



AMHERST TRANSPORTATION PLAN

April 2015

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Contents

1	Introduction	1-1
2	Existing Conditions	2-3
	Walking	2-4
	Bicycling	2-9
	Transit	2-12
	Driving and Parking.....	2-16
	Community Input	2-22
3	Needs Assessment	3-28
	Walking	3-29
	Bicycling	3-32
	Transit	3-35
	Driving and Parking.....	3-37
4	Recommendations	4-39
	Recommended Strategy Implementation Matrix.....	4-40
	Programmatic Strategies.....	4-41
	Transportation Education Programs	4-43
	Organize Town-Wide Transportation Demand Management Program	4-44
	Transportation Decision-Making Process.....	4-45
	Innovative Funding Systems	4-46
	Project Prioritization Process	4-47
	Walking Strategies.....	4-48
	Sidewalk Gap Program.....	4-50
	Walk to School Program.....	4-51
	Traffic Calming Program	4-52
	Site Plan Review Standards to Support Walkability	4-54
	Crosswalk Specifications	4-55
	Walking Incentive Program.....	4-57
	Bicycling Strategies.....	4-58
	Install Bicycle Infrastructure Accommodations at Intersections	4-60
	Bike Education Program	4-61
	Bike Share.....	4-62
	Trail and Conservation Area Connections.....	4-63
	Bike Rack Standards	4-64
	Bike Repair Stations	4-65
	Develop Bike Lane Maintenance Protocol	4-66
	Install Protected Bike Lane Infrastructure.....	4-67

Transit Strategies.....	4-68
Bike Racks at Transit Stations.....	4-69
Transit Stop Enhancements.....	4-70
Real Time Transit Information.....	4-71
Local Transit Plan.....	4-72
Transit Signal Priority.....	4-73
Fixed Guideway Transit Plan.....	4-74
Driving and Parking Strategies.....	4-75
Establish Signal Timing Standards.....	4-76
Intersection Redesign.....	4-77
Enhanced Pavement Management Program.....	4-78
Revised Parking Standards.....	4-79
Car Share Expansion.....	4-80
Vanpool/Carpool Program.....	4-81
Unbundled Parking.....	4-82
Demand-Based Pricing.....	4-83
Event Management Program.....	4-84
Remote Parking Incentive.....	4-85
Parking Benefit District.....	4-86
Remote Parking Walk Connections and Wayfinding.....	4-87
Shared Parking District.....	4-88
Parking Utilization Data Program.....	4-89
Commercial Loading Zone Regulations.....	4-90
Best Practices Source List.....	i



1 INTRODUCTION

Amherst is at a unique point in its evolution: continued residential growth is concentrating in a new mixed-use form within the town's walkable village centers, especially Amherst Center; the town's internationally-respected higher education institutions have embraced an enduring shift away from automobile reliance, instead responding to students and staff that prefer connected places close to campus; an unprecedented growth in bicycle travel has marked a permanent attitude shift and a new focus on safety and health; and excessive approaches to accommodating car parking have been openly discussed and influenced by smarter technologies and efficiencies that are becoming commonplace in similar communities around the country. The new Amherst is still the old Amherst – a welcoming and friendly place with narrow rural roads, beautiful public spaces, historic buildings, and de-centralized village centers with their own identities. What is new yet increasingly common is a broader view of how the community's progressive yet efficient priorities translate into an increase of travel by means other than the automobile. This shift encourages a new look at how Amherst's transportation systems have shaped the community and how they might evolve to reflect Amherst's growth.

This broader look at transportation's role in Amherst can be summarized by the vision statement developed by volunteer members of the Town's Transportation Plan Task Force:

“The Amherst Transportation Plan will create a guide for the town to create an economically and environmentally sustainable, multi-modal transportation system that accommodates all members of the Amherst community. The Plan will provide for the safe, convenient, and efficient movement of people and goods throughout the Town and connecting with other communities.”

The Amherst Transportation Plan is intended as a living framework to guide the Town in a suitable manner that intelligently and rationally addresses the strengths and weaknesses of the existing transportation system. It makes recommendations for needed transportation planning, programming, and operations improvements today, tomorrow, and in the long-term in several areas:

- Public bus and rail transit systems
- Alternative transportation systems
- Roadway system
- Traffic circulation
- Traffic calming
- Vehicle parking
- Intermodal connections
- Transportation needs of the business community, village centers, and neighborhoods
- Connections to communities neighboring Amherst

The recommendations contained within this report build upon a summary of recent data and reports (see the Existing Conditions section), as well as a summary of needs (see the Needs Assessment section) developed by members of the Task Force, a team of consultants, and especially the residents of Amherst, who were

actively engaged and surveyed during the effort to create this plan, contributing to the diversity of strategies contained herein. The Task Force recommends that Amherst consider implementing these strategies, possibly in a manner suggested by the Preliminary Implementation Matrix.

With continued regional and local growth expected in an era of declining state aid and municipal budgets, the Task Force believes it is essential that this effort determine the most cost-effective and practical strategies. Building upon the Town's Master Plan, the Transportation Plan has developed a cost-constrained set of recommendations by engaging a broad spectrum of stakeholders and fairly weighing their diverse priorities.

Framing the Context of Transportation Recommendations for Amherst

In order to go forward with recommendations, it is important to understand the context of Amherst within the region and in its historical evolution. Amherst has and continues to represent some of the best qualities possible in an American community. It contains a cohesive collection of high-quality neighborhoods, historic buildings, inspiring rural vistas, superior schools, vibrant commercial areas, and world-class institutions. The Town has historically embraced regional growth in a sustainable manner, preserving both open space and the character of its built environment. This has made it appealing to generations of families, students, merchants, and professors. Amherst also serves as a regional employment and service center for surrounding towns.

However, the inevitability of continued growth, both locally and regionally, requires the town to think carefully about the optimal type of transportation future that will balance economic vitality and the high quality of life that Amherst residents and workers currently enjoy. Amherst realizes that ongoing success of an economically vibrant, diverse, safe, and sustainable community will depend upon its ability to maintain and expand a fully-integrated, multi-modal transportation system that promotes alternatives to car travel. To that end, the 2010 Master Plan calls for the creation of a “coordinated plan for current and future transportation.” To achieve this, the Town must develop more efficient management of existing transportation resources, develop a systematic approach for future transportation priorities, and identify ways to strengthen intermodal connections locally and regionally.

As home to three institutions of higher learning, Amherst hosts a large student population during the school year, which creates unique seasonal pressure on all modes of transportation. Often opting for non-car options, the college populations also increase the viability of enhancing a range of transportation options throughout town. The student population provides a few thousand new residents each year, and the Town recognizes that strategies for consistent signage, markings and education programs are key to creating an informed student culture around all transportation systems.

The Amherst Transportation Plan has been developed to address these challenges and – effectively implemented – will support the town's long-term success.

2 EXISTING CONDITIONS



This Existing Conditions section compiles and summarizes existing data relevant to the Amherst Transportation Plan. It reviews existing walking, biking, transit, parking and driving data, and it summarizes key findings from a multi-day public event held in October 2014. The event, known as “Transportation Days,” sought further insight into multimodal conditions in Amherst and included two pop-up workshops, a walking tour of downtown, and multiple group interviews with various public and private stakeholders. This report identifies critical issues that affect safety and mobility, then identifies basic multimodal needs, deficiencies, and areas requiring further investigation. No recommendations are made in this section of the Transportation Plan, which is instead designed to set the stage for subsequent analysis and recommendations.

This section builds on concerns raised by the 2010 Amherst Master Plan and reflects data and information gathered from the Town of Amherst, the Pioneer Valley Planning Commission (PVPC), Pioneer Valley Transit Authority (PVTA), Massachusetts Department of Transportation (Mass DOT), MassGIS, the 2013 American Community Survey (an annual survey distributed to communities by the U.S. Census Bureau), past studies by the University of Massachusetts Amherst, and comments received during the public workshops described above. Observations from the consultant team are also included.

WALKING



Views of North Pleasant Street in downtown Amherst, which includes wide sidewalks and improved crosswalks

The Walking System Today

Amherst has a walkable downtown area with high levels of foot traffic throughout most hours of the day, every day of the week – especially when its institutions of higher learning are in session. Pedestrian activity is strong between the downtown and nearby neighborhoods, including Amherst College and the University of Massachusetts. Outside the downtown and immediate vicinity, Amherst also has pedestrian-friendly village centers and commercial areas that generate regular walking activity, and people frequently walk and jog, even on streets that do not have sidewalks. Most streets throughout the downtown and within these village areas have sidewalks on at least one side of the street, but there are not continuous sidewalks connecting between centers.

In the downtown area and village centers, crosswalks are present at most intersections and in prime mid-block locations. Many crosswalks in the downtown area include a concrete treatment to improve their lifespan and visibility, while other crosswalks in town are marked with either an international standard “ladder” or conventional “parallel bar” pavement markings. The Town has addressed more difficult pedestrian crossings of wider streets that don’t have traffic signals through the installation of landscaped median refuges accompanied by flashing signals and advance yield triangles.

According to the 2013 American Community Survey 5-year estimate, 18% of the town’s workers commute by foot. In Amherst Center, 34% walk to work, while around 10% of people walk to work in both North and South Amherst.



Mid-block crossings on South Pleasant Street near Amherst College

Amherst's sidewalk network near downtown is robust, with sidewalks on both sides of the street in most places and few gaps. More gaps and fewer sidewalks exist the further one travels from downtown.



Data Sources: Town of Amherst | MassGIS

Pedestrian Safety Treatments

In many areas of town where pedestrian volumes are higher or vehicular conflicts occur more frequently, the Town has responded by installing advanced safety measures designed to improve the visibility of pedestrians, reduce approaching vehicle speeds, or both. Treatments include splitter islands at roundabout intersections, mid-block crossing islands, curb extensions, and raised crosswalks. While many of these installations are well-designed and state-of-the-art, Amherst has no organized program or design standards for pedestrian safety enhancements or “traffic calming” devices like these and others.



Splitter Islands at the North Pleasant & Governor's roundabout



Raised Crosswalk on Eastman Lane



Curb Extensions on South Pleasant Street



Raised Crossing at Boltwood Walk

Areas of Concern for Walking

Walkability is more challenged in residential areas outside the downtown where sidewalks are not present, vehicle speeds are higher, and blind spots hinder drivers' visibility on curved roads. Due to the rural character of Amherst, there are many such locations, but notable pinch points occur along several roads where a tight curve, dip, or rise causes recurrent concerns for pedestrians, such as along Bay Road, Mill Lane, Mill Street, North East Street, Potwine Lane, and State Street.

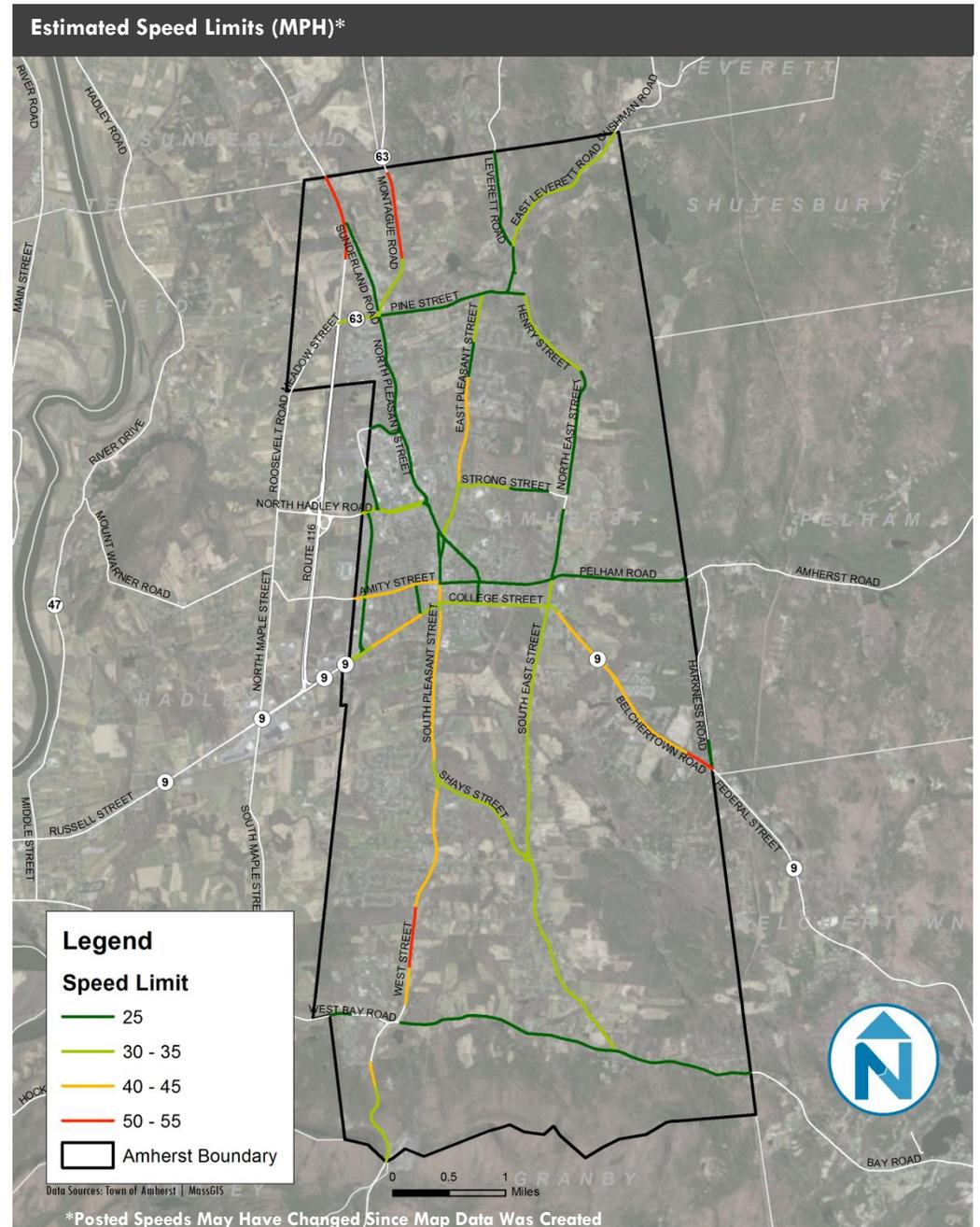
In areas of heavier pedestrian activity outside downtown and village centers, notable gaps in the sidewalk network were called out by residents during "Transportation Days." There is not currently a comprehensive sidewalk plan that assesses the existing sidewalk network and prioritizes improvements at these or other locations. Furthermore, there are many areas in need of sidewalk maintenance.

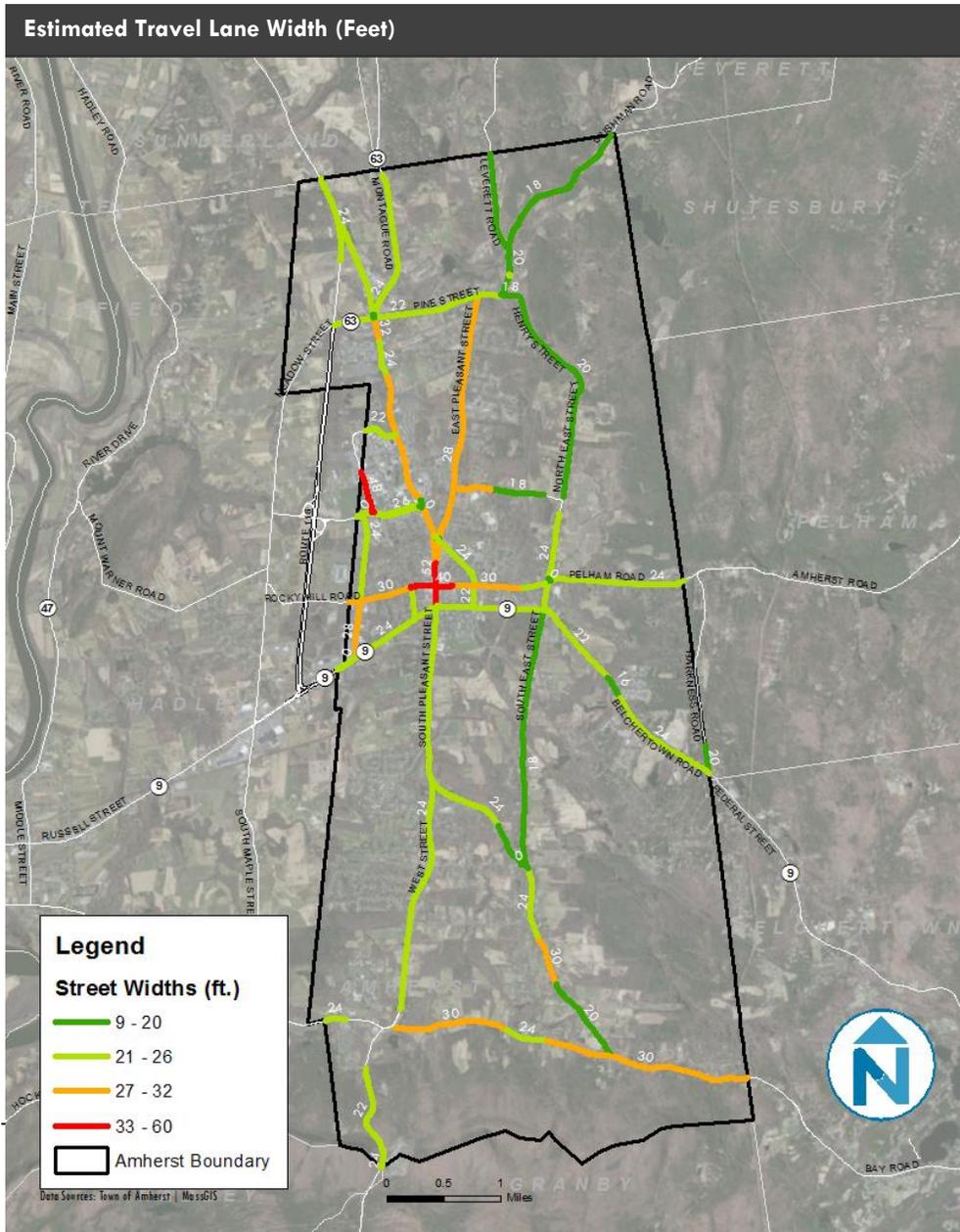
During workshops and stakeholder interviews on "Transportation Days," many residents expressed additional walking network concerns that are shown in Section 6 of this report. Foremost among these included preferences for new or improved pedestrian links between neighborhoods and nearby schools, parks, and trails.

Speeds and Street Width

As Amherst becomes more accessible on foot to its residents, so does the desire to expand the network of safe walking facilities. In many cases, adding trails or sidewalks is difficult due to limited public right of way (ROW). Even where ROW exists, funding is always a concern and must be weighed against other priorities.

One of the biggest threats to walking that Amherst faces is the tradeoff between vehicle space and pedestrian space on its narrow roads. On many streets there is not room to provide sidewalks and preserve existing vehicle capacity. Unfortunately, the conflict frequently occurs where vehicle speeds are higher. Permitted speeds outside the downtown – even in some village centers – exceed 25 mph, requiring walkers to be safely separated from cars on sidewalks or paths.





Crossing higher speed roadways is the biggest threat possible for a pedestrian. A pedestrian hit by a car below 25 mph is likely to survive, while above 25 mph, that pedestrian is likely to die.¹ This is exacerbated where street width is greater – not only because the crossing distance is longer but because the average vehicle speed is typically higher. Crash incidents are rare on streets under 25-feet wide, while they increase exponentially above 40-feet.²

Street design—including lane width, number of lanes, sight distances, and curb treatments—affects driving speeds more than posted limits. Today, streets are wide in many areas outside of downtown Amherst, most notably Bay Road, East Pleasant Street, and portions of North Pleasant Street.



Potwine Lane has high pedestrian demand, but drivers often travel at dangerous speeds around blind curves



South Pleasant Street has an off-street path, but it's in need of maintenance.

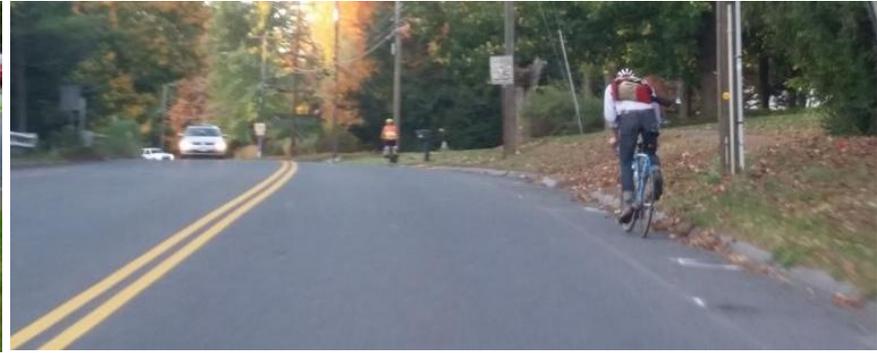
¹ Traditional Neighborhood Development Street Design Guidelines, Transportation Planning Council Committee 5P-8, Institute of Transportation Engineers. Washington D.C., 1997

² Residential Street Typology and Injury Accident Frequency, Peter Swift, PE, Dan Painter, AICP, and Matthew Goldstein.

BICYCLING



Goods delivery by bike, downtown Amherst



Bicyclists on South Pleasant Street/West Street

The Biking System Today

Amherst has a developing bicycle network that consists of some standard five-foot bike lanes along North and East Pleasant Streets, as well as two multi-use trails: the Norwottuck, a rail-trail which connects the town to Hadley and Northampton that is built mostly to modern path standards; and a multi-use trail along North University Drive connecting UMass Amherst to the Norwottuck, which is technically wide enough only for cyclists³. People who bike also make use of wide shoulders on bike-friendly roads, like that on South Pleasant Street/West Street between the Norwottuck and Hampshire and Amherst Colleges.

Two percent of Amherst residents bike as their means of travel to work (according to the 2013 American Community Survey 5-year estimates). That figure is closer to three percent in areas of North and South Amherst. The largest amount of non-work biking is associated with UMass-Amherst where extensive bicycle activity can be regularly observed. On a good weather day, people can be seen biking throughout town, and downtown Amherst hosts people who bike on a regular basis. Unfortunately, due to the threats presented by narrow streets and fast vehicle speeds in some areas, many people want to ride on sidewalks, but those in need of repair are practically impassable on a bike.

The Town continues to expand its bike parking system, especially in downtown, and each institution of higher learning has growing bike parking systems as well. Section 7.8 of the Town's zoning bylaws states that any land development required to provide 10 or more vehicle parking spaces must also install bicycle racks, with approval for the design and number by the permit board. Meanwhile, all PVTA buses are equipped with front-loading bike racks.

³ Minimum acceptable width for a shared-use path is 10-feet plus two 2-foot flat shoulders, per guidance from the American Association of State Highway Officials (AASHTO), the National Association of City Transportation Officials (NACTO), and others.



Crowded bike racks in downtown Amherst

Bike Sharing

The Pioneer Valley Planning Commission (PVPC) is currently exploring the feasibility for establishing a pilot bike share program with Amherst, three other local towns, and area colleges. A bike share system involves the provision of publicly-accessible bicycles that can be shared or rented for a limited period of time. The PVPC's study area focuses on and near transit stops and rail stations with connections to local colleges.



Example bike share station, Hubway of metro-Boston

Biking System Concerns

Roads with dedicated bike facilities still represent a small proportion of the street network both town-wide and downtown. Bike trails and dedicated bike lanes run north-south on the corridors of University Drive and North Pleasant Street, but they do not extend north of Governor's/Eastman Lane or south of the Norwottuck. The single east-west bike facility is the bike lanes on Main between Triangle and North East Street. These corridors serve only a few of the many biking desire lines in town. Some other bike-friendly roads supplement the limited Town system, but accommodation overall is minimal. Numerous residents commented during "Transportation Days" that the bike lanes and road shoulders regularly have debris in them which could damage bike tires.

The Amherst Master Plan identifies a number of biking needs in Amherst including:

- Bicycle lanes on all major arterials and commuter roadways and "Share the Road" signs where there is insufficient width to accommodate bicycle lanes
- Improving bicycle safety at crosswalks and railroad crossings
- Integrating the bicycle network with footpaths and the multi-use trail system
- Making village centers more bicycle-friendly with the addition of bike lanes and supporting infrastructure such as bike racks at major destinations like key bus stops and shopping areas.

For those seeking to park their bikes once in downtown, bike racks are widely distributed, but the more visible locations in front of stores are over-subscribed with bicycles locked to trees in many places. Several bike racks are not compliant with the latest bike parking standards, instead utilizing older "radiator rack" or other designs that do not provide sufficient support to avoid damaging a bike that may be bumped or knocked over when secured to the rack.



