

Winchester Strategic Plan Transportation Element

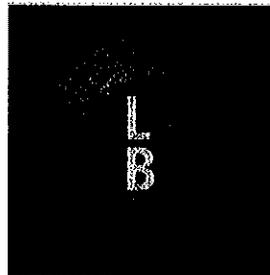
Prepared for

Town of Winchester



Prepared by

The Louis Berger Group, Inc.
75 Second Avenue
Needham, MA 02494
781-444-3330



June 2004

2.17.11
III

Winchester Strategic Plan Transportation Element

Introduction

The transportation element of the Winchester Strategic Plan, prepared by The Louis Berger Group, Inc. (Berger) was developed over a period of approximately six months. The work plan was developed by town staff with input from the Winchester Strategic Plan Committee as an outgrowth of Envision Winchester. Five tasks were identified in the work plan:

1. Compile Existing Information
2. Develop Street Classification System
3. Develop Street Design Guidelines
4. Apply Results of Everett Avenue Traffic Calming Study to Other Neighborhoods
5. Support Development of Strategic Plan Report

This planning effort, in combination with work performed for the Town on the Everett Avenue Traffic Calming Study, has led to the development of three major themes for consideration:

1. Enhancements are needed in pedestrian facilities to improve the environment for walking
2. As traffic continues to grow, guidelines are needed to better manage traffic flow and limit impacts on neighborhoods
3. The manner in which transportation matters are considered by the Town needs to be formalized

These themes are discussed throughout the body of the report.

Existing Information

Berger assembled prior reports prepared by or for the Town, reviewed documents developed during Envision Winchester, compiled existing available data, met with the Strategic Plan Committee, Town officials, and the Traffic Advisory Committee, and visited different parts of the Town on several occasions. The Town's subdivision rules and regulations were not reviewed for this report. Using MassGIS, a state-based geographic information system, Berger developed a series of maps that indicate existing transportation resources and information. Figure 1 presents the existing street system.

MassHighway Crash Data

With limited resources for implementing transportation improvements, it is common practice to identify road segments and intersections that have a high frequency of traffic accidents, referred to as crashes. The Massachusetts Registry of Motor Vehicles compiles accident reports into a database that is shared with MassHighway, who in turn disseminate the information to others. This database is useful for identifying road segments and intersections that experience the most vehicular crashes, typically over a three-year period. The top locations identified for the years 1998, 1999, and 2000 are shown in Tables 1 and 2 and in Figure 2.

Winchester Strategic Plan Transportation Element

Table 1
Intersections with Highest Crash Frequency per MassHighway 1998-2000

Rank	Intersection	With	Crashes
1	Church Street	Fletcher/Bacon	29
2	Cambridge Street	Wildwood/Johnson	26
3	Swanton Street	Loring Avenue	25
4	Cambridge Street	Church/High	16
5	Washington Street	Mount Vernon/Main	15
6	Washington Street	Forest Street	14
7	Bacon Street	Mystic Valley Parkway (Both)	12
7	Johnson Road	Ridge Street	12
9	Washington Street	Cross Street	11
10	Cambridge Street	Pond Street	10
10	Church Street	Central/Wildwood	10
12	Wildwood Street	Fletcher/Palmer	8
12	Swanton Street	Mckay Avenue	8
14	Cambridge Street	Everett Avenue	6
14	Church Street	Main/Mount Vernon	6
14	Highland Avenue	Forest Street	6
14	Washington Street	Fairmount Street	6
14	Cross Street	Holton Street	6
14	Main Street	Mystic Valley Parkway	6
20	Washington Street	Swanton Street	5
20	Swanton Street	Washington Street	5

Winchester Strategic Plan Transportation Element

Table 2
Road Segments with Highest Crash Frequency per MassHighway 1998-2000

Rank	Street	Crashes
1	Main Street	158
2	Cambridge Street	103
3	Church Street	75
4	Bacon Street	55
5	Highland Avenue	47
6	Washington Street	47
7	Forest Street	38
8	Johnson Road	30
9	Swanton Street	25
10	Mount Vernon Street	22
11	Mystic Valley Parkway	16
12	South Border Road	15
12	Skillings Road	15
14	Wildwood Street	14
15	Palmer Street	13
16	Ridge Street	12
17	Arlington Street	11
17	Pond Street	11
19	Loring Avenue	9
19	Mckay Avenue	9
19	Thompson Street	9

Transit Services

Existing transit services include the MBTA commuter rail service with two stations at Winchester Center and Wedgemere. Parking is provided at both locations. There are numerous issues surrounding the use of parking by commuters, the mode of travel used to access rail, traffic to and from the rail stations, etc. These are discussed in materials prepared separately during Envision Winchester.

In addition to commuter rail, two bus routes serve the Town. Bus Route 134 operates between North Woburn and Wellington Station (Orange Line) with a commuter rail stop at Winchester Center. This is the only existing service that feeds commuters to the commuter rail system. Express Route 350 operates limited service between Burlington and Alewife Station in Cambridge (Red Line). Ridership on this route within Winchester is low, with approximately 90 people boarding or alighting per day in 1999. Given the connection to Cambridge and the large number of Winchester residents working there (see below) this appears to be an underused resource.

2000 Travel Patterns

Results of the 2000 Census journey-to-work (commuting) studies are just becoming available. Berger obtained information on the work locations of Winchester residents, the results of which are summarized in Table 3. While it is not surprising to see that Boston and Winchester top the list, the fact that approximately 800 residents were employed in Cambridge is notable. Further, with the presence of an express transit route to Alewife, it is worth exploring if more residents could use this service to get to Cambridge. This suggests that more frequent service and the provision of some commuter parking along the bus route may be beneficial.

