JC ON THE MOVE

Jersey City Alternative Transportation Modes Assessment

NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

CITY OF JERSEY CITY
LET JERSEY PROSPER
CORPORATE SEAL

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Prepared for:

NJTPA

CITY OF JERSEY CITY CORPORATE SEAL

Prepared by:

Sam Schwartz

NELSON NYGAARD

Connect the Dots

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Executive Summary

Jersey City is the second largest city in New Jersey with nearly 300,000 residents and has experienced 18 percent growth in population over the last decade. The City is also multimodal, with a diverse array of transportation options available to residents, workers, and visitors. However, access to these transportation options can vary widely and certain types of trips are better served than others, creating mobility gaps (or transit deserts) within the city. The City of Jersey City has developed the *JC on the Move* study with the aim of addressing these gaps and creating equitable mobility options for all who live and travel in Jersey City.

In recent years, Jersey City has emerged as a leader in ambitious, forward-looking transportation planning and mobility programs. As cities look to recover following the impacts of COVID-19, tactical, equitable transportation solutions are needed even more than ever to address current gaps and to create a stronger foundation for a smarter and more inclusive future. *JC on the Move* analyzes the existing transportation network and travel patterns to identify transit deserts, Environmental Justice (EJ) communities, and where these areas overlap. The study also identifies emerging mobility options and matches them with areas in need. The results of this study provide an implementation strategy for the city to further advance its transportation, equity, Vision Zero, and climate action goals.

Jersey City is already one of the most transit-rich cities in the country. Targeting investments in new, expanded, or enhanced mobility options can close existing access gaps and ensure a universal level of equitable mobility for all those who live in, work in, and visit Jersey City. *JC on the Move* provides a rigorous and strategic framework, including tangible implementation steps, for Jersey City to realize that potential.

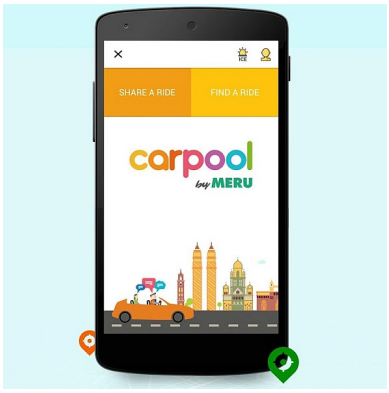
JC on the Move used a multi-step process that included assessing existing conditions of the transportation network and travel trends, identifying, and assessing a long list of emerging mobility options, and creating a shortlist of prioritized options for future implementation. Community engagement and stakeholder input were vital components that were woven throughout the course of the study. Through community engagement, analysis of a wide variety of data sources, and review of previous planning work, a list of gaps and needs were identified, which are on the following page. Many of these mobility gaps are most pronounced in communities with high concentrations of people of color, foreign-born populations, people with limited English proficiency, and low-income households. Addressing these gaps is critical for providing more equitable access to opportunities across Jersey City and the region.

- **Transit service is oriented around peak periods.** Findings highlighted the need to increase transit frequency (or provide additional services) outside of the morning and evening rush hours—particularly later in the evening and on weekends. According to anonymized location data, 18 percent of all trips in Jersey City occur between 7 pm and 6 am, when transit generally runs less frequently or stops running altogether.
- **Some communities that are more reliant on transit have relatively poor access to transit.** Several communities within Bergen-Lafayette and The Heights were identified as having high demand and need for transit but low access to transit, including both standard and high-frequency service. Some of these communities also include high concentrations of vulnerable populations identified in the Title VI and EJ analyses. A combination of built and natural barriers contributes to the lack of access to transit.
- **Several major job and activity centers are difficult to access via walking, biking, and transit.** Previous studies, community engagement, and data analysis all highlighted a number of important employment and retail locations that are challenging to access without a car due to physical and geographic barriers, limited transit service, and/or missing connections. The most prominent locations include Hudson Mall, the big box retail center north of Newport Centre, Port Jersey Industrial Park, Liberty State Park, Liberty State Park Industrial Park, and Lincoln Park.
- **Traveling between certain locations in Jersey City can take significantly longer on transit.** For certain locations that lack access to PATH or NJ TRANSIT light rail, it can take more than twice as long for people traveling on transit to complete their trip than people driving. Many of these trips originate in areas with high concentrations of Title VI and EJ populations.
- **In certain parts of the city, a significant share of car trips are less than 2 miles.** Approximately 36 percent of all car trips within Jersey City are less than two miles, but, in certain parts of the city, as much as half of all car trips are under two miles. With better, safer, easier-to-use alternatives, many of these short trips could shift away from cars, reducing congestion and emissions and improving safety. A number of the areas with significant numbers of short car trips were also identified as having high concentrations of EJ populations.
- **Neighborhoods with significant levels of biking lack safe infrastructure and/or access to Citi Bike, the City's bikeshare program.** A number of locations across Jersey City, particularly within Bergen-Lafayette and Journal Square, see high levels of biking (more than 1,000 trips by bike per day) but lack safe infrastructure for biking. These neighborhoods also include multiple roads on the city's Vision Zero High Injury Network. Several locations within

Greenville have high levels of biking, as well as existing bike infrastructure (although not protected bike lanes), but are not served by Citi Bike.

- **Paying for multiple transportation options is a burden for low-income families.** To fully utilize Jersey City's multimodal transportation options, residents have to pay for a variety of different services. These costs can add up to a significant portion of low-income households' budgets, forcing families to choose between transportation or other essentials.

Aerial Tram / Gondola



App-Based Car-Pooling

AV Shuttle

Bike Share

BRT

Car Sharing

Electric Moped Share

Electric Scooter Share

Microtransit

Mobility as a Service

Mobility Hubs

Study Methodology

A comprehensive list of innovative and emerging transportation modes, technologies, and strategies with the potential to enhance mobility in Jersey City was explored. This comprehensive list was narrowed down to a set of key modes and technologies based on the results of the Title VI and EJ analysis, transit desert analysis, public engagement, preliminary cost and feasibility assessment, and through collaboration with Jersey City and the NJTPA. Options such as underground car tunnels and app-based helicopters were eliminated due to fatal flaws and others were grouped together with similar modes and technologies. The final list of modes and technologies evaluated includes:

Aerial tram / gondola: A means of transportation consisting of tram carriers suspended by cables and pulled via electric motor or engine.

App-based car-pooling: Utilization of an app to find riders traveling to destinations in close proximity that facilitates the sharing of the ride. Currently Hudson TMA (Transportation Management Association) operates a carpooling program, however it is not app-based.

Autonomous shuttle: A low-speed shuttle service providing shorter length trips utilizing Advanced Driver-Assistance Systems (ADAS) and Autonomous Vehicle (AV) technology.

Bike share: A system of shared fleets of bikes through which users can rent bikes from docks, or bikes can be located and rented via mobile app for dockless systems. Jersey City currently has a bike share system operated by Citi Bike, and this strategy would expand this system.

Bus Rapid Transit (BRT): Fixed-route bus lines using dedicated lanes, off-board fare collection, platform-level boarding, transit signal priority, substantial stations, and other features that elevate local bus service to rapid transit service.

Car sharing: A membership app-based program that allows users to rent a shared car by the minute, hour, or day, returning the car to an app-specified location upon completion of the trip.

Electric moped share: A system of shared electric mopeds through which users can rent electric mopeds, using an app to locate these vehicles and then check them back in upon completion of the ride.

Electric scooter share: A system of shared fleets of electric scooters through which users can rent scooters from docks, or scooters can be located and rented via mobile app for dockless systems.

Microtransit: A shared ride service, accessed via phone app, providing short trips via van or shuttle connecting riders' neighborhood or home to larger transportation networks. Jersey City currently has a microtransit service operated by Via and this strategy would expand/improve that service.

Mobility as a Service: One app or digital platform that allows users to plan, book, and pay for multiple mobility services.

Mobility hubs: Places in a community that co-locate multiple modes of transportation and provide amenities to enhance the rider's experience and facilitate easier transfers between modes.

The evaluation process resulted in three categories of modes being identified that varied based on level of impact and feasibility. The modes that received the highest overall scores include, microtransit, BRT, and bike share. These were identified as having the most potential impact in terms of benefits and feasibility.

Further discussion of the highest scoring modes as well as descriptions of the other categories and the modes within them are as follow:

- **Act Now -** Short-term priorities that meet current needs and can be implemented now or are already existing within Jersey City.

  Microtransit, BRT, Mobility Hubs/MaaS, and Bike share are identified as short-term priorities and should be acted upon now by Jersey City. Microtransit can help to replace single occupancy vehicle (SOV) trips, reducing overall vehicle miles traveled (VMT) as well as being able to provide off-peak service that fills existing gaps and complements existing transit serving peak hours. BRT is in alignment with Jersey City communities' current high utilization of bus service, and the improvements that BRT provides could enhance that service for existing and new users. While there are some components of BRT that are longer term improvements, there are several aspects that can be implemented in the short-term. These are outlined in the Implementation Matrix. Bike share already exists in Jersey City and can connect to existing transit service, with the potential to increase transit ridership by providing first and last mile connections to and from transit. Mobility Hubs provide an opportunity to increase the efficiency and effectiveness of the existing transportation modes in Jersey City and can be implemented fairly quickly.

- **Build Towards -** Medium or long-term priorities that address needs but are not currently feasible. These modes are not a priority right now and should continue to be monitored for future implementation.

  Mobility as a Service and AV Shuttles are identified as medium/long term priorities. These modes address Jersey City's needs but were seen as slightly less impactful, less feasible, and/or not yet available for wide-scale adoption and implementation. AV shuttles would likely reduce SOV trips and VMT, potentially increasing road safety and contributing to Jersey City's Vision Zero goals. However, public perception of AV safety is mixed, as is AV safety performance in urban environments. Mobility as a Service simplifies the use of several modes by making them all bookable via one app or service, significantly improving the convenience of mobility services that could also bolster transit.

- **Keep an Eye Out & Look for Opportunities -** Modes that do not currently address all the needs of the city but, if initiated elsewhere in the region, could be beneficial for Jersey City.

  The remaining modes still have potential

and should be monitored for future viability and implementation in Jersey City. These include electric scooter share, electric moped share, aerial tram / gondola, and app-based carpooling.

Recommendations and Next Steps

Recommendations were developed for all the modes identified as Act Now and Build Towards through the selection process. Information on the timeframe, cost, and priority of each recommendation is included in the form of an implementation matrix. This matrix can be used by the City of Jersey City to understand and identify recommendations for implementation throughout the coming years.

To complement the implementation of these modes, a series of policy and programmatic recommendations that enable the integration of modes and focus on the specific needs of Environmental Justice communities and those in the City's transit deserts have been developed. These recommendations were created around three core objectives, equity creation, multimodal systemization, and improving safety and efficiency. Equity was utilized as a foundational component of this study, to prioritize residents current and future needs. These same needs were fundamental in determining the options and operational improvements that could be implemented. In reaching these conclusions, this report presents a holistic and community-oriented solution to the current needs of Jersey City's transportation system.

Regarding next steps, much more study and input from the public will be needed to advance these improvements, and funding will need to be secured. The City of Jersey City will be evaluating traffic calming methods, which will contribute towards safer conditions for walking and biking, including microtransit, and may improve traffic conditions for transit and other shared use modes. In addition, the City of Jersey City will start work with relevant partners to advance the top scoring modes identified and make targeted investments in transportation infrastructure in the neighborhoods identified as transit deserts and that have high concentrations of Title VI and EJ populations.

01. Introduction

Jersey City is the second largest city in New Jersey with nearly 300,000 residents and has experienced 18 percent growth in population over the last decade. The City also has a multimodal transportation network, with diverse transportation options available to residents, workers, and visitors. However, access to these transportation options varies widely and certain types of trips are better served than others, creating mobility gaps (or transit deserts) within the city. The City of Jersey City has developed the *JC on the Move* plan with the aim of addressing these gaps and ensuring equitable mobility options for all who live and travel in Jersey City.

In recent years, Jersey City has emerged as a leader in ambitious, forward-looking transportation planning and mobility programs. The City implemented the State's first on-demand transit system (Via) and has developed a Bicycle Master Plan to complement the Citi Bike program. However, COVID-19 has had a large impact on the transportation choices individuals are making around the world. As cities look to recover smarter and more inclusively following the impacts of COVID-19, tactical, equitable transportation solutions are needed even more than ever to address current mobility gaps and create a stronger foundation for thriving into the future. *JC on the Move* allowed the City of Jersey City to assess its existing transportation system, changes in travel patterns due to COVID-19, and identify new transportation modes, and improvements to existing modes to better serve its residents and visitors. The study analyzed the existing transportation network and travel patterns to identify transit deserts, EJ communities, and where they overlap and identifies emerging mobility options and matches them with areas in need. The results of this study provide an implementation strategy for the City to further advance its transportation, equity, Vision Zero, and climate action goals.

Project Process and Timeline

JC on the Move used a multi-step process that included assessing existing conditions of the transportation network and travel trends, identifying a long list of emerging mobility options, developing a methodology to assess these modes and create a shortlist, and creating an implementation strategy for those selected modes. Community engagement and stakeholder input were vital components of the project which were woven in throughout the course of the study.

The appendices to the final report include additional information about the data collection, outreach, and analyses undertaken during this study.

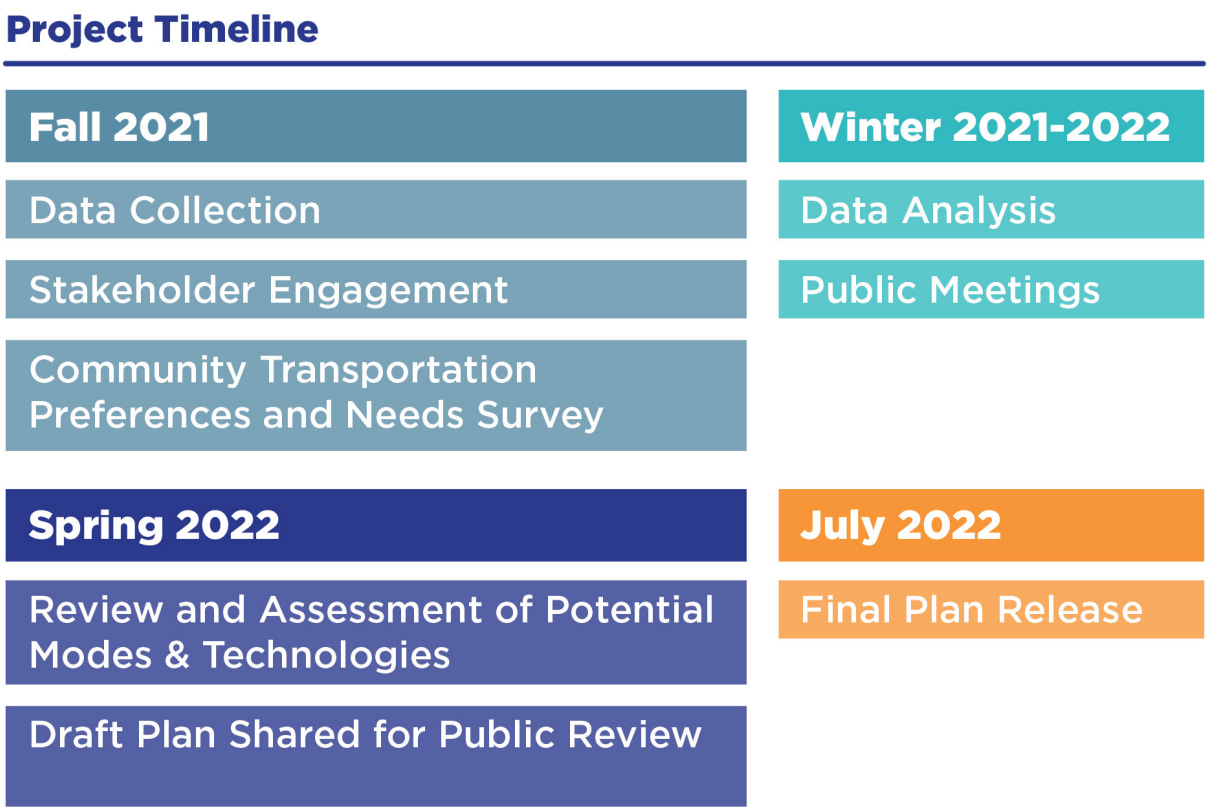
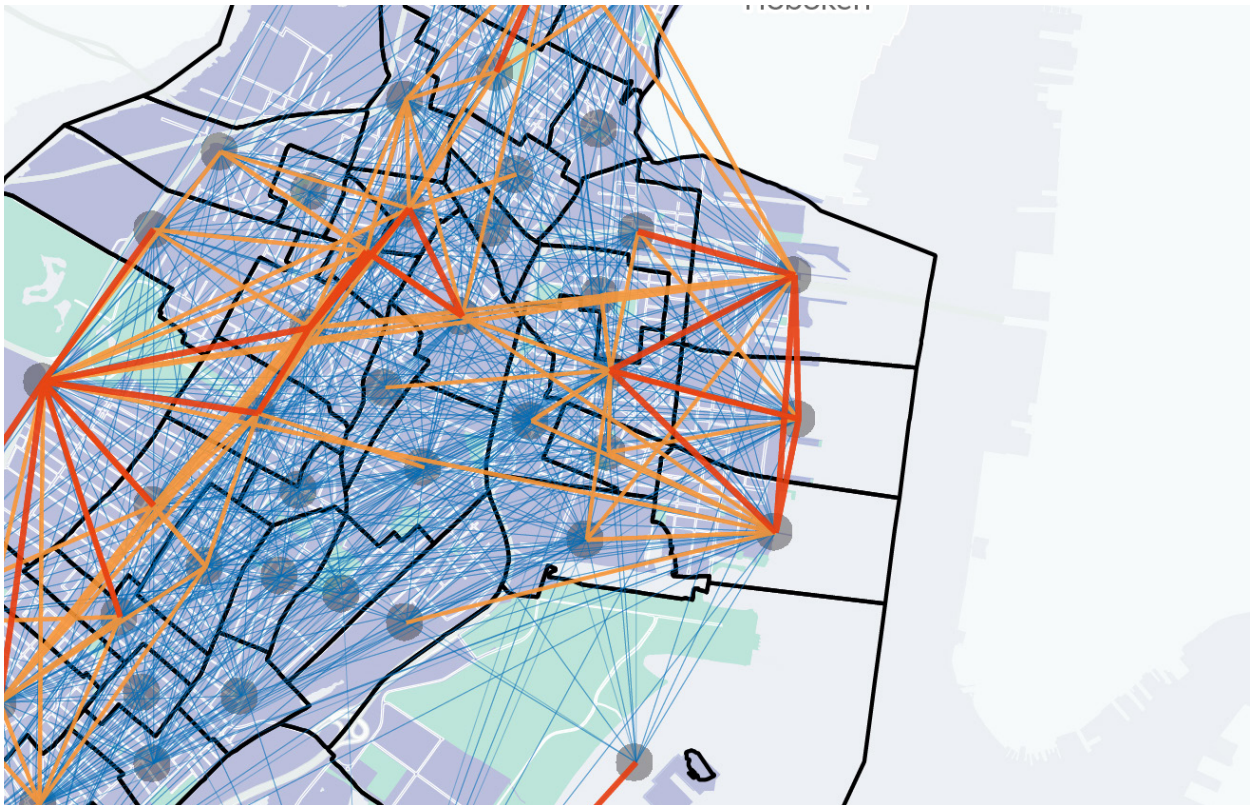


Figure 1. Project Timeline

02. Existing Transportation Conditions and Trends



Step one in the study's process was to assess the existing conditions for Jersey City. This phase included a review of previous studies conducted by the City and by relevant jurisdictions; the collection and evaluation of demographic and population data; and an assessment of current transportation options and travel behaviors. All this information helped to develop a baseline for the study and provide valuable information which was utilized in the following phases.

Previous Studies

Previous studies conducted in and around Jersey City were reviewed at the beginning of the effort to better understand the context used to guide the City's past planning efforts and to align the goals and objectives of this study with those from earlier or parallel planning efforts. Examination of these studies allowed the consultant and Jersey City staff to be aware of upcoming projects that needed to be coordinated with. The previous studies that were reviewed include, but are not limited to the Bicycle Master Plan, Pedestrian Enhancement Plan and Jersey City Bus Study. A full list of all twelve studies that were reviewed can be found in the Appendix.

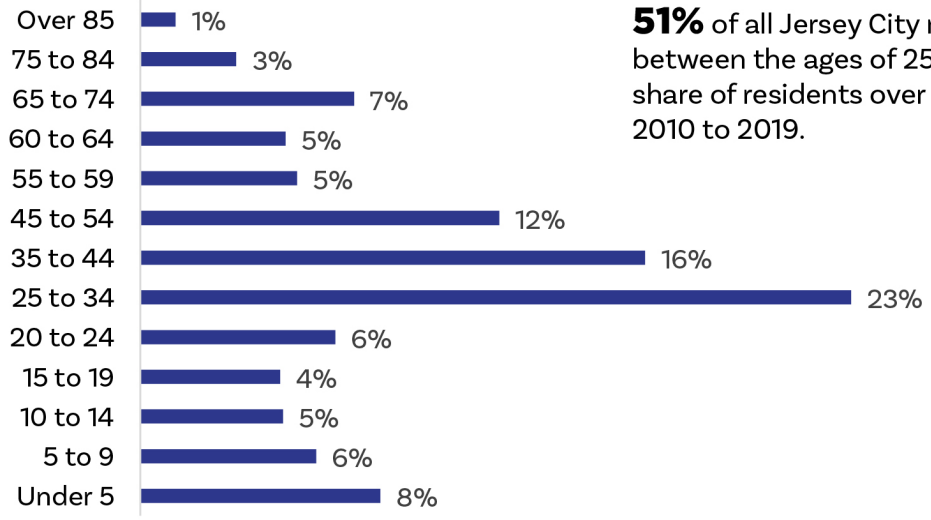
The key aspects from these studies that were incorporated into *JC on the Move* include the following:

- **Vision for Transportation in Jersey City and the Region:** The City's vision for its transportation system and the vision for the larger regional system.
- **Goals Related to JC on the Move:** Key goals from previously completed plans that JC on the Move can advance.
- **Recommendations Related to JC on the Move:** Specific recommendations (e.g., projects, programs, policies) that may overlap, impact, or inform the process and outcomes of JC on the Move.
- **Identified Transportation Gaps/ Needs:** Specific transportation gaps and needs (e.g., destinations that are difficult to access or areas that lack transportation options) that could potentially be addressed through JC on the Move.

Population and Demographics

Jersey City is the second largest city in New Jersey with nearly 300,000 residents (292,449 as of 2020) and experienced an 18 percent growth in its population over the last decade, adding 44,852 new residents.[1] Jersey City's growth outpaced the rest of northern New Jersey, which grew 5.7 percent over the same period.[2] Jersey City is diverse, with the majority of residents (53 percent) speaking a language other than English, and four racial/ethnic groups including Black, Hispanic/Latino, Asian, and White constituting relatively equal shares of the population. From 2010 to 2019, the share of Black or African American residents in Jersey City shrank by 9 percent, while the other major racial/ethnic groups noted above all grew.[3]

Age



51% of all Jersey City residents are between the ages of 25 to 44, but the share of residents over 65 grew 22% from 2010 to 2019.