Share the Road signs in downtown Amherst



A bike attached to the support of a "radiator rack" as the intended vertical bars would otherwise damage the bike

TRANSIT

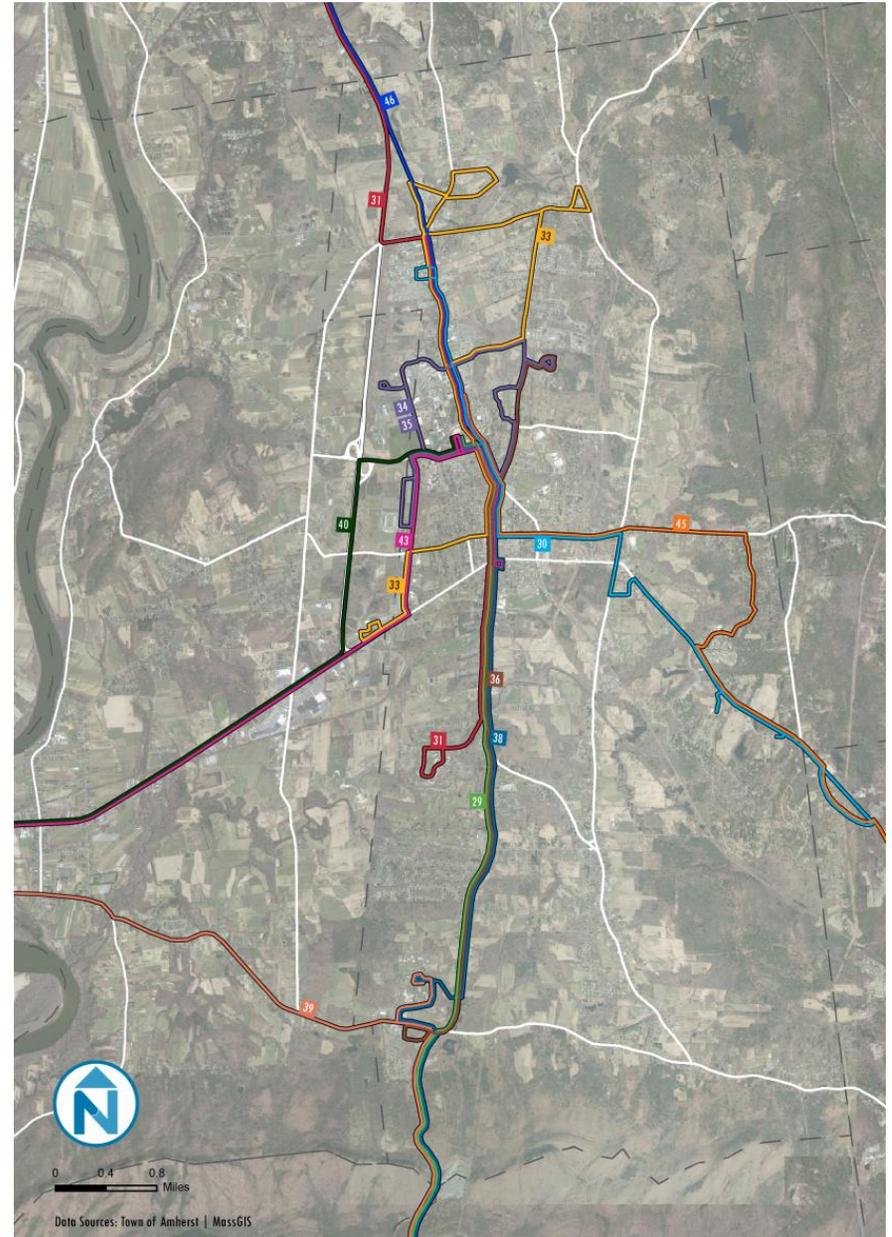
Bus Service Today

Compared to most communities its size, Amherst is blessed with robust transit service, and town-wide, 10% take transit to work (ACS 2013 5-year estimate). The Pioneer Valley Transit Authority's (PVTA) Routes 30, 31, 33, 34/35 and 38 provide service to Amherst and UMass-Amherst. All routes operate seven days a week during the academic year. Additionally, Routes 39, 43, 45 and 46 along with two other express routes (Route 39E and 40) are regional services that connect UMass to nearby communities, including Northampton, Belchertown, South Deerfield, and Holyoke. Although PVTA recently implemented improvements as part of its Comprehensive Services Analysis project, there are continued concerns about lack of service in some areas and with regional connections to Holyoke, Springfield, and Greenfield.

While these routes also run on weekends and late evenings, services are either reduced or unavailable for most of the current routes when school is not in session, such as the summer break, winter break, and spring break. However, PVTA is currently in the process of implementing a new route that would provide service on weekdays and Saturdays during the non-academic calendar year. The new route would serve Pleasant Street through downtown Amherst and to Atkins Farms with 45-minute frequency between 8AM and 8PM.



Bus Routes in Amherst



Concerns With Bus Service

During “Transportation Days,” many residents expressed the desire to have 12-month service, including bus connections during times when colleges and universities are not in session.

Though some bus stops have shelters, many are also in need of repair, and most lack more modern amenities, such as information signs and maps, real time travel information, improved pedestrian connections, and bike racks. Most lack even a paved pad or a bench.

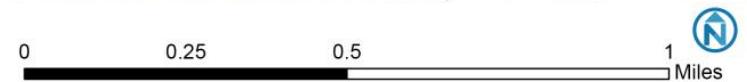
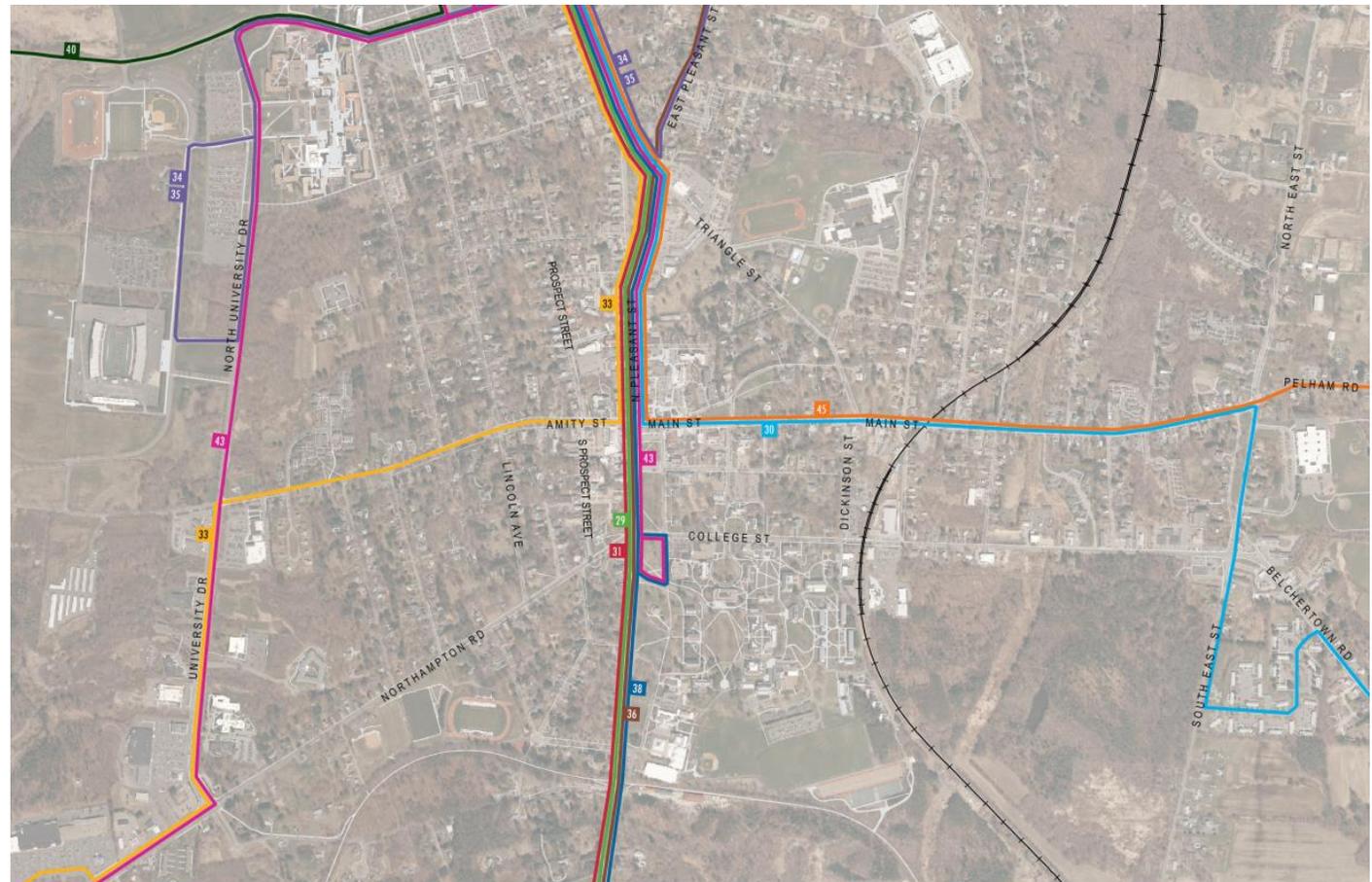
Downtown Transit Routes



Bus shelter, downtown Amherst



Bus stop with sign and schedule but lacking any passenger comfort amenities



Data Sources: Town of Amherst | MassGIS

Train Service

As of December 29th, 2014, the Amtrak Vermonter service, which travels between Washington DC and Brattleboro VT, was relocated to the “Knowledge Corridor” – bypassing Amherst MA and following a more direct alignment along the Connecticut River. The Vermonter now makes stops at Greenfield, Northampton, and Holyoke. While accessing Amtrak now requires a longer drive or bus trip, the new alignment allows fast and more frequent train service.

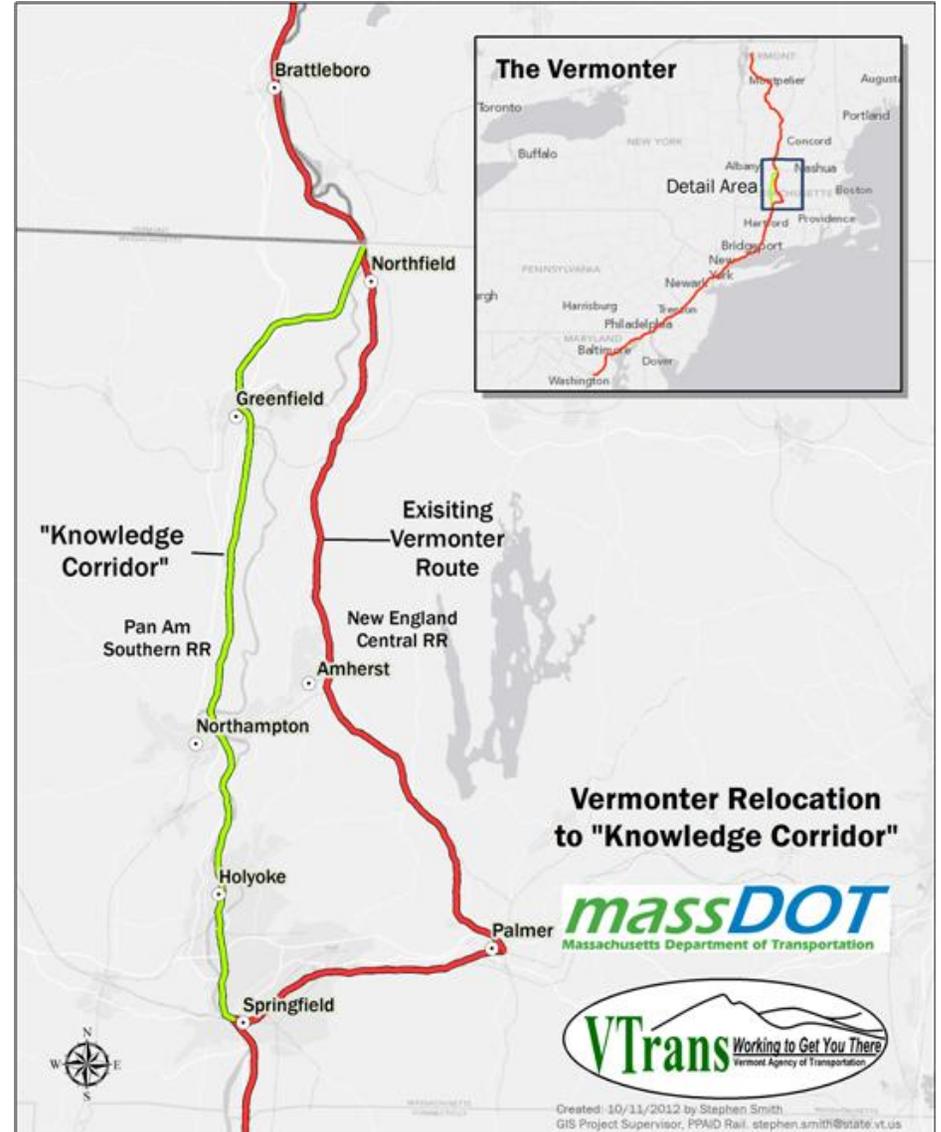
A new train line from Brattleboro VT to New London CT has been proposed by a number of regional advocates that would include a stop at Amherst and the neighboring towns of Millers Falls and Palmer. According to a recent MassDOT study, this line could carry nearly 500 riders per day, although this does not meet the State’s threshold to advance it into competition for Federal funding with other State-supported rail investments. Nonetheless, the merit of considering this connection in the future has warranted advocacy for new feeder connections that could occur now between Amherst and Amtrak’s existing “Inland Route” at Palmer.

This would provide new transit options between Amherst, Boston, Worcester, and the entire Amtrak network.

Proposed Central Corridor



2012 Plan for Amtrak Vermonter Relocation to the “Knowledge Corridor” – Now Implemented



The Town of Amherst wishes to re-establish rail service, both to encourage investment in the town and to maintain access to local, regional, and interstate markets by rail. The 2010 Amherst Master Plan highlights the importance of rail in town as well as with connecting bus transit services to the train station in Northampton. It specifically states:

- Support development of the Town of Palmer as the site for a major railroad hub providing passenger and freight rail service and connections between Amherst and Boston, Springfield, Albany, and points south along the New England Central, including UConn Storrs and New London.
- Work with PVTa and other regional providers to develop dedicated, regular bus service between Amherst and the new north-south rail stop in Northampton.
- Advocate for expanded and more direct bus service from Amherst to other major employment centers in the region.

MassDOT is currently working with other New England partners to complete improvements to the east-west “Inland Route” CSX line between Boston, Worcester, and Springfield, as well as the north-south “Knowledge Corridor.” The Town will continue to be a supporter of these efforts.

Amherst Depot



DRIVING AND PARKING



Vehicles waiting for the signal at Amity on North Pleasant Street



Payment station in the "CVS" municipal lot



Permit parking sign in downtown Amherst

Parking Today

Since the 1960s, the Town has expanded the supply of downtown surface parking lots, and in 2003, it completed construction of a structured parking facility. Currently, downtown Amherst has over 2,000 parking spaces, including 538 (27%) public, 1,159 (57%) private, and 331 (16%) on-street permit spaces. The public system includes one structured facility, the Boltwood Garage, seven surface lots, and on-street metered spaces. Recently installed pay-by-space parking meters accept credit card payments at several off-street facilities.

Following a recommendation in the 2010 Amherst Master Plan, the Municipal Parking District (MPD) was expanded to include the northern end of the downtown area. The MPD exempts certain uses from providing on-site parking, supporting a policy of denser more sustainable development in the town center. In 2011, the Town introduced new rates, raising on-street meters to 50 cents per hour, which is equivalent to the rates in off-street parking lots. The cost of annual residential and employment parking permits was reduced and annual lower level garage space rates were increased.

In January 2015, as part of ongoing efforts to improve the parking system, the Town hosted the second of two forums to gain public input on the current parking system and future needs. The Town may collect additional data in the coming year to examine how parking demand has changed since utilization data was last collected in 2008 and to examine potential demand for parking supply changes.

In addition to providing parking information, and consistent with the Town's policy to encourage non-motorized modes and transit, the Town's website also promotes public transportation with links to PVTA, UMass transit service, a Park and Ride in Deerfield, and Ridebuzz, the local ridesharing program, where residents can arrange shared rides to work, appointments, and other destinations with area residents.

Parking Regulations in Downtown Amherst

On-street parking regulations in Amherst are tailored to short-term visitor stays, with long-term parking only accommodated in lots and garages (or by permit in remote locations)



Concerns with the Parking System

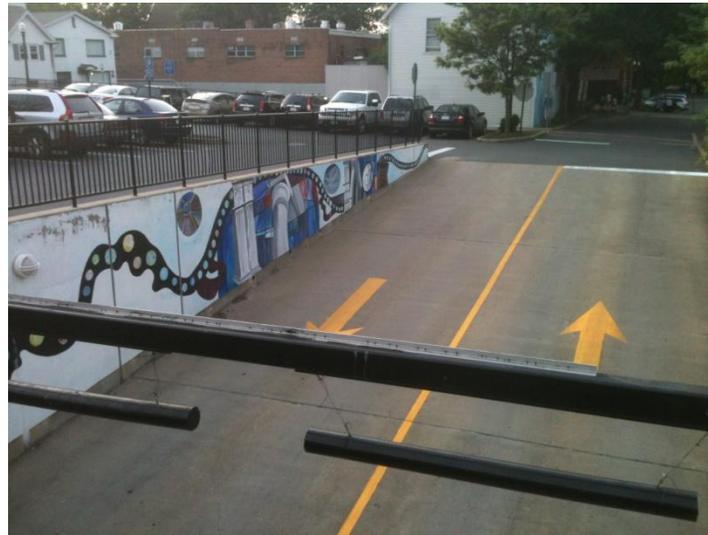
The 2008 PVPC parking study concluded that overall, the current parking supply sufficiently meets demand. However, demand is unevenly distributed. Lots in the southern part of downtown are frequently over capacity and other lots, such as Pray Street in the northern section of downtown, are underutilized. To improve overall system efficiencies, improvements to public access were recommended. Suggested areas for improvement included better pedestrian connections between existing underutilized parking and downtown destinations. PVPC noted this might include clearly marked paths, improved pedestrian wayfinding, and other elements that would encourage visitors to park once and walk instead of driving between destinations and parking multiple times. To encourage use of remote lots, other potential improvements include better lighting to increase the sense of safety and security.

Amherst's 2010 Amherst Master Plan identifies a number of parking strategies which will be further explored as part of the Transportation Plan:

- Adjust regulations to help reduce the number of cars in the downtown area, including increasing shared parking regulations
- Organize the public parking supply more efficiently, including introducing tiered parking pricing based on convenience (charging more for more convenient spaces closer to downtown destinations, with discounts for parking more remotely)
- Evaluate existing downtown public and private parking areas for upgrade and/or expansion, such as the Boltwood Walk parking garage, CVS lot, and Amity Street lot.



Parking signs in downtown

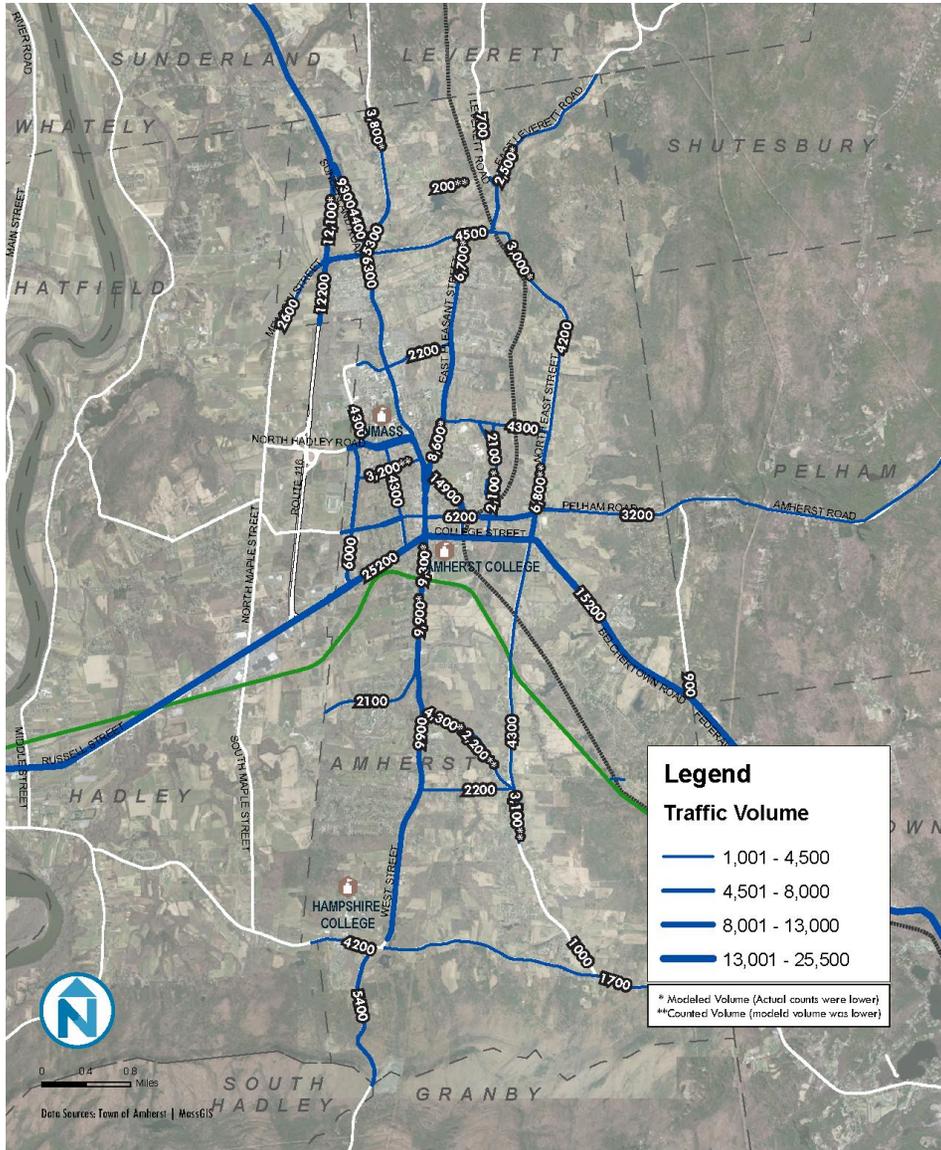


Boltwood Walk garage



Pay by space payment station at the Boltwood Walk garage

Regional Traffic Volumes (AADT) in Amherst



Amherst Roads Today

Nearly 50% of Amherst residents drive alone to work, which is a much lower mode share than the 72% who drive to work on average in Hampshire County (ACS 2013 5-Year Estimates). In areas like Amherst Center, the drive alone mode share is even lower at just over 30% (ACS 2013 5-Year estimate).

Average daily traffic volumes are highest on Route 9, Route 116, and Triangle Street – each exceeding 10,000 cars per day. Other than pieces of North Pleasant and North East Streets that connect between the heavier volume roads, all other roads in Amherst have fewer than 10,000 cars per day. Nowhere in Amherst do volumes approach any reasonable threshold for requiring more than one lane in a direction of travel, except at certain intersections where turn lanes are present.



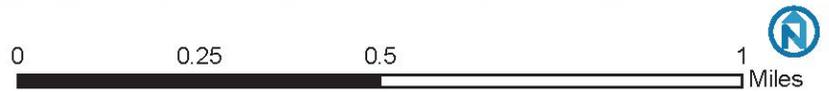
View down North Pleasant Street

Local Traffic Volumes (AADT)



Legend

	1,001 - 2,500		10,001 - 15,000
	Structures		15,001 - 25,500
	Sidewalks		
	Rail Lines		
			*Modeled Volume (actual counts were lower)
			**Counted Volume (modeled volume was lower)



Data Sources: Town of Amherst | MassGIS

Concerns with Driving

While regional traffic growth has been stagnant for many years, several intersections throughout Amherst experience congestion, mostly at rush-hour. During public outreach, many residents also report concern over speeding on side streets that have blind curves, which present a danger to all road users, and they expressed concern over some spots posing difficulty due to pavement condition and debris on the road.



North Pleasant Street in downtown Amherst during the evening peak hour

COMMUNITY INPUT



Transportation Days

On October 17th and 18th, 2014, the Town and the consultant team hosted a two-day workshop to collect public input in the field. The event, publicized as “Transportation Days,” included two pop-up workshops using a van covered with informational posters to attract interest and solicit public input. Nelson Nygaard staff manned tables and encouraged participants to map their transportation concerns and discuss ideas with the project team. Much of this input has contributed to this report.



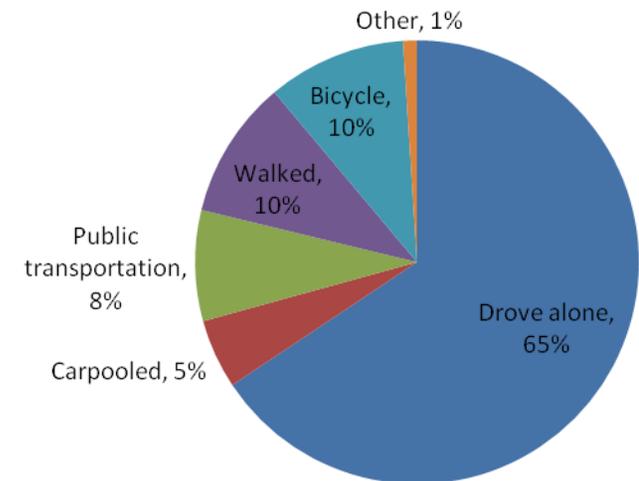
Online Survey

A survey was posted online from September 25th to November 30th. Nearly 600 residents and visitors participated. To help build a picture of existing travel patterns and preferences, respondents were asked to provide basic data, such as their town of residence or village within Amherst, their primary mode of travel, and their level of car ownership. Many survey questions focused on gauging support for different types of transportation infrastructure improvements, ranging from wider sidewalks to additional downtown parking to more bus stop amenities (see Appendix for more detail). A sample of questions is provided below:

- How would you rate Amherst’s transportation facilities in general?
- How strongly would you agree or disagree with the following statements about current street conditions and design in Amherst? (partial list below)
 - Vehicles travel at safe speeds
 - Sidewalks are completely built and well-connected throughout Town
- Please rate how important you think each of the following potential street infrastructure improvements are (partial list below):
 - Wider sidewalks
 - Additional road capacity and turning lanes

Highlights of the online survey are summarized below:

- 83% were Amherst residents (with most residents of Amherst Center), with 17% from surrounding towns
- 65% walk for trips that are less than a mile
- When cold, dark, and wintery, 70% of respondents choose to drive as their primary mode instead
- 52% of respondents have two cars at home, 30% have one, 5% have none
- Most respondents were neutral to somewhat inconvenienced by the loss of bus service during UMass intersessions
- Respondents rated designing and building streets so that they are walkable, bicycle friendly, and safe for a wide range of users as very important.



