CHAPTER 10 TRANSPORTATION

10.1 INTRODUCTION

As the region surrounding Reading has developed, and as regional economic patterns have become more diffuse, Reading has not only been generating more traffic, but its streets have been forced to bear increased through-traffic load, a situation exacerbated by the decreasing ability of regional highways to carry regional traffic and by the failure to develop additional and alternative transportation modes.

Since 1990, the number of vehicles in Reading has increased at a rate nearly four times faster than that of population (19% and 5% respectively). The use of public transit has somewhat increased given the improvements in the Commuter Rail system that the MBTA conducted in the 1990s. Commuting by Reading residents has remained scattered to a multitude of locations throughout the northern part of the Metropolitan area. In transportation, the last 15 years have brought substantial changes in highway traffic, changes witnessed in a congestion paralyzing the Boston Region in the peak hours, and in limited attempts to enhance transit networks with high costs and with increased design phase duration.

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10.2 ANALYSIS

Regional Mobility

The transportation infrastructure of the Metropolitan Area of Boston is based on a radial system where most major highways and all rail lines converge to the City of Boston, while a few circumferential highways "ring" around the center. The radial system is finite in terms of expansion possibilities and complex in terms of enhancement.

A number of factors have contributed to the 48% increase of registered vehicles in the Metropolitan Area, between 1992 and 2002:

- The unsustainable low density of outer-regional development (sprawl)
- The household size decrease

- The relatively low gas prices
- The relative increase of licensed drivers and, mostly,
- The decline of car prices and the variety of financing opportunities amidst the economic prosperity of the mid-90s

It should be noted, however, that the percent of households who do not have access to a personal vehicle has remain almost the same throughout this period. At the same time most of us have observed the number of cars in the private driveways of our Town increasing year after year. This picture has been analyzed by several Departments of the Commonwealth and agencies in numerous reports and plans. All these documents, look at the current transportation trends in the Metropolitan Area and, in a way, the future projections under current growth patterns and legislation as:

- the automobile being the prevalent mode of travel
- automobile travel demand increasing, while highway capacity not
- most of the added traveled mileage is and will be on local roads; highway and arterial capacity has not significantly changed over the last decade
- peak congestion periods lasting 10-12 hours per weekday
- commuting time to work gradually increasing
- with the coming retirement of baby-boomers, new substantial transportation needs arising within each community

Regional traffic puts an additional burden to Reading as it comes from the Town's proximity to a major node of the interstate system, the I-93/I-95 interchange. Reading becomes the daily choice of several thousands of motorists to bypass the congested interchange via arterial and residential collector roads of the Town (West Street, Walker Brook Drive, Salem Street).

From the Town's perspective, the two major transportation problems of congestion and insufficient transit opportunities are of such magnitude that extend beyond the Town's limits and take on Metropolitan proportions, in terms of policy, improvements, resources and project funding.

Projects: The following table lists projects of regional magnitude included in the Regional Transportation Plan 2004-2025 with a specific reference to the Town of Reading, either in the Transportation Improvement Program (fiscally constrained and shown here as TIP) or the Universe of Projects (fiscally unconstrained shown as UOP).

Figure 1 Regional Transportation Plan 2004-2025

Highway	Rte. 128 Capacity Improvements	Lynnfield to Reading	TIP
	I-93/I-95 Initiative	Reading & Woburn	TIP
	I-93/Route 129 Interchange	Reading & Wilmington	TIP
	ITS Roadway Projects	Region-wide	TIP
	HOV Lanes for buses	Region-wide	UOP
Transit	Orange Line - Extension from Oak Grove to Reading/Rte. 128	Malden to Reading	UOP
	Commuter Rail - Extend commuter rail from Haverhill to Plaistow, NH	Haverhill to NH	UOP

Source: Boston Region Metropolitan Planning Organization

Sub-Regional Mobility

Along the North Rte 128 corridor in the E-W direction, Reading abuts communities with a similar residential character to the east and other communities with substantial business, retail and industrial developments to the west. In this context, the portion of Route 128 passing through Reading is a threshold of many trips whose origin is in the bedroom communities and others whose destination is in the commercial and employment developments in the two suburban clusters of Bedford/Lexington/Waltham and Burlington/Wilmington/Woburn.

