



# *Executive Summary*

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## **INTRODUCTION**

This document is the sixth element in the Town of Lexington's Comprehensive Plan, produced by the Planning Board in the past 2 ½ years. The previously adopted elements as defined by the state planning statutes (section 81D of Chapter 41 of the MA General Laws) include: Land use, Natural and Cultural Resources, Housing, Economic Development and a detailed Implementation plan that integrates the preceding elements.

This document can stand on its own, however, as a long range transportation policy plan for the community.

The Transportation Element was accompanied by extensive and broad-based public participation, in the form of the Transportation Element Advisory Committee (TEAC), which included citizens, public officials and key committee members, relevant town employees, representatives of business, various guests, and the Planning Board. Working with the consulting team from Vanasse Hangen Brustlin (VHB), staff organized five structured workshops focusing on the transportation modes, between September 2002 and January, 2003. Following this, the TEAC had extensive input into the actual drafting of the document.

This document is structured around and driven by goals and objectives pertaining to the broad issues of quality of life and public services and facilities. These goals and objectives were articulated in three sources: 1) the previous elements of the Comprehensive Plan; 2) the Selectmen's Vision 2020 project that preceded it; and 3) modifications to the preceding from the TEAC, emanating from the public participation process.

### **The Vision for Alternative Transportation**

It is important at the outset to understand the inspiration and assumptions for this document. It is emphatically not a study for upgrading the town's street and highway system, although some infrastructure improvement is unavoidable over time. Instead, it is an attempt to identify and think through feasible implementation measures that will offer a real alternative in the coming years and decades to relentless automobile dependency. The following is an excerpt from the 2002 Request for Proposals for the consulting services that were employed to assist this project:

*The issue of traffic and its impact on the quality of life in Lexington is not a new concern. It is merely a worsening one here, and nearly everywhere else in populous regions. The hope in*

*establishing a transportation element is to make available policies, programs and regulations that can provide transportation alternatives (to single occupancy vehicular trips) which, if implemented extensively enough over time, can improve the quality of life by reducing vehicular trips to at least a discernible degree. The transportation element (is intended) to be a document that explores aspects of how Lexington can help to shape its future...A (Transportation Element) will require a truly regional approach, as traffic does not begin and end at Lexington's borders, but rather, is the result of a complex network of people traveling to and from work, to and from schools and shops, as well as those passing through Lexington on longer trips....This element should propose bold but feasible implementing measures that start from the premise that traffic difficulties do nothing to improve the community's well being, benefiting neither the environment, the economy, public safety, family life or efficiency of people circulation, and that this reality is both local and regional in nature.*

## **EXISTING CONDITIONS**

The consultants and planning staff gathered data from the US Census, MassHighway, the Lexington Police Department, the MBTA and other sources, and conducted interviews with relevant officials, committees, and interested parties. The results were analyzed to gain an understanding of the present status of transportation service and infrastructure in Lexington today. This data forms the basis of the strategies and actions proposed in following chapters and summarized at the end of this section.

### **Traffic Patterns**

Lexington is predominantly a residential community with pockets of retail, office, and light industrial development. Major sources of traffic generation in Lexington include the Town Center, Hartwell Avenue, and Hayden Avenue/Spring Street employment centers, public schools, the Minuteman National Historical Park, and the Lexington Battle Green historic area. Of Lexington residents who are working, approximately 24% work in Lexington, with the result that more than 75% commute to jobs outside of the town.

Lexingtonians have the option to travel by walking, biking, local or regional bus, paratransit, or taxi. The predominant means of transportation in Lexington, however, is the private automobile. This is increasingly the case throughout the country; the number of vehicle miles traveled by passenger car in the United States rose 12% during the 1990s.<sup>1</sup> Automobile ownership has increased as well: 24% of households now have more vehicles than licensed drivers.<sup>2</sup> The result is clear: approximately 80% of Lexingtonians commute to work, whether within or beyond Lexington's borders, by driving alone.