Winchester Strategic Plan Transportation Element

Table 3
Top 15 Commuting Destinations of Winchester Residents
2000 Census Data

Destination	Number	Percent
Boston	2,646	26.3%
Winchester	1,804	17.9%
Cambridge	800	8.0%
Woburn	580	5.8%
Burlington	382	3.8%
Medford	306	3.0%
Lexington	237	2.4%
Somerville	219	2.2%
Waltham	186	1.8%
Bedford	167	1.7%
Malden	138	1.4%
Wakefield	115	1.1%
Marlboro	101	1.0%
Arlington	95	0.9%
Billerica	95	0.9%
Other Destinations	2,184	21.7%
All Destinations	10,055	100.0%

Existing Street Utilization

One of the products identified early in the scoping of the transportation element is a street classification system appropriate to Winchester. Street classification systems are often used by engineers and public works officials to prioritize, design, and fund improvements. For example, MassHighway uses roadway classifications for purposes of determining eligibility for Federal-Aid funding as well as for the application of design standards relative to travel speeds, roadway geometry, etc.

The purpose of developing such a system for Winchester is to serve as a planning tool. The focus is on how streets are *used* today, which may or may not correspond to how they should be used in the future. Figure 4 presents the existing street functions with the following definitions:

State Route—In Winchester, State Routes 3 and 38 traverse the Town. These roads are subject to MassHighway jurisdiction and have established classifications that are separate from the functions being used for the Town.

Crosstown Street—These represent streets that make lengthy connections between different parts of the Town or connections to adjacent communities. Although not shaded as such in the figure, Route 3 (Cambridge Street) and Route 38 (Main Street/Skillings Road/Main Street) also function as crosstown streets.

Connecting Street—Streets that have this designation are providing connections from local streets and crosstown streets. While some are entirely residential in nature, the streets provide more than local access. In some cases, the connections are the only choice available (Ridge Street, Bacon Street, Swanton Street, etc.) while others are used for convenience (Everett Avenue, Wedgemere Avenue, Arlington Street, etc.).

Local Street—All streets not designated otherwise.

The development of a function-based street system is a starting point for the planning of improvements. Information on street dimensions, traffic volumes, crash records, pavement

Winchester Strategic Plan Transportation Element

condition, sidewalk information, citizen concerns, and related information could be compiled in a GIS database. Policies could be developed that suggest that each street in the Town whose function is Connecting Street or above has at least one continuous sidewalk along its length.

Street Design Guidelines

The quality of Winchester's pedestrian facilities ranges from high (Winchester Center) to poor (portions of Highland Avenue) to virtually non-existent (west of Cambridge Street). A key recommendation is to develop guidelines to address the inconsistencies in the network to improve the environment for walking. One of the ways to accomplish improvements is to adopt formal guidelines for the street (and sidewalk) system. In a town as developed as Winchester, the use of such guidelines would be primarily focused on existing infrastructure, although the Planning Board reviews subdivision plans for which guidelines can be applied.

Healthy Streets

Berger conducted research into the types of street design guidelines that are available in other communities and we are suggesting adoption of the ideas described in Street Design Guidelines for Healthy Neighborhoods, by Dan Burden (Center for Livable Communities, January 2002). In many respects, the ideas presented in this book are consistent with the existing streets in the Flats (i.e. north of Church Street and east of Cambridge Street), which feature sidewalks on both sides of the street, granite curbing, tree lawns between the curb and sidewalk, and an intersecting grid pattern. While some of the streets such as Wedgemere Avenue may be wider than they should be, the pattern and layout is more consistent with the "healthy neighborhoods" concept.

According to Burden:

"Healthy traditional streets are categorized by the work they perform for the neighborhood. For simplicity, street types can be broken into three groups:

Category One: providing neighborhood access such as trails, alleys, lanes, and streets;

Category Two: roadways providing transitional access to neighborhood streets, i.e. avenues and main streets; and

Category Three: roadways providing regional access, i.e. boulevards and parkways."

Illustrations of the street concepts are reprinted in the supporting materials.

Existing Sidewalk Conditions

In conducting field reconnaissance for this plan, one of the most notable observations is the lack of consistency in street layout and sidewalk conditions. To illustrate this lack of consistency, Berger inventoried conditions on several roadway locations, including Highland Avenue, Cambridge Street, Wildwood Street, and Johnson Road. Table 4 compares conditions on Highland Avenue. As shown, the roadway width varies between 27 feet and 30 feet. The cross section varies from the ideal (cement sidewalk, buffer strip, granite curb on both sides) to bituminous sidewalk on one side with no buffer strip or curbing. While a continuous sidewalk is provided on one side, the discontinuous sidewalk on the opposite side presents a challenge for pedestrians who may not know that the sidewalk is not continuous. Further, as a relatively busy street, the lack of a continuous buffer strip between the curb and the sidewalk exposes the pedestrian to vehicular traffic.

Winchester Strategic Plan Transportation Element

Table 4
Comparison of Sidewalk and Curb Conditions on Highland Avenue

<i>Nearest Intersection</i>	<i>Width</i>	<i>East Side</i>		<i>West Side</i>	
		<i>Curb</i>	<i>Sidewalk</i>	<i>Curb</i>	<i>Sidewalk</i>
Main Street	29'	Bituminous berm	Bituminous and cement	None	None
Madison Avenue	30'	Granite	Bituminous with buffer strip	None	None
Prospect Street	27'	Granite and bituminous berm	Bituminous	None	Bituminous
Ridge Street	28'	None	Bituminous	None	None
Lebanon Street	28'	Granite	Cement with buffer strip	Granite	Cement with buffer strip

Safe Routes to School

Safe Routes to Schools is a popular program spreading across Canada and the U.S. designed to decrease traffic and pollution and increase the health of children and the community. The program promotes walking and biking to school through education and incentives that show how much fun it can be. The program also addresses the safety concerns of parents by encouraging greater enforcement of traffic laws, educating the public, and exploring ways to create safer streets.¹

Winchester's resources for walkable and safe routes to school are illustrated in Figure 5. This shows sidewalk information from MassHighway's database (not up to date) and the location of schools in the Town. A one-quarter mile buffer around each school overlaid on the existing sidewalks indicates the gaps that may need to be filled to enable children to walk to school. As shown, most of the schools in the eastern side of the Town have coverage, while those in the western side do not have complete sidewalk access.