Along the N-S direction, Reading abuts interstate I-93, a major entry corridor to Boston for commuters originating up to New Hampshire. Additionally, Reading enjoys the service of the Haverhill line passing through the downtown and the proximity of the Lowell line running on the west side if I-93.

A number of suburb-to-suburb and employer based van/pools operate in the area of the North Suburban Planning Council (NSPC), the organization of 9 communities that Reading belongs to. These shuttle/bus services provide mainly work trips to employment centers as well as significant feeder trips to commuter rail stations. Aside from MBTA's rail and bus operations - most of them following the radial pattern to Boston -, public and employer-based shuttle/bus services in the NSPC area are:

- Burlington: "B-Line"
- Lexington: "Lexpress"
- Lowell RTA: Bus Rte 19 & B1
- 128 Business Council: "Alewife Shuttle"

Projects: The following table lists transit enhancements recommended by CTPS in 2000[2] as part of a transportation analysis of patterns and origins/destinations of trips in the NSPC area. A map illustrating the two proposed routes is included in the Chapter 10 Appendix.

Figure 2 CTPS, 2000

Transit	New Shuttle #1 and #2	Anderson RTC, Woburn to Reading Depot, via Cummings Park, West Street and Woburn Street.
	New Shuttle #3, or extension of Bus-132	Redstone Plaza, Stoneham to Reading Depot

[2] North Suburban Transit Opportunities Study, CTPS, 2002

FINDING:

Even if implemented today, Regional Suburban Transit improvements would not affect congestion as we experience it today, not at least in the short- to medium-term. It is true that even ambitious suburban transit projects - such as the Route 128 circumferential Express bus – would not result in significant congestion reduction, since the convenience, cost and time of driving an automobile in the suburbs is too appealing versus transit[1]. The proposed bus service enhancements shown in the previous Table are capturing the need for mobility at a "local area" or inter-town scale, by providing commuter rail feeder services and suburb-to-suburban local circulator routes.

Reading's road network

Reading has approximately 100 miles of streets and roads within its borders, aside from portions of Interstate Highway 95 (also known as state Highway 128), which is located on the south and southeast of the Town, and Interstate Highway 93 on the west.

Highway network: There is one system interchange within Reading, the I-93/I-95 cloverleaf and four service interchanges, located adjacent to the Town's boundary: I-93/Route 129 (Lowell street), I-95/Route 28 (Main street), I-95/Walkers Brook Drive, and I-95/Route 129 (Salem Street). Both interstate highways (I-93 and I-95) operate during weekday commuting peak hours above capacity that they are often subject to functional inadequacy, causing significant congestion overload on local Reading streets, particularly along streets, which parallel or connect between these highways. Currently, the Massachusetts Highway Department is conducting a planning study whose ultimate goal is to broadly define the problem of the interchange - its regional and local nature - and provide for a pool of potential short-term and long-term improvements.

Reading's **arterial streets**, carrying large traffic volumes and serving as principal local routes as well as regional routes, include:

- Main Street (Route 28),
- Salem Street and
- Lowell Street (Route 129).

These three arterials intersect at the Common in the middle of Town, and are lined almost uninterruptedly with commercial and densely developed residential uses.
Minor arterial streets include:

- Haverhill Street (residential),
- Walkers Brook Drive (commercial and industrial),
- Washington Street (residential),
- Woburn Street (commercial through Downtown and otherwise residential) and
- West Street (almost entirely residential).

Collector streets, collecting traffic from neighborhood streets and feeding into the arterial streets in Town, are:

- Franklin Street
- Grove Street
- Forest Street
- Charles Street
- Washington Street
- High Street
- Summer Avenue
- South Street
- Hopkins Street
- Willow Street

According to Town records, recently documented **average daily traffic** (ADT) volumes in the arterial/collector network are:

Figure 3. Reading Traffic Loads Chart

Reading Traffic Loads Chart			
	1990	2004	% change
South Main street (Sta#S002)	22,200	31,800	143%
Main street through Downtown	16,200	18,200	112%
Main street at the North Reading line	14,500	n/a	n/a
West street	7,000	8,800	126%
Lowell street	16,600	14,300	86%
Salem street	14,600	19,400	133%
Walkers Brook Drive	12,700	23,900	188%
Woburn Street	9,400	8,800	94%
Washington Street	9,100	12,400	136%
Haverhill street	8,700	n/a	n/a

Source: Town Records and Master Plan Committee

FINDING:

Reading's streets and street network were established over a long period in the past, and the physical nature and layout of these streets contribute significantly to the character and visual amenity of the Town. These physical characteristics present many constraints to the smooth and efficient flow of traffic and contribute to congestion, frequent unsafe conditions for motorists and pedestrians and poor access to residential and commercial properties[1]. Within both the physical character of the street network and the qualities that identify the character of the Town, there is a definite limit to the volume of traffic which can safely and sensibly be accommodated.