### **Roadway Network**

The town is located at the intersection of two major limited access regional highways: the I-95/Route 128 circumferential highway and Route 2, a major radial highway emanating from

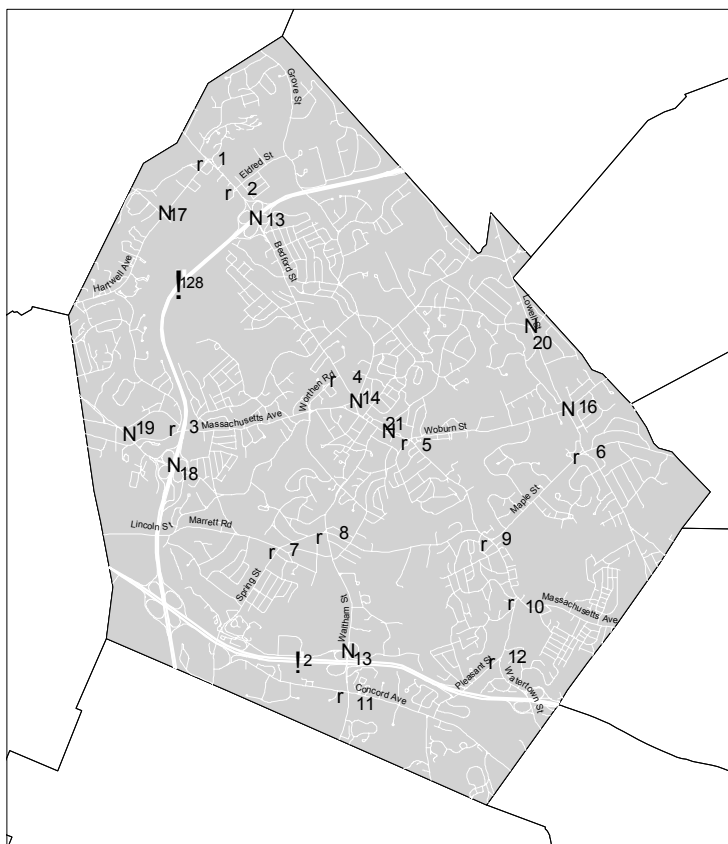
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<sup>1</sup> Bureau of Transportation Statistics: "National Transportation Statistics 2002"

<sup>2</sup> 2001 National Household Transportation Survey

Boston. Other state-numbered roadways through town include Route 2A and Routes 4/225. Route 2A is a generally east-west route connecting Arlington to Lincoln. It follows Summer Street, Lowell Street, Maple Street, Marrett Road, and Massachusetts Avenue. Route 4/225 runs between Route 2 near the Arlington town line and I-95/Route 128 and the Town of Bedford. It follows Watertown Street, Pleasant Street, Massachusetts Avenue, and Bedford Street. Massachusetts Avenue, which begins in Boston and continues out towards Central Massachusetts, functions in Lexington as the town’s main street.

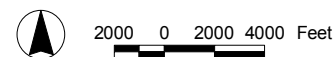
Various traffic data were analyzed to produce a list of intersections to be studied for improvement. Data sources included accident records, recent traffic studies for individual development projects and conversations with the Department of Public Works regarding operating conditions, including congestion, delay, queuing and levels of service. Proposed improvements were later debated in public meetings; those that were advanced for inclusion in the plan appear at the end of the ‘implementing actions’ summary below.



**Map 2.  
Problem  
Intersections  
Analyzed**

1. Bedford St and Hartwell Ave
2. Bedford St and Eldred St
3. Mass Ave/Old Mass Ave/Wood St
4. Bedford St and Worthen Rd
5. Mass Ave and Woburn Rd
6. Maple St and Lowell St
7. Spring St and Marrett Rd
8. Waltham St and Marrett Rd
9. Maple St and Mass Ave
10. Mass Ave and Pleasant St
11. Waltham St and Concord Ave
12. Pleasant St and Watertown St
13. Bedford St at Rte 128
14. Bedford St at Harrington Rd and Hancock St
15. Waltham St and Hayden Ave
16. Lowell St and Woburn St
17. Hartwell Ave and Maguire Rd
18. Marrett Rd at Rte 128
19. Mass Ave/Old Mass Ave/Marrett Rd
20. Lowell St and East St
21. Mass Ave and Grant St

Legend	
Study Intersections	
r	proposed improvements
N	analyzed, no improvements proposed



Prepared by Lexington Planning Department. Source: MassGIS, Town of Lexington

### Transit

Lexington’s transit service consists of MBTA intercity bus service (via Route 62/76), the LEXPRESS in-town bus service, some demand-responsive van services for the elderly and disabled, and a commuter shuttle operated by the 128 Business Council, a transportation

management association. Of these, MBTA Route 62/76 carries by far the highest number of passengers. LEXPRESS attracts fewer riders in total, but carries a large number of Lexington's youth and elderly.

