3. TRANSPORTATION

A. INTRODUCTION

Arlington's transportation system is well integrated within the Boston metropolitan area. Route 16 along the eastern border, Route 2 along the southern border, internal Routes 2A, 3A, and 60, Massachusetts Avenue, and Broadway provide strong connections between Arlington's neighborhoods, the business districts, and the regional transportation network. MBTA fixed route bus service enhances this frame of roadways, as several bus routes directly connect Arlington's neighborhoods with Somerville, Cambridge, and Downtown Boston, and with other towns including Lexington and Burlington to the north and west. MBTA commuter rail service is available via bus connection to Porter Square Station in Cambridge, and subway transit is available at the Alewife Station (Red Line) just southeast of town in Cambridge.

The objective of a local transportation system is to provide access to employment, shopping, recreation, and community facilities in a safe, efficient manner. When a transportation system operates well, it supports the community's quality of life, economy, and public and environmental health. Roadways can bring life to a community by supporting commerce, communication, and services, allowing both goods and customers to travel in and out of town. When congestion impedes mobility, roadways can interfere with commerce and erode the community's quality of life. Though extensive, Arlington's transportation network experiences considerable strain. This is particularly obvious in Arlington Center: a confluence of major traffic routes, fixed-route bus transit, and pedestrian activity, at the civic, cultural, and economic center of the town. Many residents believe that the worst traffic problems occur along Pleasant Street between Arlington Center and Route 2, and on Lake Street between Capitol Square and Route 2 during rush hour.

The Board of Selectmen is the traffic authority in Arlington, with responsibility for all public ways. Arlington is served by a Transportation Advisory Committee (TAC), which assists the Board of Selectmen in studying and making recommendations on transportation-related issues. TAC includes representation from the Police Department Traffic Unit, the Planning Department, the Town Engineer, the Chamber of Commerce and School Committee, as well as residents of the town.

This chapter of the Master Plan identifies general principles, goals, challenges and opportunities, and potential actions and initiatives to create a safe and efficient transportation system that enhances the aesthetic quality of the community, respects and reflects its historic character and natural resources, and recognizes the needs of local businesses, residents, and thru traffic. Major transportation issues affecting the community's existing and future quality of life and capacity to accommodate new development are considered. The goals and opportunities address the potential for "Complete Street" design, transit services, pedestrian safety and walkability, bicycle network and access, street circulation and connectivity, access management, and parking.

B. TRANSPORTATION GOALS

- Enhance mobility and increase safety by maximizing transit, bicycle, and pedestrian access and other alternative modes of transportation.
- Manage congestion safely and efficiently by improving traffic operations.
- Manage the supply of parking in commercial areas in order to support Arlington businesses.

C. KEY FINDINGS

- Arlington's road network consists of 125 miles of roadway, including 102 miles under the Town's jurisdiction and 23 miles of private ways. The network is well-connected and multimodal with a well-distributed system of sidewalks, bicycle facilities, pathways, and transit options throughout most of the community. There are also some network gaps in sidewalks and public transit that grow as one moves farther from Mass. Ave.
- Much of the community's traffic congestion results from peak period commuting traffic, i.e., residents of Arlington and the surrounding towns driving to and from work. School drop-off traffic also creates congestion at certain times and locations. Substantial congestion is observed on north-south cross-streets, including Pleasant Street, Jason Street, Park Avenue, Highland Avenue, Mill Street, and Lake Street, in part due to motorists traveling between east-west routes such as Route 2 and Route 2A (Massachusetts Avenue). Additionally, congestion often occurs on Mill Street and Lake Street near their intersections with the Minuteman Bikeway.
- Arlington generally has lower than average commute times, higher use of public transit and nonvehicle means of travel, and less daily mileage per household than its neighbors to the west. However, commuters to and from Arlington are still most likely to be driving alone to work. The Town is committed to improving the modal split toward more nonvehicular and public forms of transportation.

D. EXISTING CONDITIONS

1. General Circulation, Network, and Connectivity Characteristics

Arlington has a well-established and connected network of streets, sidewalks, pathways, and trails. Most of the older neighborhoods in town were laid out on grids with short blocks, narrow and interconnected streets, sidewalks, and planting strips with shade trees. This form of transportation network creates a highly walkable environment. Some of the newer neighborhoods in the hilly regions of Arlington to the north were built later and have a more suburban street pattern with wider rights-of way, curvilinear roadways, dead-ends, and cul-de- sacs, and fewer sidewalk and streetscape amenities. This form of street pattern is generally less walkable. These neighborhoods are also further from Massachusetts Avenue, making them less accessible on foot to public transportation and services.

Massachusetts Avenue is a former "streetcar" corridor that hosted dedicated lanes for trolleys between Arlington Heights and Harvard Square, from the arrival of electric streetcars in the early 1900s until 1955 when the last trolley tracks were removed. The avenue still functions as the

spine of Arlington's transportation network and largely determines first impressions of the town.

Typically a former streetcar corridor has significant linear development along the route due to its proximity to surrounding neighborhoods that grew around this form of public transportation, as well as connections to regional employment centers and transportation hubs. Once the streetcar infrastructure is removed and replaced with bus transit, the corridor experiences heavier traffic due to the transition to the automobile as the primary mode of transportation.

Arlington's village centers (Arlington Center, East Arlington, and Arlington Heights) and most residential neighborhoods are linked, with relatively few dead-end streets and cul-de-sacs. This healthy street network coupled with short blocks gives Arlington the look and feel of a walkable community. Continuous streets with short blocks are more walkable than dead-end streets and cul-de-sacs because they allow pedestrians to travel along direct routes. For example, in some places a child may live a quarter-mile away from his or her school, but may be unable to walk there because the roadway network forces the child to take a circuitous route or walk in the street. The result is that child is driven to school, when a continuous network would have allowed him or her to walk safely.

The principal roadways and intersections in Arlington are described below in terms of physical characteristics, geometric conditions, adjacent land uses, and current operating conditions. Overall, Arlington's road network consists of 125 miles of roadway, including 102 miles under the Town's jurisdiction. Table 3.1 identifies the total road mileage by functional classification. Figure 3.1 illustrates the basic components of Arlington's road system[1].

Table 3.1. Classification of Roads in Arlington

Class	Road Miles	Lane Miles
Arterial	20.76	52.85
Collector	10.05	20.09
Local	89.99	177.18
Total Miles	120.80*	250.12*

Source: MassDOT Road Inventory Year End Report, 2012. * Does not include roads owned by State.

KEY ARTERIALS

Five state and federal numbered routes, plus three key minor arterials that serve Arlington, are described below:

- **Route 2**: This limited access highway provides a connection to nearby Interstates 95 and 495. Route 2 is classified by the Massachusetts Department of Transportation (MassDOT) as a principal arterial. Within Massachusetts, Route 2 is a major east-west route that runs between downtown Boston and the New York State Line in Williamstown. It generally consists of two travel lanes in each direction and is the primary commuting corridor to Boston from the northwest suburbs and Central Massachusetts. Exits from Route in

[1] Definitions and descriptions of roadway classifications including arterials, collectors and local roads are included in the Appendix.

Arlington include exits 56, 57, 58, 59, and 60, and it merges with Alewife Brook Parkway (Route 16) at the Cambridge line near the Alewife MBTA Station. Route 2 continues southerly along Routes 3 and 16 toward Fresh Pond Circle in Cambridge.

- **Route 2A**. Route 2A (Massachusetts Avenue/Mystic Street/Summer Street) extends east-west between Commonwealth Avenue in Boston and Interstate 91 in Greenfield. It generally runs parallel to Route 2, providing more local access with less mobility. In Arlington, Route 2A runs contiguous with Route 3 between the Cambridge line to the east and along Summer Street to Lexington to the west. When joined with Route 3, Route 2A is classified as a principal arterial due to its higher level of mobility and access to collectors and other arterials, but it functions as a minor arterial along Summer Street.

