

Transportation and Transit

Introduction

Transportation is the safe and efficient movement of people and goods.

This can include both motorized (passenger cars, buses, etc.) and non-motorized (pedestrians, bicyclists, etc.) modes of transportation.

Located in Hampshire County in the western portion of Massachusetts, the Town of South Hadley is ideally situated in close proximity to major transportation routes including Interstate 90, Interstate 91 as well as State Route 47, Route 33 and Route 202. The Town is also within driving distance of Springfield (12 miles), Northampton, (12 miles), Boston (87 miles), New York (145 miles), as well as Bradley International Airport (30 miles). Predominantly a residential town, the primary employers are the manufacturers of specialty papers and Mount Holyoke College. A member of the Pioneer Valley Transit Authority (PVTA) service area, South Hadley has fixed route bus service to Holyoke and Granby with additional para-transit services provided by the Council on Aging. Hampshire County Transit provides direct bus services among the Five Colleges which include: Smith College, Mount Holyoke College, Hampshire College, Amherst College, and the University of Massachusetts Amherst.

During the master planning process, residents raised a number of transportation-related issues. Pedestrian and bicyclist accessibility was continually cited as a concern and is frequently seen as an important community livability consideration. The continuity and improvement of pedestrian and bicyclist facilities throughout the Town needs to be evaluated as part of the planning process, as well as the impacts of new development on the pedestrian and bicyclist network. Another recurring topic was the community's desire to incorporate more sustainable practices throughout the Town. Thus, the potential for more sustainable transportation practices needs to be evaluated as part of the planning process.

The Transportation and Transit Element of the South Hadley Comprehensive Plan examines the following issues. First, a regional context is presented which describes South Hadley's role in the region as well as the influence of other agencies on South Hadley. Abutting community Master Plans and

Comprehensive Plans are also briefly reviewed and discussed, as they relate to South Hadley. Elements of the Statewide Transportation Improvement Program (TIP) are also discussed.

Next, the components of the transportation system are described. These components include roadway functional classification and jurisdiction; mode share; public transportation; bicycle facilities, pedestrian facilities, and aesthetics. Key congested transportation facilities are also described.

Finally, a future conditions section follows, discussing forecasted growth trends in South Hadley and in the area, and the impact projected on transportation facilities. The section concludes with the strategies, goals, and objectives developed to address the future growth in South Hadley and its impact on the transportation network.

Identification of Issues

A number of issues were identified at the March 5, 2008 Public Gathering during a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, as well as during interviews in November 2007 with selected agents of the Town of South Hadley, in the responses to the resident survey, and in CPAC presentations and discussions. The Transportation Subcommittee of the CPAC held an Issues Gathering in August 2008 to get additional input into the major concerns regarding the provision of transportation services and quality of facilities in South Hadley. Another community gathering on November 12 helped further refine goals and priorities. The following list represents a compilation of issues identified that will be addressed in this chapter of the Plan. Opportunities and possible solutions mentioned at these forums will be discussed later in the chapter.

More specifically, in addition to the general themes above, the following community services and facilities topics provided by the Town of South Hadley received the most mention from public comment opportunities and CPAC discussions:

Transportation Specific

- Non-vehicular facilities
- Connections with neighboring cities/towns
- Reliance on private passenger vehicles
- Congestion
- Roadway conditions

Transportation Related

- Park and recreational facilities
- Connecting to the Falls
- Streetscape
- Sustainability
- Community feel

Transportation and Transit Goals

The Transportation and Transit Element establishes a strategic plan for municipal action with regards to transportation. The following goals for the Plan were established following the November 12, 2008 Community Gathering by the CPAC and its Transportation Subcommittee.

-
- | | |
|-------|---|
| T-1 | To develop and work towards a defined long-term vision for traffic mitigation that monitors traffic volume and land uses to avoid congestion. |
| <hr/> | |
| T-2 | To promote sustainable transportation strategies and infrastructure that promote walking, biking, public transportation, and ridesharing, while minimizing the impact of new development. |
| <hr/> | |
| T-3 | To create transportation connections between South Hadley Falls and the Town Common/ College area. |
| <hr/> | |
| T-4 | To connect streets, bike lanes, and sidewalks among neighborhoods and other destinations. |
-

Regional Context

South Hadley is a quaint college town approximately 18.3 square miles in area. Located in a prime setting, South Hadley is 87 miles west of Boston and 12 miles north of Springfield in Hampshire County. South Hadley is a predominantly residential town whose proximity to major roadways makes it easily accessible by automobile. There are, however, limited modes of transportation available, which presents the transportation network with challenges to reduce traffic volumes in congested areas.



Neighboring Master Plans

It is clear through both observation and study that motorists other than the residents of South Hadley use the municipal roadways in town. Employment centers in South Hadley, such as Mount Holyoke College, as well as in other cities and towns draw commuters from many of the bedroom communities in the region, such as Granby and Belchertown, via Route 202. As South Hadley creates its Comprehensive Plan, it should be cognizant of the regional transportation planning and land use efforts of the adjacent communities, and consider the impact, if any, on South Hadley. In addition to the land use efforts detailed below, descriptions of major private developments in various stages of planning/permitting within South Hadley and on the outskirts of the community that could potentially impact South Hadley's transportation facilities are described under the Future Conditions section of this chapter. The following provides a summary of the local and regional transportation and land use master plans relevant to South Hadley:

Mount Holyoke College¹ - Mount Holyoke College is planning a series of renovations and upgrades to existing facilities, as well as improving circulation and flow on campus. The Mount Holyoke College Campus Landscape Facilities Master Plan (September 2002) recommended improvements and changes to circulation on the campus. While the majority of these land use and transportation plans are contained within the campus, there may still be an effect on the Town of South Hadley.

The lack of clearly defined entrances and egresses to the College, diminished circulation and priority of pedestrians over vehicles were cited as the primary problems relating to parking and circulation on campus. The redistribution of priority away from the vehicle and towards the pedestrian will highlight walking as the dominant form of transportation in and around campus, creating a need for continued pedestrian networks surrounding the campus and into the greater community of South Hadley. Specific parking and circulation recommendations identified in the Mount Holyoke College Campus Landscape Facilities Master Plan include:

- Make Lower Lake, Chapin, and Gateway Roads the primary routes through campus. Gateway Road will become one-way, coming in through the Field Gate and out onto Park Street. Other campus roads, while still available for service, emergency, and handicapped-access purposes, will become primarily pedestrian pathways in use and in scale.



