

IX. CIRCULATION

A. INTRODUCTION

Cumberland's natural geography and historical development have influenced the layout of the present circulation system. Mendon Road and Diamond Hill Road, which form the major north/south corridors through town, lay along valley floors. East/west connections were also limited by topography. Development in the 19th and early 20th centuries of the southern section of town resulted in narrow roads and traffic patterns typical of cities laid out prior to the automobile. Continued growth as a residential/commuter community has increased the traffic volumes experienced during peak periods, especially on the two north/south highways, and their interchange with Route 295, as well as on roads serving residential areas.

Land use patterns along Diamond Hill Road and Mendon Road further exacerbate traffic pressures along the roadway. Increased frontage commercial development brings additional curb cuts and attracts additional traffic. Turning, stopping, exiting and entering automobile and truck traffic impede normal through traffic flow. Highway improvements can bring temporary relief to traffic congestion; however, improving a road frequently increases the desirability and accessibility of adjacent property, which only serves to attract more traffic in the long run.

The following examination of traffic circulation in Cumberland will focus on three circulation modes: highway, rail, and bike/pedestrian. The section on highways includes the functional classification of roads, changes in traffic volumes, the location of high concentrations of accidents, and planned improvements. The highway section also includes a description of highway oriented public transportation routes and availability. The rail section includes an inventory of existing rail facilities and commuter oriented rail services. The third section includes an inventory of existing and proposed bike/pedestrian circulation routes. The analysis will identify existing and potential problem areas.

State Planning Act Requirements

According to the R.I. Comprehensive Planning and Land Use Regulation Act, the Circulation Element “Shall consist of the inventory and analysis of existing and proposed major circulation systems, street patterns, and any other modes of transportation in coordination with the land use element”. The policies and implementation techniques must be identified for inclusion in the implementation program element.

The Act also requires consistency with State Guide Plan Elements:

- 110 Goals & Policies
- 121 State Land Use Policies and Plan
- 611 Transportation 2020: GTP
- 620 Transportation System Management Plan
- 621 Policy Statement: Public Transit
- 661 Freight Rail Plan

B. INVENTORY

1. Highway System

Cumberland’s highway system consists of four categories of roads; these classifications are determined by the RI Department of Administration Statewide Planning Program. This section consists of a discussion of this functional classification system, changes in traffic volumes on major roads over the past twenty years, an analysis of traffic accidents, and recent and proposed improvements to the road system.

Functional Classification

Roads and highways throughout the state are grouped into classes or systems that are based upon the road's intended character of service. The method of classification assumes that all roads serve two basic functions: direct access to property and travel mobility. Distinctions are made as to the varying degrees that a road accomplishes these basic functions. Table IX-1 describes the functional classification system. Figure IX-1 shows the functional classification of roads and highways in Cumberland according to the Rhode Island Statewide Planning's Highway Functional Classification System for the State of Rhode Island, 2005-2010.

Table IX-1 Functional Classification System

Functional Classification	Description	Federal-Aid Funding Category	Jurisdiction
Interstate	Provide the highest level of travel mobility and no direct property access.	Interstate	State
Principal Arterial (connecting)	Provides a high level of travel services for a long, uninterrupted distance and are connecting links of rural arterials	Primary	State
Principal Arterial, (non-connecting)	Provides a high level of travel service for long, uninterrupted distance	Urban	State
Minor Arterial	Meets local access and circulation requirements.	Urban	State
Collector	Provide service to built up areas of towns and traffic generators of regional importance that are not directly served by arterials	Urban	Municipal
Local	Roads not designated as a state road under the functional classification guidelines and primarily provide direct access to property	---	Municipal

Table IX-2 2005-2015 Functional Classification Mileage

INTERSTATE (URBAN)

SEGMENT NAME	FROM	TO	MILES
I-295	LINCOLN TL	NORTH ATTLEBORO TL	3.20

OTHER PRINCIPAL ARTERIALS (URBAN)

SEGMENT NAME	FROM	TO	MILES
BROAD STREET	CENRAL FALLS TL	MENDON RD	1.50
DEXTER STREET	BROAD STREET	MASS STATE LINE	0.70
DIAMOND HILL ROAD	HIGH STREET	WRENTHAM ROAD	7.75
GEORGE WASHINGTON HIGHWAY	LINCOLN TL	MENDON RD	0.10
MENDON ROAD	LINCOLN TL	WOONSOCKET CL	6.75
WOONSOCKET IND. HIGHWAY	LINCOLN TL	WOONSOCKET CL	0.30
WRENTHAM RD	WOONSOCKET CL	MASS STATE LINE	2.90
Total			20.90