Transit in Reading

Since 1990, the number of vehicles in Reading has increased at a rate nearly four times faster than that of population (19% and 5% respectively). The use of public transit has somewhat increased given the improvements in the Commuter Rail system that the MBTA conducted in the 1990s. Commuting by Reading residents has remained scattered to a multitude of locations throughout the northern part of the Metropolitan area, with the single occupancy vehicle as the main mode of commuting to work.

Commuter Rail: At present, the Massachusetts Bay Transportation Authority (MBTA) operates twenty-one commuter trains each weekday in each direction between Reading and Boston (with an average travel time of 34 minutes); of these nine continue to and from Haverhill (with an average travel time of 65 minutes). During peak morning period (6-9AM) there are six trains from Reading into Boston North Station and, similarly, during peak evening period (4-7PM) six outbound trains to Reading. One third of the peak trains to and from Boston does not continue to Haverhill but terminate in Reading. On weekend days and holidays six commuter trains operate in each direction to and from Boston, all of which serve Haverhill.

The local commuter rail stop is at the Depot, in the center of Town. Weekday boarding counts at Reading (Spring 2004) average 667 commuters, 85% of which are in the morning peak period. The 567 morning boarding passengers access the commuter rail in the following manner:

- 325 park in spaces for Reading residents (57%)
- 110 park in spaces for Out-of-Town commuters (20%)
- 40 park in private lots and on the street (7%)
- 92 walk, bike or are dropped-off (16%)

The 667 Reading boardings are the highest on the Haverhill Line (14%) and comparable to the 769 Woburn Anderson RTC boardings on the Lowell Line (within 87%).

Bus Service: The MBTA operates two bus routes from the Depot only through the southeastern portion of the Town to Wakefield and to the Malden MBTA--Orange rapid transit (subway) line; the Merrimack Valley Transit Authority operates two busses daily between Reading Depot and Andover and Lawrence.

Local Data: The following tables illustrate demographic trends of Reading residents in transportation choices:

Figure 4. Reading Residents' Transportation Choices:

Top 10 Locations Where Reading Residents Worked

	Number of Workers 2000	Percent of Workers 2000	Number of Workers 1990	Percent of Workers 1990
Reading	2,263	18.41%	2,355	19.43%
Boston	1,973	16.05%	1,861	15.35%
Woburn	892	7.25%	1,020	8.42%
Cambridge	579	4.71%	362	2.99%
Burlington	425	3.46%	578	4.77%
Wilmington	417	3.39%	399	3.29%
Wakefield	377	3.07%	362	2.99%
Waltham	367	2.98%	312	2.57%

Source: MAPC

Vehicle registrations in Reading

	Households	Eligible drivers(+16)	Registered vehicles	vehicles per household
1990	7,900	17,912	15,839	2.00
2000	8,700	18,071	18,791	2.16
change	10%	1%	19%	8%

Source: US Census, MHD & MA DMV

Mode of Transportation of Reading residents to Work

	Single occup. car/van/truck		Carpooled car/van/truck		Public Transportation		Walked		Other means		Worked at home	
1990	9,808	80.9%	1,034	8.5%	567	4.7%	265	2.2 %	80	0.7%	367	3.0 %
2000	10,221	83.1%	716	5.8%	694	5.6%	188	1.5 %	32	0.3%	444	3.6 %
change		2.2%		-2.7%		1.1%		-0.7%		-0.4%		0.6%

Source: MAPC

FINDING:

The above tables demonstrate that there is substantial automobile dependency among Reading residents, following the national trend, thus generating traffic congestion at all levels: town, suburban and regional. This traffic can be perceived under the term "local traffic."
A local type of transit service, facilitating certain intra-town trips and linking areas such as South Main street to/from Downtown would alleviate the impact of "local traffic" to the Town. To pursue this, focus needs to turn on shuttle bus services. For a town the size of Reading, shuttle buses are relatively inexpensive to operate/maintain and flexible to adapt to the changing needs of the Town's population.

