CONNECT

Arlington

SUSTAINABLE TRANSPORTATION PLAN

Factbook

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1 INTRODUCTION

TRANSPORTATION PLAN CONTEXT

A Sustainable Transportation Plan for Arlington will provide a vision for the development of the transportation system in Arlington over the next 20 years, building upon past planning and recommendations. Community-led goal-setting and a wide-reaching engagement effort will help inform policy, program, and project identification, selection, and identification to help Arlington chart a path towards a vision of greater sustainability in the way it travels. The plan will focus on all aspects of transportation and mobility and how they relate to the unique qualities of the Arlington community.

The Sustainable Transportation Plan Advisory Committee (STPAC) is tasked with advising the project team on the creation of this plan. The committee consists of Town staff, community advocates, and business leaders.

Sustainable Transportation

Sustainable transportation planning balances and optimizes mobility improvements across all means of travel, tailoring such improvements to mitigate the climate footprint of travel as much as possible while serving the widest spectrum of socio-demographic needs and pragmatically responding to structural and spatial constraints. Arlington is committed to achieving a more sustainable future through transportation policies, programs and infrastructure investments. As part of that commitment, the plan will embrace and engage those that would benefit the most from more access and non-motorized travel improvements.

Communities throughout Greater Boston no longer have the land available to further increase road capacity significantly. In Arlington, the Town must explore opportunities to do more with transportation right-of-way (ROW) to move the most people safely and with a high quality experience. This is key for Arlington to implement its commitment to promoting climate stabilization and meeting other charted environmental, as well as housing and economic development, goals.

Local and Regional Transportation Context and History:

Arlington's unique location within the Boston region puts it close enough to the Commonwealth's major employment centers to make the commute sustainable, but distant enough for the town to have retained a close-knit, community feel. Crossing the Alewife Brook Parkway from Cambridge into Arlington brings with it a feeling of comfort and ease – streets are calmer, and more distance is perceived between streets and driveways. Arlington as a community is mainly residential, with the obvious exceptions along its commercial corridors, including business districts along Massachusetts Avenue (locally known as Mass Ave), and industrial areas. Even if Arlington residents work nearby, there are travel time disparities between driving and other modes of transportation: the travel time reliability of transit is poor given MBTA buses operate in congested traffic en route to rapid transit and employment centers. Topography west of Pleasant Street poses a challenge for those who may opt to walk, bike, or connect to and from bus transit. The Minuteman Bikeway is high quality commuting infrastructure, but conflicts between types of users are frequent, especially with many different modes at different speeds.

How to use the Factbook

This factbook documents Arlington's demographic and transportation conditions and sets the stage for a more sustainable transportation future. It is structured as follows:

- People and Place: who lives here, where, and how the town is laid out as a community
- Streets: transportation assets, qualities, and safety
- How People Travel: how infrastructure influences travel choices and patterns

This factbook lays the foundation for community feedback and for subsequent phases of building and planning sustainable transportation strategies.

Sustainable Transportation Solutions

The Town of Arlington has been implementing numerous transportation policies, programs and projects with the goal of developing a more sustainable transportation future.

Throughout this fact book, several of these initiatives are called out in boxes like this both to recognize and inform the public about strong examples already completed.

Recommendations developed as part of this Sustainable Transportation Plan will also look to support and build on these initiatives.

Key Transportation Stats

Street Infrastructure

137 Miles

Of total streets

74%
(101 miles)
Public streets
Owned and maintained by the Town

15%
(21 miles)
Private streets
Partially maintained by the Town *(e.g. plowing)* and/or by property owners fronting the roadways *(e.g. paving and upkeep)*

5%
(7 miles)
Other facilities
Partially owned and maintained by the Town (e.g. cemeteries, pathways in parks)

6%
(8 miles)
State streets
Owned and maintained by the State or maintained in part by the Town *(e.g., plowing)*

Active Transportation Infrastructure

132 Miles

(Estimated)
Of sidewalks owned and maintained by the town

42 miles
Streets Without Sidewalks
(On either side of street, primarily in hilly areas of town)

25 Miles

Of bicycle and/or multiuse facilities

8 miles
Multiuse Paths
(Mostly comprised of the Minuteman Bikeway)

5 miles
Bicycle Lanes

12 miles
Lane Sharing Network
(Informal, but designated routes)

Key Transportation Stats *(continued)*

Transit

11 Bus Routes

7 routes	2 routes	1 route
Provide Connections to Alewife Station *(Red Line and Bus Connections)*	**Service to Harvard Square** *(Red Line and Bus Connections)*	**Connection to Davis Square & Lechmere/East Cambridge** *(Red and Green Line Connections)* **Connection to Medford** *(Orange Line Connection)*

Rail Access

Within short walking or biking distance

Red Line	Commuter Rail
Alewife Station near border with Cambridge	Within ½-mile of Arlington at West Medford (Lowell Line) and Belmont (Fitchburg Line)

2 PEOPLE AND PLACE

Transportation connects people to the places they need and want to be – to where they live, workplaces, educational opportunities, recreational and shopping destinations, and public and private services. Transportation ensures the goods and services that support daily life and the economy are delivered to destinations ranging from warehouses to small shops to your front door.

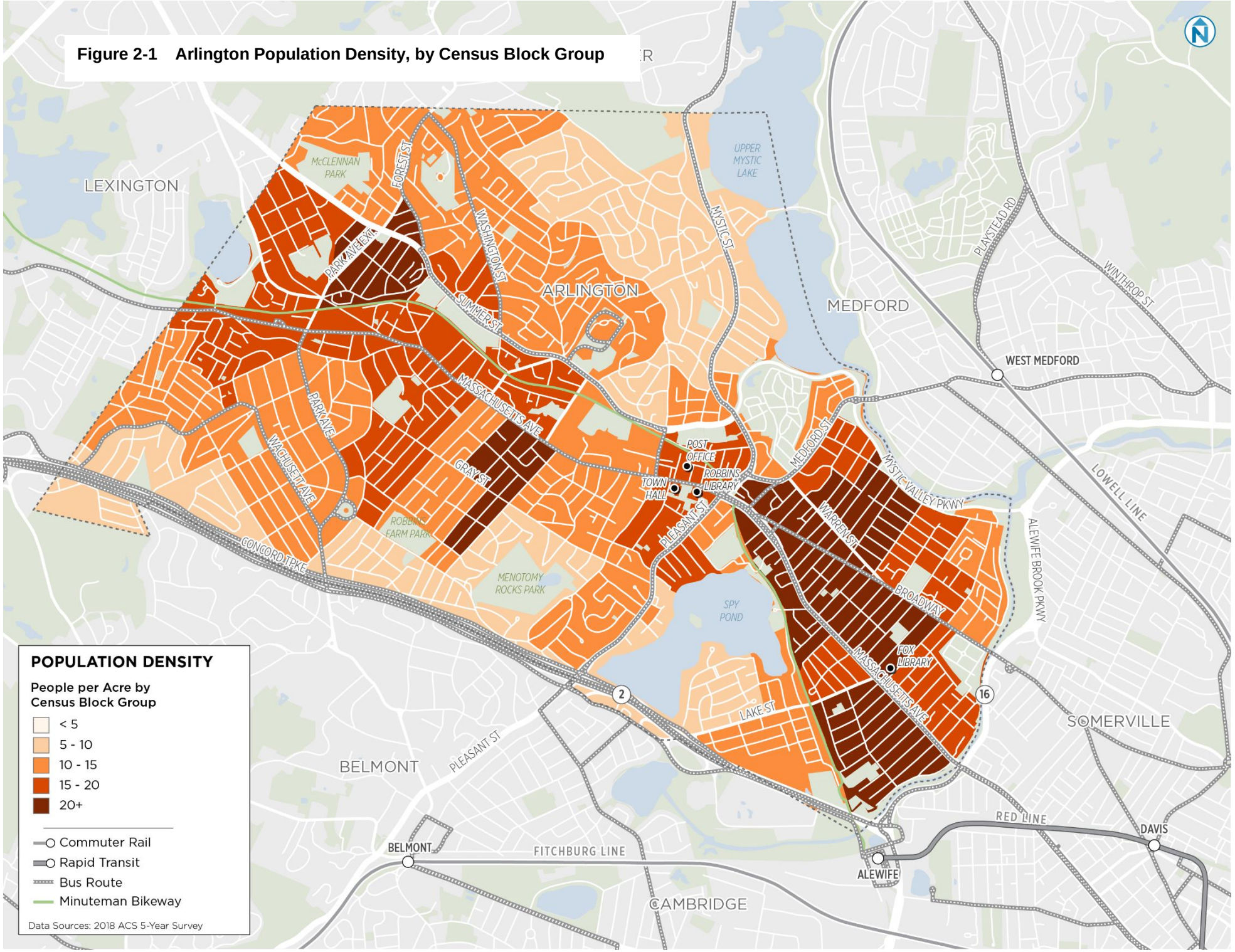
POPULATION AND SOCIOECONOMIC CHARACTERISTICS

Total Population

There are approximately 45,000 people living in Arlington (American Community Survey, 2014-2018). As shown in Figure 2-1,residential densities are generally higher east of Arlington Center – East Arlington – and in western sections of town abutting Mass Ave.

Population density and land use patterns largely mirror topography. Population density is highest in flatter areas like East Arlington and abutting western segments of Mass Ave, and generally decrease in the hilly, higher elevation areas rising up from Mass Ave; for example, in Arlington Heights, Morningside and other neighborhoods.

Figure 2-1 Arlington Population Density, by Census Block Group



Data Source: U.S. Census Bureau (2018). Total Population. 2018 ACS 5-Year Estimates

Age

Arlington's resident population is balanced across the age spectrum; adults aged 25 to 64 are proportionally the most represented groups in the spread of the population (Figure 2-2). Children with ages up to 14 years and older adults aged 65 and older are generally considered to be more vulnerable to mobility challenges. These groups make up over one-third of Arlington's population. Children are more likely to be reliant on adults for transportation, especially for modes other than walking or biking, and are also more likely to be injured or killed by car impacts. Older adults are more likely to have disabilities or mobility challenges and may also be reliant on others for transportation.

Children of preschool, elementary, middle, and high school aged students make up over 15% of the population, and are most heavily concentrated in Arlington Center and East Arlington, areas within a five- to ten-minute walk or bike ride to neighborhood schools (e.g. Thompson and Hardy Elementary, Gibbs Middle School, Arlington Catholic, and Arlington High School, just west of Arlington Center). Preschool and elementary school aged children west of Arlington Center are most heavily concentrated nearer to Mass Ave, while their schools are located uphill to the north and south, making walking and biking trips more challenging.

Figure 2-2 Age Breakdown of Arlington Population

Age Range	Total	% of Total Population
Young Children (Ages up to 5)	3,128	7%
School-Aged Children and Younger Teens (Ages 5-14)	5,086	11%
Older Teens and Young Adults (Ages 15-24)	3,756	8%
Adults (Ages 25-34)	6,254	14%
Adults (Ages 35-54)	13,747	30%
Adults (Ages 55-64)	5,838	13%
Older Adults (Ages 65 and up)	7,338	16%
Total	45,147	100%

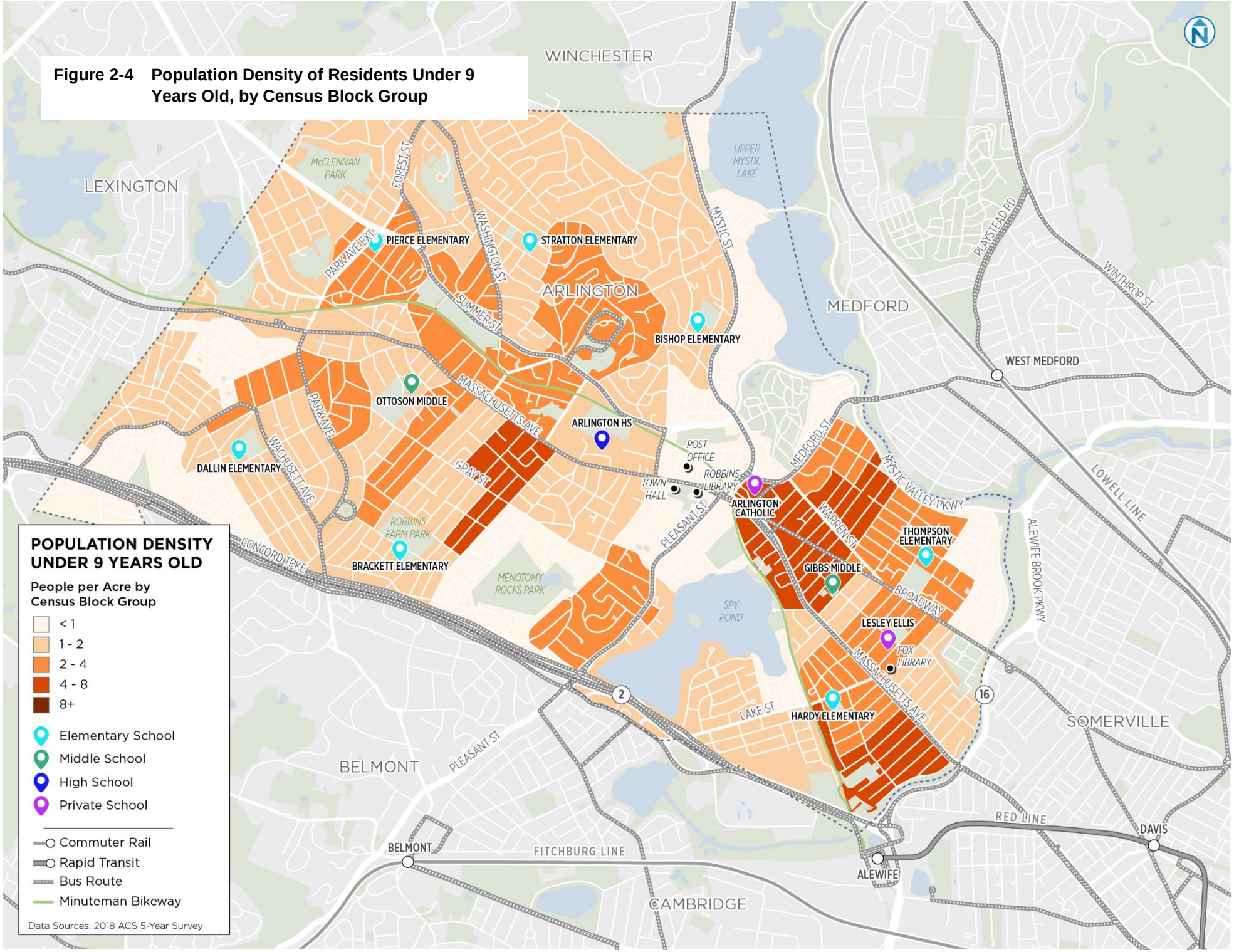
Data Source: U.S. Census Bureau (2018). *Sex by Age*. 2018 ACS 5-Year Estimates.

Figure 2-3 Breakdown of School-Age Population

Age Range	Total	% of Total Population
Elementary School (Ages 5-9)	2,944	7%
Middle School (Ages 10-14)	2,142	5%
High School (Ages 15-19)	2,326	5%
Total	7,412	16%

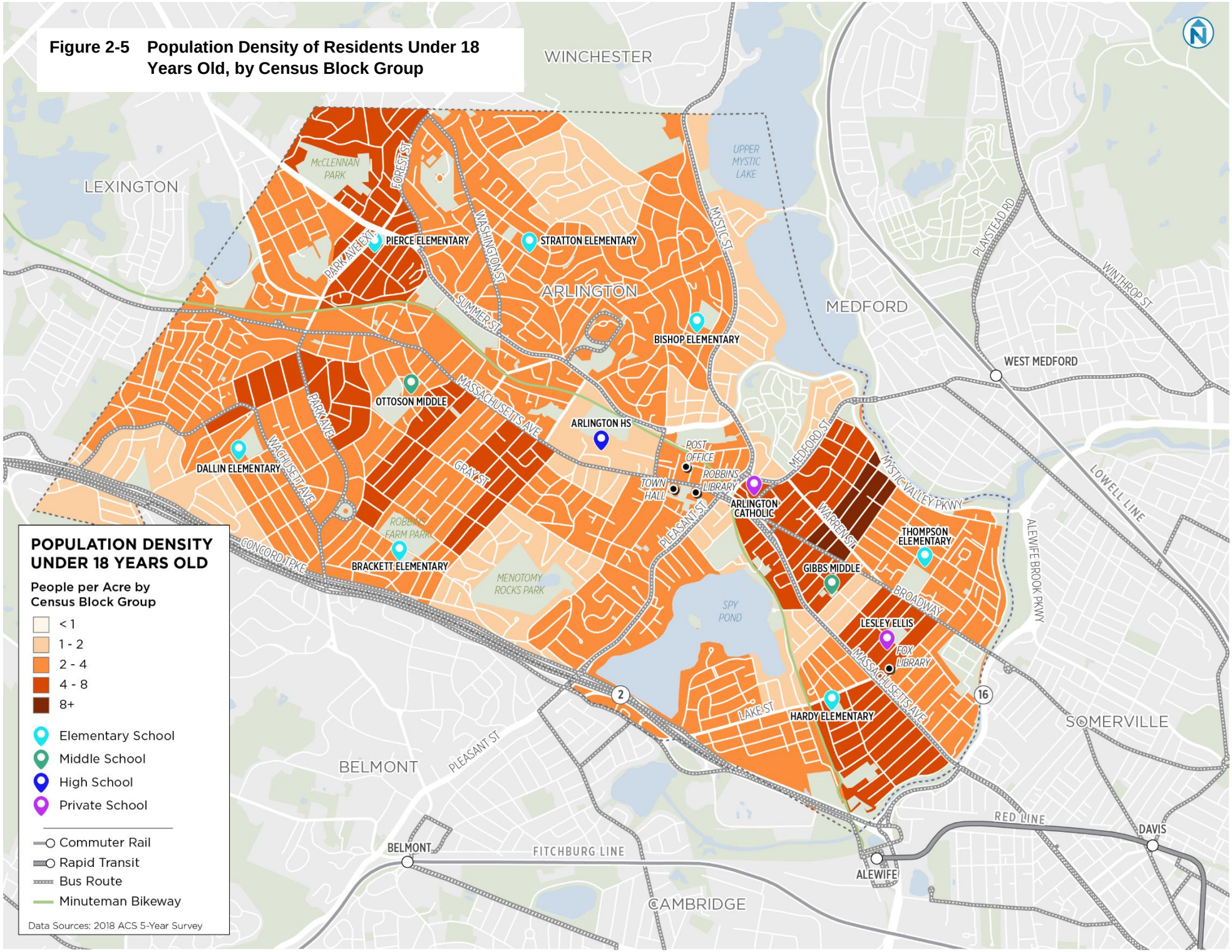
Data Source: U.S. Census Bureau (2018). *Sex by Age*. 2018 ACS 5-Year Estimates.

Figure 2-4 Population Density of Residents Under 9 Years Old, by Census Block Group



Data Source: U.S. Census Bureau (2018). *Sex by Age*. 2018 ACS 5-Year Estimates.

Figure 2-5 Population Density of Residents Under 18 Years Old, by Census Block Group



Data Source: U.S. Census Bureau (2018). *Sex by Age*. 2018 ACS 5-Year Estimates.

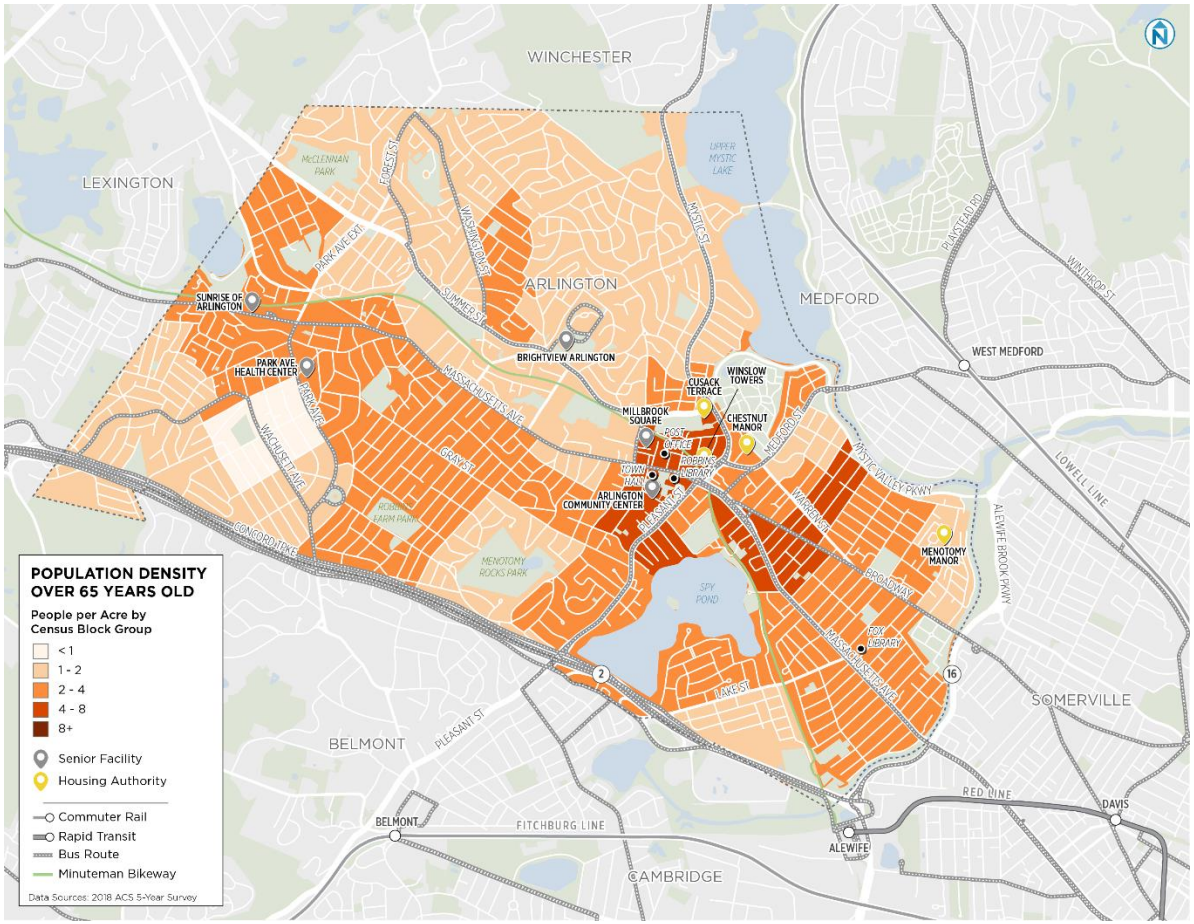
Arlington's older adults (people 65 and over) make up about 16% of the population and are most heavily concentrated in and around Arlington Center proximate to Mass Ave and the Minuteman Bikeway, and within a five- to ten-minute walk to the Arlington Community Center and other nearby civic resources.

Figure 2-6 Arlington Older Adults Population

Age Range	Total Population	% of Total Population
65 to 74 years	3982	9%
75 to 84 years	2300	5%
85 years and over	1056	2%
Total	7,338	16%

Data Source: U.S. Census Bureau (2018). *Sex by Age*. 2018 ACS 5-Year Estimates.

Figure 2-7 Population Density of Residents Over 65 Years Old, by Census Block Group

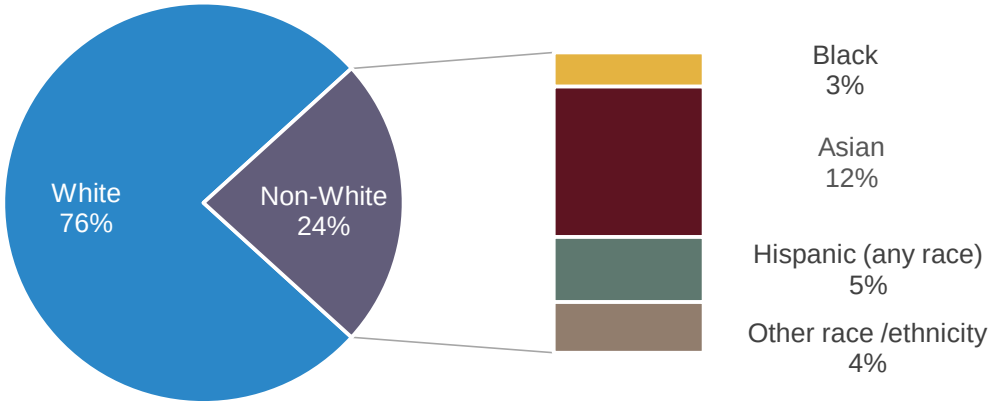


Data Source: U.S. Census Bureau (2018). *Sex by Age*. 2018 ACS 5-Year Estimates.