Recommendations

Currently, the Town of Winchester allocates approximately \$50,000 per year to sidewalk construction and repairs. According to the Public Works Department, the work that is performed is in response to requests that are made or is based on identified needs. It is recommended that a more formal sidewalk construction program be established that addresses a number of potential factors, including: a) safe routes to school; b) walking routes around activity generators; c) recreational walking; and d) filling gaps in the existing walking network (i.e. streets that have sidewalks but have missing segments with no sidewalk present). Ideally, this information would be entered into the Town's GIS with a plan for spending tied to priorities, perhaps with additional funding to address the most important locations.

The adoption of codified street design guidelines is only recommended in terms of subdivision review and the guidelines contained in the appendix should suffice. As other streets become candidates for reconstruction, consideration should be given to modifying street cross-sections as

¹www.nhtsa.dot.gov/people/injury/pedbimot/bike/saferouteshtml/toc.html

Winchester Strategic Plan Transportation Element

appropriate. For example, some streets are wider than they should be considering their function while others are too narrow. Whenever any infrastructure projects are contemplated, consideration should be given to incorporating a new street design as appropriate. In addition, it has been suggested that the rural character of private ways be maintained in the future and that in some cases, keeping roads unpaved is advisable. Finally, as new street plans are reviewed, the healthy street guidelines can be used in conjunction with discussions relative to emergency access.

Traffic Calming and Neighborhood Traffic Management

Traffic calming is a method of reducing traffic speed through design modification in the street. It is used primarily in residential and shopping areas to make streets safer and more pedestrian friendly. Traffic calming has been successfully used in several European countries for three decades. In the past ten years it has been used in several cities and towns around United States and has gained the support of professional organizations such as the Institute of Transportation Engineers.

Traffic calming uses changes in the driver's physical environment to encourage driving behavior appropriate to areas where pedestrians and bicyclists are likely to be present. These modifications may be of several types and can be organized into three categories.

Enhanced signage and improved pedestrian visibility. Examples are radar-activated speed reminders, better crosswalk markings and signs, and street lighting at crosswalks.

Modifications in horizontal geometry, such as curb extensions to shorten crosswalks, tighter turning radii at intersections, narrower driving lanes, and on-street parking. Roundabouts and Seattle circles are alternative intersection designs that improve safety when appropriately sited.

Modifications in vertical geometry such as properly designed speed humps and raised crosswalks.

In every case, design modifications must be carefully planned, coordinated with police and fire departments, and publicly discussed with abutters and town officials. Although sidewalk improvements are not traffic calming per se, they are often part of improvement packages for residential streets or business districts.

Cambridge Experience

Cambridge has one of the most extensive traffic calming programs in the United States, with a full-time coordinator. This program began in 1997 and has produced 5 to 6 traffic calming improvements per year. Examples include curb extensions on Massachusetts Avenue in Central Square, a raised mid-block crosswalk on Columbia Road, and pedestrian crossing islands in Concord Avenue at Fayerweather Street. The program has become very popular, and there is a backlog of over 80 requests for improvements.

Traffic calming projects are generally "piggy-backed" on other scheduled street reconstruction or underground utility work. This coordination shortens the period of construction for a particular street and results in significant economies for the traffic calming modifications. Improvements are designed by engineering consultants through an open ended on-call contract, and construction is performed by contractors selected on a qualified low-bid basis. Specific project costs for the traffic calming elements (exclusive of the larger street construction or utility work with which they piggy-back) range from \$50,000 to \$300,000 or more.

Project planning for each improvement includes public meetings in the neighborhood or business district, coordination of the planning, transportation, and public works departments, and on-going

Winchester Strategic Plan Transportation Element

coordination and public outreach during design and construction. According to the Cambridge Traffic Calming Coordinator, misgivings are sometimes voiced during the preliminary meetings, but comments after construction have been overwhelmingly positive.

City capital funds are used for the program. \$500-\$700,000 per year has been budgeted in recent years plus city staff costs.

Key lessons learned since the program began:

- It is crucial that good drainage design is integrated with the improvements.
- It is generally cost effective to obtain detailed topographic survey information for even small projects in order to avoid construction change orders.

Cambridge's design consultants use the ITE Traffic Calming guidelines.

Contact: Juan Alvenado, Traffic Calming Coordinator, 617-349-4655.

Reference: Institute of Transportation Engineers, *Traffic Calming State-of-the-Art*, 1998

www.cambridgema.gov/~CDD/envirotrans/trafcalm/index.html

Brookline Experience

The Town of Brookline formally adopted a traffic calming program in 2000 and implemented a process for implementation in 2001. The program is funded through the Capital Improvement Program (CIP). Funding for FY05 to FY10 is \$1,050,000. Although sufficient resources are available for implementation, the actual construction of projects has not proceeded as planned. One of the reasons for the slower-than-planned implementation is that projects previously implemented have raised some issues that are unresolved.

On one street in Brookline, raised crossings were installed along with chicanes. The street originally featured parking on one side and painted crosswalks. The chicanes were built to alternate on-street parking from one side to the other in order to modify the vehicle path and thus slow traffic down. This unfortunately required the installation of twice as many regulatory signs as previously. Further, the raised crossings were installed with a deficient design such that ramp slopes were too short. This has led to cars traveling too steeply on the downward side of the raised crossing and scarring the pavement. Further, this project was undertaken in conjunction with a sewer replacement project and the only pavement improvements made were in the construction zone. The pavement was not repaired on the other parts of the street, which in turn has made the street look unfinished. The improvements did reduce travel speeds on the street but not all residents are pleased with the overall results.

www.townofbrooklinemass.com/transportation/calming.html

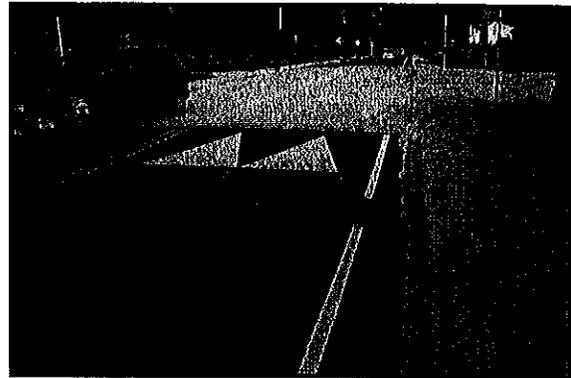
Dedham Experience

The Town of Dedham has implemented traffic calming projects as part of overall street construction projects. In 2003, the Town installed traffic calming devices (a roundabout and a raised intersection) on Needham Street in the Riverdale section of town. The project also included signs and pavement markings, drainage work, sidewalk and curb removal and installation as well as 1,800 feet of roadway resurfacing. The total cost of the project was approximately \$750,000. The project has clear benefits and is a high quality installation.

