

## *Chapter 3*

---

### *River and Open Space Access*

Integrating the multi-use trail system with town owned open space is of primary importance in realizing a comprehensive open space and recreation plan for the town of Ware. It also adds to the usefulness of the trail system by developing it into a transportation route to these valuable open space parcels.

#### *The Ware River*

The Ware River is one of the largest rivers in Worcester County. Massachusetts Division of Fisheries and Wildlife surveys indicate that the fish communities of the Ware River are one of the most diverse populations in the state. This is due to the variety of habitats and its overlapping geographic distribution of a number of species (Ware River Valley Recreational Access and Habitat Protection Proposal).

While the Ware River is used extensively for recreational purposes including fishing, hunting, canoeing, swimming and nature appreciation there is only one publicly sanctioned river access in Ware. Grenville Park provides a boat launch area, but does not provide access for swimming. In the past residents swam at Grenville Coves across the river from Grenville Park. This 15-acre parcel is still publicly owned but swimming has ceased, possible due to the quality of the water or shorefront.

Creating public access to the Ware River for boating, fishing and swimming will support the objectives of the town of Ware's 1997 Open Space and Recreation Plan. It will also contribute to the success of the town of Hardwick's proposed Canoe Trail, and the overall recreational development and open space preservation objectives of the Region.

#### *The Banas Farm*

The 61-acre Banas Farm property that anchors the northern end of this trail section offers access to the Ware River as well as opportunities for passive and active recreation. It's scenic hillside views, river frontage, open meadow areas and easily viewed wetland contribute to its aesthetic quality.

With over 3200 feet of frontage on the Ware River, this open space parcel shows unlimited potential for sensitive development. The town's flood plain district and the Massachusetts Rivers Act may effectively serve to limit the activities that occur within this parcel. The Rivers Act, while not preventing use of this area, requires that work or activity in the area will have no significant adverse impact on the riverfront area for the following purposes: to protect the public or private water supply, to protect the ground water: to provide flood control: to prevent storm damage: to prevent pollution: to protect land containing shellfish: to protect wildlife habitat: and to protect the fisheries. It must further be shown that there is no practical and substantially equivalent economic alternative to the proposed project with less adverse effects on such purposes (Rivers Protection Act, 1996).

By understanding these provisions and through careful planning, public access and amenities can still be offered. Boat launches, viewing areas, riverwalks and more can be introduced into the area without harming the environment.

With approval and support of the zoning board as well as Ware residents, private business permits could be issued for enterprises that would enhance the area. Cafés, kayak rentals, instructors or outfitters, or sport (fishing, hunting) suppliers could encourage tourism and add to the economic vitality of the town.

The 1997 Open Space and Recreation Plan for the town of Ware states a need for regulation baseball and soccer fields. On initial inspection, the Banas Farm property appears to be suitable for development of athletic fields. A more thorough analysis would be required for an actual determination.

### *Unnamed Open Space Parcel*

The 15.8-acre parcel on the opposite end of this trail system also offers access to the Ware River. However the size and the configuration of this land parcel, as well as its flood zone designation, limits it to more passive recreation. Left in its natural state it is valuable for wildlife habitat and environmental protection. Minor alterations, such as a single lane path loop could allow people to access the site on foot with minimal impact. A more thorough design might produce a site suitable for overlooks, picnicking, an arboretum, educational area, or community gardens.

# Chapter 4

---

## *Planning and Design*

This chapter is intended to offer conceptual design ideas that respond to the challenges and opportunities of the site conditions detailed in the previous chapter. The design solutions are hypothetical since a more complete site evaluation would be required to develop accurate construction drawings. The objectives are threefold: 1) to provide design oriented solutions and appropriate management practices. 2) To stimulate the designer to exploit challenges to create opportunities for a more functional and attractive greenway trail. 3) To develop initial cost estimates for project development.