Race and Ethnicity

Over three-quarters of the population identifies as White (non-Hispanic), 12% identify as Asian, 5% Hispanic (of any race), 3% Black or African American, and 4% identify as other.

Figure 2-8 Race and Ethnic Make-up of Arlington Residents

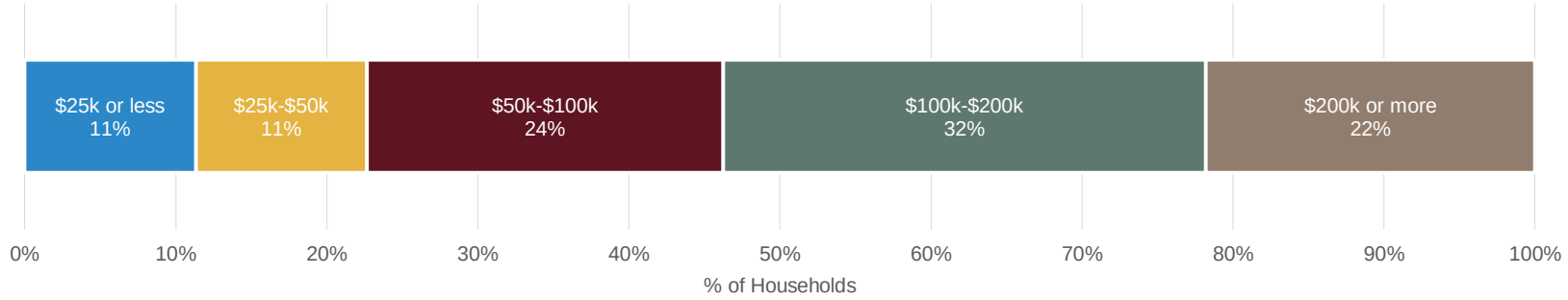


Data Source: U.S. Census Bureau (2018). *Hispanic or Latino Origin by Race*. 2018 ACS 5-Year Estimates.

Income Distribution

Arlington is a relatively affluent community. Over half (54%) of Arlington households have combined incomes over $100k, and there are about twice as many households with incomes over $200k (22%) as households under $50k.

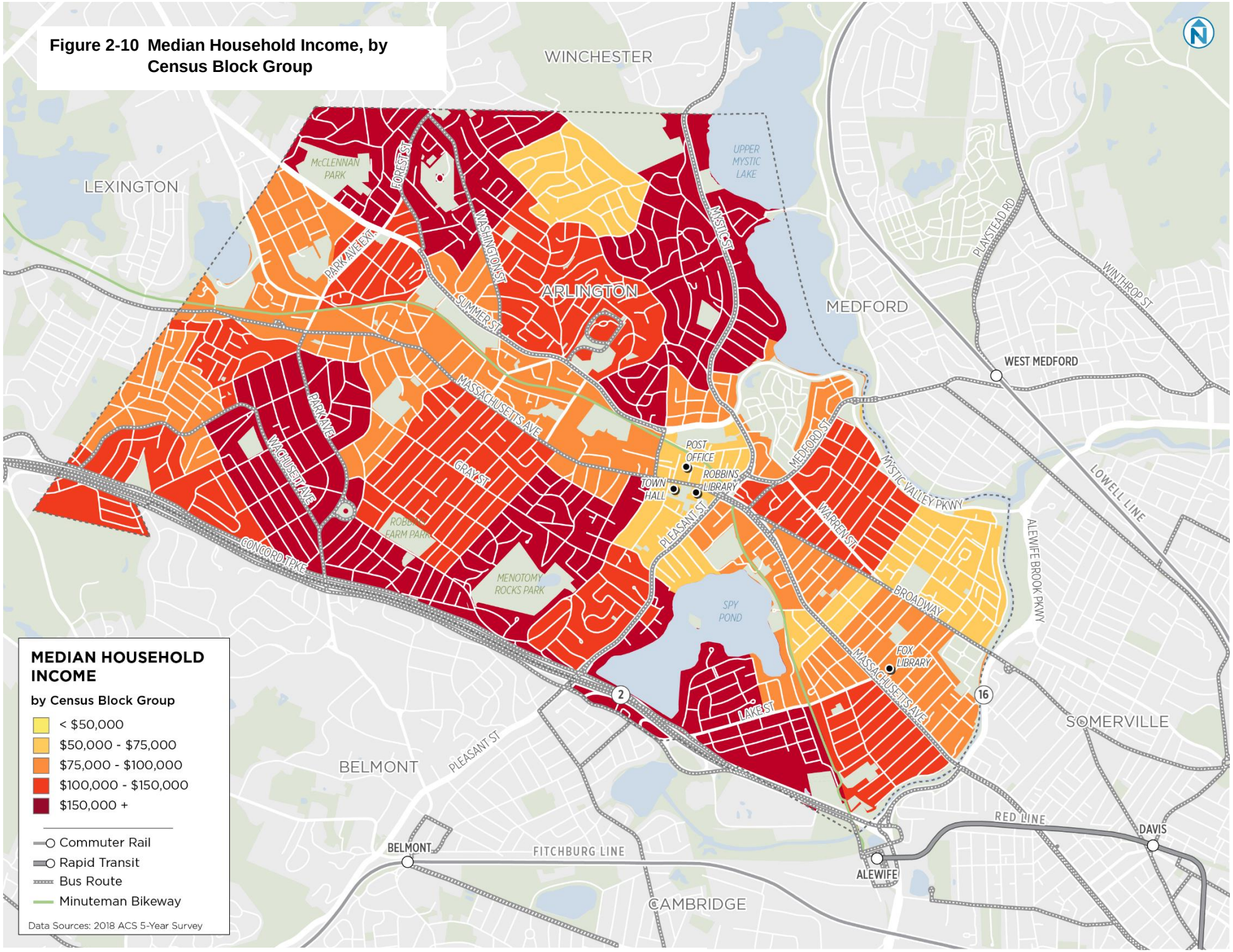
Figure 2-9 Household Income Distribution



Data Source: U.S. Census Bureau (2018). *Household Income in The Past 12 Months (In 2018 Inflation-Adjusted Dollars).* 2018 ACS 5-Year Estimates.

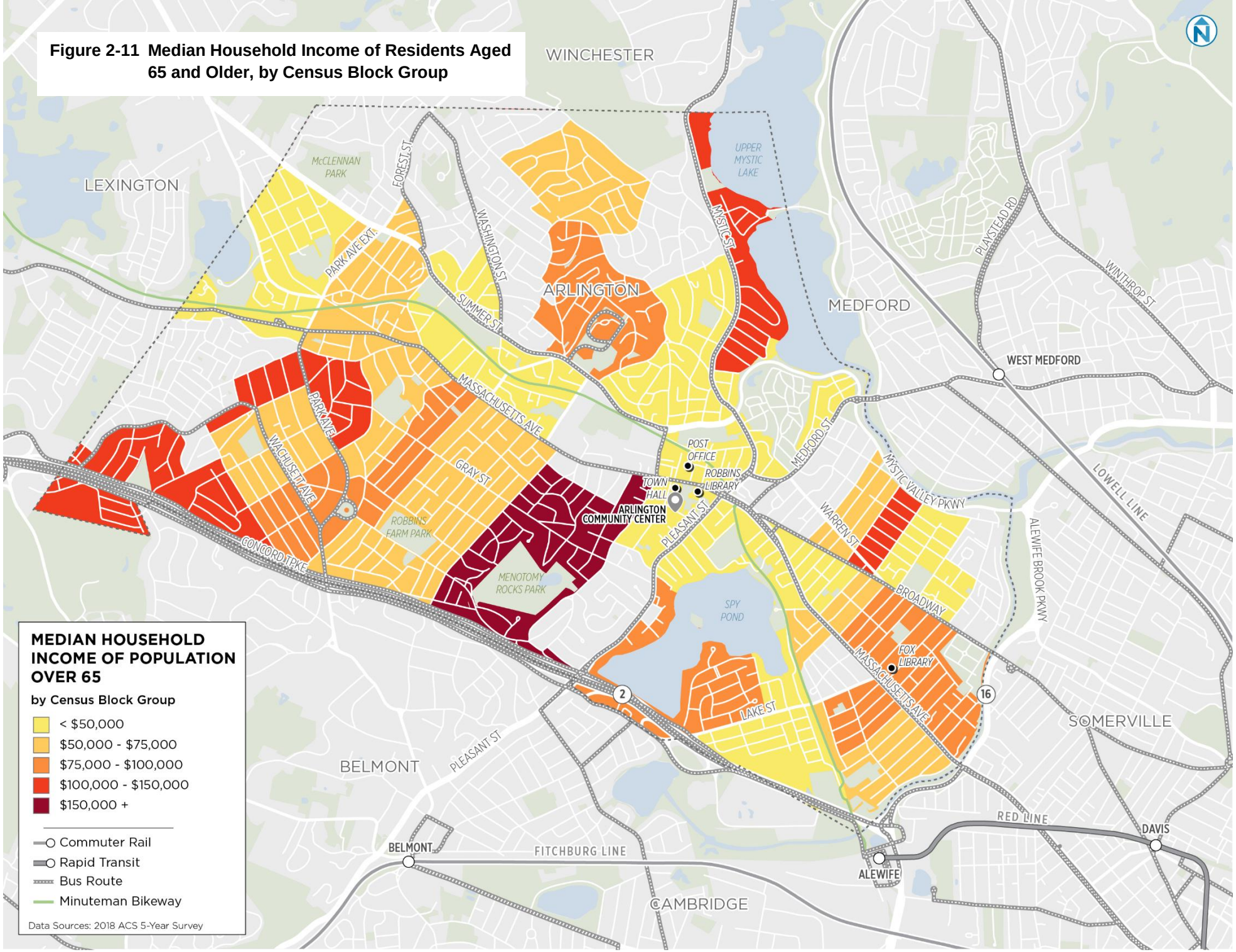
Generally, median household incomes are highest in neighborhoods located furthest from Mass Ave particularly neighborhoods west of Arlington Center, with lower income areas abutting Mass Ave and in East Arlington. Income characteristics correlate with land use and topography, and other demographic characteristics. Generally, higher income areas are located at higher elevations within hillside single family neighborhoods. Lower incomes are found in low-lying sections of town buffering Mass Ave and in East Arlington, areas with more multifamily and/or rental housing, and more older adults on fixed incomes.

Figure 2-10 Median Household Income, by Census Block Group



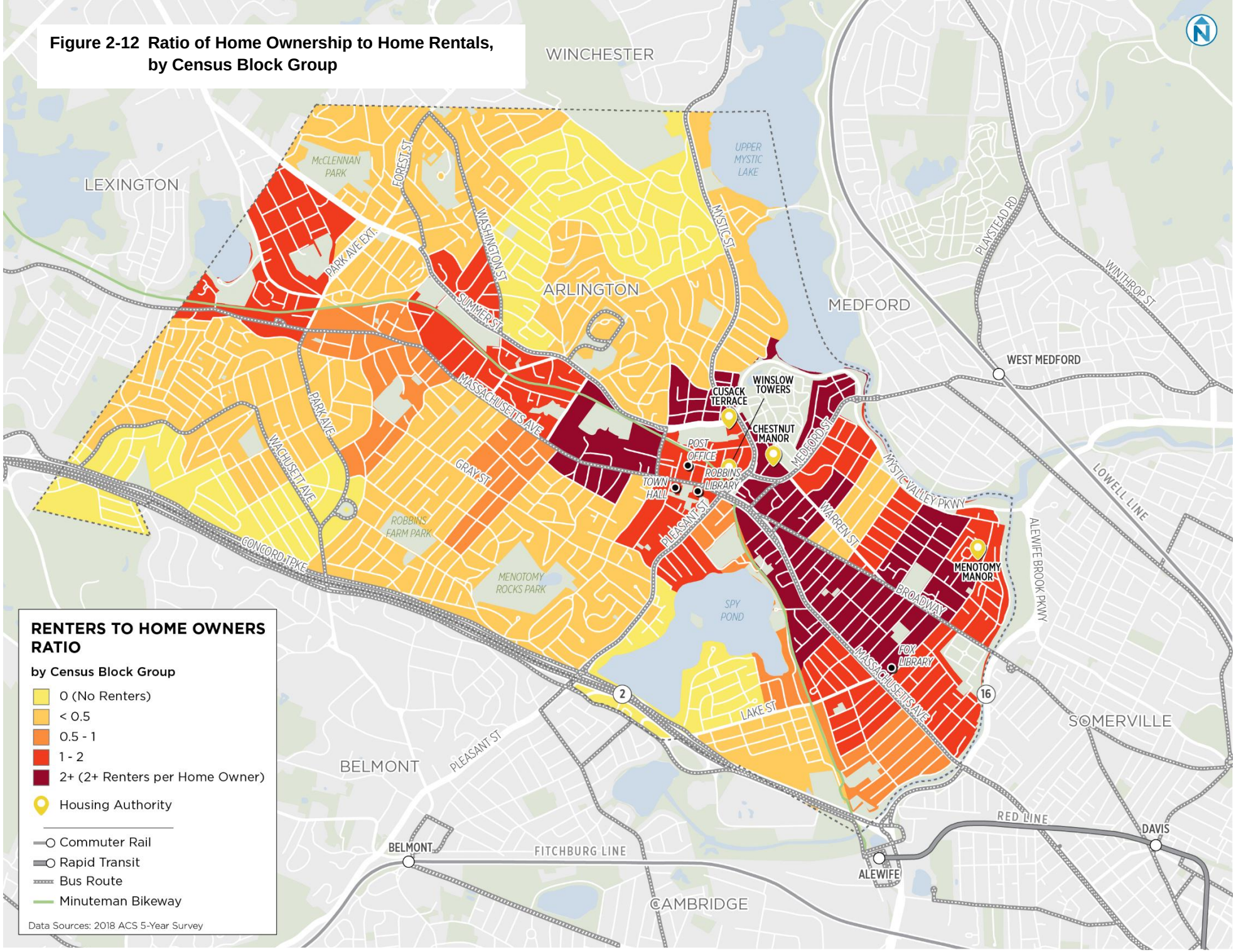
Data Source: U.S. Census Bureau (2018). *Household Income in The Past 12 Months (In 2018 Inflation-Adjusted Dollars).* 2018 ACS 5-Year

Figure 2-11 Median Household Income of Residents Aged 65 and Older, by Census Block Group



Data Source: U.S. Census Bureau (2018). *Household Income in The Past 12 Months (In 2018 Inflation-Adjusted Dollars).* 2018 ACS 5-Year

Figure 2-12 Ratio of Home Ownership to Home Rentals, by Census Block Group



Data Source: U.S. Census Bureau (2018). *Household Income in The Past 12 Months (In 2018 Inflation-Adjusted Dollars). 2018 ACS 5-Year*

PLACE: TRANSPORTATION AND LAND USE

Neighborhoods and centers with a diverse mix of uses and/or higher densities of people are typically more multimodal, offering strong pedestrian, bicycle and transit access and connectivity to move people to where they need to go. Why? Multiple land uses (i.e. destinations) proximate to one another allow for manageable walks, bike rides, and transit service (which requires density) between destinations including work, services, and recreation. Conversely, single-use districts (e.g. residential only areas), particularly less dense single-family neighborhoods farther from commercial and/or mixed-use centers, typically rely heavily on the use of a car. Most destinations in these districts are not close enough to comfortably walk, bike, or support transit service given low population density and the high costs to provide such services in a manner that is accessible, convenient, frequent and reliable.

Land Use

Arlington's land use patterns and transportation systems are influenced largely by its varied topography. The majority of land in town is used for residential purposes, with a narrow spine of commercial, industrial and civic uses running through the center within a short distance of most residences.

Generally, residential uses in low-lying, flat eastern and central areas of town are denser, with a combination of one-, two- and three-family unit structures and multi-family housing. These areas offer a more amenable multimodal transportation environment with pedestrian and bicycle connections along flat pathways to and from Mass Ave's commercial centers, and bus routes serving Mass Ave, Broadway and others. In contrast, residential areas to the west – in hilly areas with significant slopes – are largely single family in nature and more spread apart.

Commercial land uses are located along or within blocks of Mass Ave. Land uses along Mass Ave include major trip generators for residents, workers and visitors alike, including retail and service businesses, restaurants and cafes, cultural and entertainment destinations, professional offices, public facilities and more.

Figure 2-13 Arlington Land Use

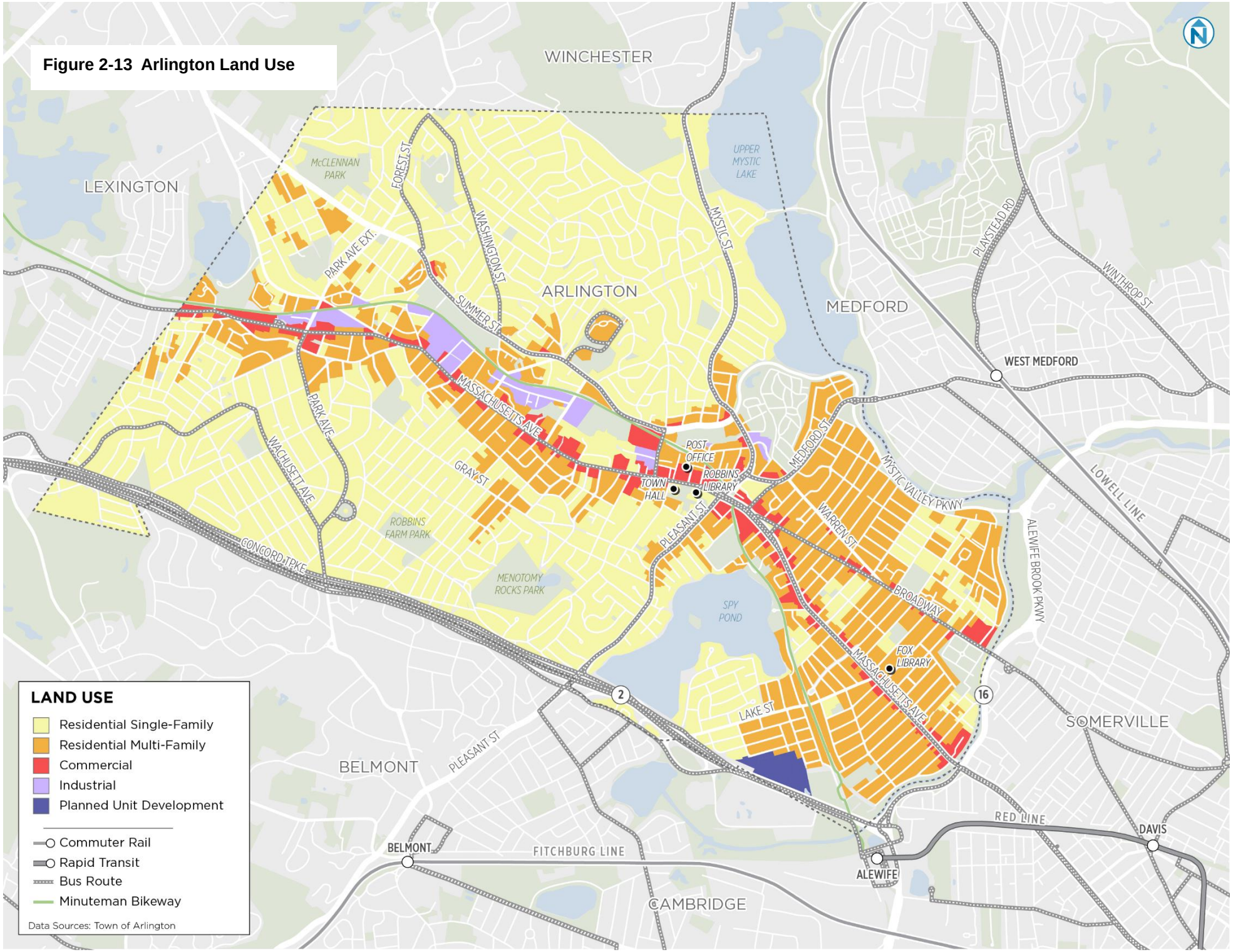
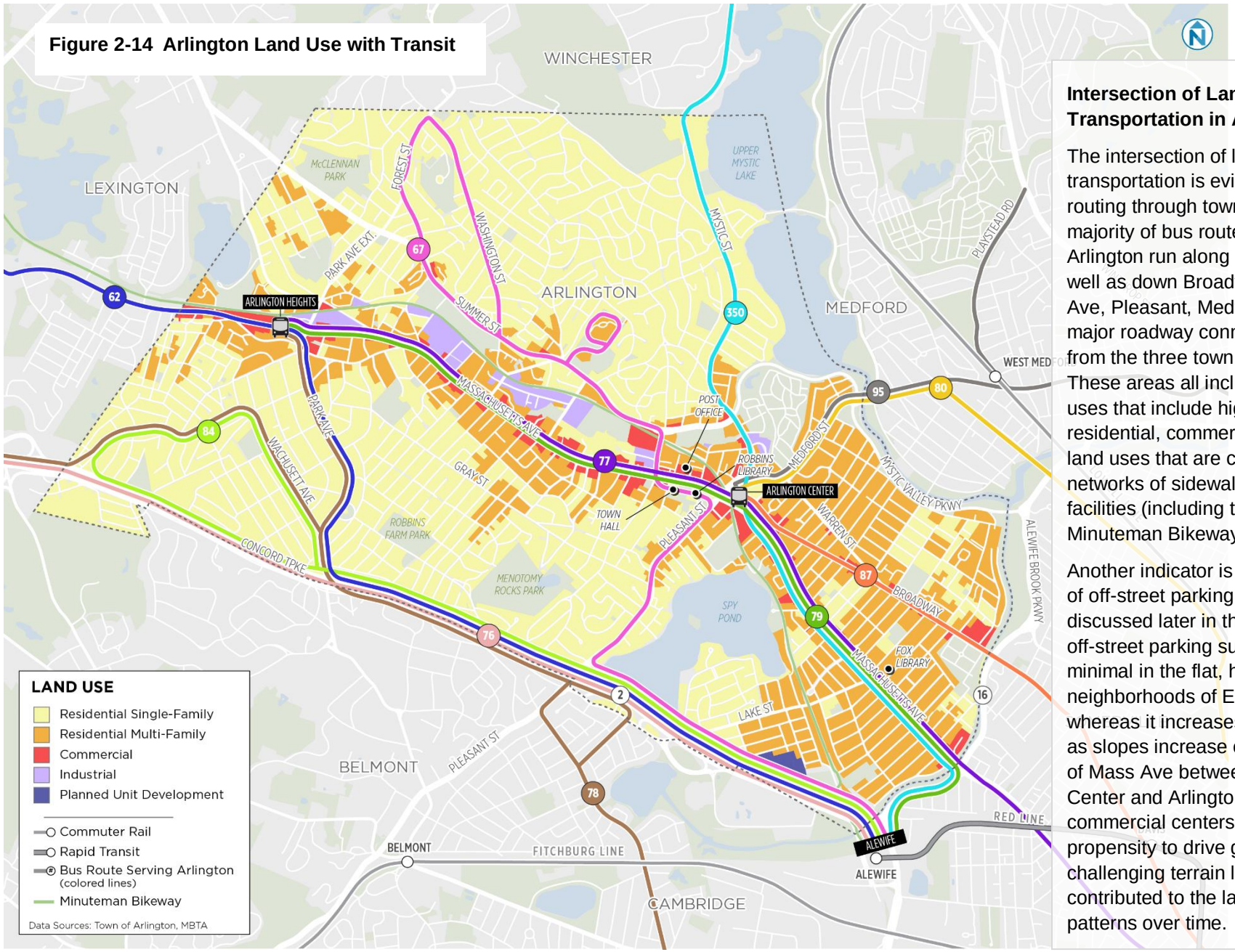


Figure 2-14 Arlington Land Use with Transit



Intersection of Land Use and Transportation in Arlington

The intersection of land use and transportation is evident in bus routing through town. The majority of bus routes serving Arlington run along Mass Ave, as well as down Broadway, Park Ave, Pleasant, Medford and major roadway connectors to and from the three town centers. These areas all include a mix of uses that include higher density residential, commercial and civic land uses that are connected by networks of sidewalks and bike facilities (including to the Minuteman Bikeway).