¹ <http://www.mtholyoke.edu/committees/cmpec/>

- Minimize parking around the central greens and along the water while expanding peripheral lots to provide adequate parking for students, faculty, staff, and visitors.
- Make the campus in general more pedestrian-friendly by improving sidewalks, removing excess pavements, and improving connections between the east and west parts of campus, the north part of campus, the buildings west of College Street, and the east side of Lower Lake.
- Work with the Commonwealth of Massachusetts and the Town of South Hadley to improve the safety of pedestrian crossings and sidewalks on Park and Morgan Street.
- Establish a signage system on the Prospect Hill trails.

Pioneer Valley Regional Transportation Plan² – The Regional Transportation Plan for the Pioneer Valley addresses regional transportation challenges in 43 cities and towns including South Hadley and neighboring communities. While the majority of these transportation plans do not directly impact South Hadley, they are important to recognize.

Town of Granby – Granby, a town adjacent to South Hadley, shares many roadway elements with South Hadley, and is connected by New Ludlow Road, West State Street (Route 202), Pleasant Street/Morgan Street, West Street, and Amherst Road (Route 116). The Town of Granby is currently preparing a new Master Plan to outline the Town’s vision, strategies and goals, and better prepare for the future. As part of this plan the Pioneer Valley Planning Commission (PVPC) has prepared a traffic analysis map (March 2008³) that shows daily traffic counts at key roadways that lead into South Hadley, including Route 202 (Five Corners) and Route 116 near Moody Corner. While this analysis also includes recommendations for future turning movement counts, it contains useful existing traffic counts collected by the Town and PVPC that is located adjacent to the South Hadley Town line. Elements of the Town of Granby’s Draft Master Plan⁴ (2008) pertaining to South Hadley include:

- Work with MassHighway District 2, the Granby Highway Department, Granby Police Department, and other appropriate local interests to develop a local sidewalk and bicycle route plan.
- Consider development of Traffic Circulation Studies for major intersections along Route 202.
- Consult with PVPC to work with interested bicycle parties to advance a multi use trail along the Route 116 Corridor.
- Work with PVPC and MassHighway and bicycle advocates in Granby to plan, design and oversee construction of a bicycle network in Granby.

▼
² http://www.pvpc.org/web-content/html/tier3/transp/trans_rtp.html
³ <http://www.pvpc.org/granby/docs/GranbyTrafficMap.pdf>
⁴ <http://www.pcpv.org/granby/index.htm>

- Work with the Pioneer Valley Transit Authority (PVTa) to identify opportunities to enhance existing transit service for the Town of Granby. Consider requesting a Town-wide transit survey to identify the demand for additional regional transit service and connections to local colleges and universities.

Town of Hadley - The Town of Hadley developed a Master Plan in October 2005 to preserve and protect the community among other goals. The Transportation section the Town of Hadley's master plan focuses on the following goals:

- Protect the rural and historical character of Hadley's streets.
- Promote traffic calming and pedestrian improvements.
- Expand bicycling options.
- Implement strategies that limit vehicle and traffic impacts from new development.
- Improve opportunity for regional, public transportation and other alternative means of transportation.

Town of Amherst - The Town of Amherst is currently preparing a new Master Plan.

Master Plans (or Community Development Plans) for the communities of Chicopee and Holyoke are not current or were not relevant to this Transportation and Transit chapter. However, there are several potential developments which could influence the transportation character of many roadways within South Hadley which should be considered. They are discussed later in this chapter.



Pioneer Valley Planning Commission's and Pioneer Valley Metropolitan Planning Organization's Role

Federal regulations require urbanized areas with a population over 50,000 to have a metropolitan planning organization (MPO) responsible for transportation planning.

Regional agencies play a role in the development and execution of a municipality's Comprehensive Plan. As overseers of a larger area, they help to coordinate activities, prevent conflicts, and ensure a smooth communication of the execution of the strategies, goals, and objectives from one municipality to another. The Pioneer Valley Planning Commission and MPO play an active role in bringing forward local South Hadley initiatives for funding requests (including transportation and transit funding needs) for local and regional projects to the Commonwealth.

Pioneer Valley Planning Commission⁵ – The Pioneer Valley Planning Commission (PVPC) is a regional planning agency representing 43 cities and towns in the Hampden and Hampshire county areas. As one of 13 members of the Massachusetts Association of Regional Planning Agencies (MARPA), PVPC is the primary agency responsible for increasing communication, cooperation, and coordination among all levels of government as well as the private business and civic sectors in order to benefit the Pioneer Valley region and to improve its residents' quality of life.

Although PVPC is a public sector agency, it is not a direct arm of the federal or state governments. Rather, it is a consortium of local governments that have banded together under the provisions of state law to address problems and opportunities that are regional in scope. As a result, PVPC planning area is designated as a special district under the provision of state enabling legislation. PVPC is funded through modest annual assessments from its member communities, state and federal grant programs, fees for administering community development block grants, and matching funds.

As an advisory body to member communities and to private business groups, PVPC performs research and analysis services in a wide range of planning areas: transportation and public transit, economic development, environment and land use, community development and historic preservation, data analysis, mapping, and graphic design. These services are performed by a staff of professional planners educated and trained in an array of specialized areas. PVPC's core services are supported by administrative, business, and communications staff.

Pioneer Valley Metropolitan Planning Organization⁶ – The Pioneer Valley Metropolitan Planning Organization (MPO) is the body that approves federally funded projects in Hampshire and Hampden counties. The MPO jointly develops, reviews, and endorses a Planning Works Program which includes a Unified Planning Works Program (UPWP); a Regional Transportation Plan (RTP); a Transportation Improvement Program (TIP), as well as any transportation plan or program that may be required by federal and state laws and regulations. The MPO is a forum for cooperative transportation decision making and will seek and consider the advice of any interested party in the Pioneer Valley. The Joint Transportation Committee (JTC) meets monthly to discuss transportation issues and makes recommendations on the Transportation Improvement Program (TIP), Regional Transportation Plan (RTP), and Unified Planning Works Program (UPWP) endorsements to the MPO.

▼
⁵ <http://www.pvpc.org/about/whatispvpc.shtml>

⁶ <http://www.pvpc.org/activities/transportation-mpo.shtml>



Statewide Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) is a requirement of the Metropolitan Transportation Planning Process as described by the Metropolitan Planning Final Rule 23 CFR 450 section 324. The Pioneer Valley TIP is a five-year schedule of projects identified by year and location complete with funding source and cost. The TIP is developed annually and is available for amendment and adjustment at any time. Each program year of the TIP coincides with the Federal Fiscal Year calendar, October 1 through September 30⁷.

The only project of note in the recent TIP is the reconstruction of Route 33 (Memorial Drive) through Chicopee and South Hadley. South Hadley is not noted in any other significant roadway improvement projects in the 2007 – 2010 TIP. Construction on this project is expected to begin in spring of 2010 and will consist of roadway reconstruction and signal improvements at eleven intersections. A summary of recent projects has been provided in Table 8-1.