Figure 2. Jersey City Age Breakdown (2019)

Nearly half (49 percent) of all households in Jersey City include at least one child under the age of 18, but this number has decreased since 2010 when 56 percent of households included children. Over the same time period the population's median age has increased (from 33.1 in 2010 to 34.3 in 2019) and the share of residents over the age of 65 increased by 22 percent; however, the majority (51 percent) of Jersey City residents are between the ages of 25 to 44 (figure 2). More than one out of five (22 percent) Jersey City residents has a disability.[4]

Jersey City's economy added 21,827 jobs from 2010 to 2019, a 21 percent increase, significantly outpacing overall job growth for New Jersey as a whole, which experienced an 8 percent increase in jobs. Much of the growth in Jersey City was concentrated in higher wage jobs (jobs with earnings over $3,333 per month), with nearly four out of every five new jobs (77 percent) being high wage. Finance, insurance, and real estate are the largest industries within Jersey City, together accounting for 28 percent of all jobs in the city.[5] From 2010 to 2019, median household income in Jersey City grew by 30 percent from $54,280 to $70,752. The share of households within every income bracket under $100,000 shrank during this time period, while the share of households in all brackets over $100,000 grew substantially (figure 3).[6]

Northern New Jersey's population and economy are forecasted to grow steadily over the next 30 years. Specifically, regional population is projected to grow by 15 percent by 2050, and the number of jobs by 10 percent.[7] Jersey City's accelerated growth is also projected to continue. The City's population and number of jobs are both forecast to grow by more than 30 percent, reaching nearly 400,000 people and more than 165,000 jobs respectively.[8]

Household Income

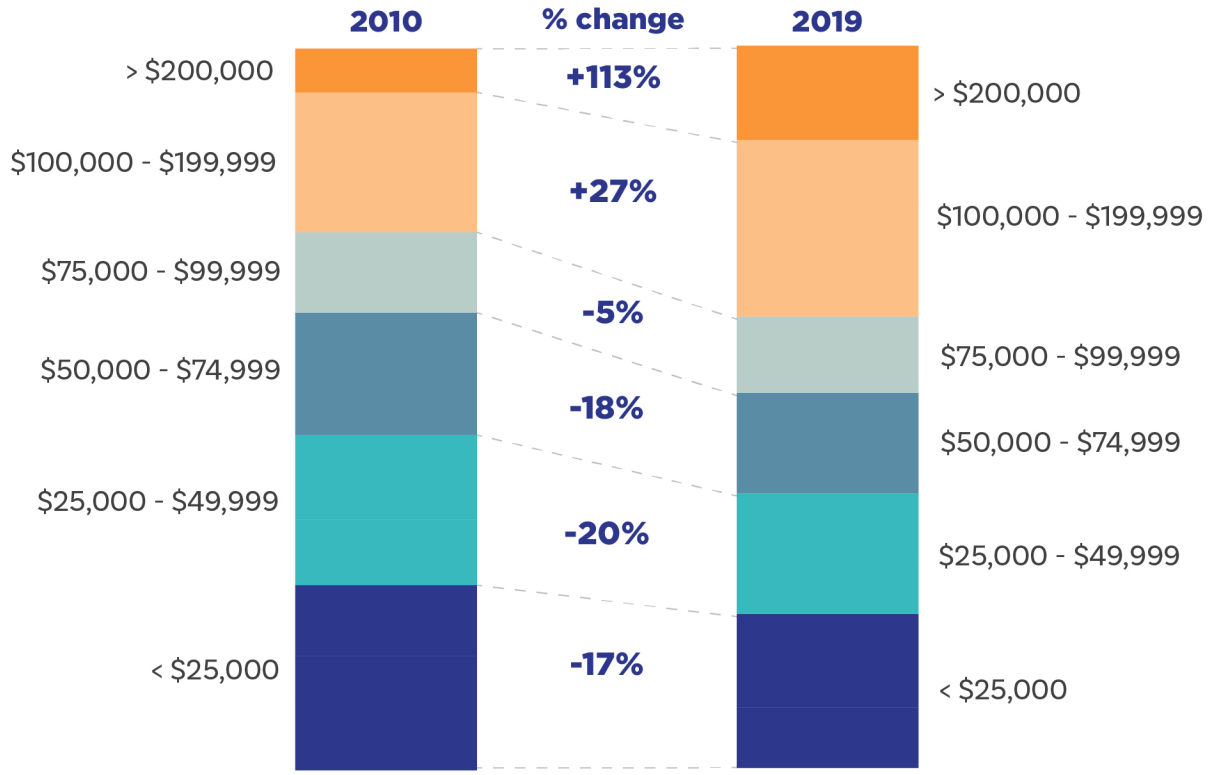


Figure 3. Jersey City Household Income Categories (2010 vs. 2019)

Transportation

As noted, the City has diverse transportation options. Jersey City's 245 miles of local streets serve people walking, biking, on buses, and driving or riding in cars—whether privately owned, for-hire vehicles (e.g., taxis, Uber, and Lyft) or shared cars (e.g., Zipcar, Getaround). The City's transit network consists of NJ TRANSIT bus and light rail service, PATH train service with connections to New York City and Newark, ferry service, and several private bus operators. Jersey City is also part of the Citi Bike bike-sharing system and has a shared, on-demand transit service, provided by Via, in February 2020. In addition, the city's network of sidewalks and bikeways enable many trips to be made via walking and biking.

The major regional roadways that connect Jersey City to the surrounding areas include the Hudson County Extension of the New Jersey Turnpike (I-78), US Route 1&9 as well as US Route 1&9 Truck, Route 139, Route 440, Route 7, and Route 185. These regional roadway connections include four bridges: the I-78 Newark Bay Bridge, the US 1&9 Truck Bridge, the Pulaski Skyway, and the Route 7 (Wittpenn) Bridge. Additionally, the Holland Tunnel entrance into New York City is located within Jersey City and was noted through public engagement as a barrier between neighborhoods.

Commuting and Access to Jobs

As a result of the many transportation options (figure 5), most workers rely on walking, biking, and transit to get to work, and Jersey City has one of the highest non-single-occupant vehicle mode shares of any U.S. city. Less than one out of every three Jersey City residents (31 percent) drives alone to work and 57 percent walk, bike, or take public transit (see figure 4). Compared to 2010, more than 10,000 additional residents (a 2.5 percent increase) walked, biked, or used public transit to get to work each day in 2019.[9] Jersey City's sustainable mode share also compares favorably with many of its larger peers. A greater portion of workers in Jersey City (57 percent) walk, bike, or take public transit for their commute to work than in Baltimore (25 percent), Philadelphia (36 percent), or Boston (51 percent).

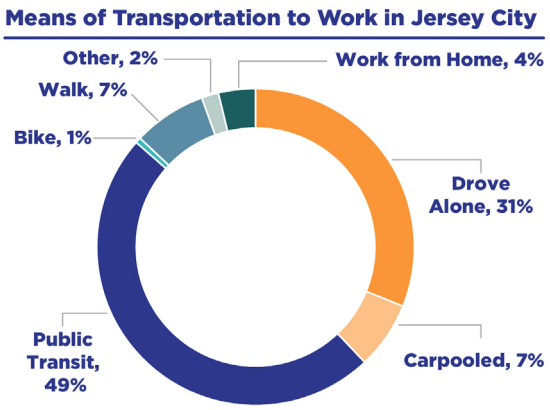


Figure 4. Means of Transportation to Work in Jersey City (2019)

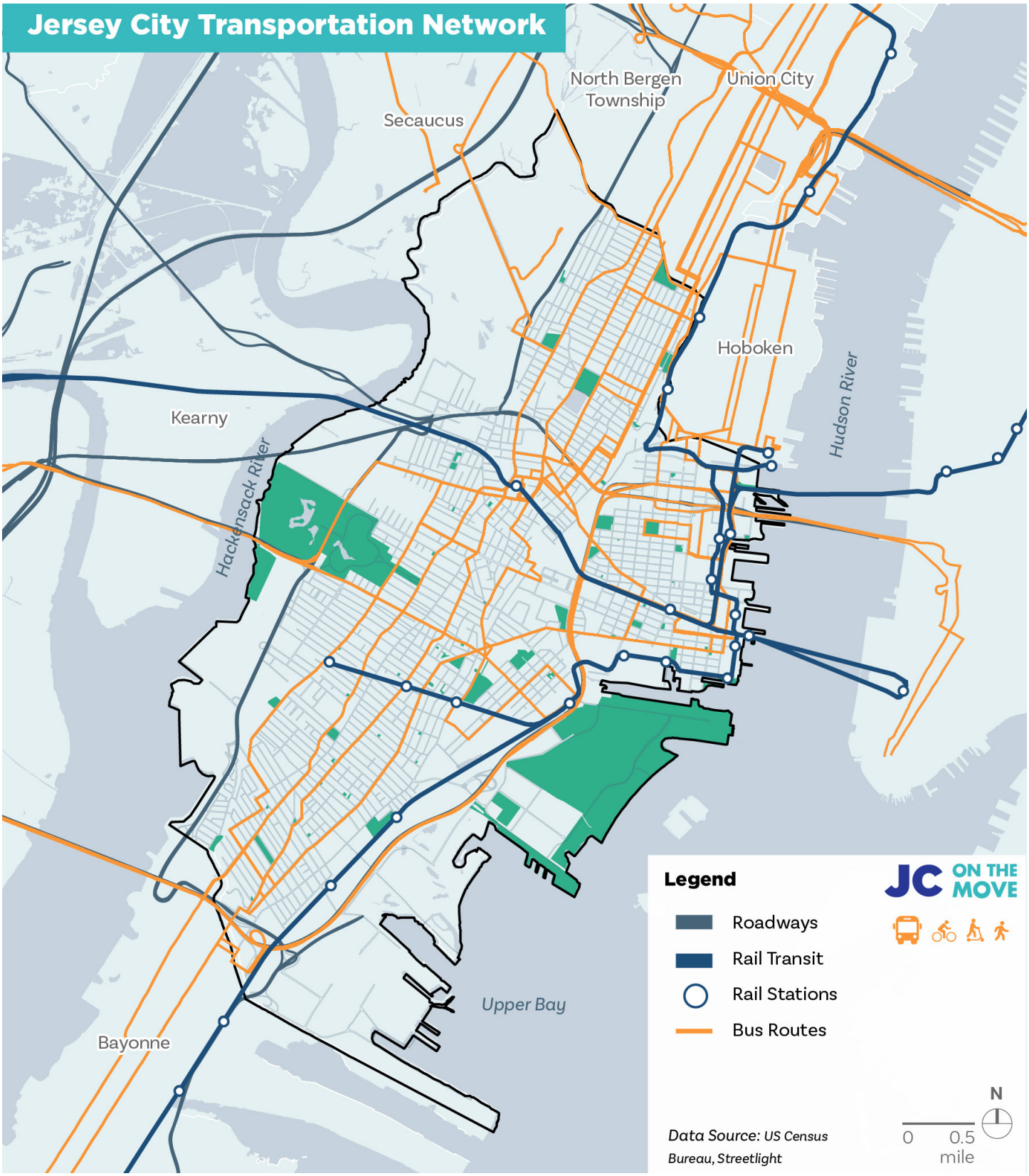


Figure 5. Jersey City Base Transportation Network

Jersey City's transit network enables residents and workers to make sustainable travel choices and provides access to a wide range of opportunities. Nearly all residents (99 percent) live within 0.5 miles of transit and 64 percent live within 0.5 miles of transit that operates frequently (i.e., comes every 15 minutes or better on average) from 7am – 10pm. Across the City, the average household has access to 869,259 jobs within a 30-minute transit trip, significantly more than in some of Jersey City's larger peers (figure 6).[10]

Employed Jersey City residents spend an average of 37 minutes commuting to their jobs, but 20 percent of workers spend more than an hour on their journey to work.[11] 82 percent of employed Jersey City residents commute outside the city for work, and 18 percent (25,978 residents) both live and work in Jersey City. An additional 100,873 people commute to jobs in Jersey City from outside the City's boundaries.[12]

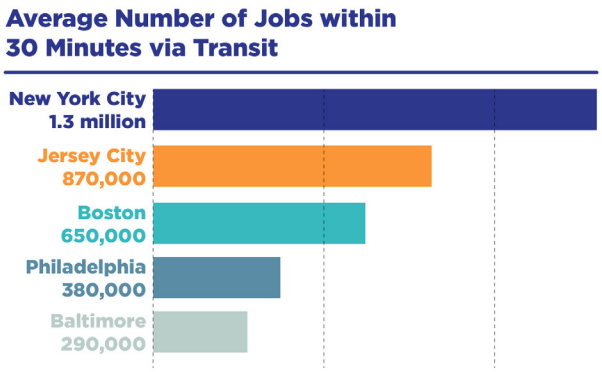


Figure 6. Access to Jobs via Transit in Jersey City and Peer Cities (2019)

Travel Patterns

Travel patterns for all trips within Jersey City were analyzed using StreetLight Data, which aggregates and anonymizes cellphone location information.[13] Commute trips only account for a small share of the trips occurring in Jersey City. On an average weekday in April 2019 (selected for the purpose of evaluating pre-pandemic travel behavior), there was a little over one million total trips within Jersey City (trips that both start and end within the city). However, only 16 percent of the trips that started and ended in Jersey City were work trips. The mode share for all trips in Jersey City

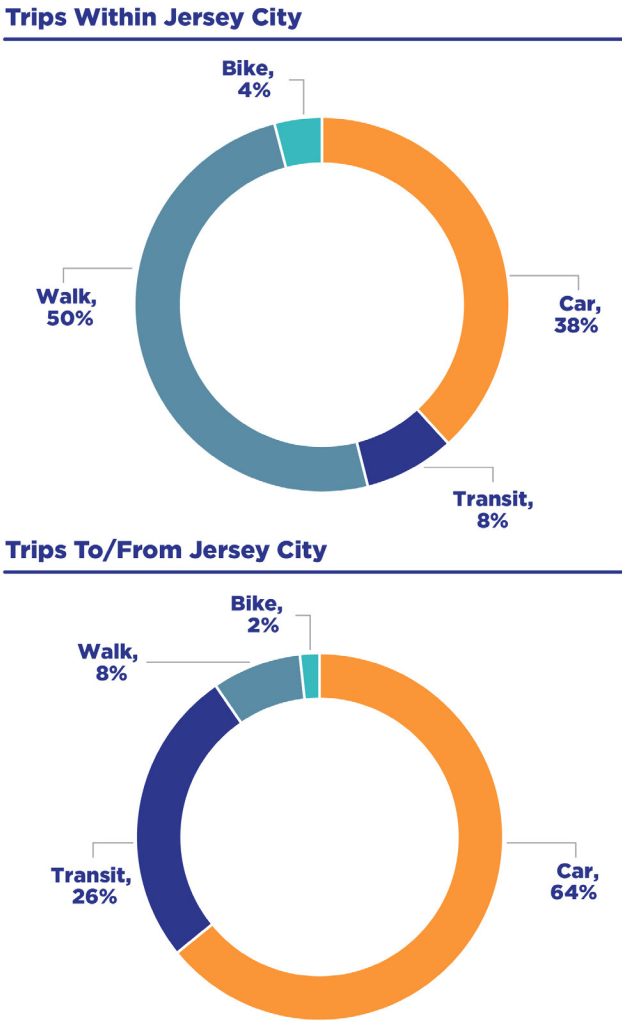


Figure 7. Mode Share for Trips within vs. to/from Jersey City (2019)

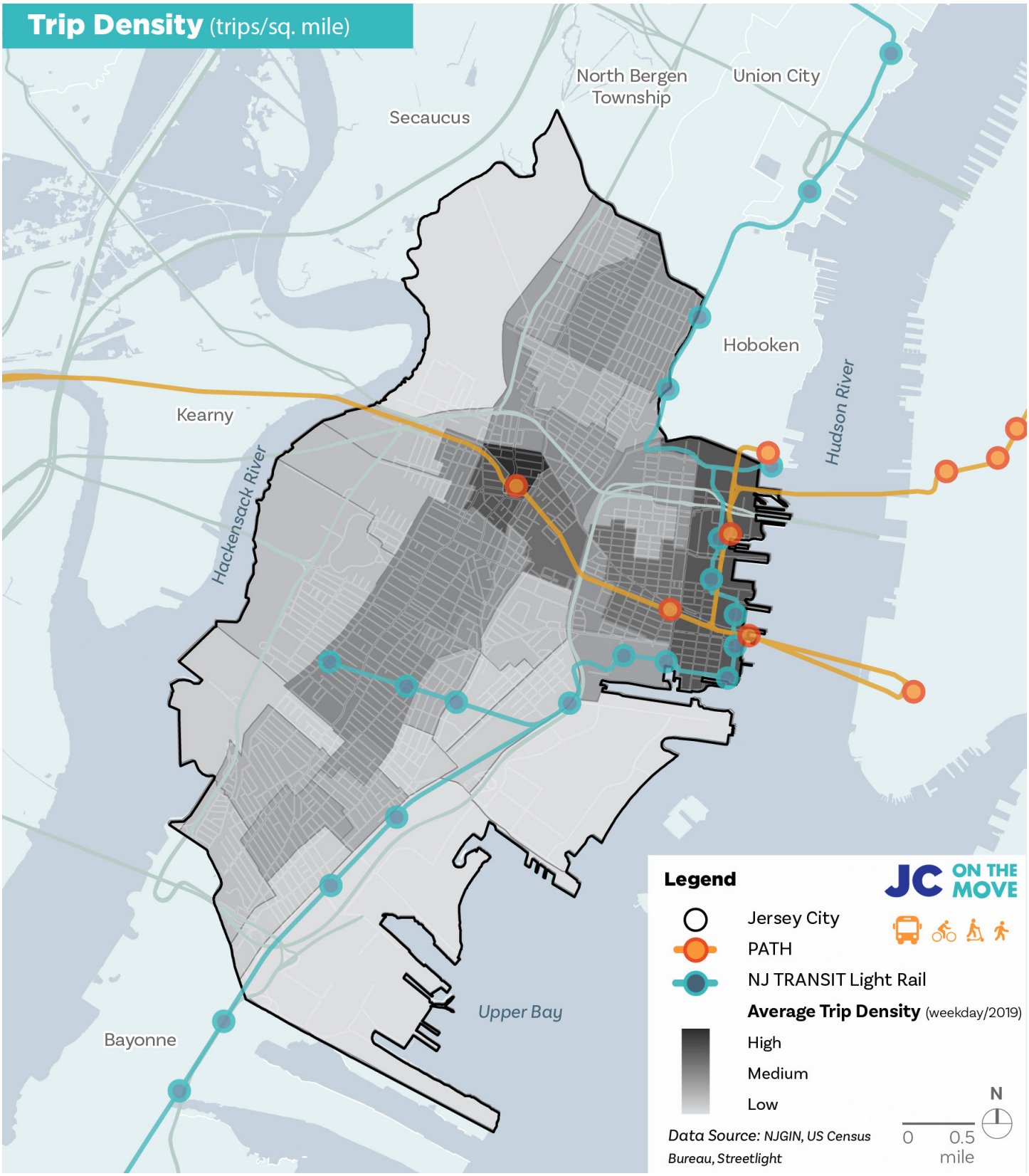


Figure 8. Weekday Trip Density in Jersey City (2019)

differs from the commute mode share (figure 7). While the same proportion of trips are made by car, people use transit less frequently for non-work trips and walk and bike significantly more. Half of all the trips within the city on an average weekday are walking trips. In addition to the million trips within Jersey City on an average weekday, an additional one million trips either start in Jersey City and end outside the city or vice versa. The majority of these trips (64 percent) are made by car.

The greatest density of trips in Jersey City (measured as the average number of weekday trips per square mile in 2019) occurred in the area around Journal Square. Other concentrations of weekday trips occurred along the city's eastern waterfront including Exchange Place, Newport Centre, and the big box retailers north of Newport Centre; downtown around the Grove Street PATH station; and the area directly east of Journal Square between Newark Avenue and Montgomery Street.

Many of the origin-destination pairs with the highest number of trips overlap with areas in Jersey City with the greatest density of trips (see figure 9). Significant numbers of commuters travel to Journal Square from surrounding neighborhoods, along the eastern waterfront, and between downtown and the eastern waterfront. Significant numbers of commuters also travel within The Heights and between the West Side, Lincoln Park, and the shopping center west of Route 440.

StreetLight data provides demographic and household income information associated with trips. This information was analyzed by mode of transportation for trips within Jersey City. Seven out of 10 walking trips are made by people from households with incomes under $75,000 (the City's median household income is $70,752) and 68 percent are made by people of color. Rail trips are disproportionately made by a significant margin by people from households with incomes over $75,000 (40 percent) and White residents (44 percent); however, the majority of rail trips (60 percent) are still made by people of color and people from households with incomes under $75,000.

Within Jersey City, as household income rises, the share of trips people make by car also increases. People from households with incomes under $20,000 only make 37 percent of their trips by car. The share of trips made by car increases to 42 percent for people from households with incomes over $100,000. Walking trips exhibit the opposite relationship. People from the lowest income households make the majority of their trips within the city by walking (51 percent), while people from the highest income households make 45 percent of trips by walking. The share of trips made by bus and rail is fairly similar across income categories, and the share of trips made by bike increases as income rises, with 2 percent of trips made by bike among the lowest income households compared to 3 percent of trips among the highest income households.