10.3 GOALS & OBJECTIVES

The Goals and Objectives of this Chapter aim to minimize the escalating future repercussions of the two principle transportation problems the Town faces today: auto-dependency and through traffic. At the same time, there are several secondary but, nevertheless, substantial measures which will assist resolutions on the two principle problems. They range from sidewalk/bicycle network enhancements to additional transit options and from Town-wide Plans to local and regional initiatives. The proposed goals should also be viewed through the lens of inter-town cooperation, thus bringing Reading closer to other neighboring communities facing similar transportation challenges.

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The proposed goals should also be viewed through the lens of inter-town cooperation, thus bringing Reading closer to other neighboring communities facing similar transportation challenges.

The documents taken into consideration in developing this chapter are:

- **Master Plan, Town of Reading, 1991**
- **Community Development Plan of Reading, MAPC, 2004**
- **Town-wide Transportation Study of Reading, McDonough & Scully, 1990,1993 & 1996**
- **Regional Transportation Plan 2004-2025, Boston MPO**
- **Program for Mass Transportation, MBTA, 2003**
- **Smart Growth Principles, MAPC, 2003**
- **North Suburban Transit Opportunities Study 2002, CTPS**
- **Suburban Public Transportation, CTPS, 1998**

Town Planning for Transportation

Reading, like most communities on the Route 128 beltway, absorbs a large portion of regional traffic, looking for a way out of a congested State highway system, which jams the local street network. The route choices that drivers make can vary based hour of day, weekday, even weather; more often than not, there is no rational match between the trip's geography (origin-destination) and the type of road chosen.

The Town needs to take measures so that motorists select as the most attractive option the routes designed for their trip. These measures should address regional, local area and Town traffic as part of a comprehensive multi-layered strategy.

Goal 1 **Develop a town-wide traffic control, maintenance, and management program, and improve long-term capital improvements programs**

Objectives:

A. After public review and evaluation, implement recommendations of the Town-wide Transportation Study according to a prioritized, orderly, comprehensive, and feasible timetable. Maintain the document up to date after the implementation of private/public projects that substantially affect existing traffic conditions throughout the Town.

B. Develop a comprehensive Town-wide Parking Plan to address satellite employee parking, alternative locations for garages in Downtown with respective zoning amendments and revisit public parking regulations.

C. Promote an emphasis on slower/safer local traffic rather than faster/safer local traffic, and emphasize traffic improvements compatible with Goals and Objectives set forth in the Economic Development, Open Space and Character & Identity chapters of this Plan. Associate with Goal-2.

D. Promote the re-establishment of publicly or privately funded safe bussing for all school children living over a mile away from school or on routes without sidewalks.

E. Prioritize a list of infrastructure improvements in roads, sidewalks and paths, associate each project with source(s) of funding and target year of repair.

F. Identify and pursue state and federal funding for the Town and local non-profit organizations to improve the roadway and transit networks.

Neighborhood Traffic Calming

Neighborhood Traffic Calming provides for a set of measures aimed at discouraging thru-traffic and high-speeds in residential streets, either through specific urban design and landscaping features or by providing residents and volunteers resources to reasonably identify dangerous driving in their neighborhood.

Goal 2 **Promote traffic calming in residential neighborhoods to protect Reading's civic identity. As a means of promoting safety and relieving significant cut-through traffic on neighborhood streets, focus on specific Neighborhood Traffic Calming strategies available to Town to channel traffic to higher capacity roads.**

Objectives:

A. Plan for traffic alternatives to the current traffic connections between the Industrial District and the Eastside and the Ash street neighborhoods.

B. Undertake improvements to major arterial streets through residential areas only in ways which avoid undue impact on residential quality and which promote safe access to residential side-streets.

C. Develop a Washington Street by-pass from Walkers Brook Drive to Main Street

Downtown & Business Connections

The viability of Reading's downtown is fundamental to the Town's character and identity. To counteract the negative impacts of the steady increase of traffic in Downtown, the Town needs to increase parking options integrated with the urban fabric and the building configurations, avoid open parking lots that deaden downtowns, and increase transportation options other than single-occupancy automobiles. Since a successful transit environment is characterized by a mix of land uses, with trips combining many purposes linked together, the Downtown needs to provide a good walking environment.