Table 8-1
Recent TIP Projects in South Hadley

Title	Description	Progress to Date	Project Number
<u>Resurfacing: Route 202</u> (Granby Road and West State Street)	Work consists of cold planing and resurfacing a section of Route 202 in the towns of South Hadley and Granby.	100% Complete	604520
<u>Route 47/Route 116:</u> Reconstruction of Route 116 (College Street, Woodbridge Street & Amherst Road)	This project involves safety and congestion improvements along those sections of Routes 47 and 116 in the Town Common area of South Hadley. Major work elements includes: roadway reconstruction & resurfacing, new signalization, sidewalk improvements and safety-related horizontal and vertical alignment improvements.	100% Complete	601584
<u>Bridge Replacement:</u> S-18-007, Route 47 (Hadley Street) Over Bachelor Brook	The proposed project consists of the replacement of the bridge which carries Hadley Street (State Route 47) over Batchelor Brook in South Hadley. The new bridge will be constructed in the existing alignment with improvements to the approach roadway.	Complete	603260
<u>Signal Upgrades on Route 33:</u> (Memorial Drive)	This project consists of roadway reconstruction and upgrading of the traffic signals along state-owned Route 33 from Abbey Street (South Hadley) to Fuller Road (Chicopee).	Preliminary Design Phase	601672
<u>Highway Lighting:</u> Upgrade at Route 202 Rotary	No project description available.	75% Design Plans Under Review	603335
<u>Bridge Preservation:</u> S-18-015, Route 202 Over Bardwell Street & S-18-016, Route 202 Over Route 116	No project description available.	75% Design Plans Under Review	604933

7 Transportation Improvement Program, FFY 2008 – 2011, Metropolitan Planning Organization Pioneer Valley Region, Massachusetts, 2007

<u>Signal Upgrade:</u> Signal upgrade on Route 33 (Memorial Drive) from Abbey Street to Fuller Road	No project description available.	Preliminary Design Phase	601672
<u>Resurfacing Route 33:</u> Resurfacing and related work on Route 33 (Memorial Drive)	No project description available.	Preliminary Design Phase – on 2009 TIP	605260

Source: MassHighway Project Information by Town, as of November 25, 2008 (<http://www.mhd.state.ma.us/>)

■

The Range and River: An Open Space and Recreational Plan for South Hadley, Massachusetts: 2007 – 2012⁸

This plan was created for the residents of South Hadley to serve as a guide in planning for open space and recreation. Some specific goals and objectives directly relating to this Transportation and Transit Element chapter include the following objectives outlined in the Open Space and Recreational Plan:

- Increase access to the Mount Holyoke Range within the central part of the range in South Hadley (Pearl Street).
- Work with neighboring Towns to promote regional links to various town and cultural attractions (bike path along old trolley line, hiking trails along utility corridors, etc.).
- Establish a marked bicycle route through Town, linked to other bikeways in adjoining Towns.
- Develop a hiking and biking trail system that provides access to the Connecticut River and through and from the Bachelor Brook/Stony Brook Conservation Resource Area to the Mount Holyoke Range.
- Protect Conservation Areas from motorized vehicles.

Transportation Network

There are many overlapping planning priorities in the Town of South Hadley. Particularly applicable to the Transportation and Transit chapter, however, are issues surrounding the preservation of community and the enhancement of future growth. The sections below discuss the components of the transportation network in South Hadley.

▼
⁸ http://www.southhadley.org/Pages/SouthHadleyMA_Planning/2007RecPlan.pdf



Functional Classification and Roadway Jurisdiction

The functional classification of a roadway is an indicator of the type, volume, and speed of traffic it is intended to accommodate. The jurisdiction of a roadway indicates the prevailing governing body for that roadway, controlling the maintenances and other associated activities. Of note is that the majority of the roadway system is governed by the Town of South Hadley; however, the major travelled roadways including Route 116, Route 202 and a portion of Route 33 (Memorial Drive), from the Chicopee line to just north of Abbey Street, are under MassHighway jurisdiction. A summary of functional classification is provided in Table 8-2 and in Figure 8-1.

Table 8-2
Functional Classification and Roadway Jurisdiction

Roadway	Functional Classification	Roadway Jurisdiction
Hadley Street (State Route 47)	Rural minor arterial	Town
Amherst Road (State Route 116)	Rural minor arterial	MassHighway
College Street (State Route 116)	Rural minor arterial	MassHighway/Town*
Newton Street (State Route 116)	Rural minor arterial	MassHighway
Granby Road (US Route 202)	Rural minor arterial	MassHighway
Lyman Street (State Route 33)	Rural minor arterial	Town
Purple Heart Drive (US Route 202)	Rural minor arterial	MassHighway
Morgan Street	Rural minor collector	Town
East Street	Rural minor collector	Town
North Main Street	Rural minor collector	Town
Willimansett Street (State Route 33)	Rural minor arterial	Town
Memorial Drive (State Route 33)	Rural minor arterial	MassHighway

Source: EOT Roads Database.

* As of 2007, the Town has jurisdiction over College Street from Morgan Street to Amherst Road.



Journey-to-Work

An evaluation of journey-to-work census data (Table 8-3) for employed South Hadley residents indicates where residents work and how they get here. According to US Census data⁹, approximately 31 percent of South Hadley residents were also employed in South Hadley. Approximately 16 percent of South Hadley residents work in Holyoke while 12 percent work in Springfield. The majority of the remaining locations of employment of South Hadley residents are neighboring towns.



⁹ US Census, 2000, Census Transportation Planning Package, Part 2, 2003

Table 8-3
2000 Census Journey-to-Work Data
for South Hadley Residents

Location of Employment	Percent of Employed South Hadley Residential Population
South Hadley	31%
Holyoke	16%
Springfield	12%
Chicopee	9%
Amherst	5%
Northampton	4%
West Springfield	3%
Westfield	2%
Granby	1%
Ludlow	1%
Easthampton	1%
Windsor	1%
East Longmeadow	1%
Hadley	1%
Agawam	1%
Wilbraham	1%
Hartford, CT	1%
Palmer	1%
Hatfield	1%
Other ¹	7%

Source: US Census, 2000, Census Transportation Planning Package, Part 2, 2003

Note: 1. Other towns and cities not listed comprise less than one percent each of employment locations of South Hadley residents.

An evaluation of journey-to-work census data for employees of businesses in South Hadley was also conducted (Table 8-4). This assessment quantifies the locations of residence of people who commute to South Hadley for work. According to US Census data¹⁰, approximately 44 percent of people who worked in South Hadley also resided in South Hadley in 2000. Approximately 12 percent of people employed in South Hadley resided in Chicopee. The majority of the remaining locations of residence of South Hadley employees are neighboring towns.