- **Route 3.** Route 3 is a federal highway that is classified by MassDOT as a principal arterial. Route 3 runs north-south between the New Hampshire state line in Tyngsborough and Route 6 in Sagamore to the south. In Arlington, Route 3 originates on Mystic Street at the Winchester line to the north and on Massachusetts Avenue at the Cambridge city line to the south. Route 3 consists primarily of two lanes in each direction along Massachusetts Avenue and one lane in each direction along Mystic Street. It is a major commuting route for residents from communities such as Winchester, Woburn, and Burlington.

- **Route 16.** Route 16 is classified by MassDOT as a principal arterial south of Route 2A and as an urban major arterial north of Route 2A. Route 16 generally runs east-west between Bell Circle in Revere to the east and the intersection of Route 12/Route 193 in Webster; however, through Cambridge, Route 16 runs north-south along the Arlington town line connecting Route 93 and Route 2. Route 16 generally consists of two travel lanes in each direction. While Route 16 does not run through Arlington, it is a source of a significant amount of vehicle traffic entering Arlington.

- **Route 60.** The corridor is an urban major arterial that runs east-west between Route 1A in Revere to the east and Route 20 in Waltham to the west. In Arlington, Route 60 originates on Medford Street at the Medford city line to the north, continues onto Chestnut Street and Mystic Street, and along Pleasant Street up to the Belmont line, and also connects to Route 93 and Route 2. It generally consists of one travel lane in each direction. Heavy vehicle traffic on Route 60 has increased significantly since hazardous cargo was prohibited on Boston's central artery.

- **Lake Street.** Lake Street is classified by MassDOT as an urban minor arterial. Lake Street runs east-west between Massachusetts Avenue (Route 2A/ Route 3) to the east and Route 2 to the west, providing access to Route 2 at Exits 58-60. Lake Street consists of one travel lane in each direction, and crosses the Minuteman Bikeway approximately ½ mile east of Route 2, just west of Hardy Elementary School. Lake Street experiences significant congestion during commuter and school peak periods.

- **Mill Street**. Mill Street is a 1,000-foot roadway that runs north-south between Massachusetts Avenue and Summer Street (Route 2A). Mill Street is classified by MassDOT as an urban

minor arterial. Mill Street crosses the Minuteman Bikeway approximately 150 feet south of Summer Street and provides access to Arlington High School.

- **Park Avenue.** Park Avenue, including Park Avenue Extension, is classified by MassDOT as an urban minor arterial, running north-south between the extension's intersection with Forest Street to the north and the intersection of Route 2 at the Belmont line to the south. Park Avenue generally consists of one travel lane in each direction, and it crosses over the Minuteman Bikeway approximately 250 feet south of its intersection with Lowell Street/Westminster Avenue/Bow Street at Downing Square.

The primary east-west routes through Arlington include Route 2, Massachusetts Avenue, Broadway, Mystic Valley Parkway, Summer Street, and Gray Street. The primary north-south routes include Route 16, Lake Street, Route 60, Mystic Street, Jason Street, Mill Street, Highland Avenue, Park Avenue, and Appleton Street.

Route 2A/Route 3 and Route 60, plus the Minuteman Bikeway, intersect in Arlington Center, creating a congested intersection with high volumes of vehicular, bicycle, and pedestrian traffic. The intersection of Massachusetts Avenue/Route 16, located in Cambridge approximately 100 feet east of the Arlington town line, is a major intersection that often imposes significant congestion to vehicles entering or exiting Arlington via Route 2A. Other key minor arterial roadways in Arlington include Massachusetts Avenue (west of Mystic Street) and Broadway.

COLLECTOR ROADS

LOCAL ROADS

Most roads in Arlington are classified as local roads that provide access to abutting land, with less emphasis on mobility. Nearly 90 miles (and 75 percent) of the roads in Arlington are functionally classified local roads and fall under the Town's jurisdiction. Roadways owned by MassDOT or DCR are not included in the total mileage of accepted or unaccepted town roads.

- **Accepted Town Roads.** In total, Arlington has about 102 miles of town-accepted roads, which means the Town has accepted a layout of the street and owns the road in fee. By accepting the street, the Town takes responsibility for maintaining it.

- **Unaccepted Roads.** Arlington has an additional 22.77 miles of unaccepted streets, also known as private ways. An unaccepted street is owned in fee by those who use the way to access their properties. Private ways can be private by choice of the owners, but sometimes they remain unaccepted because they do not meet local standards for roadway construction. As a matter of policy, Arlington plows private roads during the winter, but the owners remain responsible for road maintenance. Many of them are in deteriorated condition.

SIGNALIZED INTERSECTIONS

Arlington has a total of thirty-five traffic signals within its borders (Table 3.2 and Fig. 3.2). When properly designed and supplemented with other necessary traffic control devices, e.g., signs and pavement markings, traffic signals improve safety and facilitate traffic flow by assigning right-of-way at intersections. Most traffic signals in Arlington fall within the Town's jurisdiction, but MassDOT and the Department of Conservation and Recreation (DCR) have jurisdiction over some of them. Typically, the Town of Arlington has jurisdiction if it controls one or more of the roadways at an

intersection, e.g., a state highway or another major arterial. A signal may be under DCR jurisdiction if located within or near DCR land.

Table 3.2. Inventory of Signalized Intersections by Jurisdiction

Intersection	Jurisdiction	Intersection	Jurisdiction
Lake Street/Route 2 WB Ramps	MassDOT	Pleasant/Irving	Town
Park Ave./Frontage Road D (North Side)	MassDOT	Summer/Mill Street/Cutter Hill Rd.	Town
Pleasant/Frontage Road D (North Side)	MassDOT	Broadway/Bates/Warren/River	Town
Route 2A (Summer)/Overlook/Ryder	Town	Broadway/Franklin	Town
Route 2A (Summer)/Park Ave. Extension	Town	Park Ave./Florence Ave.	Town
Route 2A (Summer)/Forest	Town	Mystic/Columbia/Kimball	Town
Mass. Ave./Brattle Street	Town	Broadway/Oxford Street/N. Union	Town
Mystic/Summer/Mystic Valley Pkwy	Town	Mass. Ave./Shoulder Ct/Lockeland Ave.	Town
Mass. Ave./Lake Street/Winter	Town	Mass. Ave./High School Drive	Town
Mass. Ave./Pleasant/Mystic	Town	Mystic/Chestnut	Town
Mass. Ave./Broadway	Town	Medford Street/Warren	Town
Mass. Ave./Swan Place (Proposed)	Town	Appleton St./Appleton Place/Mass. Ave.	Town
Route 2A (Summer)/Brattle/Hemlock	Town	Lake/Brooks Ave.	Town
Mass. Ave./Park Ave.	Town	Mass. Ave./Jason/Mill	Town
Mass. Ave./Linwood/Foster	Town	Mass. Ave./Franklin	Town
Gray Street/Highland Ave.	Town	Lake Street/Route 2 E Exit 60	MassDOT
Broadway/Cleveland	Town	Mystic Valley Pkwy/River/Harvard Ave.	DCR
Mass. Ave./Thorndike/Teel	Town	Mass Ave./Route 16*	MassDOT

Source: Boston Regional Municipal Planning Organization (CTPS).

*Massachusetts Avenue/Route 16 is located in Cambridge, just 100 feet east of the Arlington Town Line and it has a significant impact on traffic operations in East Arlington.