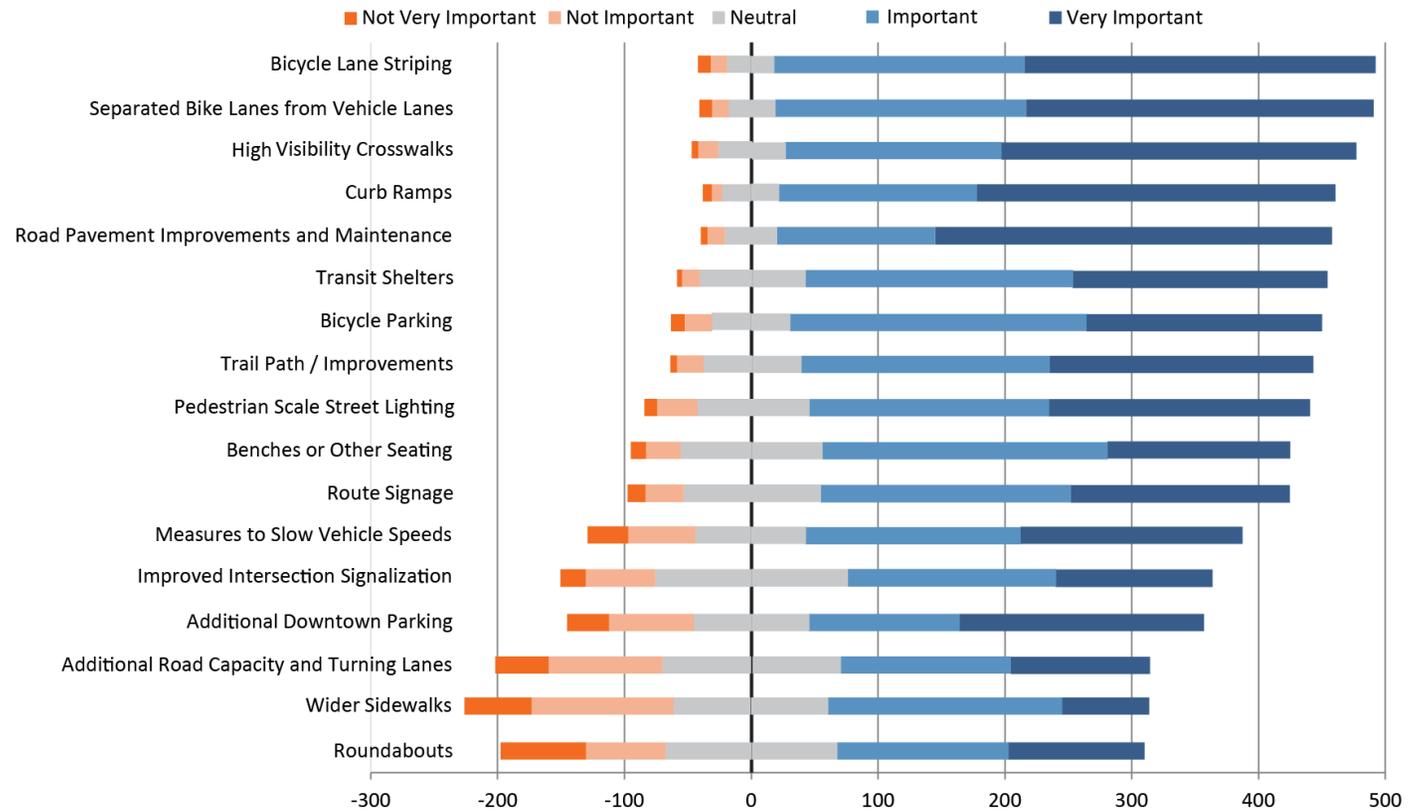
Primary Travel Mode of Survey Participants

Ranking the Importance of Transportation Infrastructure Improvements

Respondents were asked to rank the relative importance of different transportation infrastructure and priorities considering budget trade-offs. Respondents' top five "important" or "very important" infrastructures are:

- bicycle lane striping,
- separated bike lanes,
- high visibility crosswalks,
- improved curb ramps; and
- road improvements and maintenance.

Transit shelters and bicycle parking also rated highly.



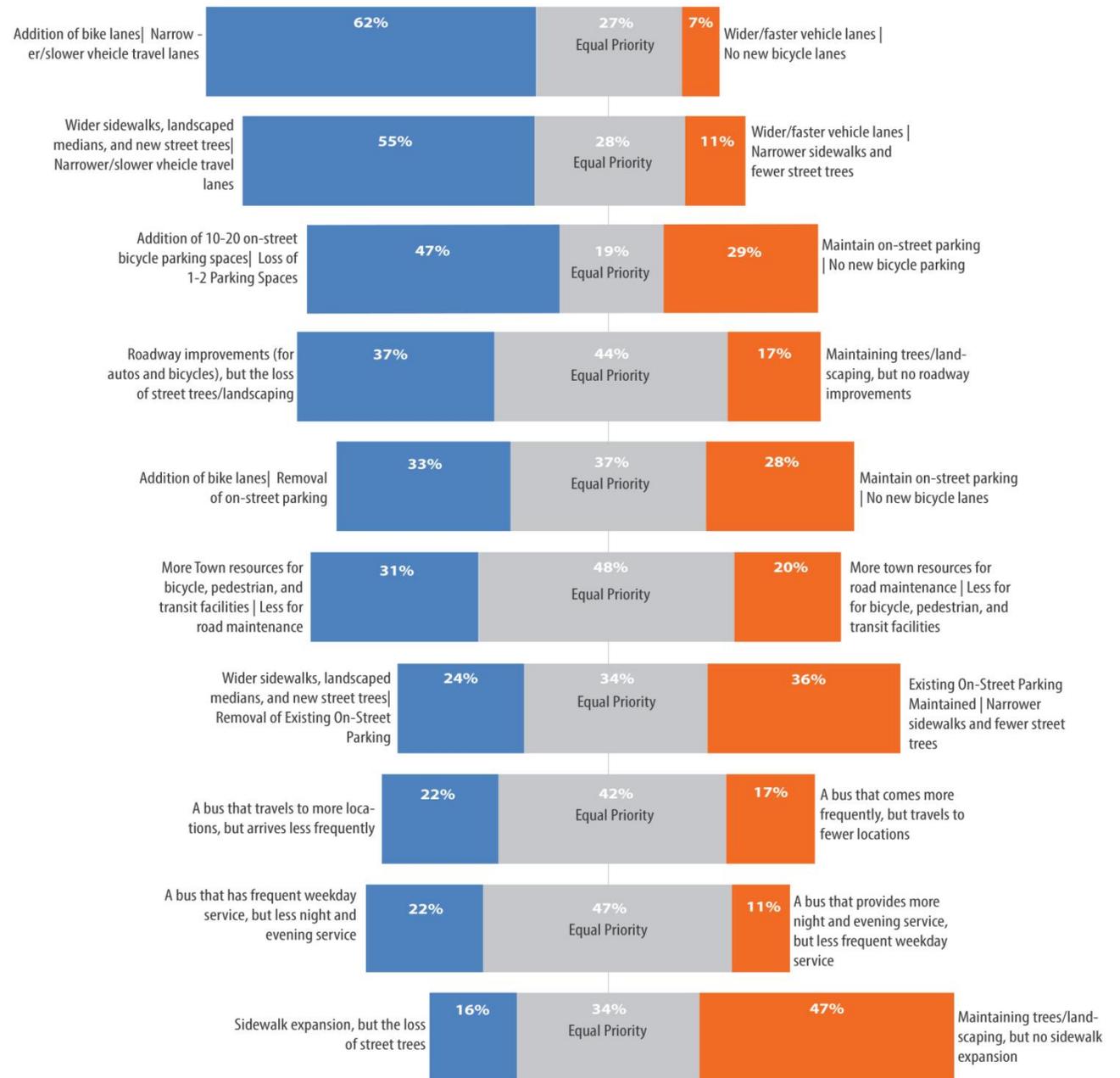
Infrastructural Budget Tradeoffs

Consistent with the relative importance attached to different transportation infrastructure, 55% of respondents indicated a desire to prioritize transportation dollars for wider sidewalks, landscaped medians, and new street trees with narrower/slower vehicle travel lanes.

Meanwhile, 62% of respondents placed priority on adding bike lanes and narrowing vehicular travel lanes (the latter a key factor in reducing vehicle speeds and thereby reducing the incidence of fatalities).

Wider sidewalks come with caveats in Amherst. Street trees are highly valued, based on the survey responses: 47% deemed street trees, landscaping and *no* sidewalk expansion a priority compared to 16% that prioritized wider sidewalks requiring the loss of street trees.

In the case of bus service, respondents indicated a desire across the board for more frequent service, as well as longer service hours and service to more destinations. For example, 47% of respondents felt that buses should both have frequent weekday service as well as more night and evening service. Nearly 42% also felt that bus services should both come more frequently and travel to more locations.



3 NEEDS ASSESSMENT



The Amherst Needs Assessment builds upon the key findings of the Existing Conditions to identify and address network gaps, safety concerns, and areas in need of improvement. The identified areas of need were generated by an analysis of input received during public workshops, online surveys, stakeholder meetings, and discussion with the Transportation Plan Task Force.

WALKING

A large number of Amherst residents walk as their primary mode of transportation, but the sidewalk system has many gaps and some existing segments are in need of maintenance. Additionally, not all major neighborhood through-streets have sidewalks.

During public outreach, residents and stakeholders cited a number of areas of significant concerns with respect to safety and gaps. Most notably, North Amherst and Cushman have no protected connection for those walking into downtown, and many safety concerns were noted in these villages. Downtown also has many intersections where safety for those walking is a concern to residents. Other safety concerns were noted, for example, in the Potwine Lane area of South Amherst, on Heatherstone Road in Echo Hill, and on East Pleasant Street north of Village Park.

Sidewalk Comfort, Clarity, Convenience

North Pleasant Street and Main Street in Amherst Center are replete with high quality sidewalk features, and recent streetscape improvements have only made this environment better. Unfortunately, sidewalk amenities and quality are lacking elsewhere in the Center and in other villages – often within walking distance of Amherst’s schools.

With the exception of sidewalks through UMass, most other sidewalks barely meet minimum width standards (5-feet), frequently are discontinuous, incorporate unfriendly dropped curbs across driveways, and often are in disrepair. The Town needs an ongoing maintenance program to restore and clear debris from sidewalks to ensure that sidewalks remain usable. Those who walk have also cited a need for better lighting to feel safer walking throughout town. In particular, good sidewalks should be a priority within a half mile of every Amherst school.

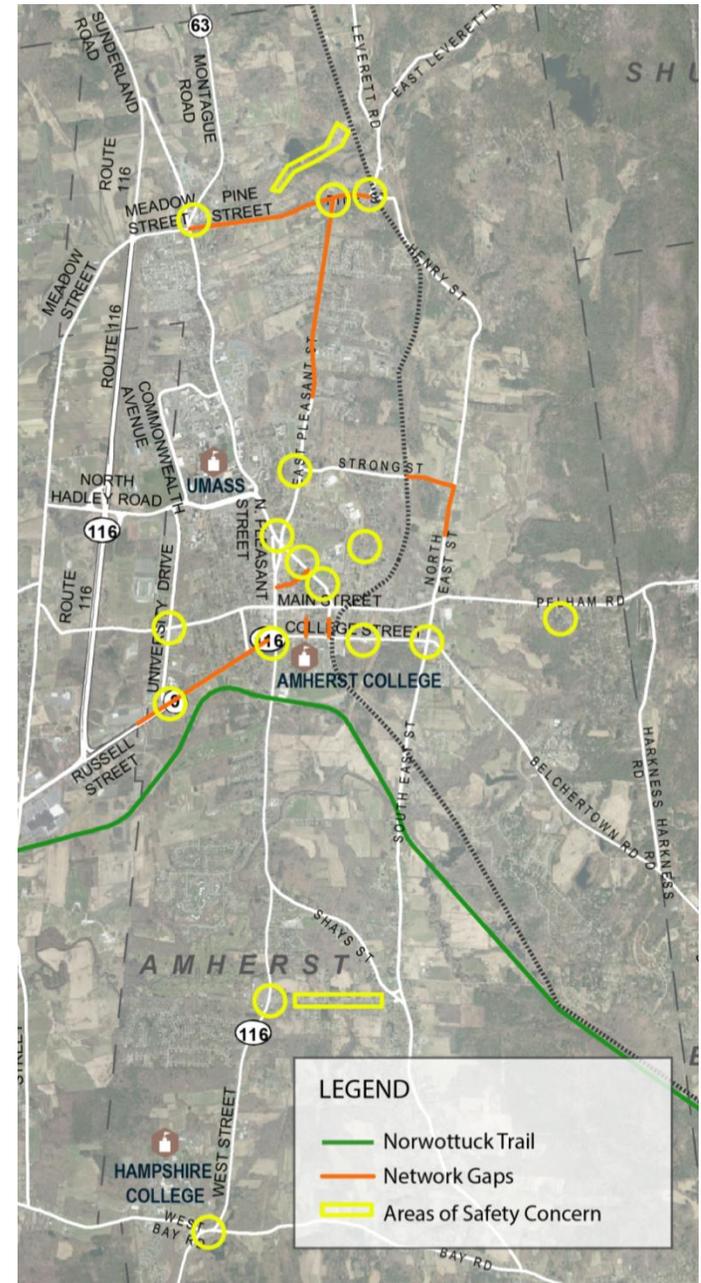


While Amherst Center’s new sidewalks have an excellent 10-12 foot amenity area, the 8-foot clear walking space is insufficient for its volumes – walking couples cannot pass



One street has a discontinuous sidewalk in need of repair on one side. While there is an accessible sidewalk with curb ramps on the other side, the ramps are not level, giving priority to crossing cars, not the pedestrian.

Sidewalk Network Gaps and Areas of Safety Concern (Based on Stakeholder, Task Force, and Public Input)



Street Crossings

Amherst has installed specialized crosswalks at higher-volume crossing locations in town, with unique applied concrete material used at several crosswalks in the Center. Other locations enjoy international standard or “zebra” crosswalks that are considered the state-of-the-art. In some locations, advanced-yield triangle markings or “shark’s teeth” are utilized to indicate safe yielding locations for motorists, enhancing the visibility of crosswalks. Unfortunately, most of these installations incorporate insufficient dimensions that compromise their intended ability to better-warn approaching motorists that people may be crossing the street. Any crosswalk that is not signalized should have sufficient width (at least 16-feet) to be seen in time by a motorist’s eyes situated at seating height in a sedan. No crosswalk in Amherst was observed to be wider than 8-feet. Signs and in-street warning stanchions are helpful countermeasures, but motorists are focused on the pavement ahead first. Meanwhile, yield triangles are regularly installed closer than the 30-foot safe yielding point. Additionally, the paint for crosswalks is frequently worn and not regularly maintained.



This narrow crosswalk in the distance cannot be seen until the stopping distance from 30mph becomes insufficient. The yellow-painted median increases the crossing distance and exposure for people crossing N. Pleasant.

This zebra crossing on Amity is insufficient at less than 6-feet

A motorist yields late to a pedestrian at a narrow (8-foot) crosswalk.

The length of many crosswalks in walkable areas of downtown exposes walkers to vehicular traffic for too long, decreasing pedestrian safety while increasing driver delay. Amity Street crosswalks are 50-feet long, crossing two parking lanes and two travel lanes. Since lane standards do not require this downtown street to be more than 36-feet wide, the extra width compromises safety and efficiency. Similarly, North Pleasant Street is 60-feet wide, yet it only needs 46-feet to function. These longer crossings limit the comfort of crossing on foot to other businesses and parking spaces across the street, while increasing driver frustration and poor yielding behavior. The Town has installed crossing islands on South Pleasant Street near Amherst College to help mitigate these longer distances and should consider these and/or curb extensions or “bulb outs” throughout town to shorten crossing distances and reduce conflicts for motorists.



Advanced yield markings on North Pleasant are placed too close to the crosswalk, resulting in yielding that is threatening to pedestrians and encouraging of bad driver behavior.

Pedestrian Delay

Though Amherst has a high walking mode share, many intersections have excessive crossing delays, otherwise known as a poor pedestrian level-of-service (PLOS). Not dissimilar from vehicular level-of-service, PLOS calculates the average pedestrian wait time versus the total time allocated to cars and other operations at traffic signals. At unsignalized intersections and crosswalks, it is based on the crossing distance and the average gap between passing cars. While cars must yield to pedestrians at unsignalized crossings per State law, the PLOS measure is valuable as a representation of the perceived threat of crossing without a signal.

A limited sample of intersection data in Amherst reveals that average crossing delays can be significant. Such delays for trips on foot can hinder walkability as compared to a car that easily accelerates once released from an intersection. Crossing delays on foot help to break down the perceived value of walking, compromising the town’s desire to encourage walking. In the worst case, such delays encourage poor walking behavior, resulting in jaywalking, hesitation crosses, and occasional ill-timed crossings during conflicting vehicular movements. Communities seeking to increase walking need to address poor PLOS scores.

Sample Pedestrian Level-of-Service Results (Scale A – best, F – worst)

Unsignalized			
Location Key	Streets	Ped Delay	LOS
1	East Pleasant and Chestnut	36.5 seconds	E
Signalized			
Location Key	Streets	Ped Delay	LOS
2	Triangle and Main	27.9 seconds (Min)	C (Min)
		86.4 seconds (Max)	F (Max)

Location Key



BICYCLING

Amherst has many roads that are suitable for biking, but the town lacks contiguous infrastructure to connect to and between destinations outside of downtown. The map on this page articulates the gaps in the system and the intersections and segments of concern for cycling safety. While many locations in Amherst are deserving of improvement, notable areas of concern raised by residents include North Amherst and Cushman, the College Street/Route 9 corridor, and intersections near the Center.

Unconnected Facilities

In order to increase the use of bicycles in Amherst, it is necessary to provide safe and continuous accommodation along primary desire lines. The League of American Bicyclists has been promoting new research correlating the degree of “low-stress connectivity” to attract ridership from the widest possible set of the population⁴. The gaps in Amherst’s bike network are notable, with no continuous link longer than two miles besides that provided by the Norwottuck Rail Trail, which connects from just outside Amherst’s center to downtown Northampton. There are no continuous facilities linking between any two village centers and none connecting village centers to downtown. Meanwhile, many existing off-road paths lack curb ramps for biking and wheelchair users.

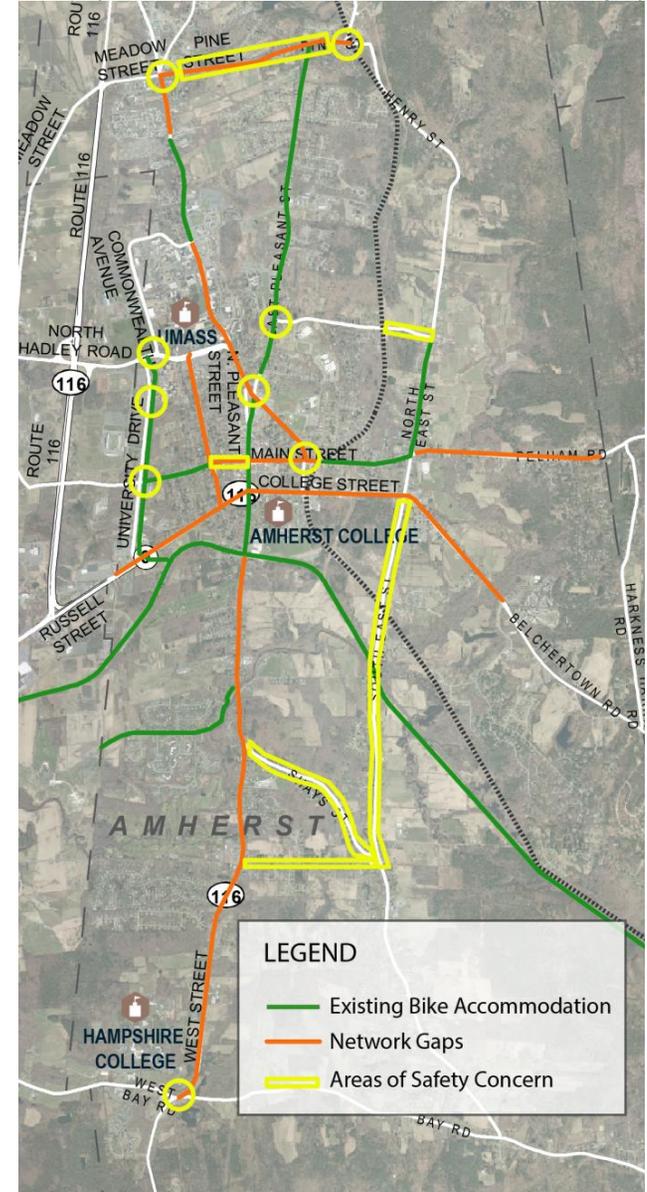
Facility Design and Comfort

The comfort of the facilities that do exist is limited, with bike lane markings that are spaced much further than the maximum recommended guidance of 300-feet and few bike lane signs. Where “Share the Road” signs are used on designated bike-friendly streets, physical separation from traffic is often minimal or non-existent while posted speed limits may often exceed 30mph, warranting fully protected or separated facilities. If the town seeks to encourage cycling, it needs a wider variety of facilities to attract casual riders and families – some should include better markings, others a level of protection from traffic, while others need full separation akin to Amherst’s off-road paths. Many should include improved lighting to accommodate cyclists safely, especially in the winter months.



Substandard bike stencil dimensions on North Pleasant with no left-turn accommodation for cyclists.

Existing Bike Infrastructure, Network Gaps and Areas of Safety Concern (Based on Stakeholder, Task Force, and Public Input)



⁴ “Low-Stress Bicycling and Network Connectivity”, <http://transweb.sjsu.edu/project/1005.html>

Facility Condition

Many users have pointed out issues of debris or broken pavement in existing bike lanes, which can cause bike damage or even a crash. Meanwhile, the concrete material that once helped improve the visibility of some crosswalks has now become a danger to cyclists as materials age and crack. Finally, the condition of existing bike lane markings is often well-worn and in need of replacement.

Intersection Safety

Few intersections in town have any bicycle accommodation. The notable exceptions are where bike lanes exist. However, no left-turn accommodation like bike boxes exist, especially where such protection is necessary for the average cyclist, such as turning left from North Pleasant at Triangle.

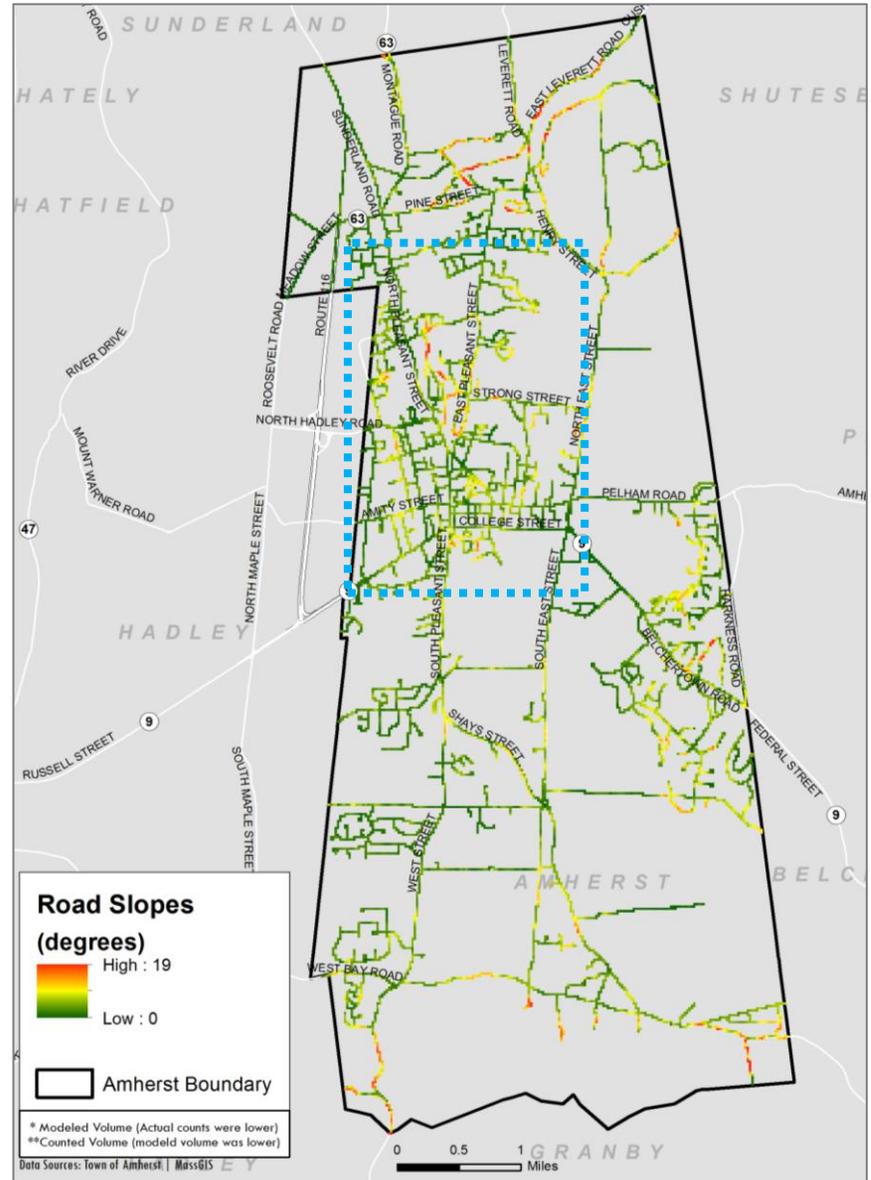
Appropriateness of Routes

The slope of streets can be a considerable barrier to entry for some cyclists and there are significant slopes in some areas outside of downtown. In areas where there are existing bike facilities, there are more strenuous climbs on East Pleasant Street (near Strong Street), North East Street (near Strong Street) and on Route 116 heading north towards College Street.