Winchester Strategic Plan Transportation Element



New Roundabout at Riverdale School, Dedham



New Raised Intersection at Riverdale School

Implications for Winchester

The key finding from a review of these programs is that it is essential to apply good design practices to develop good traffic calming solutions. In addition, significant capital resources are required to implement well-designed projects. Finally, the process by which priorities are established and projects funded needs to be carefully crafted in order to operate effectively with limited resources.

Transportation Decision Making

A host of decisions must be made in a town like Winchester regarding Traffic Rules and Regulations, improvements to the street and sidewalk system, as well as bicycle facilities. Table 5 contains a list of potential transportation decisions that need to be made from time to time.

Table 5
Transportation Decisions

<i>Types of Decisions</i>
Traffic Rules, Regulations, and Designations
One-way streets
Truck exclusions
Turn restrictions
Stop and yield signs
Handicapped parking
Parking meters
Permit parking
General parking prohibitions
Tow zones
Bus stops
Taxi service
Recommendations on capital improvements
Street/traffic safety improvements
Traffic calming projects
Sidewalks
Bicycle facilities
Other capital projects
Reviews of site plans and other development decisions

Currently, decisions of this kind are made by the Selectmen with advice from an informal staff committee of the Fire Chief, the Chief of Police, the Police Traffic Safety Officer, the Town En-

Winchester Strategic Plan Transportation Element

gineer, and (non-voting) the Town Planner. All of these people have busy schedules and many other types of issues on their agendas. In addition, there is no clear-cut "champion" for transportation issues who "owns" the agenda and is looked to by others to carry it forward.

Citizen Transportation Advisory Committees

Many towns have addressed this issue by establishing Citizen Transportation Advisory Committees (CTACs). The CTAC is appointed by the Selectmen to advise on transportation decisions, with the expectation that specific decisions will be recommended and supported by a thorough discussion within the CTAC that addresses both technical and community aspects of each situation.

A CTAC would consist of five to seven citizen members who are interested in transportation and to some extent knowledgeable about it. Preferably, CTAC members would include at least one professional engineer or transportation planner, although members without this background can become valuable contributors as they develop expertise. Some of the members can also be appointed to represent different parts of town and/or constituencies such as bicycling and walking.

Input from the staff who currently advise on transportation would continue to be important, and one member, probably the Town Engineer, should work closely with the chair of the CTAC and attend all meetings. However, the responsibilities for agenda-setting, keeping minutes, steering the committee, and coordinating with the Selectmen should be placed on the chair and other non-staff members, thereby saving time for the Town staff on the committee. Furthermore, the committee can, over time, establish a level of comfort among Town staff that they will be appropriately consulted, so that the Police and Fire Chiefs need not attend every meeting.

In this model, the CTAC and its chair are the champions who will carry the transportation agenda forward. The CTAC can also act as a mechanism for broadening public input by convening a public issues forum once or twice each year in addition to public input on specific issues on the committee's agenda.

This model is used by several of the larger towns in the Boston metropolitan area, including Lexington, Arlington, and Acton. Brookline goes further and vests actual decision-making authority in a Transportation Board, but that level of delegation is probably not appropriate in Winchester, at least for now.

Examples of TACs

Arlington

Arlington has one of the more active TACs in the area. It maintains a very good web site which includes information about the TAC, its schedule, and a list of documents summarizing studies undertaken on particular streets or topics as well as guidelines the committee uses for decisions such as when to recommend stop signs for an intersection. The chair, Ed Starr, is a retired engineer who takes an active role in steering the committee, and three are other transportation professionals on the committee, giving it strong internal resources. Typically, the TAC acts on the Selectmen's initiatives and inquiries, but it also pursues internally-generated agenda items, such as developing guidelines. The TAC also coordinates with other Town committees, for example the committee on redevelopment of the Syms Hospital site, and the TAC often creates working groups with residents and other citizens concerned about specific streets or issues.

Acton

The Acton Transportation Advisory Committee is volunteer appointed by the Selectmen for rotating terms of office 3, 4, or 5 years. The TAC sets its own agenda and meets periodically at meetings attended by one Selectman and the Planning Director. They routinely coordinate with

Winchester Strategic Plan Transportation Element

the Planning Board and Conservation Commission both on plans for specific areas of town and on developer proposals. The TAC was formed to help the town address a development proposal for the large Concord Auto Auction parcel on Route 2 and they continue to participate in all site plan reviews, which in Acton are the responsibility of the Selectmen. Examples of recent issues addressed by the Acton TAC include commuter parking, Route 2A traffic, rezoning issues in Kelly's Corner; planning for East Acton Village. Unlike some towns, citizen concerns about traffic and safety in Acton go not to the TAC but to the Engineering Department which may or may not ask for the TAC's advice.

Lexington

The Town has three separate advisory committees appointed by the Selectmen: the Transportation Advisory Committee, the Traffic Safety Advisory Committee, and the Bicycle Advisory Committee. The Transportation Advisory Committee is a nine-person committee appointed to three year terms; its purpose is to identify public transportation needs and oversee the operation of LEXPRESS, the town's mini-bus service. It meets every three weeks.

The Traffic Safety Advisory Committee is an 8-person body appointed each year that acts as the conduit for requests to improve traffic flow and safety; advises the town engineering department and selectmen on these issues and potential improvements to the street system. It meets as necessary. Forms are available on the town's web site to identify citizen concerns related to traffic and suggested solutions.

The Bicycle Advisory Committee is a 13-person body with staggered 3-year terms that includes a member of the Selectmen, Planning Board, Conservation Committee, and Recreation Committee. Citizen members represent both the cycling community and abutters to the Minuteman Bikeway and other facilities. It meets monthly.