¹⁰ US Census, 2000, Census Transportation Planning Package, Part 2, 2003

Table 8-4
2000 Census Journey-to-Work Data
for South Hadley Employees

Location of Residence	Percent of Population Employed in South Hadley
South Hadley	44%
Chicopee	12%
Holyoke	7%
Granby	4%
Northampton	4%
Amherst	4%
Belchertown	2%
Easthampton	2%
Springfield	2%
Ludlow	1%
Westfield	1%
Agawam	1%
Southampton	1%
Hadley	1%
West Springfield	1%
Ware	1%
Sunderland	1%
Deerfield	1%
Southwick	1%
Palmer	1%
Wilbraham	1%
Other ¹	7%

Source: US Census, 2000, Census Transportation Planning Package, Part 2, 2003
 Note: 1. Other towns and cities not listed comprise less than one percent each of residence locations of South Hadley employees.



Mode Share

An evaluation of mode shares in the region was conducted for South Hadley that included cities and towns in the Commonwealth as well as the state of New York, Connecticut, Vermont and New Hampshire (Table 8-5). According to US Census data¹¹, approximately 87 percent of the people who either work or reside in South Hadley reported 'car' as their travel mode to work in 2000. Of this 87 percent, approximately 78 percent were single-occupant vehicles and 9 percent were multiple-occupant vehicles. This automobile mode share is

▼
¹¹ US Census, 2000, Census Transportation Planning Package, Part 3 – CT, MA, RI, May 2004

Mode refers to a particular means of transportation (e.g. transit, automobile, bicycle, and walking). Mode share is defined as the number (or percentage) of trips between a trip origin and trip destination that are made by each mode.

Individuals select a mode of transportation based on trip purpose, trip location, characteristics of the individual, and characteristics of the available mode.



slightly higher than the regional (for Hampshire County) automobile mode share reported by other neighboring communities. Approximately 85 percent of the region reported 'car' as their mode of travel, with 77 percent traveling in single-occupant vehicles and 8 percent traveling in multiple-occupant vehicles.

Approximately three percent of South Hadley's residents work from home, which was comparable to the region. Transit, walking and bicycling rounded out the survey results at slightly over nine percent utilizing these modes, compared to 11 percent in the regional. The difference being that less than one percent utilizes transit services to and from South Hadley while slightly over two percent uses these modes in the region.

**Table 8-5
South Hadley and Regional Resident Mode Split**

Mode	South Hadley Percent	Regional Percent ¹
Single-Occupant Automobile	78%	77%
Multiple-Occupant Automobile	9%	8%
Bus	<1%	2%
Rail	0%	<1%
Walk/Bicycle	9%	9%
Work at Home	3%	3%
Other ²	<1%	<1%
Total	100%	100%

Source: US Census, 2000, Census Transportation Planning Package, Part 3 – CT, MA, RI, May 2004.

Notes: 1 Regional Percentage based on data collected from Hampshire County.

2 Other modes of transportation not listed comprise less than one percent of trips by South Hadley residents.



Vehicular Traffic Volumes

Historical traffic data¹² provides an indication to the rate of traffic growth in and through South Hadley. Table 8-6 below summarizes the growth on various roadways throughout South Hadley (for which traffic volume data was available) over the past 8-10 years based on information provided by MassHighway.



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

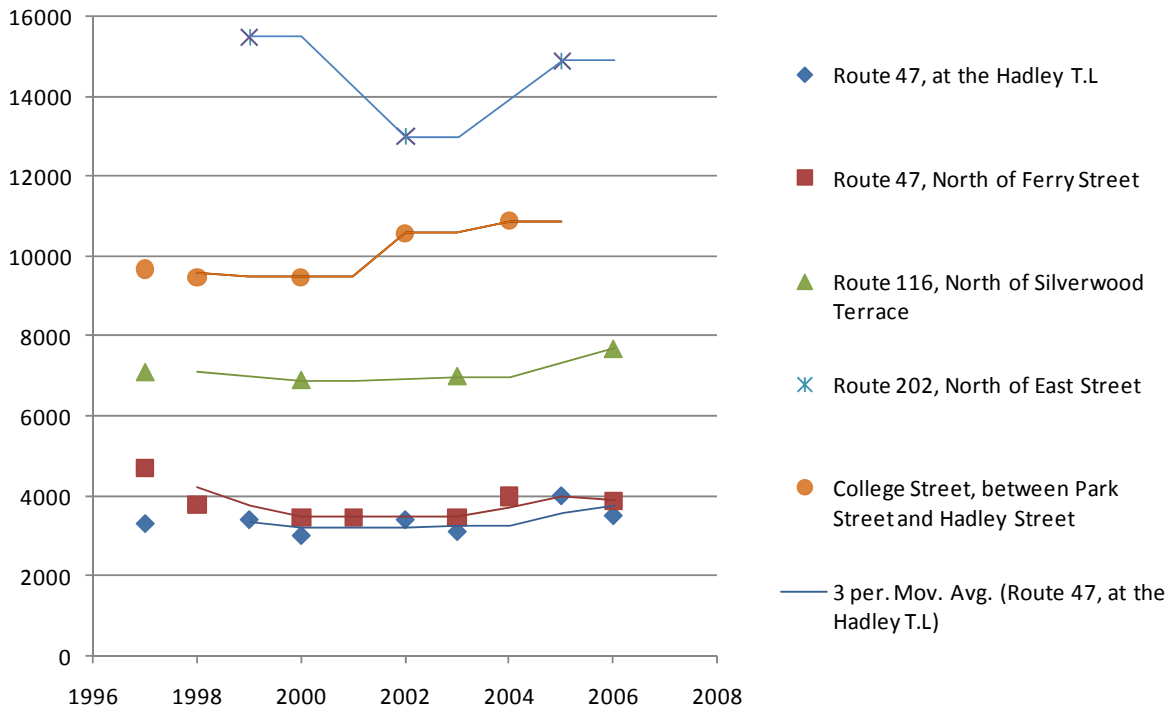
Table 8-6
Traffic Growth on Select Roadways in South Hadley

Route	Count Date		Average Annual Traffic Volume		Annualized Growth Rate (average percent growth/year)
	First Year	Last Year	First Year	Last Year	
Route 202, at Holyoke Town Line	1999	2005	23,000	21,000	-1.5%
Route 202, north of East Street	1999	2005	15,500	14,900	-0.7%
Lyman Street, south of Lincoln Avenue	1999	2005	9,500	8,000	-2.8%
Route 116, north of Silverwood Terrace	1997	2006	7,100	7,700	0.9%
Route 47, north of Ferry Street	1997	2006	4,700	3,900	-2.1%
Route 47, at Hadley Town Line	1997	2006	3,300	3,500	0.7%

Source: MassHighway traffic count data

There has been little overall growth on the local roadway networks in the community and along the major state routes (Route 47 and Route 202) from 1999 to 2005. A more detailed comparison of state routes (Route 47 and Route 116) indicate some fluctuation over the past nine years, with a noticeable increase in traffic along these route over the past three years as shown in Table 8-7. A summary of existing traffic conditions is contained in Figure 8-1.