2. Traffic Volumes and Trends

Traffic Data. MassDOT maintains permanent count stations on some of Arlington's roadways. The MassDOT Count Book provides volume count data up to the year 2009, though data availability varies by count location. Arlington traffic volumes recorded from 2006 to 2009 (the most recent years available) are shown in Table 3.3 and Appendix 1, along with counts taken in the surrounding towns.[2] The traffic counts indicate that volumes on certain arterial roadways in and around Arlington have decreased in the last few years, due to increases in walking, cycling, and telecommuting to work. Outside the permanent count stations, MassDOT has also collected traffic counts on a variety of roadways to monitor traffic volumes where reconstruction or intersection improvements may be planned in the future. (Appendix 2).

[2] Vision 2020 also collects local traffic volume counts in some years. Traffic counts were not collected in Arlington from 2003 to 2005.

Congestion. During peak commuter periods, many of Arlington's roads and intersections experience significant congestion. This occurs due to volume that exceeds roadway or intersection capacity at those times. There is significant morning peak-period congestion on Massachusetts Avenue approaching the intersection of Route 16/Alewife Brook Parkway due to heavy delays at that signalized intersection. Delays at the intersection of Massachusetts Avenue/Route 16 can cause peripheral congestion at upstream roadways and intersections in Arlington; according to T own officials, traffic often backs up on Lake Street due to congestion at the intersection with Massachusetts Avenue. The intersection of Massachusetts Avenue/Mystic Street/Pleasant Street, located at the heart of Arlington Center, also experiences peak-period congestion; this congestion continues along Mystic Street to Chestnut Street and along Pleasant Street to Route 2. Other intersections that experience peak-period congestion include Route 2 at Lake Street and at Alewife Brook Parkway, Park Avenue at Massachusetts Avenue and at Downing Square/Lowell Street in Arlington Heights, and Broadway at River Street and Warren Street.

According to Town officials, there is typically substantial congestion on north-south cross-streets, including Pleasant Street, Jason Street, Park Avenue, Highland Avenue, Mill Street, and Lake Street, in part due to motorists traveling between east-west routes such as Route 93, Route 2, and Route 2A.

According to the TAC, congestion often occurs on Mill Street and Lake Street near their intersections with the Minuteman Bikeway. The intersection of Mill Street and the Minuteman Bikeway is located less than 200 feet south of Summer Street (Route 2A). Pedestrian and bicycle traffic crossing Mill Street can reduce the efficiency of the Summer Street/Mill Street signal and cause congestion on Mill Street. The intersection of Lake Street and the Minuteman Bikeway is located approximately 200 feet west of the signalized intersection of Lake Street/Brooks Avenue. Similar to the Minuteman Bikeway's crossing at Mill Street, users of the Minuteman Bikeway crossing Lake Street can create inefficiency at the signal at Lake Street/Brooks Avenue, resulting in additional congestion on Lake Street.

TAC members also speculated that additional development in Cambridge and Belmont may cause additional congestion along Route 2, Route 16, Lake Street, and Massachusetts Avenue in East Arlington.

3. Pedestrian and Bicycle Facilities

Sidewalks. Arlington has an extensive sidewalk network that provides safe and convenient travel for pedestrians. All of the town's major corridors have sidewalks and all but a few neighborhoods have sidewalks as well. According to a 2003 study, areas with limited sidewalks are primarily in the northwest part of town (Turkey Hill neighborhood), areas around Ridge Street and the Stratton School, and in the southwest areas of Little Scotland and Poets Corner. In addition to these neighborhoods, private ways generally lack sidewalks, according to T own officials. In the older neighborhoods, a planting strip with mature trees usually separates the sidewalks from the travel lane, thus giving shade and safety to pedestrians. Business owners and residents are required to clear snow from sidewalks adjacent to their property.

Along Massachusetts Avenue and Broadway, there are several wide sidewalk segments that support outdoor dining and provide pedestrian amenities. However, both corridors also have extensive curb cuts in some locations. This significantly reduces the pedestrian environment and presents a safety concern. The Town has flashing beacons that improve pedestrian safety at the following intersections:

- One double flashing yellow signal at intersection of Massachusetts Avenue and Forest Street
- One four-way flashing red traffic signal at intersection of Gray Street and Jason Street
- One flashing beacon at Downing Square facing southbound on Park Avenue
- Four rapid flashing yellow LED beacons at Mill Street and the Minuteman B ikeway
- One signal on Park Ave. at the fire station
- Permanent speed sign on Park Ave Ext. [Peirce School]
- One three-way flashing red at Dow Avenue and Frontage Road
- One pair of flashing school speed zones on Eastern Avenue at the Brackett School and one on Fayette Road
- Four driver feed-back signs in Forest Street, Park Ave. Ext. at Peirce School, North Union St. at Thompson School, and ??? (fourth sign??).

The Arlington Transportation Assessment Study (2002) reported the condition of sidewalks in most areas of town as generally good or fair. At the time, only a few streets were found to have poor sidewalks. However, sidewalk conditions in some areas appear to have deteriorated since the study was completed.

As part of the Safe Routes to School program, traffic calming measures, crossing improvements, and sidewalk improvements were implemented in the vicinity of the Dallin Elementary School. New sidewalks and curbing were added along Renfrew Street and George Street. Additional accessible ramps have been added to some crosswalk locations throughout Arlington in recent years; however, the Arlington Disability Commission has frequently expressed concerns about the conditions of sidewalks, particularly the brick sidewalks that can heave and become dangerous for the elderly and those in wheelchairs.

The Arlington Department of Public Works (DPW) prioritizes and constructs or repairs sidewalks and accessible ramps each year. According toTtown officials, new sidewalks will be constructed on areas of Gray Street where there are currently none provided in 2014 and 2015.

Pathways. The Minuteman Bikeway is an 11-mile shared-use path that provides a dedicated facility for pedestrians and bicyclists to travel through Bedford, Lexington, Arlington, and into Cambridge. It extends over three miles in Arlington in a west-to-east direction, connecting many important town parks, recreational areas, and cultural/historic sites, including: the Arlington Reservoir/Hurd Field, Old Schwamb Mill, the Summer Street Sports Complex/Ed Burns Arena,

Wellington Park, Buzzell Field, Dallin Museum/Whittemore Park, Spy Pond Park and field, and the Thorndike/Magnolia Fields. The Minuteman Bikeway provides a convenient intermodal connection to Alewife Station and the MBTA Red Line, and serves as a primary route for cyclists commuting to and from the Boston area. It connects to numerous paths and trails, including the Alewife Linear Park/Somerville Community Path, the Fitchburg Cut-off Path, the Alewife Greenway, the Narrow-Gauge Rail-Trail, and the Reformatory Branch Rail-Trail. The Minuteman Bikeway runs roughly parallel to Massachusetts Avenue and provides connections to the town's major business districts in Arlington Heights, Arlington Center, and East Arlington.

Bike Facilities. According to bicycle network maps from the Arlington Bicycle Advisory Committee,[3] Arlington has bicycle lanes or wide shoulders on portions of Massachusetts Avenue, Mystic Valley Parkway, and Park Avenue. The Town evaluates all major roadways for bike lane appropriateness whenever they are resurfaced. Shared lane markings, or "sharrows", are provided on some roadways, including portions of Massachusetts Avenue.

Table 3.4.1 shows bicycle counts from 2009, 2010, and 2011 at three locations. The 2009 counts were conducted on Massachusetts Avenue at Linwood Street and Foster Street, approximately 0.2 miles east of Arlington Center. The 2010 and 2011 counts were conducted over 2-hour peak periods on Massachusetts Avenue at Teel Street and on the Minuteman Bikeway at Route 2, just west of the Cambridge Town Line and Alewife Station. In 2011, counts were also conducted on the Minuteman Bikeway at Swan Place, just east of Arlington Center. Due to the different count locations and count durations, the 2009 data should not be directly compared to the 2010 and 2011 data.