The primary marked bike facility in town, which connects Amherst Center south to the Norwottuck Rail Trail and north to Cushman, involves steeper grades that discourage use by casual cyclists.

Road Slopes in Amherst



Bike Information

The Town of Amherst does not have a well-publicized map of streets for biking. Many communities have developed very popular maps that indicate the quality of riding on street (based on traffic volume, width, availability of infrastructure, quality of pavement, etc.) as well as the location and direction of steep slopes so that cyclists can choose the best route based on their cycling abilities. Providing this information on the web and at downtown merchants is a common method to promote cycling and make drivers aware of bicyclists in town.

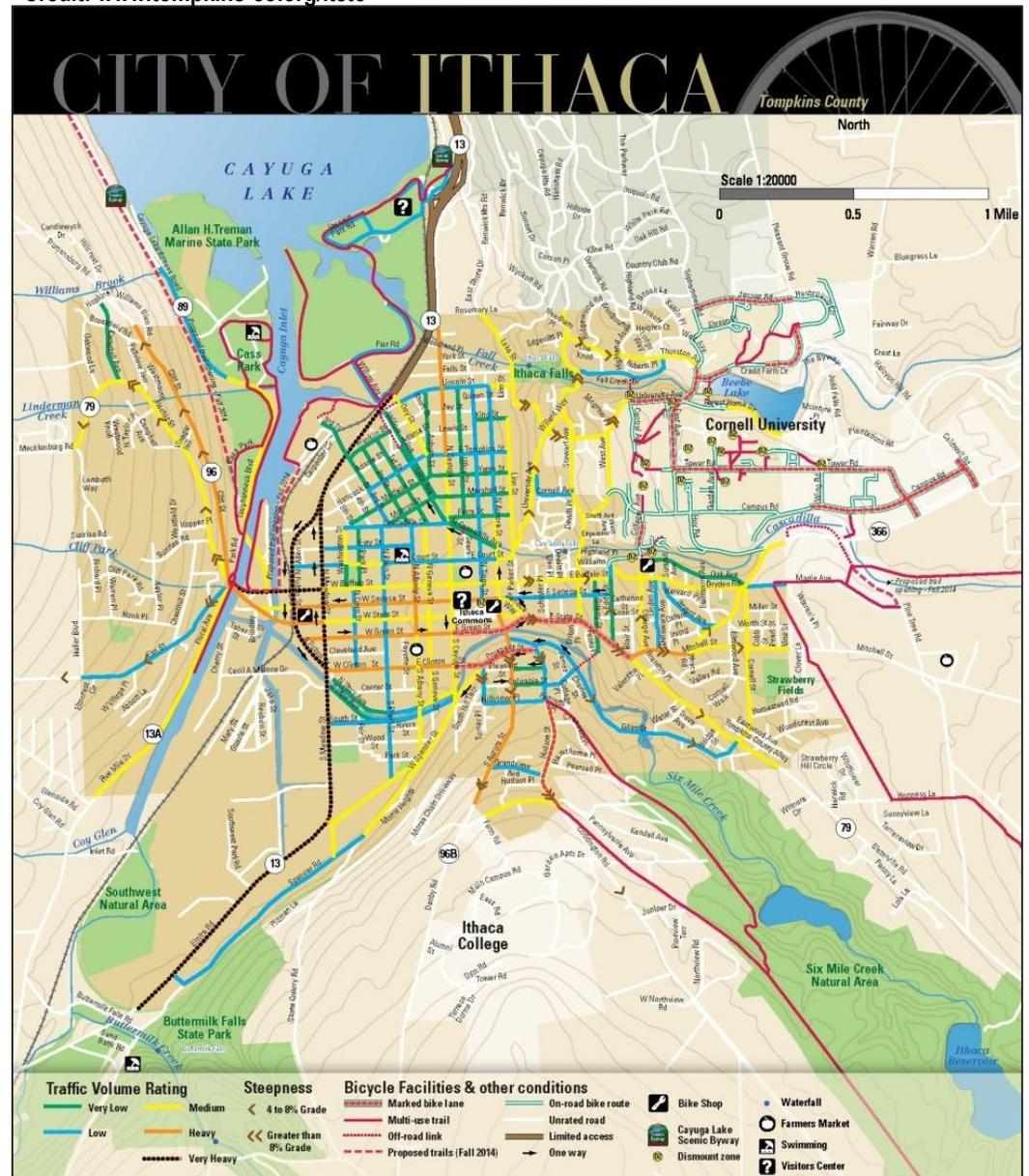
Bike Parking

Amherst Center has many high-quality bike racks in well-placed locations for cyclists visiting the downtown, though several have been installed without sufficient clearance, making bike parking difficult. Nonetheless, on good weather biking days, most of these racks are over-utilized. Even racks on the fringes of downtown are heavily-utilized. There is no covered bike parking for poor weather days, and additional bike parking of any type is needed throughout Amherst Center. Meanwhile, few if any bike racks exist in Amherst's other village centers.



A well-designed APBP-compliant bike rack in Amherst Center that has been incorrectly installed without sufficient clearance (30-inches or more) between racks. An inadequate facility like this discourages frequent use: an abandoned bike can be seen.

Best Practice Example: A Map of Bicycle Information, from Ithaca, New York;
Credit: www.tompkins-co.org/itctc



TRANSIT

During public outreach, many residents noted that the transit system is heavily-oriented to academic users. As can be seen on the following page, major bus boarding locations in Amherst are concentrated on the college and university campuses and on large off-campus student housing developments. This matches well with standard measures of “transit propensity” (the likelihood for a given population to ride a bus) but makes expanding service difficult when fewer riders can be expected in other locations or when colleges are not in session. The limited transit service during intersession not only proves challenging for year-round commuters, but it poses particular difficulty for high school users who need to keep riding when colleges and universities are not in session. The areas mapped at right in orange are areas cited as needing better transit service and the area encircled in yellow was cited as being dangerous to access transit due to the conditions on Pine Street.

High Activity Bus Stops

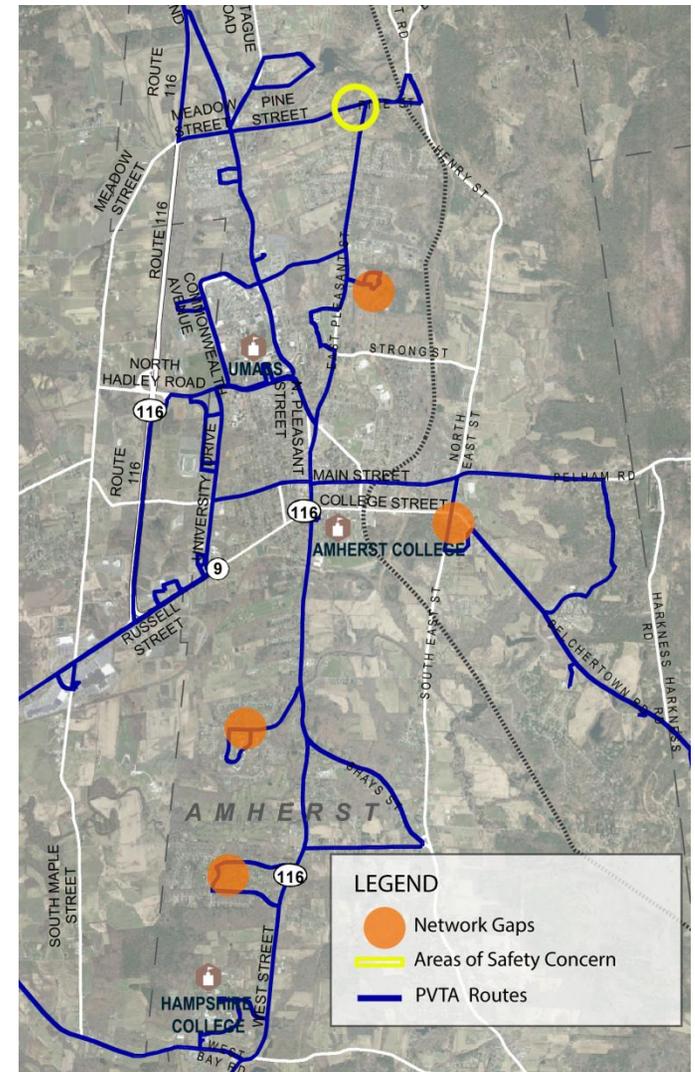
The highest boarding and alighting locations in Amherst are at UMass, where the school has installed many shelters and has larger shelters available in some locations. Downtown Amherst is the next highest activity location, followed closely by Hampshire College and the Boulders apartment complex. Unfortunately, none of these locations have higher-capacity bus stops with typical amenities that would be found in communities with such high transit ridership, including more benches, better weather protection, lighting, information displays, etc.



Higher capacity bus shelter examples. University of North Carolina and Boise State.

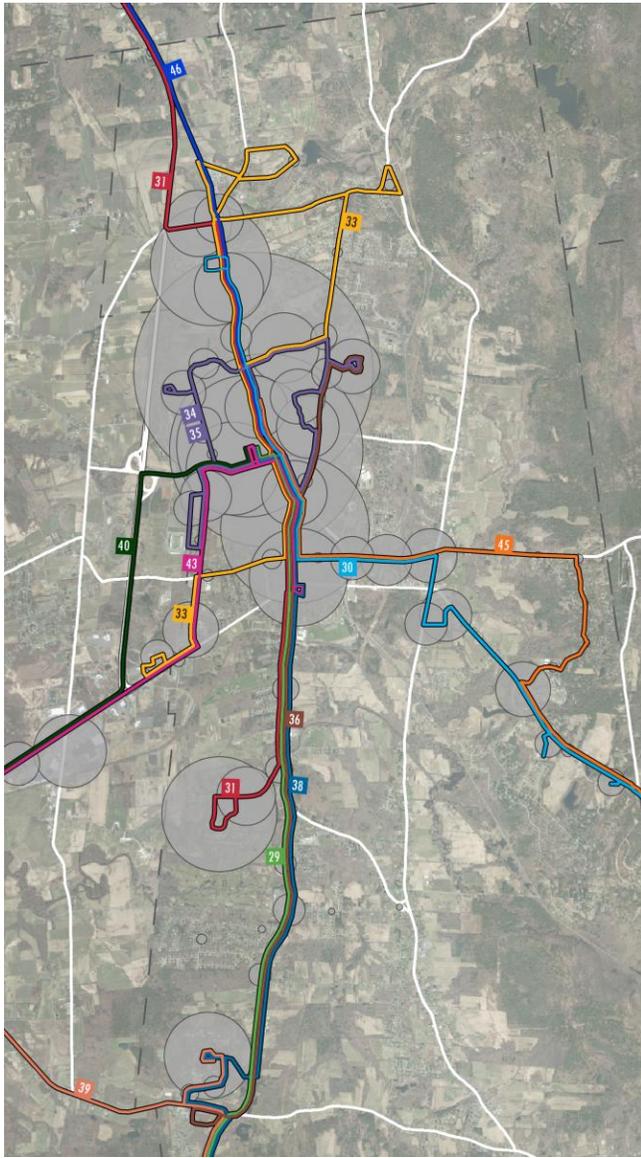


Existing Transit Network Gaps and Areas of Safety Concern (Based on Stakeholder, Task Force, and Public Input)



Bus Ridership Map

(Size of Grey Circle Indicates Level of Ridership)



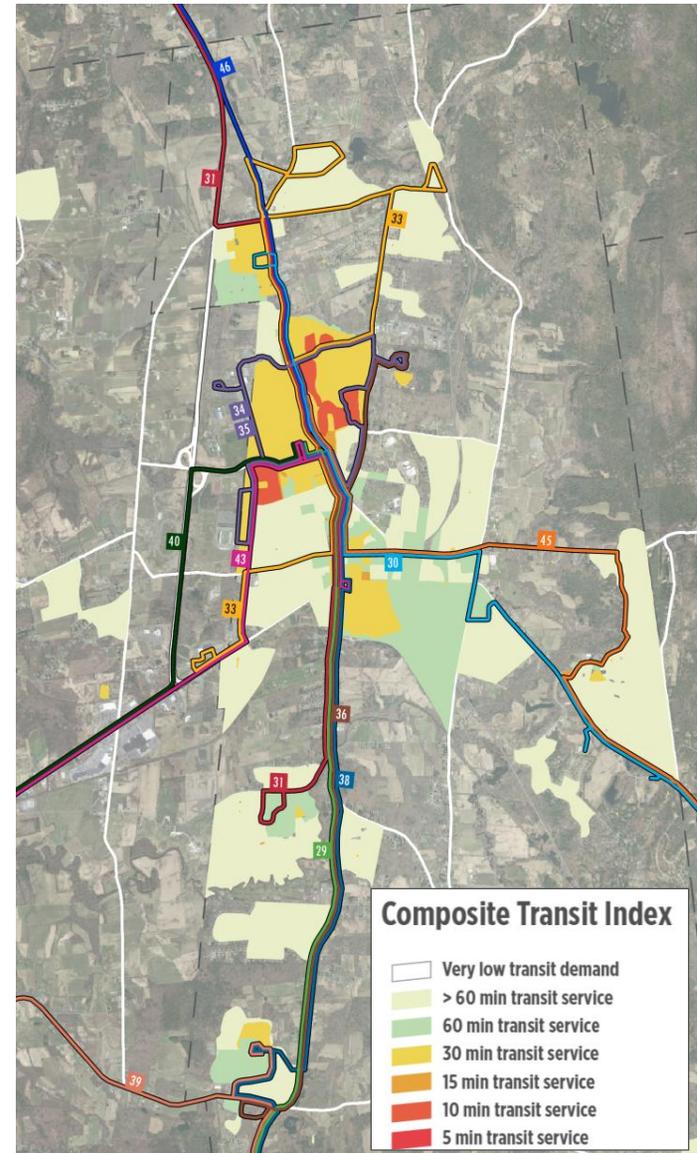
Transit Propensity

Transit propensity is an industry standard measure of the likelihood of a given population to ride transit that accounts for factors such as population density, age, income, and automobile ownership. In Amherst, the PVTA/UMass Transit route system matches up very well with areas that meet minimum acceptable standards for needing transit. Higher frequency service is generally oriented to higher propensity locations. However, residents in many specific locations often complain about the lack of service, especially since the PVTA re-routed some routes to capture more ridership.

The Town of Amherst once contributed directly to its own community bus service, which has since become PVTA's Route 33. As a result, the Town is less able to modify service in response to these requests. While providing better service to the greatest number of potential riders may always trump serving some of the desired locations, many communities in Massachusetts and elsewhere have successfully implemented demand-responsive "community bus" circulators to accommodate this need. Private network operators such as Uber are also becoming increasingly viable as replacements for – or extensions of – transit service.

Transit Propensity Map

(Shading indicates the level of transit service frequency that is supportable)



DRIVING AND PARKING

The Town of Amherst has a wide variety of roadway and intersection characteristics. During public outreach, many participants voiced concern about congestion around specific intersections throughout Amherst. The Town has already begun to address these concerns by thinking about alternative intersection designs; ideas of this nature could be expanded to other areas throughout the town. Many also complained about concentrated areas of parking difficulty, especially in downtown areas. The Town has begun to discuss these issues through recent forums, but the Town also should conduct a complete parking study with parking utilization counts in order to accurately understand current and expected parking demand.

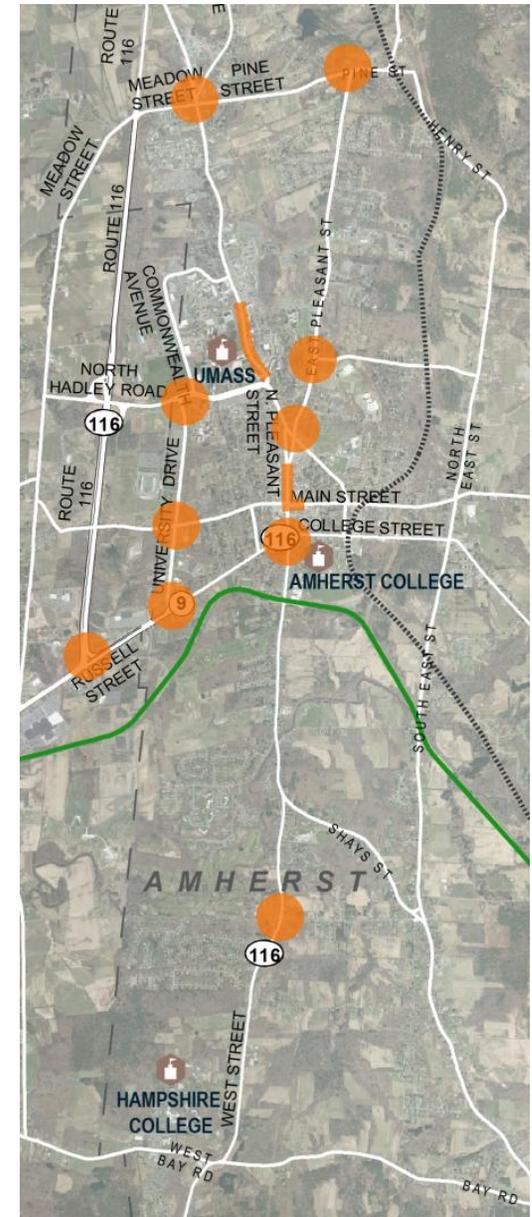
Roadway Size and Capacity

No roadway in Amherst is undersized for its current or projected volumes – all delays are related to turning movements, intersection conflicts, or crosswalks. However, the cross-sections of Amherst’s streets do not often correspond well with their use. Lane widths are rarely less than 12-feet, even where speed limits are low and 10.5-foot widths would be plenty for even the widest tractor-trailers or transit vehicles. Shoulder conditions vary widely, largely due to variable rights-of-way, resulting in many places where the road feels even wider than 12-feet and others where unmarked shoulders allow vehicular travel right at the pavement’s edge. These right-of-way conditions are mismatched with road volumes and speed limits in many places, leading to many of the complaints voiced during “Transportation Days.”

Intersection Congestion and Safety

Intersection delays in Amherst are problematic on a number of levels for Amherst. While road capacity is plentiful, intersection delays are extreme in comparison, even if true delay measures (such as level-of-service or LOS) are not “failing” or extreme themselves. For drivers, the intermittent delay of problematic intersections – especially near peak hours – motivates many to increase their speed on under-capacity links between intersections, reducing safety for themselves and others. Many seek alternate routes through areas that should have lower volume and speed. For businesses, intersection delays contribute to a perception that customers may avoid Amherst merchants. For those seeking to walk and bike, congested intersections can be difficult to cross or may feel unsafe. Ironically, much delay is caused by outdated approaches to intersection safety, including the fully protected phase of signals with pedestrian push-buttons that stop all traffic that could cross any crosswalk, even for a single walker on one crossing. Newer proven methods in regular use have not been tried in Amherst, such as shortened signal cycle lengths that reduce crossing delays; concurrent crossing phases that allow walkers to cross parallel to through vehicle traffic; leading pedestrian intervals (LPIs) that show a walk signal before the green to let walkers get a head start and be visible to any turning motorists; no turn on red regulations, coupled with fully-protected signalized crossings of just one intersection approach that operate during signal phases when no conflict can occur; and bump outs with eliminated turn pockets that shorten crossing distances. However, recent roundabout installations that promote pedestrian safety have been warmly met and are planned for other locations in town.

Existing Driving Areas of Congestion (Based on Stakeholder, Task Force, and Public Input)



Parking Demand

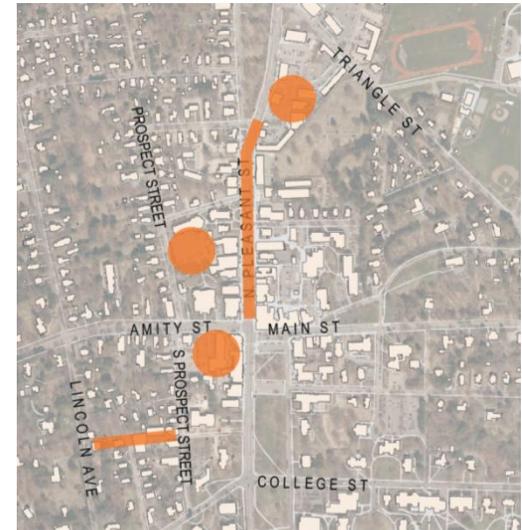
According to existing data from the 2008 PVPC parking study, demand begins to approach capacity in Amherst Center, and many participants in “Transportation Days” complained about not finding an available parking space. While the Town has built a parking garage and increases parking meter rates periodically, demand reportedly exceeds capacity in key downtown lots, the garage, and along the prime stretches of downtown streets – especially with new development in place since 2008. However, spare capacity is evident on any given day along several stretches of downtown streets and in some downtown private lots that are somewhat further from the core areas of demand. While there may be spare capacity within a four-minute walk of North Pleasant – even on the busiest day – these spaces may be unknown to many or are privately held and inaccessible. There is no system in place to incentivize parkers to park remotely or to share private lots as can be found in many other Massachusetts towns. Meanwhile, during public outreach and the parking forum, it was noted that there is fear over increased demand for parking related to forthcoming downtown developments.

Management Tools to Address Current and Future Demand

Recently permitted housing developments in the north end of downtown have not been required to provide parking because they are located in the Town’s Municipal Parking District, which exempts residential uses from requiring parking. While some of the developments are providing on-site parking, the value of a parking district is to promote the efficient sharing of a single facility by multiple users so fewer overall spaces are needed. Existing lots on this end of downtown have spare capacity to absorb some new demand until there is sufficient critical mass to demand new supply. However, there is no recent parking utilization data and no monitoring program in place to determine when new supply will be necessary.

Meanwhile, the southern end of downtown already has a parking availability issue in prime spaces that has led many to demand a parking garage be built. This may be an ideal solution but more data is necessary to justify the investment. Many State of Massachusetts divisions no longer fund parking garages without quantifiable parking data proving their need.

Existing Areas of Parking Difficulty (Based on Stakeholder, Task Force, and Public Input)



Public parking at Boltwood Walk is often full.



On-street parking can be added in several places in downtown.



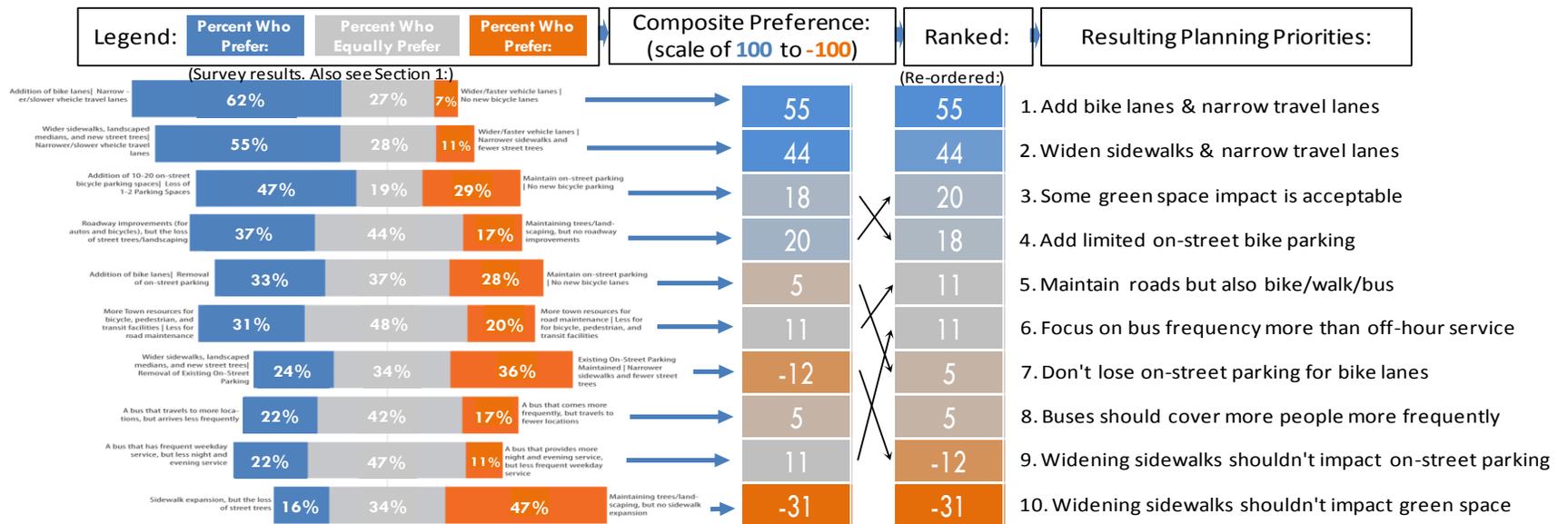
Remote parking along Triangle Street always has spare capacity but much of it is privately owned and no sharing agreement is in place.

