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Transportation

Introduction

Nestled between Marlborough, Sudbury, Bolton, Berlin, and Stow; Hudson has good access to the regional transportation infrastructure with two interchanges on I-495 and one on I-290 leading to Worcester and other major urban areas. Other significant roadways traversing the Town include Routes 85 and 62, which connect to Routes 117, 20 and 27 in adjacent communities. Being in this location limits to some degree the amount of “pass through” traffic that the community needs to accommodate on its roadway infrastructure, but also segregates it from other major transportation infrastructure and connections.



Transportation Goals and Key Recommendations

Prior planning efforts locally and regionally identified a number of challenges for the community as a whole to be considered and targeted certain areas with the community to focus on. During public outreach efforts, a number of themes emerged and form the basis for goals for this Master Plan including:

- Develop an identity and sense of place for the Downtown that focuses on balancing the needs of the residents of Hudson, the businesses, and the need for continued economic development at an appropriate scale.
- Balance the need to facilitate traffic flow throughout the community as a whole with desires to make the roadways more walkable and bikeable; calm vehicle traffic speeds where appropriate;
- Seek opportunities to introduce public transportation at an appropriate scale and in an affordable manner to the community as a whole;
- Identify necessary transportation infrastructure needs and seek traditional and non-traditional funding sources to advance these projects;
- Ensure that paratransit service meets the expanding needs for elderly and disabled residents; and
- Address the perceived lack of parking availability throughout the community.

Much like many of the communities in the MetroWest area, Hudson continues to see residential growth. The population is expected to continue to increase due to the availability of land, the relatively low cost of house lots, and the proximity and access to major highways.

Looking forward, the added demands on Hudson's transportation system from residential growth and potential economic development activities could counter the transportation, driver, and pedestrian/bicyclist safety, aesthetic, and community visions of the Town. Thus, future land use decisions and transportation infrastructure enhancements should be made in a coordinated, multimodal, and sustainable manner.

This Transportation Element of the Hudson Master Plan identifies the range of transportation issues, needs, and deficiencies over the near and long-term and establishes goals and recommendations for physical enhancements and policies worth implementing.

Key recommendations include:

- Expand transportation options for traveling within Hudson focused on access and mobility for the elderly and on active transportation modes (bike, pedestrian, etc...);
- Expand transportation options for traveling regionally into and out of Hudson (residents and employees focused on regional transit providers and suburban transit services);
- Development of a complete streets approach on all active and future roadway projects to further promote walking and cycling as safe and active transportation options (incorporate into Site Plan review, the Subdivision Rules and regulations, and project peer reviews);
- Bicycle recommendations focus on exploring opportunities to expand and enhance current bicycle paths within the community, commissioning a Bicycle Master Plan, and education to encourage bicycling in Hudson.

- Develop a parking management and infrastructure plan for the downtown area with the goal of identifying the most efficient means of utilizing the current parking supply, identifying future supply options, and connecting those parking needs/supply with the overall community development plans for Hudson’s downtown economic engine;
- Signage recommendations include removing signage clutter, modifying and improving the consistency of existing signage, create wayfinding signage for businesses and recreational uses, and considering modifications to the existing regulations in the Hudson Zoning By-laws (§6.2.1.4).

Regional Context

Regionally, Hudson is positioned on the western edge of the MetroWest Region, just inside of I-495 with access to the freeway along Route 62 in the northwestern section of the Town and Route 85 in the southwest. Hudson is approximately 35 miles west of Boston and 20 miles east of Worcester. While positioned close to these urban centers, Hudson is identified as a “Developing Suburb”⁹² with low-density housing in the eastern portion of the Town and retail and commercial development surrounding Downtown. Higher density housing can be found in the western section of Hudson. In January 2014, the Town of Hudson joined the MetroWest Regional Transit Authority (MWRTA’s) service area and will be working towards creating fixed route transit options.

Regional Planning

For the development of a Master Plan, it is important to acknowledge and understand the transportation planning and land use efforts of the adjacent communities to ensure that recommendations are consistent and complementary across municipal bounds. Regional planning agencies (RPAs) play a key role in the development and execution of a municipality’s Master Plan. As overseers of a larger area, RPAs help ensure that adjacent communities’ plans are complementary. The Metropolitan Area Planning Council (MAPC) is the RPA for Hudson; Hudson belongs to the Minuteman Advisory Group on Interlocal Coordination (MAGIC) subregion within MAPC and is adjacent to the MetroWest Regional Collaborative of MAPC, which includes Marlborough and Framingham.

Residents of nearby cities and towns have to travel through Hudson to obtain access to Interstates 495 and 290. Therefore, it is important for Hudson to be aware of large-scale developments that are proposed in those communities.

⁹² Developing Suburb is a community type defined by MAPC. Other community types include ‘Inner Core’, ‘Regional Urban Centers’, ‘Maturing Suburbs & Cape Cod towns’ and ‘Rural Towns’.