Table 8-7
Average Daily Traffic, 1997-2006



Source: Massachusetts Highway Department (MassHighway), "Traffic Volume Count Listing by City/Town", 1999-2007.

Public Transportation and Transit

One of the Town's core goals is to develop a flexible, multi-modal system that supports not just automobiles, but public transportation, bicycles, and pedestrians, at a minimum, and which is integrated with the rest of the region's transportation infrastructure. The Town currently lacks the facilities by which to promote non-vehicular travel due, in part, to a limited transit schedule and network. There are two primary sources of public transportation in South Hadley, as described below and illustrated in Figure 8-1:

PVTA¹³ – The Pioneer Valley Transit Authority (PVTA) is the largest regional transit authority in Massachusetts with 177 buses, 175 vans and 24 participating member communities. The Pioneer Valley Transit Authority was created by Massachusetts General Laws Chapter 161B in 1974 as a funding source and to provide oversight and coordination of public transportation within the Pioneer Valley region. Funding for the PVTA comes from federal, state and local governments and fare box and advertising revenues. The cities and towns that are served by the PVTA pay an assessed amount, depending on the number of miles served in that city or town. Federal funds must be used for capital projects. Capital funds may only be spent on tangible items such as equipment, preventative maintenance of vehicles, facilities and equipment, ADA services, facility improvements and the purchase of vehicles. Operating expenses must come from grants, state and local funding and fare box revenue. Operating expenses covers salaries, benefits, advertising and marketing expenses and other cash needs¹⁴.

In South Hadley, the RED 25 route runs along Route 5/Main Street from the Holyoke Mall to South Hadley Town Center. PVTA service in South Hadley runs from 6:10 AM to 5:00 PM on weekdays, with approximate two-hour headways.

PVTA Five Colleges Bus¹⁵ – The BLUE 38 and BLUE 39 routes serve Mount Holyoke College in South Hadley, with service to the five colleges. The Mount Holyoke College PVTA station is location on Park Street, at Blanchard Hall, across from Mary Woolley Hall. BLUE 38 service at Mount Holyoke College runs from 7:20 AM to 11:30 PM with approximate thirty-minute headways. The BLUE 39 service at Mount Holyoke College runs from 6:55 AM to 11:00 PM, providing service to two colleges (Hampshire College and Smith College) with approximate thirty-minute headways. Services on both routes have some variation according to day of the week and the academic calendar. Service does not extend through the summer.

¹³ <http://www.pvta.com/index.php/about-the-pvta>
¹⁴ <http://www.pvta.com/index.php?page=about-the-pvta>
¹⁵ <http://www.umass.edu/transit/schedules.html>

The Town has identified the following goals to aid in reducing the community's reliance upon the personal automobile and increasing its connectivity with the region:

- South Hadley should work with the PVRTA and other transportation providers to make public transportation as convenient, accessible and desirable as possible.
- The Town should explore with the PVRTA and the Five Colleges the continuation of the Five College bus loop throughout the calendar year to provide a consistent commuting option.
- The Town should explore the possibility of an internal transit loop serving population centers schools, retail centers, and other key destinations. In addition to easy pedestrian and bicycle access, bus stops should be served by parking areas to allow residents throughout the Town to utilize one or two central locations for out-of-town service and/or to provide Park and Ride facilities.
- The Town should be an aggressive and vocal supporter of the regional initiative to expand passenger rail service along the I-91 corridor.



Bicycles, Sidewalks, and Trails

In addition to reducing congestion and pollution, expanding and enhancing pedestrian and bicycle facilities has many social and health related benefits for all members of the community.

South Hadley places great emphasis on developing and creating more open space and recreational opportunities as enhanced in the Town's Open Space and Recreation Plan created in 2007. One of the Town's primary goals in increasing pedestrian and bicycle facilities is to provide its residents with a range of convenient, safe, affordable, low-impact, and attractive options for circulation within the Town and throughout the region. Furthermore, the Town has identified the lack of safe, accessible, and attractive pedestrian and bicycle facilities as a contributing factor in the Town's dependence upon the automobile.

At the regional level, the Pioneer Valley Regional Bicycle and Pedestrian Plan¹⁶, created by the Pioneer Valley Planning Commission, identifies seven goals for the region. These region-wide goals are aimed towards the incorporation of pedestrian and bicycle transportation network improvements into community Comprehensive and Master Plans, such as the South Hadley Comprehensive Plan. The goals outlined by this report are as follows:

- Create a safe and comfortable physical environment for bicyclists and pedestrians in the Pioneer Valley;
- Integrate bicycle and pedestrian needs into the transportation planning process;
- Integrate bicycle and pedestrian needs into the highway design process;



¹⁶ http://www.pvpc.org/web-content/docs/transp/07_reports/bike_ped_update.pdf

- Include bicycle and pedestrian needs in highway management and maintenance;
- Integrate bicycle and pedestrian needs into the design of commercial, residential, and industrial developments;
- Decrease the number of pedestrians and bicyclists killed and injured in traffic crashes; and
- Double the percentage of commuting trips made by bicycle or on foot in urbanized areas of the Pioneer Valley.

The study further identified the current walking and biking trends in each of the communities in terms of percentage commuting per mode. South Hadley was identified as the third highest walking commuting community in the Pioneer Valley behind Amherst and Northampton. This report determined that communities with colleges increase pedestrian activity. Mount Holyoke College contributes to the pedestrian activity and resources in and around the campus, and with a region-wide drive to improve pedestrian facilities adjacent to colleges, created more opportunities for South Hadley to improve facilities around the Town.

At the local level, the community has identified several opportunities to improve and increase bicycling facilities due to deficiencies or lack of connectivity in the existing network. Some issues identified include the lack of dedicated bike lanes, narrow shoulders, and debris. Specifically, the Town has identified the following possibilities:

- Biking path trails are possible starting in the Falls and continuing to the foothills of the Mt. Holyoke Range and connecting where possible with other trail systems, bikes and public transportation.
- Include bike lanes in all road upgrade projects.
- Provide bike lanes on both primary and secondary ways to allow the Town to connect neighborhoods and resources within South Hadley.
- The Town should coordinate with PVPC to provide bike-friendly linkages with neighboring towns, many of which are promoting their own bicycle network.
- Programs should be promoted to raise awareness and promote cycling safety for residents of all ages.