4 RECOMMENDATIONS

Drawing upon the Needs Assessment, input received during “Transportation Days,” and the advice of Town staff and Task Force members, the consulting team developed a series of programmatic and operational recommendations for the Town of Amherst and its residents to consider implementing over the course of the next several months and years. These recommendations reflect a complete set of multi-modal strategies that have been implemented successfully in similar communities across Massachusetts and nationally. Each strategy is tailored to Amherst’s context but requires further investigation and planning to fully implement. The intent of this report is to begin an ongoing process that works effectively and efficiently to achieve the Task Force’s vision and address the needs of Amherst’s residents.

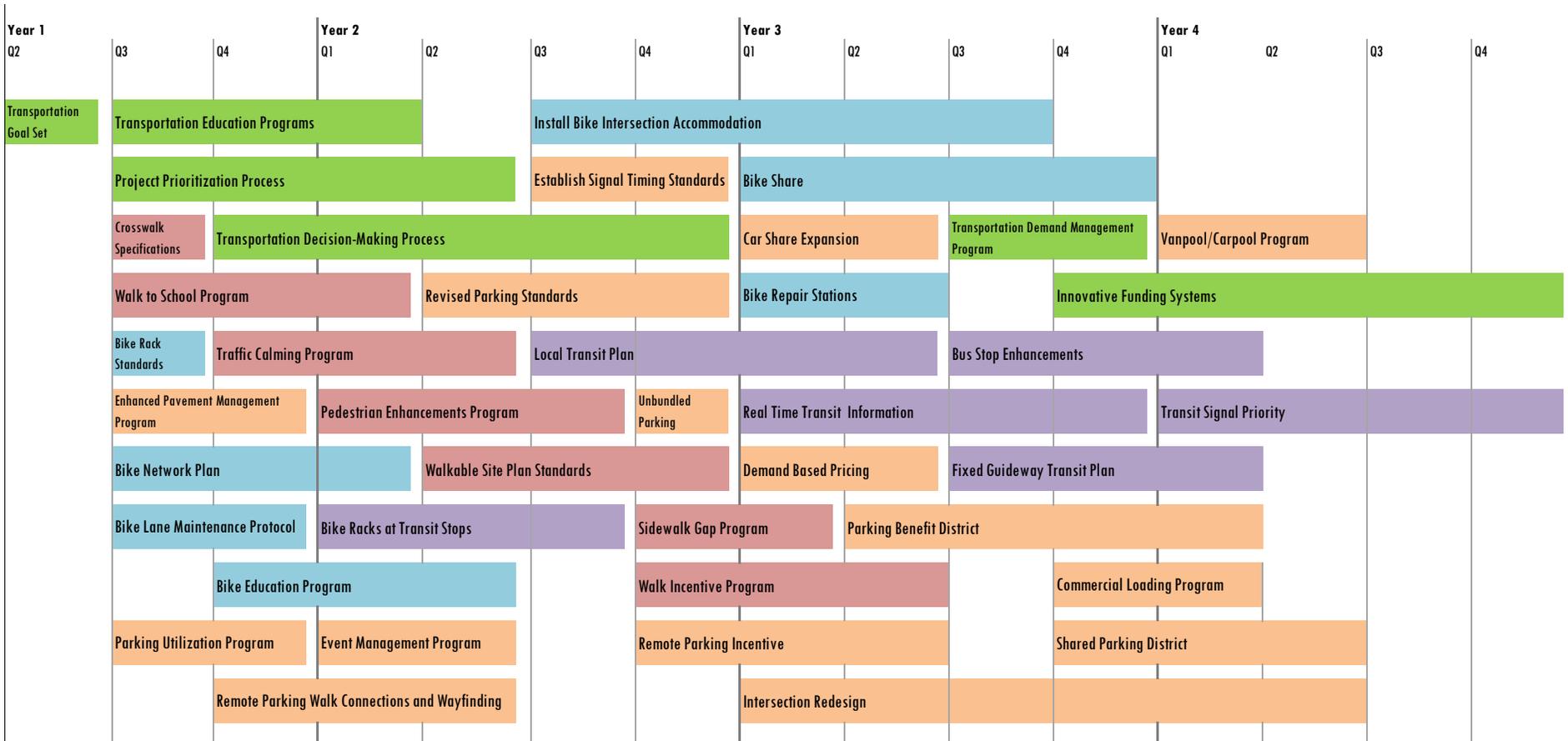
Developing an Implementation Framework

The following matrix is structured as a rough guide for implementing the strategies on the following pages. It suggests a priority and sequence that is reflective of the priorities of the community as identified through “Transportation Days,” stakeholder meetings, and the online survey. A summary of the prioritization scores derived from the online survey is shown below as an example of one of these inputs which helped frame this matrix. It is important to note that the matrix is only an initial framework that simply reflects the consultant’s interpretation of public input and a single survey – one of the first recommendations is to actually *revise this sequence* and *tackle projects in a manner that is reflective of residents’ values, transportation needs, Town capacities, available budgets, and other key considerations*. Therefore, the priority and sequence shown in the matrix can be considered a first step that should be modified as a “living document” over the course of time. One of the first recommended strategies is to develop a refined Project Prioritization Process, similar to that used for this matrix.



Sample Prioritization Process for Amherst, Based on 2014 Online Survey Results

Recommended Strategy Implementation Matrix



LEGEND:

<p>Multi-Modal Programs</p> 	<p>Walking Strategies</p> 	<p>Biking Strategies</p> 	<p>Transit Strategies</p> 	<p>Driving & Parking Strategies</p> 
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PROGRAMMATIC STRATEGIES

Drawing upon the need for overall guidance that spurred this Transportation Plan, as well as the documented desires of Amherst's stakeholders and residents as described in this report, it became clear to the Transportation Task Force that a number of overarching multi-modal strategies which re-prioritize and focus Town planning and programming are needed. These programmatic strategies are intended to establish a framework for all concerned parties and the Town of Amherst from which to build the specific modal strategies that follow. The six programmatic strategies address long-term goals; encourage broader education and outreach about multi-modalism in Amherst; work to develop incentives that get people out of their cars more; improve the Town's ability to focus its investments and make the right decisions; seek innovative multimodal funding solutions; and establish a fair and flexible process for prioritizing what gets done in the coming years.



Refine Town Transportation Goals

Through public meetings and stakeholder discussions, a municipality can refine its transportation goals to better reflect the priorities of the community and to better leverage scarce transportation funds.

Amherst Today

While transportation is a part of the Town's Master Plan, Amherst does not set out detailed transportation goals for the future. The five goals of the Town should be discussed further and negotiated with residents to develop more robust and up to date priorities.

Needs

Amherst needs to establish and identify transportation goals for its future prioritization and growth plans. Broader accommodation of sustainability, environmental, affordability, fiscal, and other priorities should be incorporated.

Opportunities

By creating transportation goals, the Town can provide a template that is publicly available and that will guide the development of the town over the coming decades.

Next Steps

1. Create a citizen and Town committee to examine transportation goals for the future.
2. Identify needs and opportunities throughout the town.
3. Adopt transportation goals to assist in the development of transportation solutions throughout Amherst.

BEST PRACTICE – Move Louisville

Move Louisville, a long-range strategic multi-modal transportation plan, is growing out of the city's 25-year plan. As part of the process, a vision was crafted to establish clear goals for creating better mobility in the city. The specific goals of these plans included:

- Provide Connectivity Choices
- Improve Safety and Health
- Promote Economic Growth
- Maintain Fiscal Responsibility
- Assure Environmental Sustainability
- Enhance Neighborhoods



Transportation Education Programs

Transportation education programs are community outreach efforts to help people of all ages better understand how transportation works, be it using transit or developing new guidelines for bicycle infrastructure. In essence transportation education programs are intended to close the gap between transportation practice and public understanding. These programs can be used by schools, senior centers, libraries, or others to teach residents how to use transit, or perhaps how to make sure their transportation concerns are being heard.

Amherst Today

The Town does not have regular transportation education programs, and neither does Pioneer Valley Transit Authority. There are existing transportation education programs at UMass.

Needs

With a variety of different age groups well represented within the town, education programs are lacking in particular for school age children and elderly adults.

Opportunities

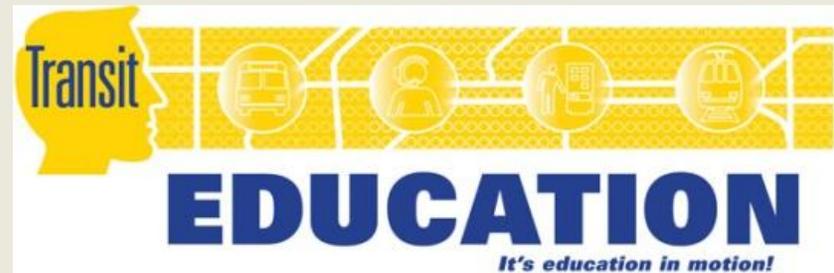
With many schools in the area and various citizen organizations, these groups can coordinate together to create improved education opportunities.

Amherst's residents deserve better exposure to the positive benefits of multimodal transportation. Amherst could additionally collaborate with UMass Amherst Transportation Education programs. The Town could establish elementary student/parent education programs utilizing the students within the Civil Transportation Engineering program at UMass Amherst. These programs could be expanded to educate other residents and businesses

Next Steps

1. Develop transportation education programs.
2. Identify partners for education program.
3. Recruit interested organizations for presentations and classes.

BEST PRACTICE – Dallas Area Rapid Transit



DART has organized public programs to help the public learn the ins and outs of taking public transit.

Credit: DART

Organize Town-Wide Transportation Demand Management Program

Transportation Demand Management (TDM) is a term used to describe the various infrastructural and programmatic solutions employed to encourage use of modes other than driving. Such solutions can be as simple as the expansion of bicycle parking, or more sophisticated strategies such as providing financial incentives to those who do not drive.

Amherst Today

Amherst does not currently have a town-wide TDM program. Efforts to reduce the need to drive are not supported by incentives such as rideshare or carpool programs, or transit subsidies.

Needs

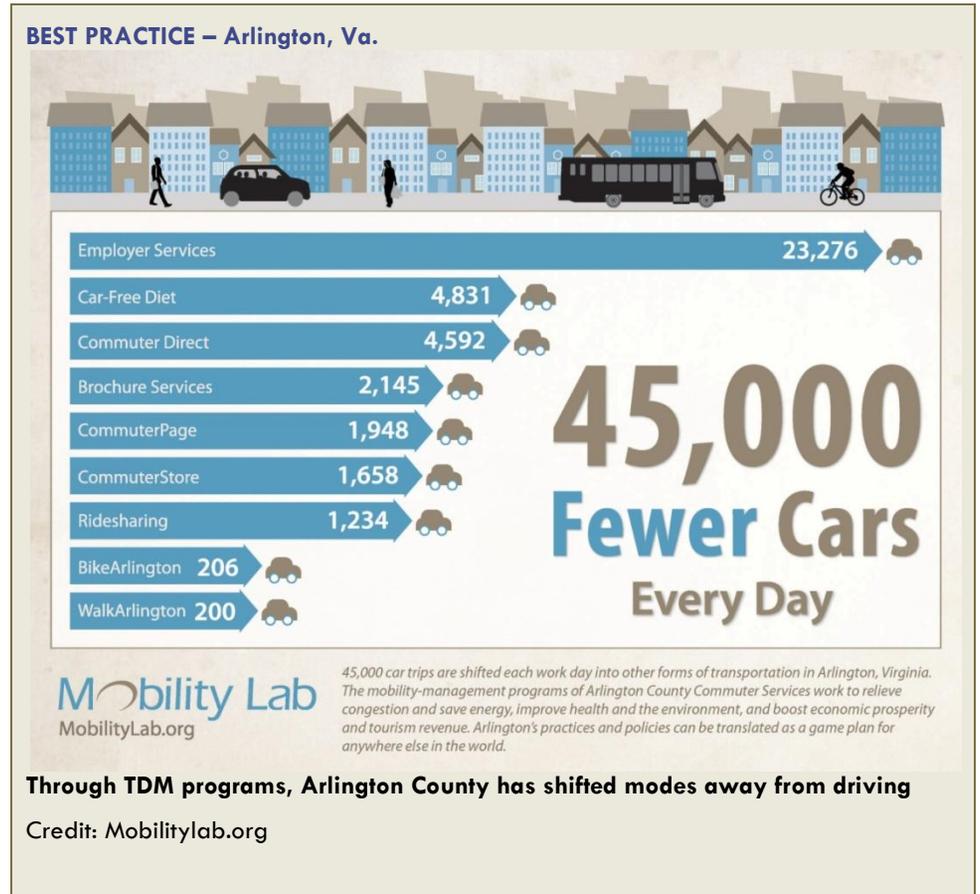
The current road network cannot support large expansions for vehicles, yet Amherst will continue to grow. Incentives to use the town's growing multimodal infrastructure can be very cost-effective.

Opportunities

Amherst has robust transportation alternatives available. Incentive programs that may include free taxi rides home, discounted transit passes, bike share membership, carpool subsidies, and more will all be far more cost-effective than expanding roadway capacity.

Next Steps

1. Identify strategies to lower demand for driving.
2. Partner with employers to encourage driving alternatives.
3. Create a comprehensive program with incentives to lower one's driving rate.
4. Commit municipal staff to mode share targets.



Transportation Decision-Making Process

A transportation decision-making process is a formal prioritization scheme that uses the community’s goals and ideals to guide investments in transportation infrastructure. This formal process encourages communities to incorporate a variety of perspectives and values into their planning process, rather than just defaulting to maintaining roads.

Amherst Today

The town has very many players that are involved in the transportation decision-making process and needs to clarify authority with respect to decision-making.

Needs

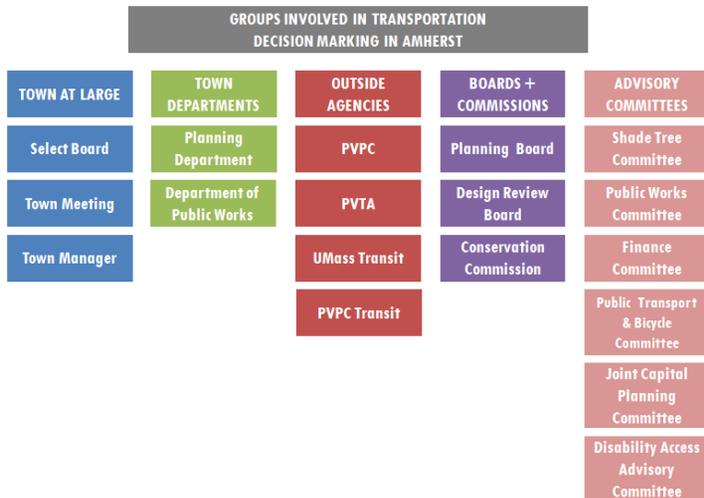
The Town has no prescribed method of transportation decision-making that could help ensure more equitable transportation outcomes throughout Amherst.

Opportunities

By creating a decision-making process rooted in town goals and visions, the Town can better assist residents as they seek to impact the transportation development process.

Next Steps

1. Identify key goals for transportation and develop clear mission statement.
2. Utilize a project prioritization process to establish mandate for new transportation leadership.
3. Establish a new leadership position or body that has numerical measures and goals with quarterly reporting to existing Town committees.



The above groups are representative of transportation decision making in Amherst, though not comprehensive.

Innovative Funding Systems

While transportation projects have typically been paid for through some version of State and Federal funds, there are available methods to raise transportation project funds through other non-traditional means. Innovative funding systems can include a variety of different mechanisms such as cordon or congestion pricing, public-private partnerships, traffic cameras, and more.

Amherst Today

As a home rule state, Massachusetts allows local municipalities and governments to create taxing and financing systems. No separate transportation fund exists in Amherst today.

Needs

Amherst needs more local funding options other than general taxation to enact further transportation reforms and overcome severe maintenance budget shortfalls.

Opportunities

Flexibility provided by the State constitution could allow Amherst to take on various methods of raising revenues in order to expand transportation solutions throughout the town, especially where development pressure or transportation demand is high.

Next Steps

1. Identify legal and plausible revenue generating opportunities.
2. Clearly delineate between new revenues and the projects that these funds will provide.
3. Work with key institutional partners to establish shared goals for revenues.
4. Establish these new funding systems in the town municipal codes.

BEST PRACTICE — Special Tax District, Washington, DC

The District of Columbia used a special assessment tax district to partially finance the construction of the NoMa-Gallaudet University Metro Station. Property owners proximate to the station will pay a special assessment on their property on top of property taxes. This assessment funds the payments for bonds that were issued in order to provide the necessary capital for the station's construction.



Project Prioritization Process

Project prioritization is a means of establishing both the goals for how a town or community will systematically fund transportation projects or improvements, as well as the actual projects that will be created.

Amherst Today

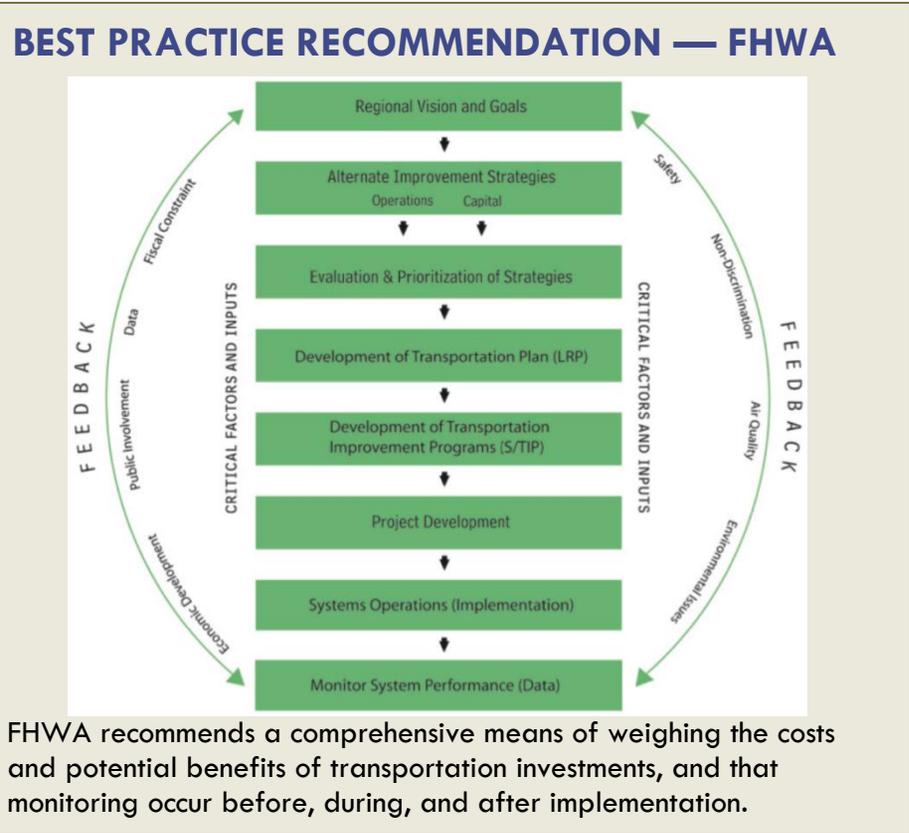
As a part of the Pioneer Valley Planning Commission, all major projects in Amherst that require Federal or State funding are passed through this body.

Needs

The Town has to predict major transportation projects well in advance in order to see them funded accordingly. No coordinated program exists in Amherst to advance projects internally or through the PVPC.

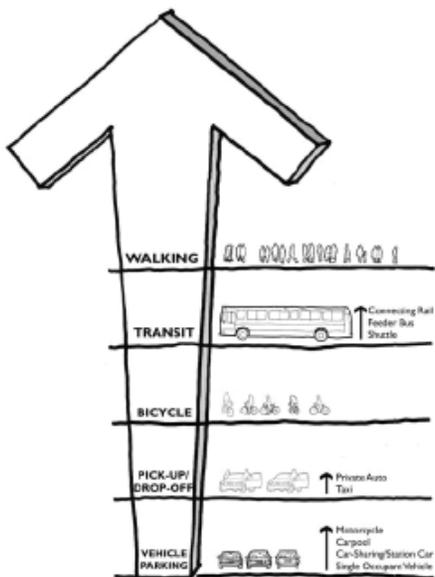
Opportunities

By identifying local priorities to rank transportation projects, the Town can better prepare for large projects and can create the best and most fitting projects. Applying quantitative criteria based on town goals, Amherst can develop a ranking system that helps prioritize projects, both for internal funding as well as outside funding.



Next Steps

1. Create a transportation ranking system to measure transportation goals.
2. Rank multi-modal projects in coordination with Town committees and departments, and refine criteria as needed.
3. Update the project priorities annually based on newly available measures.



WALKING STRATEGIES

As part of Amherst’s multimodal transportation system, initial public input and project prioritization methods suggest that the most fundamental mode of transportation – walking – should be among Amherst’s highest transportation priorities. The seven recommended walking strategies described below include overall planning for a better walking network; shorter-term improvements to gaps in the system; an expanded walk to school program; a traffic calming program; improved site plan guidance relative to walking; clear and current crosswalk specifications; and programs to incentivize greater walking.



Pedestrian Enhancements Program

A pedestrian enhancements program prioritizes the changes needed to complete a safe pedestrian network in Amherst. The program identifies criteria to prioritize adequate pedestrian access improvements during development review, new road construction, regular Town maintenance, and road widening projects. A pedestrian enhancements program includes planning and programming for all needed pedestrian amenities: sidewalks, crosswalks, pedestrian signals, ADA ramps, etc., to create a continuous, accessible, and safe walking environment for all residents, regardless of ability.

Amherst Today

According to Amherst Police, every year in Amherst pedestrians are injured in collisions with vehicles, and in some cases, these individuals are killed. While improvements have been made in the town, a consistent and comprehensive walking system could provide for enhanced pedestrian safety and encourage more trips on foot.

Needs

While walking infrastructure is often substandard or missing in key places, Amherst currently lacks a comprehensive list of pedestrian improvements to be made and no programmatic guidance to get them done.

Opportunities

The Town can coordinate various needed walking improvements throughout Amherst by identifying and prioritizing projects in a single document. Such a document would yield greater coordination amid Town departments and outline a program for getting Amherst's walking network up to par over a number of years.



Pedestrian crossing in downtown Amherst.

BEST PRACTICE – St. Petersburg, FL

The City of St. Petersburg, Florida was once considered one of the worst areas for pedestrian safety in the nation. After their Vision 2020 comprehensive planning process, which targeted solutions to address these issues, the City implemented a City Trails Bicycle and Pedestrian Master Plan in 2003. Since then, they have added 13 miles of sidewalks and reduced the time to repair sidewalks from 30 months to 30 days.



The North Bay Trail part of the City Trail system in St. Petersburg, Florida

Credit: CityofStPete Flickr User

Next Steps

1. Conduct a townwide analysis of sidewalk, pathway, and crosswalk adequacy; identify needed improvements; develop a rating system to help prioritize needs.
2. Outline a phased program for improvement based on a ranking of need established in cooperation with existing pedestrian and public works committees.
3. Integrate walking improvements in ongoing roadway capital plans.

Sidewalk Gap Program

A sidewalk repair and improvement program will help to address missing links and needed repairs in the existing sidewalk system as soon as possible. It will further address issues related to ADA access, and assist in the identification of areas in Amherst that are difficult to navigate for disabled residents.

Amherst Today

The Town of Amherst has a list of priority sidewalks in need of installation or improvement, but it does not have a formal system for prioritizing sidewalk repairs or installations that are needed now in advance of a full pedestrian enhancements program.

Needs

The Town of Amherst has sidewalk repairs and gaps in its existing sidewalk network that should be addressed as soon as possible. While many repairs are done by public works in response to complaints or observations, there is no mandate or funding to fix breaks or fill gaps like there is for roadway maintenance and repair. Streets ought not to be repaved without making respective needed sidewalk repairs.

Opportunities

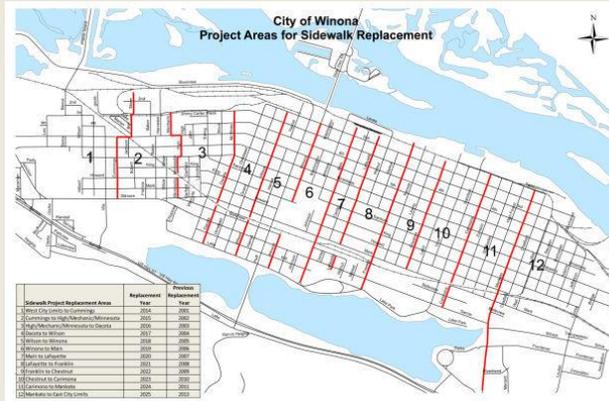
Even before a pedestrian enhancements program is finalized, the Town can assign local and State road repair resources to fix short-term sidewalk needs and make walking safer in the short term.



Two people walked along the shoulder of South East Street prior to the construction of a new sidewalk. Temporary asphalt sidewalks can improve short-term safety while a full design is developed, funded, and installed.

BEST PRACTICE – Winona, MN

The City of Winona has a web-posted sidewalk replacement protocol which calls out at what point sidewalks should be maintained and with guidelines for doing so. The public website also articulates the process for verifying sidewalk maintenance needs.



Credit: City of Winona

Next Steps

1. Solicit a complete list of needed sidewalk repairs and needed gap connections from Town committees.
2. Identify short-term funding for low-cost townwide repair program, utilizing low-cost asphalt or other materials.
3. Log and map short-term repairs/installations and include in pedestrian enhancements program, helping that program address larger-scale projects.
4. Monitor repairs annually and supplement as needed or until pedestrian enhancements project is complete.