These plans include:

- **Metropolitan Area Planning Council (2008)** - The MAPC Regional Plan, “MetroFuture”⁹³, outlines a number of goals, objectives, and implementation strategies for the future of the region. Key transportation goals for the region focus on ensuring that people will have more transportation choices. Goals include:
 - An expanded transit system will provide better service to both urban and suburban areas, linking more homes and jobs
 - More people will use transit for work and personal trips
 - Commuters will have more options to avoid congestion
 - Most people will choose to walk or bike for short trips
 - The average person will drive fewer miles every day
 - Outlying areas will see little increase in traffic congestion
 - People with disabilities will find it easier to get around the region
 - Regional transportation planning will be linked with sustainable land use planning
 - The transportation system will be reliably funded and transportation agencies will demonstrate accountability to the public
 - Transportation projects will be designed and built quickly and cost effectively
 - Roads, bridges, and railways will be safe and well maintained
 - The region’s businesses will access the global marketplace through an efficient freight transportation network
- **Bolton** – Bolton’s 2006 Master Plan goals include managing growth and protecting open space through land use and housing policy, and enhancing the town center and historic districts. From a transportation standpoint, recommendations are geared towards multimodal safety and mobility improvements.
- **Marlborough**– The most recent planning activity taking place in the City of Marlborough focuses on an Economic Development Master Plan (2011). This plan emphasizes the importance of economic development to continue to support the city and quality of life for its residence. The plan also highlights the value and importance of a strong transportation network, particularly the access and connectivity provided by the interstate system within the City. Additionally, the City recently completed a corridor study of the eastern portion of Route 20 that addresses streetscape and access management issues.
- **Berlin**– Berlin is a low density, primarily residential town neighboring Hudson with a strong agricultural history. Planning in Berlin is focused on maintaining current housing and economic trends moving forward.

⁹³ For more information on MetroFuture, visit the MAPC website at: www.mapc.org/metrofuture/

- **Stow** –In terms of transportation planning, Stow’s Master Plan (2011) emphasizes improvements to safety, alternative transportation options, and expanding shuttle services for seniors.
- **Sudbury**– Sudbury’s 2001 Master Plan transportation recommendations include themes similar to nearby towns including reducing congestion in town and on major roadways, specifically on Route 20, and improve roadway aesthetics.

Statewide Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) and Air Quality Conformity Determination is an intermodal program of transportation improvements produced annually by MAPC. The TIP serves as the implementation arm of the Boston Region Metropolitan Planning Organization’s 25-year Regional Transportation Plan by incrementally programming funding for improvements over the next four-year period. It programs federal-aid funds for transit projects and state and federal aid funds for roadway projects.

There are no projects programmed for Hudson in the 2013-2016 TIP. MAGIC has cited the Washington Street Bridge as a priority transportation project for the subregion, which is currently under design⁹⁴. It is on the Accelerated Bridge Program, is currently under design, and should be on the TIP within a year subject to State approval

Existing Conditions

Mobility in and around Hudson is the central theme of the Transportation Element of the Master Plan. The sections below discuss the components that comprise the existing transportation network in Hudson.

Roadway Jurisdiction/Functional Classification

The jurisdiction of roadways in Hudson is depicted on Figure 8-1 and summarized on Table 8-1. The jurisdiction of a roadway indicates the ownership and responsibility for maintenance, enhancements, and repairs.

⁹⁴ http://www.mapc.org/sites/default/files/MAGIC_tip-upwp_2013-2016_final_3-20-12.pdf

**Table 8-1
Jurisdiction of Roadways in Hudson**

Roadway Ownership	Length (miles)	Length (%)^a
Town-owned roads	88	72%
Private roads unaccepted by the Town	3	3%
MassDOT roads	3	3%
Other	28	23%
Total	122	100%

Source: Office of Geographic Information (MassGIS), Commonwealth of MA Information Technology Division
^a Percentages may not sum due to rounding.

The majority of the roadway system falls under the jurisdiction of the Town of Hudson (88 miles, or 72 percent). The state owned roadways include the segment of I-495 passing through the southwest corner of the state and the southern segment of Route 85 (Washington Street) from Brigham Street to Technology Drive. As part of that upgrade, the Town will take over a 0.79 mile stretch of roadway between Brigham St. to Technology Drive.

The functional classification of roadways in Hudson is depicted on Figure 8-2 and summarized in Table 8-2. A roadways functional classification indicates its design function – to serve local demands with multiple driveways to maximize access; or to serve regional demands with limited access points to maximize mobility.

**Table 8-2
Functional Classification of Roadways in Hudson**

Functional Classification	Length (miles)	Length (%)
Local Roads (Rural and Urban)	90	74%
Interstates		
(I-495)	1	1%
Urban Principal Arterials*	6	5%
Urban Collectors*	20	16%
Urban Minor Arterials*	5	4%
Total	122	100%

Source: Office of Geographic Information (MassGIS), Commonwealth of MA Information Technology Division
^{*} Eligible for Surface Transportation Program (STP) federal funding for improvements.