Goal 3 Promote adequate circulation and parking for commercial uses and eliminate use of residential streets for commercial and commuter parking:

Objectives:

A. Develop a comprehensive Downtown Program to promote traffic and pedestrian safety, improved vehicular, transit, and pedestrian connections between major commercial areas, and increase regional accessibility to these areas and associate action items with Goal-1.

B. Implement the Downtown Traffic and Signalization Study.

C. Examine the feasibility of pedestrianizing certain portions of Downtown Streets and associate with Goal-4 and Open Space Chapter objectives.

D. Reduce permissible travel speeds on South Main Street, and reconfigure the traffic flow patterns within the existing Right-Of-Way to promote traffic safety, smoothness of traffic flow, and carrying capacity; over time, reduce the number of separate curb-cuts and expand the landscaping features throughout the corridor.

E. Enforce regulations on truck routes and hours in the Downtown, the Industrial District and the Walkers Brook Drive developments.

F. Provide a new access of the Industrial District from the New Crossing Road

Bikeways and Walkways

To encourage mobility without the use of the automobile, bicycle routes, pedestrian paths and sidewalks need to be an attractive alternative to all ages. By enhancing urban design features of Town's public spaces, Traditional Neighborhood Design guidelines can promote social interaction on the sidewalk rather than independent trips inside automobiles.

Goal 4 Improve and extend curbs and sidewalks and bicycle paths, where appropriate and consistent with Town standards.

Objectives:

A. Develop a comprehensive network of foot, bicycle, and open-space pathways ("green-ways") throughout the Town, providing adequate levels of safety and convenience.

B. Develop a sidewalk improvement priority list, complete all needed sidewalk extensions and improve crossings in areas where children safety is a concern.

C. Develop the Town's bicycle network and make the map broadly available to Reading residents.

Transit

The level and reliability of public or private transit service offered to Reading residents can, to a large extent, determine the future demand for it, as assessed by federal grant programs. Several towns in the North-West Metropolitan Region have initiated/supported intra-town and inter-town shuttle bus services to medical facilities, commuter rail stations and other major destinations as a transit service to residents. A public shuttle service will be staying on a fixed-route and schedule and connecting favorite origins and destinations rather than looping around mostly empty. A private shuttle service can be more demand-responsive with likely candidates from employers, elderly services, commercial businesses, hospitals.

Goal 5 Promote the use of public transit and alternative modes of transportation within Reading and within the Region and connect Reading with other major destinations.

Objectives:

A. Incorporate the Depot area into all regular bus routes in order to utilize the depot as a multi-modal transportation center for rail, bus, and taxi service.

B. Encourage the improvement of local taxi and bus service and the implementation of mini-bus/dial-a-ride types of service for all residents and especially for the youth and the elderly.

C. Examine the feasibility of establishing a Reading Transportation Authority or a Department within Town government that can address the forthcoming increased transportation needs of retiring boomers and coordinate with Goal-6.

D. Promote the development of regional circumferential public transit routes in the North Suburban region, and link to other suburban regions (MetroWest and North Shore).

E. Examine the feasibility of establishing new transit routes to metropolitan airports and to adjacent communities, as well as nearby commuter rail stations, major employment centers and healthcare facilities.

F. Collaborate with Reading employers to examine the feasibility of feeder transit service to commuter rail stations.

G. Promote Transit Oriented Developments with reduced parking requirements per housing unit (see Housing Goals).

Regional Collaboration

Rarely do transportation problems originate in towns/cities; they are the result of regional traffic or transit issues that affect several areas and layers of a region's population. Recent anti-sprawl policies promoted by the Commonwealth encourage towns to cooperate in planning efforts to move people and goods in a more efficient and environmentally responsible way, a way other than single-occupancy automobiles.

Goal 6 Participate in the development of regional transportation plans with state agencies and neighboring towns.

