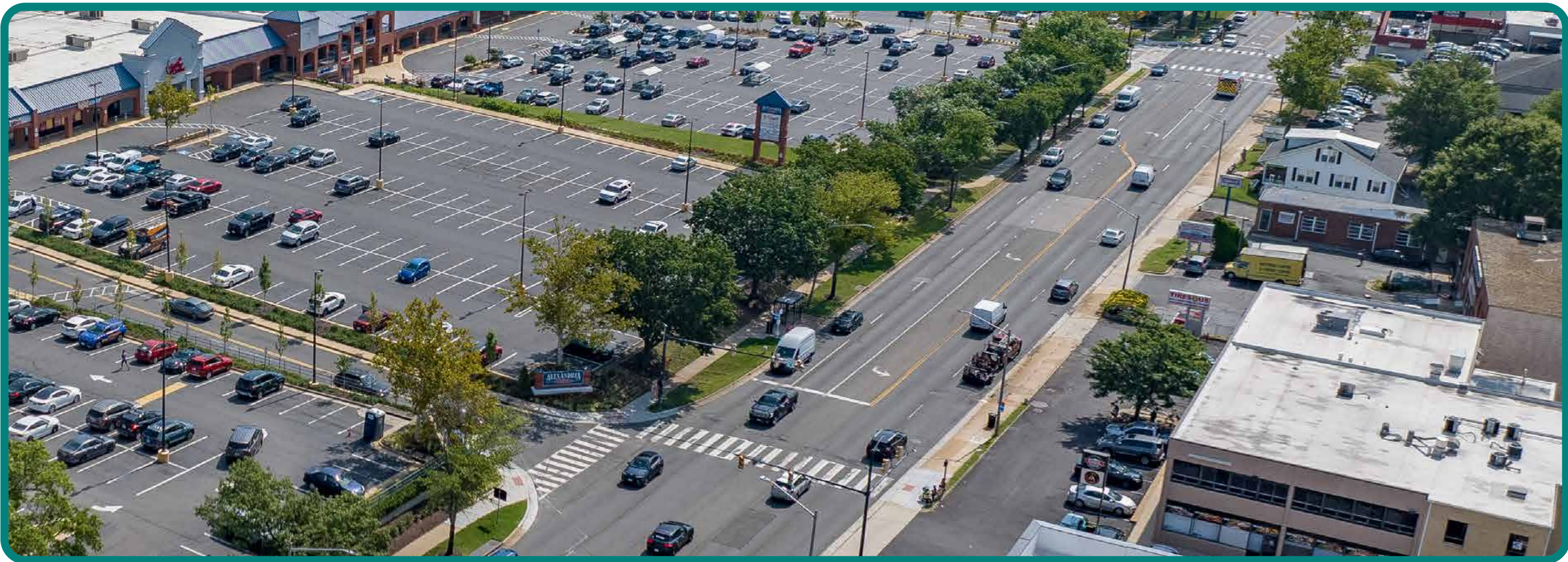
# Mobility: Corridor Impacts

## Future Traffic Volumes



**i** In all scenarios, Duke Street between Quaker Lane and Telegraph Road remains the segment of the corridor that sees the most traffic.

**i** Even though our analysis shows that Duke Street properties will not add additional traffic to the network in the future, the corridor's proximity to other major regional roadways means it will continue to carry a significant amount of traffic, and any "freed-up" space risks getting used up by regional travel demand.



Projected Future Daily Traffic Volumes, (2045)

# Mobility: Corridor Impacts

## ★ Key Takeaways

- + Duke Street between Telegraph Road and Quaker Lane will be capacity-constrained with or without development.
- + Even with development, traffic volumes will be nearly the same as today:
  - + *Properties in the Duke Street Land Use Plan area will **not add additional traffic to the network in the future** due to how residential land uses generate traffic compared to commercial land uses.*
  - + *Despite this, Duke Street's proximity to major regional roadways means it will **continue to carry a significant amount of traffic**, and any "freed-up" space risks getting used up by regional travel demand.*
  - + *However, we can mitigate the effects of regional traffic by continuing to advance improvements that **prioritize local trips** and **make Duke Street safer and easier to travel along and across** for all modes of transportation.*

## What's Next: Identifying Intersection Improvements

Analyzing key intersections along Duke Street to better understand traffic flow, connections for people walking and biking, and safety for all users—today and in the future.

## Why does our analysis tell us that Duke Street expected to see an overall decrease in daily trips by 2045?

Compared to commercial land uses, *residential land uses generate significantly fewer daily trips*. In the case of Duke Street, the overall decrease in travel demand is fueled by the large number of current commercial land uses that are planned to become residential in the future.



Residential buildings generate traffic because people travel to and from where they live—*but the number of trips is generally limited and predictable.*









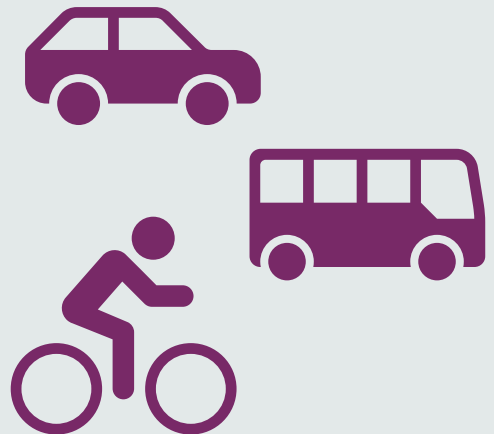





- + Households make a small number of trips per day.
- + The same people are making the trips.
- + Trips are spread across many destinations.



- + With safe and convenient multimodal options, more residents may choose to walk, bike, or use transit.

# Mobility: 2045 Transportation Conditions

## Key Issues

	<b>Safety</b> The safety of all Duke Street users when traveling along or across the corridor.		Increase
	<b>Traffic Speed</b> How fast cars, trucks, and other vehicles travel along Duke Street.		Decrease
	<b>Travel Time</b> How long it takes for vehicles to travel along Duke Street.		Slight Increase
	<b>Travel Choice</b> The number of easy, safe, and convenient modes of transportation to choose from.		Increase
	<b>Accessibility</b> The ease of traveling along and across Duke Street using all modes of transportation.		Increase
	<b>Travel Composition</b> The share of regional vs. local traffic that travels along Duke Street.		Improvement