

Transportation

Roadway Network

Since the construction of Route 3 in the 1960s, major growth has occurred in Marshfield, and the historic roadway network has changed dramatically in terms of its function.

While the emphasis of regional through traffic has been shifted to Route 3 itself, Route 3A (Main Street/Moraine Street) remains the primary north-south route through Marshfield, and it continues to cater to significant volumes of traffic. In general, however, Route 3A retains much of its rural character, and, from a design and capacity perspective, this is somewhat incompatible with its function as a major roadway. The extension of commuter rail service on the Old Colony Line to Scituate is likely to impact Route 3A by adding a further role to its function.

Although very different in character, Route 139 (Plain Street/ Ocean Street/ Careswell Street) shares a problem in common with Route 3A in that it is the only east-west route serving the town. As such, not only does this street provide the main link between Route 3 and the ocean edge of the town, but also it is subject to significant traffic demand from

commercial development, mainly located between the Downtown and Route 3. Although the roadway has been upgraded recently by the Massachusetts Highway Department, the problems associated with traffic demand are compounded by frequency of curb-cuts and the associated conflict between through and local access traffic.

Activity is particularly concentrated on Route 139 just to the west of the Downtown where Route 3A overlaps between Moraine Street and Main Street. Route 139 also connects back to Route 3A as Careswell Street through the southern section of town, providing another link to Route 3 in conjunction with Route 14 in Duxbury.

In addition to the major north-south and east-west arterial routes (Routes 3A and 139, respectively), Marshfield is served by a number of secondary arterials which fulfill a predominantly connector function to the major arterials. The most important of these include Union Street, Forest Street and the Summer Street/Church Street/Ferry Street corridor in the northern sections of Marshfield, and

Webster Street in the southern section of the town. To a large extent, these roadways parallel Route 3A, and there are a number of east-west collectors including Highland Street, Pleasant Street, Pine Street, Furnace Street, South River Street and Parsonage Street.

Other important collector roads include Winslow Street and School Street, and in the summer Canal Street has a significantly increased role as the access to the north end of Duxbury Beach. The majority of other roadways in Marshfield perform a predominantly local access function rather than a collector function.

A further important characteristic of the roadway network is the seasonal variation in traffic volumes, with high summer peaks and weekend traffic congestion. Hence, the peak period congestion experienced by year-round residents, primarily on Routes 139 and 3A, is significantly extended during summer months.

Traffic Volume Data

While comprehensive traffic data are not available for the complete roadway network in Marshfield, some information on average daily traffic (ADT) volumes is available from Massachusetts Highway Department (MHD) records. These data, which are summarized in Table 1, provide an order-of-magnitude indication of the traffic volumes on main roadway segments. Where available, data for previous years are also included, providing some indication of recent growth trends.

Table 1: Summary of Average Daily Traffic (ADT) Volumes on Major Roadways

Location	Year	Volume
Route 3		
North of Exit 12 (Rte 139)	1989	64,319
	1990	63,917
	1995	68,115
South of Exit 12 (Rte 139)	1989	59,930
	1995	63,000
Route 139		
East of Rte 3 (Pembroke Line)	1989	28,655
West of Rte 3A	1991	19,000
	1994	21,000
East of Rte 3A	1989	18,313
	1995	17,000
At Ocean Bluff	1991	4,700
	1994	7,400
West of Green Harbor River	1990	4,935
	1993	5,400
Route 3A		
South of Rte 139	1989	9,118
	1995	8,600
North of Highland Street	1991	9,000
South of Highland Street	1991	4,500

Source: Massachusetts Highway Department

As expected, volumes on Route 3 are significantly higher than routes within Marshfield itself, due to the predominantly regional function of the highway. Also as expected, Route 139 carries the highest volumes in Marshfield, but there is a significant variation depending on which segment is considered. The highest volumes close to Route 3 reflect the effect of Route 139 acting as the only east-west arterial, collecting and distributing traffic between Route 3 and substantial portions of the town.

It must be recognized that these traffic volumes represent daily averages, and as such they do not reveal peak hour, daily or monthly variations. Hence, their interpretation should be treated with caution, and their best use is perhaps as a means of relative comparison rather than for any strict evaluation of demand or roadway capacity.