Walk to School Program

Walk to School Programs are designed to promote walking among children. Most notable are the Safe Routes to School (SRTS) programs — Federal- and State-funded improvements for walking and biking in school areas. In recent years these programs have diminished amid budget cuts to Federal and State transportation programs. However, many communities maintain the principles of SRTS in their regular infrastructure programming. Walk to School Programs can include infrastructure improvements like sidewalks, crosswalks, flashing crosswalk beacons, curb extensions, and others, in addition to education and encouragement activities. SRTS estimates that 1.35 miles is a safe maximum distance for most children to walk to school.

Amherst Today

Wildwood Elementary School has used the SRTS to improve access for students in the surrounding areas. The project used the SRTS Infrastructure Program to improve pedestrian facilities proximate to the elementary school. All three Amherst elementary schools have partnered with Massachusetts SRTS.

Needs

The Town of Amherst lacks a comprehensive strategy to improve pedestrian safety, or to encourage students and parents to use walking as the preferred means of going to school. Additionally certain roads in Amherst discourage safe pedestrian crossings and do little to lower speeds along walk-to-school routes.

Opportunities

The Town can formally organize Walk to School Programs to promote safe student movement. Simple programs may involve flyers and educational materials. Organized “walking school buses” can help parents embrace walking



BEST PRACTICE – Essex, CT

The Town of Essex, Connecticut, secured SRTS funding to build new sidewalks to its elementary school. When funding dried up for additional projects, the Town embraced the program’s principles



Main Street Safe Routes To School improvements , Essex, CT

and has since done its own safety enhancements, including a “shared space” raised street next to the town library.

to school. Coordinating efforts with infrastructure improvements can identify special features such as sidewalk repair, “yield to pedestrian in crosswalk” stanchions, lighted crossing signs, etc. Additional cooperation between the town and schools can improve walking conditions in the winter, when many pedestrian paths are not clear due to snow.

Next Steps

1. Identify existing Walk to School Programs and potential partners in Amherst schools.
2. Create a formal Walk to School Program for the entire town with specific educational programs, outreach materials, and needed infrastructure improvement maps for every school.
3. Seek funding to improve pedestrian access points and install special safety measures as necessary; coordinate with pedestrian enhancements program.

Traffic Calming Program

Traffic Calming is a roadway design strategy intended to slow traffic speeds and improve safety while balancing the needs of all roadway users. A strong emphasis is placed on improving safety by reducing the dominance of vehicles within a neighborhood. Traffic calming is particularly applicable on residential streets but can also be applied in village centers and on major arterials. A wide variety of traffic calming strategies can be employed in various areas, though some strategies are appropriate in one location and not another. From bulb-outs, chicanes, curb extensions, or road diets, there are a variety of affordable and effective strategies available.

Amherst Today

As has been noted by the Town in its master plan, there are areas in Amherst that could benefit from traffic calming measures. The town already has experience with traffic calming along Lincoln Avenue, where speeds above the posted 30 MPH led the Town to install speed humps. There is however no systematic application of traffic calming strategies.

TRAFFIC CALMING PROJECT PRIORITIZATION CRITERIA			
Criteria	Points Allowed	Points Awarded	Comments
Volume	Up to 5		1 Point for each 1000 vehicles per day.
Speeding	Up to 10		Using measured 85 th percentile speed, ½ point for each mile per hour starting at 10mph over the speed limit.
Crashes	Up to 10		1 point for each crash per year based on the three-year average.
Sidewalks	Up to 10		5 points if sidewalk on one side of street. 10 points if no sidewalks.
Planned D.P.W. Roadwork	50		50 points if roadway has been programmed for DPW resurfacing, rehabilitation, or reconstruction in the next 5 years.
Pedestrian Activity	Up to 10		Points given for high pedestrian activity centers.
Neighborhood Support	Up to 5		One point for every 20% of households within the impacted area who sign the Northampton Traffic Calming application.
Pace Car Participation	Up to 5		One point for every 20% of households who participate in the Northampton Pace Car program. www.northamptonma.gov/pacecar
Alternative Funding	Up to 50		1 point for every \$2,500 up to \$50,000 funded by source other than City of Northampton; full 50 points for 100% funding.
Waiting List	Up to 5		1 point for each year on the waiting list.
TOTAL			

Northampton's Traffic Calming Prioritization Form

Needs

Though Lincoln Avenue's speeding problems have been mitigated, other roads in town experience vehicles traveling far above the posted speed, posing notable risks to other road users.

Opportunities

The Town can use traffic calming programs to enhance road safety for all road users. Efforts can be combined with other transportation improvements to provide safer and more equitable outcomes.

Next Steps

1. Develop a formal traffic calming program with measurable criteria for installation, a neighborhood request process, and an annual funding stream.
2. Develop clear program guidance and educational materials for residents.
3. Assign Town engineering staff to review requests and work with neighbors to develop program elements.

BEST PRACTICE –Dallas, TX

The City of Dallas allowed for the construction of temporary pedestrian facilities along Grand Avenue. The result was an improved



pedestrian experience, lower speeds, and provided a valuable pilot of traffic calming strategies.

Grand Avenue, Dallas, TX
Credit: Better Block

Sample Traffic Calming Elements



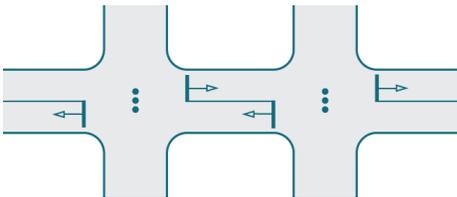
On-street parking narrows the street and slows traffic by creating friction for moving vehicles.



Medians create a pinch point for traffic in the center of the roadway and can reduce pedestrian crossing distances.



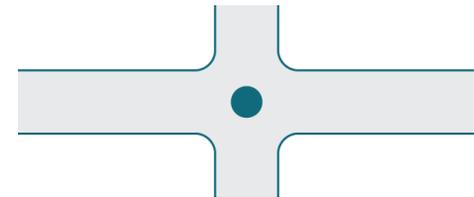
A **traffic diverter** breaks up the street grid while maintaining permeability for pedestrians and bicyclists.



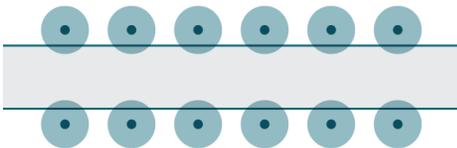
Signal progression retimes signals to a street's target speed can create lower speeds along a corridor.



Pinch point or chokers restrict motorists from operating at high speeds on local streets and significantly expand the sidewalk realm for pedestrians.



Roundabouts reduce traffic speeds at intersections by requiring motorists to move with caution through conflict points.



Street trees narrow a driver's visual field and create rhythm along the street.



A **lane shift** horizontally deflects a vehicle and may be designed with striping, curb extensions, or parking.



Chicanes slow drivers by alternating parking or curb extensions along the corridor.

Source: NACTO Urban Street Design Guide

Site Plan Review Standards to Support Walkability

Site plan review standards establish minimum requirements for new or updated developments to move forward. In Amherst, these should guarantee that a base level of improvements for pedestrians will be provided in any new or updated development. Standards can be based on development size, trip generation, number of residential units, or other minimums. Consideration must also be paid to provide greater ADA accessibility throughout Amherst, and additionally to provide amenable infrastructure to older residents.

Amherst Today

Amherst does not currently codify requirements for walking accessibility within existing zoning. Pedestrian-related requirements are imposed through Site Plan Review and Special Permit review processes and vary project to project.

Needs

In order to improve walking facilities on a systematic and ongoing basis, the Town should create minimum pedestrian standards that will enhance walkability as new development is constructed.

Opportunities

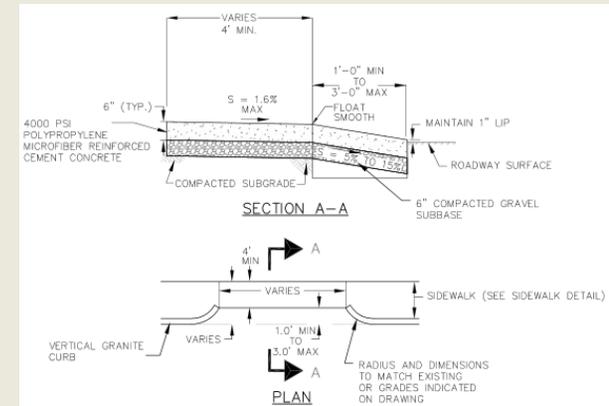
The Town, through the use of its existing citizen committees, can streamline the approval process by promulgating a clear set of pedestrian-related minimum design standards, which can be modified over time as needs in town evolve.

Next Steps

1. Identify and review pedestrian-related design standards with standing committees and develop acceptable minimum criteria for new development.
2. Publish minimum criteria and include as part of site plan review guidance; include in zoning language as permissible.
3. Establish clear review and update procedures based on periodic review of best practice design evidence.

BEST PRACTICE RECOMMENDATIONS—(Numerous)

Many communities publish specific design requirements to be adhered to for site plan approval which promote pedestrian safety. Typical elements include level sidewalks across driveways, driveway and curb cut width limits, minimum walkway widths, minimum sightline triangles, maximum driveway slope behind sidewalks, etc. Often these specifications are standards promulgated by public works departments that become required elements for site plan approvals and/or building permits.



Crosswalk Specifications

A documented crosswalk specification will ensure consistent application across similar locations throughout town by Town staff and contractors and allow modifications in reaction to best practice over time.

Amherst Today

Amherst's crosswalks are often not designed with the best pedestrian-oriented designs in mind. While traditional parallel bars have mostly been replaced with international standard crosswalk bars parallel to the vehicle's direction of travel, most bars are too short to be seen far enough in advance for motorists to react adequately. Furthermore, state regulations permit safe crossings at all street intersections (marked or unmarked) and within 30-feet of a marked crosswalk. The Disabilities Access Advisory Committee incorrectly assumes that crosswalks cannot be wider than the width of ADA ramps, directly threatening pedestrian safety. Lastly pedestrian signals generally lack countdown timers.

Needs

The Town needs to create a consistently-applied crosswalk specification that both encourages walking accessibility and promotes pedestrian safety through improved signage and striping.

Opportunities

The Town has already been working to use the latest standards, including advanced yield "sharks' teeth" and international standard crosswalk bars. With a directed discussion with town committees about the appropriate application of these innovations, the Town can improve walking accommodation and safety with little change to existing practices.

Next Steps

1. Discuss best practice specifications for markings and signs with appropriate Town committees and select acceptable standard.
2. Publish and promulgate new standard; distribute to markings companies, and include in site plan review documentation.

BEST PRACTICE RECOMMENDATIONS—NACTO

Crosswalks are natural points of conflict between vehicles and pedestrians. While crosswalks are used by pedestrians, they are equally created for drivers.

Advanced signage, yield triangles or "sharks' teeth," and reflective crosswalk bars

are all designed not simply to direct the pedestrian but to inform the driver of possible conflicts and to prepare to yield to someone walking. Best practices for sidewalks include non-deviating desire lines, broad and long crosswalk bars parallel to the direction of vehicle traffic (both seen at right), and advanced warning signage in accordance with local speeds.



Credit: NACTO

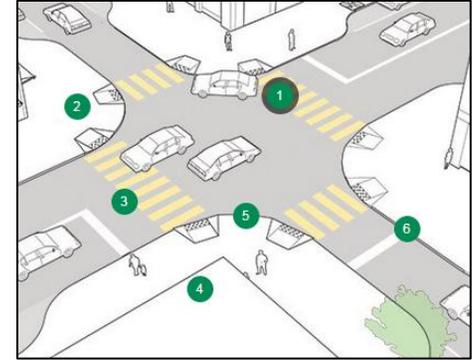
Sample Crosswalk Specifications Guidelines



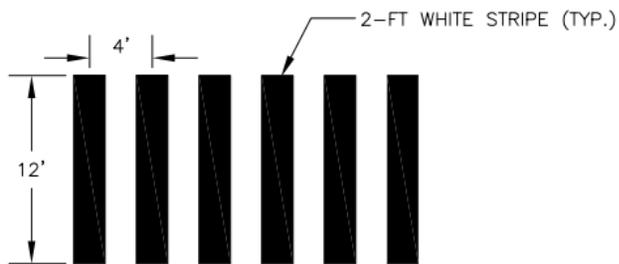
A 12-foot wide crossing with ADA-compliant curb ramps and standard crosswalk signs with down arrows, Somerville MA

NACTO Crosswalk Recommendations

1. Stripe all signalized crossings to reinforce yielding
2. Stripe the crosswalk as wide or wider than the walkway it connects
3. High visibility ladder, zebra, and continental crosswalk markings are preferable
4. ADA accessible curb ramps
5. Keep crossing distances as short as possible
6. An advanced stop bar should be located at least 8 feet in advance of the crosswalk



City of Cambridge Crosswalk Marking Standards



CAMBRIDGE STANDARD CROSSWALK



Advanced yield triangles located 30-feet before a 12-foot wide zebra crosswalk in Cambridge, MA

Walking Incentive Program

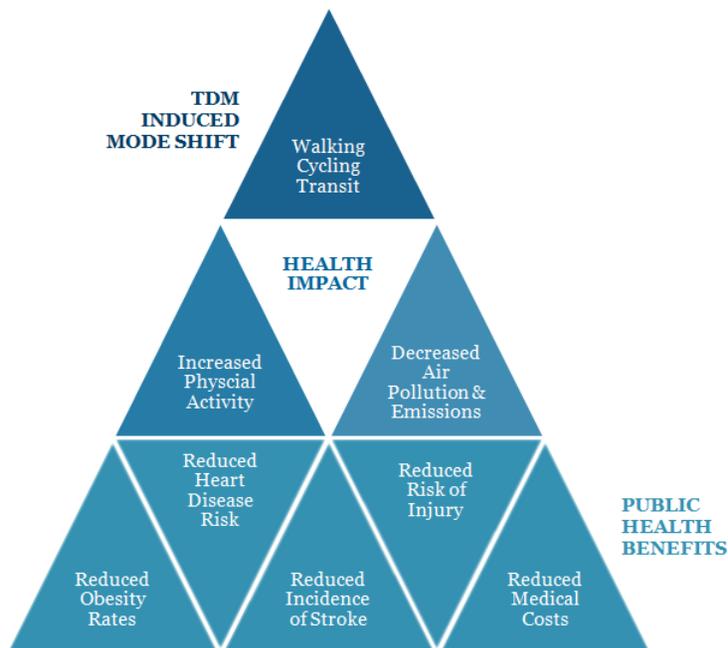
A walking incentive program promotes physical health and decreases air pollution and traffic congestion.

Amherst Today

Amherst has a very walkable downtown and village centers, and a high percentage of trips occur on foot. However, there are still many trips conducted in a car that could be done on foot with the right incentives in place.

Needs

The Town needs to coordinate with private landowners, employers, and residents to promote walking as a healthy cost-savings and traffic-reducing measure.



Transportation Demand Management induced mode shift occurs when people choose to drive less because of the benefits of using other modes.

BEST PRACTICE – Wellesley, MA

The Town of Wellesley has actively embraced walking for many years, promoting walking as part of a healthy lifestyle. Over the years, the Town has worked with residents to promote, develop, and map a network of walking routes that include an extensive off-street path system. Members of a trails committee install signs and maintain them. Most trails are “backyard” routes through private property that help provide safe and direct connections to destinations in town. The Town installs safe crossings where routes encounter roadways.



Opportunities

The American Heart Association posts resources that can be used for walking incentive programs and employer-based trip reduction programs such as NuRide will record employees walking trips, qualifying them for coupons and rewards for miles travelled by foot. Amherst has a very active population that can help promote these or similar resources.

Next Steps

1. Work with Town committees to identify resources and establish program goals.
2. Coordinate publication and placement on Town website.
3. Organize educational outreach programs, walking days, etc.

BICYCLING STRATEGIES

More and more people are choosing to bike regularly in Amherst every year, but insufficient planning and infrastructure has been dedicated to this form of transportation. Biking has valuable community benefits that include healthier lifestyles, reduced transportation costs, increased safety, and improved community cohesion – all at incredible cost efficiencies. The nine recommended strategies include establishing a town-wide bike network plan; installing needed bike infrastructure at key intersections; beginning a bike awareness education program for motorists; beginning a public bike share program; developing simple connections to recreational assets; establishing clear bike parking guidance; installing bicycle repair stations; dedicating resources to maintaining bike lanes; and ultimately installing protected bicycle lanes that make biking safe for people of all ages and abilities.



Bike Network Plan

A bike network plan can support the bike riding community by laying out a plan for creating safer streets for bicycling. A network plan should identify and prioritize a comprehensive network of bicycle routes through the town.

Amherst Today

Though the Town has installed bike lanes and a high number of bicycle trips for a town of its scale, the Town of Amherst does not have a comprehensive plan for expanding its cycling network.

Needs

Amherst needs to expand its bike network in a systematic way, and it needs analysis to support an accepted system for prioritizing and planning the network's implementation.

Opportunities

Bicycling momentum has grown sufficiently – not only locally but statewide – to justify expanding Amherst's small bike network in a logical manner that connects its village centers and key destinations. Furthermore, national street standards have advanced to the point where Amherst can insert bike facilities safely on existing streets without expanding rights of way.



Cyclists riding on shoulder on Route 116

BEST PRACTICE – Pasadena, CA

Pasadena, California commissioned a level of stress map to guide the City's bicycle transportation plan update. The City is using this map, which illustrates the comfort and safety of any given road, to prioritize areas of focus for the network.



Level of Stress Bike Map, Pasadena, CA,
Credit: Sam Schwartz Engineering

Next Steps

1. Evaluate appropriate corridors for a bike network based on best practice measures of volumes, grades, safety, and right-of-way; establish rating system to prioritize facilities by class of cyclists.
2. Produce phased installation program according to acceptable ranking criteria established with Town committees.
3. Adopt and publish signing and markings standards and specifications.
4. Integrate bike network schedule into Department of Public Works programs and road projects.

Install Bicycle Infrastructure Accommodations at Intersections

Bicycle infrastructure at intersections, like box boxes and through-lane painting, increase safety, comfort, and visibility for cyclists.

Amherst Today

Amherst currently does not have any specialized facilities for cyclists at intersections.

Needs

The Town needs to consider ways to install treatments for cyclists at intersections along major bike desire lines. Several key left-turns and through movements by bicyclists coming into and out of Amherst Center are not accommodating, leaving only the most experienced cyclists comfortable with navigating these intersections.

Opportunities

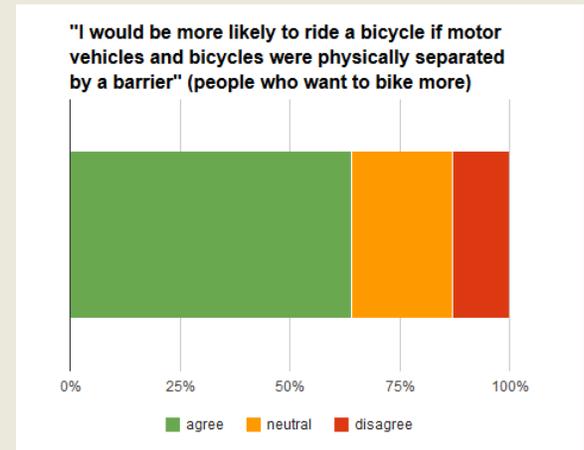
Treatments can be installed in paint as part of a bike network expansion or intersection improvement.

Next Steps

1. Identify intersections needing improvement.
2. Develop best design in coordination with Town committees.
3. Install.

BEST PRACTICE – People for Bikes

In a national survey of over 9,000 adults that want to ride bicycles more often, 64% of respondents said that improved and separated bicycle travel lanes would encourage them to ride their bicycles more often. While the survey broke down respondents into different



Credit: PeopleForBikes

categories of gender, region, race/ethnicity, and income, all groups responded definitively in the majority that they would be more likely to ride bikes if there were physically separated bike lanes.

BEST PRACTICE – Luxembourg City, Lux.



Intersection Treatment in Luxembourg

Paint treatments to lanes through intersections, like those in Luxembourg City, shown at left, also help to increase the visibility of cyclists at intersections.

Bike Education Program

A bike education program will help more people who bike in Amherst to understand the basic skills or knowledge to safely ride a bicycle in traffic while also educating motorists to be more aware of the presence of cyclists.

Amherst Today

The Town of Amherst has posted biking laws on its website but does not have an organized education effort. Amherst’s higher-learning institutions organize some education programs, such as cycling skills classes and how to properly lock your bike. There are no driver awareness programs.

Needs

The Town needs a coordinated bike education effort to increase the safety and confidence of those cycling on the roads. Driver awareness of bicycle operations is essential for improving safety.

Opportunities

The Town can make use of existing education tools provided online by groups like the League of American Bicyclists and streetfilms.org to educate cyclists and drivers. Further the Town can work with local institutions like UMass to expand educational outreach.



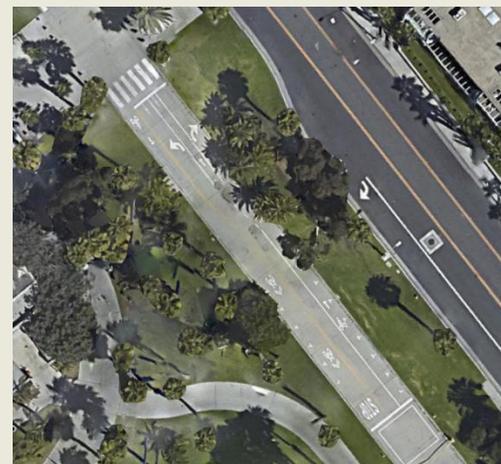
A family biking on South Pleasant Street in Amherst Center.

Next Steps

1. Work with Town committees to develop a bike education program and materials.
2. Organize outreach and communications opportunities.
3. Post additional resources online.
4. Coordinate with local institutions to develop and share educational materials and programs.

BEST PRACTICE – Santa Monica, Calif.

Santa Monica, a designated “Bike Friendly Community,” hosts bike education programs through both the Santa Monica Bike Center and through infrastructure they have installed on their off-road trail by the beach front. The infrastructure provided gives cyclists an opportunity to practice navigating parked cars, making left turns, merging lanes, and using bike boxes in an off-road context.



Top: Children learn to cycle on bicycle trails in Santa Monica; Bottom: Learn to bike infrastructure provides a practice area for urban cycling techniques and provides a platform for bike instructors to teach cyclists standard practices and rules

Bike Share

Bike sharing is enabled through self-serve bike stations where users can borrow a bike for a fee and return it to another station in the system. Bike shares are very effective at encouraging bicycling and are a practical tool for extending the range of transit.

Amherst Today

The Town of Amherst currently does not have bike share, but UMass Amherst has been operating a pilot bike share program of 25 bikes since 2010. The Pioneer Valley Planning Commission (PVPC) has been examining the feasibility of bike share for Amherst, Springfield, Northampton, Holyoke and area colleges. The PVPC plans to implement a pilot of stations in and around transit stations with links to the college network.

Needs

Amherst is ideally suited to a bike share system because of its high student and university affiliate population, regular visitors, and multiple nearby village center destinations within biking distance. Too many trips beyond walking distance are either taken by car or not taken at all, especially by students and visitors.



Many popular local businesses are too far for many to walk to but within easy reach with a bikeshare system.

BEST PRACTICE – Bike Chattanooga Bicycle Transit System, Chattanooga, TN

The City of Chattanooga Transportation Department established the bicycle transit system in July of 2012. The system's bikes are concentrated within a 2.5-square mile area of downtown, and the system was funded both by a Federal air-quality grant won through the regional transit agency and by a local foundation sponsor.



Bike Chattanooga features hundreds of bikes at over 33 stations throughout the City

Opportunities

A network of bike share stations in Amherst can be an affordable option for students, a great benefit for businesses outside the Center seeking to attract patrons, and an excellent way to supplement transit and walking connections – particularly between the colleges and downtown. With the PVPC leading the way, Amherst should work to advocate for a robust pilot in its downtown.

Next Steps

1. Solicit broad Town committee, business, and resident support for bike share.
2. Seek financial support for a bike share pilot.
3. Work with PVPC to implement a pilot.

Trail and Conservation Area Connections

An off-road biking network can increase its size and utilization by connecting safely to recreational and conservation areas where bikeable paths already exist, opening up additional purposes for bike paths that are often serving only commuters.

Amherst Today

Amherst has a rich outdoor recreation network of 1,828 acres of conservation areas and 80 miles of foot trails. The town is also connected to the region via the Norwottuck Rail Trail. However, these excellent walking and biking systems mostly do not connect, and some expressly do not allow bicycles on the trails.

Needs

Unfortunately, many of Amherst's great outdoors attractions are only accessible by car. To make the most of the town's outdoor areas and trails, and to expand the attractiveness of biking and walking, path connections are needed between conservation and recreation areas and nearby bike facilities and sidewalks.

Opportunities

Many conservation and recreation areas in Amherst are within a few hundred yards of an on- or off-street bicycle facility or continuous sidewalk. Continuous connections may require new right-of-way, often on private land, but the rising popularity of biking and recreation have created enough momentum to support a collaborative and creative approach to making these "last mile" connections.

BEST PRACTICE – Connellsville, Pa.

The Town of Connellsville built a protected facility through town to connect cyclists through the neighborhoods to the Great Allegheny Passage rail trail.



Trail Connection through Connellsville, PA



Amethyst Brook conservation area is very popular and barely a half-mile from Main Street's bike lanes, but access today is entirely vehicular.

Next Steps

1. Working with appropriate Town committees, identify and map conceptual connections to conservation and recreation areas.
2. Collect best practice community trail educational information, including safety, maintenance, and liability materials for landowners.
3. Identify local landowners and determine needs.
4. Apply for trail grant funding or other sources.