While Lexington has a number of options for a town of its size and population density, the existing transit network is limited in its usefulness. LEXPRESS ends operations by 7:00 P.M. at the latest on weekdays, which is a handicap in attracting commuters who keep irregular hours. The relative infrequency of transit service during the hours in which it operates further reduces its attractiveness. Another limitation is the lack of Sunday service by any public transportation provider in the area. Most residents cannot depend wholly on existing public transit and maintain their current quality of life. For those who cannot or do not wish to drive, however, the existing public transit system is immensely valuable.

### **Transportation Demand Management**

Transportation Demand Management (TDM) is a set of policies and strategies that focus on the reduction of transportation demand and the provision of alternative means of travel to driving alone in a car. Lexington has both a Transportation Demand Management Bylaw and Policy, which provide developers with the option of creating a TDM plan as a mitigation for negative traffic impacts of a development. Many fulfill this condition by joining the 128 Business Council, a Transportation Management Association serving the Route 128 area. The 128 Business Council operates the Alewife Shuttle, which is an employer-subsidized shuttle from the MBTA Red Line Alewife station to offices on Hayden Avenue and Spring Street.

The Lexington Transportation Coordinator heads local TDM efforts, as well as coordinating LEXPRESS, municipal parking, and paratransit service. Since 1996, Transportation Coordinators have made three attempts to establish a TMA on Hartwell Avenue area. The most recent effort began in the autumn of 2001 and continues. Current Hartwell TMA planning is a joint effort of the Transportation Coordinator, Economic Development Officer, and the 128 Business Council.

### **Walking and Bicycling**

Lexington has a network of bicycle trails and designated routes and sidewalks that facilitate bicycling and walking not only as a form of recreation but also as a mode of travel. These modes not only function as environmentally and health-friendly transportation options in their own right, but also facilitate the use of public transportation. The Town is fortunate to have the Lexington Bicycle Advisory Committee (LBAC), which has done much to expand the bicycle network and inventory the sidewalk network. More generally it provides active support and encouragement of bicycle use and walking.

The existing bicycle network is divided into off-road bicycle trails and on-road recommended routes. The latter are generally, but not always, marked with road signs. Recommended routes are judged to be both relatively convenient to major destinations and fairly safe, although caution is urged at all times. Bicycle trails are generally on town-owned land or easements through private land and offer access to recreational facilities and open space.

The most well known bicycle facility in the community is the Minuteman Commuter Bikeway which runs generally north of, and parallel to, Massachusetts Avenue through much of the town. The Bikeway is a production of the Rails to Trails program and follows the former B & M rail corridor.



Sidewalks are concentrated in the town center and nearby neighborhoods and adjacent to public schools. The presence of sidewalks in other areas is less uniform with some lower density residential areas having few if any sidewalks.

### IMPLEMENTATION

Analysis of the existing conditions led to the proposal of a slate of implementation measures, which constitute the body of the plan. The measures that are included were selected after debate by the TEAC.

Implementation of the recommended measures over a considerable period of years is entirely a function of the collective will of all the "actors" involved with these issues. Their willingness to focus on these complex but important policies and to devote time and resources to them will determine if significant parts of the Element are implemented. There is no single entity, whether the Planning Board, Transportation Coordinator, Transportation Advisory Committee, Traffic

Safety Advisory Committee, Public Works Department, Board of Selectmen, the business community, or whomever, that possesses sufficient capacity, authority and resources to carry this effort forward unilaterally. It will take a determined cooperative effort to achieve some success.

Below is an abbreviated summary of the implementing actions proposed by the TEAC. Actions are assigned to primary and secondary implementers, as well as to one of four timeframes – Ongoing, Near Term, Intermediate Term, or Long Term. As intersection improvements are numerous, they appear separately at the end of the section. A list of designated actors follows for reference purposes. In the full document, all relevant actors are assigned to specific implementation measures.