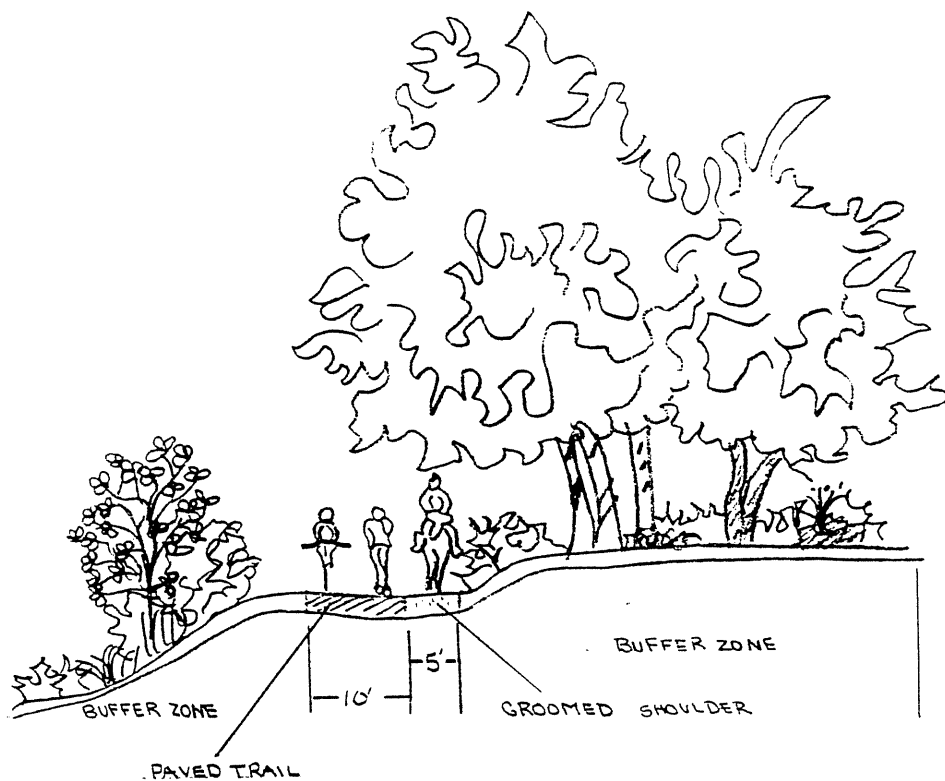
### **Trail Design Standards**

Trail Design Standards must reflect the objectives of the greenway system. It is important to determine ways to accommodate a wide variety of users without compromising the integrity of the environment.

Figure 4-1 provides a cross section of a greenway that attempts to integrate trail and environmental objectives. The paved trail will provide an evenly graded surface for bicycling, walking, or in-line skating while the groomed edge is suitable for horseback riding and off road bicycling.

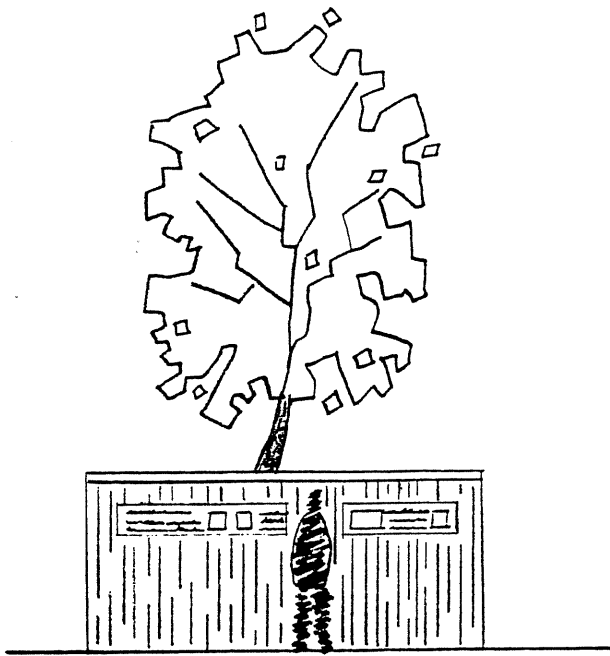
Buffer Zones should be provided along the length of the greenway trail. These zones will provide wildlife habitat, water and soil protection, visual diversity and privacy. Through thoughtful planning, educational and cultural objectives can be achieved in these areas. In addition buffer zones have the potential to improve the microclimate along the trail by reducing wind in the winter and providing shade in the summer.

The buffer zone when adjacent to homes and businesses offers privacy. When these buffers are vegetative they offer the additional advantages of lower initial cost and lifetime maintenance, habitat creation, soil stabilization and runoff control. Where space limitations are present, fences are an option. When considering fences the designer should give thought to the advantages these can provide. Fences with vines can provide habitat and shade as well as privacy. They can provide a structural element in a landscape that can be used for information dissemination. (Fig. 4-2) By looking for ways to make each aspect of the trail contribute to the specified objectives, many opportunities will arise.