While sidewalks line most of the major roadways including Route 116, Route 202, Route 33 and areas surrounding the public school system, the safety of these sidewalks is of concern. Many of the sidewalks through town are damaged and need repair, do not provide a barrier from the roadway or may not be suitable for the Town's elderly or disabled populations. In addition, residents are concerned about the lack of pedestrian connectivity to existing facilities from adjacent neighborhoods and streets that intersect the corridors. As a result of meetings and discussions, and an inventory of existing conditions, the

community has identified the following sidewalk and pedestrian facility improvement strategies:

- Develop a rational sidewalk improvement and development program.
- Give improvement and development priority to school routes, shopping areas, high density neighborhoods and areas with a high elderly population.
- Incorporate the use of pedestrian islands.
- Establish requirements mandating sidewalks and bike lanes in new developments.
- Ensure efficient maintenance, including snow removal, of pedestrian facilities.
- Utilize pedestrian facilities to include streetscaping and other aesthetic improvements.

It should be noted that in order to provide better connectivity between existing pedestrian accommodations, right-of-way may be needed along most roadways to accommodate sidewalks or wider shoulders. The availability of right-of-way would need to be reviewed in greater detail with the Town's Department of Public Works. Figure 8-2 shows existing pedestrian facilities in South Hadley.

LEARNING FROM NEIGHBORS

Local communities are taking action to encourage the use of non-motorized modes of transportation by creating safer, more attractive facilities and by offering incentive programs for individuals willing to leave their car at home.

Just around the corner from South Hadley, the Town of Amherst and the City of Holyoke are making an impact by participating in the **Massachusetts Safe Routes to School (SRTS)** program designed to "promote healthy alternatives for children and parents in their travel to and from school. It educates students, parents and community members on the value of walking and bicycling for travel to and from school".¹

Smith College has implemented a parking reduction program which provides an incentive to faculty and staff that would normally drive single-occupant vehicles to work. The program, known as the **Opt-Out Parking Program**, provides a monetary reward in exchange for making a commitment to leaving a vehicle at home and utilizing other, more sustainable, methods of getting to work such as carpooling, ridesharing, using public transportation, bicycling and/or walking. The program also provides a limited number of parking passes to each participant for days when driving is essential.²

While there are many benefits of both programs, the primary benefits center around:

- Reduction in congestion, air pollution, and traffic congestion;
- Potential increase in physical activity of participants and complimentary health benefits;

Notes: 1 <http://www.commute.com/default.asp?pgid=massrides/srsMain&sid=mrlevel2>

2 http://www.smith.edu/pubsafety/parking_optout.php

Identification of Congested Transportation Facilities

Peak hours are defined as the hours of the day when the highest volumes of vehicular, pedestrian, and/or bicycle traffic are typically encountered on a roadway.

Typically, a roadway experiences its peak hours during the times of day when commuters are traveling to and from work/home in the morning and evening.

As can be expected, the major transportation facilities in South Hadley (Route 116 and Route 202) experience greater traffic volumes, particularly during commuter, school, and shopping peak periods as compared to the more local roadways. This is primarily because these are the only two major corridors that serve the town. Route 116 traverses the Town in a north-south direction while Route 202 does so in an east-west direction. Accordingly, some intersections of these major roadways can be congested as drivers are commuting between their homes and employment during the peak hours. As development takes place in and around South Hadley – and traffic volumes increase – it is likely that many of these existing conditions will worsen without any advancement of improvements to the Town’s and State’s infrastructure. Existing and potential future transportation ‘hot spots’ are summarized below, and later in this Chapter, specific recommendations, strategies, and goals are provided to address the issues identified.

Route 202 (a.k.a. Granby Road) - The Route 202 corridor, during the peak hours, is a highly traveled roadway from the Holyoke City Line, through the intersection with Route 33 to Granby Town Line. Route 202 serves as a direct route to/from cities and towns that provide employment or shopping opportunities for those who live in smaller communities such as Granby or Belchertown. Since there is only one traffic signal, at the intersection of Route 33, it is not uncommon for drivers to drive faster than the posted speed limit. Excess vehicles speeds makes it much more difficult for vehicles to exit from side streets and driveways and can create unsafe traveling conditions for the users of the roadway. Route 202 carries the most amount of traffic in Town (according to MassHighway) at between 15,000 and 21,000 vehicles per day (vpd). Recent observations (2005) made near Mountain View Street indicate that over 1,000 vehicles travel the corridor during the weekday morning peak hour while over 1,500 vehicles have been observed during the weekday evening peak hour.

Route 116 (a.k.a Bridge Street, Lamb Street, Newton Street, College Street, Woodbridge Street) - Another major corridor in the Town, Route 116 traverses in a north-south direction connecting Route 202 and Route 47. The corridor serves a variety of uses including retail, commercial businesses, residential and institutional type uses. This dynamic corridor has seen a significant influx of smaller developments with individual curb cuts, creating more access points and vehicle conflicts; however, pedestrian accommodations are available at signalized intersections and sidewalks appear to be present along most of the corridor. Traffic volumes obtained from MassHighway indicate that areas near Mount Holyoke College carry approximately 8,000 to 10,000 vpd, while traffic near the South Hadley-Holyoke Bridge (in the Falls) carries approximately 12,000 vpd. These traffic counts were collected between 2002 and 2004 and could

be considered outdated. More recent counts were collected as part of the Cumberland Farms project just north of Lyman Street and this section of the corridor carries over 15,000 vpd with hourly volumes consistently between 800 and 1,200 vehicles per hour (vph) from 8:00 am to 7:00 pm.

Alvord Street – This corridor could become a secondary roadway connecting the Route 202 Rotary and the Town Common near Mount Holyoke College. If traffic congestion worsens along Route 116, drivers may see this as a more attractive bypass. Over the years this rural roadway has become more heavily traveled due to a significant increase in residential developments. In addition, pedestrian accommodations are not available, and pedestrians have been observed to walk in the roadway. This roadway should be preserved as a local rural roadway enforcing lower vehicle speeds and looking for opportunities to provide pedestrian accommodations.

Sunset Avenue, Pittroff Avenue, East Street and Old Lyman Road – In addition to Alvord Street, these local roadways connect major corridors through residential neighborhoods. As development increases in Town, these roadways could become a more desired ‘cut-through’ or ‘short-cut’ to avoid traffic congestion at major intersections. These intersections and roadways should be monitored as developments are presented to the Town so that the rural characteristics can be preserved.