**Designated Actors**

Board of Selectmen	Economic Development Officer
Planning Board	Lexington Bicycle Advisory Committee
Board of Health	Traffic Safety Advisory Committee
Zoning Board of Appeals	Transportation Advisory Committee
128 Business Council	Historic Districts Commission
Town Manager	Design Advisory Committee
HATS	Capital Budget Committee
MPO Representative	Transportation Coordinator
Business Community	Department of Public Works
School Committee	MAGIC Representative

**Implementation Time Frames**

Category	Ongoing	Near Term (NT)	Intermediate Term (IT)	Long Term (LT)
<b>Difficulty</b>	Varies	Least Constraint	Medium Constraint	High Constraint
<b>Initiating Time Frame</b>	Continuous	1-2 years	2-5 years	5+ years
<b>Cost</b>	Varies	Low	Medium	High

**Ongoing**

- Seek easements from public and private landowners to extend bicycle and pedestrian facilities.
- Rigorously implement the Town’s TDM Policy and Article XII, Traffic, of the Zoning Bylaw.
- Promote use of LEXPRESS for transportation from after-school activities
- Maintain consistency in pedestrian and bicycle facilities
- Enforce snow removal policies
- Incorporate bicycle needs and priorities in roadway projects

- Coordinate with Boston MPO and MPO Advisory Committee to monitor regional projects.
- Monitor Hanscom/Massport transportation impacts
- Communicate directly with abutting towns on traffic aspects of developments of regional impact
- Participate in MAGIC's regional transportation planning efforts

**Near Term**

- Initiate limited bus service between Hartwell Avenue and the Lowell Commuter Rail Line at Anderson RTC in Woburn.
- Initiate bus service between Waltham Center and Lexington Center to access the Fitchburg Commuter Rail Line
- Incorporate bicycle route plan in Comprehensive Plan and update regularly
- Update bicycle route signage
- Encourage pedestrian and bicycle amenities at key locations
- Identify satellite 'park and bike' locations
- Define flexible standards for bicycle and pedestrian facilities that respect community character
- Develop and implement zoning regulations to support walking and bicycling
- Review and revise Article XII of the Zoning Bylaw for better enforcement and monitoring
- Support carpooling by Lexington residents and by employees working in Lexington
- Provide information on alternative commuting choices.
- Work with other officials to enhance the transportation section of the Town's website
- Provide small-scale services in office parks
- Pursue an education, encouragement, and enforcement program for students and the larger community in walking and biking
- Implement a pilot Safe Routes to School program
- Investigate feasibility of providing incentives for students to commute by walking, biking, bus, or carpool
- Initiate planning for long-term roadway improvements at the intersections of Marrett Road and Waltham Street and Bedford Street and Hartwell Avenue.
- Write and adopt policy on importance of creating and maintaining sidewalks for safety, health, and mobility.
- Update and maintain sidewalk inventory
- Develop prioritization strategies and screening criteria for sidewalk improvements
- Plan for the future of the former Raytheon site (141 Spring St).

**Intermediate Term**

- Investigate feasibility of extending the hours of operation and increasing frequency of service of LEXPRESS.
- Provide incentives for alternative modes of travel
- Establish TMA services; assist employers in joining existing and new TMA's.

- Investigate providing improvements by means of a betterment district along the length of Hartwell Avenue
- Study existing parking regulations to assess impact on transportation choice
- Provide incentives to reduce parking demand and automobile use
- Consider identifying criteria for roadways where sidewalks may be constructed on only one side
- Create Task Force to study a retrofit of Hayden Avenue and the commercial areas of Spring Street and Hartwell Avenue with non-automotive infrastructure
- Consider creating a Business Improvement District to address transportation and parking issues in the Town Center
- Create an Overlay District in Hartwell Avenue that ties density to traffic management
- Allow small-scale, service-oriented commercial uses in office parks
- Investigate feasibility of establishing mixed-use development at commercial nodes.
- Encourage transit and pedestrian-friendly redevelopment in East Lexington along the Massachusetts Avenue commercial corridor
- Promote greater use intensity at the commercial node on Bedford Street north of Route 128
- Plan for the future of the StrideRite site (191 Spring Street)
- Initiate revision of home occupation permitted uses in the Zoning Bylaw
- Initiate action to establish housing as an allowed use in upper stories in the Town Center and East Lexington.

### **Long Term**

- Initiate bus service between Winchester Center (Lowell Commuter Rail Line) and Lexington center; connect to MBTA routes.
- Advocate for extension of MBTA bus route #78 to Hayden Avenue and route # 77 to Lexington Center
- Advocate for increase in frequency of service on MBTA bus routes in Lexington.

## **INTERSECTION IMPROVEMENTS**

### **Near Term**

#### Hartwell Avenue and Bedford Street

- Modify the traffic signal phasing to provide separate phases for the eastbound Hartwell Avenue and westbound Bedford Street jughandle approaches.
- Allow right turns from the southbound jughandle approach.