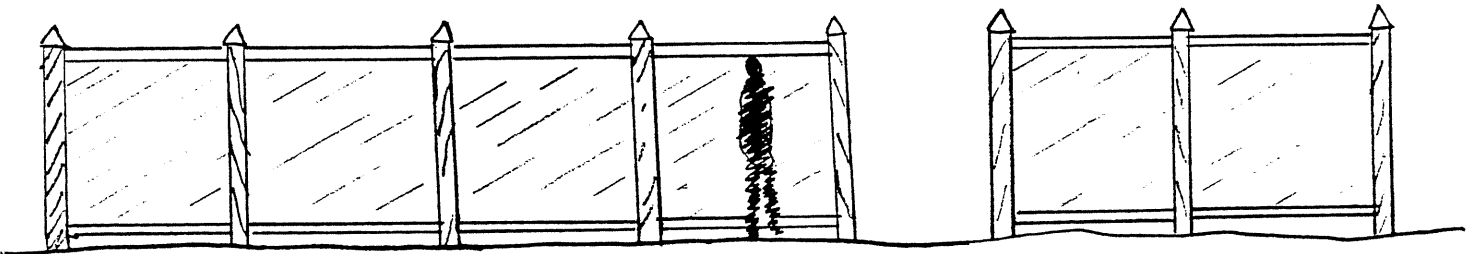
**Fig. 4-1**      **Cross Section of Greenway Trail**

Fig. 4-2 Fences as Buffers

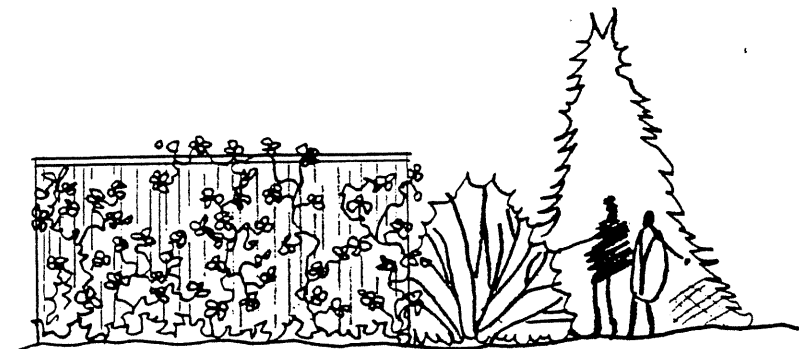


FENCE AS BUFFER AND INFORMATION POINT

FENCE AS STRUCTURAL ELEMENT, BUFFER, OR TO FRAME VIEW



FENCE WITH VEGETATION FOR WILDLIFE & DIVERSITY



Where the trail abuts a river or stream, a riparian buffer zone is critical. This buffer zone should be left in its natural condition where a healthy ecosystem exists. In areas that must be disturbed or restored native vegetation should be planted to protect and enhance biodiversity and water quality.

Consider utilizing buffer zones for seating and viewing areas where appropriate. Plant or habitat identification could be incorporated into these areas as well. When inviting people into the buffer zone for these activities it is important to mitigate the effects of foot traffic. Attention to appropriate ground cover and protection of sensitive areas is important.

### **Slope Stabilization**

The stabilization of soils on disturbed banks is of critical importance to the health of the ecosystem along the greenway trail and to future maintenance costs. Vegetated banks offer the best defense against erosion in most areas. The roots of the plants hold the soil in place and allow the soil to hold more water.

Bank stabilization along waterways has a direct effect on flood control. Unstable banks allow soil from to be washed into the streams where an accumulation raises the stream bottom and increases water levels. By stabilizing the banks with vegetation it causes the soil to hold more water, utilizing it for plant growth and releasing it more slowly so less water is emptied into waterways during critical flood stages.

The areas that appear in need of stabilization at present are those at both water crossings as well as at the ATV crossings mentioned.

### **Wetlands/Drainage**

Preliminary inspection of the study area did not reveal any problem drainage areas.

A wetland area is located between the capped landfill and the Banas Farm property road. It supports a good deal of vegetation and appears to be a healthy ecosystem. On that premise it likely supports a diverse association of invertebrates and birds as well. These factors along with its location within the town open space parcel give it value as a wetland interpretive area. Its importance as both a functioning ecosystem and an educational medium increase due to its utility as a cleansing area for the capped landfill.

## **Road Crossings**

Road crossings are necessary in three locations along this section of the greenway trail system. In each instance they are secondary roads with speeds of 30 mph and with low traffic volumes. While safety issues must be the primary concern, these crossings also offer an opportunity to increase public awareness of the trail system.

At the Malboeuf Road crossing stone railroad abutments exist on each side of the road. Although they may not be tall enough to serve as the base for a railway bridge, consideration should be given to retaining them as design elements. The preservation of these historic artifacts would add to both the beauty and the cultural significance of the greenway trail.

Figure 4-3 shows a plan view of a trail crossing at a road. By narrowing the width of the road and incorporating a rumble strip just before the crossing, motorists are warned to slow down and be attentive. Lighting and crosswalk lines on the pavement are also necessary elements of a safe crossing.