The majority of the roadways in Hudson are classified as local roadways totaling 90 miles, or 74 percent of the total roadway miles in Hudson followed by Urban Collectors which comprise 16 percent of the network. Route 62 and the southern portion of Route 85 are Urban Principal Arterials, and provide the majority of access throughout the Town.

Roadway Network

Vehicular traffic in Hudson is carried on several key roadways. The major east-west roadway in Hudson is Route 62, and the major north-south roadway is Route 85.

No interstate highways travel through the Town with the exception of a segment of I-495 less than a mile long in the southwest area of the Town. With I-495 running close along the western edge of Hudson, it does provide access to businesses and residents, as described previously.

Route 62

Route 62 provides the primary east to west access through the Town of Hudson. Route 62 is also known as Coolidge Street, Central Street, Main Street, and Wilkins Street moving through the Town. The land use and roadway characteristics along this roadway vary throughout the Town as well.

Berlin town line to Main Street

The eastern segment of Route 62 from the Berlin town line to the intersection with Main Street is a four-lane cross-section with wide shoulders and turning lanes at key intersections. Key intersections along this segment are private drives providing access to the Highland Commons retail development south of Route 62 and east of the nearby I-495 interchange. Along the northern edge of Route 62 are retail and commercial land uses. Speed limits along this stretch range from 45 to 50 miles per hour (mph). The roadway in this segment is in good condition.

Central Street to Tower Street

The segment of Main Street from Central Street to Tower Street is a two-lane roadway providing access for residents and Downtown. Housing along this segment generally consists of densely located single-family homes compared to areas of the Town outside of Downtown.

There are sidewalks on both sides of the roadway and occasional intersection crosswalks or mid-block crossings for pedestrians. Speed limits on this road are between 25 to 30 mph.



Downtown Hudson is located along Main Street from Route 85 to Tower Street. The land uses along this segment are retail and institutional including small and local businesses, public library, and Town Hall. The roadway characteristics remain the same with the addition of on-street parking on both sides of the roadway. At the public forum on April 11, 2013, specific concerns about the lack of public parking in the Downtown were discussed and there was interest in finding opportunities to expand public parking.



The rotary at the intersection of Route 62 (Main Street) and Route 85 is a major transportation feature in this segment. The rotary was identified at the public forum as possibly being outdated and ineffective. Additionally, the intersection of Main Street at Manning Street and Broad Street meets Highway Safety Improvement Program (HSIP) requirements for funding based on 2010 crash clusters.

Tower Street to Stow town line

This easternmost segment of Route 62 continues to be a two-lane roadway with narrow shoulders and speed limits as low as 25 mph near the Stow town line and ranging between 30 to 40 mph otherwise.

From Tower Street to Forest Avenue the roadway has a sidewalk along the northern edge. A segment of the Assabet River Rail runs along the southern edge of the roadway protected by a grassy median that is between 10 feet and 45 feet wide.

This segment of Route 62 was cited at the public forum as having issues with congestion and could benefit from improvements that focus on traffic flow.



Route 85

Route 85 provides the primary north to south connectivity through Hudson via the Downtown. This roadway is also known as Lincoln Street and Washington Street.

Bolton town line to Cox Street

This northernmost segment of Route 85 consists of low-density housing and provides access to the Town of Bolton. It is wide enough to provide bike lanes. This is a two-lane roadway with speed limits of 40 mph. There are some sidewalks along one side of the street.

Third Street to Houghton Street

This segment of Route 85 runs through Downtown. Much like the segment of Route 62 running through Downtown, this segment is two lanes with sidewalks and on-street parking along both sides of the roadway through portions of the Downtown area and speed limits of 25 to 30 mph. Land uses are also similar including high-density housing, retail, and institutional. Finally, as described for Route 62 in Downtown, the public has acknowledged that there is a lack of public parking and opportunities for additional public parking are necessary.

The intersection of Route 85 at Cox Street and Packard Street was described as a transportation safety concern at the public forum and meets the HSIP criteria for transportation safety improvement funding. Some steps have been taken including instituting a 4-way stop sign at the intersection. A Central Transportation Planning Staff (CTPS) study was recently conducted here due to the high accident rate.

The Washington Street bridge falls into the segment of Route 85. The bridge is structurally deficient⁹⁵.

Houghton Street to Marlborough city line

The southernmost segment of Route 85 connects Downtown to I-495 in Marlborough. Land uses are more retail and commercial in nature including grocery stores, shopping plazas, and restaurants. Public sentiment that the roadway continues to have poor traffic flow patterns and recurring congestion has been exacerbated by the existing roadway reconstruction that has been taking place over the past 18 months. The two-lane roadway is being widened, traffic signals are being installed, and pedestrian and bicycle accommodations are being added. These improvements are being made in support of heavy retail and commercial growth along the corridor and into the City of Marlborough.

⁹⁵ MassDOT NBIS Master List 2011.

Main Street

Route 62 to Stow town line

Main Street continues west of Route 62 as Route 62 transitions north towards Stow. This last segment of Main Street is a two-lane roadway with a 40mph speed limit. There are no traffic signals or sidewalks along the segment and shoulder widths of about four feet. Traffic is able to flow easily under typical conditions.