Table 3.4.1 Bicycle Counts in Arlington

	Weekday Morning Peak		Weekday Evening Peak		Saturday Midday Peak	
Location/Date	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
Massachusetts Avenue						
2009 at Linwood Street	--	--	56	31	25	32
2010 at Teel Street	99	37	55	153	--	--
2011at Teel Street	121	40	50	137	--	--
Minuteman Bikeway						
2010 at Route 2		411		434		--
2011at Swan Place		316		209		--
2011at Route 2		317		380		--

Source: Town of Arlington (2009 data); East Arlington Livable Streets Coalition (2010/2011 Data)

[3] N.B. The Arlington Bicycle Advisory Committee (ABAC) was appointed by the Board of Selectmen in 1996 to advise the Town on local bicycling conditions. The committee promotes all forms of safe bicycling on town roadways and the Minuteman Bikeway, from recreational riding to using the bicycle for transportation and errands.

While bicycle traffic appears to have decreased on the Minuteman Bikeway at Route 2 from 2010 to 2011 based on Table 3.4.1 above, it should be noted that weather conditions may have hindered ridership on the date of the 2011 counts. While the 2010 counts on the Minuteman Bikeway were done on a day where the weather was consistently sunny and temperatures were in the 1970s, the 2011 counts were done on a day that was overcast, with cooler temperatures and a threat of rain. This may explain the difference in ridership along the Minuteman Bikeway from 2010 to 2011.

Bicycle volumes along Massachusetts Avenue at Teel Street, which were counted on warm, sunny days in both 2010 and 2011, were relatively consistent; volumes in the morning peak period were greater in 2011 than in 2010, but volumes in the evening peak period decreased slightly in 2011 compared to 2010.

Table 3.4.2 Minuteman Bikeway User Counts and Comparisons, 2011-2013

At Swan Place, Minuteman Bikeway, Arlington, MA

Month/Yr2	Child in Carrier[1]	Bicyclist	Jogger	Blader (Skater)	Walker	Wheel Chair User	Others	Total People
Saturday								
May 2011	55	892	304	18	498	-	-	1,765
Sept. 2011	139	2,112	375	40	781	4	11	3,462
July 2012	103	2,257	316	28	555	4	6	3,269
May 2013	52	607	343	1	486	2	2	1,493
July 2013	102	1,854	424	11	746	-	9	3,146
Sept. 2013	174	1,782	521	14	695	3	26	3,215
Tuesday								
May 2011	50	527	89	5	374	-	1	1,040
July 2011	40	972	75	13	416	-	4	1,520
Sept. 2011	61	1,343	174	16	663	2	5	2,264
July 2012	44	935	159	4	424	2	3	1,571
May 2013	101	1,040	227	5	641	-	6	2,020
July 2013	73	1,157	188	7	615	-	9	2,040
Sept. 2013	87	1,104	178	9	451	1	4	1,834

[1] Child in Carrier refers to any number of children in a carrier that is pushed or pulled by another individual; the children are counted separately from the individual that is pushing or pulling the carrier, who is also counted

2. Weather conditions varied

Table 3.4.2 indicates a breakdown of Minuteman Bikeway users between 2011and 2013 at Swan Place in Arlington. While the total users fluctuated (possibly due to variable weather conditions) the number of bicyclists typically amount to 50 to 60% of all trail users.

Scenic Byways. The Battle Road Scenic Byway is a federally designated Scenic Byway that runs from Alewife Brook Parkway (Route 16) in East Arlington, along Massachusetts Avenue through Arlington, Lexington, Lincoln, and Concord. This Byway follows the approximate route of British regulars in April 1775 that preceded the Battle of Lexington and Concord and sparked the beginning of the American Revolution.

4. Parking Facilities

Arlington Center. In May 2013, Arlington's Transportation Advisory Committee (TAC) conducted a parking study in Arlington Center to determine where and when parking demand is highest. The study identified a total of 565 on- and off-street public parking spaces (Table 3.5). This includes on-street spaces on Massachusetts Avenue between Academy Street/Central Street and Franklin Street; Broadway between Franklin Street and Alton Street; Alton Street south of Belton Street; Medford Street south of Compton Street (St. Agnes Church); Pleasant Street between Massachusetts Avenue and Maple Street/Lombard Road; and Swan Street. The off-street public parking inventory includes Broadway Plaza, the Library Parking Lot, Russell Common Municipal Lot, and the Railroad Avenue Lot. In addition to the available public parking spaces, there is also a significant amount of private parking in and around Arlington Center. These parking spaces are used by employees and visitors to the approximately 365,000 square feet of businesses in Arlington Center.

Table 3.5. Arlington Center Parking Inventory

Type of Space	On Street	Public Lots	Total
15 Minute	5	0	5
One Hour	103	0	103
Two Hour	63	0	63
Three Hour	0	208	208
Permit	0	123	123
Unrestricted	38	0	38
Handicap	4	15	19
Taxi	4	0	4
Zipcar*	0	2	2
Total	217	348	565

Source: Arlington Transportation Advisory Committee Study. May 20, 2013

The study concluded that weekday parking demand peaks at 1:00 p.m., when most on-street spaces are occupied but spaces are generally available in the public three-hour parking lots; and at 6:00 p.m., when on-street parking and the public lots approach capacity. On Saturdays, demand for on-street parking exceeds capacity and the public lots approach capacity at the midday peak of 11:00 a.m. At the evening peak period, 7:00 p.m., the on-street spaces are near capacity while the public lots have some parking availability. The study identifies strategies to maximize the efficiency of available public parking, such as improving wayfinding signage and internal signage and converting all on-street spaces to two-hour spaces.

East Arlington. According to a recent parking inventory,[4] the East Arlington commercial center has approximately 945 parking spaces, including approximately 250 privately owned off-street

[4] Walker Parking Arlington Commercial Development Plan Strategies Assessment Phase II - East Arlington Supplement, October 29, 2009, Larry Koff & Associates, Todreas Hanley Associates, Walker Parking Consultants.

parking spaces at the Crosby School, Cambridge Savings Bank (180 Massachusetts Avenue), Summit House, Trinity Baptist Church, and others. These privately-owned spaces are not available for use by the general public. In addition to private spaces, there are roughly 600 on- street parking spaces on side streets located within walking distance of the commercial center. Ninety-six on-street parking spaces along Massachusetts Avenue are designated for customers, but many are occupied by employees, leaving fewer convenient spaces for customers. These 96 spaces are the only spaces in the district that are intended for customer use. The 945 total spaces are used by approximately 103,000 square feet of residential and commercial uses in East Arlington. In 2010, the TAC worked with business owners and employees in East Arlington to prepare a "Where to Park" guide to help preserve the best on-street parking spaces for business customers.

Arlington Heights. Parking supply for Arlington Heights was estimated using aerial imagery. Approximately 200 parking spaces were identified along Massachusetts Avenue between Drake Road and Appleton Street, and an additional 33 parking spaces on Park Avenue between Paul Revere Road and the Arlington Coal and Lumber driveway. On-street spaces are typically two-hour parking, with some spaces designated as handicap parking or taxi stands. There are approximately 525 off-street parking spaces, primarily located behind or adjacent to private properties along Massachusetts Avenue and Park Avenue. The combination of the on-street and off-street parking spaces equal a total of approximately 758 parking spaces.

Arlington Heights includes approximately 422,000 square feet of development. The individual parking demand of the individual homes, businesses, and other land uses is 969 spaces; however, Arlington Heights is a mixed-use area with a large variety of land uses. The mixed-use nature of the neighborhood allows for visitors to the area to make multiple trips and for nearby residents to walk to nearby businesses without driving. The variety of businesses in Arlington Heights means that the peak demand for each business is not likely to occur at the same time; for example, a restaurant would not have the same peak demand time as a medical office, and parking spaces can be "shared" between these two land uses.

Parking Rules and Regulations. Arlington typically restricts parking on major roadways to two hours, but in some areas it is restricted to one hour or less. On residential streets, daytime parking is typically unrestricted. Overnight parking is not permitted except by special permit.