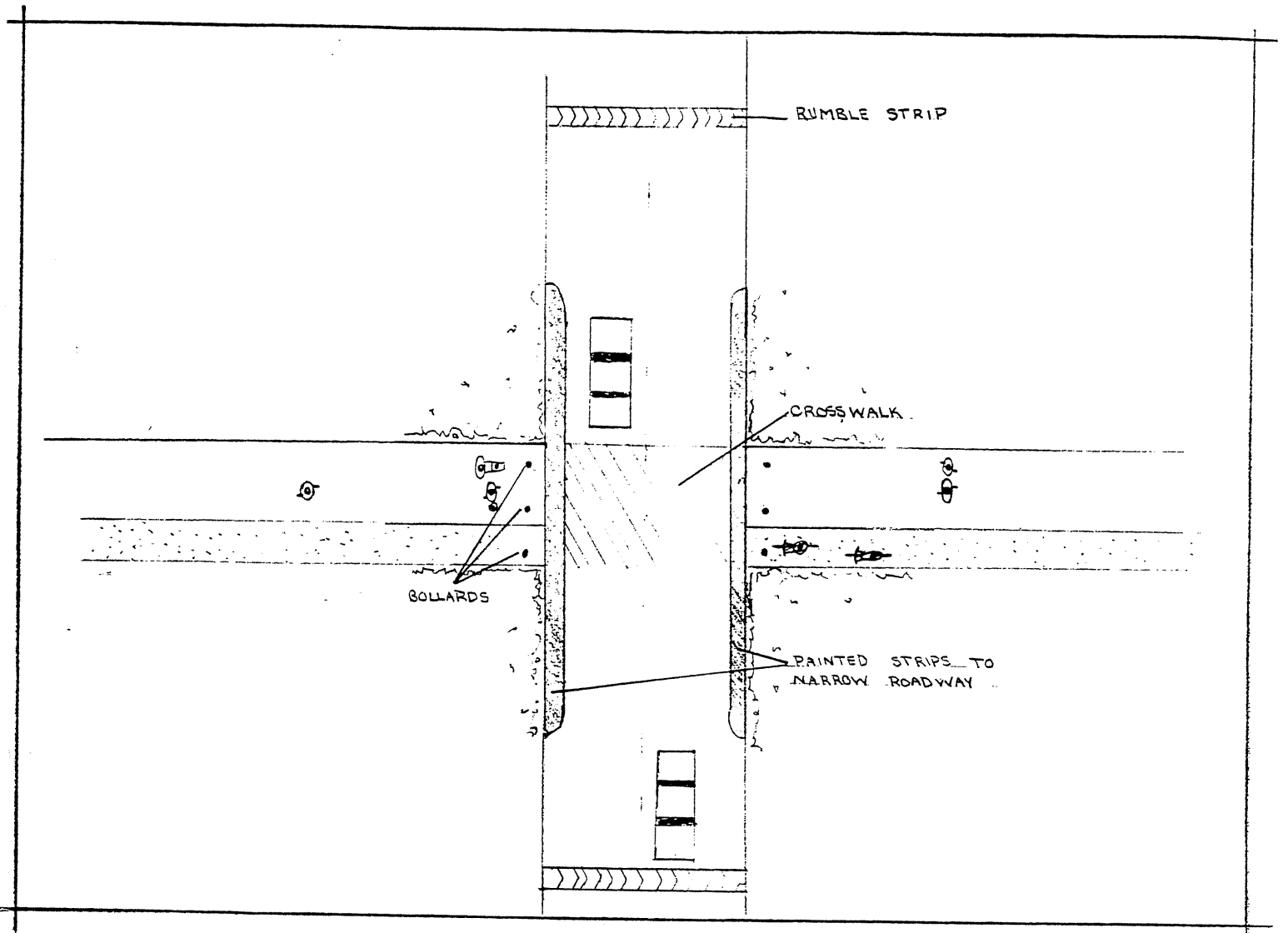
For the pedestrian or cyclists using the trail ample sight lines are required. Warnings painted on the paved trail and signs on the groomed trail edges will also alert trail users of upcoming vehicular traffic. Bollards placed closely together, but that still allow room for cyclists and horses to pass can be used at intersections to slow trail traffic. The consistent use of plant material, such as a short line of flowering trees, before each crossing could also be a visual clue. Using the same plant material as is along connector roads could further enhance public awareness.

For a portion of the public, road crossings will be their only interaction with the greenway trail system. For this reason a positive public image will be worth developing.