The intersection of Main Street at Chestnut Street and Lewis Street is eligible for HSIP funding based on the 2010 crash clusters.

Cox Street

Cox Street provides east to west access in Hudson without crossing Downtown. As such, this two-lane roadway has speeds of 30 to 35 mph, narrow shoulders, and sidewalks along one side of the roadway (limited sidewalks between Manning Street and Stratton Road). The Cox Street bridge crossing the Assabet River is functionally obsolete⁹⁶ and currently weight restricted.

Vehicular Traffic

To gain an understanding of existing travel patterns and to provide a basis for recommendations, historical traffic data, trip distribution patterns, and transportation mode choice data were obtained.

Traffic Volumes

Table 8-3 summarizes traffic volumes on various roadways throughout Hudson using MassDOT⁹⁷ historical traffic volume data and traffic volume data collected in the Town for other transportation or development projects.

⁹⁶ MassDOT NBIS Master List 2011.

⁹⁷ <http://www.mhd.state.ma.us/default.asp?pgid=content/traffic01&sid=about>, accessed October 12, 2010

**Table 8-3
Traffic Volumes on Select Roadways in Hudson**

Route	Source	Count Date	Average Daily Traffic Volume ¹
Central Street east of Bolton town line	MassDOT	2010	1,820
Route 62 (Central Street) west of Route 85	MassDOT	2007	11,500
Route 62 (Main Street) west of Tower Street	MassDOT	2009	9,100
Route 62 (Coolidge Street) east of Bolton town line	Highland Commons ²	2008	8,100
Route 62 (Wilkins Street) west of Marlborough Road	MassDOT	2011	6,300
Route 85 (Washington Street) south of Route 62	Route 85 Study ³	2009	24,000
Gates Pond Road south of Route 62	Highland Commons ²	2008	1,400

Source: Historical MassDOT and traffic study traffic count data
¹ Average daily traffic volumes expressed in vehicles per day (vpd).
² Highland Commons Retail Development Traffic Impact Study 2009
³ 2009 Washington Street Reconstruction PS&E Plans

As would be expected, traffic volumes along Route 62 and Route 85 are the highest in Hudson, carrying approximately 10,000 and 24,000 vehicles per day (vpd), respectively.

Journey-to-Work

A review of US Census American Community Survey journey-to-work data⁹⁸ for Hudson residents reveals commuting trends - specifically work location and mode choice. Table 8-4 illustrates where Hudson residents travel to work. In contrast, Table 8-5 shows where people who work in Hudson begin their commute.

Approximately 23 percent of Hudson residents were also employed in Hudson. This means that almost a quarter of Hudson residents who are employed work in Hudson and therefore they have shorter commutes. This presents opportunities to advance mode shifts toward cycling and walking for the commutes, which also advances the Town's healthy lifestyle goals. The top commute single destinations outside Hudson were Marlborough (14 percent) and Framingham (6 percent).

The remaining commute destinations represent a variety of Massachusetts cities and towns, though; many are located along major interstates including I-495, I-90, and I-290. Approximately five percent of Hudson residents work in Boston or Cambridge.

**Table 8-4
Census Journey-to-Work Data for Hudson Residents**

Location of Employment	Percent of Residents
Hudson	23%
Marlborough	14%
Framingham	6%
Sudbury	4%
Westborough	4%
Worcester	4%
Boston	3%
Southborough	2%
Cambridge	2%
Waltham	2%
Hopkinton	1%
Natick	1%
Newton	1%
Northborough	1%
Other ¹	32%

Source: U.S. Census Bureau, 2006-2010 American Community Survey
 Data are based on a sample and are subject to sampling variability. Discussion on methods and errors provided by the U.S. Census Bureau:
www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2010.pdf

1. Other towns and cities not listed comprise one percent or less each of employment locations of Hudson residents.

The journey-to-work census data was also reviewed to determine where people live who commute to Hudson. Table 8-5 summarizes these data.

**Table 8-5
Census Journey-to-Work Data for Hudson Workers**

Location of Residence	Percent of Workers
Hudson	26%
Marlborough	10%
Worcester	8%
Leominster	3%
Northborough	2%
Shrewsbury	2%
Lowell	2%
Framingham	2%
Clinton	2%
Berlin	1%
Sudbury	1%
Stow	1%
Bolton	1%
Lancaster	1%
Other1	38%

Source: U.S. Census Bureau, 2006-2010 American Community Survey
 Data are based on a sample and are subject to sampling variability. Discussion on methods and errors provided by the U.S. Census Bureau:
www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2010.pdf

1. Other towns and cities not listed comprise one percent or fewer of each of employment locations of Hudson residents.

Approximately 25 percent of Hudson workers also live in Hudson. Approximately 10 percent of people employed in Hudson resided in Marlborough and 8 percent in Worcester. The majority of the remaining locations of residence of Hudson employees are neighboring towns along I-495 and other area interstates.