#### Waltham Street and Marrett Road

Install a "Yield" sign at the channelized right turn on southbound Waltham Street.



**Maple Street and Lowell Street**

- Paint gore (zebra) striping around the islands with signal posts to better delineate the islands
- Paint a left-turn lane on Maple Street (lane is already in operation).

**Worthen Road and Bedford Street**

- Paint a crosswalk across Camelia Drive (sidewalk and ramps already in place).

**Intermediate Term****Marrett Road at Waltham Street**

- Consolidate driveway access at Gulf Station on southwest corner and provide sidewalk.
- Install signal ahead sign on southbound Waltham Street due to limited sight distance.

**Maple Street at Lowell Street**

- Upgrade signal equipment to provide protected left-turn phasing on northbound Lowell Street approach and pedestrian crossings.
- Upgrade pedestrian crossings to be ADA-compliant.

**Concord Avenue at Waltham Street**

- Upgrade signal equipment to provide protected left-turn phases on Waltham Street.

**Spring Street at Marrett Road**

- Install an island on northbound Spring Street to better channelize vehicles entering and exiting Spring Street.
- Extend northwest corner of Spring Street to reduce the width of eastbound Marrett Road and to improve channelization.
- Extend curb from one-way Bridge Street toward Marrett Road to reduce the amount of pavement and to better channelize vehicles.
- Investigate the feasibility of providing a separate left-turn lane on westbound Marrett Street within the existing right-of-way.

**Worthen Road at Bedford Street**

- Provide an exclusive left-turn lane on northbound Bedford Street.

**Massachusetts Avenue at Woburn Street/Winthrop Street**

- Install bulb-out on Woburn Street to reduce amount of pavement at the intersection and to slow and better channelize vehicles exiting Woburn Street onto Massachusetts Avenue.

Extend island westward to prohibit vehicles from crossing

**Long Term****Bedford Street at Hartwell Avenue**

- Widen the jughandle approach to provide three lanes (a shared left-turn/through lane, a through lane, and a shared through/right-turn lane).
- Widen the Hartwell Avenue approach to four lanes (two exclusive left-turn lanes and two exclusive right-turn lanes)
- Widen the Bedford Street approaches to two full lanes in each direction.
- Upgrade traffic signal equipment and implement new phasing and timing (including a split phase for Hartwell Avenue and the jughandle).

**Bedford Street at Eldred Street**

- Install traffic signal and coordinate with signal at Hartwell Avenue.<sup>3</sup>
- Widen Bedford Street northbound approach to three lanes.
- Install detectors to monitor queues from the southbound I-95/Route 128 exit ramp.

#### Marrett Road at Waltham Street

- Re-stripe the Waltham Street northbound and southbound approaches to provide an exclusive left-turn lane and shared through/right-turn lane.
- Provide two approach lanes on eastbound Marrett Road (an exclusive left-turn lane and a shared through/right-turn lane).
- Upgrade the signal equipment, including installation of pedestrian signal heads, and adjust signal timing and phasing.

#### Maple Street at Massachusetts Avenue

- Install traffic signal.
- Consider signalizing Marrett Street at Massachusetts Ave and coordinating the two systems.

#### Maple Street at Lowell Street

- Investigate limited widening of Lowell Street approaches to provide an exclusive left-turn lane in each direction and determine if widening can be accomplished with little or no impact to adjacent properties.
- Investigate limited widening of Winchester Street approach to provide an additional lane and determine if widening can be accomplished with little or no impact to adjacent properties.
- Reconfigure channelized right-turn lanes to slow traffic and provide easier pedestrian crossings.

#### Concord Avenue at Waltham Street

- Widen westbound Concord Avenue to provide two lanes. Additional traffic analysis will be necessary to determine the appropriate lane utilization for the widened approach.

#### Massachusetts Avenue at Woburn Street/Winthrop Street

- Install traffic signal or modern roundabout.

#### Pleasant Street at Massachusetts Avenue

- Install traffic signal or modern roundabout.

#### Pleasant Street at Watertown Street

- Install traffic signal or modern roundabout.

#### Spring Street at Marrett Road

- Install modern roundabout

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<sup>3</sup> There is concern that this will attract cut-through traffic to Eldred St, which could impact its status as a proposed bicycle route. Any signalization project should study this possible and its impacts.