Arlington's zoning imposes flexible off-street parking and loading requirements for residential and business districts, with alternatives to providing all spaces on the site. The off-street parking regulations in Section 8.01 are adequate for typical commercial uses in the business districts, e.g., one space per 300 gross sq. ft. of retail floor area, one space per four seats in a restaurant, and one space per 500 gross sq. ft. of office floor area. The regulations provide for shared parking between adjacent uses and modified off-street parking requirements if enough satellite parking can be secured within 600 feet or if adequate public parking is available within 1,000 feet. In addition, the regulations include basic design standards such as restricting parking and driveways in front of buildings, landscaping and paving standards, and bicycle parking in developments subject to Environmental Design Review.

Zipcar. Zipcar is a car rental company that specializes in short-term rentals, ideal for households that do not own a car. Zipcar charges an annual fee, plus an hourly charge for each rental, depending on the desirability of the vehicle to be rented. According to Zipcar's website, there are eight Zipcar locations in Arlington which contain a total of fourteen Zipcars. The Zipcar stations are primarily located along Massachusetts Avenue and are more concentrated in East Arlington, close to the Cambridge city line. While Zipcar will not replace a personal vehicle in most households, it does allow residents who cannot or choose not to own a personal vehicle to make periodic regional trips.

5. Traffic Safety

VEHICLE, PEDESTRIAN, AND BICYCLE ACCIDENTS

According to MassDOT, a total of 1,664 crashes occurred in Arlington between 2008 and 2010, or an average of 13.8 crashes per mile. These figures are per roadway mile, not vehicle miles traveled, so it is reasonable to expect a higher ratio in communities that experience heavier traffic volumes such as Arlington. Of the 1,664 crashes reported by MassDOT, 37 (2.2 percent) involved pedestrians, and 57 crashes (3.7 percent) involved cyclists. A significant portion of crashes involving pedestrians occurred around Arlington Center. Most crashes involving bicycles occurred along Massachusetts Avenue. Of the total crashes, 294 (17.7 percent) resulted in personal injury.

MassDOT lists the intersection of Massachusetts Avenue/Mystic Street/Pleasant Street in Arlington Center in its most recent 200 Top Crash Locations Report (September 2012). The intersection was ranked 95, with 68 total crashes from 2008-2010, including 55 property damage- only crashes and 13 injury crashes. The Arlington Safe Travel Project (MassDOT Project #606885) aims to reduce the number of crashes of all types within Arlington Center.

The Town of Arlington Police Department identifies high crash location "hot spots" each year to help show where the most crashes have occurred within the town. These "hot spots" are mapped in Figure 3.3. The "hot spots" identified for 2013 include:

- Arlington Center;
- Route 60 at Mystic Valley Parkway;
- Pleasant Street at Gray Street;
- Mystic Street at Summer Street;
- Massachusetts Avenue at Forest Street;
- Massachusetts Avenue at Park Avenue;
- Massachusetts Avenue at Paul Revere Road; and
- The length of Massachusetts Avenue in East Arlington.

After a high number of fatal pedestrian crashes in the 1990's, the Town placed a greater emphasis on pedestrian safety, including more visible marked crosswalks and more enforcement.

SAFE ROUTES TO SCHOOL

Arlington was one of the first two towns in the country to start a Safe Routes to School program. All of the elementary schools and the Middle School participate in the program. Each school has assessed walking routes and made some safety improvements, and promotes walking to school.

Dallin Elementary School was selected by the state as a pilot site for the Safe Routes to School program. In October 2011, the Town of Arlington and MassDOT completed access and safety improvements for pedestrian and bicycle access to Dallin Elementary School using Safe Routes to School funds. The project introduced infrastructure enhancements to slow traffic and upgrade crosswalks and sidewalks. It also added new crosswalks across roadways where no crossings previously existed.

A Safe Routes to Schools Task Force was formed, including representatives from each participating school, the Arlington Police Department, Arlington Public Schools Health and Wellness Department, and the Arlington Transportation Advisory Committee. The Safe Routes to School task force organizes Walk/Bike to School Days, pedestrian safety training, and other walking and biking events at all of the participating schools. Due to the neighborhood locations of the elementary schools and the Safe Routes to School program, school buses are not needed at any of the elementary schools except for Bishop School. Students who are not able to walk or ride a bicycle to schoo, may be able to take MBTA buses. If not, they are usually dropped off in a car. The continuing use of vehicle transportation creates congestion around schools in the morning and mid-afternoon.

Winter Snow/Ice Removal. The Town of Arlington's Department of Public Works and its subcontractors plow all roadways within the town, as well as the Minuteman Bikeway. Residents and business owners are responsible for clearing the sidewalks adjacent to their properties, and the MBTA is responsible for clearing snow and ice from bus stops.

6. General Travel Patterns and Modal Splits

Household Travel Patterns. Modal split describes the percentage of trips that are made by each of the different transportation modes, e.g., driving alone, driving with others (i.e., carpooling), public transit, walking, bicycling, etc. Arlington households have an average of 2.24 people per household and 1.46 vehicles per household, according to the 2006-2010 American Community Survey. This means about one vehicle per 1.5 people in every household, which is lower than the regional average and consistent with the high level of commuting by public transit and bicycle.[5] Thirty-nine percent of Arlington's commuters work in Boston and Cambridge, and 80 percent of these commuters live within one-quarter mile of a bus stop; a distance largely accepted as the

[5] CTPP Profile of Arlington (Socio-Demographic Data and Transportation Mode Shares)

maximum a person will walk to public bus service. Forty percent of Arlington residents who commute to Cambridge or Boston use bus transit, yet 49 percent drive alone.[6]

Table 3.6: Top Communing Destinations for Arlington Residents

Commute Destination	Avg. Commute	Census 2000	ACS 2006-10	% Change
1. Boston	27 minutes	5,095	4,942	-3.0%
2. Cambridge	21 minutes	4,048	4,262	5.3%
3. Arlington	N/A	3,450	3,640	5.5%
4. Lexington	12 minutes	849	932	9.8%
5. Burlington	19 minutes	753	821	9.0%
6. Waltham	18 minutes	1,177	769	-34.7%
7. Medford	14 minutes	428	643	50.2%
8. Somerville	21 minutes	602	603	0.2%
9. Woburn	16 minutes	370	489	32.2%
10. Newton	29 minutes	544	468	-14.0%

Source: U.S. Census Bureau, Census Transportation Planning Package (CTPP).

Commuting to Work. The top destinations for Arlington commuters are Boston and Cambridge (Table 3.6). Nevertheless, the percentage of residents who work within the Town of Arlington is substantial and it increased between 2000 and 2010. Additionally, fewer Arlington residents commuted to Boston in 2010 than in 2000, and more residents commuted to Cambridge, Lexington, and Medford as well as within Arlington. This trend is coupled with a relatively constant population in Arlington between 2000 and 2010.

Table 3.7: Place of Residence for Arlington Employees

Commute Origin	Commute Time	2000 Census	2012 ACS	% Change
1. Arlington	N/A	3,450	3,640	5.5%
2. Boston	22 minutes	394	537	36.3%
3. Cambridge	18 minutes	286	483	68.9%
4. Medford	14 minutes	279	480	72.0%
5. Somerville	17 minutes	432	433	0.2%
6. Lexington	15 minutes	175	319	82.3%
7. Woburn	16 minutes	172	270	57.0%
8. Lowell	28 minutes	57	220	286.0%
9. Waltham	18 minutes	134	214	59.7%
10. Belmont	9 minutes	161	164	1.9%

Source: U.S. Census Bureau, Census Transportation Planning Package (CTPP).