## **Water Crossings**

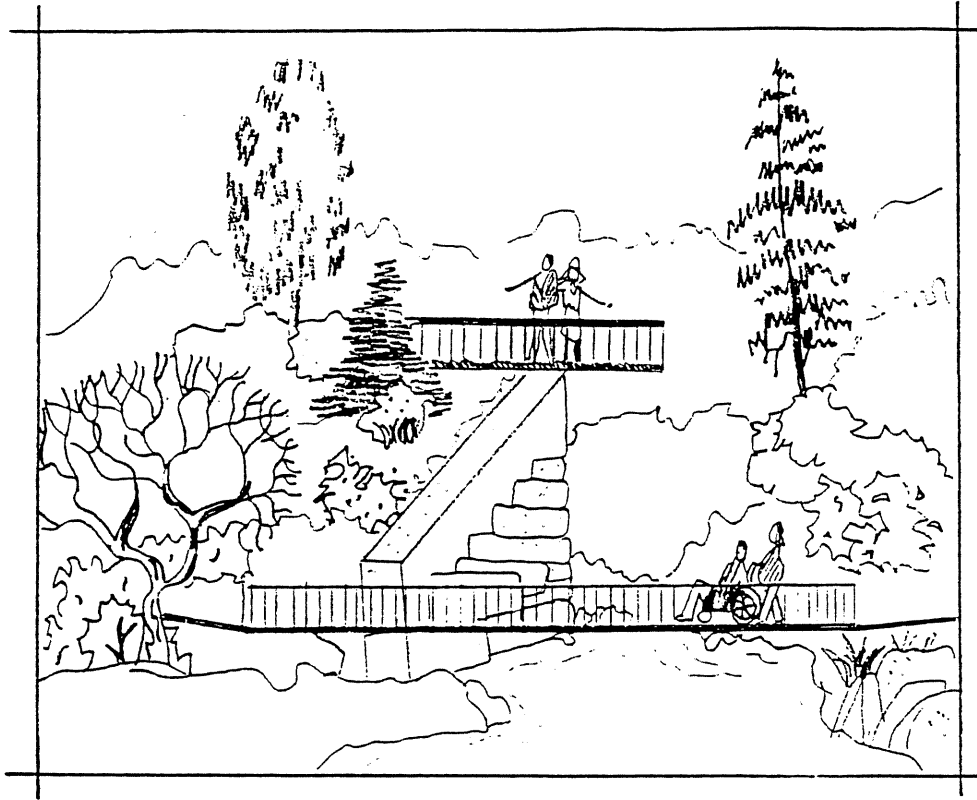
The Ware River Valley Greenway Trail will cross Flat Brook and an unnamed Stream along its southern section. These crossings create exceptional opportunities to meet educational and cultural objectives. The remaining intact railroad abutment at the Flat Brook crossing may be suitable as part of the infrastructure of a pedestrian bridge. It might also be used as the wall of a promontory as it is 12 feet above the stream (**Fig. 4-4**).

Information on the history of local floods can be sensitively developed in these regions of the trail. Flood levels could be indicated along with the date and additional historical data.

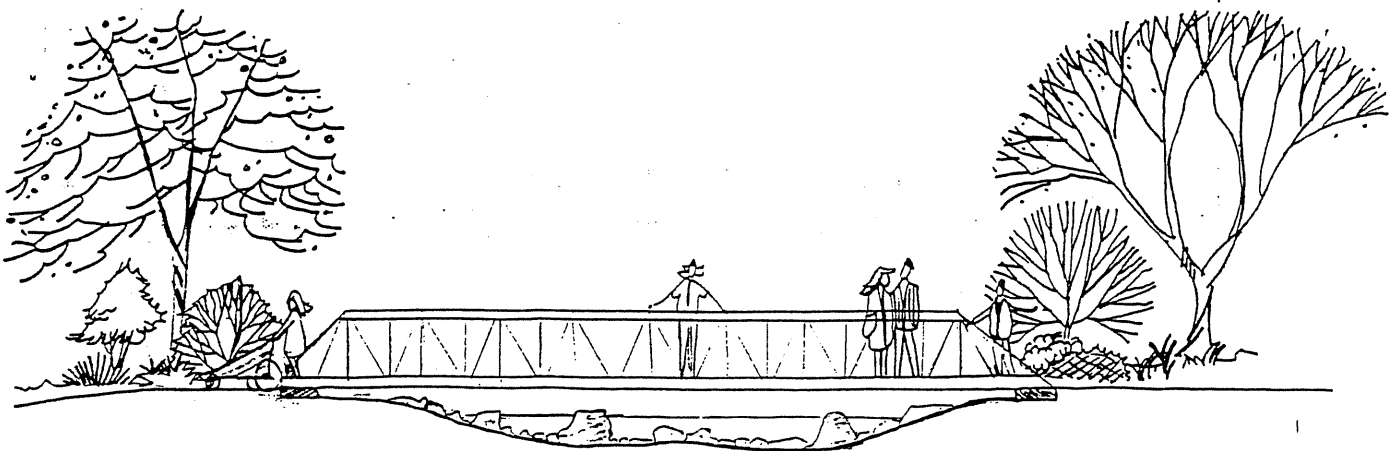


**Fig. 4-3** Plan View of Road Crossing





**Fig. 4-4 Railroad Abutment as Promontory**



**Fig. 4-5 Conceptual Design for Water Crossing**

While water is a desirable component of the trail system for viewing and listening to, care should be taken to minimize the impact of traffic in these sensitive areas. Plank walkways can elevate people off fragile banks while still affording them close encounters with these special ecosystems. The volume of traffic should be monitored in these areas so environmental degradation does not occur.