Objectives:

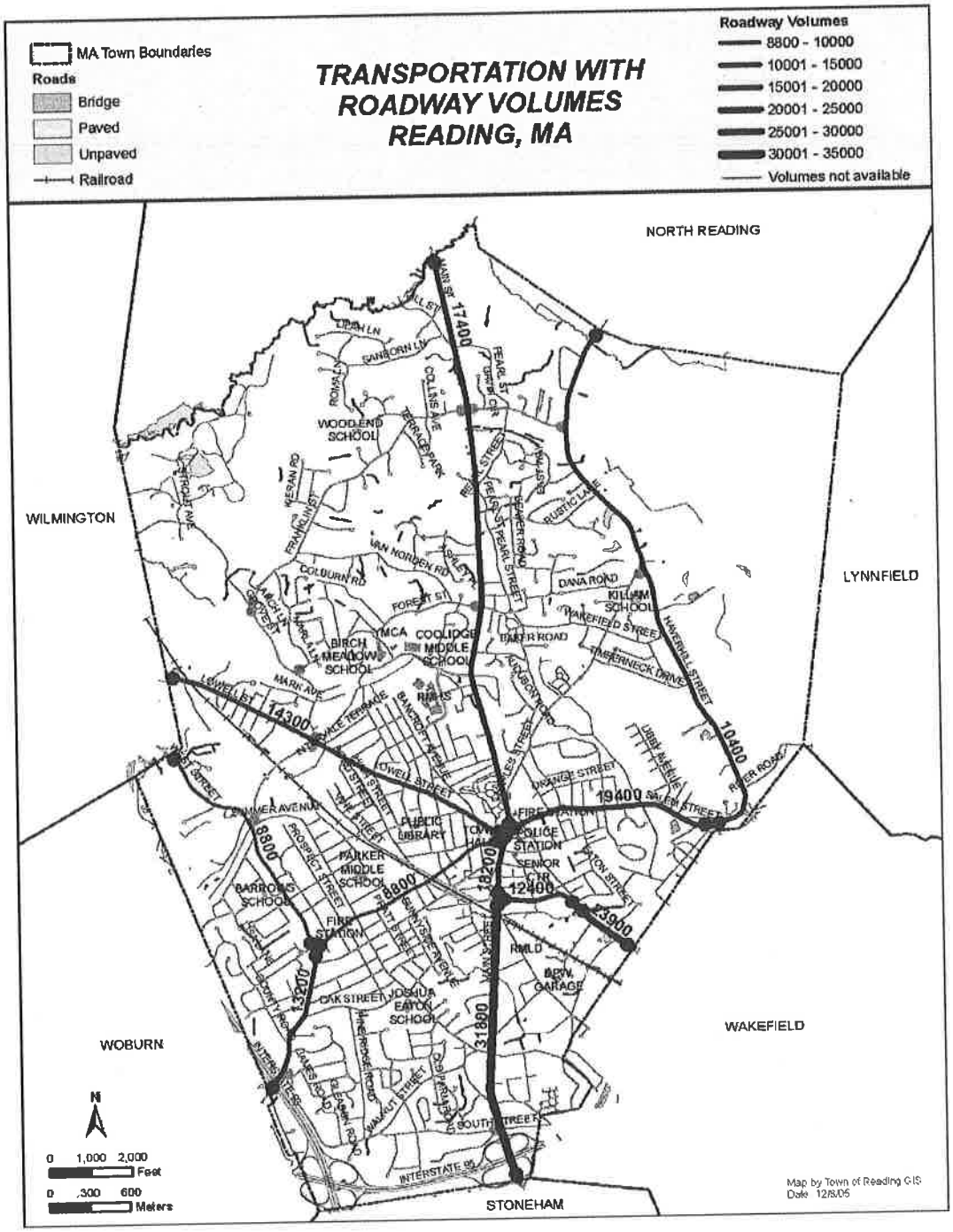
A. Encourage, and provide appropriate improvements for, the use of Interstate Highways 93 and 95 (Route 128) by out-of-town, regionally-oriented through traffic and by commuters driving to commuter rail stations, and discourage, to the fullest extent practicable, the use of Routes 28 and 129 by such traffic through such means as increasing the capacity of both regional highways and of their common interchange, and other needed improvements to the regional highway system.

B. Promote a Regional Transportation Management Association (TMA) to organize carpooling and vanpooling, shuttle-bus, high-occupancy-vehicle (HOV) highway lanes and transit-dedicated lanes, and other forms of improved regional vehicular and alternate transportation measures and improvements, as joint transit projects among the participant cities.