[6] CTPS Report on Alewife Feeders from Arlington (2009), http://www.ctps.org/Drupal/data/pdf/studies/highway/alewife/Improvements_MBTA_Feeder_Bus_Routes. pdf

Of the people who work in Arlington each day, far more live in Arlington than any other community (Table 3.7). Arlington residents make up about 37 percent of all employees of local establishments. Between 2000 and 2010, the number of Arlington residents working in Arlington increased 5.5 percent, but the number of employees commuting from Boston, Cambridge, Medford, and Lexington also rose significantly, which suggests that Arlington experienced net job growth in the past ten years.

Commuting Time. On average, Arlington workers spend 22 minutes commuting to work. Workers with commutes to places in Lexington, Waltham, and Medford have shorter-than- average commutes because of proximity and the ability to choose less congested routes. Workers commuting to Boston or Newton experience higher-than-average commutes due to congestion or, in the case of Newton, the need to take local roads instead of high-capacity arterials.

Means of Travel. The percentage of Arlington residents who drove to work alone decreased slightly between 2000 and 2010, but it still represents about two-thirds of Arlington's employed labor force (Table 3.8). The percentage of residents using carpools and public transportation also decreased. However, more Arlington residents walked or cycled to work in 2010 than in 2000. In fact, the percentage of bicycle commuters more than doubled, from 225 (0.9 percent) in 2000 to
489 (2.1 percent) in 2010. A higher percentage of Arlington residents also work at home in 2010 compared with 2000.

Table 3.8: Means of Transportation to Work

Means of Transportation	Census 2000	%	ACS 2006-2010	%
Drove alone	16,035	67.6%	15,437	66.5%
2-person carpool	1,335	5.6%	1,158	5.0%
3+ person carpool	290	1.2%	251	1.1%
Public Transportation	4,205	17.7%	3,887	16.7%
Bicycle	225	0.9%	489	2.1%
Walk	430	1.8%	552	2.4%
Taxi, motorcycle, other	79	0.3%	157	0.7%
Work at Home	1,115	4.7%	1,296	5.6%
Total	23,715	100.0%	23,277	100.0%

Source: U.S. Census Bureau, CTPP.

Note. The percentages represented in Table 3.8 reflect the longest single mode used when commuting to work, and do not reflect the shorter legs of a multi-modal commute. For example, a person who rides a bike to Alewife Station, then commutes to Downtown Crossing, will be counted as a transit trip, and not a bicycle trip.

Public Transportation. According to the American Community Survey, 3,887 Arlington residents, or 16.7 percent of the population, commuted to work using public transit each day. The primary means of public transit in Arlington is MBTA bus service. The Alewife MBTA Station (Red Line) is not in Arlington, but is a short bus trip, drive, walk, or bike ride for many residents.

- **Bus Transit.** Eleven MBTA bus routes run through Arlington. Most connect to the Red Line via Alewife Station (#79, #78, #80, and #84 buses) or Harvard Station (#77 and #78 buses). The #80, #84, and #87 buses connect to the Green Line at Lechmere Station; the #87 bus also connects to Davis Square, a Red Line MBTA station. From Lechmere, the Green Line provides connections to Downtown Boston, Brookline, Allston, Brighton, and Newton, and other neighborhoods. The Green Line is planned to be extended beyond Lechmere Station and if extended all the way to Route 60/Mystic Valley Parkway will provide access to the Green Line within one mile of the northeast corner of Arlington. The #77 bus provides the most frequent service to Cambridge via Mass. Ave. and to the MBTA Red Line at Porter Square, leaving Arlington Heights with peak hour weekday service approximately every eight minutes and weekend service approximately every ten minutes. The #350 bus runs between Alewife Station and locations in Burlington, a major employment and retail center serving Arlington. Some of the bus routes from Arlington provide limited service during off-peak hours.

  The Battle Road Scenic Byway Corridor Management Plan, released in May 2011, identified six bus routes that traveled along the Battle Road Scenic Byway and included typical weekday daily boarding information. The typical number of daily boardings for the #62, #67, #76, #77, #79, and #350 bus routes is shown in Table 3.9 below.

Table 3.9. Typical Boardings on Bus Routes through Arlington

MBTA Bus Route	Municipalities Served	Typical Daily Inbound Boardings (Weekday)	Typical Daily Outbound Boardings (Weekday)	Typical Daily Total Boardings (Weekday)
#62	Lexington, Arlington	502	620	1,122
#67	Arlington	331	186	517
#76	Lexington, Lincoln	284	342	626
#77	Arlington	3,274	3,277	6,551
#79	Arlington	579	516	1,095
#350	Arlington	331	186	517

Source: MassDOT Road Inventory Year End Report, 2012.

Note: Table 3.9 does not encompass all of the bus routes available to Arlington residents, just the ones listed by the Battle Road Scenic Byway Corridor Management Plan.

Town officials noted that bus routes through Arlington are often delayed and have irregular headways due to congestion along Mass. Ave. and around Alewife Station, including the intersection of Massachusetts Avenue/Route 16 in Cambridge. Riders experience frustration from "bus bunching" that exacerbates delays. The causes of most delays are outside the purview of the Town of Arlington; however, many Arlington commuters are impacted by these delays.

- **Rapid Transit (Subway).** There are no rapid transit stations in Arlington, but the Alewife Station in Cambridge is only two miles southeast of Arlington Center and 1,000 feet southeast of the Arlington town line. Alewife Station is a terminal station on the MBTA Red Line,

which connects with Somerville, Cambridge, Downtown Boston, South Boston, Quincy, Braintree, and other neighborhoods.

- **The Green Line extension**, which is scheduled to be completed in 2019, terminates at College Avenue in Medford. TAC members stated that the Town of Arlington supports a continuation of the Green Line Extension to Route 16 at Boston Avenue in Medford, which would provide Arlington residents and workers a connection with the MBTA Green Line just 0.25 miles east of the Arlington town line.

- **Commuter Rail**. Arlington residents have access to the commuter rail at MBTA stations in Belmont, Winchester, Cambridge, and Medford. The commuter trains running through these stations connect to North Station in Boston, which provides connections to the MBTA Green Line and Orange Line. The Fitchburg/South Acton line also connects with the MBTA Red Line at Porter Square in Cambridge.

- **Inter-City Bus Service**. Inter-city bus transportation is available at Alewife Station. Go Buses run between Alewife Station/Riverside Station and 8th Avenue in New York City approximately eight times per day.

- **Para-transit Services**. Several transportation options exist for senior citizens and people with disabilities. The Arlington Council on Aging (COA) offers Dial-a-Ride Taxi (DART) service for Arlington seniors age 62 or older, income-eligible seniors 60-62 years, and residents with disabilities. The service costs $15 per year and $3 per one-way trip. According to Arlington's 2011 Vision 2020 Annual Survey, 2.7 percent of those surveyed used the DART service and 38.1 percent of seniors know about it but have not used it. The COA also operates a Senior Center Van, a Medical Appointment Van, and medical escort services. The Ride is a para-transit service provided by the MBTA that offers door-to-door shared-ride transportation for eligible people who cannot access fixed-route transit because of physical, cognitive, or mental disability. It is available 365 days per year from 5:00 a.m. to 1:00 a.m. in 60 cities and towns, including Arlington. Fares are $3 one-way as of January 6, 2014.

E. ISSUES AND OPPORTUNTIES

At the World Café in October 2012 and community meetings in June 2013, Arlington residents identified congestion and pedestrian access and safety as significant transportation issues. Many participants were concerned that traffic congestion was having a negative impact on business development, pedestrian and bicycle safety, and transit efficiency. Through follow-up meetings with Arlington town officials, including members of Transportation Advisory Committee (TAC), Planning and Community Development, Engineering Division, Police Department, and Department of Public Works, several transportation challenges, opportunities, and potential improvements were identified. The following is a list of issues and opportunities which is also illustrated in the Transportation Issues and Opportunities Map, shown in Appendix 3.