Figure 4-5 shows a conceptual design for a typical water crossing.

### **Abutters**

The buffer zone (**Fig. 4-6**) is one option for providing privacy to abutting landowners. These natural plantings effectively screen adjacent dwellings without bringing attention to them.

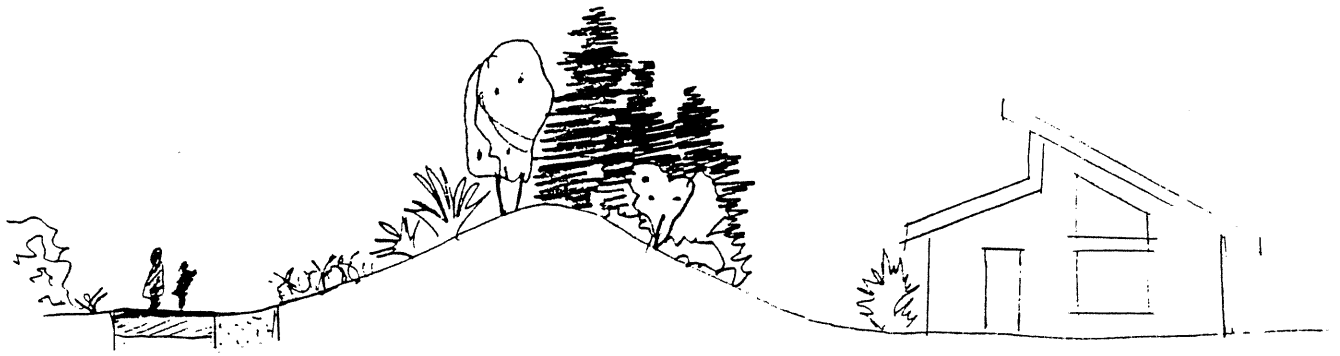
Fences (**Fig. 4-7**) or hedgerows (**Fig. 4-8**) are among other options for areas of limited space. While these barriers are instant screens, maintenance of these fences or hedgerows need to be understood so future expectations are realistic. Clear and open communication with the abutter should insure an equitable solution for all parties.

Suggestions for making fences contribute to multiple greenway objectives are found in the section on Trail Design Standards.

### **ATV Trail Crossings**

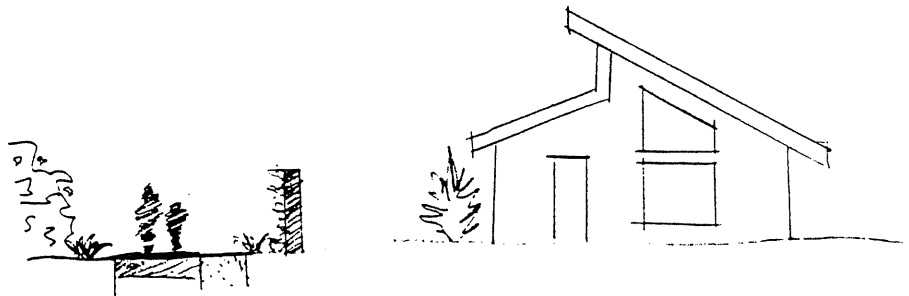
ATV trail crossings pose the same potential threats to the safety of travelers as road crossings and therefore should be given the same careful consideration. It is the opinion of the author that prohibiting ATV's from crossing the Ware River Valley Trail will cause unauthorized random crossings and ill feelings among residents leading to unsafe conditions along the trail. By designing safe ATV crossings, raising awareness and fostering cooperation among trail users positive benefits will accrue.

Since in most areas along the trail ATV crossings occur on ridges the sight lines for ATV riders as well as trail users are severely limited. To make crossings safe under these circumstances I would recommend the use of fences to compel ATV riders to stop before crossing the trails. These movable fences should be easy to manipulate and see. if necessary other impediments can be appropriately placed to restrict access. Signs should be placed before the fences to warn the drivers of their location and to explain their use. Signs warning trail users of ATV crossings are also important. By respecting the rights of