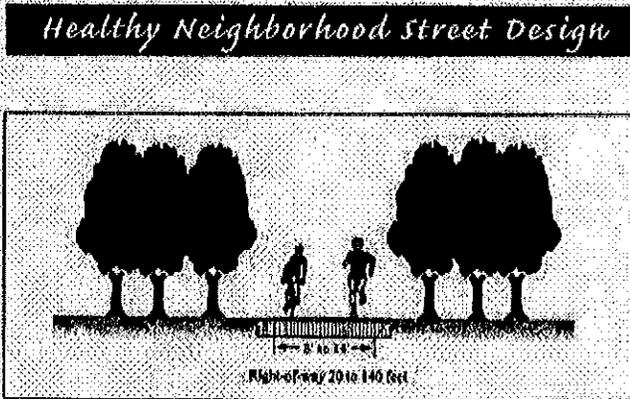
Maintaining Records of Decisions

One important aspect of transportation decision-making for any town is being able to retrieve information about past decisions. There are a number of good ways to do this, such as using Geographic Information Systems (GIS) to record the location and type of traffic control devices, or parking regulations on specific streets. Simpler, but also effective is the "file cabinet database" where all actions are recorded and filed by street and precinct (or other district system) so that one can find the paper trail that led, for example, to a particular block being signed for two-hour parking. This may already exist in the Town Engineer's files. As decisions are made, copies of the minutes of the meeting where the issue was discussed or decided upon should be put in the appropriate location-specific file along with studies and other data. (This also applies to decisions not to change something.)

Conclusion

The Town of Winchester can take a number of important steps to improve the transportation system in the community. The focus of future efforts should be on improving the environment for walking through the construction of continuous walking paths, particularly around schools and other activity generators. The street network needs to function efficiently to the extent that through traffic is kept off of local streets. Finally, changes are needed to the transportation decision-making process through formalization of a citizen transportation advisory committee.

Appendix Materials



Trail

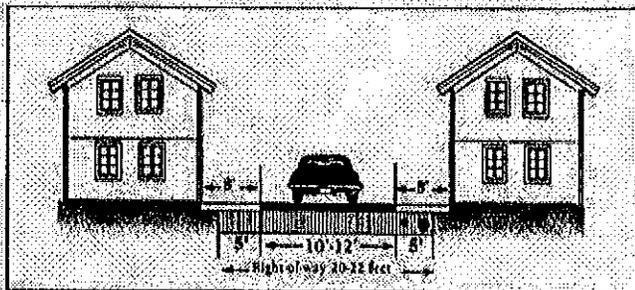
Purpose: Provides non-motorized access throughout the neighborhood.

Street Features

- Shade trees recommended
- Trail width 8-12 ft.
- Design speed 20 mph
- Stopping sight distance 125 ft.
- Clear zone of 2-6 ft.

Buildings and Land Use

- Link to make connections between all homes, parks and schools, and shopping districts.



Alley

Purpose: Provides access to the rear of property.

Street Features

- Average speed 10 mph
- Requires a 20-foot ROW
- Utility location underground on one side
- Paved width minimum of 10 ft.

Buildings and Land Use

- Residential -> primarily single family
- Consistent building line recommended
- Provides rear access to garages
- Consider accessory unit above garage
- 7-foot minimum setback of building
- Garage door on track, to reduce outward swing.

Figure 1-1

Figure 1-2

Healthy Neighborhood Street Design



Figure 1-3

Lane

Purpose: Provides access to single-family homes.

Street Features

- Street width 16-18 ft. with curb, gutter and informal parking
- Planting strips 6 ft.
- Sidewalks 5 ft. on each side
- Average speed 15 mph
- Requires a 38-foot ROW
- Utility location — underground or alley
- Drainage — Curb and gutter
- Two to six blocks long

Buildings and Land Use

- Residential — primarily single family
- Buildings brought close to sidewalk
- Consistent building line recommended



Figure 1-4

Street

Purpose: Provides access to housing.

Street Features

- Street width 26 ft. with curb, gutter and informal parking
- Planting strips 6 ft.
- Sidewalks 5 ft. on each side
- Average speed 20 mph
- Requires a 48-foot ROW
- Utility location — underground or alley
- Drainage — Curb and gutter
- Two to six blocks long

Buildings and Land Use

- Residential — many residential types
- Residences brought close to sidewalk
- Consistent building line recommended
- Front porches encouraged

Healthy Neighborhood Street Design



Avenue with Parking

Purpose: Connects town centers and neighborhoods. Avenues go from neighborhoods to town centers, and are not long (no more than one mile). Avenues may circulate around a square or neighborhood park.

Street Features

- Street width 24 ft. on both sides of median with on-street parking (17 ft. if no parking), curb and gutter
- Median width 12-16 ft.
- Travel lanes 11 ft.
- Maximum two travel lanes
- Bike lanes and planting strips 6 ft.
- Sidewalks 5-8 ft. on each side
- Average speed 25-30 mph
- Utility location — underground
- Drainage — Curb and gutter, median can have swale for natural drainage and water retention

Buildings and Land Use

- Mixed residential and commercial use
- Buildings brought close to sidewalk
- Consistent building line recommended
- Place prominent public buildings and plazas at end of vista

Figure 2-1



Main Street without Median

Purpose: Provides access to, and a space for, neighborhood commercial and mixed-use buildings.

Street Features

- Travel lanes 11 ft. with striped parking
- Maximum 6 travel lanes
- Planting wells 6 ft. / landscaped median optional
- Sidewalks minimum of 8 ft. each side
- Average speed 20-25 mph
- Utility location — underground
- Drainage — Curb and gutter
- Includes bulbouts at intersections and mid-block crossings
- Bike lanes optional but preferred

Buildings and Land Use

- Commercial and mixed use
- Buildings next to sidewalk
- Consistent building line recommended
- Pedestrian awnings, arcades, sidewalk dining and retail recommended

Figure 2-2

Healthy Neighborhood Street Design



Figure 3-1

Boulevard

Purpose: Provides multi-lane access to commercial and mixed-use buildings, and carries regional traffic.