1. Traffic Congestion

Traffic congestion can be a significant negative factor to both personal productivity and a community's economic health. Traffic congestion occurs when the demand placed on a

transportation facility exceeds its capacity. This can happen for many reasons, both recurring and nonrecurring. Nonrecurring congestion usually responds to random events such as crashes and inclement weather. Recurring congestion is often the result of a fundamental lack of roadway or intersection capacity.

Although the concept of transportation goes far beyond automobiles, the conversation invariably comes back to traffic, congestion, and cars. When asked about key issues in Arlington today, residents participating in community meetings and interviews for the master plan process were nearly unanimous: traffic, circulation, and parking.

LOCAL AND REGIONAL CONGESTION CONTRIBUTORS

Several local and regional factors have been identified as contributing to traffic congestion in Arlington such as the following:

- Local commuting patterns contribute to overall congestion. Arlington generally has lower commute times, higher use of public transit and nonvehicle means of travel, and less daily mileage per household than its neighbors to the west. However, commuters to and from Arlington are still likely to be driving alone to work.
- Traffic congestion near most schools during school peak hours results from parent pick-ups or drop-offs of students. .
- North-south arteries in Arlington often experience traffic congestion as a result of congestion on primary east-west corridors including Massachusetts Avenue, Broadway, and Route 2.
- Although Alewife MBTA Station is in Cambridge, bus and car congestion at the station causes peripheral delays for MBTA bus routes through Arlington.
- Congestion along Route 16 causes bottlenecks at key intersections and back-ups on Massachusetts Avenue and Broadway.
- Existing and anticipated new development in Cambridge, Somerville, and Belmont will likely contribute to increased traffic congestion in Arlington.

MASSACHUSETTS AVENUE CORRIDOR AND INTERSECTIONS

- **Western Segment** – There is generally slow traffic related to congestion along the varied one- and two-lane sections of Massachusetts Avenue west of Arlington Center. Congestion on **Park Avenue** at the intersection of Massachusetts Avenue is due to the lack of a protected left-turn phase onto Massachusetts Avenue. This has been identified as a safety issue for both drivers and pedestrians.
- **Central Segment** – Congestion in Arlington Center is largely attributable to Pleasant Street/Mystic Street back-ups at the intersection with Massachusetts Avenue, which are being addressed by the **Arlington Center Safe Travel project** (MassDOT Project #606885). The project will also provide a safer link to the Minuteman Bikeway, which is currently divided by this intersection. In addition, it will improve traffic operations and pedestrian safety by shortening crosswalk lengths, coordinating signals, increasing turning lane storage, and adjusting signal timing. The project is currently on the TIP for 2014.

- The **Massachusetts Avenue/Jason Street/Mill Street intersection** is another congested intersection near Arlington Center. Jason Street is not designed to handle the amount of commuter traffic it is carrying. The redesign of this intersection is underway and will include lane reconfiguration and signal improvements to address the high crash rate at the intersection. The **Water Street intersection** poses another pedestrian safety issue as there is no traffic signal and high pedestrian volume due to its proximity to the Library, Town Hall, businesses, and restaurants.

- **Eastern Segment** - Congestion on Massachusetts Avenue in East Arlington during the morning peak hour is primarily due to inadequate capacity at the intersection of Massachusetts Avenue and Route 16 in Cambridge. The **Massachusetts Avenue Rebuild Project** (MassDOT Project #604687) will reconstruct the corridor between the Cambridge city line and Pond Lane, a distance of about one mile. This project will improve pavement conditions and mobility for vehicles, pedestrians, and bicyclists by improving traffic signal timing. It will also enhance safety and streetscape conditions in East Arlington, and improve the Lake Street intersection capacity. The Massachusetts Avenue Rebuild Project is on the Transportation Improvement Plan (TIP) for 2013.

PLEASANT STREET CORRIDOR

Congestion on the Pleasant Street corridor between Massachusetts Avenue and Route 2 may be attributed to intersection limitations at both ends of the corridor.and a heavy demand for travel between the two east-west roadways. Capacity limitations in the AM southbound and PM northbound directions are particularly evident along the corridor. The Arlington Center Safe Travel Project may reduce congestion at the intersection by improving traffic signal timing at Mass. Ave. and Pleasant St.

MILL STREET CORRIDOR

Congestion on Mill Street between Summer Street and Mass. Ave has been identified as another transportation issue. Approaching Summer Street, congestion is particularly evident during the AM and PM school peak hours, due to the proximity of Arlington High School and the Minuteman Bikeway crossing just south of Summer Street.

LAKE STREET CORRIDOR

Lake Street traffic congestion between Massachusetts Avenue and Route 2 is attributable to several factors including congestion on Massachusetts Avenue, traffic at the nearby Hardy Elementary School, the Minuteman Bikeway crossing just south of Massachusetts Avenue, and the eastbound off ramp from Route 2, which creates congestion on Lake Street as traffic backs up from Route 2. It is anticipated that congestion will be reduced with the planned improvements to the intersection at Massachusetts Avenue. However, new development in and around the Alewife area in Cambridge and Belmont will likely increase the number of cars using Lake Street. A TAC Working Group is currently evaluating options to improve mobility and safety in the corridor.

2. Pedestrian Facilities, Access and Safety

SIDEWALK NETWORK AND CONDITIONS

Arlington is generally well-connected by sidewalks in the residential neighborhoods, as well as most business districts along the major corridors. Older neighborhoods in Arlington generally have four-foot sidewalks that have held up well. Some neighborhoods, however, are underserved by sidewalks, such as the residential area between Gray Street, Buena Vista Road, Hawthorne Ave., and Highland Avenue. Additionally, much of Arlington Heights to the northeast has limited sidewalks. Some sidewalks in town are in poor condition.

Particular areas of focus for sidewalk extension or improvement include the following:

- Provide new sidewalks on Gray Street and the surrounding area where not provided.
- Improve sidewalks on streets northeast of the Thompson School (an environmental justice area)
- Improve access at Downing Square. The area along Park Ave. as it crosses the Bikeway north of Massachusetts Avenue only has one sidewalk on the west side.
- Enhance north-south corridor sidewalks to improve connections to major east-west corridors including Massachusetts Avenue, Broadway, and Summer Street.

The Public Works Department prioritizes construction and repairs for new sidewalks and handicapped ramps each year, including pavement markings and crosswalks. Arlington is also an active participant in the **Safe Routes to School Program (SRTS).** The Transportation Advisory Committee generally oversees this program for the town and serves as a liaison for each school. Each school has a coordinator who meets with MassRides representatives every month. Schools are prioritized under the SRTS, but additional funding from the state is probably not available in the near term because the Dallin school sidewalk improvements were recently completed.

PEDESTRIANS AT INTERSECTIONS

In addition to the intersections along Massachusetts Avenue identified above, the following intersections pose issues for pedestrians:

Broadway/River Street/Warren Street/Bates Road Intersection – This three-way intersection has particularly poor sidewalks, signal timing, and irregular intersection angles. Key issues that need to be addressed:

- Improve pedestrian safety at Broadway/River Street/W. Bates Road.
- Improve the Warren Street/Broadway intersection. There is only one crosswalk and limited sidewalks at this intersection, and open space is not well-utilized.

Mystic Valley Parkway/Route 60 (Medford Street) Intersection - Congestion and the lack of safe pedestrian crossings at this rotary intersection are priority issues in Arlington. A bottleneck is created at the intersection where major north-south and east-west arterials come together with the Mystic River Path, a popular jogging trail. The dual rotary system is under

DCR jurisdiction. Currently, there is only one splitter island (on the northbound approach, others approaches are only painted), no cross walks, and poor site distance.