Clearly, seasonal variations in traffic are an important consideration in Marshfield. While specific profiles are not available, it is worth noting that data available for other regional routes, such as Route 53 in Hingham, show variations of about 25% between low and high monthly traffic volumes. It is likely that the seasonal variation is even more pronounced on roadways such as Route 139, with weekend traffic peaks often being similar to, or higher than, traditional weekday commuter peaks.

Transit Service

Transit service within Marshfield is extremely limited. MBTA bus service does not extend to the town, and there is no local bus service. Commuter service to Boston is provided only by the privately-run Plymouth and Brockton commuter bus service, and the nearest park-and-ride lots on Route 3 are located at some distance, in Rockland and Kingston. There are a significant number of van pools in operation, but, according to 1990 data, about 80% of Marshfield workers drive alone to work. It seems likely that this high proportion reflects the lack of choice in transit service.

The limited transit service for commuters is an important issue in light of the fact that about 45% of workers from Marshfield commute to the Boston area or along the south shore, with only 12% working in Marshfield itself. Hence, the proposed extension of commuter rail service on the Old Colony Greenbush Line to Scituate is an important facility for the town. In contrast to the new service to Plymouth/Kingston, which commenced in late 1997, it will provide a terminal station in close proximity.

Which best describes where you work?

<u>Place of work</u>	<u>% of responses</u>
Home	6%
Marshfield	11%
South Shore	23%
Cape Cod	1%
Route 128	5%
MetroWest	2%
Boston	19%
North Shore	1%
Other	5%
No response	6%
Don't Work	21%

*1996 Comprehensive Plan Survey responses
regarding place of work*

The Kingston station to some extent will serve the needs of the southern part of Marshfield, in particular Green Harbor and Brant Rock. According to MBTA's analysis presented in the Old Colony Railroad Rehabilitation Project environmental impact study, the Greenbush service is expected to attract riders from Marshfield itself, representing about half of the boardings at the Greenbush station.

Other improvements which could benefit Marshfield commuters include expansion of commuter boat service to Hingham, and the expansion of park-and-ride facilities along the Route 3 corridor. Accordingly, there is generally strong support amongst residents for all

such improvements. There is also some support amongst residents for the proposed Route 3 "Add-A-Lane" highway project between Weymouth and Duxbury, although it is noted that the Planning Board previously has expressed concern about extending that project south of Exit 13.

Key Issues and Challenges

While there are many local and area-specific circulation problems in Marshfield, it is clear that the predominant concerns for a comprehensive plan are those relating to town-wide issues which have a direct impact to all residents and visitors.

- A major focus of these concerns is Route 139. As previously noted, the route is subject to significant traffic congestion, mainly as a result of the absence of alternative east-west routes, intensive seasonal use, and the concentration of present and future commercial and industrial development. Design and operational problems on Route 139, in particular difficulties associated with turning traffic and multiple curb cuts, and the variations in the roadway cross-section/number of travel lanes.
- In addition to these vehicular traffic-related issues, there are concerns about the limitations of the pedestrian system and the lack of bicycle facilities. Indeed, as transit options are so limited, the basic issue is really the lack of alternatives to automobile travel both within and to/from Marshfield.
- Pressure on Route 3A as the only continuous north-south route, particularly in light of the planned Greenbush commuter rail service to Scituate. Problems are also associated with traffic turning to/from side streets.
- The potential impact of build out in the Enterprise Drive area, both in terms of traffic generation and the need to provide for adequate access. As strengthening/expansion of development in this area is generally supported, it is essential to limit traffic generation to acceptable levels, and manage access accordingly.
- Potential impact to rural character of many roadways if capacity, operational or safety improvements are called for and full highway design standards applied. This also applies to intersections, in particular those with triangular, grass islands.

Capital Facilities

The major infrastructure issues for the Town of Marshfield are maintenance of current facilities, upgrade of facilities to meet the current or projected population needs, completion of state-mandated activities, and protection of the Town's natural resources.