Street Features

- Lanes 11 ft. with striped parking and bike lanes
- Maximum 6 travel lanes
- Planting wells 6-11 ft.
- Sidewalks 5 ft. minimum each side
- Average speed 30-35 mph
- Utility location — underground
- Drainage — Curb and gutter

Buildings and Land Use

- Commercial and mixed use
- Buildings next to sidewalk
- Consistent building line recommended
- Sidewalks and bike lanes on both sides
- Pedestrian awnings and arcades recommended



Figure 3-2

Parkway

Purpose: Parkway brings people into town, or pass traffic through natural areas. Parkway are not designed for development. When the parkway enters town, it becomes a boulevard.

Street Features

- Travel lanes 11-12 ft.
- Median width 12-20 ft.
- Average speed 45-55 mph
- Multi-use trails 8-12 ft.
- Planting strips 7-20 ft.
- Bike lane not adjacent to travel lane
- Utility location — underground
- Drainage — swales allowed, or curb and gutter
- 6 ft. minimum paved shoulder on high-speed parkway (>50 mph)

Buildings and Land Use

- No buildings, preserve nature
- Parkway are designed to be on the edge of towns, nature preserves or agricultural areas
- Multi-use trails may be on either or both sides. Criteria for dual trails include absence or presence of rivers, lakes, canals, railroads, etc.

Healthy Neighborhood Street Design

**Design Matrix for Healthy Streets
Developed by Walkable Communities, Inc.**

Street Type	Max. Width	Max. Design Speed (mph)	Max. Corner Radius	Max. Centerline Radius	Curb	Median	Max. Street Length	Vehicle Volume	Walk Way	Bike Lanes	Trees	2-Way Traffic	Parking
Trail	8-14'	20	n/a	95'	No	n/a	n/a	n/a	n/a	n/a	Yes	Yes	No
Alley	10-12'	10	15'	50'	NO	n/a	400'	200	No	No	No	Yes	No
Lane	16-18'	20	15'	90'	Option	No	600'	200	Both	No	Yes	Option	1 side
Street	26'	20	15'	90-120'	Option	No	1,320'	600	Both	No	Yes	Yes	2 sides
Avenue	Varies	30	15-25'	250'	Yes	Option	n/a	3-20K	Both	Yes	Yes	Yes	Option
Main St.	Varies	15-25	15-25'	600'	Yes	Option	2,600'	3-10K	Both	Option	Yes	Yes	Option
Boulevard	Varies	30-35	25'	500'	Yes	Yes	n/a	20-40K	Both	Yes	Yes	Yes	Option
Parkway	Varies	45+	25'	1,000'+	No	Yes	n/a	20-60K	No	Trails	Yes	Yes	No

Notes:

1. Ideals speeds and widths are given.
2. Flexibility is permitted but design speeds must be adhered to.
3. These guidelines are not recommended for Conventional Neighborhood Development
4. Traditional Neighborhood Design layout, a strict adherence to mixed use, walking and bicycling emphasis, a central place, trip containing, on-street parking, trails, traffic volumes and speeds are all linked.
5. Multiple entries aid fire response times.

Reprinted with permission.

Transportation Element, Reprinted From Envision Winchester

Purpose

Transportation, broadly defined, and the resulting accessibility to employment, social, recreational, educational, medical, and shopping opportunities are critical to the economic, social, and environmental vitality of Winchester. Transportation also represents one of the four core components of Executive Order 418, along with economic development, housing, and open space.

Existing Transportation Services and Current Issues

Existing transportation infrastructure includes regional highway, commuter rail, and bus connections; a street system connecting Winchester with neighboring towns; neighborhood streets; parking facilities; sidewalks and other pedestrian trails; and bicycle accessible streets and paths. The major new facility currently being planned and designed is the Tri-Community Bikeway connecting Winchester, Stoneham, and Woburn; and eventually connecting to the Minuteman Bikeway in Arlington.

The Envision Winchester community conversations, though, also identified the following transportation concerns:

- There is a perception that traffic volumes are growing throughout Winchester, with major roads increasingly used as an alternative to Interstate Route 93 and local streets throughout town increasingly used as a cut through to avoid intersections or traffic congestion on more major roadway facilities. The result is a decline in the quality of pedestrian and neighborhood space.
- The streets being incorporated into new housing subdivisions are viewed by some as being designed to too high of a standard, and therefore physically unattractive and not amenable to the life of a local residential neighborhood. Others see the lack of sidewalks within subdivisions as an impediment to walking.
- The commuter rail station located in Winchester Center represents an important community resource but one which the Town is not explicitly using to attract either new business or new residential development.
- Parking in Winchester Center is reliant on surface lots and street spaces. While parking generally is available, it can be difficult to find. At a minimum, the inventory of existing parking facilities could be better managed. It also is possible that entirely new parking approaches could be developed, in coordination with other new economic activities.
- Walking, both by adults and by school children, often is seen as being both dangerous and unpleasant. The automobile increasingly is being relied upon, even for short trips.
- Bicycling provides an important recreational activity, as well as representing the primary mode of utilitarian travel for some people. Winchester, though, does not have a well-developed system of bicycle trails, and walking and biking are not now integrated into the Town's greenways.

While there is a tendency to view Winchester's transportation system as well developed and even "built out," it is important to recognize that changes are occurring and to proactively respond to these changes in a way that both preserves and improves the character of Winchester.

Transportation Element, Reprinted From Envision Winchester

Goals and Objectives

The transportation component of the Winchester strategic plan will consist of a set of actions, with assigned responsibilities, for addressing both the issues identified above and for using transportation to help achieve each of the other important elements of the strategic plan, including economic vitality, education, distinctive landscape, and a caring and connected community. Transportation is both infrastructure and the manner in which this infrastructure is operated, managed, and maintained.

The overall goal is to improve and coordinate the use of a full range of transportation facilities for community use. Specific objectives include:

- Promote traffic calming and pedestrian improvements.
- Expand bicycling options and construct new bikeways.
- Create pedestrian ways.
- Create street design guidelines and criteria with the flexibility to respond to goals for community and neighborhood character and to create context sensitive solutions.
- Consider parking as key to the Town center, integrate parking into the consideration of new development for the Town center, and think about new ways to manage and publicize the supply of parking.
- Incorporate walking and bicycling into the greenway areas along the Aberjona River.
- Use transportation, especially pedestrian and bicycling opportunities, to increase the citizen's sense of community.
- Identify and implement low-cost targeted improvements at intersections and other locations to help improve safety and relieve congestion.