On an average weekday, 30 percent of all trips within Jersey City occur between 3 – 7pm. Eighteen percent of all trips, though, take place between 7pm – 6am, when transit is running less frequently, and it is often dark outside which may make walking and biking

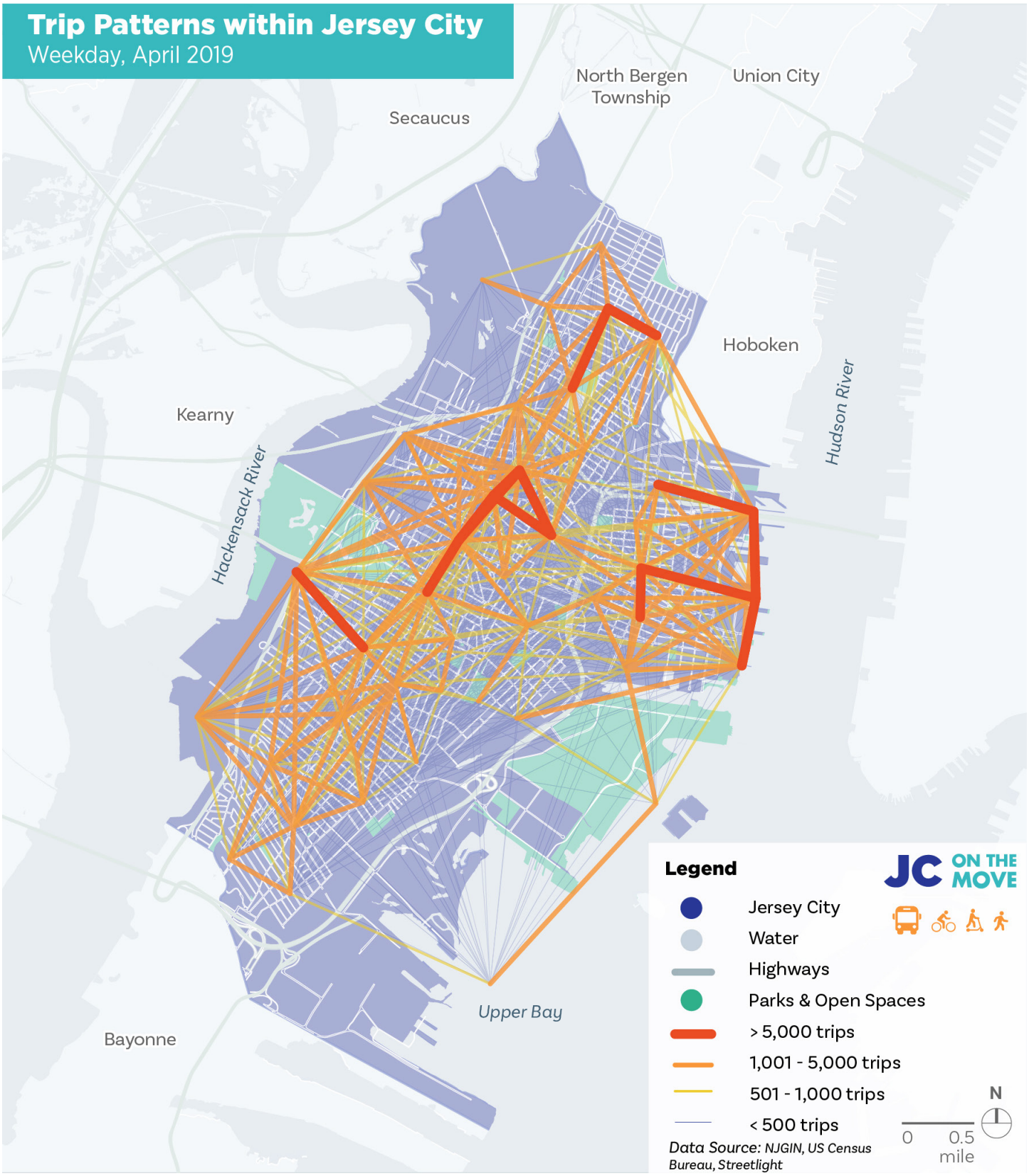


Figure 9. Weekday Origin-Destination Patterns in Jersey City (2019)

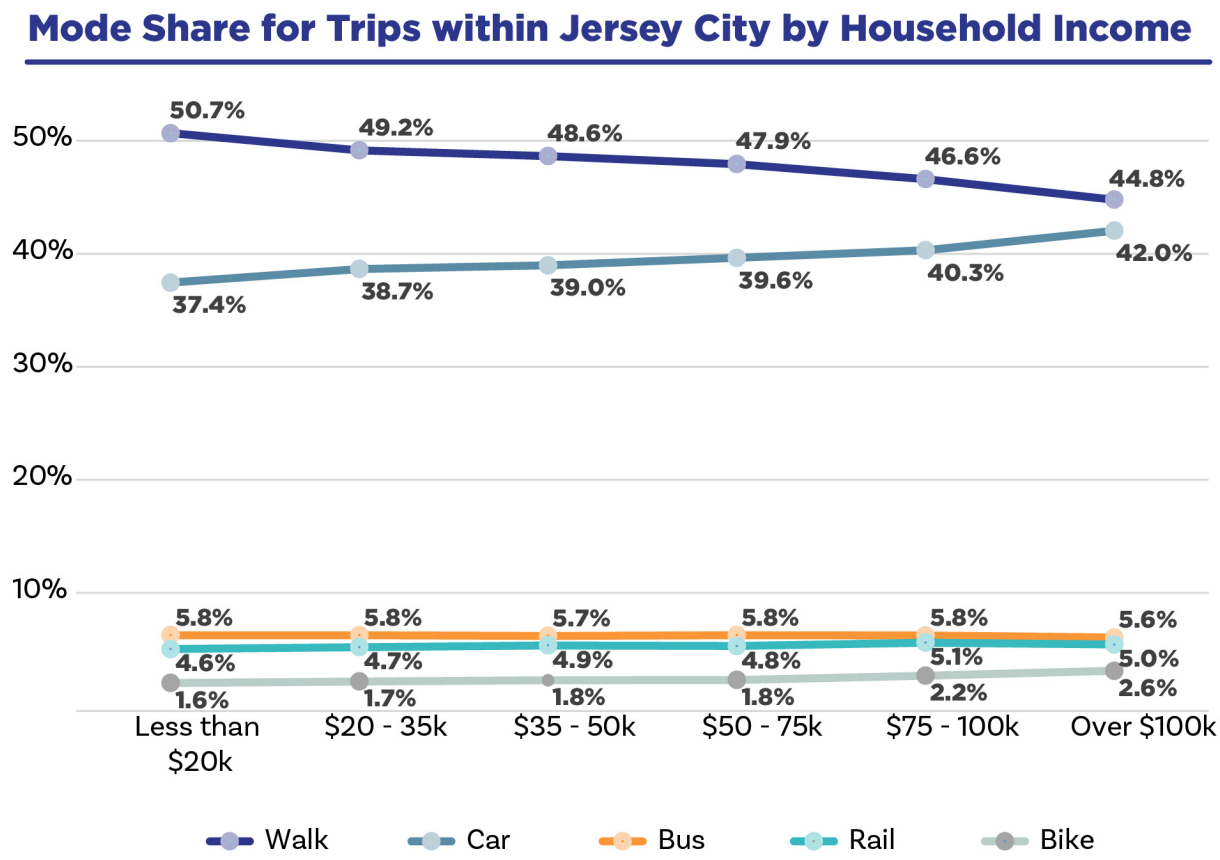


Figure 10. Mode Share for Trips within Jersey City by Household Income (2019)

less comfortable.

The amount of transit service that operates within a dedicated right of way in Jersey City (both the PATH train and NJ TRANSIT Light Rail) in combination with traffic congestion means that transit is often the fastest option for getting around in Jersey City. For origin-destination pairs where transit is an option, the fastest transit option available is, on average, 10 percent faster than driving.[14] However, of all trips within Jersey City, more than 8 percent are between origins and destinations where there is not a viable transit option.

Figure 11, compares the time to travel between different origins and destinations within Jersey City via driving vs. transit (using the fastest available mode). Points to the left of the dotted line represent origin-destination pairs where transit is faster than driving, while points to the right represent origin-destination pairs where driving is faster. Origin-destination pairs where no trips were made by transit are not shown.

The average weekday driving trip within Jersey City in 2019 was 3.4 miles and 28 minutes (see figure 12), which was longer in terms of time and distance than both bus and rail trips. 35 percent of all driving trips within Jersey City were less than 2 miles in

Transit vs. Driving Time Comparison

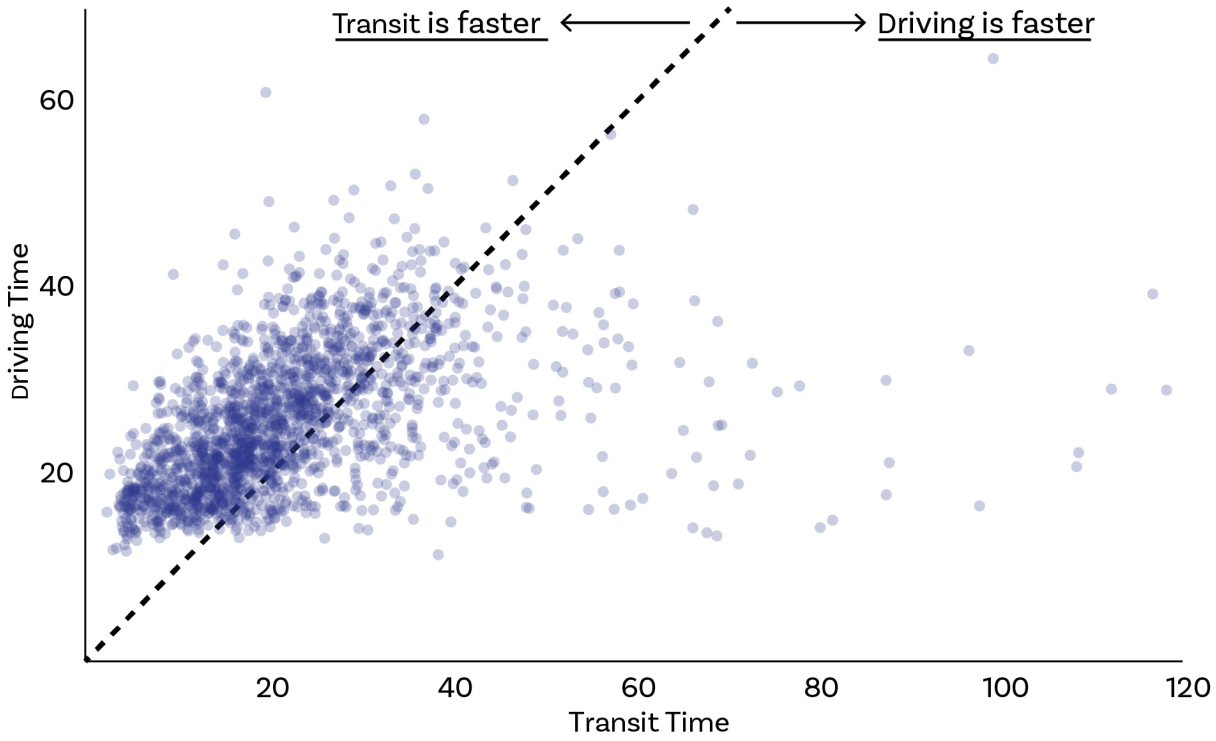


Figure 11. Transit Travel Time Competitiveness (2019)

	Within Jersey City		To/From Jersey City	
Mode	Average Trip Distance (miles)	Average Trip Duration (minutes)	Average Trip Distance (miles)	Average Trip Duration (minutes)
Car	3.4	28	15.0	53
Bus	2.9	23	7.6	46
Rail	2.3	12	8.5	35

Figure 12. Average weekday trip distance by mode

2019, which is a comfortable biking distance for many people provided there is adequate infrastructure and riders feel safe. There were 1,480,127 VMT on the average weekday in 2019, just including trips that started and ended within Jersey City. Average VMT was 17 percent lower on weekends—1,230,360 miles.

Transportation Cost as a Share of Household Income

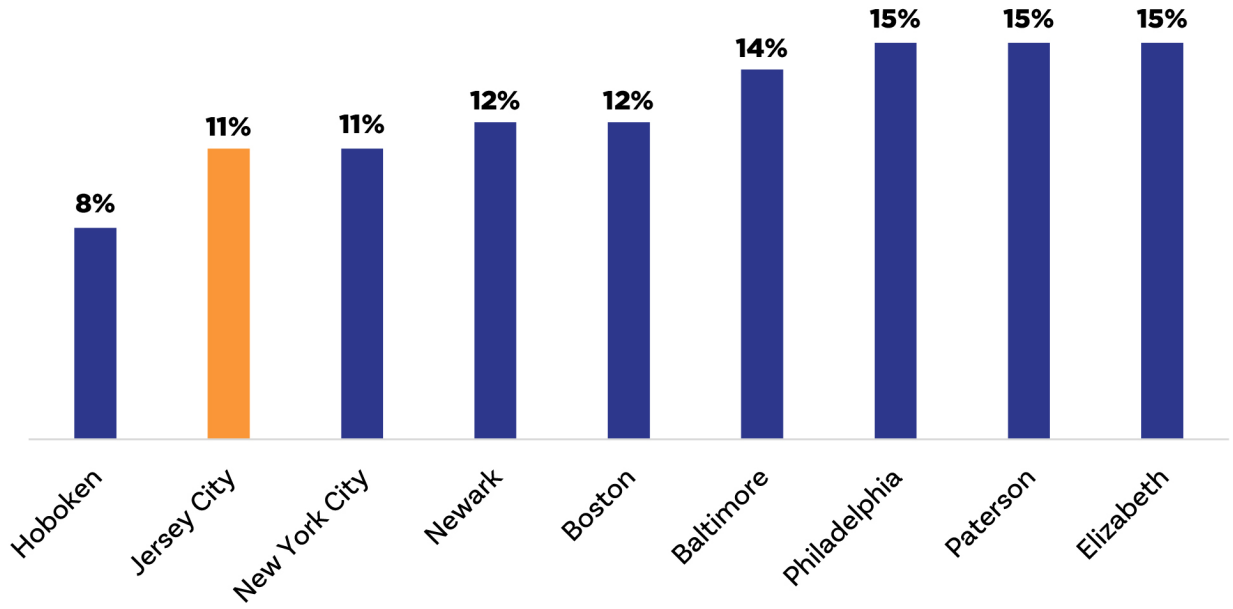


Figure 13. Transportation Costs as a share of household income in Jersey City and Peer Cities

Transportation Costs and Access to Vehicles

Nearly 40,000 households in Jersey City do not have access to a car, accounting for about 37 percent of all households.[15] Between residents' low rates of auto ownership and the availability of alternative, low-cost transportation options, Jersey City residents on average spend a relatively small share of their income on transportation costs compared to many other cities (see figure 13). The average Jersey City household spends 11 percent of their income on transportation, which amounts to around $7,000 per year.[16] While this is substantially less than households spend on transportation in many other cities around New Jersey and in Jersey City's larger peer cities, transportation costs can still be a financial burden, especially for lower-income households. For example, for households earning 80 percent of Jersey City's median income of $70,752 per year with one commuter who uses light rail and the ferry to commute to work and another who drives, transportation costs could be approximately 18 percent of budgets. For households earning 50 percent of Jersey City's median income with two commuters who drive to work, transportation costs could be nearly 38 percent of their budget (Figure 14).

Share of Income Spent on Monthly Transportation Costs

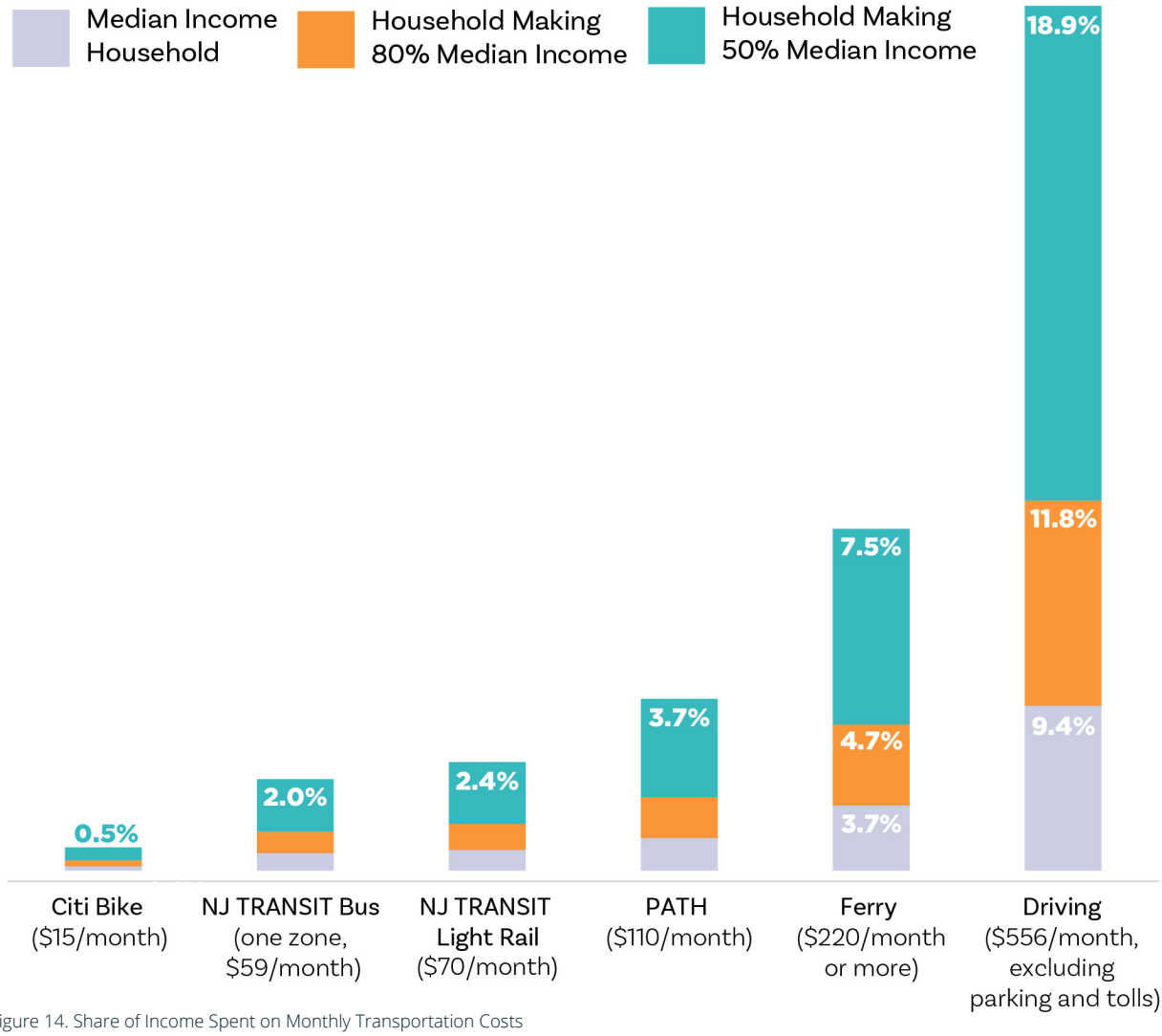


Figure 14. Share of Income Spent on Monthly Transportation Costs

Impact of COVID-19 on Travel Patterns

The COVID-19 pandemic drastically changed travel patterns across the U.S., and Jersey City was no exception. While some analysts believe that travel patterns will return to what they once were, there is a lot of uncertainty as to how the pandemic will impact travel long term. Therefore, it is important to take this moment in time to reevaluate and reassess the existing infrastructure and transportation options. Compared to other modes of transportation, Citi Bike experienced the smallest drop in ridership, declining 12 percent from July 2019 to July 2020 (see figure 15). Ridership has increased from 2020 to 2021, and as of July 2021 was only 7 percent below 2019 levels.[17] Across the U.S., bike share ridership proved resilient during the pandemic, as many people viewed it as a safe form of travel.

NJ TRANSIT bus ridership experienced a smaller decline than other modes of transit, likely due to the higher share of essential workers who rely on buses for commuting purposes. Bus ridership (average weekday boardings) declined 44 percent from September 2019 to April 2021.[18] Light rail ridership declined by 54 percent over the same period.[19] PATH ridership declined even more, falling by 69 percent as of August 2021 compared to January 2019 levels, but has increased each month from March through August of 2021.[20] Ferry ridership experienced the most precipitous and dramatic decline, falling 97 percent from 2019 to 2020, with service levels not yet recovering to pre-pandemic levels.[21]

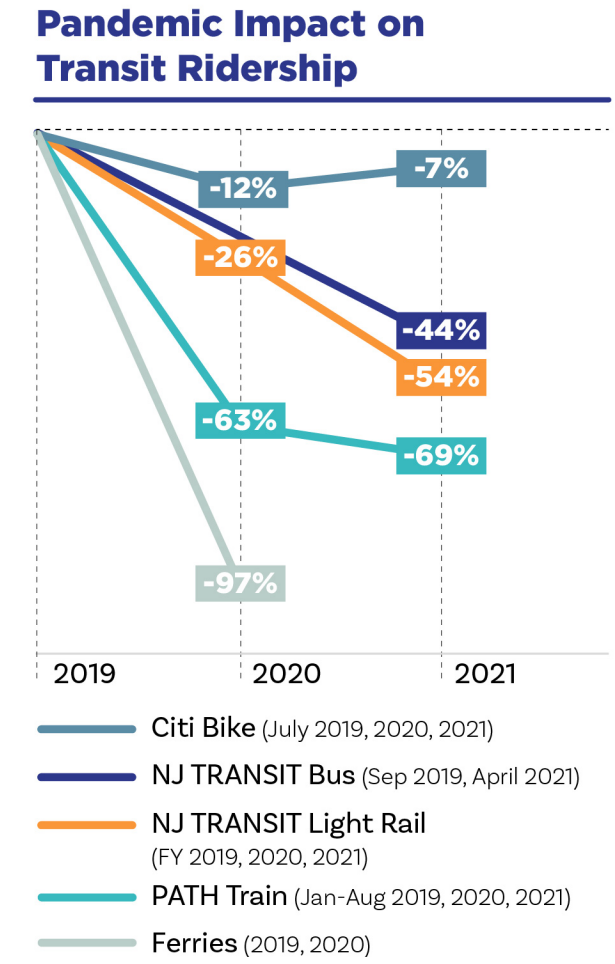


Figure 15. Pandemic Impacts on Ridership in Jersey City

Adoption of work-from-home, hybrid, or in-office work policies will have the greatest impact on overall transportation behavior, with expansion of bike and pedestrian infrastructure deterring the use of automobiles for short and non-commute journeys. Current indications point to downward pressure on private vehicle use, promoted by urban policies that aim to curb traffic, emissions, and increase the use of alternatives.

Using anonymized location-based travel data, trip patterns for driving, walking, and biking were compared between April 2019 and April 2021 (transit data was not yet available for 2021). As of April 2021, VMT within Jersey City was still 36 percent below pre-pandemic levels at 944,642 miles on the average weekday. Walking trips also remained 36 percent below pre-pandemic levels; however biking trips were 5 percent higher in April 2021 than April 2019—people took more than 43,000 biking trips within Jersey City on the average weekday.

Equity and Transit Access Analysis

Utilizing transportation and demographic data, an Equity and Transit Access Analysis was conducted. These analyses were key in the identification of priority locations for additional or alternative transportation mode recommendations. These analyses identified transit desert locations (areas of the city without transportation access) as well as areas of disadvantage based on Title VI, EJ, and additional identified characteristics.

Equity Analysis

The equity analysis assessed the City's sociodemographic characteristics, their relationship to transportation services and investments, and the disproportionate burdens faced by protected populations, which includes minority and low-income individuals (including those with limited English proficiency or disabilities, zero-vehicle households, and older residents). The goal is to use this information to ensure that disadvantaged populations are included in the planning process, as guidance for the engagement process, and to be intentional about recommending innovative modes and technologies to respond to their needs. In addition, this information will be useful for Jersey City to inform planning activities to ensure equitable investments in the city.

Title VI Analysis

The Title VI analysis examines the minority population and foreign-born population in Jersey City. Areas of need have been identified by comparing the share of minority and foreign-born populations to the citywide and regional average. For this analysis, a minority is defined as the total population minus the White Alone-Non-Hispanic or Latino population.

Like the NJTPA region, Jersey City is home to an incredibly diverse population. Minority residents constitute 78 percent of the total population in Jersey City. This is much higher than the NJTPA regional average of 46 percent, with most of the minority population concentrated in Hudson, Passaic, and Essex counties.

Jersey City has also historically served as a port of entry for immigrants worldwide. Foreign-born residents constitute 40 percent of the total population in Jersey City. Asians comprised nearly half of the foreign-born residents, with 23 percent of the foreign-born residents arriving from India, followed by the Philippines (9.8 percent) and China (6.5 percent). Apart from Asia, 34.5 percent of Jersey City residents were born in Latin America, with around 10.5 percent of residents from the Dominican Republic.

Residents with limited English proficiency constitute 13 percent of the total population in Jersey City. These are persons who cannot fluently communicate in English, may have difficulty reading and speaking in English, and require translation services to and from their native language. Around 14 percent of the population living in the NJTPA region have limited proficiency in English, which is very similar to Jersey City. Several neighborhoods in Jersey City exceed the 13 percent threshold for concentrations of

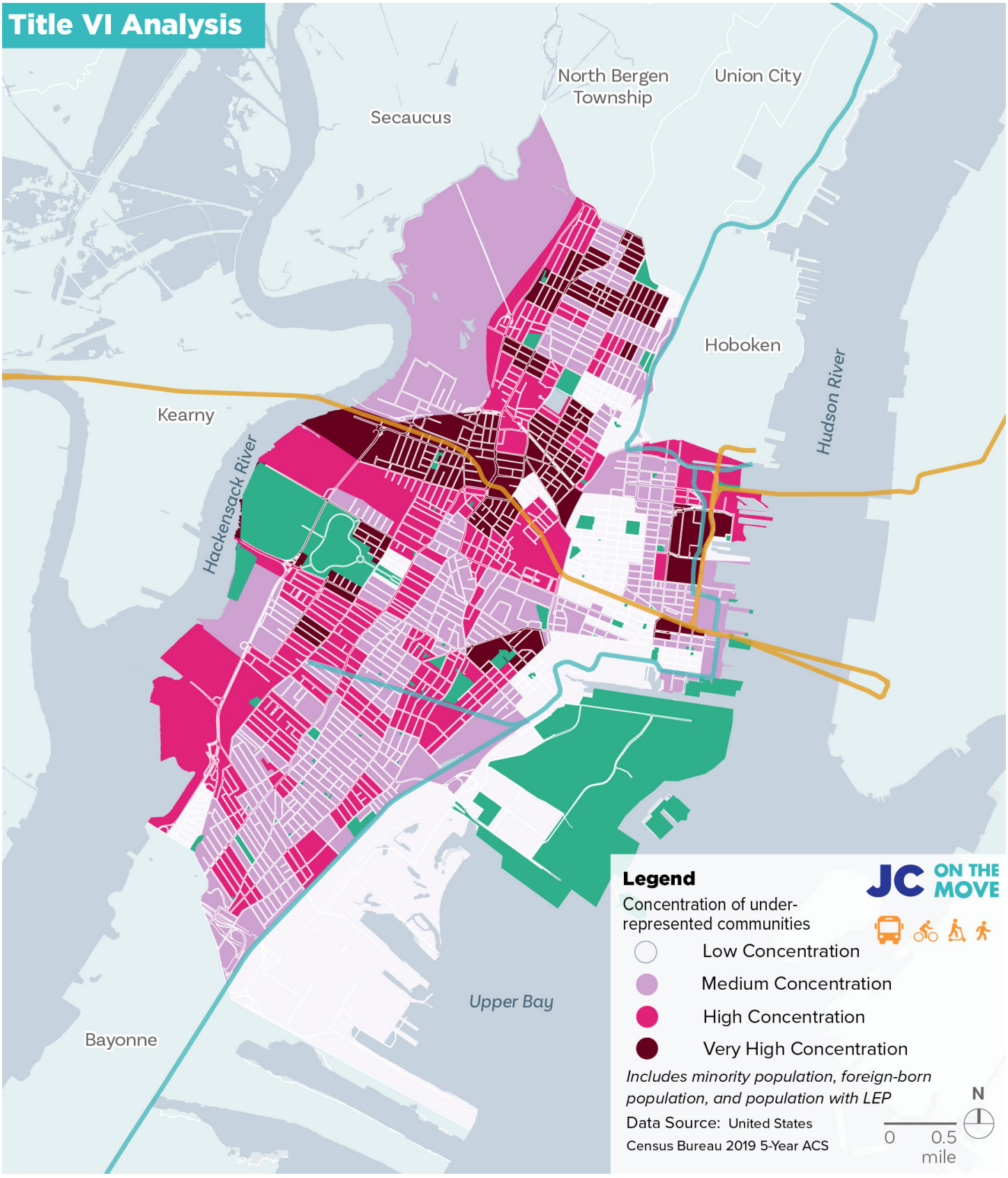


Figure 16. Title VI Analysis

populations with limited English proficiency, including Bergen Square and Waverly.