There are several major trends and forces of change that are shaping the future capital facility and operation needs of Marshfield. These trends can be summarized in three main categories:

- Population and growth dynamics,
- Increase in environmental protection awareness, and
- Demands created by technological advances

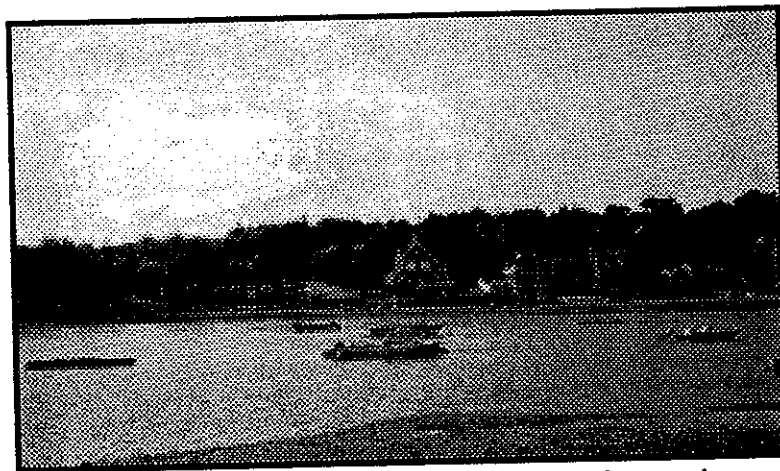
Population and Growth Dynamics in Marshfield

The population of Marshfield is expected to continue growing over the next 20-30 years. Although this growth is expected to continue at a much slower rate than has been experienced in the past, it will be important to focus on the increased needs this continued growth brings. Combined with this continuing population growth rate is a change in the population demographics. This, in turn, is likely to require new or different types of services within the Town.

In the past, Marshfield experienced seasonal population fluctuations. The current trend is the conversion seasonal residences to year-round occupancy. This can be explained in part by improvements in public transportation, a willingness to commute longer distances, the communication advances (e.g., computer links), and the upswing in numbers of past summer residents who have now decided to retire to Marshfield. The Building Department has seen a large increase in the winterization of former summer homes. The Recreation Department has also seen a greater interest in year-round activities. The increase in the percentage of retired individuals has been noted especially by the Fire Department. A greater percentage of the calls to the department are for elderly assistance services.

Increase in environmental protection awareness

The continued growth of the awareness in the importance of the health of the environment has led to increased Town regulations, ground water protection mechanisms, and an increased focus on the need to purchase and protect the remaining open spaces within the Town of Marshfield. There are concerns about private septic systems failing, especially in the downtown area, and suggestions of connecting the downtown area to the waste water treatment facility are under consideration. It has also been suggested that should the businesses in the downtown Marshfield area be hooked up to the treatment facility, possibi-

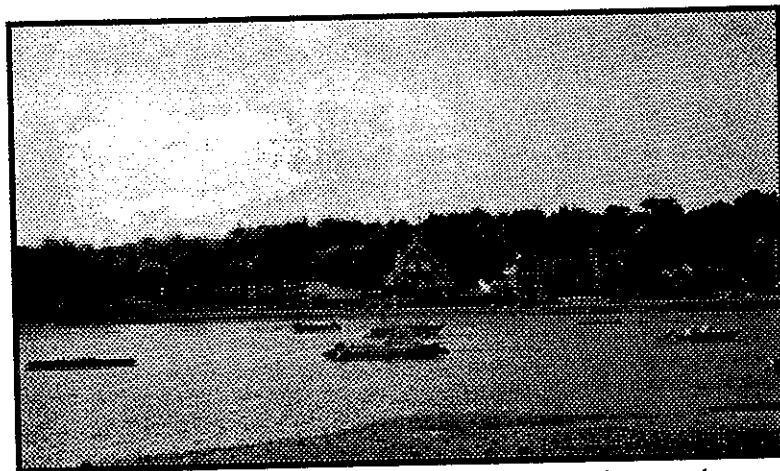


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ties of increased growth and usage of the business district would be available - bringing revitalization and new services to that section of the Town.

Various Town departments have discussed the importance of a greater focus on protecting the remaining open space in the town. With over 3000 acres of land (residential, commercial and industrial) listed as developable land, important decisions will have to be made as to the final use of this remaining open space. Open space planning is relevant for capital facilities planning as open space protection will result in better water supplies, more recreational land and more demand for maintenance and programming on recreational land.

Demands created by technological advances

As in many towns throughout the Commonwealth, Marshfield is experiencing many new demands from the fast-paced technological growth in computers and communication networks. The Town Library, Town Hall, Police Department, School System and Fire Department all expressed needs for computer hardware and software enhancement.