Mode Choice

Similar to the journey-to-work evaluation, Table 8-6 summarizes the mode choice for Hudson residents.

Table 8-6
Hudson Journey-to-work Mode Choice

Mode	Percent of Employed Residents
Single-Occupant Automobile	84%
Multiple-Occupant Automobile	8%
Transit	1%
Walk/Bicycle	3%
Other	1%
<u>Work at Home</u>	<u>3%</u>
<i>Total</i>	<i>100%</i>

Source: U.S. Census Bureau, 2007-2011, American Community Survey

Approximately 92 percent of Hudson residents take a car to work – either alone (84 percent) or with others (8 percent). Approximately three percent of Hudson residents work from home. Transit and walk/bicycle modes rounded out the survey results; approximately four percent of Hudson residents either utilized transit or walked/ bicycled.

The low transit mode share for Hudson residents and workers reflects the limited public transportation options in the Town. This lack of public transportation options was cited as a weakness of the Town by residents at the public forum.

Vehicle Miles Traveled

MAPC has placed an emphasis on the benefits to reducing vehicle miles traveled throughout the region. As such, the MAPC MetroFuture project has presented a number of statistics about passenger vehicle miles traveled in the region. Table 8-7 describes passenger vehicle miles traveled in MAPC, MAGIC, typical developing suburbs, and Hudson.

**Table 8-7
Passenger Vehicle Miles Traveled (VMT)**

Average Municipality:	Registered Vehicles	Annual VMT	Daily VMT	Daily VMT per household
MAPC	11,400	135,911,760	372,361	70
MAGIC	9,319	113,597,490	311,226	74
Developing Suburb	12,147	146,168,122	400,461	69
<i>Hudson</i>	<i>13,893</i>	<i>168,606,690</i>	<i>461,936</i>	<i>66</i>

Source: Metropolitan Area Planning Council and MassGIS

Although Hudson shows higher than average passenger vehicle miles traveled than municipalities in the MAPC regional or MAGIC subregion, number of registered vehicles is higher and ultimately, the daily passenger vehicle miles traveled per household are lower than the regional averages. In the 2010 Census, Hudson had 7,528 households, so the average household had 1.85 vehicles.

Intersection Safety

Potential transportation safety issues in the Town of Hudson were identified at a public forum by the community. Specific intersections of concern were the intersections of Main Street at Lewis Street and Brook Street, and Route 85 (Lincoln Street) at Packard Street/Cox Street, which is a 2010 HSIP funding eligible intersection. Similarly, concern was raised at the public forum about trail crossings over roadways and intersections.

A total of five intersections in Hudson also meet the 2010 HSIP eligibility requirements.

Lincoln Street at Packard Street/Cox Street (note: in the past year, this intersection had a four-way STOP sign traffic control added to it. It may not meet HSIP eligibility criteria).

Main Street at Manning Street/Broad Street

Washington Street at Hudson Road

Hudson Road at Fitchburg Street

Main Street/Lewis Street

Transit

While the Town recently joined the MetroWest Regional Transit Authority (MWRTA), the Town is not *currently* served by a fixed route public transit system. This should change in the not-too-distant future as the MWRTA and Town coordinate their priorities. Without public transit options, populations that do not have access to a private automobile are negatively impacted such as

low income, young adults, and the elderly. Regionally, the Worcester Regional Transit Authority and the MetroWest Regional Transit Authority each currently provide reliable service in nearby towns and cities. The lack of transit options has been cited by the public and the Town as a limitation of the transportation system.

In 2011, MAGIC completed the *MAGIC Suburban Mobility Transit Study* which evaluated transit needs and developed possible recommendations for the subregion to improve transit. Hudson was found to have high potential for service improvements for those residents who are travelling between communities. Specifically, Hudson was noted to have a higher-than-average number of zero-vehicle households, low-income families, and families with disabilities and that any future services should be targeted towards this population.

Currently the Town helps to fund a shuttle service for the elderly with help from the Friends of the Hudson Senior Center. This service alone does not provide the necessary transit connections and mobility for the general population of the community to destinations such as shopping, medical appointments, and other transit connections.

Pedestrians and Bicycles

During the public forum, residents showed strong support for funding pedestrian and bicycle facilities. Currently, there are over three miles of the Assabet River Rail Trail crossing the Town and providing connectivity⁹⁹. As plans continue to evolve, this trail could be tied in with the East Coast Greenway and Mass Central Rail Trail and be a part of a network of bicycle trails connecting areas of eastern and central Massachusetts (a portion of the trail between Church Street and Pope Street is underway). At this time while there is a defined need for upgrading these types of facilities, funding is not available. Moreover, a larger challenge to implementation continues to be the available right-of-way to allow for these upgrades.

Pedestrian access and mobility are mixed in Hudson. The Town Center and the immediately outlying areas have the sidewalks and crosswalk connectivity necessary for safe and desirable walking. Outside of the Town Center however, sidewalks along critical roadways are missing. Funding is the primary obstacle that prohibits the Town from acquiring right-of-way, planning and constructing the necessary bicycle and sidewalk connections to promote walking and cycling in the Town.