Figure 16 shows a combined map of the different Title VI factors weighed equally. Neighborhoods with clusters of under-represented communities include Newport/Pavonia, Metro Plaza, Hilltop, Journal Square, Hackensack, and Marion. These locations are served by multiple NJ TRANSIT bus routes and PATH trains and house a sizeable immigrant population. Neighborhoods such as Bergen Square, McGinley Square, and West Bergen/East Lincoln Park also include highly concentrated clusters of Title VI populations.

Environmental Justice Analysis

Like the Title VI analysis, agencies that receive federal funding are required by law to conduct an EJ assessment, which helps inform the fair distribution of transportation benefits and burdens among all people. The assessment is critical in identifying the transportation needs of minority and low-income populations to remove any barriers to public participation for these communities.

The income to poverty level ratio[22] in the past 12 months is used to calculate the rate of low-income residents in Jersey City. While 23 percent of the population in the NJTPA region is considered low-income, Jersey City has a much higher share, with 33 percent of the population qualifying as low-income. Neighborhoods located on the east side and central Jersey City have high concentrations of low-income residents.

The combined densities of the three EJ factors—minority population, low-income population, and population with limited English proficiency—are mapped with equal weighting in Figure 17, illustrating the clustering of EJ populations in Jersey City. Similar to the Title VI analysis, neighborhoods in Journal Square such as Bergen Square, Hilltop, The Island, and Marion emerged as locations with a large concentration of EJ populations. Other areas of interest include the neighborhoods near Liberty State Park and Bergen/Lafayette such as Canal Crossing and Lafayette. Neighborhoods with high groupings of EJ populations are served by multiple NJ TRANSIT bus routes, two PATH Lines, and the NJ TRANSIT Light Rail.

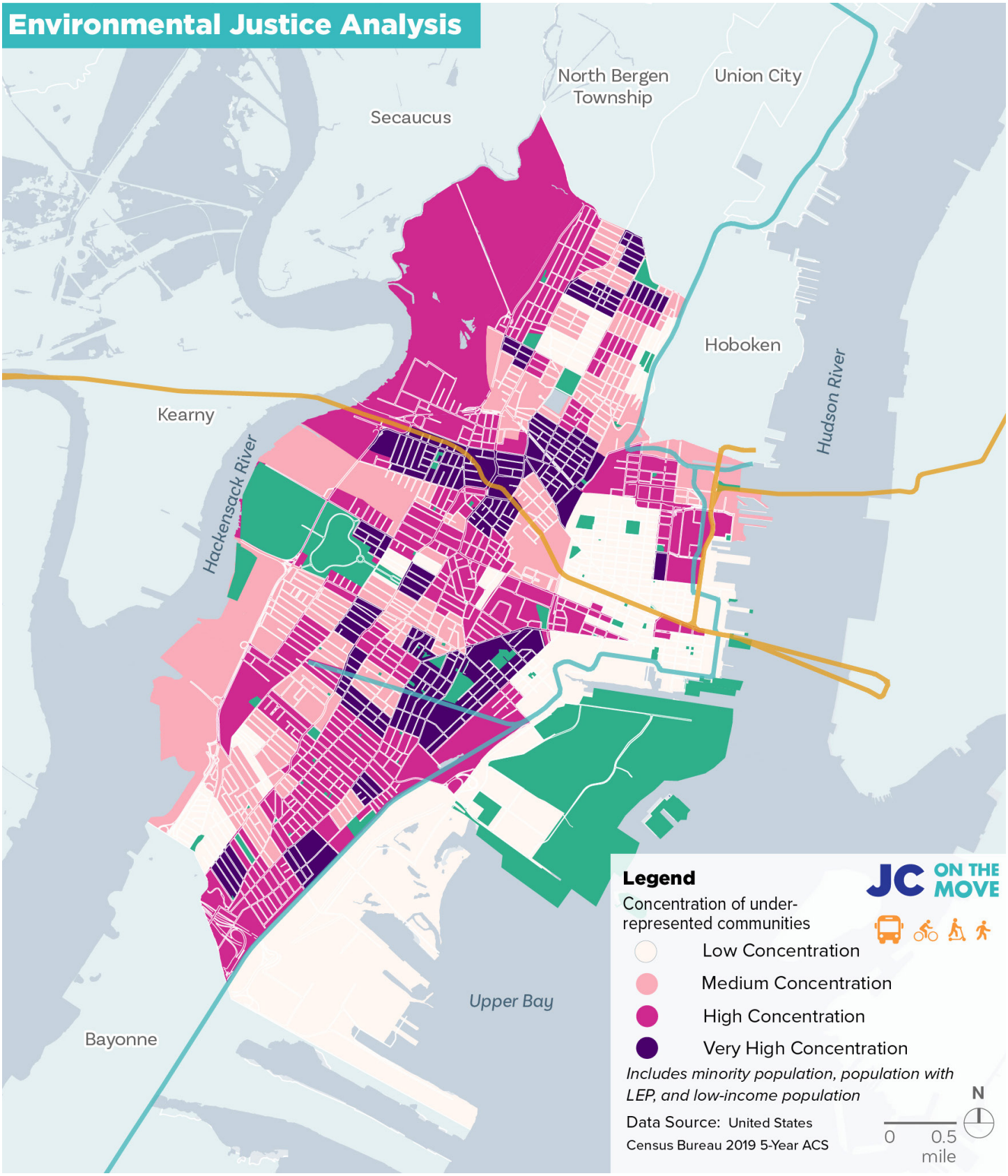


Figure 17. Environmental Justice Analysis

Other Equity Factors

Apart from the factors included in the Title VI and EJ assessments, additional equity factors were also examined, including populations with a disability, female headed households, older and younger populations, households without access to a vehicle, and adults with a GED (or High School Graduate or equivalent) or less as the highest educational attainment. As with the Title VI and EJ assessments, the purpose of this analysis was to identify these populations to ensure their participation in the planning process, to limit any disproportionately negative impacts on them, and to focus transportation improvements and investments to more equitably increase access and mobility. There are several important findings that resulted from this analysis as provided below.

- There is a significantly greater proportion of the population in Jersey City with a disability (22 percent) as compared to the NJTPA region (9.8 percent).
- Female-headed households tend to routinely encounter challenges related to transportation. Women are more likely to use multiple transportation modes, more likely to trip-chain (cluster errands into one trip, or stop at multiple locations during a commute to or from work) than men, have higher safety concerns, and are more likely to travel during off-peak hours when transit service is less frequent.[23] Female-headed households account for 34 percent in Jersey City as compared to nearly 30 percent of the households in the NJTPA region. Clustering of these households

are mostly observed in neighborhoods in Bergen/Lafayette such as Canal Crossing and the Junction and in certain neighborhoods in Greenville including Bayview and South Greenville.

- People over 65 may ride transit more often than other age groups for reasons related to income, health, and safety. The phenomenon is also observed in young adults. Jersey City has a lower proportion of senior citizens (11 percent) than the NJTPA region (15 percent). The proportion of people under 18 is similar for Jersey City and the NJTPA region at about 20 percent. There is no significant clustering observed in the residences of young adults and senior persons.
- Households without access to a vehicle are typically frequent transit users out of necessity. Jersey City is very densely populated, and its robust transit network has been lauded as one of the city's greatest strengths. The City also has a relatively high proportion of low-income residents, which coupled with its considerable density and transit network, results in a significant proportion of households in Jersey City (37%) not having access to a vehicle. A large share of these households are located along major transit corridors in Journal Square and Downtown Jersey City. In comparison, the NJTPA region, with its diverse development patterns from dense urban enclaves to rural communities, has only 12 percent of the region's households without access to a vehicle.
- For the purposes of this analysis, educational attainment refers to the highest level of education completed by adults over the age of 25. For this study, only those with a GED[24] or less have been identified. According to the US Census Bureau, nearly 35 percent of adults in Jersey City have a GED or less, with similar distributions observed in the NJTPA region. There is significant geographic overlap between adults with a GED or less and other minority and low-income populations, with neighborhoods in Greenville, Bergen/Lafayette, and the West Side emerging as areas with high clusters of under-represented populations.

Transit Desert Analysis

Jersey City has a comprehensive transit network; however, not all neighborhoods are served equally, particularly in terms of access to frequent transit service. *JC on the Move's* transit desert analysis aims to identify service gaps and specifically highlight neighborhoods where additional or alternative transit services may be warranted. For this analysis, the focus is on identifying where there is both a higher underlying need for transit and less access to transit service. The geographical level of analysis is census block groups.

A transit propensity index was developed as a measure of need for transit. It is based on the density of the following indicators, which are weighted equally:

- Minority population
- Low-income population
- Population with limited English proficiency
- Population with a disability
- Zero vehicle households
- Senior and youth population
- Renter-occupied housing units
- Jobs
- Population

As illustrated in Figure 18, the need for transit is generally lower along the eastern and western borders of the City and fluctuates between high and moderate throughout Jersey City's more residential and commercial neighborhoods. Notably, while transit propensity increases in areas with a high proportions of zero-car households, previous outreach conducted by the City found that residents in under/less served areas would be interested in reducing the number of vehicles they own if they had access to reliable and frequent transit.

Transit access was measured based on proximity to NJ TRANSIT and PATH services as a whole, proximity to frequent NJ TRANSIT and PATH services, as well as the number of jobs people can access within 45 minutes. Transit access is defined as being within a quarter mile of a NJ TRANSIT bus stop or half a mile from a rail station (NJ TRANSIT or PATH). Frequent transit access is defined as being within a quarter- or half-mile (depending on the type of transit) of a service that operates with at least 15-minute service. Much of Jersey City has access to transit, however, there are more significant gaps on the eastern and western borders. Most of the transit coverage in Jersey City is frequent, however there are gaps in more central areas and in the northwest. People in Downtown and Journal Square have access to the greatest number of jobs within 45 minutes. Access to jobs generally declines outside of these areas (Figure 19).

To identify transit deserts (areas without good access to transit), each block group was evaluated based on three factors: transit propensity, transit access, and access to frequent transit. Areas with less transit access are located along the Hackensack River and Upper Bay. The areas with more transit access are in Downtown Jersey City, around Journal Square, and parts of The Heights (Figure 20).

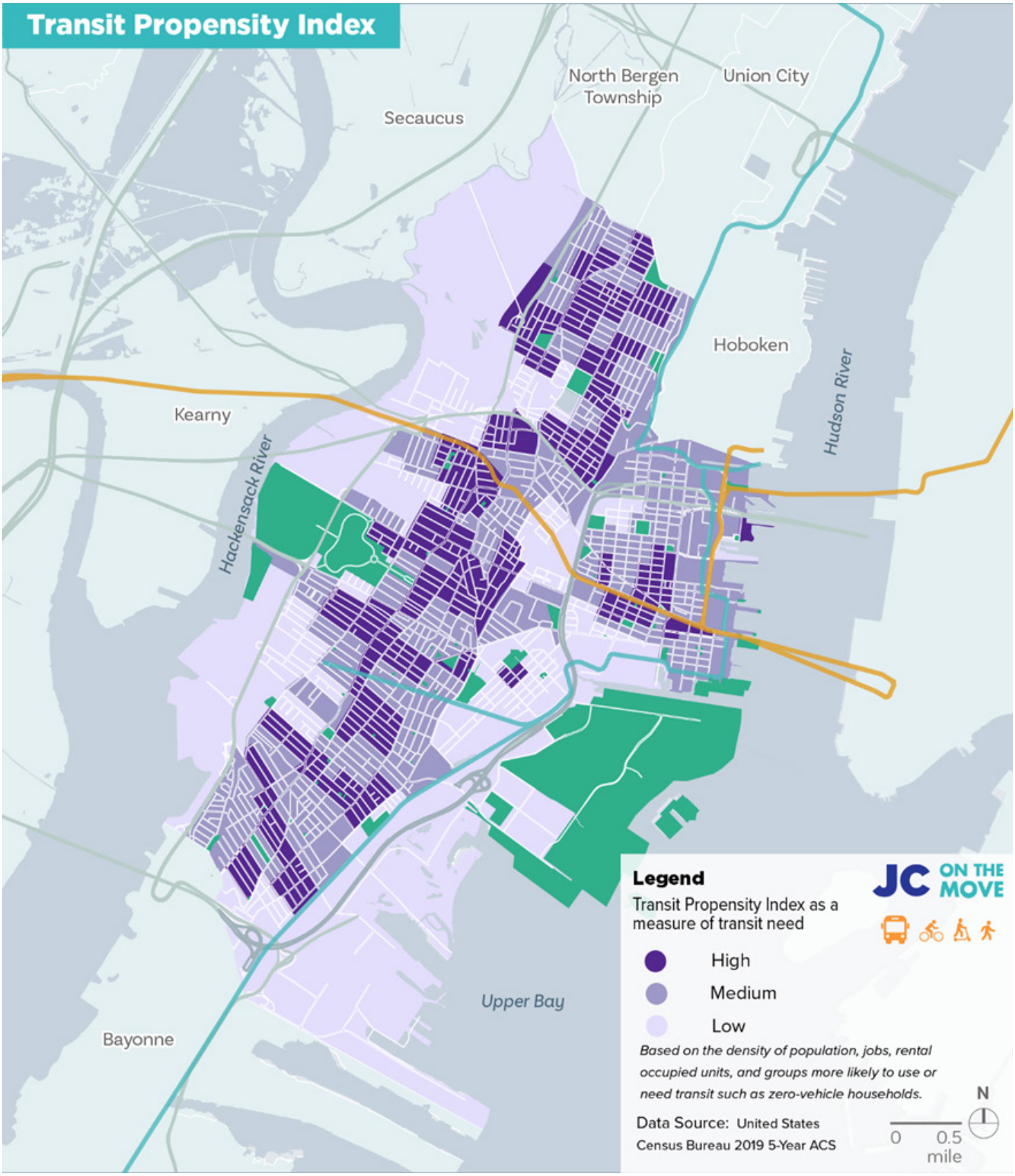


Figure 18. Transit Need in Jersey City

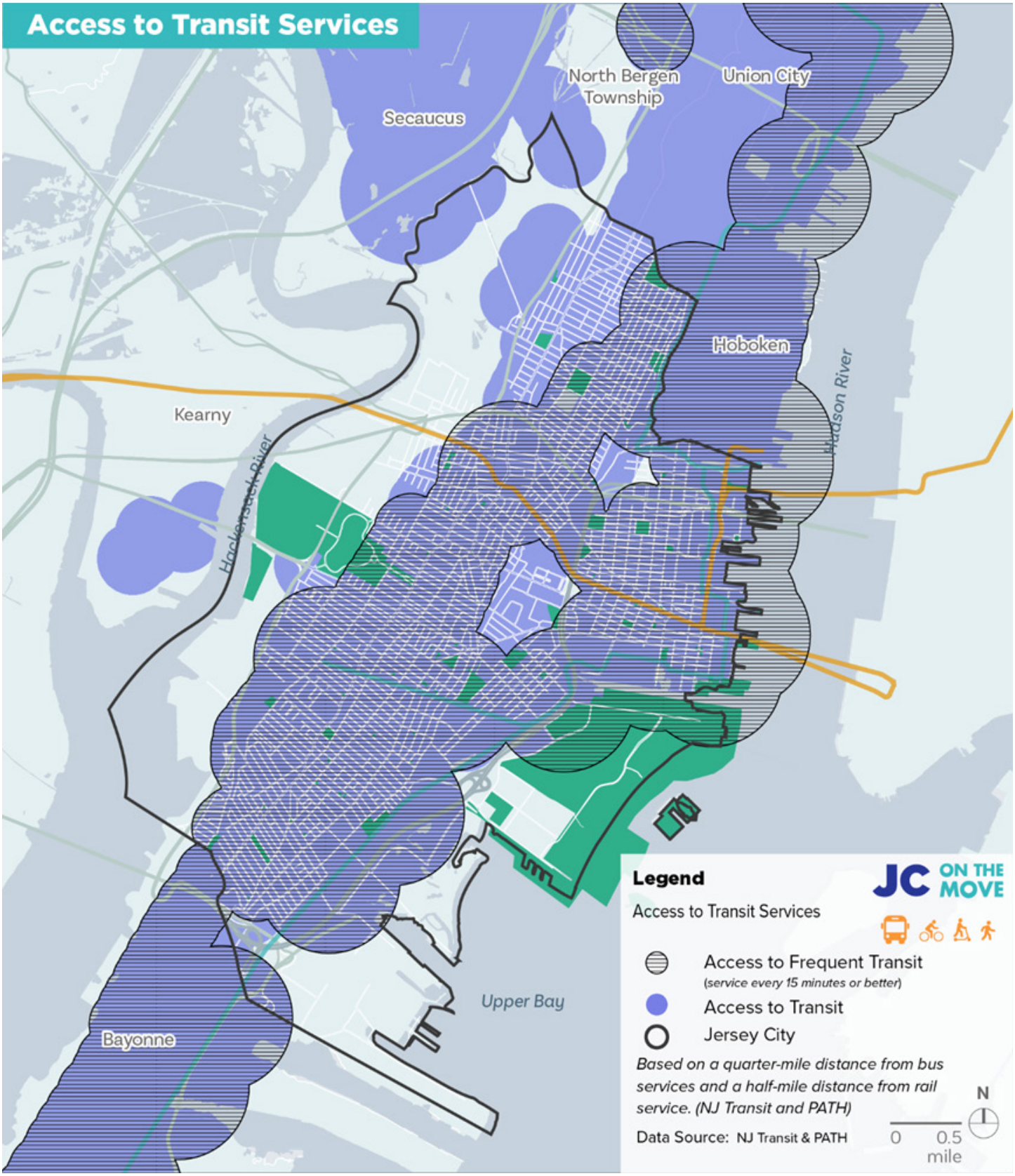


Figure 19. Access to Transit in Jersey City

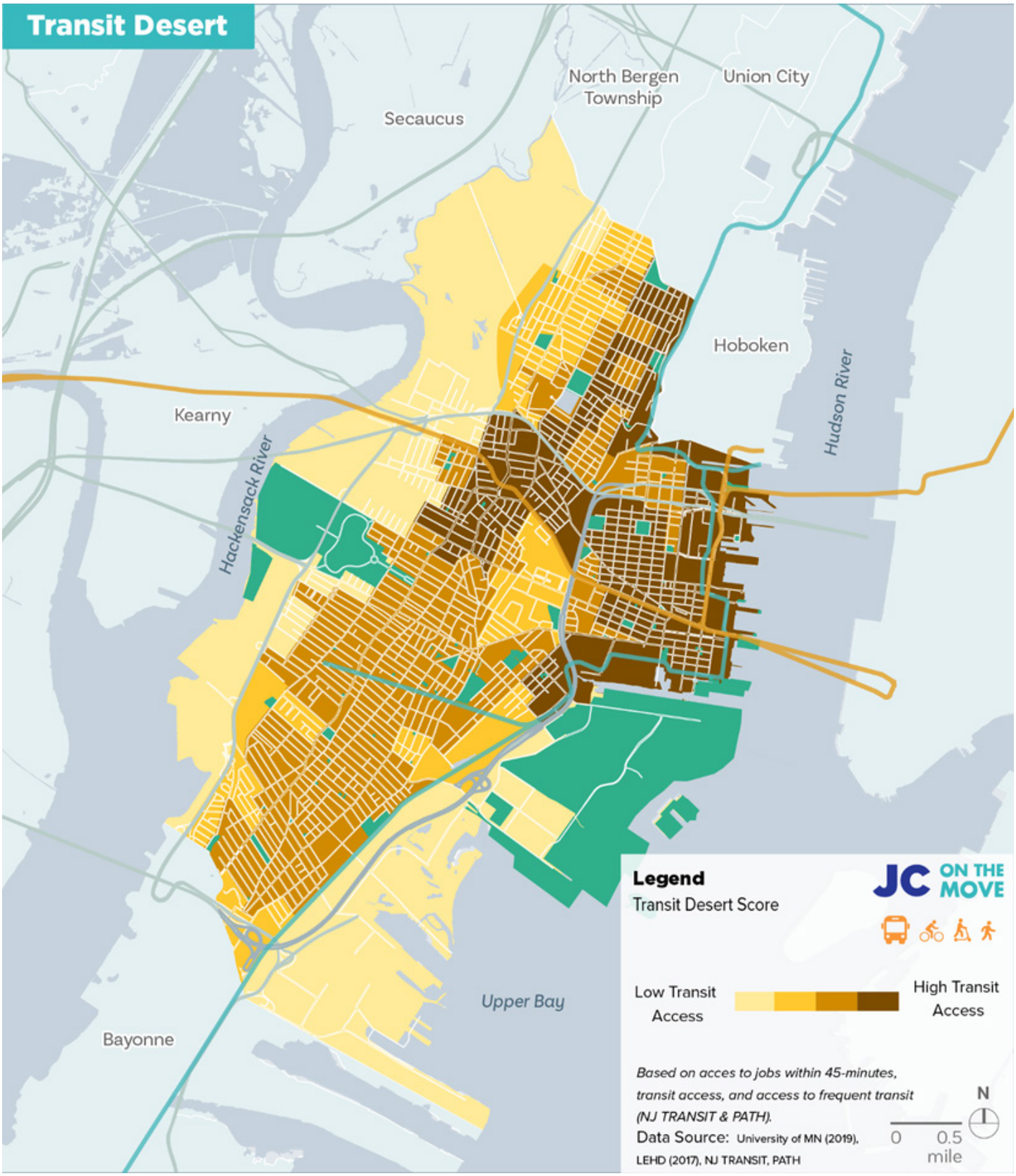


Figure 20. Transit Desert Analysis

A transit needs and access matrix (Figure 21) was developed using the transit propensity index and transit desert score described above. Block groups are grouped into categories from high transit need and high transit access to low transit need and low transit access. This analysis is intended to identify areas where the need for transit is greater than the community's relative access to transit, so the categories of particular interest are high transit need and low transit access, high transit need and moderate transit access, and moderate transit need and low transit access.

In describing transit needs and access, terms such as high, moderate, and low are being used relatively as block groups in Jersey City are being compared to each other. Therefore, an area described as having less transit service does not necessarily have low or very little service. It has less service compared to other block groups in Jersey City.