Another indicator is the presence of off-street parking supply. As discussed later in this factbook, off-street parking supply is minimal in the flat, higher density neighborhoods of East Arlington, whereas it increases significantly as slopes increase on either side of Mass Ave between Arlington Center and Arlington Heights commercial centers. The propensity to drive given the challenging terrain likely contributed to the land use patterns over time.

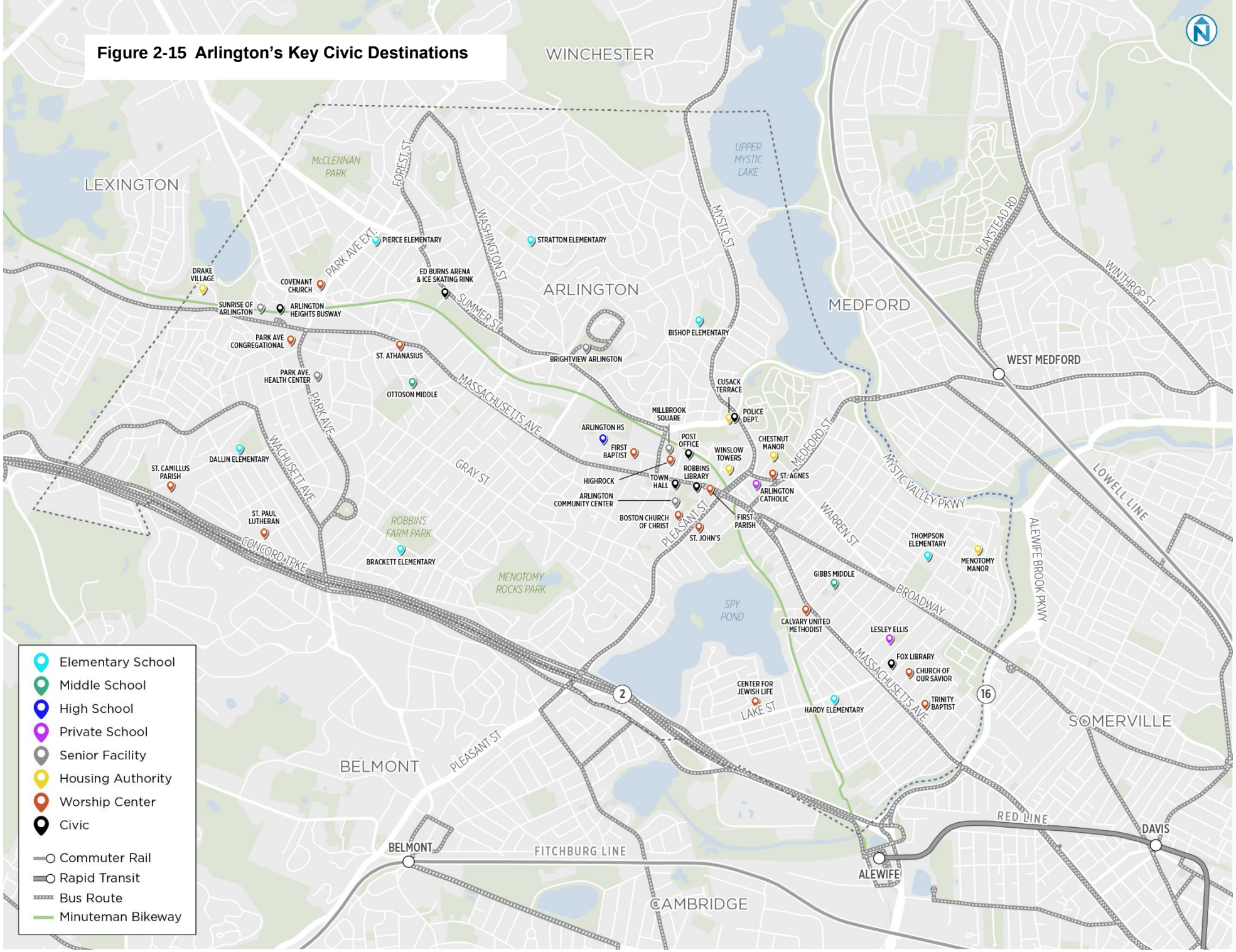
Destinations (Trip Generators)

Most major trip generating destinations in Arlington, including most civic buildings (e.g. Town Hall), houses or worship, retail, restaurants and cultural destinations, professional services, Arlington High School, and senior housing are located in or near Arlington Center. Key destinations to the east of Arlington Center – primarily elementary schools – are located within a few blocks of Mass Ave and the Minuteman Bikeway, or Broadway. West of Arlington Center, elementary schools are located at some of the highest elevations in the town, requiring longer and more physically challenging trips up and down hill far to the north or south of Mass Ave and surrounding neighborhood streets.

Future Sustainable Development

Most new growth/development in Arlington is anticipated to be redevelopment of existing properties and new infill development. Given existing land uses and topography, this growth is most likely to occur along commercial corridors and in industrial areas. To better ensure a more sustainable transportation future, future development, particularly residential and commercial development will need to be designed to support active and shared transportation uses over single occupancy vehicles (SOVs), encourage densities that support transit use, and integrate growing and emerging technologies such as EV charging and electric assist devices (e.g. electric bikes). Providing more parking than is needed as part of development projects promotes an unsustainable level of SOV-driving, adding to congestion and increased emissions.

Figure 2-15 Arlington's Key Civic Destinations



3 STREETS

There are just over 137 linear roadway miles in Arlington. Of the publicly-owned and managed streets (Figure 3-1), 101 miles are owned and maintained by the Town of Arlington, 7 miles are partially owned and maintained by the Town (like cemetery path streets), and 8 miles are State owned and operated. State roads carry the greatest volumes of vehicles and include Route 2/Concord Turnpike and Mystic Valley Parkway. Other high-volume roadways include major and minor arterials such as Mass Ave, Mystic Street, Medford Street, Summer Street, and Pleasant Street, which connect Arlington to adjacent towns and cities including Cambridge, Somerville, Medford, Winchester, Lexington, and Belmont; most of the town's signalized intersections can be found along these routes (Figure 3-2 and Figure 3-3).

Approximately 15%, or 21 miles, of roadways in Arlington are private streets owned, regulated, and maintained by a private individual or organization (or residents association) rather than a public agency. Private roadways are not subject to Town parking regulations; for example, cars may park on-street overnight, which is prohibited on Town-owned roads. Town funding, including Chapter 90 allocations, are not eligible to be used for private roadway repairs; however, the Town does provide limited services like plowing.

Streets are used by bicyclists, pedestrians (on sidewalks but also when crossing the street, or walking where no sidewalks are present), personal mobility devices, on-street parking, and trucks, both heavy freight and urban freight (i.e. on-demand and/or local delivery services). Ensuring roadways are able to handle all modes safely and efficiently is essential for Arlington's transportation future, especially major corridors like Mass Ave that handle commuter traffic, multiple MBTA bus routes, on-street parking, bicyclists and freight. Further, all of these travel modes compete for access to the street's curb and the growing demand for use by transportation network companies (TNCs) - such as Uber and Lyft – adds to this competition for shared curb space. To ensure the Town's future street network better accommodates all, the Town adopted a Complete Streets policy in 2016. (For more on Arlington's Complete Streets policy, see the callout box on the next page).

Maintaining roadways is a costly endeavor, particularly in variable climates like Massachusetts where temperature swings lead to heaving, cracking, and other issues. Maintaining roadways is not only important for the movement of motorists, but also for the safety of more vulnerable street users such as cyclists and pedestrians. Potholes, cracks and heaves contribute to crashes and falls. Given limited State funding available through the Chapter 90 program, additional maintenance work is funded through the Town's Capital Improvement allocation process through the Department of Public Works, which is responsible for all maintenance activities and supervision of contractors.

Sustainable Transportation Solutions: Arlington Complete Streets Policy

The Town of Arlington adopted its Complete Streets Policy in 2016 to enhance access, safety, and quality of life in Arlington. The policy ensures that "complete street elements shall be incorporated into all roadway, bridge and development projects, including new construction, reconstruction, and municipal road repair and expansion wherever possible and where road widths allow." It does so as follows:

- Promotes a sustainable, cohesive, connected transportation network
- Improves access and safety to for pedestrians, bicyclists, motorists, transit riders and freight carriers
- Facilitates better pedestrian, bicycle and transit travel for users of all ages and abilities
- Improves safety and ADA/AAB accessibility for users of all modes of transportation
- Supports and accommodates active transportation modes that promote public health
- Promotes economic development by encouraging accessible, safe and compact business districts

Given width limitations on many streets, not every street can safety accommodate all modes of travel, but all must be considered, and mode priorities identified. As such, some streets may safely accommodate all modes, whereas others may accommodate most or when not possible, should identify an alternate facility nearby.

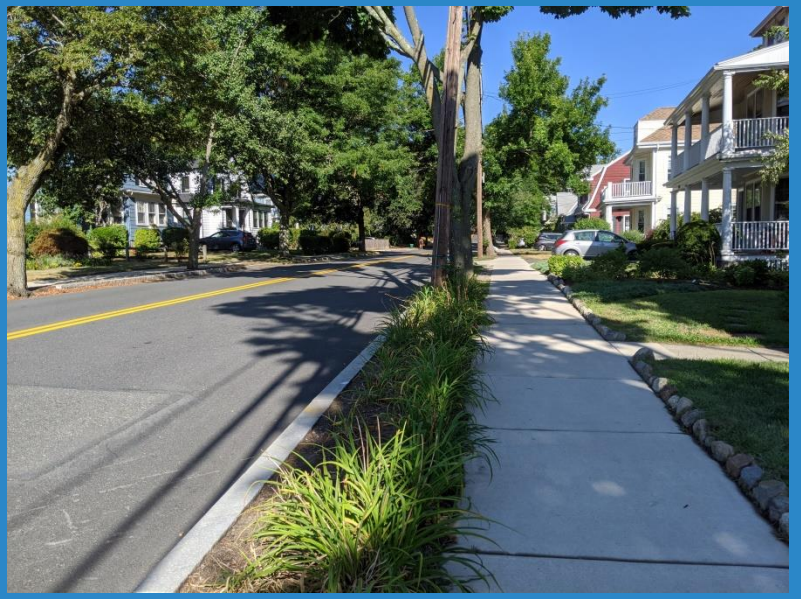


Figure 3-1 Ownership of Streets

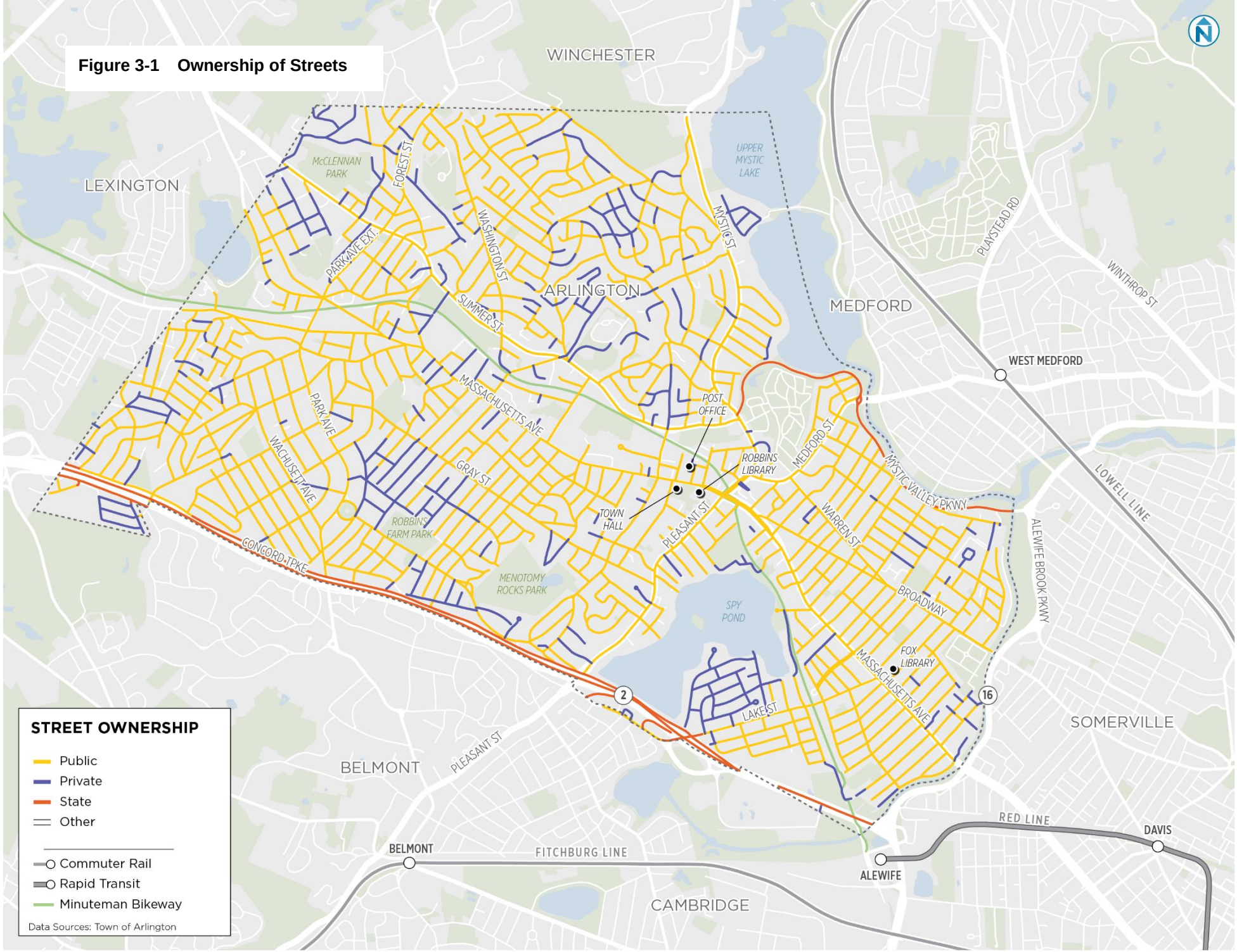


Figure 3-2 Traffic Signal-Controlled Intersections

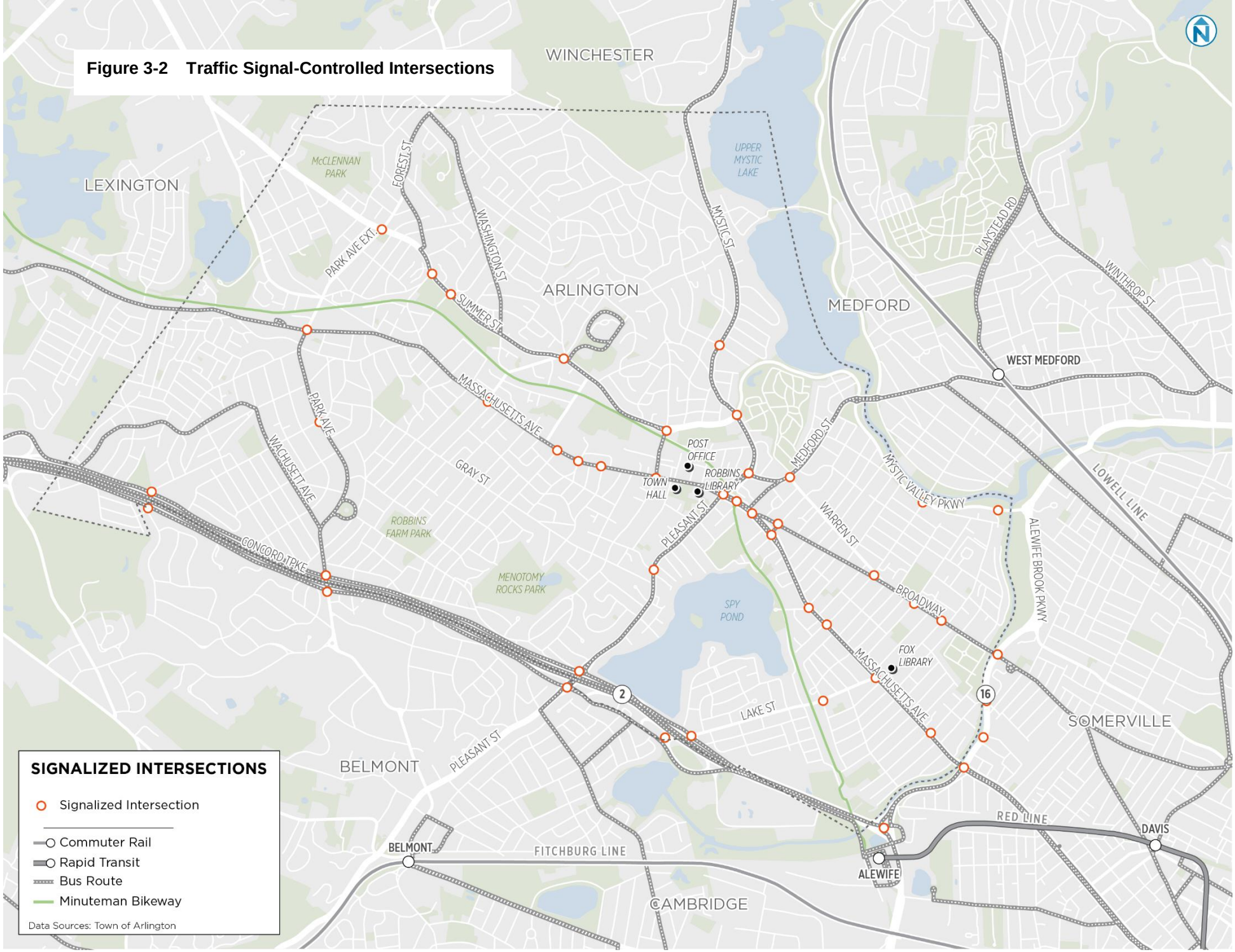
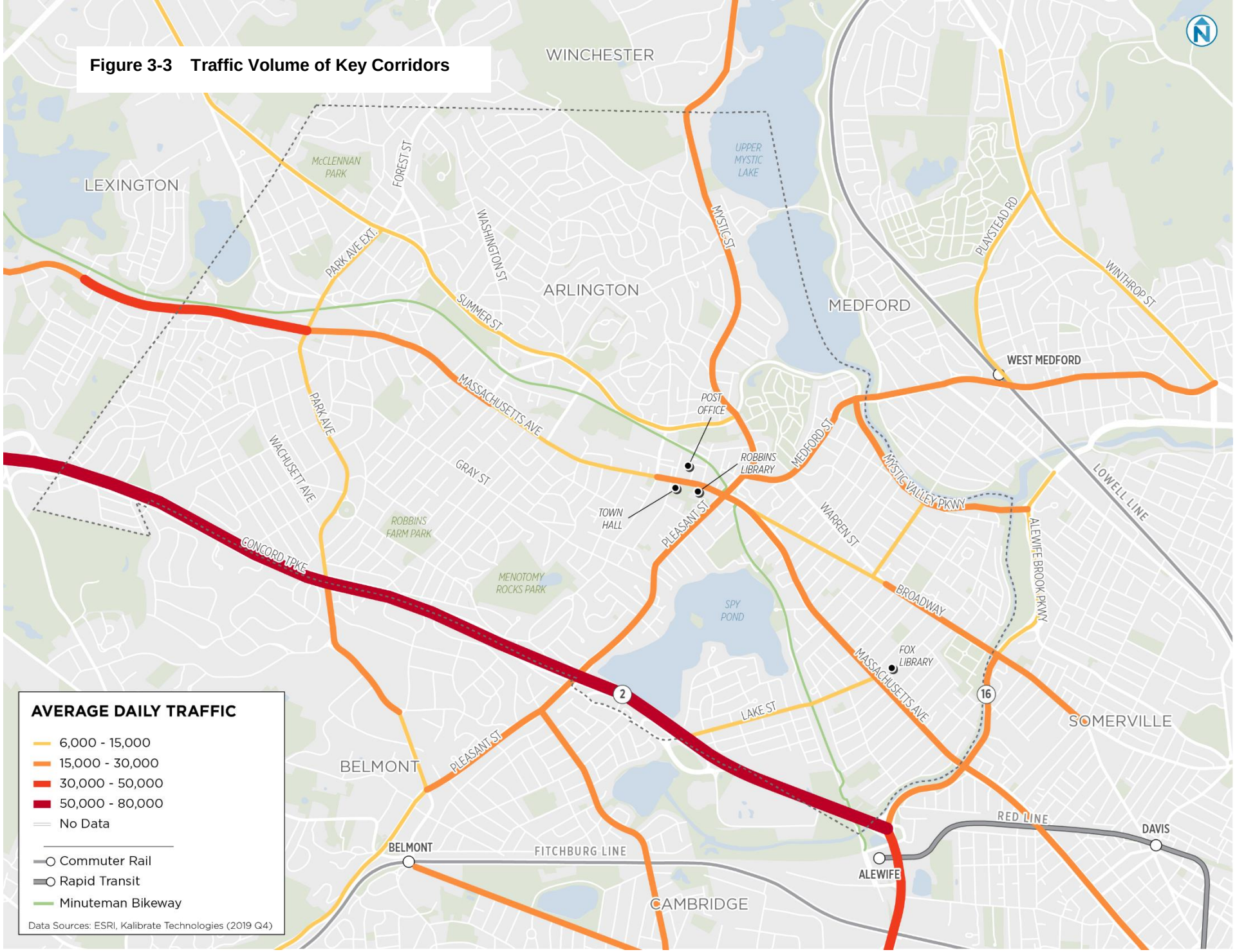


Figure 3-3 Traffic Volume of Key Corridors



Data Source: ESRI, Kalibrate Technologies (2019 Q4). *Average Daily Traffic.* TrafficMetrix©

Parking

On-street parking is allowed on nearly all streets in Arlington. On most residential streets, on-street parking is free and unregulated during the day; however overnight parking is not permitted and is subject to tow. There are limited instances when overnight on-street parking is allowed through the issuance of a permit if approved by the Select Board, specifically for people with disabilities and for short-term visitors. Private ways are also not subject to the overnight parking ban.

Time-limited and/or metered/paid on-street parking is found primarily in Arlington Center. Other segments of Mass Ave such as in Capitol Square/East Arlington and in Arlington Heights are also regulated, the majority of which is unmetered time-regulated on-street parking on both sides of the street. Parking regulations vary for the remainder of the corridor. Some side streets and other major corridors also have time-regulated on-street parking, often because of the street context or requests from residents.

Most of the Town-owned and managed public off-street parking is located in Arlington Center. Outside of Arlington Center, nearly all publicly owned off-street lots are dedicated facilities for municipal services such as schools, libraries, and other civic buildings. Other off-street parking is privately owned, and typically only available for employee or customer use.

Sustainable Transportation Strategies: Electric Vehicle Charging at Town-Owned Parking Facilities

Electric vehicles (EVs) are an important component of any sustainable transportation future as they run on battery power, not greenhouse gas (GHGs) emitting fossil fuels. Arlington recognizes their importance in helping the Town reach its goal of carbon neutrality by 2050. In support of EVs, the Town has and continues to bring public EV charging stations online in public parking lots and on-street spaces using a combination of Town and State grant dollars through programs like EVIP (Electric Vehicle Incentive Program), and programs like Make Ready through Eversource.

Public EV charging stations area available at the following locations:

- Russell Common Parking Lot
- Railroad Parking Lot (near Water Street entrance)
- Park Avenue (on-street) near Mass Ave
- Gibbs School Parking Lot (off Tufts Street)

Other EV charging stations are also available on private properties, including behind the Whole Foods Market on Mass Ave.