Bike Rack Standards

Adequate and secure bicycle parking is critical to promoting and supporting bicycling. Establishing clear standards for the Town and developers can help ensure that bike parking is convenient and easily used. Further considerations can involve regular maintenance programs.

Amherst Today

Amherst is well suited for bicycling and has numerous racks in downtown. The zoning bylaws of Amherst also require that all developments that provide 10 or more car parking spaces also provide bicycle racks, the design and number of which will be approved by a board as part of permit review.

Needs

While new racks compliant with the latest standards have been installed in Amherst in recent years, many more are needed, and several do not comply with minimum spacing requirements. No specific guidance exists, particularly for new developments that may use non-compliant racks or place them poorly without adequate protection or shelter. Additionally the Town needs to develop bike rack clearing protocols, to address abandoned bicycles.

Opportunities

The latest bike parking standards can be applied in Amherst and integrated into public works' specifications as well as site plan review.

Next Steps

1. Identify appropriate bike parking specifications and promulgate.
2. Adopt appropriate zoning bylaws for short-term, long-term, secure, and covered bicycle parking.
3. Post resources online.
4. Establish a bike rack request system.
5. Create an abandoned bicycle protocol that lays out when bikes will be removed, by whom, and how long they will be held by the Town.

BEST PRACTICE – Chicago Bike Rack Program

To support its growing protected bike lane network, Chicago has installed bike racks throughout the city. They have a request-a-rack program and currently have 14,500 bicycle racks and 15 on-street corrals. The City also has established a formal minimum requirements guideline to ensure racks are cited in ideal locations.



On-Street Bike Corral in Chicago, IL

Credit: Chicago Complete Streets

BEST PRACTICE – Covered Racks, Portland, OR



Covered Bike Parking and Repair Station

Bike Repair Stations

Bike repair stations provide basic resources for keeping bikes in good working order, which makes riding a bike a more reliable travel option.

Amherst Today

The Town of Amherst currently does not have any public repair stations.

Needs

The Town of Amherst can more easily build a culture that supports bicycling by providing tailored facilities that meet bikers' needs.

Opportunities

The Town can enhance the convenience and reliability of cycling by installing pumps and repair stations throughout town. Local businesses can support repair station upkeep and be encouraged to offer similar services nearby.



A bike repair station on the campus of the University of Kentucky, Lexington KY.

Next Steps

1. Work with Town committees to identify sites that could benefit from bike repair stations.
2. Collaborate with local business / institutions to cooperatively fund installations; solicit complimentary support, such as bathroom facilities, covered bike parking, etc.

BEST PRACTICE – Hoboken, N.J.

The City of Hoboken installed a bike repair station near the entrance of the PATH subway system and proximate to the local bus station. In addition to installing the repair station proximate to where cyclists often ride, the City also placed the repair station near newly created bike racks, as well as proximate to buffered bike lanes.



Hoboken bike repair/pump station.

Credit: City of Hoboken, NJ

Develop Bike Lane Maintenance Protocol

A bike lane maintenance protocol would prioritize the sweeping, pavement repair, and re-painting of bike lane infrastructure throughout town.

Amherst Today

Amherst does not have a dedicated program or protocol for bike lane maintenance.

Needs

Many Amherst cyclists have complained about the poor condition of Amherst's bike lanes and bikeable shoulders. In order to sustain a safe and enjoyable cycling environment, the Town should consider establishing protocols for all kinds of bike lane maintenance.

Opportunities

Better maintenance of bike lanes and shoulders can be coordinated with existing road maintenance programs through clear direction and protocols. Debris and sand clearance can be cost-effectively done with existing Town equipment.



Debris, like rocks, glass, and sticks, can easily accumulate in the road shoulder and can inconvenience cyclists by popping their tires or forcing them to veer into traffic.
Credit: John Luton

BEST PRACTICE – Milwaukee, WI

Bike lane maintenance is a primary objective of the City of Milwaukee's 2010 Bicycle Plan. To maintain bikeways for safe use and operation, the plan calls for regular sweeping, prompt maintenance of potholes and pavement damage, re-painting of lanes before fading, and clearing snow from bikeways in a timely manner.



Milwaukee's Humboldt Ave.

Credit: Urban Milwaukee

Next Steps

1. Identify maintenance items under consideration for protocol.
2. Prioritize and schedule maintenance program.
3. Coordinate with other maintenance programs.
4. Develop a request system to allow residents to report street conditions and request improvements.

Install Protected Bike Lane Infrastructure

Protected bike lane infrastructure provides pathways for cyclists to ride on streets with a buffer protecting them from traffic. The protection could be created by shifting parking lanes outward to create space between parked cars and the curb, using a landscaped planting strip, or maintaining a curb buffer.

Amherst Today

Amherst has two off-road trails and does not have any protected on-street infrastructure.

Needs

In order to encourage more cycling, the town needs to consider implementing infrastructure that increases the comfort and safety for all bicyclists, especially in high volume areas such as North Pleasant Street.

Opportunities

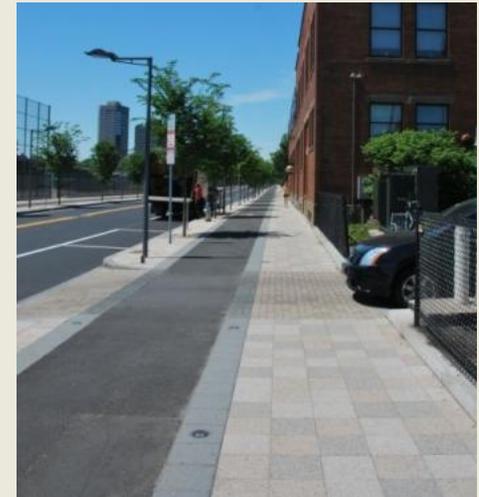
Protected bike lanes appeal to those wary of riding on-street, they attract local spending at businesses, and they can reduce obstructions and conflicts between those who drive and those who bike. The Town can make cycling more accessible and comfortable for a wider range of people where sufficient right-of-way is available.



North Pleasant Street between UMass and Amherst Center experiences high volumes of walking, biking and driving and is the ideal place to create more protection for cyclists with a protected bike lane.

BEST PRACTICE – Cambridge, MA

Dozens of American cities have protected bike lanes (also known as “cycletracks”). Cambridge, MA was among the first cities to install such lanes. Located on Vassar Street near MIT, the lane is a traditional European-style lane installed in a raised area along the sidewalk. A planting strip and curb protect cyclists from moving traffic, and the lane maintains a constant elevation even over driveway access areas. A different pavement marking and small bumps help to delineate the bikeway from the walking area.



Vassar Street Protected Bike Lane, Cambridge, MA

Next Steps

1. Identify key routes for protected infrastructure in coordination with bike plan.
2. Develop plans for bike infrastructure expansion.
3. Seek State funding.

TRANSIT STRATEGIES

Transit in Amherst is excellent compared to most communities its size, but there are still many gaps in the system and many simple improvements are needed. The potential to get increasing rates of transit use with little additional investment in Amherst is very high. The six recommended strategies related to transit include installing bike parking at remote bus stops to extend the range of transit service; improving stop amenities; making real-time bus arrival information widely available; developing a transit plan for new local service; integrating transit priority into existing signals in town; and developing a clear planning horizon for when rail transit service can return to Amherst.



Bike Racks at Transit Stations

In order to assist in last mile connections, and to expand the reach of transit service areas, bike racks are installed at transit stations. Doing so allows for greater access to transit for cyclists.

Amherst Today

Some bicycle parking exists at a few of the bus stops along North Pleasant Street both in downtown and on the UMass campus. However, remote bus stops have no bicycle parking.

Needs

Either due to limited bike facilities or simply distance, many remote Amherst residents have no choice but to drive. Even though a bus stop may be close to a resident's home, there may be no connecting sidewalks or bicycle parking at the stop. For many, front-mounted bus bike racks are not a solution, depending on travel or work needs and the physical limitations of lifting bikes onto the bus rack.

Opportunities

Remotely-placed bike racks near bus stops can have a great ability to extend the range of transit. Amherst's remote bus stops mostly have ample space for bike racks.

Next Steps

1. Identify most heavily used transit stops in town for boarding and alighting.
2. Provide proximate bicycle parking near these stops where it is lacking.
3. Create an ongoing review-and-request program for transit riders seeking to bike to the bus.

BEST PRACTICE – Boston, MA

The MBTA coordinated bike rack stations into all of the bus stops for the Silver Line.



A bike rack at a remote bus stop, Boston, MA

Transit Stop Enhancements

Transit stop enhancements are simple efforts to improve amenities at bus stops. Enhancements can include seating, real time transit information, lighting, standing pads, etc. designed to give passengers a sense of respect and comfort while waiting for the bus. Further improvements should also be made to improve ADA accessibility at all stops.

Amherst Today

Many bus stops, particularly in downtown and on the UMass campus, have bus shelters. Outside of these areas, stop amenities are sparse – mostly limited to signs with posted schedules.

Needs

There are many bus stops in Amherst with few enhancements despite passenger demand in these areas. Meanwhile, new riders seeking to catch a bus are often presented with very little infrastructure to identify a stop.

Opportunities

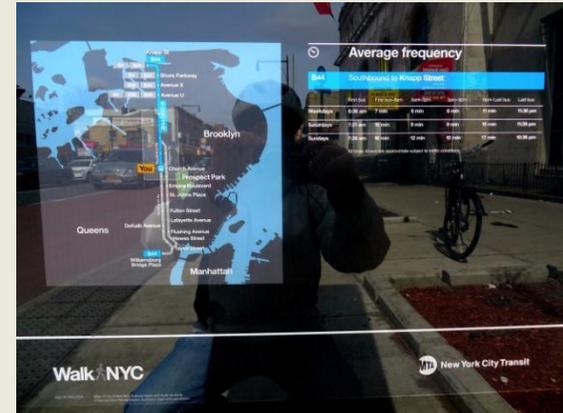
By improving information and transit stop furniture Amherst can encourage the greater use of transit throughout the town. New treatments, such as the passenger beacon lights now in place in Hadley, can make riding transit more attractive to new riders.



Some bus stops in Amherst provide little more than a sign.

BEST PRACTICE – New York, NY

Bus stops in New York include maps of the entire route, where you are along the route, and many have live information about next bus and average frequency.



BEST PRACTICE – Hadley, MA

Hadley’s new passenger-activated stop beacons alert approaching buses that a rider is waiting to board. Riders have the satisfaction that they will not be passed by if they are distracted or seeking shelter at a bus stop without protection.



Next Steps

1. Develop criteria and ranking system for improving remote bus stops with a toolkit of amenities.
2. Develop phased bus stop improvement program.

Real Time Transit Information

Using GPS-enabled location data, passengers are able to receive real time transit information as to the location of their bus. This information can be used to determine both the location of a bus and the estimated amount of time it will take for the bus to reach that bus stop.

Amherst Today

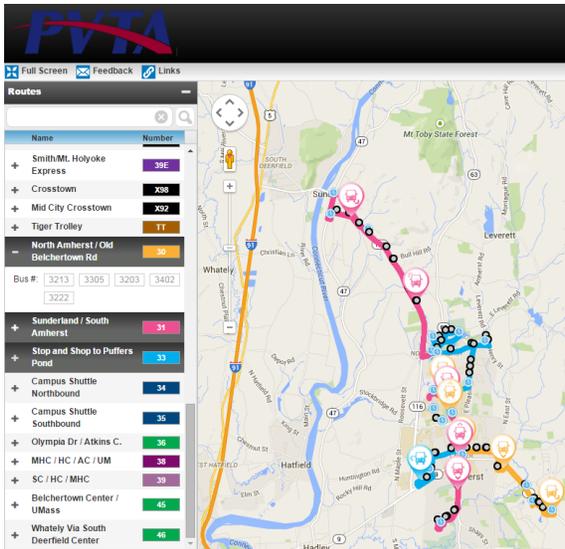
Pioneer Valley Transit Authority offers real time bus mapping, which shows the location of the buses on any given route at that time.

Needs

Real time bus information needs to be more accessible at stops themselves with real time updates available using SMS, smart phone applications, and voice for visually impaired customers. Real-time information has been proven to be one of the best means to attract potential riders, especially when frequencies are less than 10 minutes.

Opportunities

The Town of Amherst can improve the reliability of transit information locally and provide citizens with a greater incentive to use transit simply through the use of accurate arrival estimates for buses.



Real-time PVTA bus location information available on the web.

Next Steps

1. Work with PVTA to expand real time information in Amherst.
2. Identify most effective means of delivering real time information for passengers.
3. Inform public on how to use real time information updates.

BEST PRACTICE – Chicago, IL

CTA’s bus stop signage integrates real-time transit information links for mobile device users into the stop signage.

BEST PRACTICE – Paris, France

Paris bus stops incorporate both route information and live bus tracking information.



This CTA sign adds Real Time App Info.



Local Transit Plan

Developing a local transit plan is an opportunity to prioritize the use of funds for transit expansion and improvement in the future. Transit plans bring together stakeholders from municipal and regional governments and agencies, neighborhood and community leaders, educational institutions, and others, in order to create a plan to serve unmet transit needs.

Amherst Today

The Town does not currently have a transit plan, though there is a Public Transportation and Bicycle Committee that advises the town on PVTA and other public transportation concerns. While there is a PVTA regional plan, a locally-focused transit plan would allow Amherst to actively target transit gaps, stop access, and Amherst-specific improvements. In some areas of the town transit ridership is quite high according to a recent Amherst Health Survey Report, which focused on housing complexes off East Hadley Road. Of those surveyed 77% of residents reported using the bus from their residence, with over 50% reporting use of the bus every day.

Needs

The Town needs a comprehensive document to address transit needs throughout the area. Opportunities to serve areas the PVTA cannot serve could be explored, and local transit amenity needs could be better identified.

Opportunities

By developing a transit plan, there is a better opportunity that Federal and State funds could be procured. Amherst's village centers may help form a framework for future local services, including options such as a flex-scheduled demand-responsive "community bus," a shared ride system utilizing neighbors' cars, or a private jitney service connecting private housing and institutional destinations.

BEST PRACTICE – Tompkins Consolidated Area Transit, Ithaca, N.Y.

TCAT approved a Transit Development Plan in 2009 to study how well it was serving the community. The plan considers ways to improve the integration of technology and to introduce alternative transit services, like demand-responsive transit and Park-and-Ride systems. The plan also considers fixed route upgrades and the use of financial, capital, and human resources.



Catalyst for Regional Progress

PVPC

Next Steps

1. Conduct an analysis of unmet transit needs, including community surveys and stop assessments; Develop a transit plan in coordination with the Public Transportation Committee.
2. Pursue recommended option(s) and funding as needed.
3. Promote and improve regional connectivity with surrounding areas and towns.
4. Update transit plan every five to ten years.

Transit Signal Priority

Transit signal priority, also known as a queue jump, is a method of improving transit efficiency at signalized intersections. On the approach to a traffic signal, an exclusive additional lane is created for buses or other transit services. After all traffic has stopped at the intersection, a separate traffic signal for buses only allows the transit vehicle to enter the intersection before any other vehicles. In essence the bus ‘jumps’ the line waiting to move through the intersection.

Amherst Today

Multiple routes run through the most congested areas of the town. Often times a number of buses can be seen back to back trying to get into stops and through downtown Amherst.

Needs

A number of routes using North Pleasant Street in Amherst Center experience and contribute to congestion during peak periods as a result of high transit demand during peak vehicle commuting periods. Some buses experience notable delays, and bus bunching contributes to a poor perception of transit’s benefit.

Opportunities

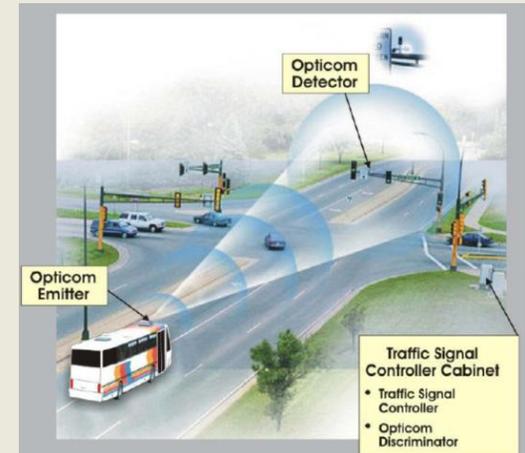
Queue jumps could be used at larger intersections in Amherst, particularly between College Street and UMass. These could be in effect only during peak hours, reverting to parking or loading zones off-peak.



Buses running through downtown Amherst can take over 10 minutes in congestion – a trip that ordinarily would be just two minutes.

BEST PRACTICE – Portland, Ore.

Using an active strategy that adjusts the signal timing by truncating a red light after a transit vehicle is detected approaching the intersection, as well as pre-emption strategies that interrupt normal signal phasing to provide priority to the bus, the City of Portland was able to reduce bus travel times by 5-12%.



Credit: Nelson\Nygaard

Next Steps

1. Identify street intersections where buses are delayed.
2. Amend municipal code to allow buses to use a queue jump.
3. Work with stakeholders and the public to demonstrate congestion improvement benefits.

Fixed Guideway Transit Plan

Developing a fixed guideway transit plan will help set a threshold of passenger volumes after which the Town should seek exclusive right of way for transit, such as a bus lane, bus rapid transit, or rail system. In simple terms this sets a level of development upon which the town will place limitations on non-transit vehicles. It allows the Town to decide at what level of traffic volume solutions like exclusive bus lanes will be installed in order to mitigate traffic congestion.

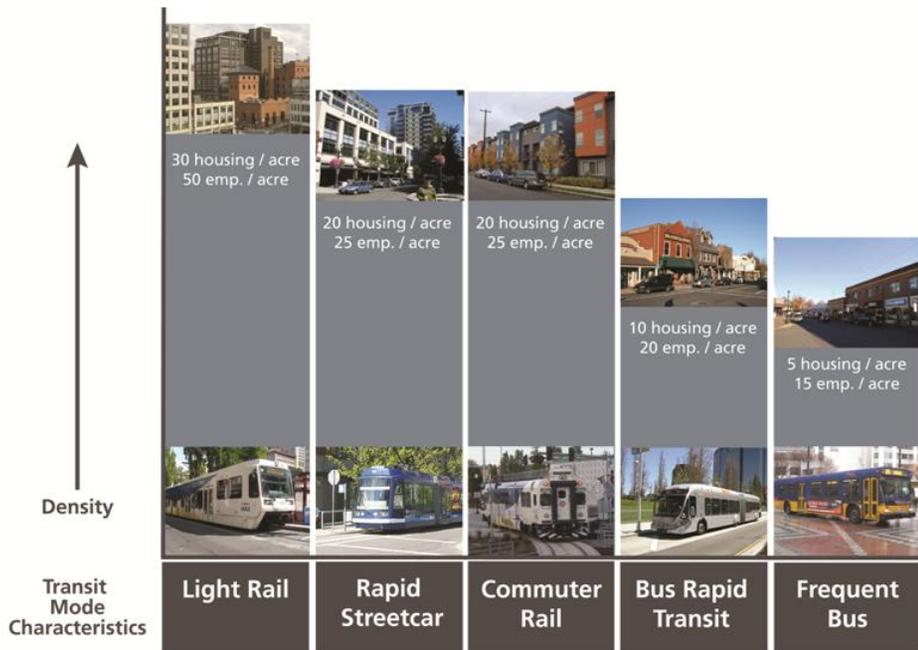


Amherst Today

While downtown Amherst is not a major urban center, it nonetheless is an active center of multi-modal transportation for the region. Even though non-auto modal shares are high, and walking, biking, and transit systems are superior in the region, vehicle traffic continues to impact travel and economic development.

Needs

As density continues to build in downtown Amherst, transit ridership will continue to steadily increase, demanding better service than exists today. Unfortunately, bus service operating with mixed traffic – especially along North Pleasant Street – will face a peak of capacity in the future. Amherst has no plan for how to deal with that future while preserving the benefits of sustainable growth in downtown.



Opportunities

By establishing a fixed guideway transit plan, the Town is able to better prepare for further traffic volume increases amid limited capacity upgrades. Rights of way needed in the future can be preserved now, viable technologies can be financially tested for their cost-benefit, and the Town can have a constructive approach to continued regional rail changes along the Knowledge and Central Corridors.

Next Steps

1. Analyze future growth patterns and acceptable build-out relative to transit technologies.
2. Coordinate with stakeholders to preserve right-of-way and/or funding as needed.

DRIVING AND PARKING STRATEGIES

Most trips in Amherst are conducted by car, and parking pressure is strong in downtown. While Amherst’s most valuable places and cost-effective transportation investments are related to walking, biking, and taking transit, the motorist must continue to be accommodated efficiently for years to come. The fifteen recommended strategies include improving the efficiency of existing traffic signals in town; redesigning key intersections; enhancing the existing pavement management system; revising parking standards; expanding car sharing; beginning a carpool and vanpool program; developing regulations that separate the cost of providing parking from other land development costs; pricing downtown parking to be more responsive to actual demands; beginning an event management program to benefit local entertainment destinations; incentivizing remote parking to improve downtown availability; investing parking proceeds into downtown improvements; improving walking connections to remote parking; beginning a shared parking district; conducting regular parking use monitoring; and improving commercial loading regulations. All driving and parking recommendations are designed to make driving easier and safer while also encouraging people to begin embracing other modes of travel.



Establish Signal Timing Standards

Signal timing affects how cars queue through a series of intersections, impacts where bottlenecks occur, and partially determines where car speeds may be notably higher. Signal timing can either allow vehicles to pass quickly through a series of green lights, or can be designed to keep cars moving at a slower pace to facilitate pedestrian crossings.

Amherst Today

Stakeholders have noted signal congestion issues in various corridors such as College & Southeast or at Triangle & East Pleasant. Meanwhile, pedestrians experience long and unfavorable delays at these same intersections.

Needs

Traffic congestion and crossing delays are not uncommon along Pleasant Street during the afternoon peak, particularly between Main and College Streets. Similar issues of congestion can be found along Russell/Northampton Road, and University Drive. No signals in town are interconnected, utilize efficient concurrent pedestrian crossings, or have had their cycle lengths adjusted downwards as is appropriate in urban settings.



Opportunities

The Town can provide improved congestion management by retiming lights along major roads. In many cases re-evaluating intersections can support more compact designs to accommodate greater traffic volumes. Re-timing can provide significantly shorter queues and reduced crossing delays without any creating further vehicle delay.

Next Steps

1. Establish Town priority corridors and intersections for congestion management.
2. Analyze how signal timing and/or intersection design can provide improved transportation outcomes.
3. Re-time and/or upgrade traffic signals accordingly and redesign approach lanes as necessary.

BEST PRACTICE RECOMMENDATION –FHWA



Credit: NYC DOT

The Federal Highway Administration recommends that pedestrian signals be concurrent with traffic signals and that pedestrians should not have to actuate the signal. Pedestrians can also be given prioritized signals/leading intervals that allow them to enter the intersection ahead of any vehicle traffic. Further, the FHWA and NACTO

recommend that signals in downtown areas be coordinated in their timing to allow vehicle speeds of no more than 15 to 20 miles per hour.

Intersection Redesign

Intersection redesigns are intended to provide greater parity to all users of the street network. Intersection redesigns can be used to make pedestrian crossings safer, to make left turns on bike more obvious to other users, and to better situate bus stops in reference to traffic.

Amherst Today

Amherst’s intersections are generally designed primarily with cars in mind. While pedestrian crossings and bicycle infrastructure have been installed throughout the town, for the most part these amenities have been tailored to fit the auto-oriented streets.

Needs

Throughout Amherst pedestrian crossings do not take the shortest or most convenient route across a roadway, requiring pedestrians to deviate from their desire line. Meanwhile, signals are often timed to clear a queue, resulting in long queues on all approaches and long pedestrian delays.

Opportunities

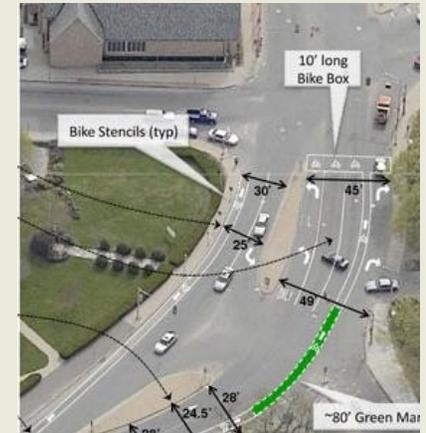
Simple signal timing changes and intersection geometry changes can make operations more efficient and safer for all modes. Amherst’s success with roundabouts is a demonstration of this potential.



Traffic roundabout in Glens Falls, NY

BEST PRACTICE – Northampton, MA

In response to the deaths of a student and a local resident attempting to cross State Routes 9 and 10, Northampton sought a means to redesign the large intersection of Main, Elm, State, and New South Streets by the Academy of Music. The redesign incorporates a reduced cross-section, raised slip lanes, and reduced crosswalk distances while reducing vehicle and pedestrian delays.



State Route 9, Northampton MA

Rendering: Nelson\Nygaard

Next Steps

1. Identify intersections in Amherst that are difficult for users to navigate, no matter the mode.
2. Establish priorities for intersection redesign.
3. Coordinate intersection redesigns with other projects in the town.

Enhanced Pavement Management Program

An enhanced pavement management program is the planned maintenance and repair schedule of a roadway network. Such a program is designed to optimize pavement conditions throughout the network, and to save money by focusing on efforts where they are most needed.

Amherst Today

Many streets in Amherst have poor pavement conditions and are regularly the source of motorist complaints. Funding to keep all roads in good condition is not available.