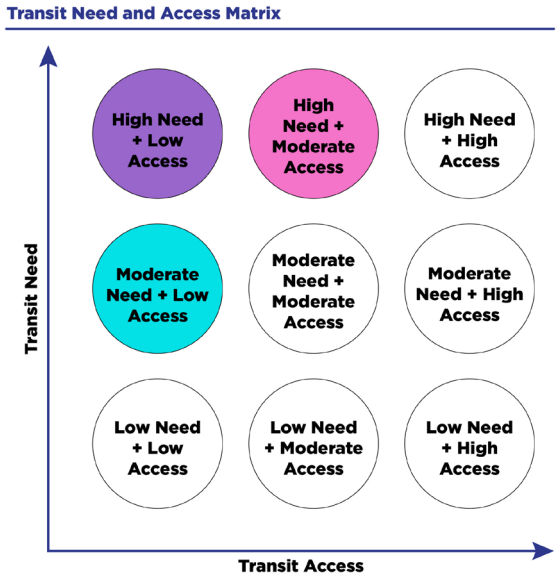


Figure 21. Transit Need and Access Matrix

Six neighborhoods within Jersey City stood out as having areas with high transit need and relatively low access to transit:

- **Lafayette Industrial/Bergen Hill Area-** These neighborhoods have significant demand and need for transit. While there is access to some transit service, portions of these neighborhoods lack access to frequent transit service.
- **Waverly, Northern Heights, Western Slope, and Sparrow Hill -** While these areas are served by NJ TRANSIT bus routes, there is less frequent NJ TRANSIT coverage through these neighborhoods. There is frequent jitney service along JFK Boulevard. There is significant demand and need for transit in these neighborhoods.

Many areas of Jersey City fall into the other two categories of interest: high need and moderate access or moderate need and low access. A number of the areas that are underserved by transit overlap with the Vision Zero High Injury Network, indicating the interrelated nature between many transportation challenges and the opportunity for holistic solutions that address multiple community needs (Figure 22).

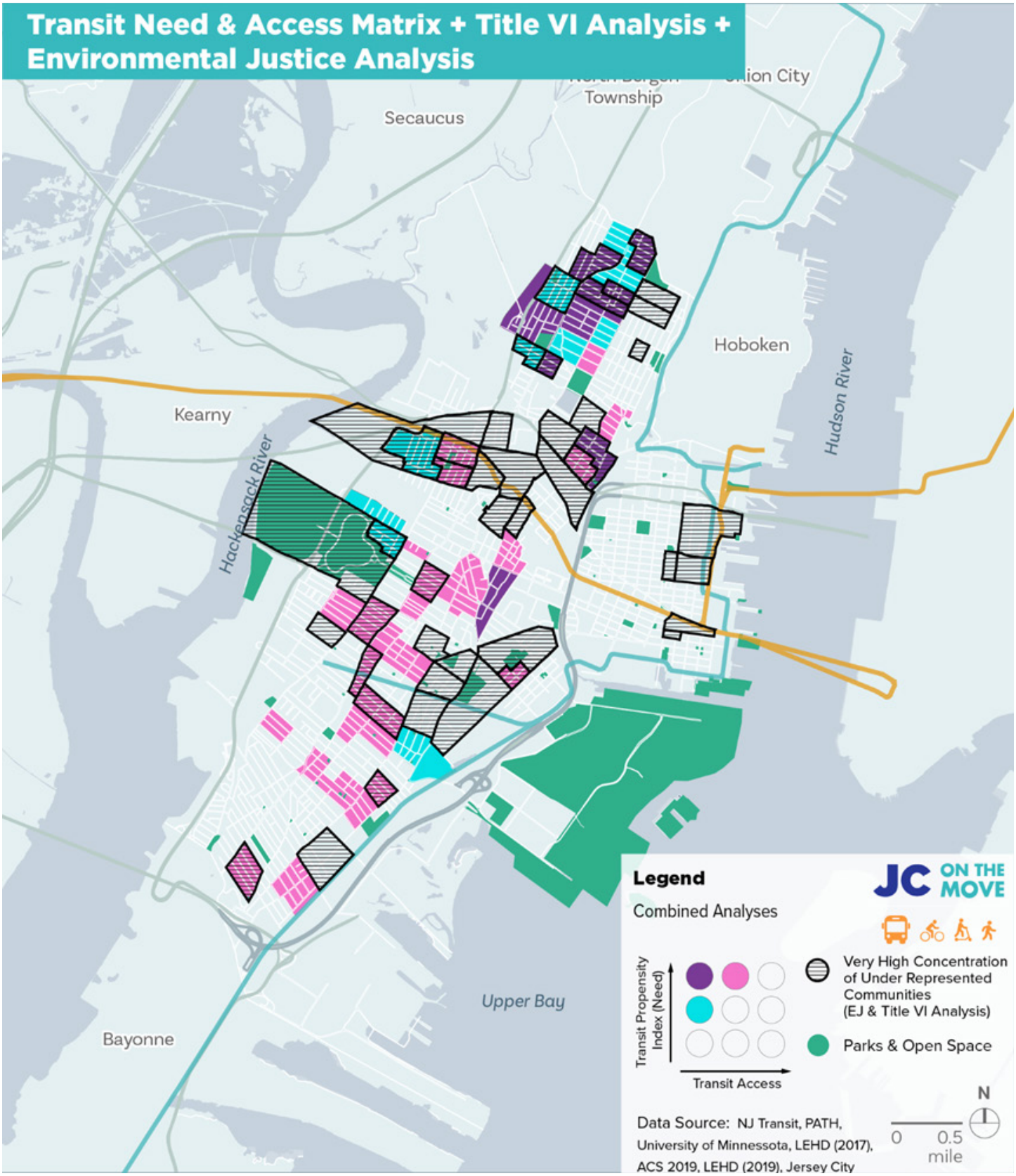


Figure 22. Overlap between Transit Desert Analysis and EJ/Title VI Analysis

Key Findings of the Transit Desert Analysis

While the City has diverse transportation options, access can vary widely and certain types of trips are still not well-served, creating mobility gaps within the city that can be addressed.

The list of gaps and needs below was identified through community engagement, analysis of a wide variety of data sources, and review of previous planning work. Many of these mobility gaps are most pronounced in communities with high concentrations of people of color, foreign-born populations, people with limited English proficiency, and low-income households. Addressing these gaps is critical for providing more equitable access to opportunities across Jersey City and the region.

- **Transit service is oriented around peak periods.** Findings from the data analysis, community engagement, and review of previous plans and studies all highlighted the need to increase transit frequency (or provide additional services) outside of the morning and evening rush hours—particularly later in the evening and on weekends. According to StreetLight data, 18 percent of all trips in Jersey City occur between 7pm and 6am, when transit generally runs less frequently or stops running altogether.
- **Some communities that are more reliant on transit have relatively poor access to transit.** Several communities within Bergen-Lafayette and the Heights were identified as having high demand and need for transit but low access to transit, including both standard and high-frequency service. Some of these communities also include high concentrations of vulnerable populations identified in the Title VI and EJ analyses. A combination of built and natural barriers contributes to the lack of access to transit.
- **The community does not always feel involved or that their voice is adequately heard** during the design and implementation phases of projects. This has led to a sense of distrust between residents and developers and public agencies.
- **Traveling between certain locations in Jersey City can take significantly longer on transit.** For certain locations that lack access to PATH or NJ TRANSIT Light Rail, it can take more than twice as long for people traveling on transit to complete their trip than people driving. Many of these trips originate in areas with high concentrations of Title VI and EJ populations.

- **In certain parts of the city, a significant share of car trips are less than 2 miles.** According to Streetlight data, 36 percent of all car trips within Jersey City are less than two miles, but, in certain parts of the city, as much as half of all car trips are under two miles. With better, safer, easier-to-use alternatives, many of these short trips could shift away from cars, reducing congestion and emissions and improving safety. A number of the areas with significant numbers of short car trips were also identified as having high concentrations of EJ populations.
- **Neighborhoods with significant levels of biking lack safe infrastructure and/or access to Citi Bike.** A number of locations across Jersey City, particularly within Bergen-Lafayette and Journal Square, see high levels of biking (more than 1,000 trips by bike per day, according to StreetLight Data) but lack safe infrastructure for people biking. These neighborhoods also include multiple roads on the city's Vision Zero High Injury Network. Several locations within Greenville have high levels of biking, as well as existing bike infrastructure (although not protected bike lanes), but are not served by Citi Bike.
- **Paying for multiple transportation options is a burden for low-income families.** To fully utilize Jersey City's multimodal transportation options, residents have to pay for a variety of different services. These costs can add up to a significant portion of low-income households' budgets, forcing families to choose between transportation or other essentials.

03. Community Engagement & Outreach

Public engagement and outreach were a major component of *JC on the Move*. The study team was committed to equitable engagement and outreach throughout the project timeline. Understanding local needs and desires was fundamental to the creation of recommendations that work for and are accessible to everyone. This helps create the support needed to advance proposed strategies to implementation.

The overall outreach process was intended to be iterative and evolve with the results of each phase. It was ultimately comprised of the following components:

- **Three Technical Advisory Committee (TAC) Meetings**
- **Two Rounds of Public Meetings**
  - **January 2022 (two sessions)**
  - **June 2022 (one session)**
- **A Series of Stakeholder Interviews**
- **Digital Engagement**
  - **Project Website**
  - **Community Survey**
  - **Interactive Map**

The study team was able to receive feedback and input from participants at each step to help ensure that recommendations were developed with the specific needs of different Jersey City communities in mind.

Meetings were held with several different groups throughout the duration of the Study. These meetings were used to present the study's goals and analyses and secure input from the Technical Advisory Committee, stakeholder groups, and the public. Due to the COVID-19 pandemic, all meetings were conducted virtually via Zoom or Microsoft Teams which included both on-screen videoconferencing options as well as dial-in capability for audio only.

Technical Advisory Committee (TAC) Meetings

The purpose of the TAC was to help guide the study team and provide information and insight where possible, helping to shape the study. The committee was comprised of City department leaders, County department leaders, and State and regional transportation agency leaders who were invited to participate. In addition to providing technical direction and feedback, TAC members assisted the study team with promotion of the study via their outlets and networks and provided insight on ways to increase engagement with the public. The TAC members conducted virtual meetings with the study team on October 28, 2021, March 16, 2022 and May 18, 2022.

Technical Committee Meeting Members:

- **Jersey City, Administration**
- **Jersey City, Traffic and Engineering**
- **Jersey City, City Planning**
- **Jersey City, Transportation Planning**
- **Jersey City, Housing and Economic Development**
- **Jersey City, Sustainability**
- **North Jersey Transportation Planning Authority**
- **NJ TRANSIT**
- **Port Authority of New York and New Jersey, Planning**
- **New Jersey Department of Transportation**
- **Hudson County, Planning**
- **Hudson County, Engineering**
- **Jersey City Parking Authority**
- **Hudson Transportation Management Association**

Stakeholder Interviews

Stakeholder interviews were conducted from August through November of 2021. Stakeholders are members of the community with a vested interest in the outcomes of this study. These individuals were identified by the study team in collaboration with the City. Early conversations with stakeholders were used to shape the project's public engagement approach and point the study team to key issues and opportunities for exploration.

Stakeholder Interviewees:

- **Powerhouse Arts District Association**
- **Sgt. Anthony Park**
- **Hilltop Block Association**
- **Riverview Neighborhood Association**
- **Van Vorst Park Association**
- **Friends of Lincoln Park**
- **Ward F Resident**
- **Bike JC**
- **Triangle Park Community Center**
- **Youth Foundation of Jersey City**
- **Greenville Neighborhood Alliance**
- **Jersey City Council**

Public Meetings

Three public meetings were held for this study. The first two were held on January 26 and 27, 2022. These meetings were held virtually due to the COVID-19 pandemic. A brief presentation was provided to attendees followed by breakout sessions. During these breakout sessions individual modes were explained and discussed with the group, participants were also asked to talk about how they get around the city and if there are any particular areas of concern for them. These meetings aimed to educate the public on the goals of the study and gain input on what types of transportation modes the community sees as being the most potentially useful to them. The study team also aimed to gain a better understanding of specific locations in need of additional transportation options.

The third public meeting was held virtually June 1, 2022. At this meeting, the study's draft recommendations were presented to the public with the opportunity for community members to provide feedback. The meeting included a presentation with polling questions provided at key points to solicit feedback on the recommendations. The public was provided the opportunity to ask questions and provide comments that were not addressed earlier in the meeting, through an open Q&A session.

Spanish translation and materials were offered at all three public meetings. Recordings of the meetings were made available on the project webpage afterwards for anyone unable to attend.

Community Transportation Preferences and Needs Survey Results

JC on the Move launched a public survey in November 2021 to better understand the community's transportation preferences and needs. The response for the survey was strong, with 1,247 individual survey

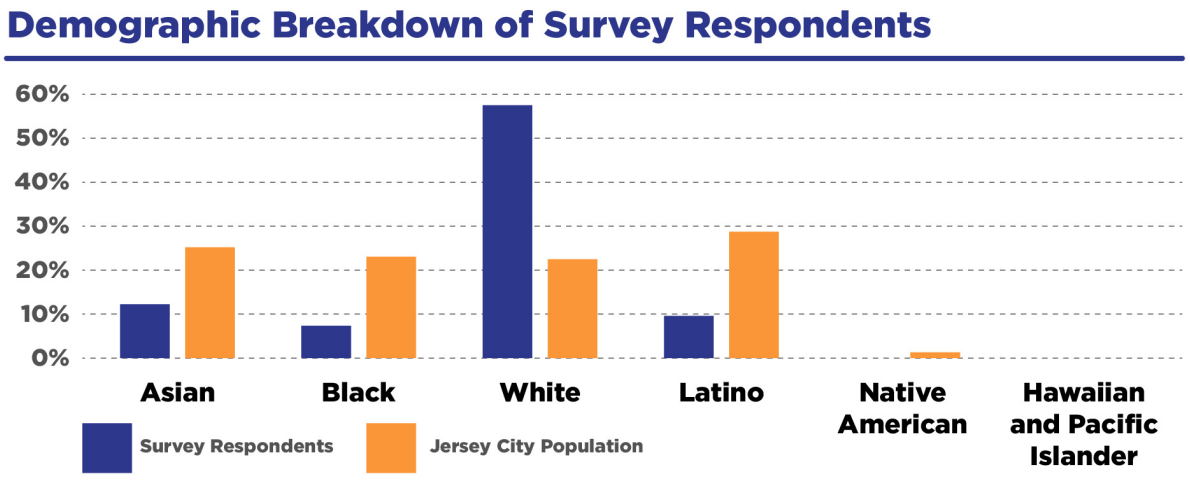


Figure 23. Demographic Breakdown of Survey Respondents

responses.

While the overall survey response was strong, certain groups were under- or over-represented within the sample. Over 50 percent of survey respondents identified as White, while only 22 percent of Jersey City residents identify as White alone. Black, Asian, and Latino respondents are underrepresented in the survey in comparison to their share of the city's population (Figure 23).

Survey respondents were also wealthier than the average Jersey City household. The majority of survey respondents (63.7 percent) listed their household income as over $100,000, while only 38 percent of Jersey City households have incomes over $100,000 according to Census data.[25] Survey respondents also indicated greater access to personal vehicles than the City's population overall. While 72 percent of survey respondents reported owning a car, only 62 percent of Jersey City households have access to a car.

To account for the demographic discrepancies between survey respondents and Jersey City as a whole, survey responses were disaggregated to analyze responses across different demographic groups. Key findings from this analysis are described below.

The modes of transportation that respondents indicated they relied on the most varied by income. Respondents with higher incomes reported regular use of PATH, walking/mobility device, and carpooling in that order. Respondents with lower incomes reported regular use of walking/mobility device, NJ TRANSIT buses, and PATH in that order. In terms of race, all respondents noted PATH as their first or second most-used mode, and all but Native American and Native Hawaiian/ Pacific Islander respondents also listed walk/mobility device and drive alone in their top three. Black respondents uniquely rated drive alone as their most regularly used mode.

Comparing which modes respondents currently use on a regular basis to modes they are interested in using more, PATH ranked in both the top three for current use and for desired increased use. NJ TRANSIT Light Rail and biking were not listed in the top three modes currently used on a regular basis but were ranked in the top three modes respondents desire to use more. Only a small share of respondents currently use ferries or Via regularly (13 percent and 12 percent respectively), but respondents indicated significant interest in using these modes more—25 percent for ferry and 26 percent for Via.

Nearly all survey respondents (94 percent) indicated that they are comfortable or somewhat comfortable using a smartphone for transportation purposes—such as getting directions or finding out when the next bus or train will arrive.

Looking in more detail at the transportation options in which respondents are most interested, the following improvements were emphasized to enhance the user experience in utilizing each of these modes.

Interactive Mapping Results

Community members were also able to provide input via an online, interactive mapping platform. A total of 971 pins were placed on the interactive map representing people's ideas for transportation improvements, destinations people have difficulty accessing, areas lacking good transportation options, or other mobility challenges. When community members placed a pin on the map, they were also able to identify the mode of transportation their issue was related to and add additional comments. More than half of all the pins (52 percent) were related to walking (see Figure 24).

Of the 971 pins placed on the interactive map (Figure 25), the greatest number were located in Downtown and Journal Square (242 pins in each ward). The table below shows the location of map pins by ward. 262 of the pins placed on the interactive map (27 percent) were located in communities with very high concentrations of under-represented populations according to the environmental justice and Title VI analysis. Several hot spots where community members placed a number of pins stood out, including: Downtown around the Grove Street PATH station, the area north of Newport Centre around the Holland Tunnel access roads (including big box retailers and Holland Gardens public housing), Journal Square PATH station and east to Palisade Avenue, and the 9th Street light rail station in The Heights. The following maps show the density of pins placed by community members along with select comments.

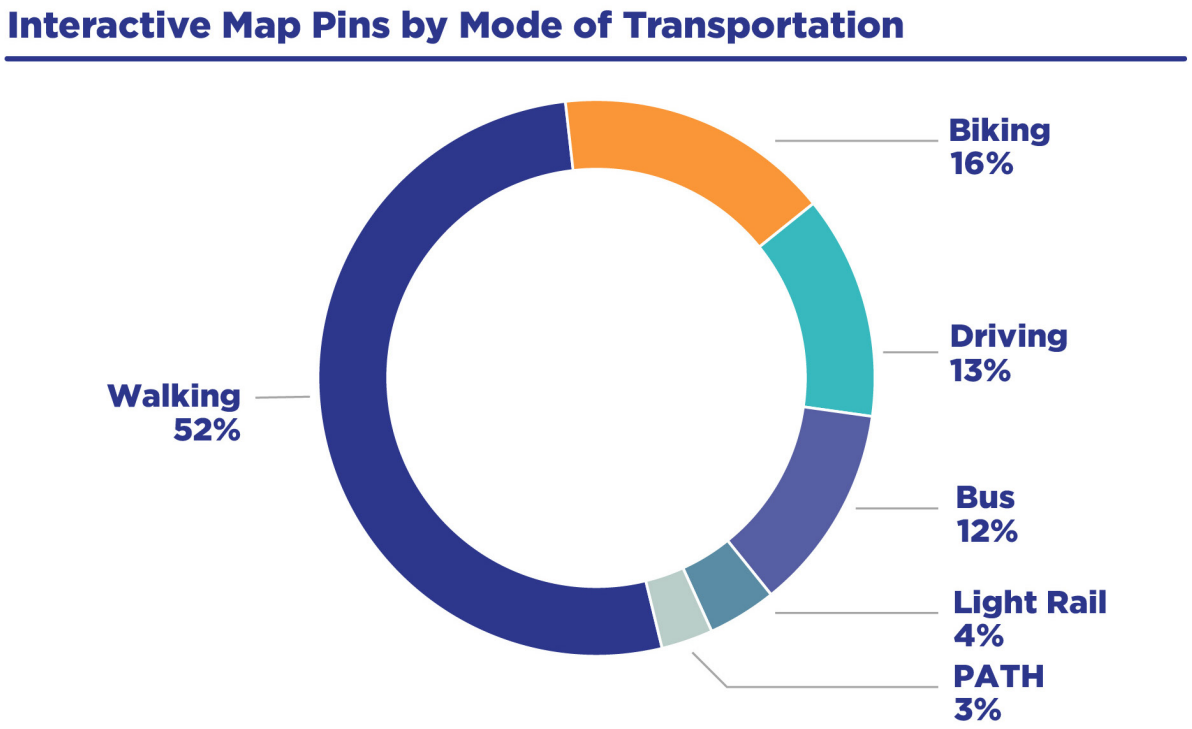


Figure 24. Interactive Map Pins by Mode of Transportation

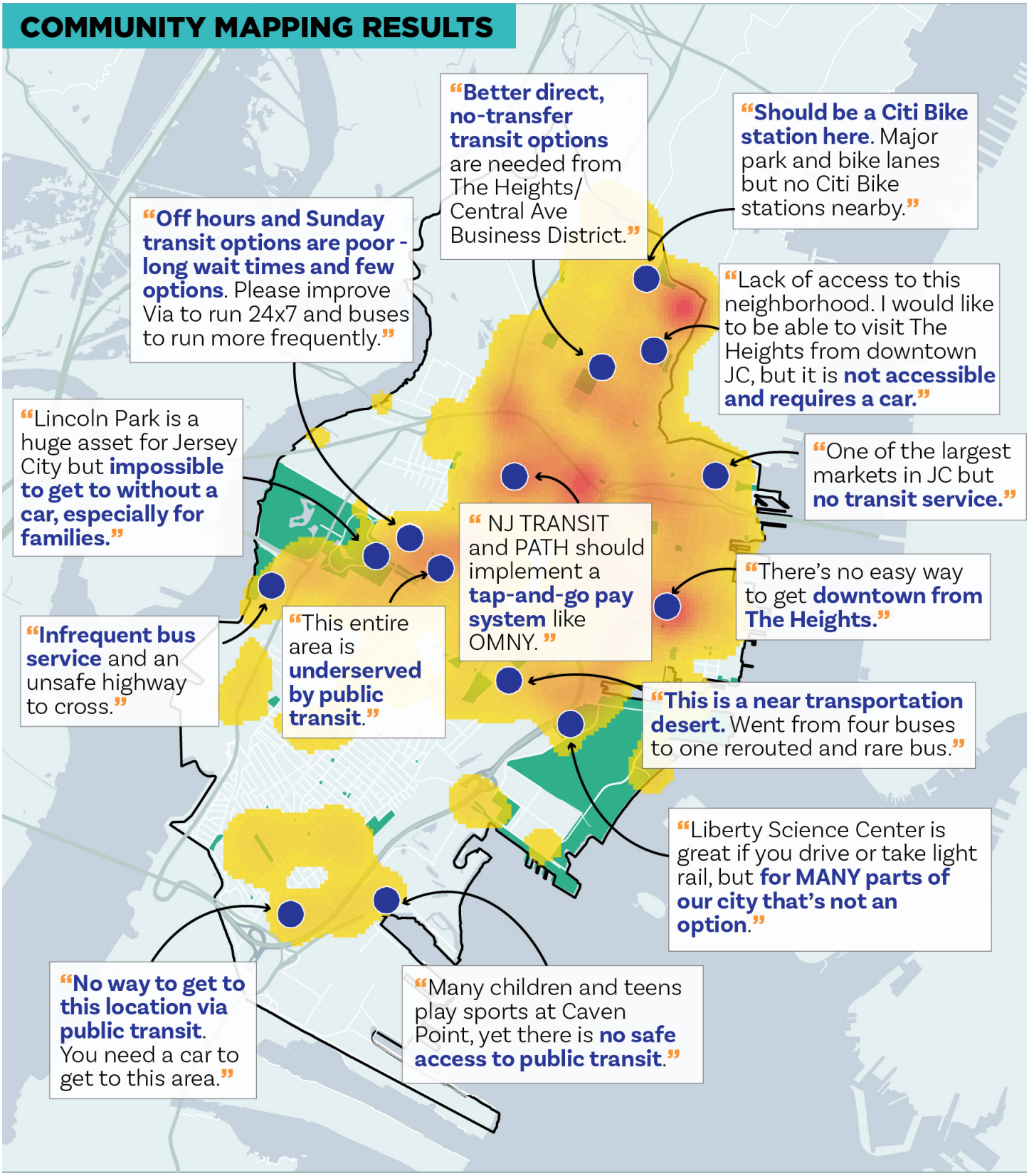


Figure 25. Community Mapping Results

Key Outreach Takeaways

- **Current transportation options** are centered around commuters to Manhattan and other regional destinations leaving large areas of Jersey City unreachable.. It is difficult to move within Jersey City itself by any means other than a personal vehicle/ rideshare due to a lack of strong intra-city connections on transit. For example, it is easier to get to Newark than downtown Jersey City from Greenville.
- **East/West connections** are particularly lacking as most transit routes run North/ South.
- **Physical impediments,** particularly elevation changes, make biking and walking challenging and strenuous in many parts of the city.
- **Bus service is viewed as unreliable and limited.** Current routes are geared toward the PATH stations, with limited service to other destinations within Jersey City, specifically the key destinations downtown.
- **Limitations on hours of operation for Via** is a major impediment to using the service and there is also confusion about the zones.
- **Overcrowding on the PATH trains** reduces the reliability for commuters.
- **Safety concerns due to street design** is a concern, particularly while walking. Active transportation modes are not yet viewed as safe options due to the design of streets and driver behavior.
- **The community does not always feel involved or that their voice is adequately heard** during the design and implementation phases of projects. This has led to a sense of distrust between residents and developers and public agencies.