Arlington Center Parking Benefit District

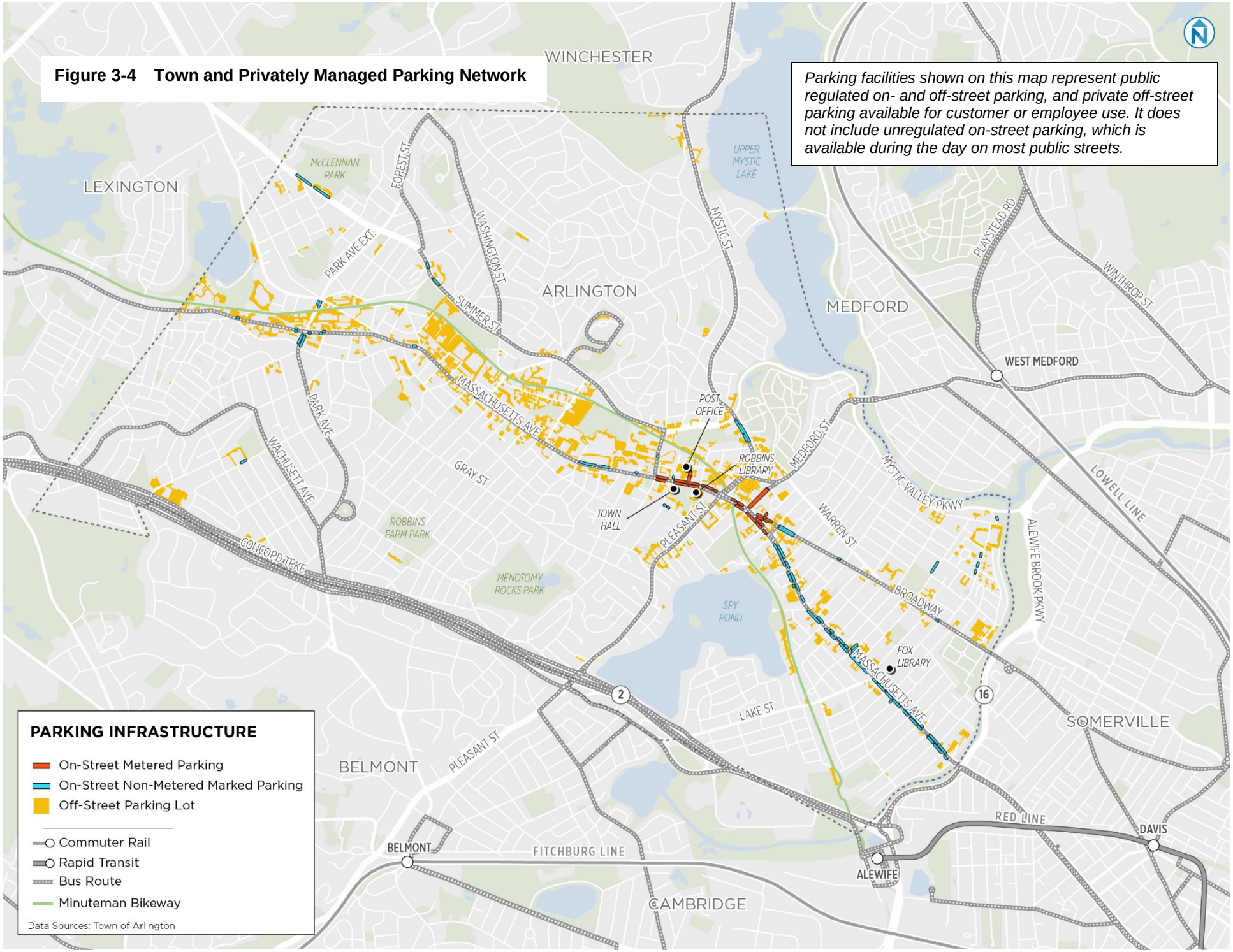
The Town of Arlington became the first municipality in the Commonwealth to officially designate and adopt a Parking Benefit District (PBD) in Arlington Center. PBDs provide a mechanism to direct all or a portion of revenues from parking directly into the designated district to enhance, maintain, fund and support the transportation system. The intent of a PBD is not to create more parking, but to better manage parking within districts, promote greater connectivity to, from and within a district, and promote vibrant business districts.

Revenues from Arlington's on-street and public off-street meters (and kiosks) are paid into a parking fund that reinvests the gross revenues to support the parking system by paying for parking meters and equipment, paying up to half the cost of enforcement, or paying for a portion of

the parking budget. Funds can also be used for infrastructure upgrades that support Arlington Center's transportation system including lighting, streetscape and signage enhancements, accessibility improvements, and more. Revenues from parking violations do not go into the fund.

Figure 3-4 Town and Privately Managed Parking Network

Parking facilities shown on this map represent public regulated on- and off-street parking, and private off-street parking available for customer or employee use. It does not include unregulated on-street parking, which is available during the day on most public streets.



Street Safety

Crash Data

The MassDOT IMPACT system provides electronic crash data for incidents/crashes reported to the Registry of Motor Vehicles by local and state law enforcement. The most recent year of "closed" data is 2017. This represents data that has been vetted and geolocated (if possible) by MassDOT staff. While crash information can/is provided for 2018-2020, these records have not been finalized and may not be complete. For evaluation purposes, crash data are summarized for the most recent 10 years of "closed" data.[1]

MassDOT crash data documents 5,674 crashes in Arlington between January 2008 and December 2017. As shown in Figure 3-5, the year-to-year crash trend is relatively stable, with an increasing trend peaking in 2013 and decreasing thereafter.

Higher concentrations of crashes occur along Arlington's major and minor arterials, most notably along Mass Ave and arterials like Mystic Street, Broadway, Lake Street, Summer Street and Park Avenue. (See Figure 3-7.) More specifically, intersections that experience the most crashes are as follows:

- Mass Ave and Pleasant Street: 183 crashes (0 fatalities/serious injury)
- Mass Ave and Alewife Brook Parkway: 126 crashes (1 serious injury)
- Mass Ave and Park Ave: 53 Crashes (0 fatalities/serious injury)
- Park Avenue and Concord Turnpike: 33 Crashes (3 serious injury)
- Broadway and Foster Street: 15 crashes (0 fatalities/serious injuries)

Although the highest concentrations of crashes were identified along heavily traveled corridors, many crashes occur frequently on less traveled streets in residential neighborhoods, which indicates safety issues are not restricted to where there are higher volumes. Topography may play a part, as crashes may result more frequently during weather events when wet and/or icy streets may contribute to hazardous driving conditions.

[1] Although not included in the detailed crash analysis, there were an estimated 461 crashes in 2018, 439 crashes in 2019, and 159 crashes in 2020 (partial year).

Figure 3-5 Town-wide Crashes by Year, 2008-2017

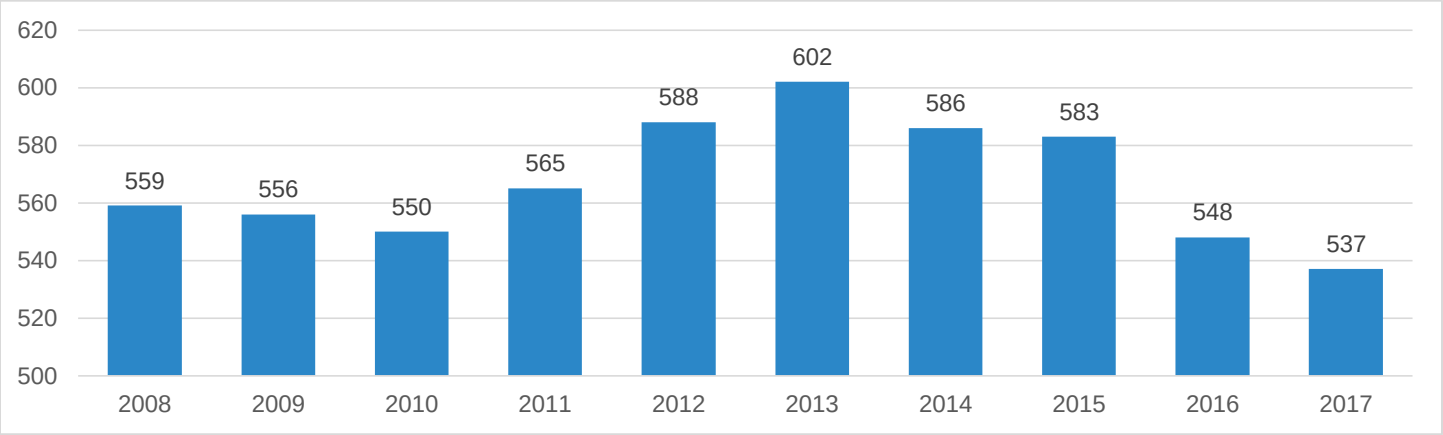
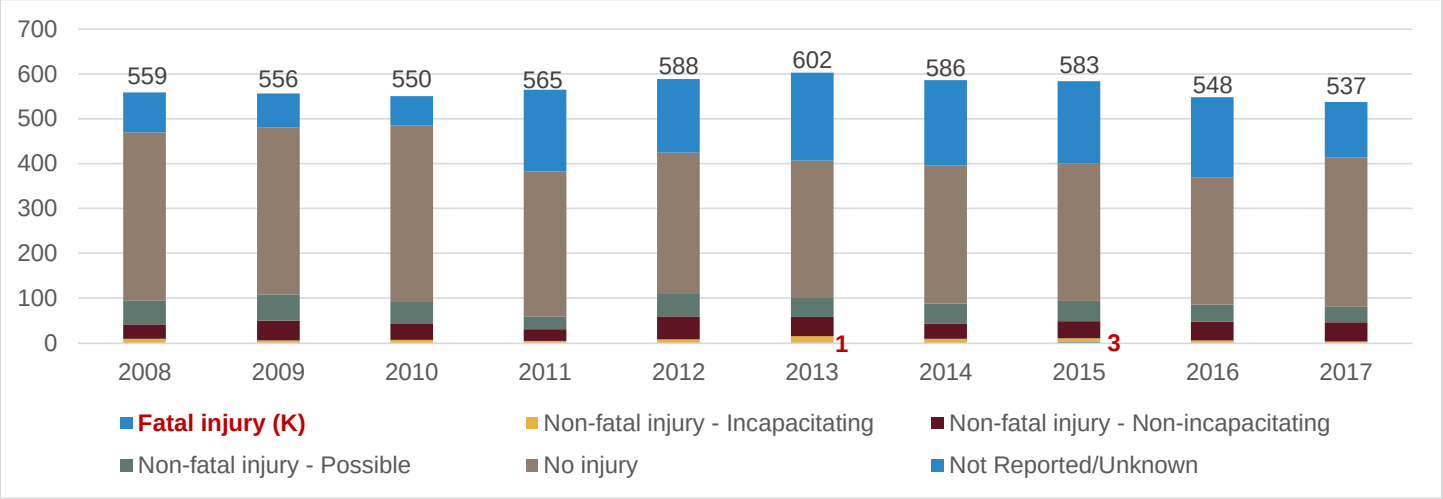


Figure 3-6 Town-wide Crash Severity by Year, 2008-2017



Data Source: MassDOT (2020). *Crash Query and Visualization Tool.* IMPACT

Fatalities and Serious Injury

Four fatal crashes were reported within the 10-year span of 2008-2017, including one (1) in 2013 and three (3) in 2015. Three of these fatalities involved a pedestrian (See Figures 3-7 and 3-8 for locations.) On average, approximately eight (8) serious injuries and 42 minor injuries were reported per year.

Given the concern regarding fatal crashes, the project team also looked back to the beginning of available MassDOT data from 2002-2007 and identified an additional five (5) roadway related fatalities. Five (5) of the overall nine (9) fatalities from 2002-2017 involved a pedestrian over the age of 75. Pedestrians were reportedly crossing the roadway. The remaining four (4) fatal crashes involved a single vehicle striking a fixed object such as a tree, utility pole, or wall. Six of the reported crashes occurred in dark conditions, either overnight or early evening during the fall/winter. In addition, two (2) crashes resulting in a fatality occurred after the data analyzed. One involved an 81-year-old pedestrian in 2019 on Chestnut Street at Chestnut Terrace; and another at Appleton Street and Mass Ave involved a cyclist in May 2020. Based on the data, all pedestrian fatalities identified were elderly residents, and occurred in the early morning or evening hours during darker winter months.

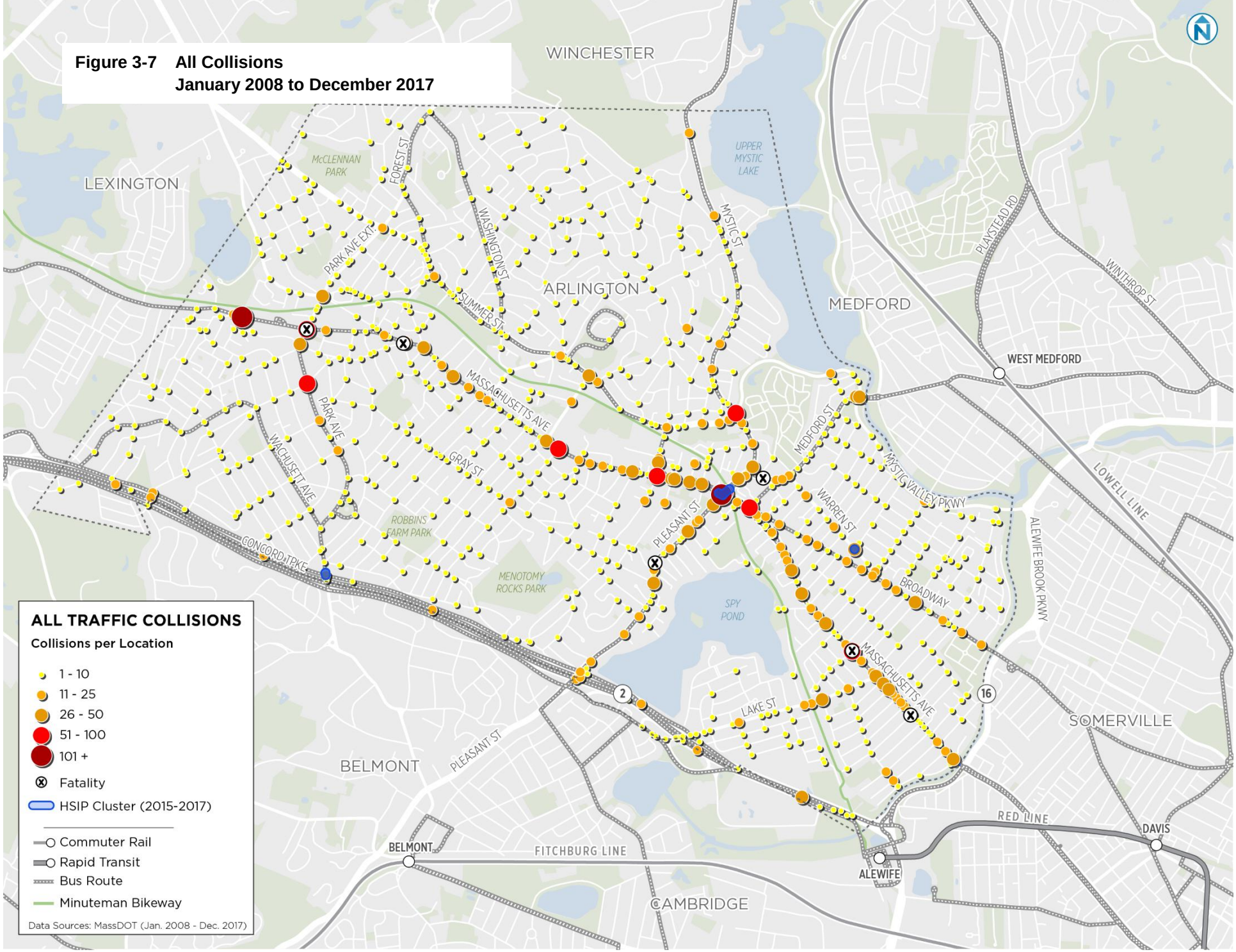
Crash Clusters

The Highway Safety Improvement Program (HSIP) is a data-driven federal program that provides funding to States for improvement of safety along their highways, MassDOT participates in the program by designating areas/"clusters" where the total number of "equivalent property damage only" (EPDO) crashes are within the top 5% in a particular region. The EPDO is a weighted value based on crash severity used to compare clusters. As of 2016, a Fatal or Injury crash is weighted the same as 21 non-injury crashes. Crash Clusters are summarized as vehicle clusters, bicycle clusters, and pedestrian clusters. Vehicle clusters are typically evaluated in three-year increments with the most recent involving crashes dated 2015-2017. Pedestrian and Bicycle clusters are typically summarized in 10-year increments, with the most recent involving crashes dated 2008-2017.

A total of six clusters are defined within the Town of Arlington, including three vehicle, two bicycle, and one pedestrian:

- HSIP Bicycle Crash Cluster: Mass Ave between Bates Road east to Alewife Brook Parkway – 58 crashes (2 serious injuries) – EPDO 658
- HSIP Pedestrian Crash Cluster – Mass Ave between Churchill Avenue and Mystic/Pleasant – 35 crashes (2 serious injuries) – EPDO 435
- HSIP Vehicle Crash Cluster – Mass Ave at Mystic Street – 38 Crashes (0 serious injuries) - EPDO 158
- HSIP Bicycle Crash Cluster – Mass Ave roughly between Mystic/Pleasant and Broadway – 12 crashes (1 serious injury) - EPDO 152
- HSIP Vehicle Crash Cluster – Concord Turnpike at Park Avenue – 13 Crashes (1 serious injury) - EPDO 133
- HSIP Vehicle Crash Cluster – Warren Street at Rawson Road – 15 Crashes (0 serious injury) – EPDO 115

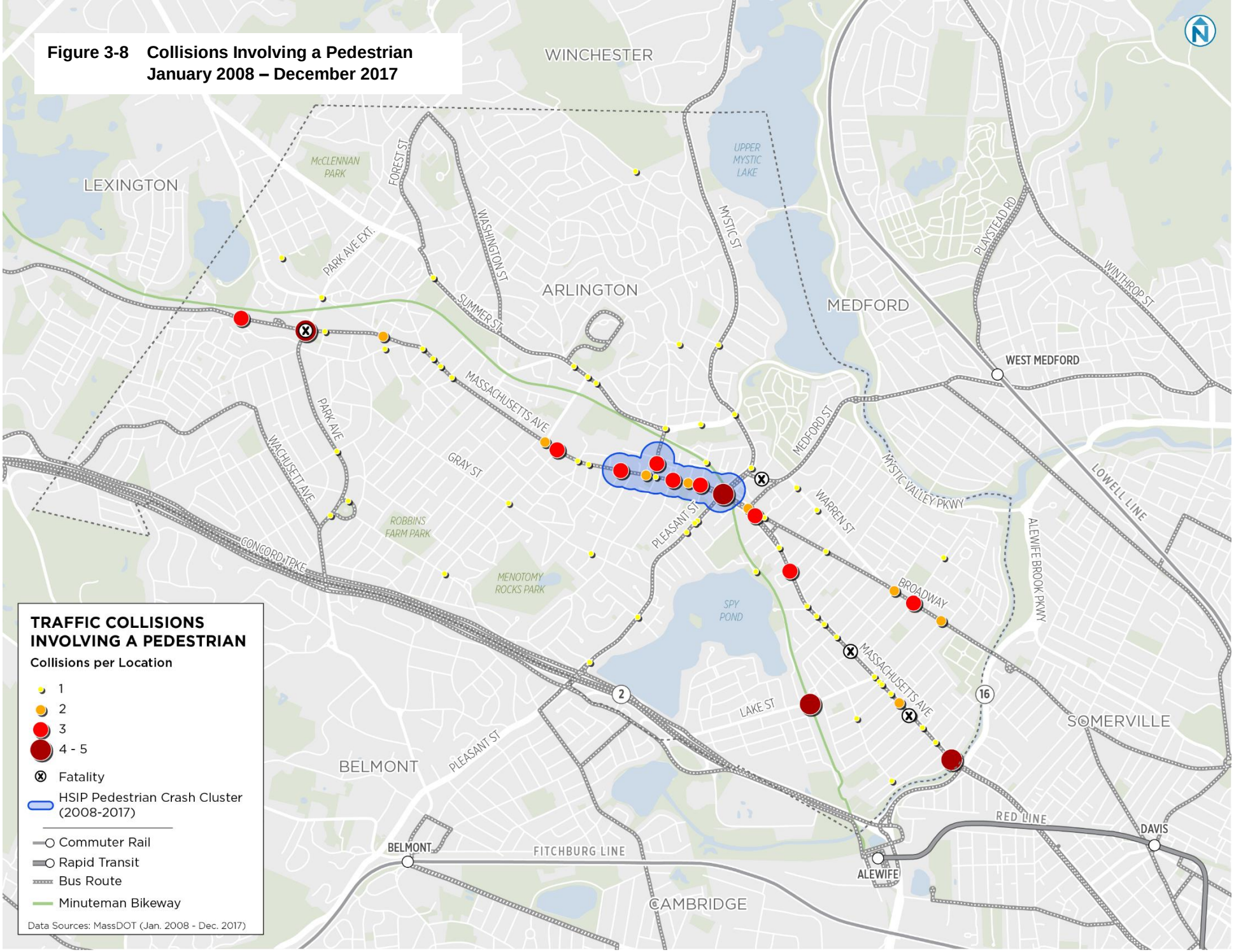
Figure 3-7 All Collisions
January 2008 to December 2017



Data Source: MassDOT (2020). *Crash Query and Visualization Tool.* IMPACT.

Note: 2019 crash at Chestnut Street resulting in a pedestrian fatality, and 2020 crash at Appleton Street at Mass Ave resulting in a cyclist fatality have been added to the map.

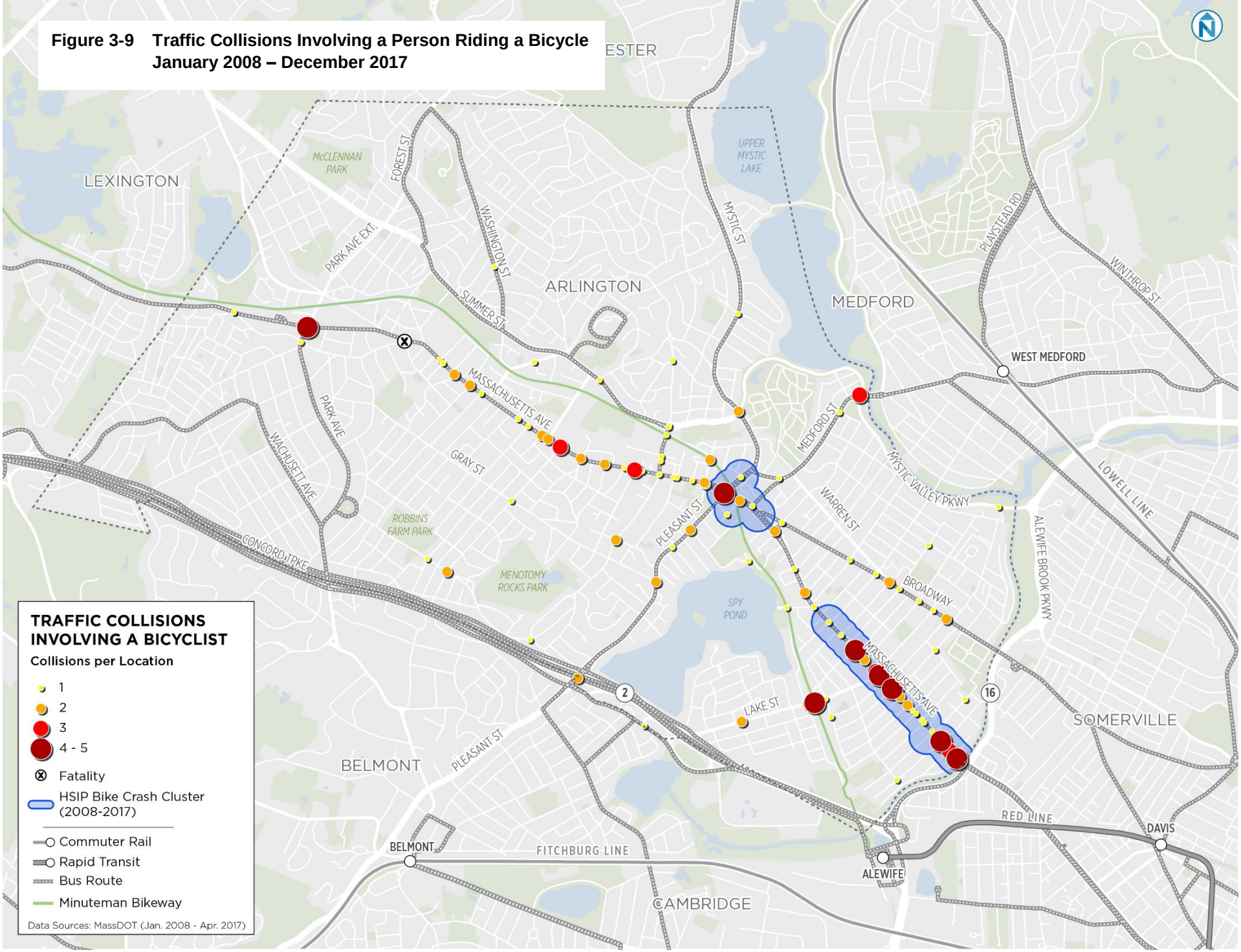
Figure 3-8 Collisions Involving a Pedestrian
January 2008 – December 2017



Data Source: MassDOT (2020). *Crash Query and Visualization Tool.* IMPACT

Note: 2019 crash on Chestnut Street resulting in a pedestrian fatality has been added to the map.