⁹⁹ 2012 Greater Boston Cycling and Walking Map. MAPC, URL: http://www.mapc.org/sites/default/files/images/smartgrowth/transportation/MAPC-Bike-Map_2012_PRESS_Reduced.pdf

The Safe Routes to School program is a national program that aims to find and develop safe routes for children to be able to walk and bike to school. The three elementary schools and the middle school in Hudson are all partner schools in the program.

Additionally, the Town continues to seek opportunities for funding to improve and construct needed sidewalks that will connect residential communities to town recreational resources that will encourage more active, non-motorized transportation and healthy decision-making through the Commonwealth’s Community Innovation Challenge Grant program¹⁰⁰.

Bridges

There are several bridges in Hudson that are routinely inspected by MassDOT using National Bridge Inspection Standards (NBIS). The primary purpose of the NBIS is to locate, evaluate, and act on existing bridge deficiencies to ensure that the bridges are safe for the traveling public. Each NBIS bridge is inspected at regular intervals of two years with certain types or groups of bridges requiring inspections at less than two-year cycles.

Table 8-8 summarizes the four bridges in Hudson that are classified as “structurally deficient” or “functionally obsolete” by NBIS standards. Structural deficiencies are characterized by deteriorated conditions of significant bridge elements and reduced load-carrying capacity. Functional obsolescence occurs when the geometry of the bridge is not meeting current design standards based on traffic demands carried, including lane or shoulder widths or horizontal/vertical curvature. Neither type of deficiency indicates that a bridge is unsafe. There are no bridges outside of the NBIS inventory that have either of these deficiency designations. Two bridges – on Broad Street and the Main Street – were rebuilt in the last five years.

**Table 8-8
Hudson Deficient/Obsolete Bridges**

Bridge #	Bridge Carrying	At	Owner	Year Built	Year Rebuilt	Deficiency
H-25-003	Washington Street (Rt.	Assabet River	MassDOT	1900	1940	Structurally Deficient
H-25-004	Houghton Street	Assabet River	Town of Hudson	1890	1918	Structurally Deficient
H-25-006	Forest Avenue	Assabet River	Town of Hudson	1910		Functionally
H-25-008	Cox Street	Assabet River	Town of Hudson	1928	1980	Functionally

Source: MassDOT NBIS Master List 2011.

¹⁰⁰ <http://www.mass.gov/anf/budget-taxes-and-procurement/working-for-you/community-innovation-challenge-grant/>

Construction has begun on the Houghton Street Bridge, while the Washington Street (Route 85) bridge is currently under design with plans for construction in 2014.

Given the critical access that the Cox Street Bridge provides including access to a school, fire station, and waste water treatment plant among others, this weight restricted bridge is the next priority for the Town.

Future Conditions

The next step in the planning process is to identify growth trends in the area (see Chapter 3 for population and housing forecasts). These trends are often based on previous traffic volume patterns (as described in Table 8-3), past and forecasted population growth, and major development projects.

Future Challenges and Opportunities

As described in earlier, Hudson's population has steadily grown over the last six decades and is expected to continue growing through 2030 due in part to its accessibility to major highways. Increases in population and employment in the future will lead to increased vehicular traffic along both the minor and major roadways in Hudson.

These increased traffic volumes will impact the ability of existing transportation infrastructure to handle the increased demand placed on it, particularly during the morning and evening peak hours. In order to avoid operational and safety issues along roadways and at intersections in the Town, alternative modes of transportation should be investigated further. These alternatives could include expanded shuttle bus service, carpooling, public transportation, telecommuting, park and ride facilities, and improved pedestrian and bicycle accessibility.

Planned Developments

Currently, there are several development proposals that may affect traffic conditions on the Town's roadways. The development projects¹⁰¹ are described below.

- ▶ **Highland Commons** – Highland Commons is located on a site in northwest Hudson and Berlin on 165 acres. This development will be primarily retail with office space and a gas station.

¹⁰¹ http://www.townofhudson.org/Public_Documents/HudsonMA_BComm/planning

- **Brigham Hill III** - A preliminary plan for 36 lots was submitted in 2011 for a site on Exeter Road located south of Downtown Hudson. The project is currently under construction.
- **Westridge Retirement Community** – Westridge Retirement Community located on Westridge Road is currently under construction. This development will include 146 units of condominiums for older adults. The development is located a short distance off of Route 85 in southern Hudson.
- **Old North Greene** – a 17 lot OSRD preparing to submit a preliminary plan.
- **Cabot Ridge Apartments** – 176 apartments developed pursuant to M.G.L. c. 40B, which is currently under review.
- **North Ridge Condominiums** – 32 units under construction.

Transportation Recommendations

Hudson transportation must meet the needs of its residents, commuters, and businesses through vehicular, public transportation, bicycle and pedestrian means. Transportation must be convenient, safe, aesthetically pleasing and environmentally friendly as it meets the complex needs of residents and travelers. A thorough transportation plan which both provides active and passive connectivity internally to communities in Hudson and ties Hudson to the greater region is essential to ensure a sustainable system over the long-term. The recommendations described in this section are based upon this framework.