MINOR ARTERIALS (URBAN)

SEGMENT NAME	FROM	TO	MILES
ANGELL ROAD	MENDON ROAD	DIAMOND HILL ROAD	1.55
JOHN STREET	LINCOLN TL	BROAD STREET	0.30
MANVILLE HILL ROAD	NEW RIVER ROAD	MENDON ROAD	0.70
MARSHALL AVENUE	MENDON ROAD	DIAMOND HILL	0.55
NATE WHIPPLE HIGHWAY	MENDON ROAD	MASS SL	4.25
WEST WRENTHAM ROAD	MENDON ROAD	PINE SWAMP ROAD	2.50
HIGHLAND CORPORATE PARK DRIVE	RI-99	WOONSOCKET CL	2.50
Total			11.35

Table IX-2 (Con't) 1995-2000 Functional Classification Mileage, Cumberland, RI

COLLECTORS (URBAN)			
SEGMENT NAME	FROM	TO	MILES
ABBOTT RUN VALLEY RD	MASS STATE LINE	NATE WHIPPLE HGY	2.50
ABBOTT STREET	MILL STREET	HIGH STREET	0.25
ALBION ROAD	SCHOOL STREET	MENDON ROAD	0.70
BEARHILL ROAD	DIAMOND HILL ROAD	ABBOTT RUN VALLEY ROAD	1.00
BLACKSTONE STREET	BROAD STREET	HIGH STREET	0.30
ELDER BALLOU MEETINGHOUSE ROAD	WOONSOCKET CL	W. WRENTHAM ROAD	0.35
ENGLAND STREET	DEXTER STREET	HIGHLAND AVE.	0.50
FORESTDALE DRIVE	ALBION ROAD	SOUTHWOOD DR	0.25
HIGH STREET	ABBOTT STREET	DEXTER STREET	0.60
HIGHLAND AVENUE	HIGH STREET	ENGLAND STREET	0.45
HILLSIDE ROAD	DIAMOND HILL ROAD	ABBOTT RUN VALLEY ROAD	0.60
HINES STREET	HIGH STREET	BEAR HILL ROAD	1.25
KAY STEET	MT PLEASANT	MENDON ROAD	0.45
LEIGH STREET	I-295	PINE ROAD	0.75
LITTLE POND ROAD	LIPPIT AVENUE	NATE WHIPPLE HWY	1.30
MARTIN STREET	LINCOLN TL	MENDON ROAD	0.45
MILL STREET	MENDON ROAD	BROAD STREET	0.25
MILL STREET	BROAD STREET	SPRING SREET	0.35
MT PLEASANT VIEW AVE	KAY STREET	MANVILLE ROAD	0.40
PINE ROAD	LITTLE POND ROAD	LEIGH ROAD	0.20
SCHOOL STREET	LINCOLN TL	ALBION ROAD	0.05
SECOND AVENUE	WOONSOCKET CL	VIVIAN AVENUE	0.10
SOUTHWOOD DRIVE	FORESTDALE DRIVE	WESTWOOD DRIVE	0.30
SPRING STREET	MASS SL	MILL STREET	0.35
VIVIAN AVENUE	SECOND AVENUE	MENDON AVENUE	0.10
WESTWOOD DRIVE	SOUTHWOOD DRIVE	MENDON ROAD	0.20
Total			14.50

Traffic Volumes

Traffic volumes are generally measured by annual 24-hour average daily traffic counts (AADT); this data is collected by the Rhode Island Department of Transportation. Figure IX-1 shows the AADT for Cumberland roads in 2000, compared with that of 1989. Long term traffic count data for Cumberland is available for very few locations. A review of all available 24 hour or greater traffic volume counts indicate that traffic volumes at other key locations in Cumberland have been rising as well. Change in Traffic volumes can be seen in Figure IX-1