Figure 3-9 Traffic Collisions Involving a Person Riding a Bicycle
January 2008 – December 2017



Data Source: MassDOT (2020). *Crash Query and Visualization Tool.* IMPACT

Note: 2020 crash at Appleton Street at Mass Ave resulting in a cyclist fatality has been added to the map.

Sustainable Transportation Solutions: Safety and Sustainability

Street design interventions and infrastructure can achieve multiple goals. For example, at the intersection of Egerton Road and Herbert Road new infrastructure enhances pedestrian safety by narrowing the pedestrian crossing distance while incorporating rain gardens to better manage stormwater drainage on-site, rather than funneling it into the storm sewer network. Natural stormwater retention is an important community resiliency strategy to reduce frequent street flooding from increasing storm events.

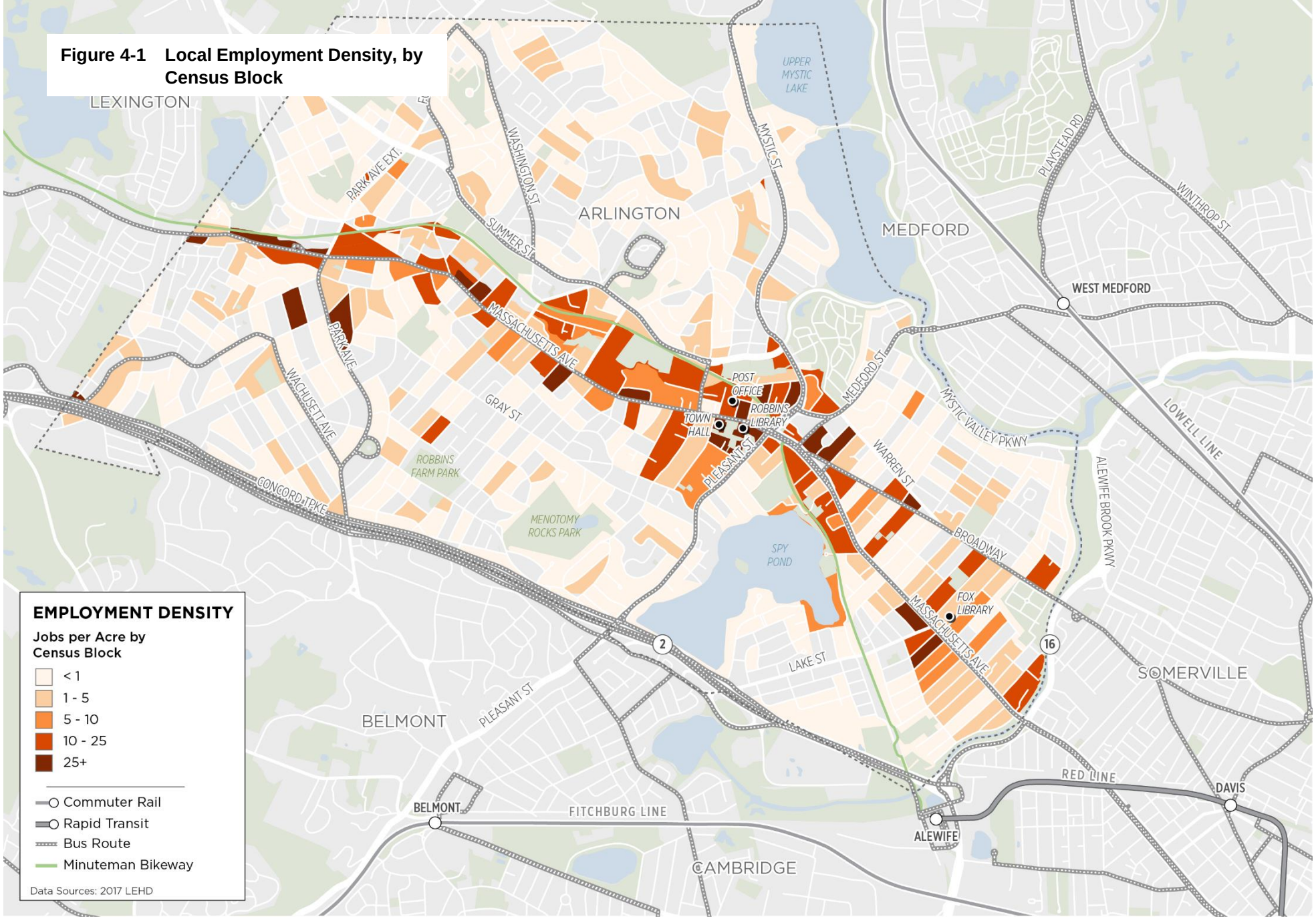
4 HOW PEOPLE TRAVEL

How people get around Arlington – by choice or by necessity – is influenced by many factors. Some places are accessible by all modes, thus provide users with multiple options. Some may choose one mode over another to get around because they feel safe, whereas others make them feel at personal risk. Poor safety, or perception of safety, can be a major impediment to using certain modes of travel, particularly active transportation modes like bicycling or walking. These users are most vulnerable to injury from collisions, particularly from larger, heavier vehicles. Additionally, the topography of Arlington is hilly, making walking and biking more difficult in some areas. Although many streets have sidewalks, these conditions make the landscape particularly challenging to navigate for older adults and residents with mobility impairments. On top of that, New England's climate of hot summers and cold snowy winters create maintenance and comfort challenges which can further compel many to choose the car over active or public transit options. In summary, transportation choices are influenced by trip distance, travel times, mode options, safety considerations, travel schedules and more.

COMMUTING CHARACTERISTICS

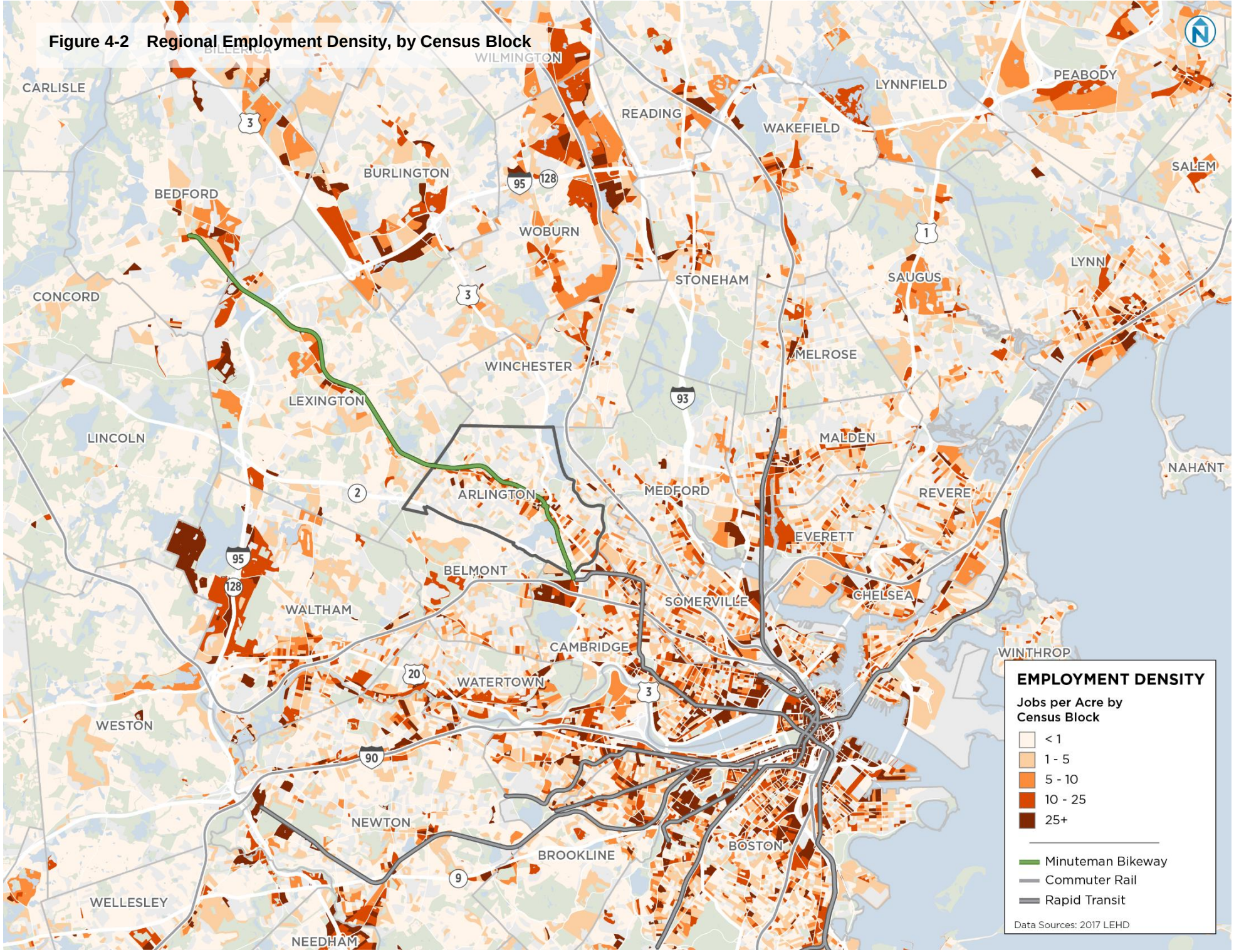
Most jobs in Arlington are located along the Mass Ave corridor and are concentrated most heavily in Arlington center (**Error! Reference source not found.**). Mass Ave, the economic spine of Arlington, is within a five- to ten-minute walk or bike ride of most residents and provides strong transit service. The Minuteman Commuter Bikeway, a shared use path for non-motorized travel which runs parallel to Mass Ave, provides an additional through-route option for active transportation. As shown in Figure 4-2, jobs beyond Arlington are concentrated in Downtown Boston, Cambridge, and the Route 128 Corridor, but many are scattered around the region.

Figure 4-1 Local Employment Density, by Census Block



Data Source: U.S. Census Bureau (2017). *Inflow/Outflow analysis; Home Area and Work Area Characteristics*. Longitudinal Employer-Household Dynamics

Figure 4-2 Regional Employment Density, by Census Block

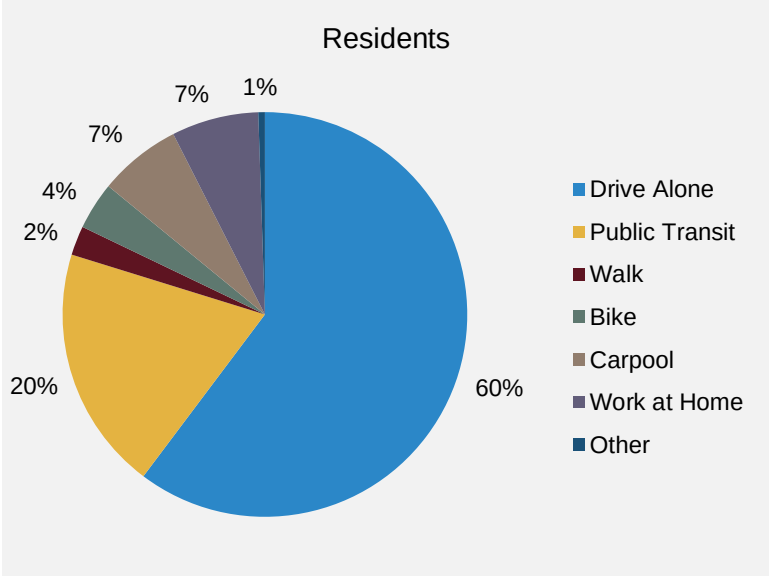


Data Source: U.S. Census Bureau (2017). *Inflow/Outflow analysis: Home Area and Work Area Characteristics.* Longitudinal Employer-Household Dynamics.

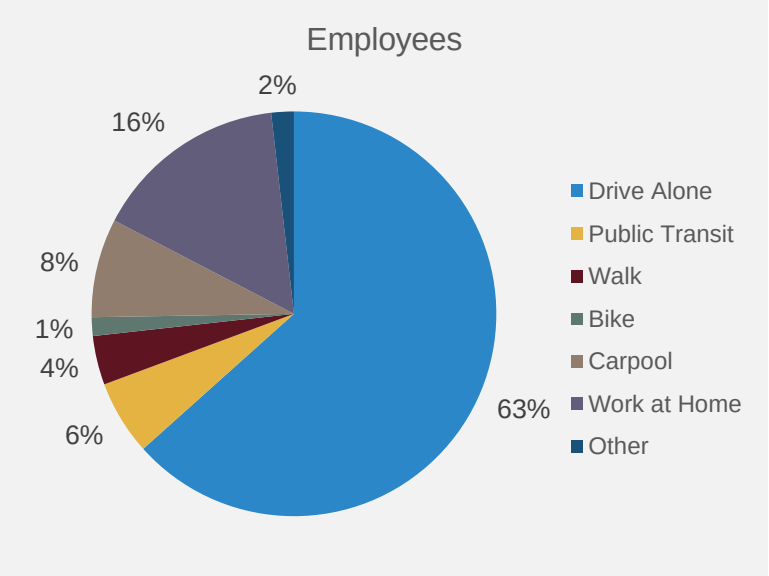
About 60% of Arlington residents drive alone to work, which is roughly the same drive-alone rate of people who work in Arlington and similar to rates in peer communities as shown in Figure 4-4. Arlington residents utilize transit options at more than triple that of Arlington workers.

When comparing commutes of Arlington residents to peer communities nearby, a few interesting outliers point to the importance of providing convenient, safe and accessible alternatives to the car. For example, despite having no direct rapid or commuter rail service connection in town, Arlington commuters use public transit at similar rates as those that do (like Newton and Medford, which have both rapid transit and commuter rail), and Arlington has the highest walk and bike commuter share of those assessed. This is likely due to the Minuteman Bikeway, which provides a direct pedestrian and bike connection to Alewife and the Red Line station. As shown in Figure 4-5, the highest rates of non-driving commuters are in East Arlington closest to the pathway and Alewife. However, pockets of Arlington Heights also have high rates of non-driving commuters, including areas close to Mass Ave and in the Turkey Hill neighborhood where MBTA Route 67 begins and takes commuters to Alewife.

Figure 4-3 Mode Shares of Arlington Residents and Employees

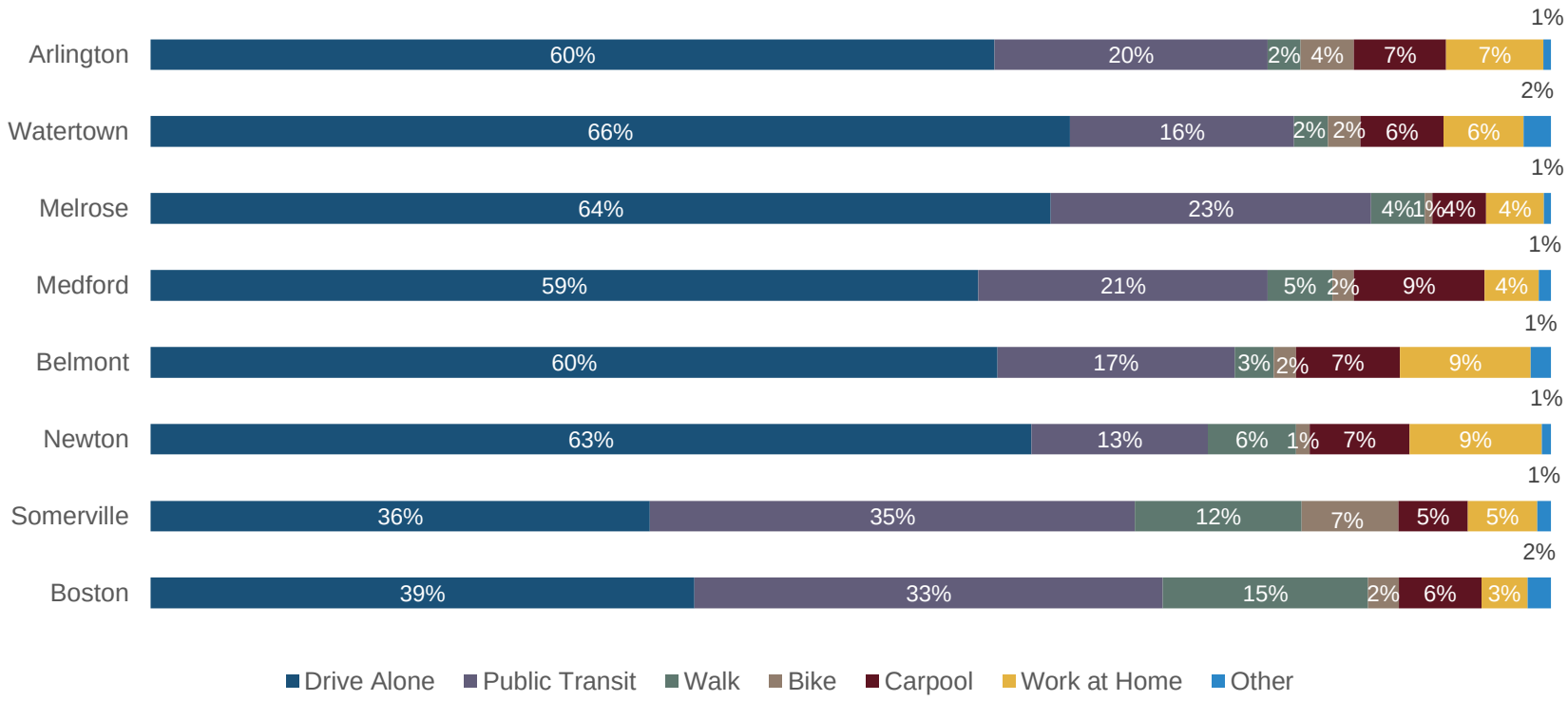


Data Source: U.S. Census Bureau (2018). *Sex of Workers by Means of Transportation to Work*. 2018 ACS 5-Year Estimates.



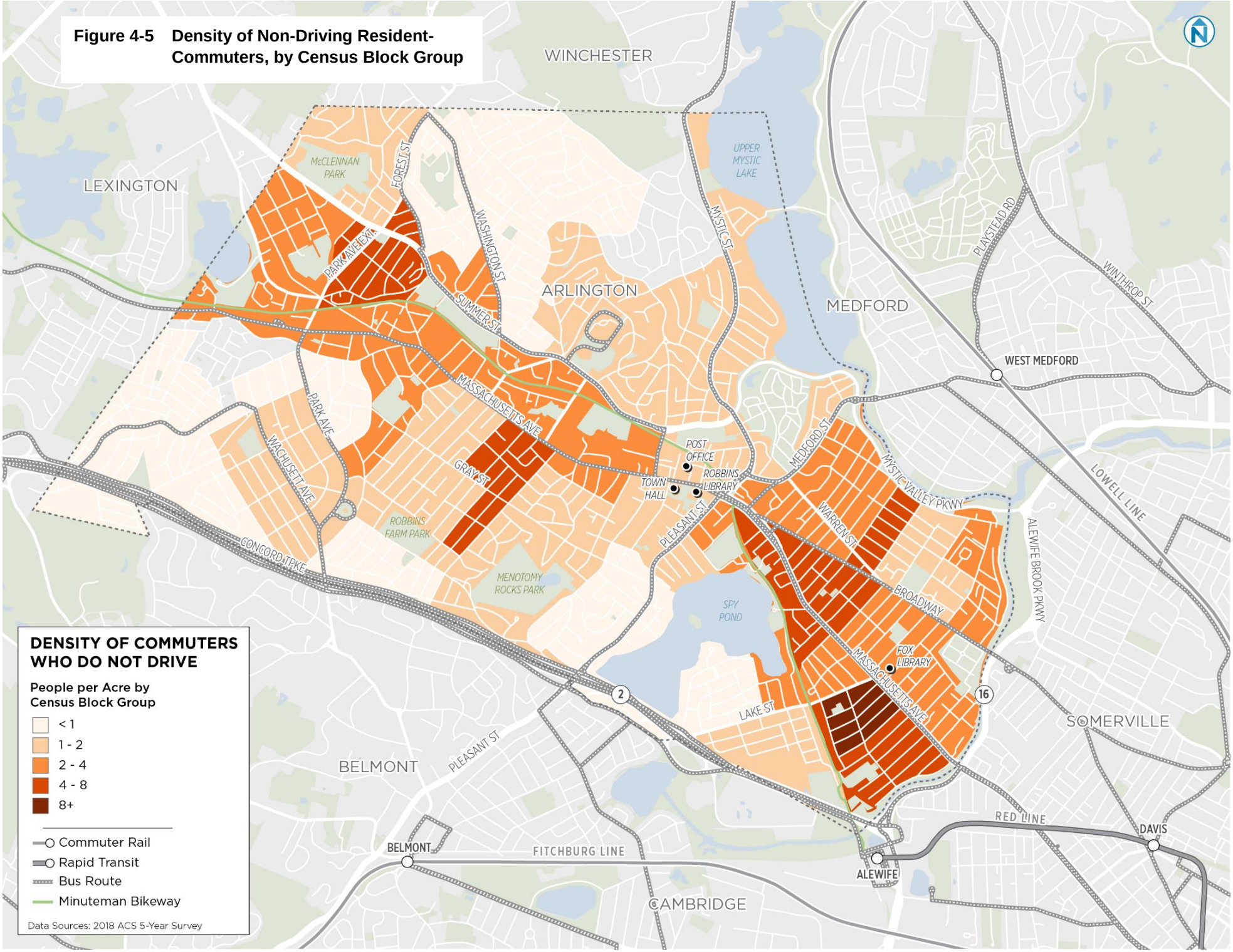
Data Source: U.S. Census Bureau (2018). *Sex of Workers by Means of Transportation to Work for Workplace Geography*. 2018 ACS 5-Year Estimates.

Figure 4-4 Arlington Peer Comparison: Mode



Data Source: U.S. Census Bureau (2018). *Sex of Workers by Means of Transportation to Work*. 2018 ACS 5-Year Estimates.

Figure 4-5 Density of Non-Driving Resident-Commuters, by Census Block Group

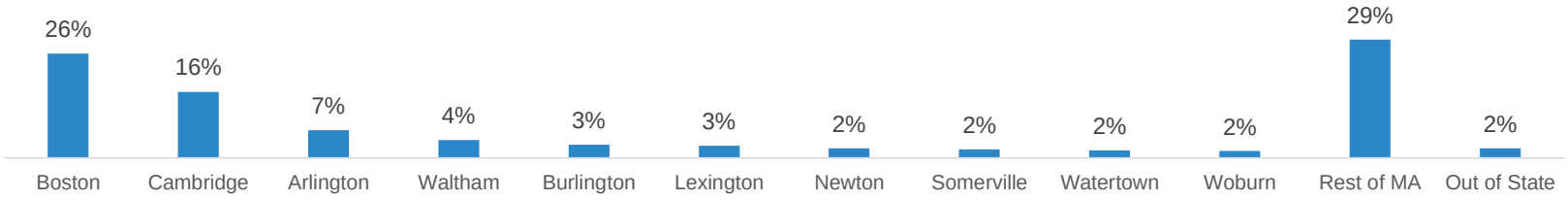


Data Source: U.S. Census Bureau (2018). *Sex of Workers by Means of Transportation to Work*. 2018 ACS 5-Year Estimates.