Needs

Amherst has pavement management software used to help gauge the need to replace or resurface roadways. However, the system requires greater data collection than is currently available to operate optimally. Furthermore, the software does not consider the differences in pavement needs for different modes. Space dedicated to non-auto users could be placed on a delayed replacement schedule or constructed with different materials.



Farview neighborhood pavement conditions prior to recent repairs.

Opportunities

Amherst can build progressively off its pavement management system to smartly manage future road projects as budgets continue to be constrained. Trade-offs in total lane width can help extend the mileage of resurfacing projects.

Next Steps

1. Identify needed additional data collection; integrate modal trade-offs from walking, biking, and transit plans.
2. Coordinate with Town committees to clearly weight trade-offs and prioritize projects.
3. Enact identified measures to selectively improve pavement conditions.

BEST PRACTICE – Vancouver, WA

The City of Vancouver, just across the Columbia River from Portland, is able to resurface fewer than 30 miles of roads each year. The City maintains a database of surface conditions and work history for over 6,500 street sections throughout Vancouver. Nearly 300 miles of streets, or about half of all streets in Vancouver, are visually inspected each year to assess where the greatest needs occur. The program aims to lower costs by focusing on maintenance rather than replacement, with the goal of lower and predictable costs over time.



Credit: City of Vancouver

Car Share Expansion

Car sharing programs, such as Zipcar or car2go, allow residents to use a private vehicle without having to own a vehicle themselves. This can lead to lower parking demands in a downtown area and lower traffic volumes.

Amherst Today

There are currently 15 vehicles available to Zipcar customers within the vicinity of Amherst. That said, all of the vehicles are currently located on the various college campuses.

Needs

The potential benefits of having car share pods accessible in downtown and in village centers are notable, given the ongoing high parking demands in Amherst.

Opportunities

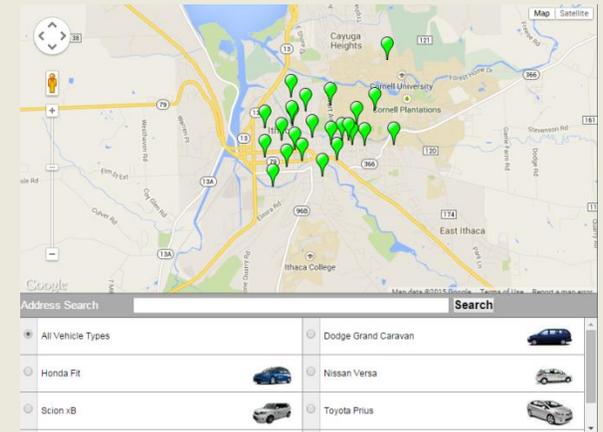
Many of Amherst's residents already embrace a car-free lifestyle as much as possible. The inclusion of car sharing in communities like Amherst have had notable impacts on overall vehicle ownership and driving. One shared car can replace an average of 20 private vehicles.

Next Steps

1. Identify downtown location to house car sharing vehicles.
2. Identify potential car sharing partners.
3. Begin expanded car sharing service.

BEST PRACTICE – Ithaca, N.Y.

Ithaca Carshare is a local nonprofit established with funding from the New York State Department of Transportation and the New York State Energy Research and Development Authority. Since launching in 2008, the system has grown from 6 hatchbacks to over 25 vehicles over many varieties, shared by over 1,400 members.



Carshare location map for Ithaca

Credit: ithacacarshare.org

Unbundled Parking

Unbundling parking is the process wherein a residence is sold or leased independent of any required parking. By separating parking from one's residence, it forces the consumer to consider the cost of that additional space, and allows them to purchase only the amount of parking that they need and not in excess. Further, unbundling parking allows for lower building and housing costs and can allow more residential units per acre.

Amherst Today

The Town of Amherst, in Section 7.000 of the Town's zoning bylaws, requires that two parking spaces be provided for each dwelling unit. Meanwhile, the average vehicle ownership according to the Census is well below this figure.

Needs

The Town of Amherst, in the aim of creating a more equitable and affordable place to live, should not prescribe how many spaces a developer or its residents will use. Rather, it should enable residents to select the amount of parking they need.



Spatial comparison of a 2 bedroom apartment to 1.5 parking spaces

Credit: graphingparking.com/

BEST PRACTICE – GreenTRIP

GreenTRIP is a comprehensive certification program for developments that was piloted in the San Francisco area.



Complementing the LEED certification program, GreenTRIP

GreenTRIP certifies developments that decrease parking and traffic demand

Credit: TransForm

measures how a development can reduce traffic and pollution emissions. The program has promoted unbundling parking and offering lifetime transit passes in lieu of offering a parking space at developments.

Opportunities

By unbundling parking, Amherst will naturally lower parking demand in town and provide more affordable residential opportunities.

Next Steps

1. Amend zoning bylaws to allow for unbundled parking.

Demand-Based Pricing

Demand-based pricing is a system that encourages more efficient use of on-street parking. The central idea is that there should always be parking spaces available for those willing to pay the market rate to park on the street. Demand-based prices vary by proximity to popular destinations, with the intention of making sure that at least 15% of the parking spaces on any given block face are available at all times. Where demand is high, the price is high; where demand is low, the price is low, or zero.

Amherst Today

Currently the Town charges \$0.50 for every hour of parking regardless of space location, time limit, or on- or off-street location. Turnover is encouraged through time-limit enforcement.

Needs

The Town of Amherst has high demand for on-street parking in the center of the downtown area that would warrant higher rates; meanwhile, remote metered spaces are not discounted and still have a time limit, discouraging their use by those willing to park more remotely to open up core spaces.

Opportunities

Some parking areas in Amherst are underutilized, due to the current parking management approach which gives no incentive to park remotely. Those parking further away are penalized with the same rate and a longer walk that cuts into the allowed time limit. Fortunately, with such high core demand, Amherst is ready to replace time-limits with friendlier enforcement and offer reduced rate remote parking while increasing rates only in the areas of highest demand.



Credit Card Payment Stations in Downtown Amherst.

BEST PRACTICE – Haverhill, MA

To open up prime parking spots near restaurants and other businesses, the City of Haverhill metered on-street parking from 3:00pm to



8:00pm with demand-based pricing on weekdays in downtown. Revenues generated from the on-street meters are invested in downtown maintenance and beautification, including sweeping and cleaning the municipal garage and improved lighting and wayfinding signage throughout downtown. Business activity immediately increased after pricing was introduced.

Next Steps

1. Study parking utilization; identify the areas and times of highest parking demand.
2. Work with community members to allay local concerns.
3. Initiate 6 month demand-based pricing and extended time-limit trial period.

Event Management Program

Event management programs are designed to allow cities and towns to better leverage and manage parking facilities during large events. Using such a system, a town can prevent excessive parking on residential streets proximate to the event site and find partners to share reserve supply for patrons, especially during after-work hours. For events that occur regularly, such as sports events, concerts, or other large events, a town can create parking districts that allow for permitted parking on public streets. Further, the Town can charge variable rates to both manage high parking demand, and raise revenues to pay for the permit program.

Amherst Today

Cinema shows, library programs, and other downtown events regularly stress the downtown parking system leading venues to demand more parking supply. New parking specifically targeted at event parking would go unused most of the time except during events.

Needs

Amherst's various events throughout the year notably impact the availability of on-street parking, and patrons regularly complain about a lack of parking.

Opportunities

An event management program for downtown Amherst could include better signage for remote parking, shared parking programs with local landowners, on-street parking permits, and pre-arrival parking information. A well-coordinated approach can let event patrons park remotely and enjoy Amherst's downtown businesses before and after an event.

Next Steps

1. Determine necessary signing and regulatory changes to allow improved access to remote spaces.
2. Develop an event parking website and program.
3. Coordinate with town partners such as UMass and Amherst College to identify remote parking locations.
4. Develop an incentive program to allow some parking on nearby residential streets as needed.

BEST PRACTICE – Event Parking District, University of Oregon

Event Parking Districts allow for the utilization of residential on-street parking near arenas without inundating neighborhoods with spillover. The University of Oregon, which has pioneered the practice for its new \$227 million basketball arena, sells 500 event-day permits to park in a designated neighborhood near the arena. In addition to this, residents receive two free permits per property in the Event Permit District, and are given the option to buy additional permits at market price. To ensure that regulations are effective, fines are doubled in the district during events. The university uses the revenue from the permits to pay the city for managing the district. By implementing the strategy the university is able to avoid a game-day parking crush without the cost of an expensive parking structure that would be underutilized outside of event hours.



The Arena Parking District at the University of Oregon is a restricted 2 hour parking zone managed by the City during game times; they promote proper parking locations on the same map

Credit: Univ. of Oregon

Remote Parking Incentive

Remote parking incentive programs promote the use of parking facilities less proximate to higher demand areas. Strategies usually involve lowering parking prices in distant lots to encourage longer-term parkers to locate in these areas that can be linked to a downtown by shared use paths or transit.

Amherst Today

While there are Park and Ride lots in the surrounding region, no long-term or park and ride facilities currently exist in the Town of Amherst.

Needs

Growing downtown parking demand includes a large amount of long-term employees or regular visitors who could park remotely and rideshare, walk, or take transit into the Center. No such facilities or incentives exist.

Opportunities

Providing good intercept parking lots for commuters and long-term visitors to Amherst Center is a necessary complement to long-term development goals, especially within the municipal parking district in the north end of downtown. Places like UMass, Amherst College, and shops along Route 9 in Hadley have spare parking for Amherst Center employees, which can free up needed customer parking.

Next Steps

1. Identify partnerships for remote employee parking.
2. Use downtown parking revenue to help support park-and-ride facility management and maintenance.
3. Update signage, maps, and online materials to encourage remote parking use.

BEST PRACTICE – Park & Ride Lot, Rockport, MA

Rockport's congested tourist core has limited parking availability. For many years, the Town and local



businesses have partnered on a remote parking shuttle which connects non-stop to a remote park and ride lot located next to the Town's transfer station. The shuttle runs all summer long with free parking and a \$1 round-trip shuttle fare.

Parking Benefit District

A parking benefit district (PBD) is a specially designated area designed to improve on-street parking availability, and to enhance access for walking, transit, or bicycling. Within the district a portion of on-street parking revenues are used to promote greater access to, and quality of, modes different other than personal vehicles. PBDs can be created in areas that already possess metered on-street parking, or in districts that do not have parking meters.

Amherst Today

Currently there is no parking benefit district in the town, though there are metered on-street parking spaces throughout the downtown area whose revenues are placed in the Transportation Enterprise Fund, which is used to pay for PVTAs service, debt service on the parking garage, and other expenses.

Needs

With high parking demand and meters already in place, Amherst is ripe for improved parking management options. Demand-based pricing will lead to greater revenues which should be reinvested in the places where the fees are collected.

Opportunities

Downtown merchants are the biggest supporters of parking benefit districts because market-rate pricing allows better customer access and district funds improve the environment customers enjoy. The State of Massachusetts is developing clear legislation to make the development of districts simple and straightforward.

Next Steps

1. Use utilization data to identify parking benefit district boundaries.
2. Identify net parking meter rates above the cost to maintain a demand-based system; calculate annual revenues, and potential power to sell municipal bonds.
3. Determine structure of a parking benefit district and the improvement priorities the PBD will fund.

BEST PRACTICE – Old Town Pasadena, CA

Pasadena has used funds from parking meters to make targeted improvements to the historic “Old Pasadena” district. The parking fund program has been used to purchase street furniture, street trees, historic lighting fixtures and improving sidewalk maintenance.



Remote Parking Walk Connections and Wayfinding

The existence of remote parking is not sufficient to make sure that people use it. Remote parking areas need to be easily accessible for pedestrians and easy to locate for drivers.

Amherst Today

Amherst has inconsistent wayfinding and signage throughout the Town, with some parking facilities better marked and others less so. Access to these areas from the downtown needs to be visible and apparent to drivers and pedestrians alike. Meanwhile, there is no pedestrian wayfinding guidance to or from remote lots.

Needs

Signage in Amherst needs to be consistent and visible so that visitors and residents alike can easily navigate to and from remote parking areas. These areas need to be accessible for pedestrians with consistent lighting and upgraded pedestrian infrastructure.

Opportunities

Amherst can set standards for signing, wayfinding, and pedestrian improvements to encourage better use of remote parking facilities.

Next Steps

1. Set consistent signage and lighting standards related to parking lots.
2. Provide updated maps and visible signage directing drivers and pedestrians to remote facilities.
3. Upgrade pedestrian infrastructure to make remote parking feel safe and accommodating.



Existing Auto-Oriented Parking Wayfinding

BEST PRACTICE – Find Your Way, Charlotte, NC

Charlotte's Uptown area hired a professional consulting team to conduct a comprehensive vehicular and pedestrian wayfinding system to help visitors find their way around the neighborhood. The signage promotes a “park once” environment by helping visitors find their way around on foot once they park.



Shared Parking District

Requiring a minimum level of parking for all parcels or businesses regularly leaves underused parking facilities throughout the day as different businesses or residents use spaces at different times of day or days of the week. Amherst’s municipal parking district should be enhanced to clearly promote shared parking – the coordinated use of parking facilities by multiple users. This allows for lower numbers of parking spaces overall while accommodating the typical daily or weekly demand.

Amherst Today

Amherst’s municipal parking district does not require new developments to create their own parking spaces, but it does not identify shared parking measures to accommodate future growth.

Needs

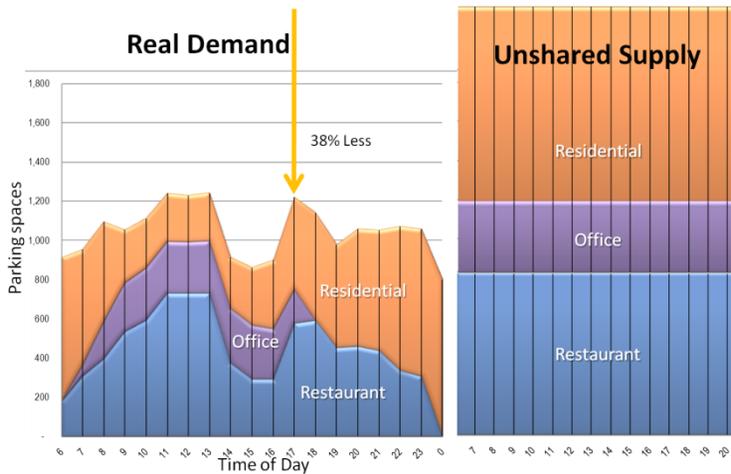
With a popular downtown area, there is often limited parking availability, and there is not sufficient room for surface lots to be easily added to the downtown area. A shared parking program with clear monitored thresholds for when new parking is needed will help Amherst accommodate its vision for development in the north end of downtown.

Opportunities

The municipal parking district can be greatly enhanced through a shared parking study, ongoing monitoring, and a clear mechanism to construct a shared parking garage when it is needed.

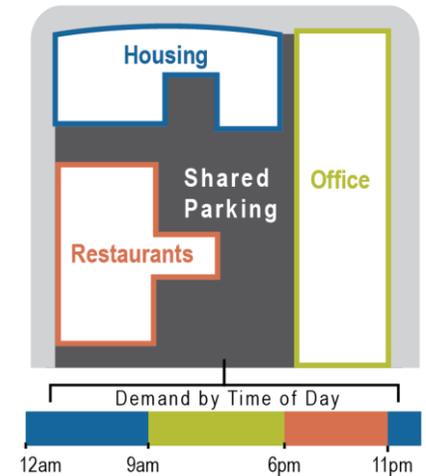
BEST PRACTICE – Overland Park, KS

Anticipating increased development, Overland Park was looking to build additional parking in its downtown but could not afford a structure. Instead of building additional parking supply, private parking owners saw the opportunity to bring in new income through shared parking agreements that expand the supply of available parking in the short term while creating a revenue stream to justify a future shared parking garage.



Next Steps

1. Complete a parking utilization and shared parking analysis.
2. Update municipal parking district to clearly encourage shared parking and provide mechanisms for future municipal supply.
3. Engage businesses to cooperate and develop shared parking agreements.



Parking Utilization Data Program

Parking utilization data measures the level of demand for parking in an area or municipality. Utilization counts are conducted in particular areas for both on-street and off-street public and private parking and provide a measure of how many spaces are used at a given time. Utilization data allows for informed decisions to be made about parking by demonstrating where the greatest and least demand for parking is in a particular area. Data also can be used to more-accurately model future demand based on actual performance.

Amherst Today

A parking study of Amherst was conducted in 2008 by the Pioneer Valley Planning Commission. While utilization counts were conducted for many areas in the town for four periods through the day, this information was not mapped. Many new businesses and new housing have opened since 2008.

Needs

In its parking forums, Amherst lacks a current picture of parking demand that can be easily mapped and interpreted by residents. To accurately understand current needs and project future demand, the Town needs more recent count data, which should be collected at regular intervals in the future in order to compare how parking demands shift over time.

Opportunities

An important part of maintaining the success of many of these recommendations will be monitoring parking utilization on a regular basis. A recurring annual or biennial monitoring regime can allow the Town to modify its pricing, permitting, zoning requirements, and other key policies. By creating an ongoing parking utilization data program, the Town can make more informed decisions on how to impact high and low demand parking areas in Amherst.



BEST PRACTICE – Haverhill, MA



After implementing its first paid parking program since the 1950's in 2010, the City of Haverhill began conducting semi-annual utilization counts to assess performance. With repeatable protocols in place, the data could be collected and mapped quickly at low cost, allowing the City to accurately evaluate conditions and correct management and pricing practices.

Next Steps

1. Develop a parking utilization count schedule.
2. Use data collected by the counts to regularly create and update parking demand maps.
3. Use the information collected to inform additional transportation solutions in Amherst.

Commercial Loading Zone Regulations

The purpose of providing loading zones is to ensure that there is space for trucks delivering goods to businesses. Use of loading zones is usually restricted to commercial vehicles actively engaged in loading or unloading, and cannot use existing on-street spaces. Commercial loading can be limited by the hour, and is typically in effect Monday through Saturday. Commercial loading zones transition to general public parking outside of the hours of loading reservation

Amherst Today

Amherst has had reserved, free commercial loading zones for several decades, and has increased their presence and distribution in recent years. The Amherst Zoning Bylaw, Section 7.3, states, “Adequate off-street loading and receiving areas shall be provided for all business, commercial and industrial uses.” Often with the addition of new businesses however, the existing loading zone cannot support the demand, and the resulting burden falls on the adjacent public way. Even with an expanded supply of downtown on-street loading zones, the volume and timing of truck deliveries often exceeds the supply on curbside loading zones, resulting in obstacles to traffic and circulation.

Needs

Downtown Amherst currently suffers from unregulated truck traffic. Steps to improve delivery outcomes should be created, but should additionally not place an undue burden on local businesses.

BEST PRACTICE – Cambridge, MA

After years of growing battles between merchants and traffic enforcement personnel grappling with deliveries in the congested space of Harvard Square, the City implemented a new loading policy in 2002. Along the most convenient and central stretch of JFK Street, both sides of the street become loading only, prohibiting any cars from parking, but only before 11am, after which the loading zone ends and cars may park for the remainder of the day. Shippers were thrilled to have unfettered access without delaying conflicts with passenger cars in return for getting out before midday congestion picked up.

Opportunities

Amherst can require that trucks delivering goods have a limited window to finish their stops. Amherst can also specify what days and what times of day trucks can make deliveries. Lastly the Town can require that trucks pay for parking, as expected of other vehicles downtown.

Next Steps

1. Identify sites for new loading zones in Amherst.
2. Create new regulations specifying when and where large delivery vehicles can park downtown for deliveries.
3. Amend zoning bylaws to better incorporate loading zones into future development.



BEST PRACTICES SOURCE LIST

Programmatic Strategies

- Refine Town Transportation Goals
 - Louisville, Kentucky: <http://louisvilleky.gov/government/advanced-planning/move-louisville>
- Transportation Education Programs
 - Dallas, Texas: <https://www.dart.org/transiteducation/transiteducation.asp>
- Organize Town-Wide Transportation Demand Management Program
 - Arlington, Virginia: <http://projects.arlingtonva.us/plans-studies/transportation/transportation-demand-management-strategic-plan/>
- Innovative Funding Systems
 - Washington, DC: http://www.fhwa.dot.gov/ipd/project_profiles/dc_noma.aspx
- Project Prioritization Process
 - FHWA: <http://www.planning.dot.gov/documents/briefingbook/bbook.htm>

Walking Strategies

- Pedestrian Enhancements Program
 - St Petersburg, Florida: <http://www.stpete.org/citytrails/>
- Sidewalk Gap Program
 - Winona, MN: <http://www.cityofwinona.com/city-services/public-works/engineering/sidewalk-replacement/>
- Walk to School Program
 - University Place, Washington: <http://blog.psrc.org/2013/02/safer-routes-to-school-in-the-works/>
 - Safe Routes to School: <http://www.saferoutesinfo.org/program-tools/what-distances-are-reasonable-expect-elementary-school-students-bike-school-...2.5>

- Traffic Calming Program
 - Dallas, Texas: <http://betterblock.org/grand-avenue-better-block-recap/>
 - NACTO: <http://nacto.org/usdg/design-controls/design-speed/speed-reduction-mechanisms/>
- Site Plan Review Standards to Support Walkability
 - FHWA: <http://www.pedbikesafe.org/PEDSAFE/resources.cfm>
- Crosswalk Specifications
 - NACTO: <http://nacto.org/usdg/intersection-design-elements/crosswalks-and-crossings/conventional-crosswalks/>
 - City of Cambridge: <https://www.cambridgema.gov/theworks/ourservices/engineering/Resources/standarddetails.aspx>
- Walking Incentive Program
 - Wellesley, Massachusetts: http://www.wellesleyma.gov/pages/wellesleyma_trails/index

Bicycling Strategies

- Bike Network Plan
 - Pasadena, California: <http://www.pas-csc.org/home/city-convenes-bicycle-transportation-plan-committee-meeting-first-step-to-bike-plan-20>
- Install Bicycle Infrastructure Accommodations at Intersections
 - People for Bikes : <http://www.peopleforbikes.org/blog/entry/here-are-the-first-ever-national-findings-about-interested-but-concerned-bi>
- Bike Education Program
 - Santa Monica, California: <http://www.smgov.net/departments/pcd/transportation/bicyclists/safety-and-education/>
- Bike Share
 - Chattanooga, Tennessee: www.bikechattanooga.com
- Trail and Conservation Area Connections
 - Connellsville, Pennsylvania: www.connellsville.org
- Bike Rack Standards
 - Chicago, Illinois <http://chicagocompletestreets.org/your-streets/bike-parking/>
 - Portland, Oregon: <https://www.portlandoregon.gov/transportation/article/99190>
- Bike Repair Stations
 - Hoboken, New Jersey: <http://www.hobokennj.org/2011/12/hoboken-installs-first-bike-repair-station-doubles-bike-racks-near-path/>
- Develop Bike Lane Maintenance Protocol
 - Milwaukee, Wisconsin: <http://city.milwaukee.gov/maps4460.htm#.VQoGCo7F9VU>
- Install Protected Bike Lane Infrastructure
 - Cambridge, Massachusetts: <http://www.cambridgema.gov/CDD/Transportation/design/bicycling/cycletracks.aspx>

Transit Strategies

- Bike Racks at Transit Stations
 - Boston, Massachusetts: http://www.mbta.com/riding_the_t/bikes/
- Stop Enhancements
 - New York, New York: <http://www.mta.info/news/2013/01/14/mta-nyc-transit-bus-arrival-info-here-now-34th-street-crosstown>
 - Hadley, Massachusetts: Nelson\Nygaard
- Real Time Transit Information
 - Chicago, Illinois: <http://www.transitchicago.com/tracker/>
- Local Transit Plan
 - Ithaca, New York: <http://www.tcatbus.com/content/view/about-tcat.html>
- Transit Signal Priority
 - Portland, Oregon: <http://www.oregon.gov/ODOT/TD/TP/CaseStudy/TriMet.pdf>

Driving Strategies

- Establish Signal Timing Standards
 - FHWA: <http://mutcd.fhwa.dot.gov/hm/2009/part4/part4e.htm>
- Intersection Redesign
 - Northampton, Massachusetts: Nelson\Nygaard
- Enhanced Pavement Management Program
 - Vancouver, Washington: <http://www.cityofvancouver.us/publicworks/page/more-about-pavement-management-program>
- Revised Parking Standards
 - Cambridge, Massachusetts: <https://www.planning.org/pas/infopackets/subscribers/pdf/eip24part1.pdf>
- Car Share Expansion
 - Ithaca, New York: <http://www.ithacacarshare.org/>
- Vanpool/Carpool Program
 - North Central Texas Council of Governments: <http://tryparkingit.com/>
- Unbundled Parking
 - GreenTrip: <http://www.transformca.org/landing-page/greentrip-certification-program>
- Demand-Based Pricing
 - Haverhill, Massachusetts: http://www.ci.haverhill.ma.us/visitors/parking_services/index.php

- Event Management Program
 - University of Oregon: <https://parking.uoregon.edu/>
- Remote Parking Incentive
 - Barclays Center, Brooklyn, New York: <http://www.barclaysparking.com/>
- Parking Benefit District
 - Pasadena, California: <http://www.oldpasadena.org/map.asp>
- Remote Parking Walk Connections and Wayfinding
 - Charlotte, North Carolina: <http://charmack.org/city/charlotte/Transportation/Pages/FindYourWayCharlotte.aspx>
- Shared Parking District
 - Overland Park, Kansas: Nelson\Nygaard
- Commercial Loading Zone Regulations
 - Washington, DC: <http://www.godcgo.com/home/tools-for-getting-around/other-resources/freight-management.aspx>