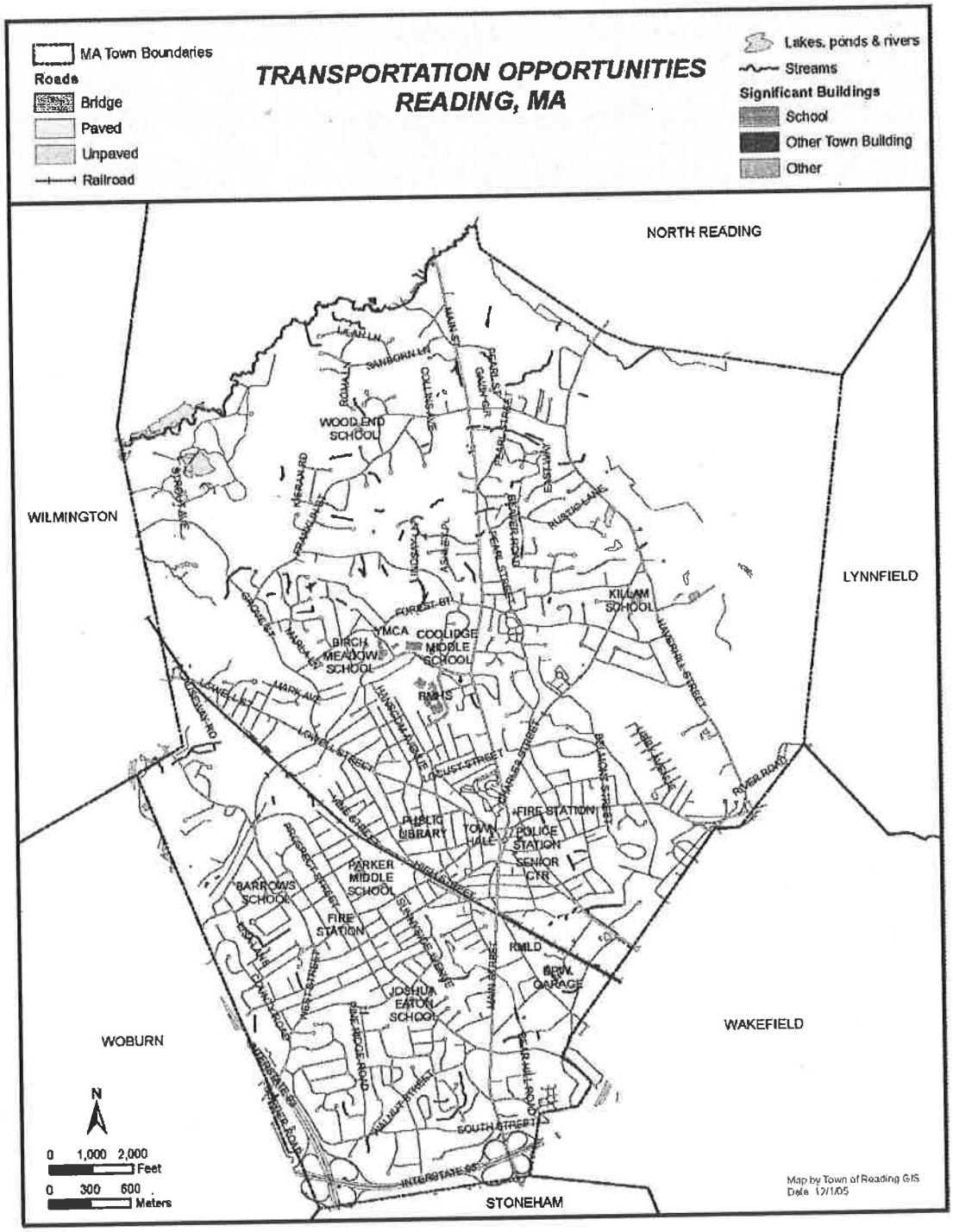
C. Encourage all large-scale local developments to cooperate with the TMA, to facilitate the use by their employees of mass-transit passes, and to facilitate employee non-automobile access to and from Downtown and the Depot.

D. Invite Reading citizens and community groups to participate in Regional Planning Organizations and to advocate for Reading's transportation interests.

Map 13 Existing Roadway Volumes



Map 14 Transportation Opportunities



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