Employment Locations

The majority of Arlington residents in the workforce are not employed in Arlington. Over 25% of residents work for an employer in Boston, the top employment destination of Arlington residents, and employers in Boston and Cambridge combined account for over 40% of employment destinations for residents. Only 7% of workers are employed within the town itself, and over half work in locations throughout eastern Massachusetts and beyond.

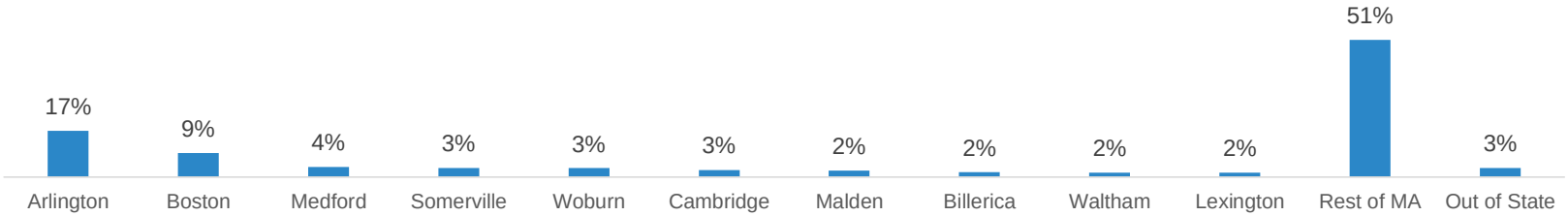
Figure 4-6 Top Work Locations of Arlington Residents



Data Source: U.S. Census Bureau (2017). *Inflow/Outflow analysis; Home Area and Work Area Characteristics.* Longitudinal Employer-Household Dynamics.

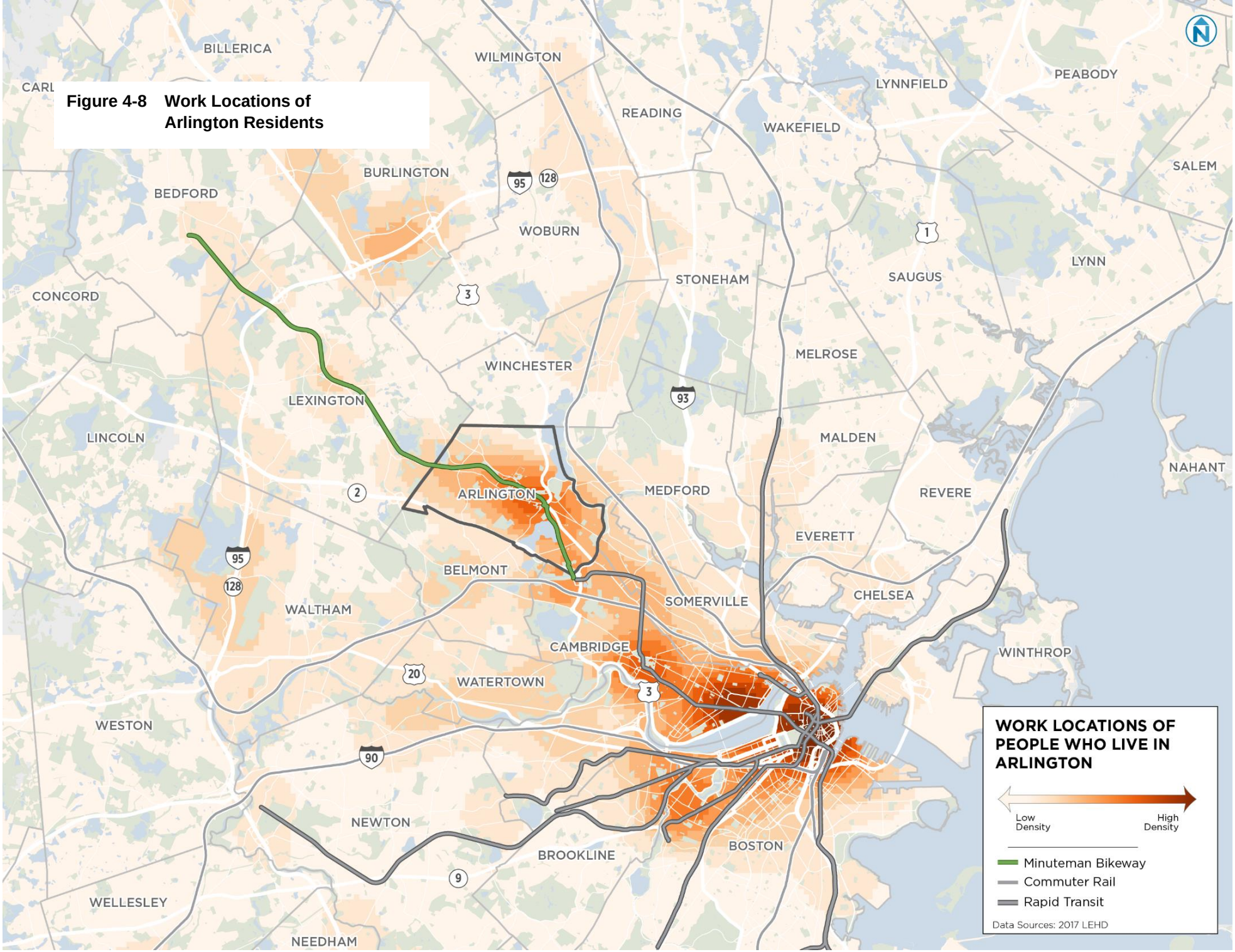
The majority of those employed in Arlington do not live in town. While Arlington is still the top home location for Arlington workers (17%), 83% of the workforce travel from other municipalities in Massachusetts or out of state.

Figure 4-7 Top Home Locations of Arlington Workers



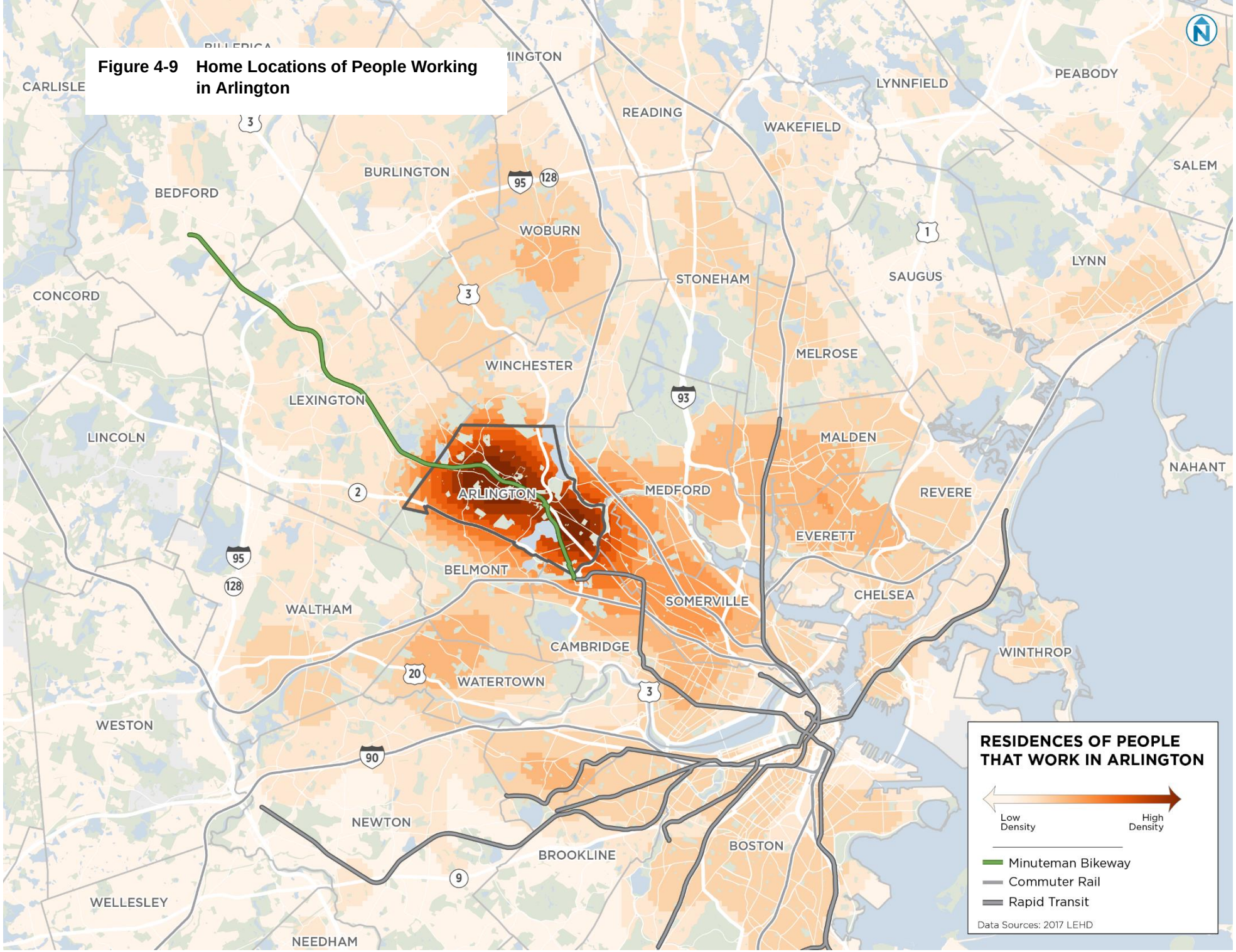
Data Source: U.S. Census Bureau (2017). *Inflow/Outflow analysis; Home Area and Work Area Characteristics.* Longitudinal Employer-Household Dynamics

Figure 4-8 Work Locations of Arlington Residents



Data Source: U.S. Census Bureau (2017). *Inflow/Outflow analysis; Home Area and Work Area Characteristics.* Longitudinal Employer-Household Dynamics.

Figure 4-9 Home Locations of People Working in Arlington



Data Source: U.S. Census Bureau (2017). *Inflow/Outflow analysis: Home Area and Work Area Characteristics.* Longitudinal Employer-Household Dynamics.

Travel for All Ages

School Travel

How children travel to and from school can be a major contributor to traffic congestion, particularly during morning peak travel times when buses and drivers of personal vehicles transporting kids mix with employment trips. Providing convenient and safe alternatives for school travel, particularly safe walking and biking routes, both reduces the need or desire to drive children to school and provides a healthier active option for children and their parents to travel.

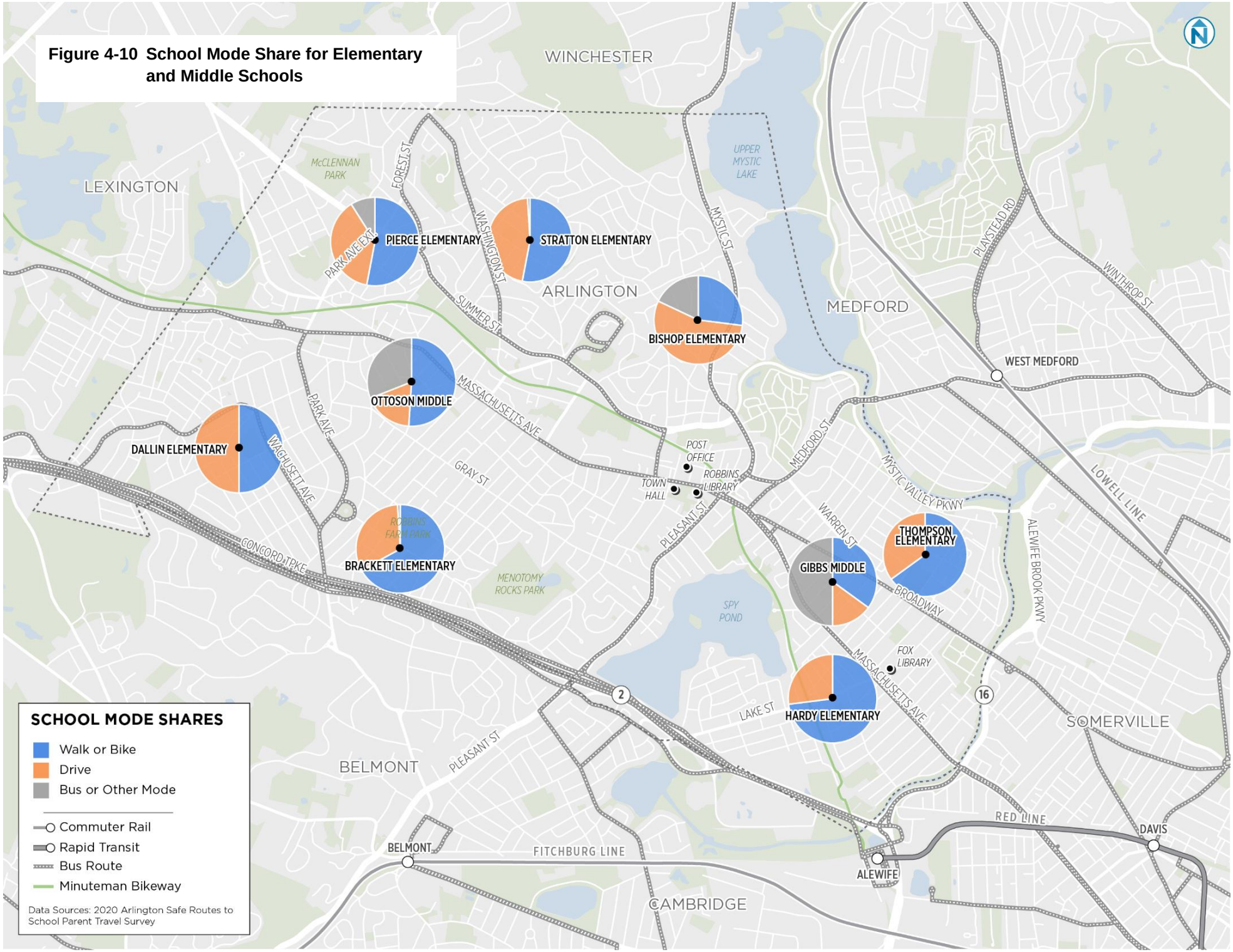
As a neighborhood school district, Arlington's youngest students attend the elementary school closest to their home address – their neighborhood school. In theory, schools are located within walking and/or biking distance from most children's homes. However, this isn't always the case. Many children travel to and from school in personal vehicles driven by their parents or caregivers. There are many reasons for this – personal choice, convenience/time savings (for parents and caregivers), and safety concerns.

Arlington was one of the first communities in the United States to implement a Safe Routes to Schools program (SRTS). According to the 2020 SRTS travel survey conducted for Arlington, more than half of all students either walk or bike to all elementary schools, except for Bishop.[2] However, there are notable patterns between those with higher and lower walk/bike percentages. Elementary schools in flatter sections of town with strong sidewalk and bicycle facilities (e.g. Hardy and Thompson in East Arlington), or with a more defined street grid (e.g. Brackett Elementary) have higher walk/bike rates. Schools with lower walk/bike travel rates are those in hillier areas with greater sidewalk gaps and minimal or no bicycle amenities. (For more information on sidewalk and bicycle facilities and conditions, see Figures 4-11 through 4-13.)

With two middle schools – one in East Arlington and one in Arlington Heights – students travel from farther away. As such, each of the middle schools has a higher bus or other mode share as compared to the more proximate neighborhood elementary locations. However, Ottoson Middle in the Heights has a much higher walk and bike percentage than Gibbs Middle in East Arlington. Notably, Gibbs Middle is located closer to Arlington Center and between Mass Ave and Broadway, an area with heavier car traffic and higher crash rates. This may contribute to the lower walk/bike and higher bus travel. (For more information on crash patterns, see Figures 3-5 through 3-7.)

[2] Note: response rates were lower than normal this year given social distancing and remote learning conditions.

Figure 4-10 School Mode Share for Elementary and Middle Schools



Data Source: Massachusetts Safe Routes to School Program - Arlington Parent Travel 2020 Survey Results

Travel Resources for Older Adults

To supplement on-demand paratransit travel provided by MBTA's The RIDE, The Town of Arlington manages multiple programs designed to help older adults get around Arlington. Residents can inquire and request services by calling 781-316-3400. These services include:

- Council on Aging Van Service for Every Day Living - a fully-accessible van which transports residents between their home and local errands and appointments like the hairdresser/barbershop
- Van Service for Local Medical Appointments – a fully-accessible van which transports residents between their home and medical appointments in Arlington
- Dial a Ride Taxi Program - a subsidized transportation program going anywhere in Arlington (Monday thru Saturday), which requires registration, scheduling a ride through a taxi company directly, and paying a ticket of $5.00 for one-way travel
- Medical Escort Service (MES) - a Volunteer Medical Escort offered to transport residents to medical appointments outside of Arlington, where volunteer drivers utilize their personal vehicles to transport passengers and the passengers schedule a ride at least two weeks prior to the appointment through the Council on Aging and pay a fee for the service in addition to all parking fees and tolls incurred during their trip, if applicable (Not all of these ride requests can be guaranteed based on volunteer availability)
- Medical Rides for Cancer Related Appointments - free rides to local hospitals or medical facilities including Boston, funded through the Sanborn Foundation
- MBTA Senior Charlie Card Registration Events –where the Council on Aging helps older adults procure Charlie Cards
- Helping residents reserve an Uber ride for their medical appointments through a central online system managed by the Council on Aging

Active Transportation

A critical component, in many ways the foundation of a sustainable transportation future, is the ability of Arlington's residents, workers and visitors to move about actively on foot or on bicycle. Active transportation not only helps to eliminate greenhouse gas emissions from each active trip, but also improves public health outcomes.

Off-street, Multi-use Paths

Three multi-use paths serve as the primary active transportation routes to, from, and within Arlington, providing limited conflict points with automobiles and connections to key destinations. They include:

- The **Minuteman Commuter Bikeway** is the spine of the network, creating an east-west route spanning the length of central Arlington. The 10-mile pathway—which starts in Cambridge and travels west through Arlington, Lexington, and Bedford--serves multiple purposes as a quality recreational amenity, regional destination and commuter route, including a direct connection to Alewife Station and the Red Line.
- The **Mystic River Path** runs along the Mystic River (Arlington's norther border) between Medford Street and Alewife Brook Parkway.
- The **Alewife Greenway** runs along the **Alewife Brook Parkway,** along the length of Arlington's eastern border, providing the only separated north-south bikeway in town

Walkability

There are approximately 132 miles of publicly owned sidewalks in Arlington, and several miles more on private roadways.

Mirroring other findings, Arlington's pedestrian facilities are more robust and connected in flatter areas of town such as East Arlington and along and adjacent to Mass Ave and the Minuteman Bikeway. In these areas, nearly all streets have sidewalks on both sides of the street providing connectivity to residences, businesses and institutions (e.g. schools). In western sections of town, walkability varies, with sidewalk facilities along Mass Ave and connecting streets, and limited facilities in many hilly, higher elevation areas; see Figure 4-12. The presence of sidewalks is not the only measure of walkability. For example, streets with minimal shoulders, but high speed car travel, often feel less safe than those with street trees, a wide shoulder, or parking lanes between the sidewalk and travel lane.

Sidewalk conditions affect walkability, as does the presence of crosswalks, ADA accessible curb ramps, pedestrian signals, and the proximity of moving cars to pedestrians. Although a pedestrian conditions assessment was not part of this study, it utilized data from a previous sidewalk conditions assessment conducted by the Town in 2015. Based on site visits and discussions with stakeholders, pedestrian conditions vary considerably throughout town, even along the same roadway (as indicated in Figure 4-11). Many sidewalks throughout town are in need of maintenance and repair, including repointing of bricks; conditions and compliance were also documented as part of a recent ADA Transition

Plan. Additionally, the clearing of landscape debris and snow removal pose challenges for safe and comfortable year-round walkability in Arlington.

Although the Minuteman Bikeway provides a highly used pedestrian connection parallel to Mass Ave and within a five- to ten-minute walk of much of Arlington, the pathway is highly used by bicycles during peak commuting and recreational times (e.g. summer weekends), creating conflicts among users and particularly pedestrians moving at slower rates who often step off the path to avoid cyclists traveling at higher speeds. However, given the Minuteman Bikeway is a level, smooth asphalt surface, many residents of all ages opt to walk along it both for recreation and for commuting – especially to and from Alewife Station.