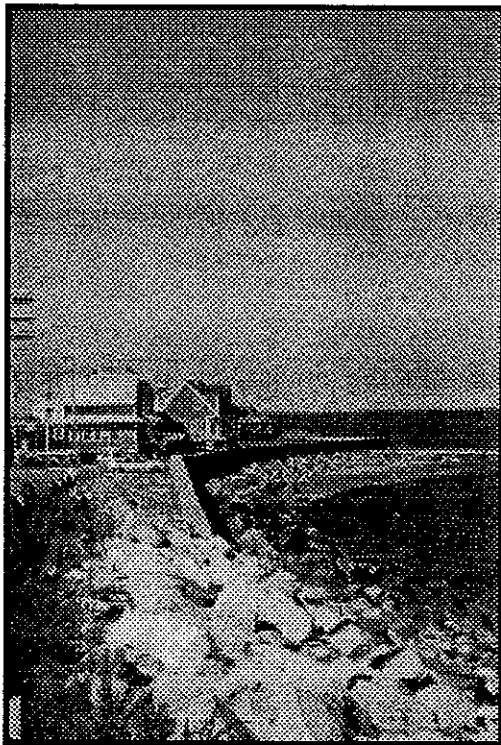
Many department staff interviewed commented on the importance of maintaining the state-of-the-art teaching facilities for the children in Marshfield. In order for these children to be competitive in their future schooling and the workplace, it was suggested that Marshfield keep up with the exhaustive pace of technology growth. This includes properly trained teachers and employees familiar with these new technologies as well as the machinery. The Town must also be aware that, under some circumstances, these upgrades are mandated by the Commonwealth.

Key Issues and Challenges for Facilities

Some of the more critical needs expressed by the various Town departments are listed below:

- The water and storm drain infrastructure is currently 50 years old. Marshfield is currently beginning to repair and replace portions of the existing system, as well as add new wells, associated pump houses, and sewer segments. In addition, discussions have begun regarding the feasibility of sewerage increased portions of the town. A portion of the town—namely the schools complex and town center—has been recommended for a conventional sewage pumping system. In 1996 and early 1997, the town invested in a full study and report on the several potential options available. However, at the Town Meetings held in April and June 1997, the townspeople voted against adopting the proposed sewage treatment plan.
- The Town of Marshfield needs to develop specific mechanisms aimed at protection of the town's recharge areas. These mechanisms can range from more diligent attention paid to Zones I and II and associated land-use restrictions, to actual purchase of these areas for the purpose of conservation and ground water protection. More effort should be made to work with Duxbury and Pembroke to initiate joint water supply protection mechanisms.
- Currently, the town spends at least \$200,000 per year on repairing jetties and seawalls. The large storms over the past 10 years have undermined these structures to such a degree that they need to be rebuilt completely and sufficiently reinforced with either riprap, bladders, or by other technologies being developed. A staff member from the Marshfield Department of Public Works has recommended that:
 - The appropriateness of using jetties as protection mechanisms needs to be revisited, and
 - The existing jetties and sea walls need to be better maintained.

- With the Marshfield Landfill scheduled for closure in December of 1998, Marshfield must address the most efficient and practical alternatives to handle its solid waste. In addition, an important component to this discussion should be the disposal costs for the leftover sludge from the waste water treatment facility. Currently, the sludge is dumped in the landfill.



The Town spends a substantial amount of money on the maintenance and repair of jetties and seawalls.

- The possible alternatives listed so far are the following:

construct an in-town transfer station,
participate in a regional or cooperative venture with other towns, or
explore new technologies including CO-composting.

- The change in population dynamics can already be seen in the increased need for elderly services. The Fire Department, Library, and Building Department have already begun to notice this change. The Town of Marshfield should focus on how best to plan to comfortably incorporate additional services geared to this segment of the population and to identify new opportunities which would benefit the town (i.e. increased volunteer organizations).

In addition, other capital facility and service issues that will require attention include:

- Expansion of public water supply wells to meet projected needs/upgrade of existing pump stations, rehabilitate existing wells, and establish new wells.
- Additional school space needs,
- Upkeep and modernization of town buildings,
- Enhancement of the advanced life support services offered by the Fire Department,
- New cemetery or expansion,
- More ballfields and recreation space/staff,
- Conservation/recreation land acquisition,
- Construction of a new community center,
- Road construction/reconstruction/evaluation of incorporating private roads into town-accepted roadways.