As the Master Plan process progressed and community input was received, the following were common themes and needs for transportation in Hudson:

- Expand transportation options for traveling within Hudson focused on access and mobility for the elderly and on active transportation modes (bike, ped, etc.);
- Expand public transportation options for traveling regionally into and out of Hudson residents and employees focused on regional transit providers and suburban transit services;
- Development of a complete streets approach on all active and future roadway projects to further promote walking and cycling as safe and active transportation options;
- Focus bicycle recommendations on exploring opportunities to expand and enhance current bicycle paths within the community, commissioning a Bicycle Master Plan, and education to encourage bicycling in Hudson.
- Develop a parking management and infrastructure plan for the downtown area with the goal of identifying the most efficient means of utilizing the current parking supply, identifying future supply options, and connecting

those parking needs/supply with the overall community development plans for Hudson's downtown economic engine;

- Improve signage regulations to reduce signage clutter and encourage consistency in existing signage.

Recommendations

Taking into account the existing and future issues, needs, and the goals of the transportation element, the following specific recommendations have been developed.

Expand Transportation Options

Issue: Hudson has good transportation options available within the community, but many locations are constrained by physical and geographical boundaries.

Recommendation: One of the identified strengths of the community is the active transportation elements that exist within the community, including the oft mentioned Assabet River Rail Trail. The Town has indicated both the willingness and desire to increase walking and biking options within the community.

- T 1. Utilizing the current bike/ped facilities as a jumping off point, the community should expand both pedestrian trails and on-street/off-street bicycle options into neighborhoods and portions of the community where businesses and residents would utilize them.
- T 2. The community should engage neighborhoods, conduct a series of walking audits to learn what makes a good pedestrian environment and where logical, connected bicycle pathways could be implemented and integrated into the existing networks.
- T 3. Develop and test new bicycle facilities within the community including the identification of on-street bike lanes, connections to the bicycle trails, and providing preferred and secure parking for bicyclists in the downtown area.
- T 4. Develop a short and long-term Bike & Walk Action Plan that prioritizes policies, projects and, ultimately, programs that can be implemented over the short term 3-5 years and over the next decade. Specific focuses should be made on identifying traditional funding sources for these items as well as non-traditional sources if opportunities present themselves (such as the previously mentioned CIC Grant program).

Expand Public Transportation Options

Issue: Identified as one of the primary gaps in the transportation network within the Town of Hudson, the lack of public transportation options was highlighted repeatedly at public outreach meetings.

Recommendation: Transit planning is an important part of the complete streets focus area for the transportation system in the community. The Town of Hudson should focus on developing a transit program that is safe, efficient, and dependable by the community at large. This can be accomplished by reaching out to surrounding communities who all have varying levels of services provided by the MBTA (commuter rail), MWRTA, and/or the WRTA. While the Town has recently joined the MWRTA, services at this point in time are limited and have extremely limited options available to their businesses and residents. Goals should focus on the following:

- T 5. Explore and identify financing options within the Town budget to maintain the assessments of the MWRTA.
- T 6. The Town should identify high residential and employment areas within the community (see Chapters 2, 3 and 4 for more information) and work with the MWRTA to coordinate expanding their existing services within neighboring communities to establish bus routes into and out of the downtown area of Hudson and other major employment areas within the Town, as needed.
- T 7. Expand upon existing elderly and include handicapped para-transit options by utilizing existing and other regional transit service providers to bring residents to nearby medical and recreational destinations.
- T 8. Target those areas of the Town where zero vehicle households are prevalent and identify transit options to support those populations.

Expand Upon Complete Streets Programs Within the Community

Issue: Infrastructure projects should consider all forms of transportation prior to being finalized.

Recommendations: The three-pronged approach of complete streets seeks to incorporate multimodal designs into roadway projects to ensure that streets are safe for all users and not dominated by cars and to encourage active modes of transportation.

Communities like Hudson also require an emphasis on green design elements that promote an environmentally sensitive, sustainable use of the public right-of-way. Greener designs incorporate street trees, rain gardens, bio-swales, paving materials and permeable surfaces, with plants and soils collecting rain water to reduce flooding and pollution.

Lastly, smarter technology-assisted design elements incorporate intelligent signals, electric vehicle sharing, car and bicycle-sharing, way-finding and social networks for greater system efficiencies and user convenience.

The Town of Hudson should develop a complete streets checklist that is appropriate for the community goals and objectives. Elements should be respectful of the specialized needs and environmental resources within the Town. But these should also be balanced with the overarching goal of providing for all modes of transportation.

Specific recommendations should include:

T 9. Develop Scenic Streetscapes.