Figure 4-11 Sidewalk Conditions

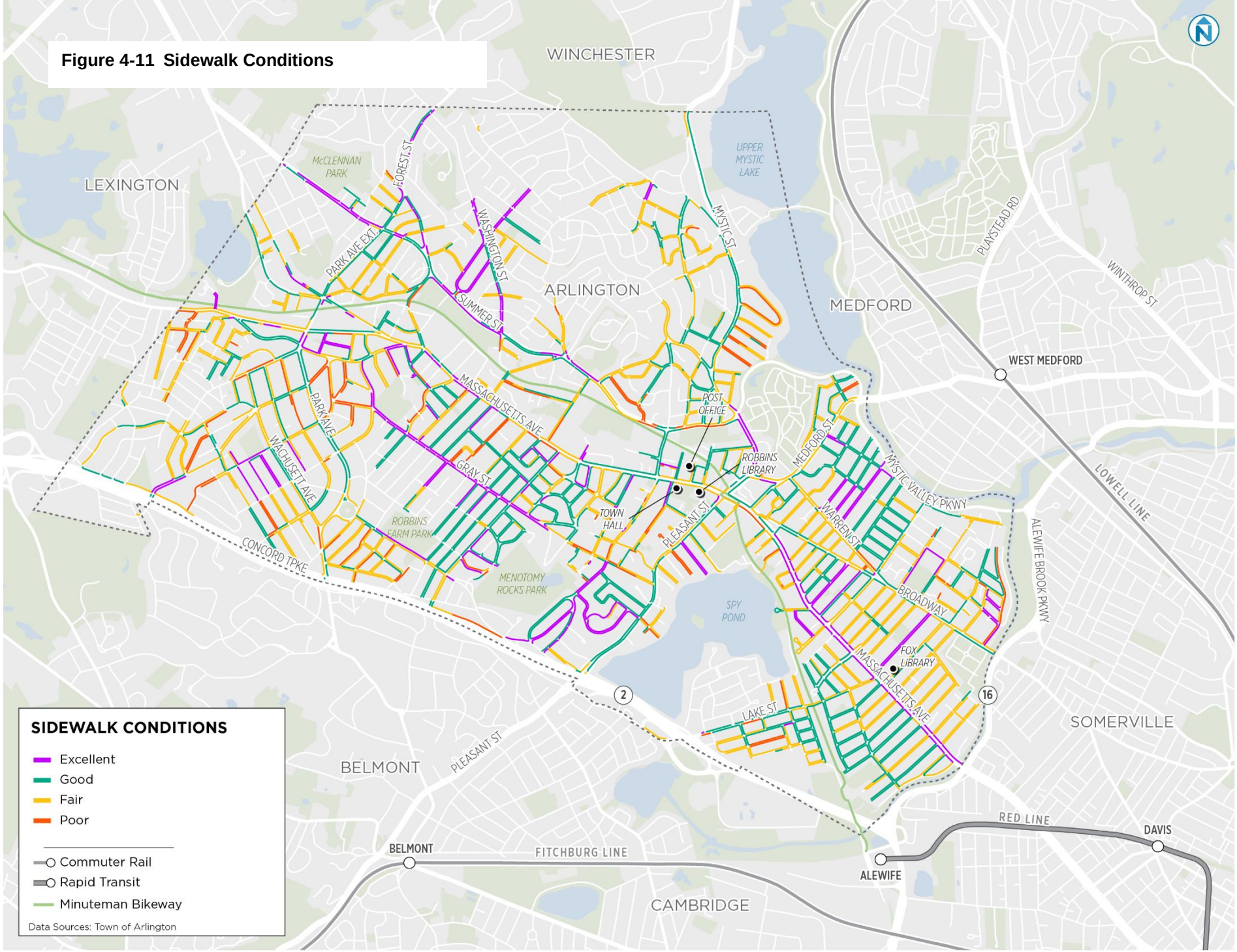
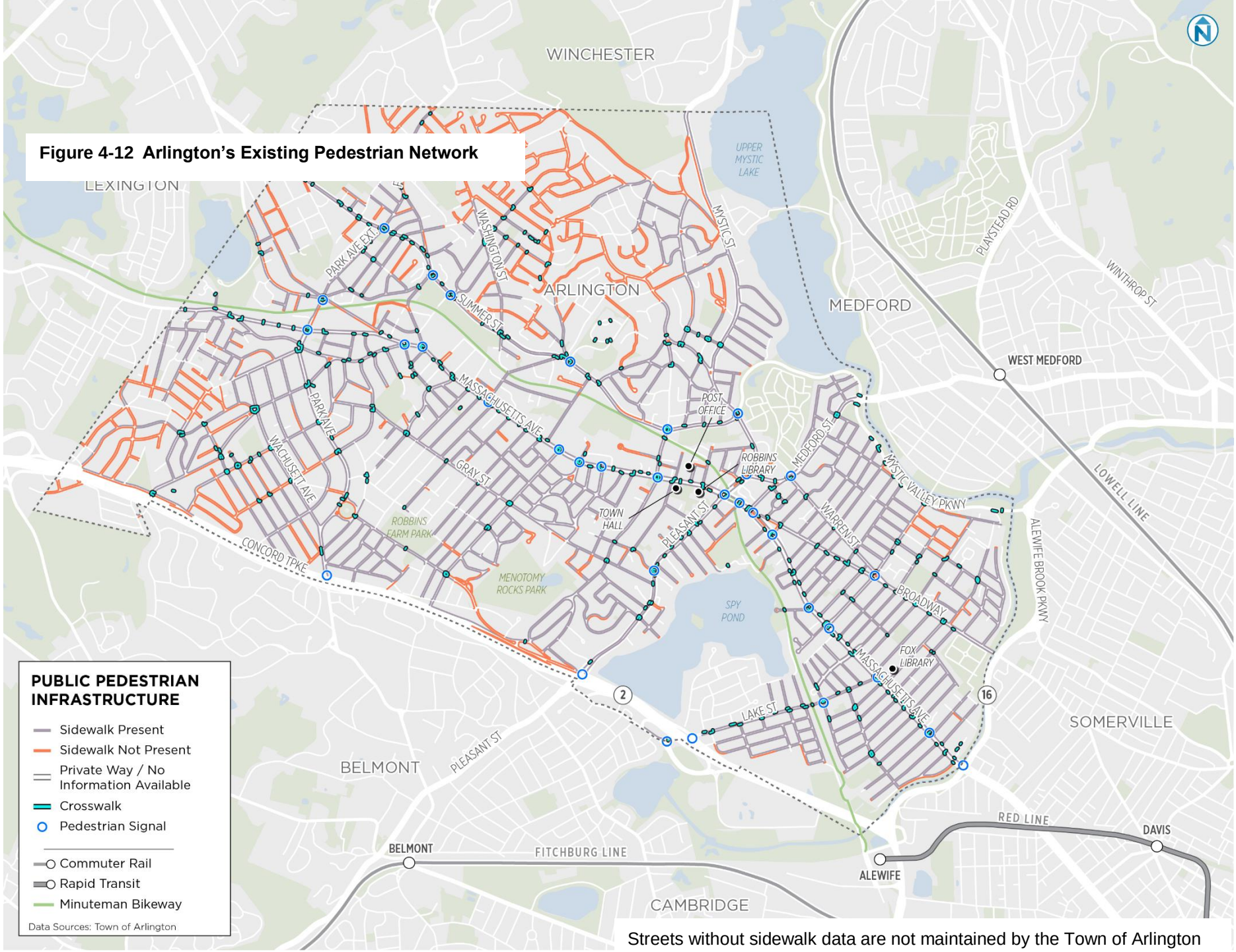


Figure 4-12 Arlington's Existing Pedestrian Network



Streets without sidewalk data are not maintained by the Town of Arlington

Accessibility

A critical component of any mobility strategy is ensuring that all parts of a trip are accessible to all ages and abilities. And while well maintained sidewalks, crosswalks and accessibility ramps are essential, just as important are entrances to public buildings, facilities and open spaces; parking and curbside facilities for personal vehicles, shared vehicles and transit; and bicycle facilities that accommodate different types and sizes of bikes.

Ensuring access, particularly for those who are most vulnerable – the youngest, oldest, and those getting around with a disability – is essential to ensure that Arlington's future transportation network serves all people and that it is equitable. It is a federal requirement through the Americans with Disabilities Act (ADA) to provide the following:

- Mandates the elimination of discrimination against individual with disabilities
- Provides clear, strong, consistent, enforceable standards addressing discrimination against individuals with disabilities
- Ensures that the Federal Government plays a central role in enforcing the standards
- Gives Congressional Authority to enforce the 14th Amendment and regulate commerce in order to address the major areas of discrimination (including accessibility) faced day-to-day by people with disabilities.

ADA requires that all public services provided by a public entity – any State or local government – be accessible, including all sidewalks, roadways, public transportation, and public buildings and facilities (e.g. parks). For more information on ADA, see https://www.ada.gov/pubs/adastatute08.htm#12101b. All municipalities within the Commonwealth are required to have an ADA Transition Plan, which includes an ADA Self Evaluation. ADA transition plans identify barriers to accessibility and define a plan of action to bring non-compliant assets into compliance, including transportation infrastructure and services. Arlington completed its most recent Self Evaluation and ADA Access Plan in November 2019 and continues to implement accessibility programs and upgrades. (For more information, see the plan on the Town website, https://www.arlingtonma.gov/home/showdocument?id=50034.)

Key recommendations within the ADA Transition Plan include:

- Renovate exterior access routes at Town Hall and Annex, schools (e.g. Bishop, Brackett, Dallin, Hardy, Ottoson Middle, Parmenter School, Peirce Elementary, Stratton Elementary), other public buildings such as Cemetery Building A, and recreational facilities like the Bath House at Arlington Reservoir.
- Renovate and/or provide accessible parking spaces and/or bus accessible parking at Town Hall and Annex, Bracket Elementary, Peirce Elementary, Robbins Library, Jefferson Cutter House, 23 Maple Street, Bath House at Arlington Reservoir and more.
- Construct or renovate curb ramps at Hardy Elementary, Brackett Elementary, Ottoson Middle, and more.

Bicycle Network

Arlington's existing bike network consists of 8 miles of multiuse trails and spurs, 5 miles of bike lanes along major corridors, and a 12-mile informal lane-sharing network connecting commercial centers to residential neighborhoods. The Minuteman Bikeway creates the east-west spine of the bike network in Arlington, and the Alewife Greenway runs along Arlington's eastern border as the only separated north-south bikeway in town. The Minuteman Commuter Bikeway carries thousands of bicycle users a day. Counts collected by volunteers during peak commute hours (7:00am to 9:00am for the morning peak and 4:30pm to 6:30pm for the evening peak) in 2019 indicated that more cyclists make use of the trail near Swan Place and more pedestrians make use of the path closer to Alewife, on the boundary of Arlington and Cambridge (Figure 4-13).

Bike Lanes

Three roadways include on-street bike lanes or sharrows. They include:

- **Mass Ave** features bike lanes along portions of the roadway in Arlington Heights to the east and west of Park Ave, two segments to the west of Arlington Center, and a long stretch between Arlington Center and East Arlington which connect to lanes across the Cambridge line.
- **Park Ave** includes dedicated bike lanes from Mass Ave south to Park Circle, continuing as shared lanes (e.g. sharrow markings) from the circle to Concord Turnpike.
- **Mystic Street** bike lanes run between Chestnut Street and Summer Street providing increased comfort to bicyclists approaching or departing Arlington Center.

The above bike facilities provide additional comfort and safety to bicyclists; however, given heavy automobile traffic volumes, the presence of adjacent on-street parking, and major, at times conflict rich, intersections along these routes, these facilities are unlikely to attract bicyclists with low- to mid-comfort levels given the conflicts with cars, trucks, buses, and dooring risk from passengers departing parked cars.

Figure 4-13 Minuteman Bikeway Activity

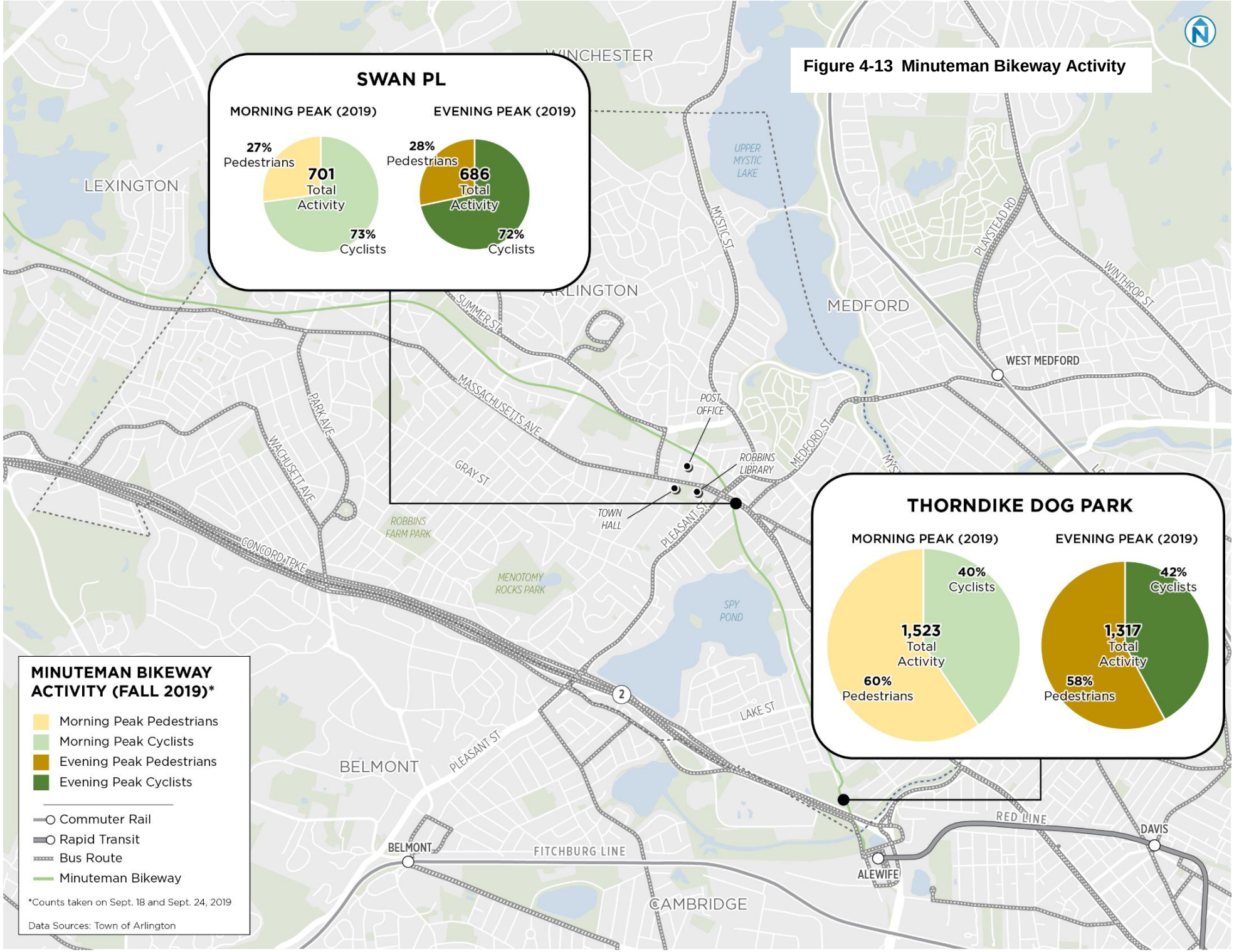
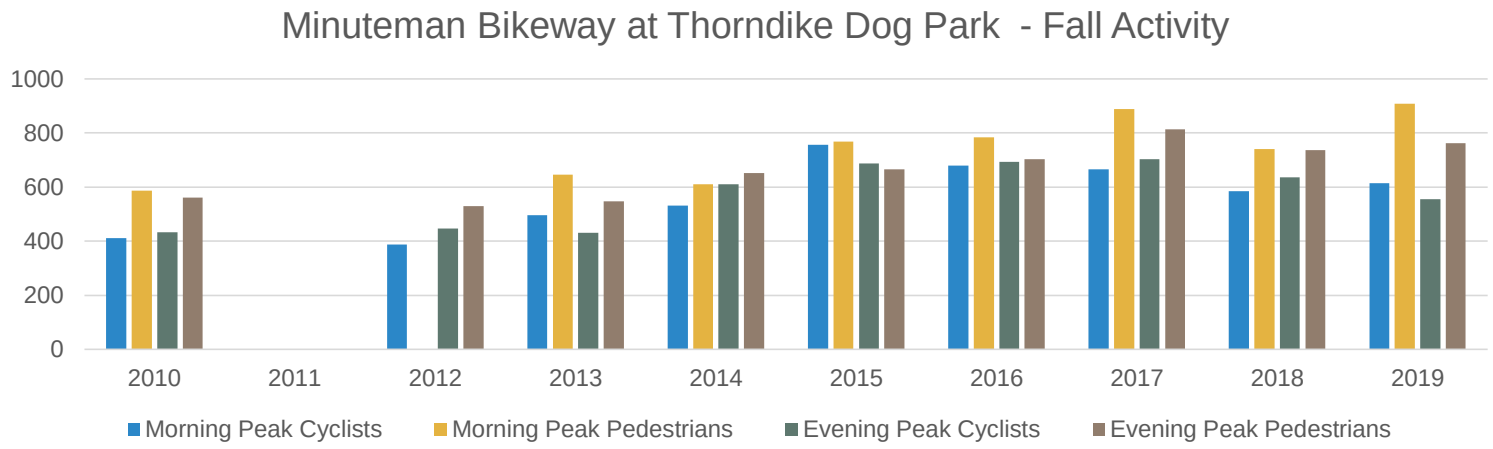
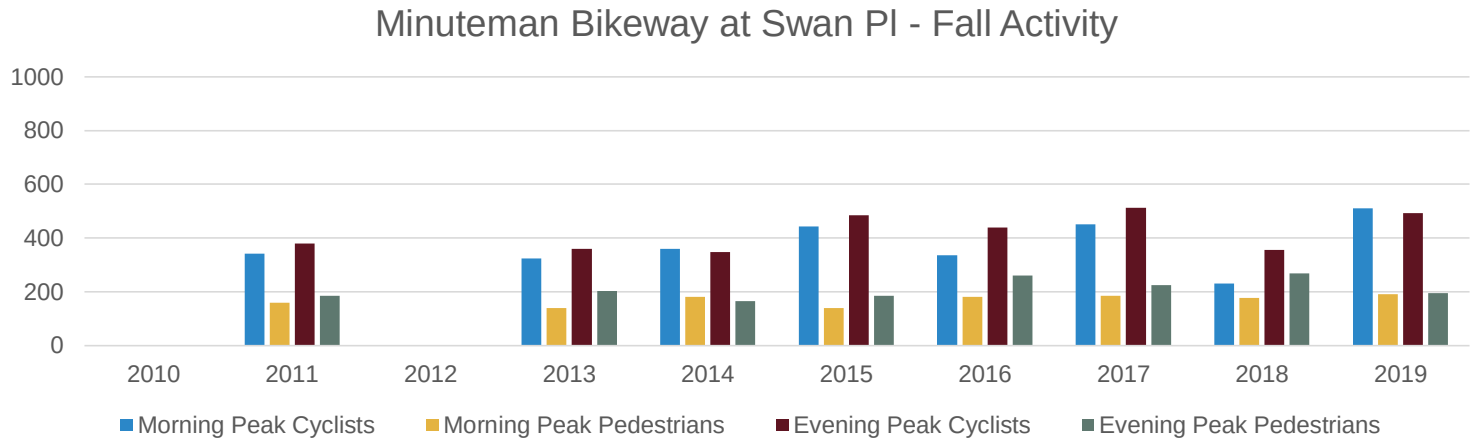


Figure 4-14 Minuteman Bikeway Morning and Evening Cyclists and Pedestrians





Lane Sharing Network

The Town has defined a bicycle "Lane Sharing Network" on major roadways throughout town, the majority of which radiate from Arlington Center, Capitol Square or Arlington Heights commercial centers. This network connects the centers to residential neighborhoods, community amenities and destinations (e.g. Minuteman Bikeway, schools, Town Hall), as well as the neighboring communities of Somerville, Medford (and the West Medford commuter rail station), Winchester, Lexington, and Belmont.

Although defined as a bicycle network, many of these corridors do not have any signage or markings to indicate they are part of the network. In addition, due to physical factors such as limited right-of-way or narrow shoulders, some are not appropriate for or able to accommodate the bicycle and complete streets design treatments necessary to provide comfortable, low-stress connections to residential neighborhoods and wayfinding to key destinations both in and outside of town without major reconstruction of the roadway. Other corridors may have multiple or wide travel lanes and parking lanes that require reallocating roadway space to safely accommodate low-stress bicycle accommodations.

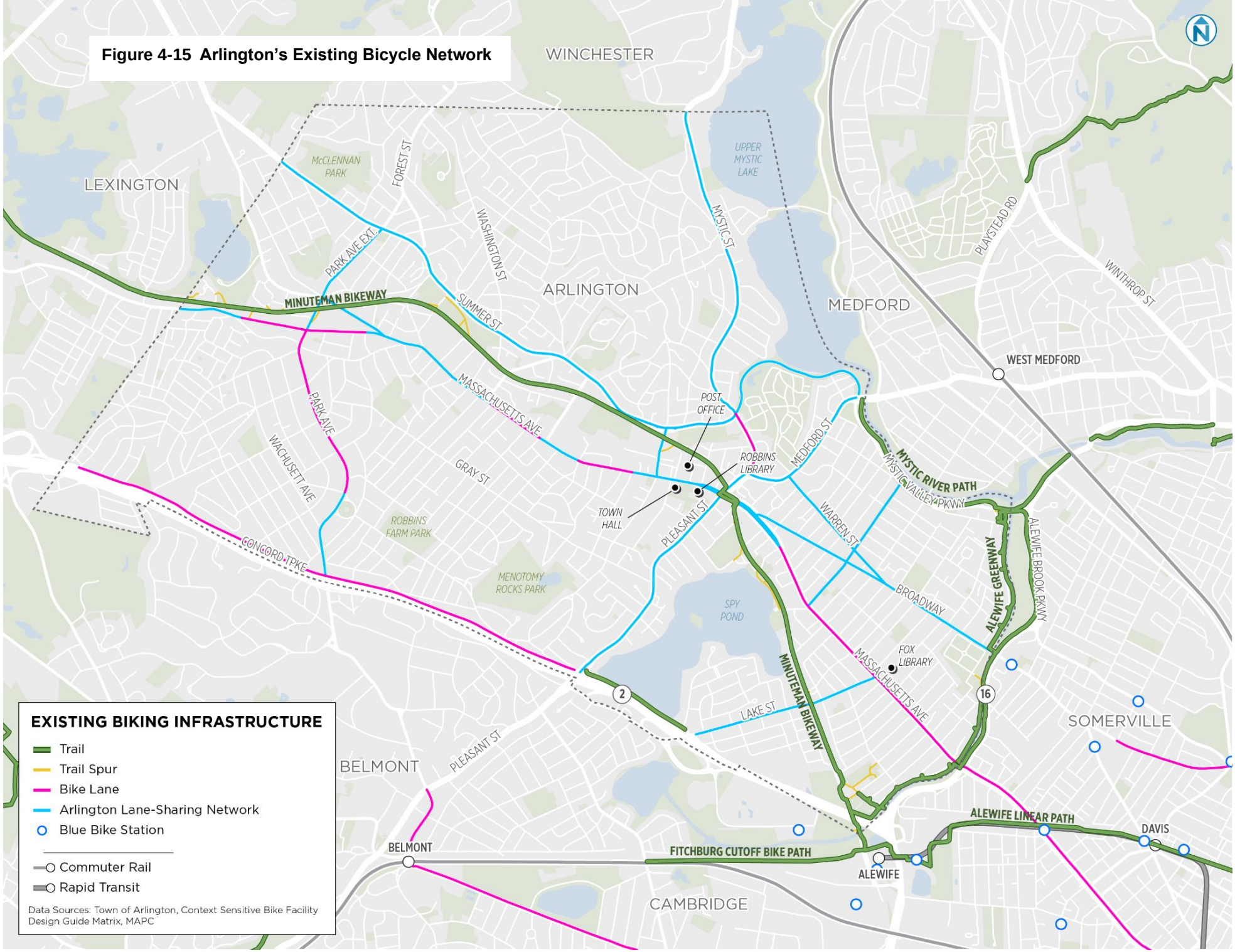
The Lane Sharing Network includes the following streets:

- Mass Ave (sections without bike lanes)
- Pleasant Street
- Broadway
- Medford Street
- Warren Street
- Mystic Street
- Summer Street
- Mill Street
- Park Ave
- Lake Street

Sustainable Transportation Solutions: Street Trees

Street trees are not just attractive neighborhood streetscape enhancements. Street trees provide much needed shade to reduce heat island impacts in highly developed areas and create a more comfortable pedestrian and bicycling environment by providing shade for active users – walkers, runners, cyclists. Any tree removal in Arlington should be reviewed by the Town tree warden and consider the impact on streetscape and mobility. Further, the Town should ensure street trees are adequately maintained so that they do not pose safety challenges for people getting around with disabilities and visual impairments. Finally, trees should be planted with arboriculture technologies designed to ensure tree roots do not buckle the sidewalk, providing hazards to those with mobility challenges and assistive devices.

Figure 4-15 Arlington's Existing Bicycle Network



Transit

The existing transit network serving Arlington is primarily designed to move people to and from Boston and Cambridge, but some intra-town connections and connections to other areas are possible.