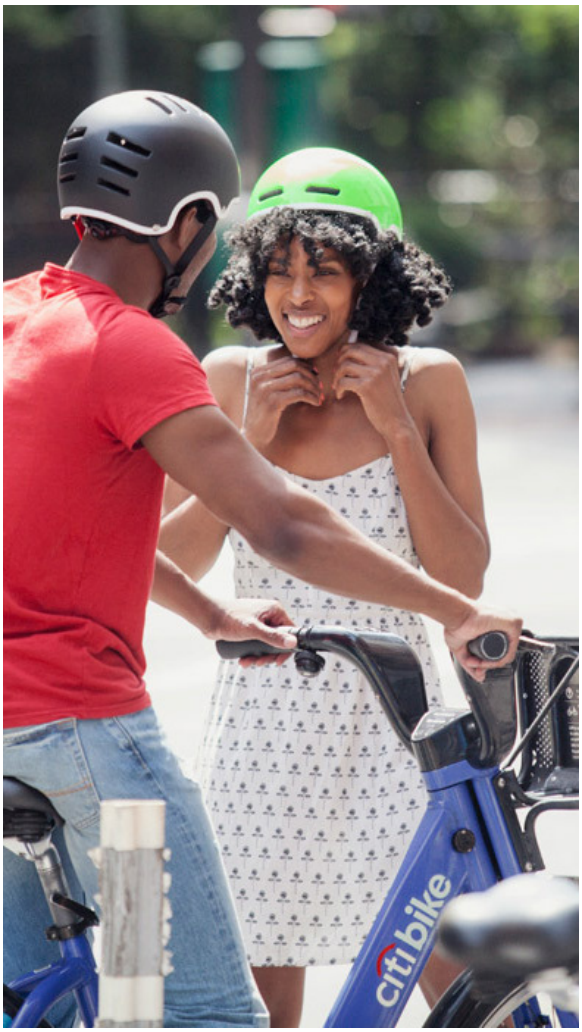

DRUGS

04. Mode Selection Methodology and Matrix

The next step for *JC on the Move* was to develop a screening methodology to identify modes and technologies best suited for Jersey City. The methodology assesses the feasibility of different modes and technologies and prioritizes solutions to group them into implementation timeframes.

Based on the results of the mode and technology screening, the highest scored alternatives were prioritized for future implementation in Jersey City. The evaluation examined each mode in relation to the following key questions:

1. **How well does this mode/technology address identified transportation gaps/needs in Jersey City?**
2. **How well does this mode/technology address identified transportation gaps/needs for key communities?**
3. **How does this mode/technology align with city and regional transportation goals?**
4. **How does the community feel about this mode/technology?**
5. **How feasible is implementing this mode/technology in Jersey City?**
6. **Is this mode/technology available now? If not now, when?**

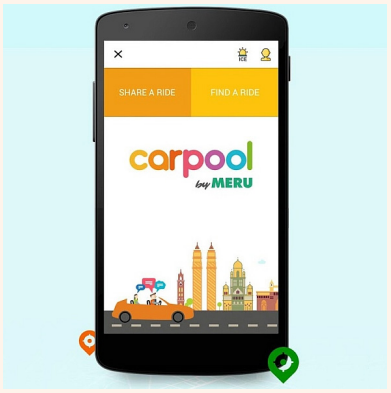


Methodology

Early in the study, a comprehensive list of innovative and emerging transportation modes, technologies, and strategies with the potential to enhance mobility in Jersey City was developed. This comprehensive list was narrowed down to a set of key modes and technologies based on the results of the Title VI and EJ analysis, transit desert analysis, public engagement, preliminary cost and feasibility assessment, and through collaboration with Jersey City and the NJTPA. Options such as underground car tunnels and app-based helicopters were eliminated due to fatal flaws, while others were grouped together with other similar modes and technologies. The final list of modes and technologies evaluated includes:

- **Aerial tram / gondola:** A means of transportation consisting of tram carriers suspended by cables and pulled via electric motor or engine.
- **App-based car-pooling:** Utilization of an app to find riders traveling to destinations in close proximity that facilitates the sharing of the ride.
- **Autonomous shuttle:** A low-speed shuttle service providing shorter length trips utilizing Advanced Driver-Assistance Systems (ADAS) and Autonomous Vehicle (AV) technology.
- **Bike share:** A system of shared fleets of bikes through which users can rent bikes from docks, or bikes can be located and rented via mobile app for dockless systems.
- **Bus Rapid Transit (BRT):** Fixed-route bus lines using dedicated lanes, off-board fare collection, platform-level boarding, transit signal priority, substantial stations, and other features that elevate local bus service to rapid transit service.
- **Car sharing:** A membership app-based program that allows users to rent a shared car by the minute, hour, or day, returning the car to an app-specified location upon completion of the trip.
- **Electric moped share:** A system of shared electric mopeds through which users can rent electric mopeds, using an app to locate these vehicles and then check them back in upon completion of the ride.
- **Electric scooter share:** A system of shared fleets of electric scooters through which users can rent scooters from docks, or scooters can be located and rented via mobile app for dockless systems.
- **Microtransit:** A shared ride service, accessed via phone app, providing short trips via van or shuttle connecting riders' neighborhood or home to larger transportation networks.
- **Mobility as a Service:** One app or digital platform that allows users to plan, book, and pay for multiple mobility services.
- **Mobility hubs:** Places in a community that co-locate multiple modes of transportation and provide amenities to enhance the rider's experience and facilitate easier transfer between modes.

Aerial Tram / Gondola



App-Based Car-Pooling

AV Shuttle

Bike Share

BRT

Car Sharing

Electric Moped Share

Electric Scooter Share

Microtransit

Mobility as a Service

Mobility Hubs

Step 1 of the screening tool focused on the general question of what modes and technologies are the best fit for Jersey City. This step considered how each mode supports city goals and represents what was learned from community outreach, as well as the existing conditions and gaps analyses. Each of the criteria in Step 1 was scored as either low, medium, or high. This step evaluated modes based on four weighted key criteria (listed below):

- **How well does it address identified transportation gaps in Jersey City?:** 5 points max weight
- **How well does it address the needs of people and communities most in need of mobility improvements?:** 7.5 points max weight
- **How well does it align with city and regional transportation goals?:** 2 points max weight
- **How does the community feel about it?:** 3 points max weight

Step 2 of the screening tool factored in the question of what innovative modes and technologies are most feasible for Jersey City. Modes from Step 1 were reviewed based on their community and environmental impact, financial feasibility, spatial requirements, legal considerations and risks, market viability, and long-term sustainability. The goal in Step 2 was to identify modes that are both impactful and feasible. Each of the criteria in Step 2 was scored as low, medium, or high. For criteria where a high score meant it was less feasible, scoring was inverted such that a low score would earn the highest weight and a high score would earn the lowest weight. This step evaluated modes based on five key criteria (listed below), which also includes the weights attributed to each question:

- **Community and environmental impact:** 3 points max weight
- **Financial feasibility:** 3 points max weight
- **Spatial requirements:** 3 points max weight
- **Legal considerations and risks:** 3 points max weight
- **Market viability and long-term sustainability:** 3 points max weight

Step 3, the final step in the screening tool, questioned the timeframe by which these innovative modes and technologies would become available. Some of the modes identified in Steps 1 and 2 have been time-tested via successful implementation in other cities, while some are newer and require more maturing before becoming stabilized and viable for implementation. Each of the criteria in Step 3 was scored as available now, available in the next two years, available this decade, or available in 2030 and beyond. This step was not weighted but was used in prioritizing options and developing recommendations that are phased over time.

Evaluation Results

Six subject matter experts at Sam Schwartz went through this evaluation process to determine the final ranking of modes recommended for implementation. This "crowdsourcing" of scoring was used to control for the qualitative nature of the methodology. All scores were averaged.

The highest scoring modes in Step 1 represent those that would be most impactful regardless of feasibility. These include BRT, microtransit, and AV shuttle. In Appendix A, the questions comprising Step 1 are broken out by their subcategories to provide a more detailed breakdown of each mode.

The overall strengths and weaknesses of the 10 modes included in the screening tool are presented on the following page.

Microtransit

Strength: The mode helps to fill last mile SOV trips, reducing VMT as well as providing off-peak service to complement existing transit

Weakness: Microtransit vehicles can have limited seating capacity

BRT

Strength: A high share of low-income survey respondents already utilize bus services in Jersey City, so upgrading service to BRT would serve a key community

Weakness: Without all of the features of BRT, the mode can feel like a regular bus not particularly rapid in service

Mobility Hubs

Strength: Hubs make transit more visible and accessible

Weakness: While hubs may be ADA-accessible, they can include modes that are not which limits their usefulness for a key community

Bike Share

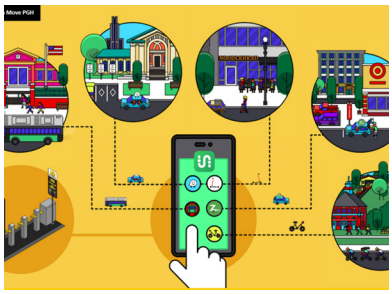
Strength: Jersey City is already served by Citi Bike, and dock locations are an opportunity to connect to and bolster transit

Weakness: This mode cannot serve all trip types and is not the most viable option in all kinds of weather

Car Sharing

Strength: Car sharing provides an alternative to personal vehicle use for medium-length trips

Weakness: Many vehicles are not wheelchair-accessible



Mobility as a Service

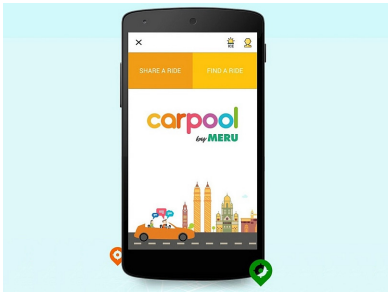
Strength: The MaaS platform significantly improves the convenience of accessing and booking mobility services

Weakness: There are challenges to organizing different service providers into one trip booking app, payment system, and vision for a MaaS platform, as well as digital equity issues

AV Shuttle

Strength: Service could supplement Jersey City's existing Via service with similarly sized vehicles

Weakness: Relatively low speeds limit viability on longer routes, and most existing implementation is via short-term pilot projects



App-Based Car-Pooling

Strength: This mode directly replaces SOV car trips

Weakness: Carpooling is not well-suited for short first/last mile trips

Electric Scooter Share

Strength: This is a strong first/last mile option

Weakness: Similar to bike share, they cannot serve all trip types and are not viable in all weather conditions, additionally, public input was less supportive

Electric Moped Share

Strength: This mode is better suited for medium length trips than scooters given their speed and durability

Weakness: Moped share passengers generally need to be over 18 (drivers over 21), so this is not a viable option for traveling with children[26]

Aerial Tram / Gondola

Strength: Aerial trams can serve any age group of users

Weakness: The service area of aerial trams is very limited, so the mode could serve specific neighborhoods but would not be accessible citywide

Scoring of Evaluated Transportation Modes

Mode	Step 1	Step 2	Step 3	Total Score
Max Score	**17.5**	**15**		**32.5**
Microtransit	13.1	13.2	Available now	**26.3**
BRT	14.5	11.3	Available now	**25.8**
Mobility hubs	12.3	12.3	Available now	**24.6**
Mobility as a Service	11.6	12.7	Available in the next 2 years	**24.3**
AV shuttle	12.8	11.7	Available this decade	**24.5**
Bike share	10.8	13.6	Available now	**24.4**
Car sharing	10.5	13.2	Available now	**23.7**
App-based carpooling	9.7	13.2	Available now	**22.9**
Electric scooter share	9.9	11.5	Available now	**21.4**
Aerial tram / gondola	11.9	9.2	Available now	**21.1**
Electric moped share	9.7	11	Available now	**20.7**

Figure 26. Final Scores

The evaluation process resulted in three types of modes being identified that varied based on level of impact and feasibility. The modes with the highest overall scores that are available now includes microtransit, BRT, and bike share. These were identified as the most impactful in terms of the benefits provided and feasibility. Regarding strengths, microtransit can help replace SOV trips, reducing overall VMT as well as be able to provide off-peak service that fills existing gaps and complements existing transit serving peak hours. BRT is in alignment with Jersey City communities' current high utilization of bus service, and the improvements that the mode provides could enhance that service for these existing users. Bike share already exists in Jersey City and can connect to existing transit service, with the potential to increase transit ridership by providing first and last mile trips to and from transit nodes.

The next four modes were AV shuttles, car sharing, mobility hubs, and Mobility as a Service. These modes address Jersey City's needs but were seen as slightly less impactful, less feasible, and/or not yet available for wide-scale adoption and implementation. AV shuttles would likely reduce SOV trips and VMT. Car sharing provides alternatives to personal vehicles used for medium and longer length trips. Mobility hubs bring together several modes, making transit more visible and providing more mobility options, better rider information, and more amenities to users. Mobility as a Service simplifies the use of several modes by making them all bookable via one app or service, significantly improving the convenience of mobility services that could also bolster transit.

The remaining modes still have potential and should be monitored for future viability and implementation in Jersey City. These include electric scooter share, electric moped share, aerial tram / gondola, and app-based carpooling.

All of the modes were categorized as follows:

- **Act Now -** Short-term priorities that meet current needs and are ready to be implemented now or are already existing within Jersey City
- **Build Towards -** Medium or long-term priorities that address needs but are not currently feasible; modes that are not a priority right now that should continue to be monitored for future implementation
- **Keep an Eye Out & Look for Opportunities -** Modes that do not currently address all the needs of the city but, if initiated elsewhere in the region, partnership could be beneficial for Jersey City.

Act Now - Microtransit, BRT, Mobility Hubs, and Bike share

Short-term priorities represent modes and services that address city and regional goals, community need, and are ready to be implemented. Four of the modes/technologies evaluated fall into the Act Now category: Microtransit, BRT, Mobility Hubs, and Bike share. Out of these four modes, two are already operating within Jersey City (bike share and microtransit) and one has already been studied (BRT). Mobility hubs would provide a new service for the city and are ready to be implemented now. They provide a significant benefit in terms of accessing different modes from one location. Mobility hubs do not require any new technological development or new transportation services for Jersey City, so there are fewer feasibility concerns. Mobility hubs co-locate already existing modes to simplify coordinating travel between them and provide amenities that make these modes easier to use, thus incentivizing them over car trips.

Build Towards - Mobility as a Service and AV Shuttles

Medium and long-term priorities address city and regional goals and community need but these modes/technologies have feasibility challenges or the underlying technology is still evolving. Two of the modes/technologies evaluated fall into the Build Towards category: Mobility as a Service (MaaS) and AV shuttles.

Jersey City should work with its partners towards implementing a MaaS platform. While MaaS organizes existing modes into one platform, not requiring implementation of new transportation services, the amount of interagency coordination and potential regulatory changes required presents a significant barrier to implementation. Developing a MaaS platform would require access to Application Program Interfaces (APIs) and back-end fare systems for some or all of NJ TRANSIT, Citi Bike, Via, PATH, MTA, Uber, Lyft, and NY Waterway ferry, which is a major undertaking requiring significant time and resources. The Transit app, which provides real-time transit data, does include NJ TRANSIT, Citi Bike, PATH, MTA, Uber, Lyft, NY Waterway, and Curb, but neither native integration for payments across platforms nor the ability to develop subscription services that bundle together different providers are current features of the app.

AV shuttles have the longest timeline in terms of implementation of all identified modes. There are regulatory barriers to operating AV shuttles on public roads. There are also multiple levels of automation, the highest of which are not currently permitted for operation. The feasibility of implementing this mode depends on federal and state policy and the pace of technological progress.[27] There have been many initial AV shuttle pilot programs throughout the US, including in the city of Trenton where an AV pilot program Request for Expressions of Interest (RFEI) was released in 2021. Jersey City could begin thinking about potential partnership structures for such a pilot.

Keep an Eye Out and Look for Opportunities – All Other Modes/ Technologies

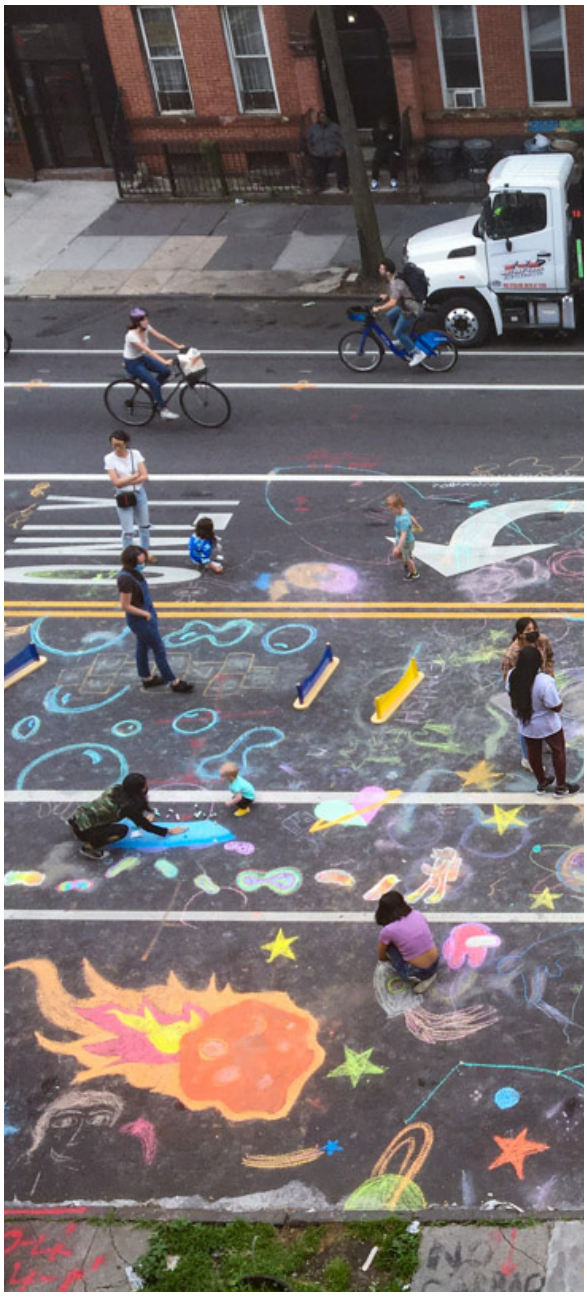
While these modes are not on the shortlist, it is still recommended that Jersey City reevaluate and monitor opportunities for these modes as time goes on. Five of the modes/technologies evaluated fall into these categories including car share, electric scooter share, moped share, aerial tram/ gondola, and app-based carpooling. As the suggested modes are implemented, additional modes can be reevaluated to fill additional gaps or new gaps.

05. Recommendations and Implementation Plan

The culmination of the analysis and evaluation processes for this study lead up to a set of recommendations and an implementation plan for the City of Jersey City to reference moving forward.

Recommendations were developed for all of the Act Now and Build Towards modes identified through the selection process. The final list of modes and technologies recommended includes:

- **Microtransit**
- **Bike Share**
- **Bus Rapid Transit (BRT)**
- **AV Shuttle**



Microtransit

Jersey City has had an established on-demand microtransit service with Via since 2020. The service divides the City into a central zone and an outer zone. Rides between central and outer zones have a flat fee of $2, and rides cannot be started and ended in the central zone (Figure 27). Rides within the outer zone have an additional 50 cents per mile charge.[28] The service has been largely successful. Between February 2020 when the service started and November 2021, 580,200 rides were completed, with an average wait time of 19 minutes, with 78 percent of rides being on time. The service was expanded in September 2021 from 17 to 26 vehicles and has since expanded to 46 vehicles.[29]

Limitations of the existing service include payment options and scalability, which inhibit the service's ability to increase its passengers. Via's performance evaluation reports also indicate that wait time and on-time performance could be improved. While booking does not require a smartphone and can be done by phone to a dedicated phone line, it does require a bank account, which excludes unbanked residents from the benefits of this program. Identifying ways to increase the number of people able to use the service would make the service more efficient, and therefore easier to scale up. The City has noted that the subsidy required for Via service is an additional factor limiting their ability to scale up. There may be opportunities for additional, federal funding through the recently adopted Bipartisan Infrastructure Law (BIL), which specifically identifies federally competitive grants that can be used for microtransit service including the Integrated Mobility Innovation Program (IMI)[31] and the Accelerating Innovative Mobility (AIM) grant.[32]

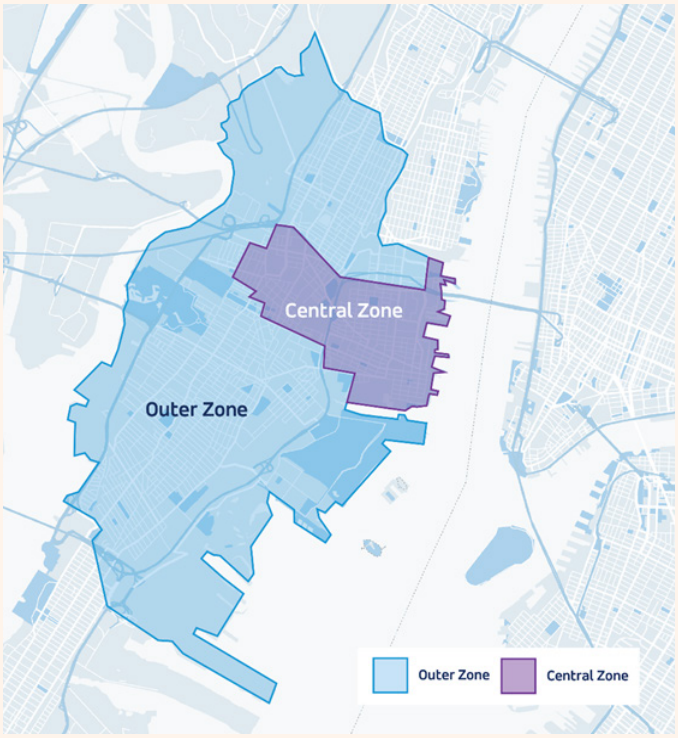


Figure 27. Jersey City's Via service zone map.[30]

Jersey City and Via should continue to explore ride options for residents without a bank account to expand the service to those with limited income and those unbacked residents. Thirty percent of survey respondents earning less than $25,000 indicated current use of Via on a regular basis. Expanded payment options would better serve this key group of residents. Co-locating a fixed Via node with other existing transportation services (creating a mobility hub) could be a strategy used to achieve this. Beyond designating fixed Via nodes, the hubs can provide access to other modes, real-time arrival information, seating, WiFi, wayfinding, storage lockers and other amenities that will help to draw potential passengers to a specific location, making it easier for more users to share rides.[33] The

City and Via should consider the following service recommendations to specifically address these factors:

- Increase fleet size, and work with Via to identify additional strategies to reduce wait times and increase on-time performance
- Add Sunday service and expand Saturday hours and late-night service
- Look into opportunities for extending reduced fares or vouchers beyond housing authority residents to qualified users generally
- Work with neighboring communities to extend service area to surrounding employment centers outside of Jersey City

Figure 28. Via Jersey City Public Information Letter

Bike Share

As with microtransit, Jersey City already has a bike share program. Citi Bike has been serving Jersey City since 2015. The service started with 35 docking stations spread throughout Downtown, The Heights, Journal Square, West Side, Greenville, and Bergen-Lafayette neighborhoods.[34] In 2021, it was announced that Citi Bike would expand to Hoboken. Within Jersey City, 15 potential additional stations were proposed, prioritizing Greenville, West Side, and The Heights.[35] These expansion areas in Jersey City align well with the areas of highest need identified through the layering of the transit desert, environmental justice, and Title VI analysis conducted as part of JC on the Move and the expansion to Hoboken encourages regional connectivity. However, funding limitations have held back the installation of these 15 stations, highlighting the need for additional funding sources. Potential sources include the BIL, which provides funding for micromobility projects like bike share that can be used to fund "vehicles, docking stations, protected lanes for bikes and scooters, or apps and websites for public access to shared networks.[36]" Furthermore the Federal Highway Administration's Transportation Alternatives Set-Aside Program allocates 10 percent of the Surface Transportation Block Grant Program for transportation alternatives such as bike share.[37] This program's funding is specifically allocated for capital expenses.