Route 116/Route 33, Route 33/Route 202, and Route 116/Route 47 – These are a few of the major intersections in South Hadley that connect major routes. As development increases in Town, future monitoring programs should be implemented or requested of developers to ensure that the signal systems can accommodate existing and future traffic volumes.



Traffic Safety

A thorough analysis of South Hadley’s transportation network must examine traffic safety of the network, identifying problem areas on the roadway. High crash locations can signal the need for intersection improvements. Table 8-7 presents a summary of the highest crash frequency locations in South Hadley from 2003 to 2007.

Route 116 (Newton Street) and Route 202 (Granby Road) had the highest frequency of crashes during this five-year period. Furthermore, the intersection of Route 202 and Route 33 is listed as a high crash location (rank 922) in Massachusetts by MassHighway and has been observed by the South Hadley Police Department to consist of crashes of higher severities, most likely due to higher travel speeds and the significant number of turning movements. Lastly, Route 47 (Hadley Street) is a traffic safety concern in the winter months and is

most likely as a result of mountainous terrain and roadway geometry characteristics.

Table 8-7
South Hadley High Crash Frequency Roadways, 2003 - 2007

	2003	2004	2005	2006	2007	Average ¹
Route 116 (Newton Street)	46	35	30	37	40	38
Route 202 (Granby Road)	36	35	34	33	35	35
Route 116 (College Street)	29	16	16	15	13	18
Willimansett Street	16	16	14	12	14	14
Route 33 (Lyman Street)	12	13	13	16	16	14
Route 47 (Hadley Street)	15	9	10	9	11	11

Source: Town of South Hadley Police Department

Notes: 1 Average number of crashes per year.

LEARNING FROM NEIGHBORS

By using principles of 'Smart Transportation', South Hadley can plan and design a transportation network that is consistent with the Town's commitment to sustainable initiatives. Most recently, a unique partnership between the Pennsylvania and New Jersey Departments of Transportation, has led to the creation of the *Smart Transportation Guidebook: Designing Highways and Streets that Support Sustainable and Livable Communities*, published in of March of 2008. The Guidebook intends to help agencies, local governments, developers and others plan and design roadways that fit within the existing and planned context of the community through which they pass.

Smart Transportation proposes to manage capacity by better integrating land use and transportation planning. The desire to go "through" a place must be balanced with the desire to go "to" a place. Roadways have many purposes, including providing local and regional mobility, offering access to homes and businesses, and supporting economic growth. Smart Transportation recommends a new approach to roadway planning and design, in which transportation investments are tailored to the specific needs of each project. The different contexts - financial, community, land use, transportation, and environmental - determine the design of the solution.

The best transportation solution arises from a process in which a multi-disciplinary team, considering a wide range of solutions, works closely with the community. Inclusive of context-sensitive solutions (CSS), Smart Transportation also encompasses network connectivity, and access and corridor management. It will help both states and communities adapt to the new financial context of constrained resources.

Source: *Smart Transportation Guidebook: Designing Highways and Streets that Support Sustainable and Livable Communities*, prepared by the New Jersey Department of Transportation and the Pennsylvania Department of Transportation, March 2008.

Future Conditions

Once the existing conditions snapshot has been described, the next step in the planning process is to identify growth trends in the area (see the population and demographic data in *Chapter 3, Housing*). These trends are often based on previous traffic volume patterns (as described in Table 8-6), past and forecasted population growth, and major development projects. There are several smaller residential and commercial developments that are either being planned or are currently under construction.

Planned Developments

There are several developments that are in various stages of planning/permitting within South Hadley and on the outskirts of the community that have the potential to impact traffic conditions on the Town's roadways. These projects are described below; however, it is also important for the Town to identify areas where properties could be redeveloped or additional development could be considered, such as the Big Y Plaza on Route 33.

- **Mountainbrook Estates Subdivision** - 52 single family home subdivision located off of Mountain View Street (which intersects Route 202) and Westbrook Road (which intersects Mosier Street). This subdivision will not connect the two roadways.
- **Upper River Road (Future Development)** - 10-15 single family home subdivision being planned and potentially submitted to the Town in 2008.
- **Ethan Circle** - A six single family home subdivision has been submitted to the Town for review and approval. The project is located off Route 47 north of the Town Common.
- **Stonybrook Village** - Stonybrook Village is located on Route 116 just to the north of the existing Cumberland Farms and Big Y Plaza. This village includes 36 condominiums and a 4,800 square foot retail facility. At the time of this report construction was ongoing and access is being provided via Route 116.
- **Beachgrounds Renovation Project** - The renovation and expansion of Beachgrounds Park, located in the Falls, has been completed recently through an Urban Self Help Grant. This grant was used to expand the park 8.2 total acres, as is contributing to the revitalization of the Falls.
- **Holyoke Intermodal Center Project (in Holyoke)** - This is an \$8.1 million transit facility located in downtown Holyoke at the Central Fire Station on Maple Street is approximately 1.3 miles from South Hadley Town Hall. The new facility will promote transit services by serving PVRTA bus routes, intercity bus routes, taxis, bicyclist and pedestrians. The proposed facility

will also include space for professional offices, community agencies and other organizations¹⁷. This project is currently in the planning and design stage. The possibility of commuter rail service through Holyoke presents a similar opportunity upon which South Hadley could capitalize with transportation links.

- **Holyoke Canal Walk Project (in Holyoke)** – The project is expected to transform the industrial area into a vibrant downtown attraction. The first phase of the project will create a 15-foot pedestrian walkway along the City’s canals from Appleton to Lyman Streets. The second and third phase will include a similar walk along the lower level canal or from Dwight Street to Lyman Street.

Transportation and Transit Goals

To meet the needs of South Hadley’s growing population and related transportation demands, this Plan recommends strategies and actions that will help move the Town towards its goals. The Goals were developed through Comprehensive Plan outreach meetings, and through discussion and review of the data collection and findings of the planning process. These goals and the recommended actions will provide guidance in planning for existing and future transportation needs in the Town.

-
- | | |
|-----|---|
| T-1 | To develop and work towards a defined long-term vision for traffic mitigation that monitors traffic volume and land uses to avoid congestion. |
| T-2 | To promote sustainable transportation strategies and infrastructure that promote walking, biking, public transportation, and ridesharing, while minimizing the impact of new development. |
| T-3 | To create transportation connections between South Hadley Falls and the Town Common/College area. |
| T-4 | To connect streets, bike lanes, and sidewalks among neighborhoods and other destinations. |
-

¹⁷ http://www.eot.state.ma.us/default.asp?pgid=content/releases/pr110907_holyoke&sid=release

Many of the recommendations contained in the Transportation and Circulation Element have multiple benefits. One such example of this is the recommendation to improve/add streetscape and other roadway elements; such as bicycle lanes, barriers between the sidewalk and the roadway, landscaping or similar components. The consistent design of roadways to include such roadside elements can naturally increase the community's livability, aesthetic value, and create an overall community identity unique to South Hadley. The incorporation of wayfinding signage throughout the Town will help highlight the rich historical and recreational value of the Town and surrounding area and aide in the creation of the Town's visual identity.