Durable landscaping that is close to the highway or along medians can increase the driver's awareness of the immediate environment and alter behavior, resulting in slower speeds and a safer street. The following streetscape strategies should be considered:

- Consider replacing overhead utilities with underground services in the downtown;
- Consider expanding upon the existing street lighting with period lighting in the downtown. Lighting for sidewalks needs to be lower, pedestrian scale, and more closely spaced than conventional "cobra head" street lights;
- Design ADA compliant sidewalks that include a landscaping buffer between the sidewalk and roadway in the downtown;
- Where appropriate, replace the existing faded crosswalks with imprinted/textured crosswalks at intersections and mid-block locations along major through routes through the downtown.

T 10. Consider Traffic Calming Measures

Traffic calming involves changes in street alignment and other physical measures to reduce traffic speeds in the interest of street safety and livability. The following traffic calming elements could be considered for the downtown and within the established neighborhoods that abut high-volume roadways:

- Curb extensions/bump outs/neckdowns along with complimentary on-street parking;

- Narrowed travel lanes and widened shoulders with potential for bike lanes;
- Speed tables;
- Raised crosswalks; and
- Roundabouts.

T 11. Develop Access Management and Foster Compact Development

Develop access management and traffic impact study guidelines and incorporate them into the zoning by-laws and subdivision regulations. Minimizing curb cuts and greater separation between driveways improve safety, appearance, and the viability of roadways. An access management approach would benefit both Route 85 and Route 62 corridors (noting that several driveways along Route 85 have recently been consolidated as part of the roadway improvements in this area of the Town).

Review the zoning by-laws and consider amendments that would encourage mixed-use (residential, office, retail) and compact/clustered development in areas already served by transportation infrastructure, particularly in the downtown area.

Intersections

Issue: A number of intersections in Hudson are problematic. Traffic flow, character, and safety need to be improved. For intersections with state-owned roadways, these recommendations would have to be vetted with MassDOT.

Recommendations: The following intersections were identified as being potentially high-crash locations. The intersection of Lincoln Street at Packard Street/Cox Street in particular was also called out in a number of public outreach meetings.

T 12. Study the following intersections in more detail to determine the best course of action.

- Lincoln Street at Packard Street/Cox Street
- Main Street at Manning Street/Broad Street
- Washington Street at Hudson Road
- Hudson Road at Fitchburg Street
- Main Street/Brook Street

Pedestrians

Issue: Need to provide a more safe and walkable environment.

Recommendations:

- T 13. Install or upgrade sidewalks to be ADA compliant and include a landscaped buffer.
- T 14. Enhance the areas in and around public open spaces (parks, schools, athletic fields) so that children and parents who live nearby can make choices about how they can travel between home and these destinations. Currently, in many locations, automobile use is perceived to be the safest mode of transportation.
- T 15. Construct crosswalks that enhance the awareness of drivers to pedestrians; could include raised and or textured treatments.
- T 16. Install crosswalk signage to reinforce vehicle and pedestrian awareness.
- T 17. Install countdown pedestrian signal heads at signalized crossings that do not currently have them.
- T 18. Improve pedestrian mobility on rural residential and suburban residential roads by exploring opportunities for interconnecting short sections of trails and connecting cul-de-sacs.
- T 19. Educate public to "Stop- Look- and Wave" in the Town of Hudson at crosswalks.
- T 20. Educate the public of existing walking trails.

Bicyclists

Issue: Need to make areas within Hudson more bikeable – for both commuter and recreational users.

Recommendations:

- T 21. Develop, update, and implement a town wide Bicycle Master Plan that addresses both commuter and recreational bicycling.
- T 22. Consider additional installation of bicycle racks at activity centers.
- T 23. Explore connections to the Assabet River Rail Trail into the Town of Hudson's bicycle plans.
- T 24. Implement programs and events which will encourage people to consider bicycling and trail hiking.
- T 25. Educate the public of existing bicycling opportunities; and

- T 26. Improve bicycle mobility on rural residential and suburban residential roads by expanding bicycle-related options (bike lanes, sharrows, etc.).

Parking

Issue: The downtown area of Hudson is perceived by many to lack adequate parking supply to accommodate the residents, services, and businesses in the Town. Future demands related to increased population and economic development will require increased parking availability.

Recommendation:

- T 27. Create a parking plan that focuses exclusively on the current and future needs of the downtown;
- T 28. Evaluate future development proposals with an eye towards increasing the publically available parking supply, particularly in the downtown; and
- T 29. Seek to create reserved and/or dedicated parking supply for the public buildings in the Town (Library and Town Hall, in particular).

Signage

Issue: Need to address signage on town roadways.

Recommendations:

- T 30. Collaboratively (DPW and MassDOT) remove existing sign clutter along state routes;
- T 31. Commission a “Way-finding Program” to assist visitors to navigate to and from the downtown areas of Hudson and direct them to public parking opportunities by using branded signage for the community; and
- T 32. Upgrade the overall consistency of traffic signage throughout Town by reviewing current regulatory signage and assuring that it is consistent with the current Manual on Uniform Traffic Control Devices (MUTCD) guidelines.



Rotary in the Downtown Area, Hudson, MA