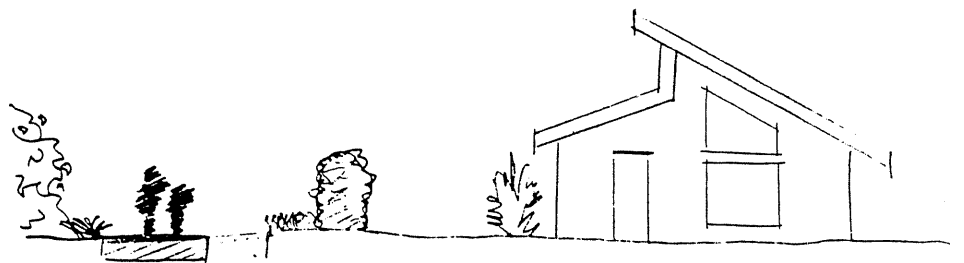


**Fig. 4-6**      **Vegetative Buffer Zone**

**Fig. 4-7**  
**Fence as Buffer Zone**



**Fig. 4-8**  
**Hedgerow as Buffer Zone**



all trail users and abutters the resultant design could provide for harmonious relations among all persons who use the trail system.

### **Parking**

Parking for the greenway trail is planned for the Banas Farm and the Wal-Mart parking lot.

The design for the Banas Farm parking area should be dependent on the town's plan for the overall use of this open space. Until such a time as the open space is developed I would encourage a gravel area at this trailhead. A simple wood rail fence or placed boulders can designate the boundaries. By creating a low cost and low maintenance parking area at this site, funds are not wasted and impervious surfaces are kept to a minimum.

Parking at the Wal-Mart parking lot will require an agreement with the management of that facility. Signs, pavement markings and like measures can be used inexpensively to delegate a specific site within the parking area for trail users.

### **Viewsheds**

To open viewsheds along the greenway corridor sensitive cutting may be necessary. The removal of trees and undergrowth should be done by a qualified professional and under the direction of the greenway designer. Care should be taken to frame views by leaving a border of existing vegetation. In the absence of a vegetative frame structures can be built that will direct the viewers attention.

Developing views is also an option. By increasing the diversity of native plant communities along the trail bursts of color and texture can be provided to walkers and riders. Structures such as bridges, arbors, bird house, kiosks and other elements can also be pleasing visual additions to the trail.

Where unique or extraordinary views are offered viewing areas, benches and shade should be considered.

### **Trail Connector Routes**

Trail Connector Routes are needed to provide linkage from the greenway trail to Grenville Park and the Ware School Campus on Palmer Road. The use of town streets for connector routes is a viable option when publicly owned open space is not available for

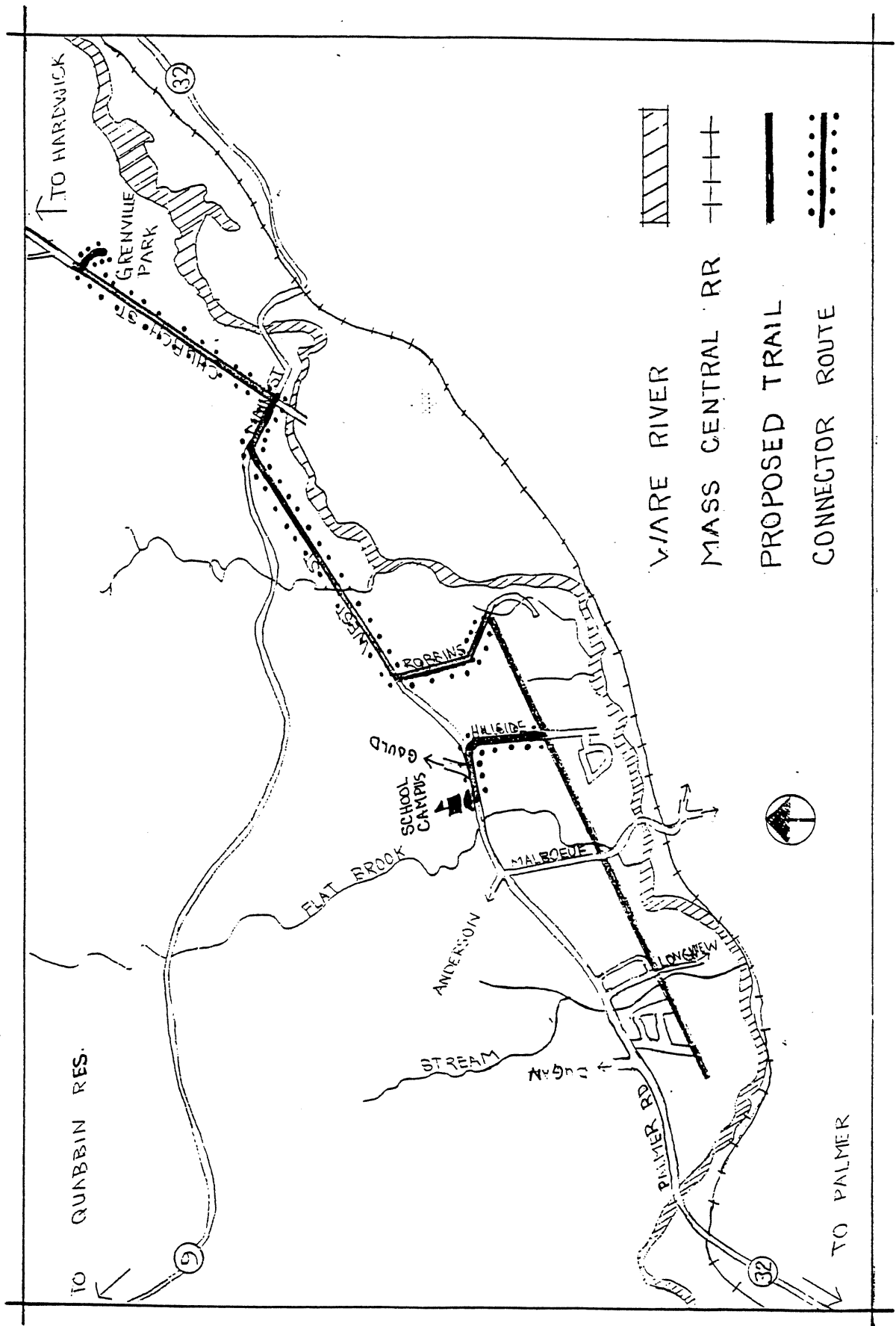
this purpose. Safety and convenience are the key issues to a successful link. Residential Streets have the advantage of less traffic. However commercial streets more often provide the width necessary for safe travelling and crossing. Routing trail traffic through a commercial area also gives the trail greater exposure, and the commercial district increased traffic.