Future expansions of the Citi Bike system should focus on areas that see high levels of biking and overlap with areas of highest need identified through the transportation equity analysis. Key areas to target for future Citi Bike stations include:

- The Heights—Increase station density and expand into Western Slope.
- West Side—Expand further west towards Route 440 and increase station density south of Lincoln Park.
- Greenville—Increase station density around New Jersey City University and expand further south.

Expanded bike share must be complemented by safe infrastructure. Fifty-three percent of survey respondents said they prioritize the transportation option they feel safest using. Additionally, through this study's public engagement process, community members noted general concerns about safety while biking on local streets, as well as at specific locations in need of bicycle infrastructure improvements. These comments are highlighted in Figure 29. These locations overlap areas within The Heights, Journal Square, and West Side, and should be prioritized for the addition of safe, comfortable bike routes. Outside of physical infrastructure improvements, Citi Bike access options for those without bank accounts should be explored. Citi Bike passes can be easily purchased without a smart phone, but they cannot be purchased if an individual does not have a bank account. Adding options for those without a bank account would increase the potential customer pool and add additional transportation options for those community members.

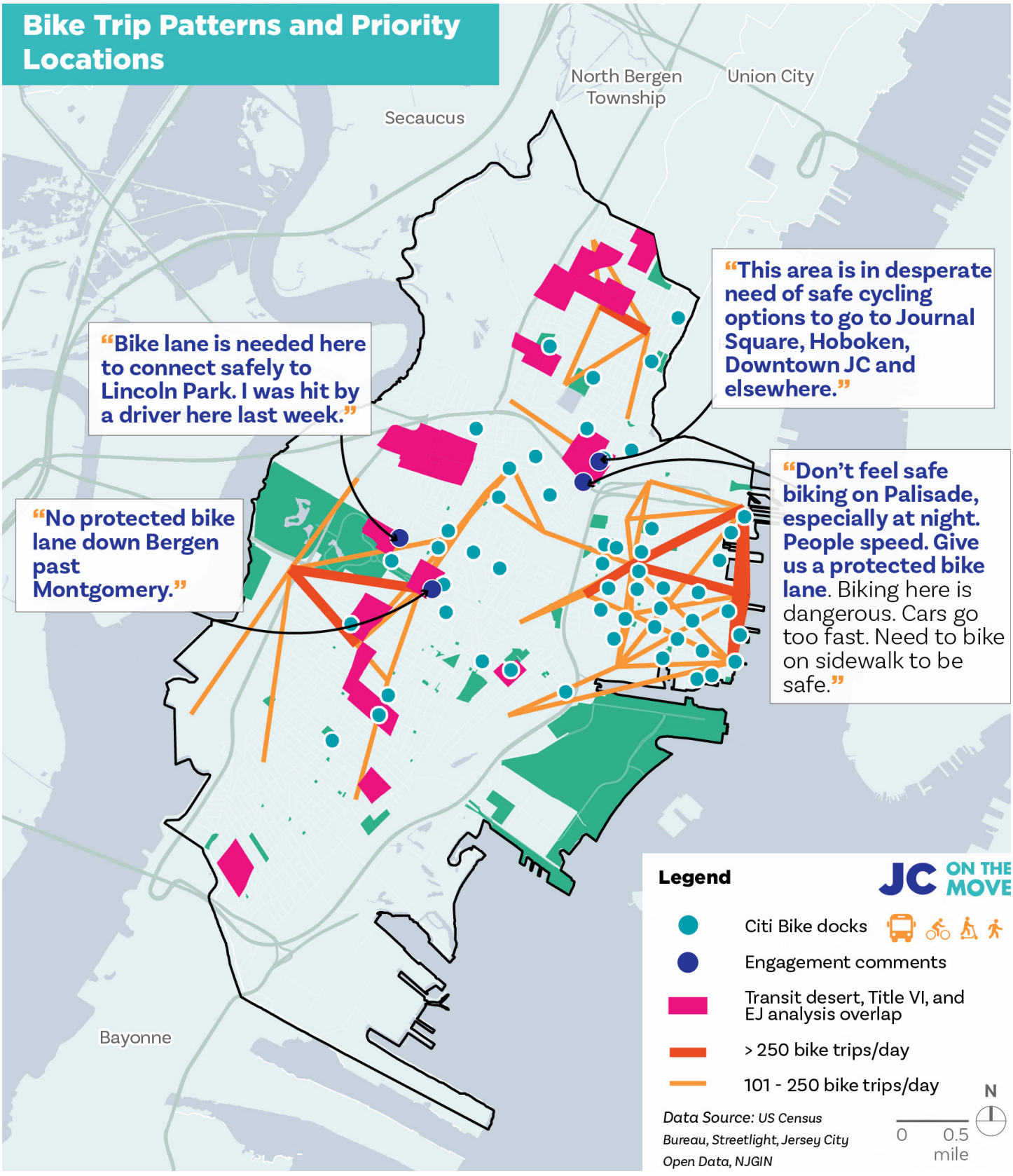


Figure 29. Priority Locations for Bike Share Infrastructure Expansion

Bus Rapid Transit (BRT)

BRT can provide faster and more reliable service than traditional local bus service. It was noted throughout the public engagement process that the highest priority improvements desired for bus service include shorter headways, streets designed to move buses faster, more weekend and nighttime service, and clearer information on routes, schedules, and fares. BRT has the potential to advance all of these improvements.

Jersey City conducted a BRT feasibility study in 2013, which determined that the mode is feasible for the city and identified JFK Boulevard (blue zone on Figure 20) connecting Bayonne to Journal Square, which is served by NJ TRANSIT routes #10 and #119, as the priority route for the first phase of such a system.[38] Figure 38 highlights JFK Boulevard (a county-owned road) as well as routes serving the Journal Square Transportation Center as additional corridors for future BRT consideration and transit-priority treatments in general. These priority locations represent the overlap of areas of highest need and highest daily bus trip volumes. The study identified the following additional recommendations.[39]

- Reduce the number of stops made by BRT service to increase its speed and to distinguish it from local bus service
- Lengthen BRT stops to permit two buses to stop at the same time
- Provide amenities at all BRT stops
- Conduct further study to determine the best options for integrating BRT service with local service.

Based on the results of the BRT study it is recommended that Jersey City work with NJ TRANSIT, the NJTPA, and Hudson County to advance planning for BRT service. It was envisioned that: NJ TRANSIT would operate the service within the right-of-way managed by Hudson County, as JFK Boulevard is a county road. In addition to working with Hudson County on the JFK Boulevard corridor, the City should consider transit speed and reliability improvements, like stop optimization and transit signal priority, to bus routes running on city-owned streets, starting with NJ TRANSIT routes #80 and #87. To continue improving transit service beyond a single project, Jersey City should work with NJ TRANSIT to establish a long-term vision for transit service in the City.

In terms of capital funding options, the Bipartisan Infrastructure Law allocates funds to a capital project grants program, Surface Transportation Block Grants (STBG).[40] One of the eligible activities under this program includes "capital projects for the construction of a bus rapid transit corridor or dedicated bus lane.[41]" Under the Infrastructure Law, BRT projects are also eligible for federal Capital Investment Grants Program, which includes New Starts, Small Starts, and Core Capacity projects.[42] Based on the other priority modes identified, BRT would ideally be developed in conjunction with a mobility hub program and/or MaaS platform.

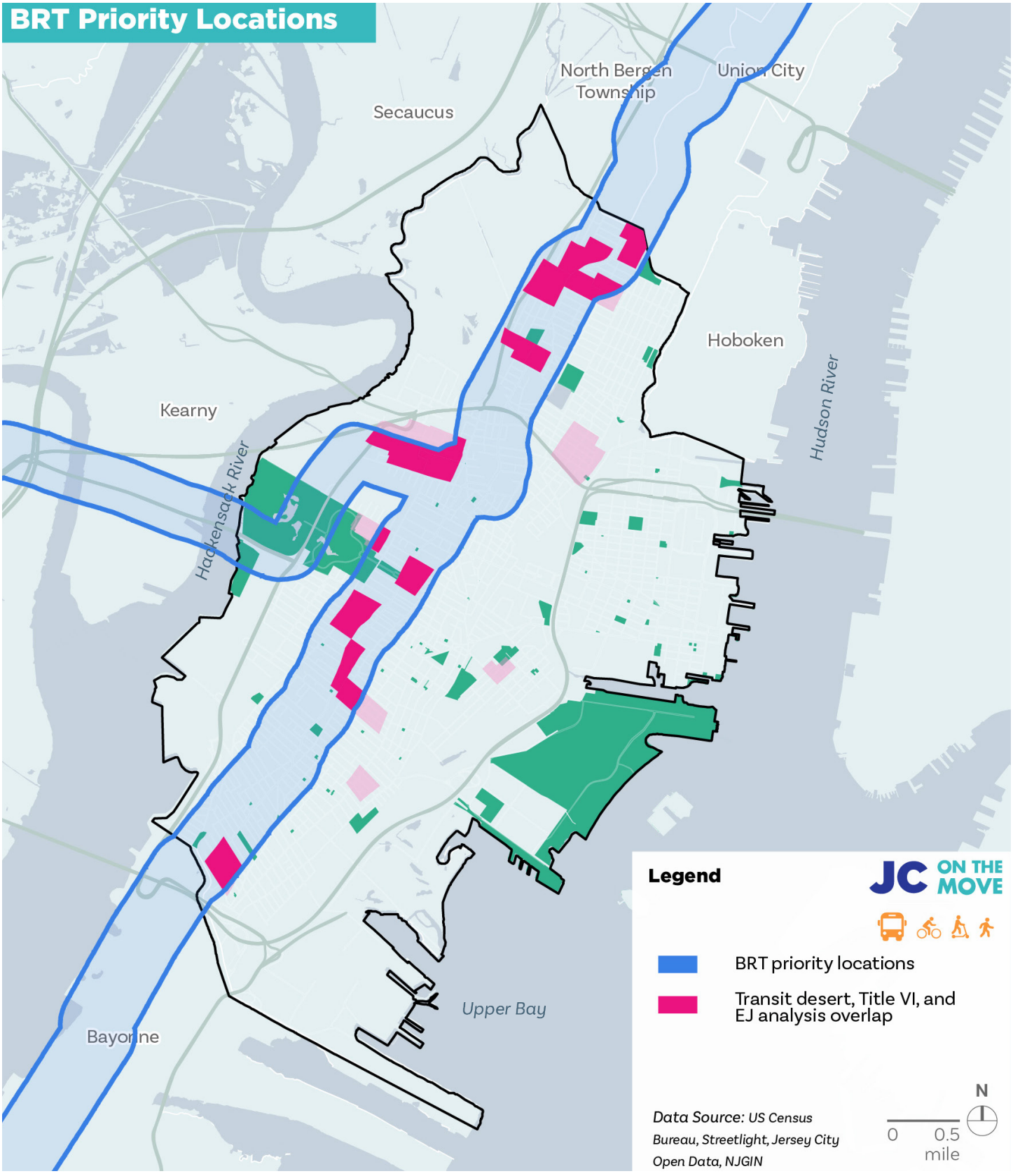


Figure 30: Priority Locations for BRT

AV Shuttles

Jersey City should evaluate AV shuttle service for integration into its existing multimodal transportation services. The mode provides an additional short trip option to complement existing transit service and presents an opportunity to design service around the needs of key communities not directly served by existing modes. The City has options in terms of how to move forward with an AV program. The City could design an AV shuttle pilot program to target areas of highest need, providing more concentrated short trip service than is currently provided by existing transit, microtransit, or jitney bus service. This service would need to be tailored to target demand without siphoning riders from other existing modes. Alternatively, or in addition, the City could work with existing jitney service providers to upgrade and enhance their services by transitioning to AVs, upgrading to electric vehicles, improving customer communications, and integrating into a MaaS platform.

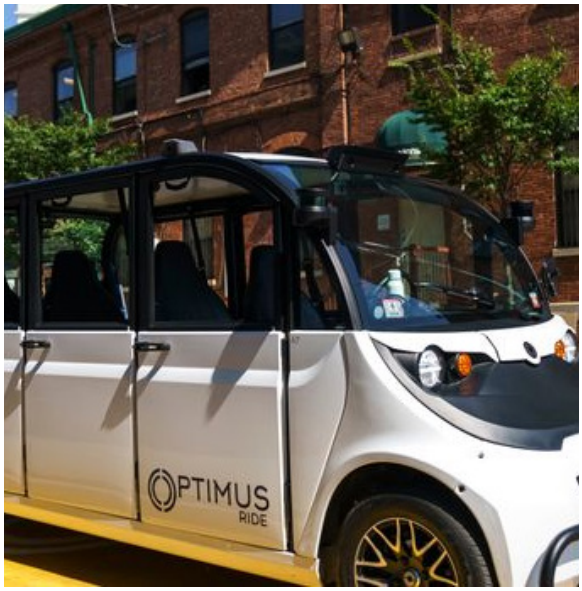
Governor Murphy established the New Jersey Advanced Autonomous Vehicle Task Force in 2019 to study "advanced autonomous vehicles and to make recommendations on laws, rules, and regulations that this State may enact to safely integrate advanced autonomous vehicles on the State's highways, streets, and roads.[43]" The bill establishing the Task Force required the task force to issue a report to the governor evaluating existing federal law regarding AV safety standards, existing legislation in other states, and to recommend how New Jersey can incorporate AVs onto their streets.[44] The Task Force made a number of recommendations in its final report related to safety, public awareness and acceptance, and regulations.[45]

Jersey City should work with the State to advance planning for an AV pilot program or AV technology vehicle retrofitting. The City should also closely monitor the Trenton MOVES AV shuttle pilot for successes, challenges, and best practices. The success of the Trenton MOVES pilot, as pertaining to costs, the experience of users, and the achievement of equity outcomes should all inform how Jersey City structures its program. The project received a $5 million NJDOT Local Transportation Project Fund Grant.[46] This presents a potential pilot funding source for Jersey City should the City decide to pursue a similar pilot program.

As regulations regarding AV operation on public streets are still pending, Jersey City could begin the study of a potential AV shuttle pilot program, identifying the neighborhoods or routes where such a program would have the biggest impact. This area could form the basis of an ODD for a pilot program. An ODD is a specifically defined area within which an AV system is designed to function.[47] The definition of an ODD requires developing an exhaustive list of overlapping conditions an AV might encounter within that domain.[48]

An AV pilot program should be designed to complement existing Via service, as well as other existing transit. From February 27 through March 30, 2021, the top Via service pick-up and drop-off locations were concentrated in the Downtown area

and in Journal Square. The transportation equity analysis identified pockets of high need in The Heights, Journal Square, West Side, and Bergen. The City should consider concentrating an AV pilot program to connect these pockets as much as possible. The pilot's impact will be strongest not only through integration with existing Via service, but in coordination with all existing transportation services within Jersey City. The operation schedule of such a pilot should be designed to fill gaps in existing service periods. Additionally, AV shuttle nodes should be located within mobility hubs.



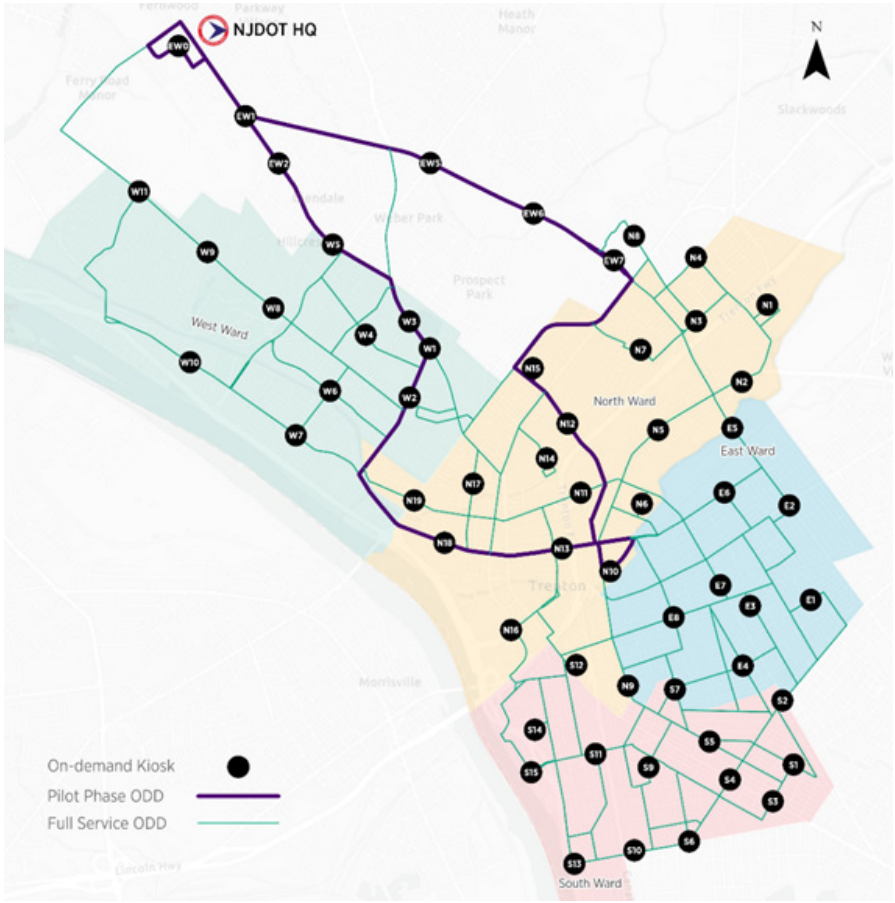


Figure 31. Trenton MOVES' AV Shuttle Pilot Operational Design Domain

Mobility Hubs / MaaS

Jersey City should pursue the creation of mobility hubs to better connect existing and future modes of transportation, creating a more seamless and legible system for users. These hubs enhance visibility and access for any mode included, enhance transit service by providing multiple options for accessing transit nodes or transferring to or from these nodes, and do not require substantial technological or regulatory changes to operate. In addition to bolstering transit, mobility hubs have the potential to engage community groups via employment opportunities for oversight, on-site engagement, maintenance, and operation. For example, Minneapolis' mobility hubs pilot program was launched concurrently with an ambassador program. Ambassadors were sourced from community organizations and served as paid staff responsible for light maintenance like trash pickup, interacting with users and nearby businesses, and communicating safety issues to appropriate staff.[49]

Figure 32. Mobility hubs from Minneapolis' pilot program.

Additionally, it is recommended that Jersey City explore pairing these mobility hubs with a MaaS app. By integrating different modes through technology, MaaS is effectively the digital version of a mobility hub, so the two services together would strengthen and reinforce one another. Pittsburgh's MovePGH is both a mobility hub and MaaS pilot program launched in 2021.[50] This program represents a comprehensive approach to integrating transportation options and serves as one of the first in the country. Because MaaS requires additional investment, specifically in app development and data sharing management, it could serve as the second phase in a Jersey City mobility hub pilot program.

Jersey City could implement mobility hubs on a case-by-case basis as opportunities arise. Implementation could be pursued using public funds like federal grants to create infrastructure at priority locations, in partnership with existing entities like NJ TRANSIT (e.g. to enhance the functionality of Journal Square which was noted by TAC members as needing improvements), or through a more formal public-private partnership (PPP).

Multiple funding sources will likely need to be pursued as many can only be used for specific project elements like capital improvements or operation and maintenance.[51] Potential funding sources to consider for a pilot include local sources (e.g. the Economic Redevelopment and Growth Grant Program[52] or the Improvement District Program);[53] regional sources (e.g. countywide sales tax measures); and state or federal grants.[54] Federal grants that provide capital funding for multimodal projects include the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant program, Congestion Mitigation and Air Quality Improvement program, Transportation Alternatives program, and previously mentioned STBG.[55] One of the intended uses of RAISE funds includes "funding for multi-modal, multi-jurisdictional projects that are more difficult to support through traditional DOT programs."[56] STBG funding eligible activities includes " planning and construction of projects that facilitate intermodal connections between emerging transportation technologies." [57]

Depending on the ideal size and spacing needs of a mobility hub, the City may need to dedicate some street space to the hubs. The City may need to organize a PPP to run the pilot. Members of this PPP would ideally include operators of any transportation service included in the mobility hub. Members might include the City of Jersey City, NJ TRANSIT, the Port Authority of New York and New Jersey, bike share providers, microtransit providers, developers, property owners, and public institutions. Looking ahead, Jersey City should plan to coordinate and expand their mobility hubs and MaaS programs to neighboring communities to incorporate those services and integrate with their planning, booking, and payment platforms. For example, the MTA – serving the New York City region – is piloting the One Metro New York (OMNY) contactless, tap-to-pay fare payment system, which is planned to create a foundation for the integration of a range of modes across the region. PANYNJ plans to introduce a similar tap-and-go payment option for PATH in 2023. In planning for mobility hubs, Jersey City should consider how existing payment structures could coordinate with systems like these used in adjacent cities. As additional mobility service providers come to Jersey City, they should be integrated into this model. The City may need to identify additional partners to facilitate amenities like real-time transit information, provision of street furniture, and any design or branding needs.

Jersey City should use this mobility hub program to further its equity goals by prioritizing those areas previously identified with the highest concentration of underrepresented communities and greatest need based on the transportation equity analysis. Figure 33 highlights these areas of overlap, as well as some of the public engagement comments received concerning these areas. Community feedback specifically highlighted Journal Square as an area where additional investment to improve wayfinding, customer amenities, and co-locate additional mobility hubs could transform the city's key transportation node into a true mobility hub. Priority locations for mobility hubs where existing rail

stations overlap with high concentrations of underrepresented communities include:

- Journal Square Transportation Center
- Newport PATH station
- Garfield Avenue NJ TRANSIT Light Rail station
- Danforth Avenue NJ TRANSIT Light Rail station

Mobility hubs can also provide significant benefit in transit deserts by improving first last mile locations. Locating mobility hubs at key community destinations, along major bus routes, and along commercial corridors can all enhance mobility. Priority locations for mobility hubs in areas categorized as transit deserts and with a concentration of underrepresented communities include:

- JFK Boulevard between Communipaw and Grant Avenues
- Citi Bike dock at Kensington Avenue and West Side Avenue, adjacent to the entrance to Lincoln Park
- Citi Bike dock at Jewett Avenue and Bergen Avenue
- Central Avenue between Thorne and Congress Streets and/or by Washington Park.

A mobility hub pilot program would be significantly enhanced by being paired with a MaaS platform. MaaS is not immediately implementable, so Jersey City should consider this integration as the next phase of the mobility hub program. The MovePGH program, both a mobility hub and MaaS pilot program launched in 2021, takes a comprehensive approach to integrating transportation options and serves as one of the first real-world demonstrations of MaaS in the country. The City should monitor best practices regarding interagency coordination, data sharing management, and app development so that these can be integrated when MaaS is more readily an option. Establishing the relevant stakeholders to create a working group to determine the program's vision should be the immediate first step. Future phases of the program should integrate partners for app development and data sharing management in support of a MaaS platform.