Recommended Actions

The following activities, realistically, are a multi-year endeavor. Thus, the strategic plan will not result in a completed new transportation plan for Winchester. It will, though, set in motion a strategic planning process that is directed at addressing regional as well as local transportation issues. The following specific task activities are recommended:

1. Classify Winchester's streets in terms of their operating or actual use characteristics, recognizing emerging context sensitive solution principles and guidelines and considering pedestrian and neighborhood as well as traffic characteristics.
2. Develop new streetscape design guidelines that incorporate provisions for traffic, pedestrian, and bicycle activity.
3. Implement traffic calming measures and pedestrian enhancements in at least one neighborhood. One possible location is the neighborhood bounded by Everett Avenue, Cambridge Street, Church Street, and Bacon Street. This will include community meetings, data collection and analysis, identification and evaluation of alternatives, estimation of costs and community benefits, assessment of the consistency with traffic design guidelines for Route 3 (Cambridge Street), development of preliminary and final recommendations, and implementation of an agreed upon set of traffic calming measures.
4. Improve intersections and roadways currently having a high incidence of traffic crashes through design, signalization, enforcement, and traffic operations management measures.
5. Based upon the results of Items 1 and 3, identify other Winchester neighborhoods that potentially would benefit from the development and implementation of a traffic calming,

Transportation Element, Reprinted From Envision Winchester

- pedestrian and bicycle plan; and develop a recommended prioritized program for addressing these opportunities consistent with an adopted policy and process.
6. Develop guidelines for the design and construction of new streets serving residential subdivisions; considering the needs to serve traffic, pedestrian, bicycle, neighborhood, and emergency vehicles.
 7. Evaluate and possibly modify the role of the current Traffic Advisory Committee (TAC) so as to more directly include neighborhood-planning considerations.
 8. Identify streets serving through traffic that potentially would benefit from development and implementation of traffic, pedestrian, and bicycle improvements; and develop a recommended prioritized program for addressing these opportunities.
 9. Develop and implement, in cooperation with the School Department, a Safe Routes To School (SR2S) program in Winchester, including the development, as necessary, of pedestrian improvements and new connections that would improve walking access to schools.
 10. Develop a plan for making Winchester a more walkable community, including performance of a walking audit and the development of recommended pedestrian improvements.
 11. Implement the Tri-Community Bikeway Plan.
 12. Connect the Tri-Community Bikeway with the Minuteman Bikeway and other regional bikeway systems,
 13. Incorporate provisions for walking and bicycling into a Winchester greenways plan.
 14. Investigate current and expected commuter, employee, and visitor parking conditions in Winchester center, considering both existing parking supply and the demand for such parking. Develop a program for improving the manner in which the current supply of parking is managed.
 15. Building on the principles of smart growth and transit-oriented development (TOD), incorporate retail, office, residential, recreational and other mixed-use and transportation provisions into new economic vitality plans for Winchester center.
 16. Incorporate, as appropriate, provisions for shared parking into Winchester's Zoning By-laws.

Summary of Past Transportation Studies

Downtown Parking Study, Winchester Center (BSC Engineering, 1981)

This report set out to study parking conditions in Winchester's downtown area. The study conducted a parking inventory of the downtown area to determine spaces available for shoppers, employees of the business community and merchants. Other things looked at were location, points of access, layout, security, ownership, and restrictions on use and physical appearance of the parking areas. The study also investigated the parking characteristics in the downtown area to determine such information as total number of vehicles parked over a given period, peak parking demand, turnovers for on-street and off-street parking facilities, parking space utilization, parking duration etc.

Key Issues Identified in the Report

- Unplanned land use development patterns led to inadequate parking within convenient walking distances of significant portions of the downtown.
- Convenience retail and service businesses (a character of many suburban downtowns) results in increase demand for short-term parking immediate to individual storefronts
- Potential for conflict over parking demands between different land use activities such as commerce, governmental, educational and religious institutions located in close proximity to each other.
- Winchester Center does not have adequate parking facilities to meet the needs of all the various land uses within its boundaries

Study Objective

- Determining how to best use existing parking facilities towards realizing the greatest economic and social benefit from the business district.
- To determine how to supplement the existing supply towards achieving the same end
- To plan for the future of Winchester Center so as to assure that proposed land use or density changes within the Center will be accommodated by changes in available parking facilities.

The key finding from a review of Brookline's program is the importance of good design and proper implementation. Cambridge uses outside design consultants; they have refined their standards by experimenting with different designs and are setting the standard in the Boston metropolitan area.

The study report's recommendations are broken into three categories: those directed at managing existing parking supply, those addressing expansion and physical improvement of the existing parking supply and those which control and direct future growth in the downtown area.

- Managing of Existing Parking
 - Modify parking regulations such as restricting on-street parking for shoppers' use only
 - Improve off-street parking lots in terms of security and regulation so that employers and employees can use these facilities instead of parking on the street
 - Restrict commuters from using downtown parking areas other than those designated as commuter lot
 - Improve the capacity, accessibility and circulation of existing municipal and private parking lots where practical through minor widening and extensions
 - Adjust parking fees and fines to assure the proper use of on-street parking space
 - Provide directional guide signs on major downtown streets to off-street public parking lots.
- Measures to Supplement the Existing Parking Supply
 - Provide additional secure off-street parking space for employees
 - Move some commuter rail parking to Wedgemere Station

Summary of Past Transportation Studies

- Improve pedestrian ways to off-street parking lots that making them more accessible
- Encourage alternatives to downtown auto access by such measures as installing secure bicycle racks, improving public transportation routes and schedules, encourage ridesharing programs to religious, social and civic events.
- Control and Direction of Future Downtown Growth
 - Incorporate parking requirements for CBD areas in zoning by-laws so as to ease the burden to provide parking on the Town
 - Relocate municipal buildings from the core commercial areas of the downtown so that they won't compete for parking space with other land use activities e.g. the police and fire stations.