3. Bicycle Facilities, Access and Safety

MINUTEMAN BIKEWAY

Issues and opportunities identified on this multi-purpose corridor include the following:

- Address the gap in the Bikeway route in Arlington Center.
- Address the poor condition of the Bikeway in certain segments, including pavement deterioration and edge erosion.
- Install lighting along the Bikeway to correct this potential impediment to ridership (commuter and visitor) at certain times of the year.
- Address Bikeway crossings at Mill Street and Lake Street that pose safety concerns and cause additional traffic congestion.
- Improve connections between the Bikeway and the three commercial districts to encourage economic development opportunities.
- Explore providing attractions for bicyclists, such as food trucks from local businesses or temporary café stands, along the Minuteman Bikeway to encourage bicyclists to patronize local businesses. A directory of local businesses might also help.

BIKE FRIENDLY BUSINESS DISTRICTS

All three of the Town's business districts are in close proximity to the Bikeway. And yet, business districts in Arlington may be perceived as unwelcoming to bicyclists. Opportunities to address this issue may include:

- Identify locations for additional bicycle parking (including racks and corrals), particularly in commercial areas near the Bikeway to encourage patronage of local businesses.
- Install wayfinding systems and information kiosks along the Bikeway to promote local businesses (such as popular stores, restaurants, cafes) and civic gathering areas (such as at Whittemore Park and the Dallin Museum) and enhance connections between the Bikeway and the business districts.
- Consider a bikeshare program along the Minuteman Bikeway and in business districts.

INTERSECTION ENHANCEMENTS FOR BICYCLES

Several intersections in Arlington are difficult to cross on a bicycle. One key issue is that traffic actuated signals are not actuated by bicycles, especially on side streets. Some priority areas include:

- Mass Ave/Broadway – Difficult to accommodate bicycles.
- Broadway/Route 16 and Mass. Ave./Route 16– Difficult to accommodate bicycles.
- Foster Street/Linwood/Massachusetts Avenue – Traffic signal issues with regards to bicycles at this intersection include a lack of bicycle detection on side streets (bicycles do not actuate the traffic signal), insufficient minimum green times for bicyclists, and wrong-way riding on Foster Street. A possible opportunity would be to install a counter-flow bike lane, which allows bicyclists to ride safely against the vehicle traffic.
- Pleasant Street and Swan Street—This intersection provides access to the Bikeway from Route 60, but Swan Street is one way emptying onto Pleasant. This presents another opportunity for a counter-flow bike lane.

CORRIDOR ENHANCEMENTS FOR BICYCLES

- Bike connectivity to neighborhoods is a high priority. Expand bike lanes on local streets where appropriate.
- Pleasant Street and Lake Street are narrow and difficult for bicyclists to maneuver safely.
- Shoulders, bike lanes, and sharrows should be extended on Massachusetts Avenue and other corridors where appropriate.
- Bike lanes on Massachusetts Avenue from Medford Street to the Pond Lane should be added. The two currently funded MassDOT transportation projects will one day provide bike lanes through Arlington Center and between Pond Lane and the Cambridge line, leaving a gap between the two projects.
- Provide contra-flow bicycle lanes on high-demand one-way streets, such as Swan Street westbound, Foster Street northbound, and River Street northbound;

According to the Town of Arlington's 2012 Vision 2020 survey, more Arlington respondents supported additional bike lanes and bike routes (46.5 percent) than opposed them (29.1 percent).

4. Bus Transit Facilities and Access

Several issues and opportunities for bus transit improvement were identified including the following:

- MBTA bus service generally runs east-west through Arlington, creating pockets of underserved neighborhoods such as Turkey Hill. Some bus routes run limited service during off peak times. There are also inter-municipal gaps in service such as the lack of connections between Arlington and Belmont. More and better bus service might increase use of public transit.
- MBTA buses stack together during peak periods due to congestion and heavy boarding/alighting activity. Bus #77 to Harvard Square and buses #79 (Cambridge) and #87 (Somerville) to Alewife station

are all impacted by congestion along Mass. Ave. Scheduling adjustments could be considered to create better separation. Also consider new strategies such as priority bus signals that allow buses to go before cars at major intersections.

- Some parking issues on residential streets off Massachusetts Avenue have been associated with commuters using bus transit.
- Locations can be identified to improve bus operations using queue jump lanes, bus-only lanes, and/or bus stops at curb extensions.
- Town officials should work with the MBTA to potentially provide more advanced real-time bus information and/or transit priority at traffic signals to improve bus service.

5. Parking Issues and Opportunities

- **East Arlington** – East Arlington does not have a large public lot for customers or employees, who all must share on-street spots along Mass. Ave. and on residential streets. The Capitol Theatre and East Arlington's many restaurants create parking demand well into the evening.
- **Arlington Heights** – This area has not been the subject of a parking study, and might benefit from a fresh look at existing parking conditions, identification of areas where parking is needed and where it is abundant, and recommendations for future parking management.
- **Arlington Center** – The Town is currently undertaking a study to look at ways to manage the existing parking supply better, including optimal separation of long- and short-term parking for customers, employees, and students. The ongoing study should provide specific recommendations for improved management practices with regard to public on-street parking and off-street timing and costs.

GENERAL PARKING CONSIDERATIONS

- Provide wayfinding signage for public parking lots, including maps and parking limits to inform customers and improve the visitor's experience.
- Provide on-line information on parking areas, regulations, and policies.
- Improve pedestrian access between parking lots and buildings, and improve signage, to better inform customers of parking opportunities. (For example, stairs between Hurd Field and the Bikeway and the Trader Joe's/Starbucks/Walgreen's shopping area, and between the Russell Common lot and Medford Street).
- Align development and parking goals, and coordinate them through revised regulations.
- Consider appropriate distribution of designated accessible parking in commercial districts.

6. Other Transportation Issues and Opportunities

In addition to these issues, which are specific to location, several issues were identified that apply to a large area of Arlington, if not the town as a whole:

- **Regional Roadway Improvement Coordination** - A regional approach to roadway improvements and traffic management is needed, e.g., by working cooperatively with surrounding municipalities, MassDOT, DCR MBTA, MPO MAPC, and others to address issues and opportunities associated with area-wide transportation projects.

- **Snow Clearance** – Sidewalk snow clearance is an issue. The Town clears the Minuteman Bikeway as well as public and private ways. Commercial sidewalks are the responsibility of the abutter, but are not always shoveled in a timely way. MBTA bus stops are also not always cleared promptly.

- **Unaccepted Roads and Paper Streets** – The Town may want to consider a policy on accepting more private streets to bring them up to the same general condition as public ways.

- **Green Line Extension** — The proposed Green Line extension to Route 16/Boston Ave. near the northeast corner of Arlington is supported by the Transportation Advisory Committee. This project is in the planning stages but has not reached preliminary design. While the Green Line will be extended to Medford Hillside, the final leg to Route 16 is still uncertain. Projected construction is expected in 2019-2020.

- **Parking and Traffic Enforcement** – The Town should improve the level of enforcement of parking meter violations and other illegal or inappropriate parking behavior, including the collection of fees to be used for future parking enhancements. The Town should also do more to control speeding and other moving traffic violations with better enforcement and imposition of fees.

- **Permit Parking** – The Town should investigate and consider a town-wide system of permit parking to discourage out-of-town commuter parking and other parking abuses. This study should include the option of overnight street parking in designated areas.

F. QUESTIONS FOR DISCUSSION

1) How should the Town balance street capacity improvements with expanding multi-modal transportation options?

2) What could the Town do to extend and enhance "walkability" in Arlington Center, Arlington Heights, and East Arlington?

3) Can the Town better manage and enhance parking supply and distribution in the village centers? How? What changes would the community support?

4) Should the Town adopt standards for sustainable thoroughfares and parking areas? What kinds of standards would make sense in Arlington?

5) What can Arlington do to decrease congestion? Which of these ideas would you support?

   a) Encourage students to walk or bike to school.

   b) Develop employment opportunities in Arlington so that more people can shorten their commute.

   c) Encourage safer biking, and other alternatives to using private vehicles.