Ideally streets will have sufficient room for a bike path. This can sometimes be accomplished by designating no parking areas. Sight lines are also important for both bicyclists and motorists. Signs, street markings, street trees, and posts with light fixtures and/or banners are elements that can be used to identify connector routes.

Map 4-1 offer suggestions for connector routes to Grenville Park and the Ware School Campus.

### **Dumping and Debris**

A substantial improvement will be realized in the area between the Wal-Mart terminus and Longview Avenue with the construction of the railway. This is the area of the corridor that is most affected by dumping. By removing the accumulated debris and halting future dumping, the area will become a natural transportation corridor to the nearby shopping area.



- WARE RIVER
- MASS CENTRAL RR
- PROPOSED TRAIL
- CONNECTOR ROUTE

Map 4-1 Connector Routes

## **Environmental Impact Report**

The following information is provided for compliance with federal requirements of environmental protection and historic preservation. In essence this information is a condensed review of the site assessment provided in Chapter 2.

### **Wetlands**

Will bordering vegetated wetlands, salt marsh or tidelands be dredged, filled removed or altered by the project?	No
Will any work take place in a water body (pond, lake, canal, river, ocean)?	Yes
Will any work take place within 100 feet of a wetland or waterbody?	Yes
Will drainage patterns be altered as a result of this project?	No
Is any portion of the site subject to a Wetlands Restriction Order pursuant To G.L. C. 131, s. 40A or C. 130, s. 105?	No
Is the project within estimated habitat which is indicated on the most recent Estimated Habitat Map of the State – Listed Rare Wetlands Wildlife published by the Massachusetts Natural Heritage and Endangered Species Program?	No
Has the local Conservation Commission reviewed this project?	No
Has the Conservation Commission issued a Determination of Applicability or Order of Conditions for this project?	No

### **Water Quality**

Does the project involve storm water management?	No
Will the project change drainage patterns or increase paved or impervious Surfaces?	Yes
Does the project involve dredging?	No

*A yes answer to any of the above questions may require the filling of a section 410 Water Quality Certification from the Massachusetts Department of Environmental Protection.*

Continuation of **Environmental Impact Report**

**Historic and Archaeological Resources**

Will the project affect a designated Scenic Road or land adjacent to a Scenic Road? No

Will the project involve work on or near a historic property or impact any cultural, historic or archaeological resource? No

**Section 4 (f) Lands**

Does the project include work within a publicly owned park or recreation Land? Yes

**Hazardous Material Sites**

Has the Project site previously been used for use, generation, transportation, storage, release or disposal of potentially hazardous material? Yes

Is the project site listed or adjacent to a site listed on the most current List Of Confirmed Disposal Sites and Locations to be Investigated? No

**Endangered Species**

Does the project occur in an area where there are federally listed endangered Or threatened species or critical habitat? No

Have the U.S. Fish and Wildlife Service and the Massachusetts Natural Heritage and Endangered Species Program made a determination in this regard? No