Figure 8-3 summarizes some of the more specific area recommendations discussed below, while Table 8-8 presents an evaluation of general recommendations that the Town may want to consider in addressing existing deficiencies and as well opportunities for the advancement of the Town's goals.

Alvord Street - In certain areas of the Town, transportation facilities to accommodate housing developments may not be available without significant infrastructure improvements. For example, Alvord Street has seen an increase in residential development over the years, and as a result, there has been an increase in vehicular traffic that has consumed roadway capacity. In addition, accommodations for non-vehicular travel do not exist and the lack of safe and accessible pedestrian and bicycle facilities in these areas are contributing factors in the Town's dependence upon the automobile. The Town should investigate the effectiveness of improving this roadway to accommodate multimodal users.

Route 202 and Route 116 Corridors - Areas that are highly developed have more vehicular traffic, such as Route 202 and Route 116, and tend to be nearer to 'capacity'. This can result in delay, congestion, and negative air quality impacts. Further contributing to congestion is the limited transit schedule and network. Currently, the two primary sources of public transportation in South Hadley are the Pioneer Valley Transit Authority (PVRTA), providing bus service to Granby and Holyoke, and Hampshire County Transit, providing bus services between the Five Colleges. South Hadley should investigate the potential of providing additional transit services along major corridors as well as the development of traffic monitoring plans at currently congested intersections (i.e. Route 202/Route 33, and Route 116/Lyman Street).

Pedestrian and Vehicle Connectivity - The existing transportation network lacks an overall connectivity between local roadways and major corridors. This trend decreases the capacity of the transportation network. This can also result in high volumes of cut-through traffic on local roadways. Future developments in South Hadley should seek to increase the connectivity of the transportation

network for all users and limit the creation of dead-end streets (such as cul-de-sacs).

Holyoke Intermodal Center and Canal Walk – The development of the Holyoke Intermodal Center, as well as the more distant prospect of commuter rail service through Holyoke, provides the Town of South Hadley with an opportunity to significantly expand the transportation network and create more transportation options to the single-occupant vehicle. The creation of a strong connection to the future Holyoke Intermodal Center as well as redevelopment proposed along the Holyoke canals is critical for South Hadley’s transportation network and could also have economic benefits, specifically to the Falls.

The above components helped shape the strategies, goals, and objectives for the Transportation and Transit Element of South Hadley’s Master Plan. The plan recommends that the Town focus on three main strategies: enhancing non-vehicular transportation opportunities; maintaining or enhancing vehicular mobility in town; and controlling or regulating the amount of new traffic added to South Hadley’s roads.

Recommended Actions

Transportation - 1: To develop and work towards a defined long-term vision for traffic mitigation that monitors traffic volume and land uses to avoid congestion.

Recommended Action: Implement guidelines for traffic impact studies for new developments or redevelopments that seek reasonable and clear mitigation commitments from development projects on surrounding roadways. Sample guidelines can be found in the Appendix.

Recommended Action: Along with typical project review require an analysis of potential mitigation measures (or traffic monitoring measures) to address identified existing or potential future impacts.

Recommended Action: Require all studies with a transportation component to include a Transportation Demand Management (TDM) Plan aimed at identifying TDM strategies that discourage the use of single-occupancy vehicles and promote principles of community livability.

Recommended Action: Develop long-range transportation network connectivity goals and encourage development and redevelopment to consider mitigation strategies that promote the development of these goals.

Recommended Action: Continually assess existing and potential opportunities and deficiencies in the transportation network and prepare a town-wide improvement plan that considers:

- Safety and operational issues;
- Locations that are in fair condition and a subsequent plan to prevent them from deteriorating to poor conditions;
- Transportation network traffic growth (the Town should utilize the PVPC traffic counting program that provides free counting for up to two locations each fiscal year); and
- Short-term, mid-term and long-term solutions.

Transportation Goal 2: To promote sustainable transportation strategies and infrastructure that promote walking, biking public transportation, and ridesharing, while minimizing the impact of new development.

Recommended Action: Improve bicycle and pedestrian facilities by repairing and constructing new sidewalks; maintaining or enhancing crosswalks; adding in streetscape elements; improving roadway lighting; retrofitting facilities to meet Americans with Disabilities Act (ADA) requirements; and providing bicycle lanes, paths, and parking. Work with MassHighway to identify potential improvements or funding sources to enhance pedestrian accommodations or create bike paths.

Recommended Action: Establish a pedestrian and bicycle committee to advocate for and explore opportunities for improved facilities to enhance the current network. Committee should work with PVPC and neighboring communities to create a regional network of bicycle-safe routes.

Recommended Action: Maintain an inventory of existing pedestrian infrastructure and condition. Maintain a prioritized pedestrian facilities maintenance and development program that identifies short-term, mid-term and long-term goals.

Recommended Action: Work with the Pioneer Valley Transit Authority and the Holyoke Intermodal Center to expand public transportation services both within South Hadley and connecting the Town with the rest of the region. Explore the possibility of an internal transit loop serving population centers, schools, businesses, and other key destinations.

Recommended Action: Participate in State or local programs that encourage the use of public transportation, ridesharing, or other transportation modes options such as *Mass Rides*.

Recommended Action: Create a promotional public awareness campaign that raises awareness about the benefits of utilizing different modes of transportation such as public transportation, walking and bicycling.

Recommended Action: Encourage new developments and redevelopments to consolidate curb cuts, incorporate intersection/roadway safety improvements into mitigation measures and consider aesthetic improvements to study areas.

Transportation Goal 3: Transportation connections between South Hadley Falls and Town Common/College area.

Recommended Action: Work cooperatively with PVTA and MassHighway on Route 116 and Route 202 improvements/enhancements, including signage, sidewalk repairs and enhanced pedestrian crossings.

Recommended Action: Work cooperatively with PVTA and the Holyoke Intermodal Center to expand public transportation to the Falls and the Commons/College area.

Recommended Action: Connect the Falls to the Commons/College area by establishing adequate and reasonable pedestrian and bicycle connections between the two areas of South Hadley.

Transportation Goal 4: To connect streets, bike lanes, and sidewalks among neighborhoods and other destinations.

Recommended Action: Review the available right-of-way on side streets and investigate opportunities to connect adjacent neighborhoods to major corridors with adequate pedestrian and bicycle facilities.

Recommended Action: Review the overall transportation network and identify locations to increase connectivity and circulation.