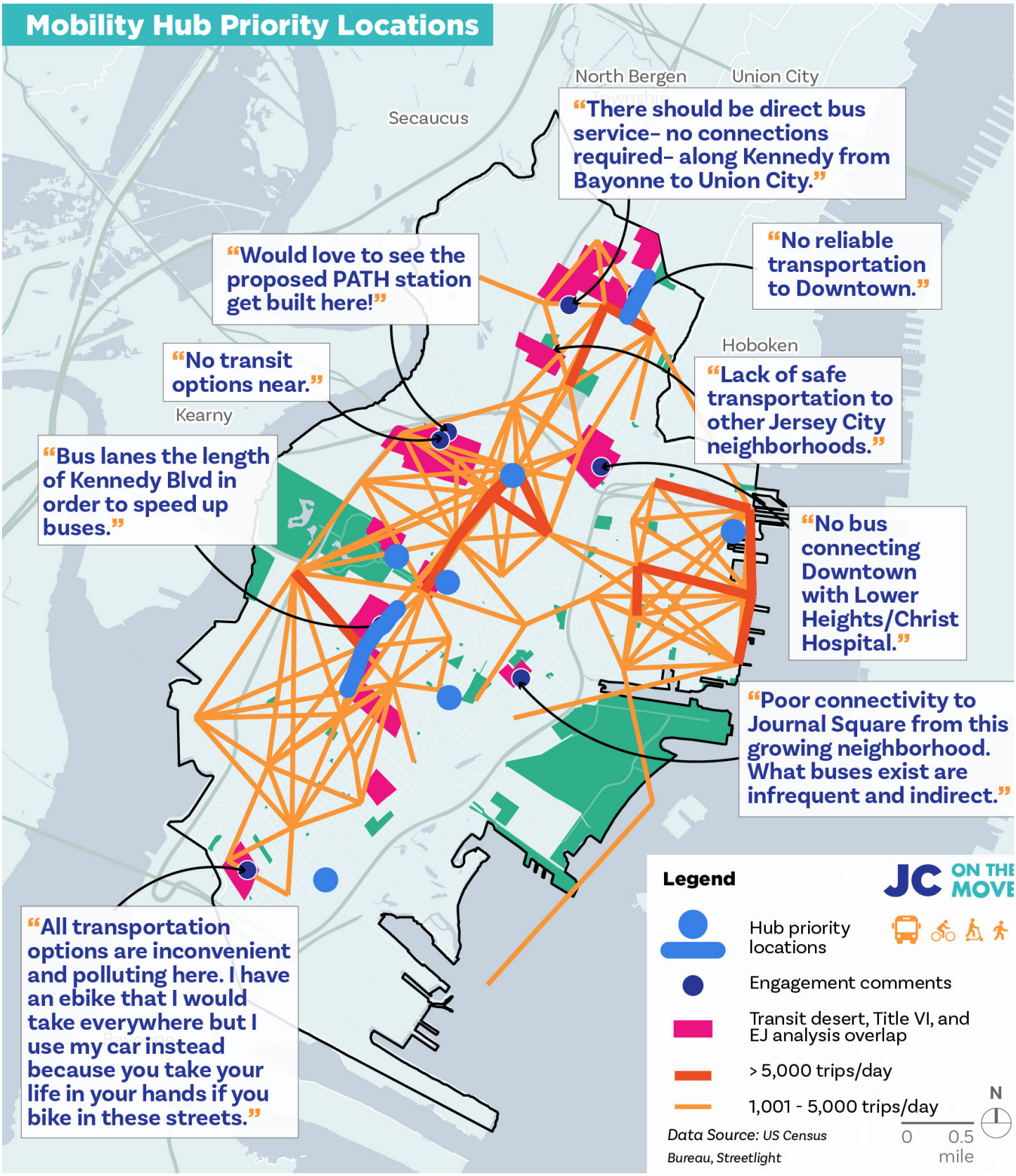


Figure 33. Mobility Hub Priority Locations

Systematic Recommendations

To ensure the success of these modes, Jersey City needs to build the basic policy and programmatic framework that enable implementation and target the specific needs of EJ communities and those in the City's transit desert. This implementation framework recognizes the potential of modes that did not rank high in the screening tool and is flexible enough to enable the entry of new mobility service models.

Undergirding this framework are *JC on the Move's* key objectives of Equity, Multimodal Options, and Safety and Efficiency, which reflect broader citywide desired outcomes. These objectives serve as the 'North Star' in their approach to emerging mobility. In the case of Jersey City, these objectives are critical to ensuring that JC on the Move helps to achieve the broader citywide goal of exploring innovative and emerging transportation modes to determine which can best fill service gaps of existing public transit as well as expand the existing network.

There are three objectives that support that goal:

Equity

Utilize equity as a foundational component to the study. Ensure that JC residents see their story, needs and future life in the recommendations from this study.

Multimodal Options

Identify the needs of people within and around Jersey City, and advance the modal options that are best suited to help communities meet their full potential.

Safety & Efficiency

Identify the ideal mix of mobility solutions and services to enhance user access, mobility, safety, and efficiency while closing existing transportation gaps.

Universal Community Mobility

Universal Community Mobility (also referred to as universal basic mobility) means that regardless of where a person lives or how much money they make, they have access to safe, reliable, and affordable transportation options to get where they need to go. Framing mobility programs and investments around universal community mobility is critical to ensure mobility offerings are safe, affordable, and built for Jersey City's diverse communities. Universal community mobility is an organizing principle to ensure people living in transit deserts and EJ communities have concentrated investment in mobility designed for their specific needs.

Strategy			Equity	Multi-Modal	Safety + Efcc
	Basic Mix	Build a core set of public mobility services and subsidies that affordably meet a diversity of user needs			
	Customer Support	Centralize booking and establish unified customer service across all modes			
	Safety	Create a safe and healthy riding experience for transit riders			
	Equitable Payments	Create equitable forms of fare payment which meets people's needs and offer flexibility			
	Workforce Development	Specialize on hiring workers from minority communities, formerly incarcerated people, women, people with disabilities, and veterans			
	Language Assistance	Ensure City-funded and permitted mobility services offer multi-lingual app-environments and messaging			

Figure 34. Universal Community Mobility Strategy and Objectives

This concept is being piloted in places like Pittsburgh, Oakland, and Los Angeles, among others.

Basic Mix

Build new mobilities with community, and community will use new mobilities. A fundamental step to providing universal community mobility is to build out a core set of public mobility services that affordably meet a diversity of user needs—called the "basic mix". As presented in the Mode Selection section, the basic mix includes micromobility options like shared e-bikes, BRT, new car sharing models, plan-book-pay platforms (i.e., MaaS), and mobility hubs. Jersey City should align and tailor these mobility options and supportive access and digital tools to Jersey City's transit deserts, and locations needing better first- and last-mile options to NJ TRANSIT, PATH, and other transit services, as described in the preceding sections.

Jersey City should establish differential pricing based on needs to ensure that the implementation of these modes translate into equitable and sustainable networks available to all communities. The City should work with NJ TRANSIT, foundations, and other public and private community partners to develop a mobility wallet (see below for more information on mobility wallets) that centralizes trip payments for all mobility options in the basic mix. The mobility wallet should be the tool used to disburse and use mobility subsidies.

Figure 35. The Oonee pod at Journal Square—a mobility amenity responding to changing transportation demands (in this case the need for secure bike parking at intermodal passenger facilities).

Customer Support

With multiple modes and services operating in Jersey City, transit riders often must use multiple apps/payment systems, especially when their journey involves more than one mode. Centralized booking apps and unified customer service across all modes can lessen this burden on commuters. This would enable riders to easily navigate public transit with accurate real-time predictions, multimodal trip planning, offline trip planning, step-by-step navigation and allow riders to book multiple services through a single app.

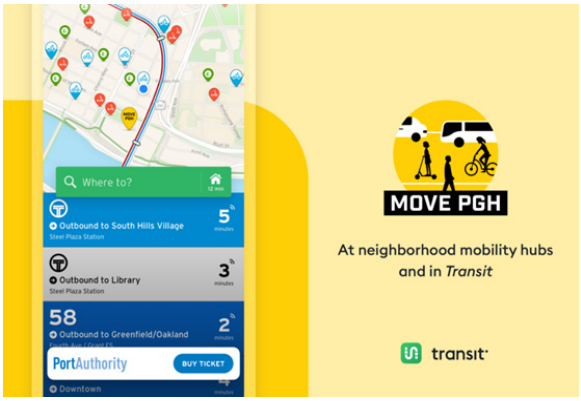


Figure 36. Example of booking multiple transit services through a single app (Transit)

Equitable Payments

Mobility services operating in Jersey City should not discriminate towards any group when it comes to how they can pay for service. This can be prevented by introducing equitable forms of payments. Jersey City should advance the following forms of equitable payments with their mobility service partners.

- **Reduced Fares** - A special program which offers certain groups discounted fare options across modes. NJ TRANSIT currently only offers reduced fares for seniors (aged 65 and above) and individuals with disabilities. There is opportunity to expand this program and offer reduced fares for income-eligible residents too, particularly people living in transit deserts and EJ communities. Reduced fares should be required for all service providers in the basic mix.
- **Mobility Wallet** - A mobility wallet is an electronic or card-based payment system that integrates transportation passes and subsidies, fares, and subscriptions for a variety of transportation modes onto a single card, app, or other fare payment medium. With a mobility wallet, customers can access passes, eligible discounts, or personalized credits. Mobility wallets reduce the burden on customers from needing to pay for each mode using different apps or cards. A central element of Jersey City's mobility wallet would be a basic mobility budget offered for free to the most disadvantaged community members living in transit deserts and EJ communities. This could look like a $150-200 budget usable on any of the modes in the basic mix.
- **Fare Capping** - NJ TRANSIT currently offers discounts for passholders, but an upfront cost is required which may not be affordable for all transit users. Jersey City should work with NJ TRANSIT to set a daily maximum fare for non-passholders. This would improve access for all passengers by eliminating the cost barriers associated with paying upfront for a period pass.

Figure 37. Example of Daily Capping (max 2.5 single fares)

Figure 38. OMNY is an example of contactless, tap-to-pay system

- **Fare Integration -** Following the lead of PATH bringing OMNY to New Jersey, Jersey City could partner with MTA to bring OMNY to all modes within the City. This would be a longer-term initiative to integrate fare payment into a single, unified payment method for multiple public mobility services. Implementing an integrated fare payment system is a foundational step towards transforming riders' experiences.

Figure 39. Transit Ambassadors on the BART system

Safety

Jersey City should create a safe and healthy riding environment for riders regardless of the mode. Mobility policing can be a costly operation and can dissuade historically marginalized riders. Jersey City's public transit rider base is comprised of a disproportionate share of people of color along with people who earn lower incomes. Although safety is a major concern for most transit riders, the definition of safety varies across economic class, gender, race, ethnicity, and citizenship status. To achieve a safer mobility system, Jersey City should work with the community to envision new ways of safety. This approach to policing would require coordination with Jersey City Police Department, NJ TRANSIT, and PANYNJ. One best practice that has been adopted by cities such as San Francisco and Seattle are unarmed ambassadors. It's been shown that safety can be achieved through these outreach workers who deter crime and promote compliance with rules without increasing the potential for violence.

Workforce Development

Hiring local residents (with a special emphasis on those from minority communities, formerly incarcerated people, women, people with disabilities, and veterans) through targeted recruitment and job training programs is a win-win situation for both mobility providers and Jersey City. Coupling these hiring practices with job skills training and support programs such as mentorships helps transform the lives of residents and the community overall. Jersey City should develop workforce development opportunities in partnership with mobility providers, and include local hire requirements in operating agreements.

Figure 40. Training session from FTA's Workforce Center

Language Assistance

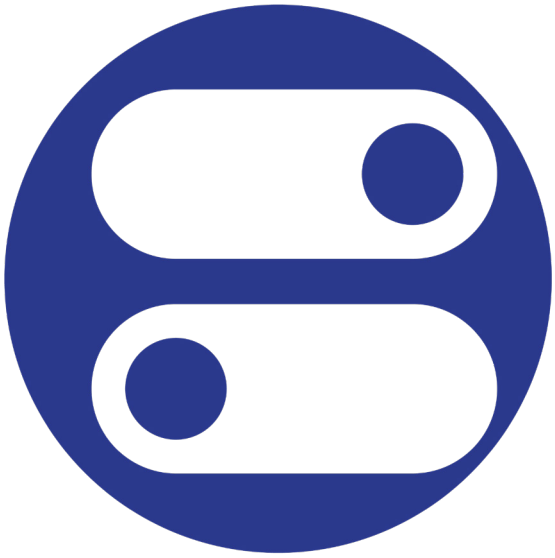
Title VI of the Civil Rights Act of 1964 asks direct recipients of federal funding to take appropriate steps to ensure people with limited English proficiency have meaningful access to their programs and activities. Jersey City is incredibly diverse, so city-funded and permitted mobility services should offer multi-lingual app-environments and messaging. These would include (but not limited to) Spanish, Hindi, Arabic, Mandarin, Cantonese, and Tagalog, which rank among the most common languages in Jersey City.

Jersey City should work with the community and its members to understand communication, messaging, and translation needs. Specialized language services need to be provided to groups in geographic areas that may not be reflective of the larger population in NJ TRANSIT's service area or Jersey City region. A Jersey City funded Language Assistance Plan could help identify LEP populations in the service area and their language characteristics through an analysis of available data.

Figure 41. Example of a multi-lingual Sound Transit brochure

Enablers

Jersey City has many tools at its disposal to enable the basic mix, extend universal community mobility to those that need it most, and build in the customer tools to support a truly exceptional travel experience. These tools need to be unlocked. To advance more mobility options and align them to the community needs, Jersey City needs an umbrella regulatory framework for mobility, shifts in the city organization to build the universal community mobility program, and to leverage transportation demand management mechanisms to invest in mobility.



Umbrella Regulatory Framework

Jersey City needs a strong regulatory framework to clarify the City's overarching expectations for mobility partners and to ensure that they are held accountable for delivering desired program outcomes. This "umbrella" framework should be established around the program objectives and be technology-, mode-, and service-agnostic. This will ensure regulatory consistency across all modes and the alignment of public and private mobility to Jersey City's goals. As part of the umbrella regulatory framework, Jersey City should introduce a universal mobility permit mechanism with a set of base, pan-modal rules and requirements. This permit will anchor against umbrella

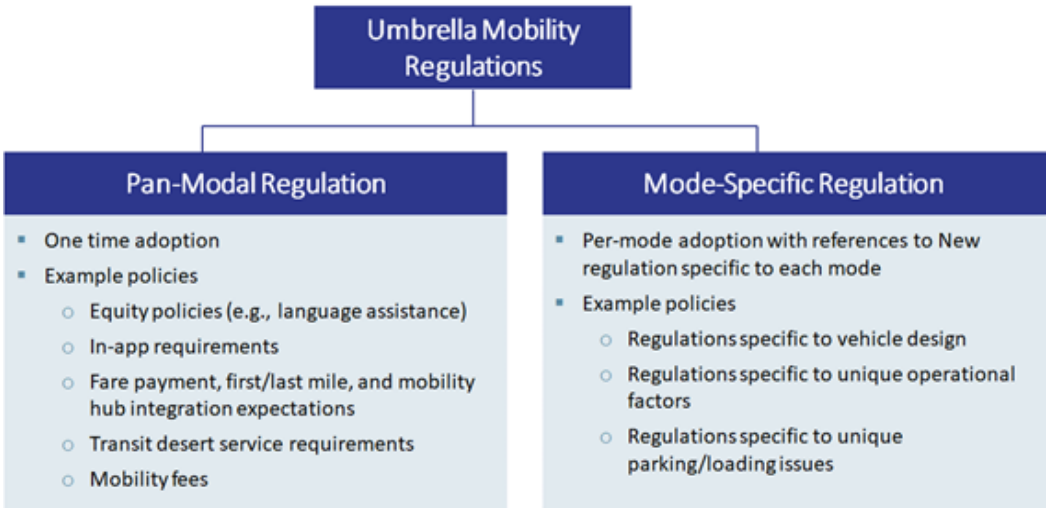


Figure 42. Umbrella Mobility Regulations

mobility regulations, ensuring private mobility providers complement existing public transit services and prioritize filling in the gaps and needs currently unmet by existing mobility services. Ultimately, this will be one permit tied to the core pan-modal regulations and carve outs for mode-specific regulations and requirements. While the umbrella regulatory framework is intended to capture common policy issues across modes, the framework cannot accommodate nuances of all operational, vehicle design or business models. This means that some mobility services will require a limited set of mode-specific regulations. Both of the Pan-Modal and Mode-Specific Regulations should include quality of service standards and performance metrics that are translated into each vendor's service level agreement.

Figure 43. Image from LADOT's Transportation Technology Action Plan, v1.2

Organizational Development

Jersey City should establish a Mobility Stewardship group that plans, pilots, manages, and measures new transportation programs. A key feature of this group is administering a universal community mobility program and universal mobility permit that uses a wide lens—beyond vehicle types and business models currently on the market. Governed by the pan-modal and mode-specific regulatory framework (see Figure 43), this framework will enable City staff to rapidly respond to mobility partnership opportunities and unique mobility operating models.

Adequate resources should be provided to the group and staffing should be proportionate to the size of the city, fleet size, and size of the compliance and enforcement operation. While a robust team can efficiently manage some program aspects, the City should rely on open data and digital tools by adopting the Mobility Data Specification (MDS) and the Curb Data Specification (CDS) for the purposes of permit management, right-of-way stewardship, long-term planning, and performance measurement. MDS and CDS are a set of APIs that standardize two-way communications between cities and mobility operators. They enable cities to collect data and publish regulations (e.g., equity zones) that can inform efficient mobility management, curb operations, and public policy decisions. Jersey City should create a strategic roadmap to phase in these digital elements for development and testing. Staff should include dedicated people for day-to-day operations, data analysis, auditing, special programs, and community engagement.

Unlocking Transportation Demand Management (TDM)

A reinforcing cycle of transit, biking, walking, and shared mobility investments should be established to create an environment where active transportation is convenient, comfortable, and safe within the City. While the Hudson TMA delivers TDM services for the County, Jersey City lacks its own requirements. Along with adopting strategies set forth by NJTPA's Transportation Demand Management & Mobility Plan (2021), Jersey City needs to adopt TDM strategies and requirements within its municipal code.

The City should build a TDM point system, mobility development menu, and scoring thresholds tied to new development. The point system should relate to specific land uses, development intensities, and community needs. The mobility development menu would integrate universal community mobility elements. This would especially be beneficial for neighborhoods experiencing high transit need and less transit access such as the Lafayette Industrial/ Bergen Hill Area, The Heights, and Sparrow Hill.

Strategic Partnerships

Strategic partnerships are critical to securing funding for mobility investments, leveraging new technology, making services more available to a wider audience, and ensuring success of the universal community mobility program. Jersey City should build a strategic partner network and mobility incubator program with transit agencies, mobility providers, and tech platforms. The strategic partner network and mobility incubator program would serve as a roster of invested participants in the development and ongoing testing of universal community mobility. This program would be supported by a paid community advisory group which would play a key role in voicing the communities wants and needs.

Jersey City could initiate partner collaboration through the lens of major problem statements, including but not limited to:

- Low-income access/language assistance programs
- Addressing community and regional mobility needs
- Tap into new funding streams to improve efficiency of service delivery
- Hire and train diverse workforce with specialization
- ...And more

Potential Phasing

Universal community mobility and its enablers cannot be delivered all at once. Their delivery depends on a variety of factors, and thus require a thoughtful approach to phasing. Jersey City should consider implementation of these framing policy and programmatic elements over five years across three slightly overlapping phases.

- **Phase 1:** The first phase of the project would address immediate organizational and regulatory needs. The City should develop and adopt the umbrella regulatory framework, establish the Mobility Stewardship group, improving safety on transit and at mobility hubs, and offer multi-lingual messaging. This phase should advance the highest priority mobility options and align them to the umbrella mobility regulations and universal mobility permit.

  Initial Funding Tranche: The City and its public/private partners should seek seed funding from public and private sources to deliver universal community mobility. During this timeframe, the City should investigate financial partnerships with foundations.

- **Phase 2:** The second phase works towards universal community mobility by providing an integrated customer support and booking platform, equitable payment methods, and workforce development.

  Sustaining Funding Tranche: The City and its public/private partners should seek seed funding from public and private sources to sustain ongoing mobility operations and programming, while growing the basic mix.

- **Phase 3:** The last phase should target incorporating TDM practices and leverage the full potential of Mobility Data Specifications in order to automate processes.

  Ongoing Funding Tranche: Maintain funding balance to sustain operations and program delivery.

Implementation Matrix

Jersey City will need a practical approach to implementing the recommendations included in this plan. The implementation matrix for the proposed improvements is included below, showing the prioritization of recommendations for phased implementation. It also provides broad cost categorization and timeframes. Prioritization is based on the modes assessment in the first part of this document.

Timeframe, Cost, and Priority

Timeframe:
Short = 1-2 years
Medium = 3-4 years
Long = 5+

Cost:
Low = <$10,000
Medium = $10,000 -$250,000
High = $250,000+

Priority Range:
Low
Medium
High

Figure 44. Timeframe, Cost, and Priority Analysis

Implementation Matrix

Mode	Improvement	Location	Timeframe	Cost	Priority	Responsibility
Microtransit	Increase Fleet Size	Citywide	Short	High	High	Jersey City
	Expand Hours	Citywide	Short	High	High	
	Fare Reduction Program	Citywide	Short	Low	High	
	Extension of Service Area	Citywide	Short	High	Medium	
Bike Share	Additional Stations	The Heights	Short	Medium	High	Jersey City
		West Side	Short	Medium	High	
		Greenville	Short	Medium	Medium	
Bus Rapid Transit (BRT)	BRT Implementation	JFK Boulevard	Long	High	High	Jersey City / NJ TRANSIT/ Hudson County
	Optimizing Stop Spacing	Citywide	Medium	Low	Medium	
	Physical lengthening of stops	Citywide	Medium	Low	High	
	Stop Amenities	Citywide	Medium	Medium	Medium	
AV Shuttle	Pilot Program	Citywide	Long	High	Low	Jersey City
Mobility Hubs	Implement Mobility Hub	Journal Square Transportation Center	Medium	Low	High	Jersey City / NJ TRANSIT / PANYNJ / CitiBike
		Newport PATH Station	Medium	Low	High	
		Garfield Avenue Light Rail Station	Medium	Low	Medium	
		Danforth Avenue Light Rail Station	Medium	Low	Medium	
		JFK Boulevard between Communipaw and Grant Avenue	Medium	Low	Medium	
		Entrance to Lincoln Park along West Side Avenue	Medium	Low	Medium	
		Bergen Avenue between Belmont and Fairview Avenue	Medium	Low	Medium	
		Central Avenue between Thorne and Congress Streets and/or by Washington Park	Medium	Low	Medium	
MaaS	Pilot Program	Citywide	Medium	Medium	High	Jersey City
Systemic	Umbrella Regulatory Framework	Citywide	Long	Low	High	Jersey City
	Mobility Stewardship Group	Citywide	Medium	Low	High	
	TDM Practices / Policies	Citywide	Long	Low	High	

Figure 45. Implementation Matrix


citi bike
citi bike

06. Conclusion

Jersey City is already one of the most transit-rich cities in the country. Targeted investments in new, expanded, or enhanced mobility options – including transportation modes, technologies, and infrastructure – can close existing access gaps and ensure a universal level of equitable mobility for all those who live in, work in, and visit Jersey City. Many of the recommendations included in the study are relatively inexpensive and easy to implement while others will require additional study and significant funding to move forward. Even so, *JC on the Move* provides a rigorous and strategic framework, including tangible implementation steps, to do so.

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Figures

Appendix


NJTPA
NORTH JERSEY
TRANSPORTATION
PLANNING AUTHORITY


CITY OF JERSEY CITY
JERSEY
LET
PROSPER
CORPORATE SEAL