Summary of Past Transportation Studies

Final Report - Triangle Area Master Plan (By John Brown Associates, Inc, April 1997)

This Master Plan report provides a vision for future land use for the Triangle Area and North Main Street. The visions' aim was to guide future growth and redevelopment in the Triangle Area and along North Main Street.

The goals of the Master Plan were broken into different categories among them being the transportation category. The goals for this category were reported in the report as being to:

- Improve traffic control at key intersections along Washington Street as part of Washington Street reconstruction
- Improve safety and function at other key intersections in the area, including N. Main Street intersections with Skillings Road, Swanton Street and Cross Street
- Maintain and improve public commuter rail transportation serving the area
- Maintain and expand the current bikeway system, including the Aberjona River and Horn Pond Brook bikeways, and a proposed new bikeway along the former Woburn Loop right-of-way
- Improve public pedestrian facilities, walkways and landscaping throughout the area

The Master Plan contains a guide plan on Land Use and Land Use Regulation and Public Facilities. Under Land Use and Land Use Regulations one of the things looked at was the bikeways system in the area. The report provides a vision on how to enhance the bikeway system in the Triangle Area. The report also discusses changes that could be made with the North Main Street land uses to make it more pedestrian-friendly e.g. narrowing the width of the intersection of Skillings/Lake Street/Main Street. A municipal parking strategy for the North Main Street Corridor is also discussed. Under Public Facilities the guide plan looks at transportation, recreation and conservation and other public facilities such as schools, public works, waste disposal etc. The report discusses the existing public roadways and planned improvements, existing bicycle and pedestrian facilities and the existing public transportation system in the area. The impacts of the plan were also examined and no significant increases in the amount of vehicular traffic or parking in the area were expected.

The report's implementation strategy (for transportation) suggests:

- Improving the bikeway system
- Seeking the maximum benefit to the Town in the Washington Street reconstruction project
- Improving traffic safety and operations at the intersections of North Main Street and Washington Street with Skillings Road, Swanton Street, Cross Street and Forest Street.
- Utilizing the Woburn Loop land for commercial parking

Summary of Past Transportation Studies

FACTS 2000 (A Report by the FACTS Committee)

FACTS, which stands for Financial Advisory Committee to the Selectman, was appointed to advise the Winchester Board of Selectman on matters concerning financial planning. The committee looked at the various agencies and their functions/services within the Town, including Public Works. The committee found that no program existed regarding routine maintenance of the Town's roads and sidewalks. Roadway work performed depended entirely on how much money was received from the State's Highway Aid Fund (Chapter 90).

The committee identified two enhancement areas: The agency needed to have a routine road and sidewalk maintenance program and also an improvement in communications with the public was essential to help the latter have a better understanding of the work being done by the agency.

MBTA Services

Route 134 North Woburn - Wellington Station
 Via Woburn Sq., Winchester Ctr., Rindgeop St., Medford Sq., Filene's Ave., & Market Gdn Met

WINTER, December 27, 2003 - February 27, 2004

North Woburn - Wellington Station
 Via Woburn Sq. & Winchester Ctr.

PARAFOUR INFORMATION
 If you board the bus at or before 10:00 AM, the fare is \$2.00.
 If you board the bus after 10:00 AM, the fare is \$2.50.
 If you board the bus after 10:00 AM, the fare is \$2.50.

Massachusetts Bay Transportation Authority

134

WINTER, December 27, 2003 - February 27, 2004

North Woburn - Wellington Station
 Via Woburn Sq. & Winchester Ctr.

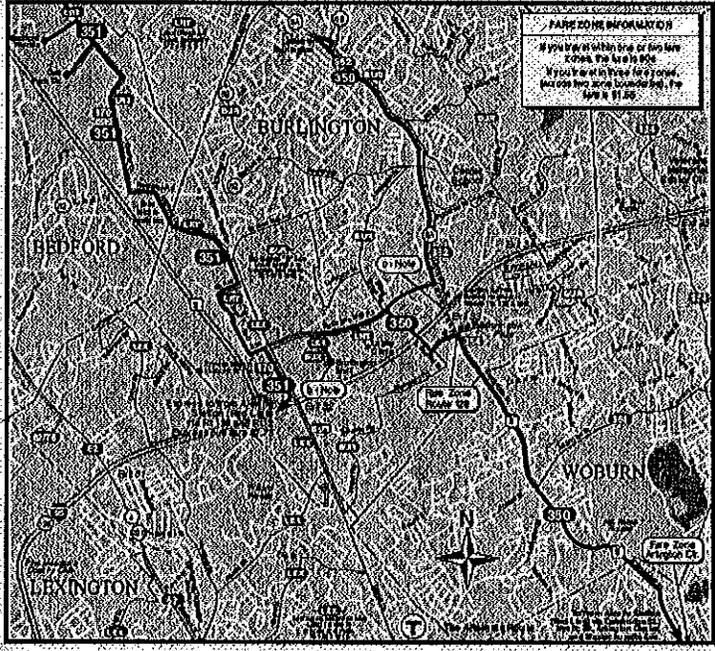
Parafour Information: Boston, MA; Worcester, MA; Lowell, MA; Springfield, MA

Massachusetts Bay Transportation Authority

Customer Service/Travel Info 617-222-3200
 Toll Free (outside Mass.) 1-800-392-6100
 Hearing Impaired TTY 232-5146
 Web Site www.mbta.com
 Solutions subject to change, please see our website for more information.

MBTA Services

- Ⓣ **Route 350** North Burlington - Alewife Station via Burlington Mall
- Ⓣ **Route 351** Oak Park/Bedford Woods - Alewife Station via N. 128 Express



350 | 351

WINTER - December 27, 2003 - February 27, 2004

North Burlington - Alewife Sta. **Oak Park/Bedford Woods - Alewife Sta.**

Serve: Burlington Mall, Bedford Woods, Lاهی Office, Crabbey Park, Park Sun, Woodbury Hills, Northwest Park and connections to the Red Line

Massachusetts Bay Transportation Authority

Customer Service/Travel Info 617-222-3200
 Toll Free (outside Mass.) 1-800-362-6100
 Hearing Impaired TTY 222-5146
 US Bus 1-800-4IFBUS
 Web Site www.mbta.com
 Schedules subject to change. Please advise date of travel and appropriate accessibility name.