Bus Connectivity

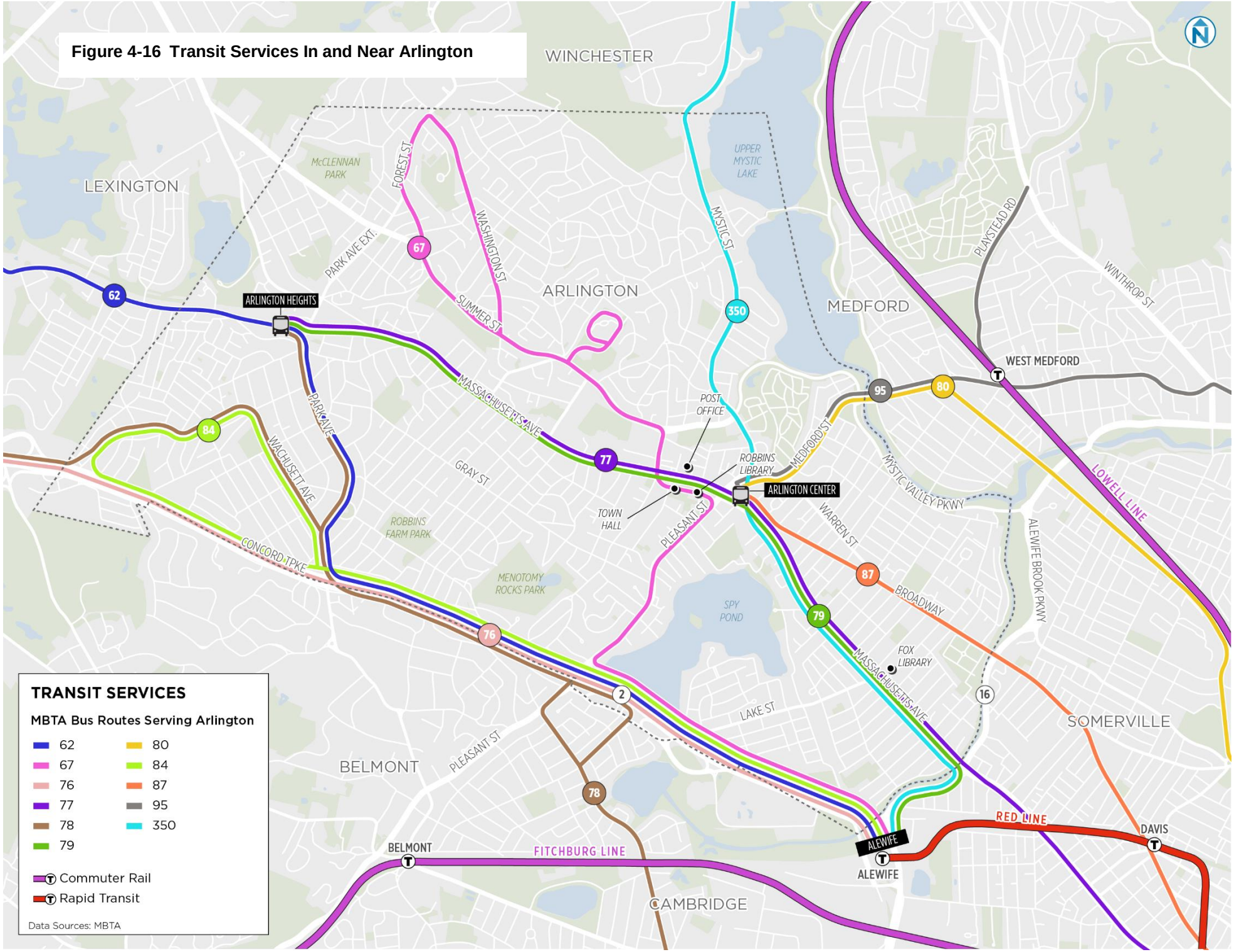
Eleven MBTA bus routes serve Arlington, of which six connect to the MBTA Red Line at Alewife station, two connect to Harvard Square, two connect to Lechmere, and one connects to Sullivan Square. Most connections within Arlington by transit are limited to Mass Ave or require transfers. Mass Ave routes have the highest ridership routes and run through low-lying areas of town – again, the topography influences travel patterns. Lower ridership routes (based on boardings and alightings in Arlington) provide service to residential neighborhoods primarily in Arlington Heights and Morningside. These routes tend to have low frequencies, especially between peak hours, limiting their usefulness for trips for doctor's appointments, errands, and social trips during the day. Although most residents are within a five- to ten-minute walk of bus transit, topography also can be challenging in some areas and may negatively influence decisions to take transit.

Bus routes include:

- **62** – Alewife via Mass Ave/Park Ave/Rte 2 (Red Line, Bus Connections)
- **67** – Alewife via Summer Street/Mystic Street/Route 2 (Red Line, Bus Connections)
- **76** – Alewife to/from Arlington Heights via Park Ave and Concord Turnpike (Red Line, Bus Connections)
- **77** – Harvard Square via Mass Ave (Red Line, Bus Connections)
- **78** – Harvard Square via Fresh Pond/Brattle (Red Line, Bus Connections)
- **79** – Alewife via mass Ave and Alewife Brook Parkway (Red Line, Bus Connections)
- **80** – West Medford via High Street (Commuter Rail Connection)
- **84** – Alewife via West Service Road (Red Line, Bus Connections)
- **87** – Davis Square (Red Line, Bus Connections) and East Cambridge/Lechmere (Green Line, Bus Connections) via Broadway
- **95** – West Medford or Arlington Center to Sullivan Square Station (Orange Line Connection)
- **350** – Alewife via Alewife Brook Parkway (Red Line, Bus Connections)

Opportunities for direct transit connections between Arlington and other communities or job centers (aside from those in Boston and Cambridge) using the existing transit network are limited. Direct connections either do not exist or trips require multiple transfers, adding considerable time to trips and a loss of productivity.

Figure 4-16 Transit Services In and Near Arlington



Rail Connectivity

Several subway and commuter rail stations are located within walking or biking distance of many Arlington residents and workers. The Alewife Red Line station in Cambridge is located just outside of Arlington's southernmost border. The station is Arlington's nearest and most convenient connection (on foot or bicycle via the Minuteman Bikeway) to the MBTA subway system.

Other rail connections include the Red Line via Davis Square approximately 1-mile to the south in Somerville, a convenient bike ride for many East Arlington residents. Commuter Rail connections can be made to the east via the Lowell Line at West Medford station, and to the west via the Fitchburg Line at Belmont station. Although close by and easily drivable, bus connections are limited or infrequent, and none (except Alewife) includes bicycle lanes or other bike facilities.

The Green Line Extension, expected to open in December 2021, provides another opportunity for rail connectivity near Arlington at the new Medford/Tufts Station.

Sustainable Transportation Solutions: Mass Ave Bus Priority Lane

The Town of Arlington launched an A.M. peak bus priority lane pilot in Fall of 2018 to expedite bus travel approaching the congested Mass Ave/Alewife Brook Parkway intersection. The pilot found that buses bound for Alewife and Harvard Square saved riders up to 10-minutes every morning; and bus schedules were 64% more reliable. People bicycling can also share the bus lane, and surveys conducted found that cyclists were also pleased with the improved function of the roadway.

Based on the success, the bus lane was made permanent in 2019. The project also included transit signal priority and the relocation of a bus stop. This project represents an innovative, cost-effective strategy to prioritize transit and move more people, more efficiently than would be possible with single-occupancy vehicles. Opportunities to expand bus priority could encourage more people to choose transit over driving alone.

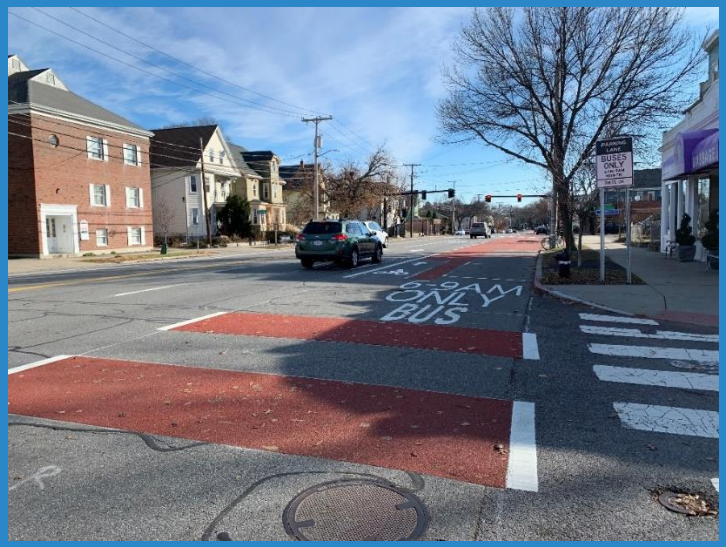
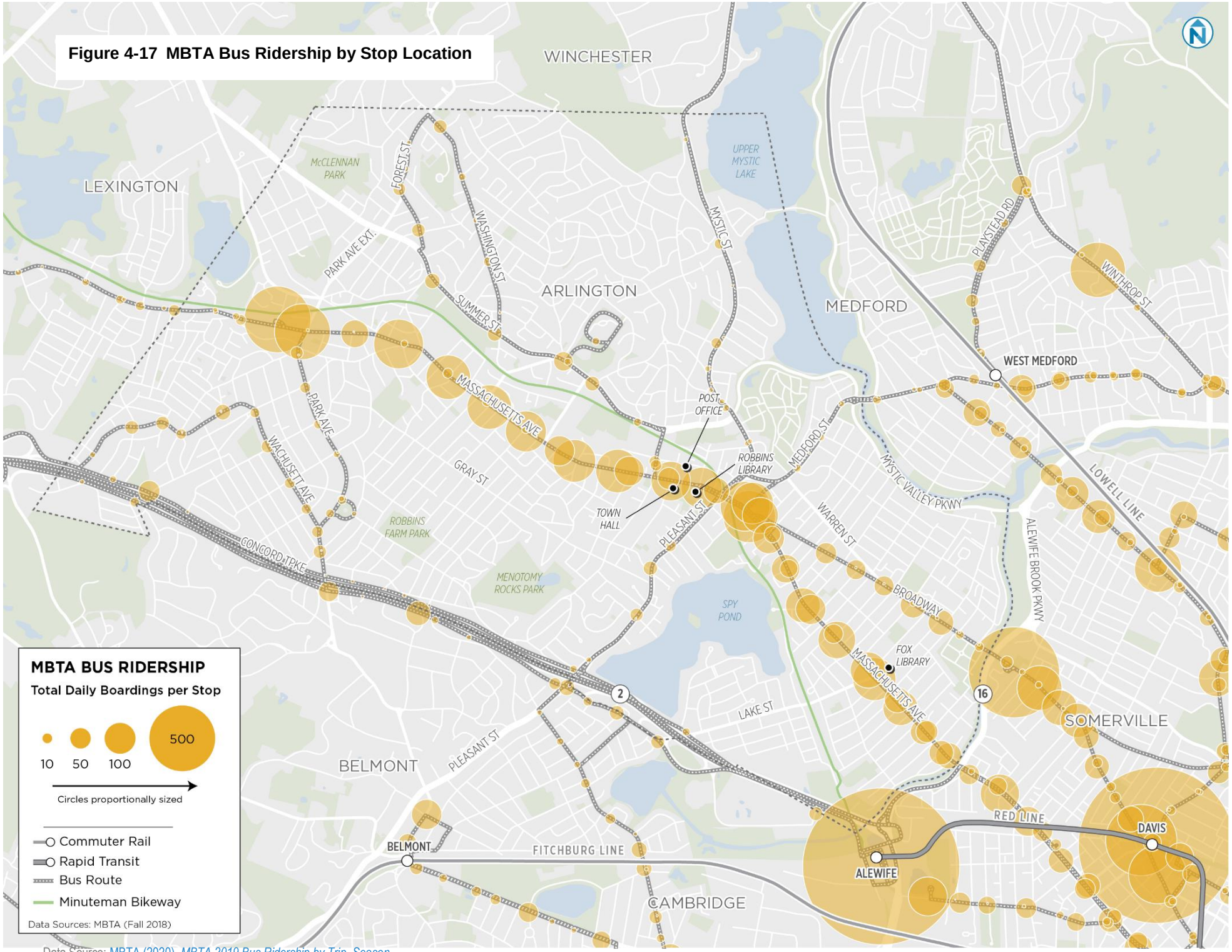


Figure 4-17 MBTA Bus Ridership by Stop Location



Data Source: MBTA (2020). *MBTA 2019 Bus Ridership by Trip, Season, Route/Line, and Stop*. Open Data MBTA.

Figure 4-18 Transit Stop Walkshed

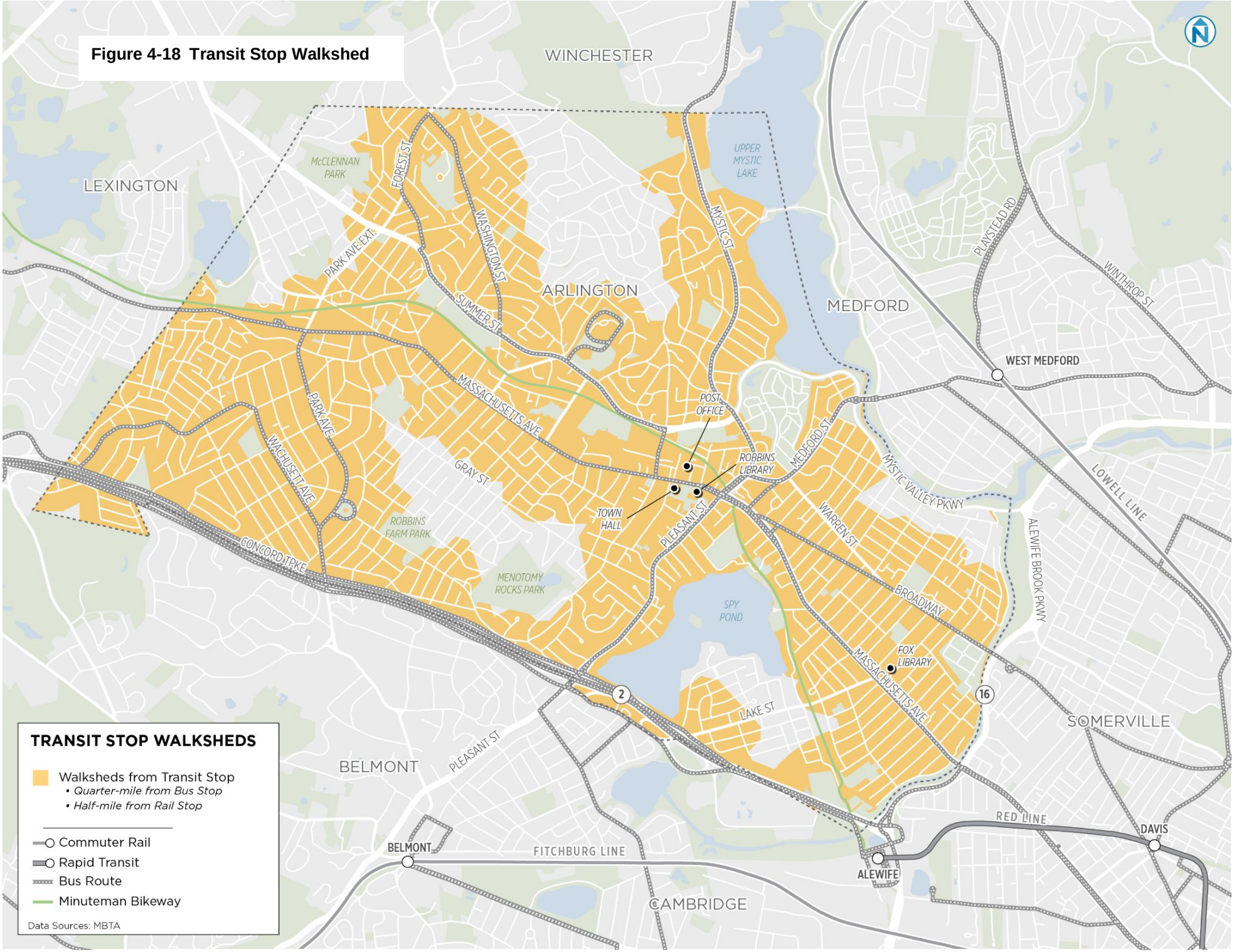
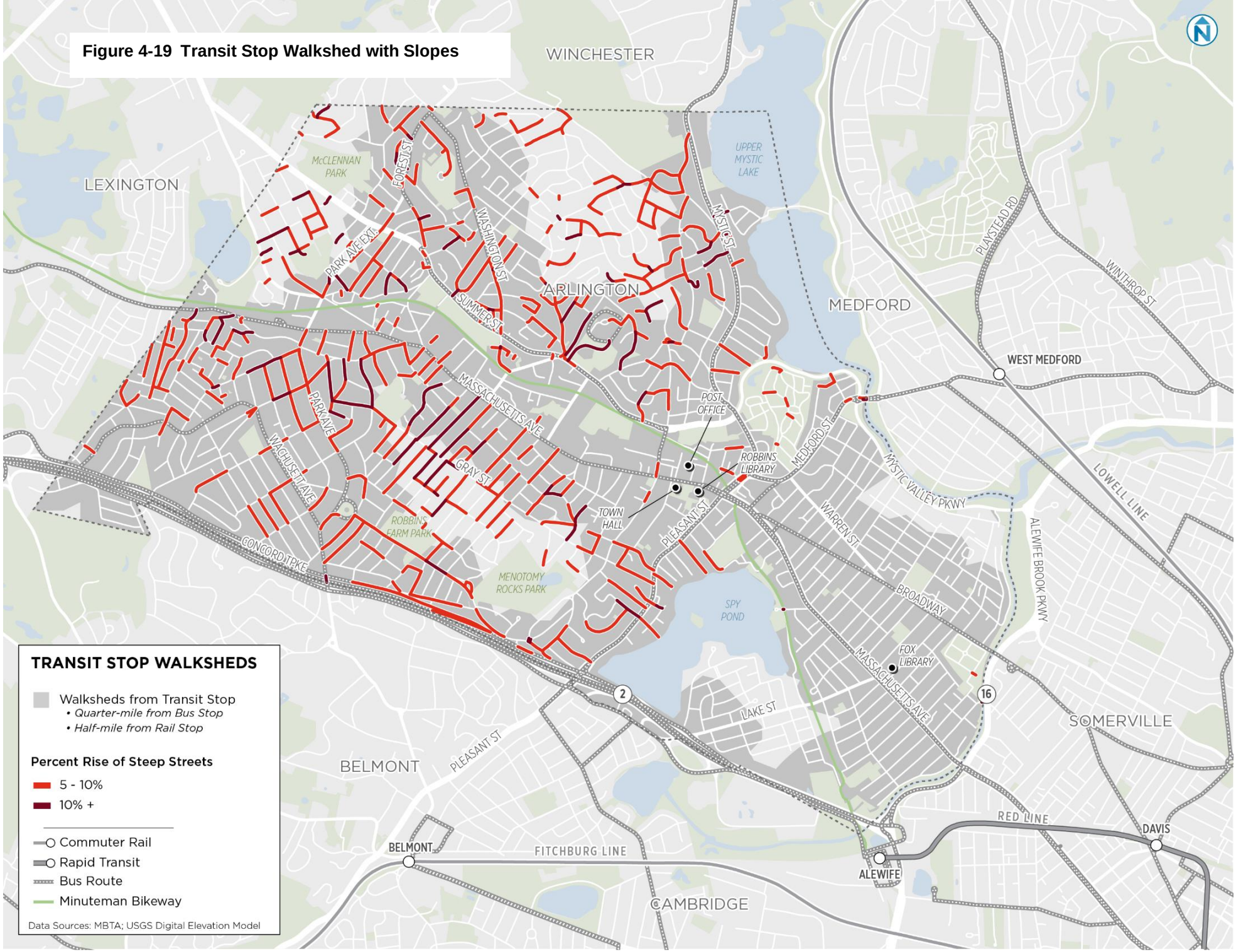


Figure 4-19 Transit Stop Walkshed with Slopes



Emerging Mobility and Shared Services

Transportation is changing due to emerging technologies that allow for more on-demand, personalized, and shared user-friendly experiences for getting around. App-based ride hailing and sharing services such as Uber and Lyft have fundamentally changed how people get around, as well as how the curb is used and needs to be programmed in the future. Other emerging and shared mobility options include car share, bike share, scooter share, and microtransit options that have the potential to provide more frequent, predictable, and cost-effective service delivery. Another major shift in transportation is the growing consumer demand for home delivery of products and services of all kinds including groceries, prepared foods, retail goods and merchandise and more.

Emerging Mobility Options in Arlington

Car Share

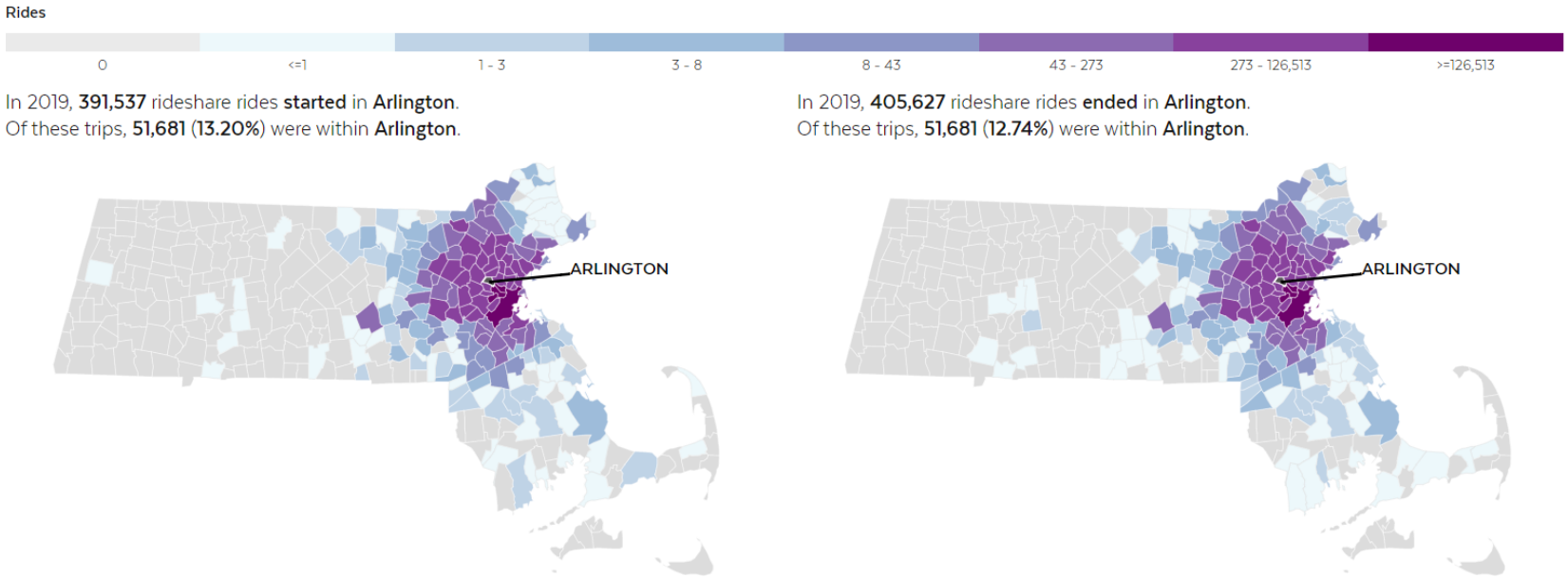
Car share through Zipcar is currently available in three locations, all around Arlington Center. For car-share to more effectively encourage "car light" households, more options are likely required.

Transportation Network Companies (TNCs)

TNCs are app-based transportation services that allow for on-demand or reserved rides for a fee. This includes companies such as Uber and Lyft, but also scooter companies like Bird, Lime and others. TNCs have fundamentally changed the way many get around, no more so than with Uber and Lyft. These services provide convenient point-to-point service and require no direct exchange of money. However, as indicated in many studies, these services have added thousands of daily trips to regional roadways, contribute to increased congestion, and if a fossil-fuel burning vehicle, more GHGs. They are also not affordable to many and are largely not accessible to those without a smart phone. They have also changed how the curb is used. With more people using these services, drop-off and pick-up locations are needed to manage their use. Absent such areas, many trips begin and end with double parked cars along high traveled corridors, a condition that is unsafe for both the driver and the passenger, but also exacerbates congestion by blocking traffic.

Obtaining trip information from TNCs has proved difficult as many of the technologies are proprietary and the need for user privacy is paramount. Thus, in most places, TNC usage is difficult to obtain. However, in Massachusetts, ride-sharing companies are regulated more than in many parts of the country. According to the Massachusetts 2019 Ride Share Report, 391,537 ride share trips started in Arlington, or 9.14 trips per person, and 405,627 trips ended in Arlington. Of trips that started in Arlington, the majority ended in either Boston or Cambridge (32% and 18%, respectively) with 13% ending in Arlington. Of those that ended in Arlington, again, the majority began in either Boston or Cambridge (30% and 21%, respectively), with nearly 13% starting in Arlington. However, as shown below, Arlington TNC affiliated trips began or ended in communities throughout the region.

Figure 4-20 Rideshare Trip Data



Data Source: 2019 Ride Share Report
https://tnc.sites.digital.mass.gov/#:~:text=In%202019%2C%20there%20were%20about,64.8%20million%20rides%20in%202017.&text=For%20example%2C%20in%20Wareham%2C%20ridesharing,more%20rides%20than%20in%202018.

Bike Share

Arlington was part of the regional Lime Bike dockless system, which ceased operation at the end of 2019. As shown in Figure 4-21, the program was highly successful, with the highest ridership along separated, off-street paths like the Minuteman Bikeway. Arlington will be joining Bluebikes in fall 2020, and the initial expansion of the system to Arlington is anticipated to include 38 bicycles across six docked stations.

Figure 4-21 Lime Bike Share Trip Patterns