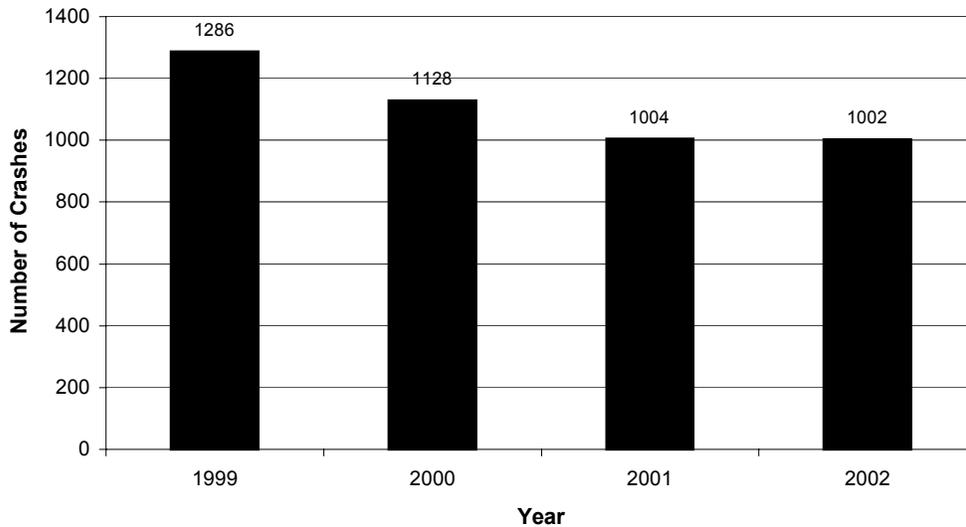
Traffic along Interstate Route 295 has risen dramatically over the past thirty years. From 1982 to 1989 the AADT increased by over 70 percent. In the next decade, traffic volume more than doubled. Different variables affect the volume growth on each highway classification. Volume growth on Interstate Route 295 may or may not affect local traffic. The increase in traffic on Route 295, however, is consistent with the traffic volume increases experienced on the local roads.

It must be recognized that traffic volume does not remain constant during the course of a day. AADTs do not distinguish between peak and off-peak hours of travel. Although specific data on traffic volumes at peak periods as compared to less congested times is not available, participants of a Growth Management Workshop held in 2002 identified a recent growth in congestion during peak periods at intersections, traffic signals, and shopping plazas.

Traffic Accidents

The recent accident data for Cumberland was obtained from the Cumberland Police Department, who have been collecting such data since 1999. Table IX-4 shows number of traffic accidents per year from 1997-2002, and shows a 22 percent decrease in traffic accidents during that time frame. This data cannot be directly compared to accident data contained in the 1991 Plan, as that information was obtained from the RIDOT's Accident Location Reporting System (ALRS), which is no longer in use. In general terms, the number of accidents per year has risen since the original Plan was developed, but has decreased slightly in the most recent years.

Figure IX-2 Number of Traffic Accidents, 1999-2002



It is noteworthy that the number of fatal accidents remained fairly stable, ranging from 1-5 per year; this is likely a result of increased vehicle safety.

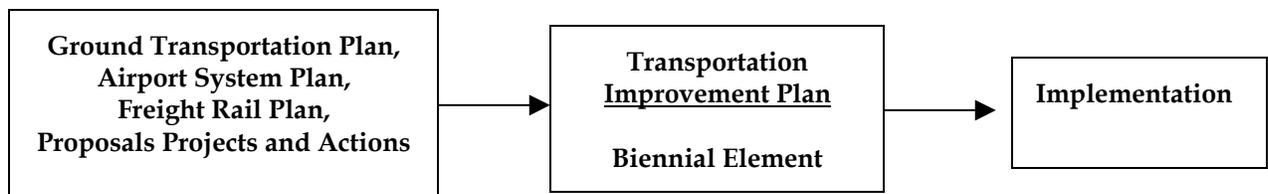
In addition to overall accident data, intersections with significant numbers of accidents in recent years were also identified. Intersections with the five highest numbers of accidents were identified for the years 2001-2003. Three intersections stand out as having the highest incidence of traffic accidents: Mendon Road at I-295, Diamond Hill Road at I-295, and Chapel Four Corners (Diamond Hill Rd/Angell Road). Both the Mendon/I-295 and Chapel Four Corners were identified in the 1991 Plan as locations with high rates of accident occurrences. Other locations with high numbers of accidents were other intersections with Mendon and Diamond Hill Roads, and several intersections with Broad Street. While these are areas where high traffic volumes occur and it is therefore expected to have higher rates of accidents, these intersections should be studied in order to improve safety.

The Cumberland Police Department publishes accident data in its Annual Report. The Police Department has recently begun gathering data on traffic counts as well as accidents. It would be beneficial for Cumberland's residents to have access to this data, possibly via inclusion in the Annual Report.

Road Improvements

The Rhode Island Department of Administration Statewide Planning Program is responsible for the development of a biennial Transportation Improvement Program (TIP). The TIP lists those projects which the state intends to work on during a six-year period; Figure IX-3 shows the planning process used in implementing transportation projects.

Figure IX-3 Transportation Improvement Planning Process



Up to 20- year time frame.

Provides for long- term needs for movement of people and goods.

Establishes goals and policies. Analyzes alternative approaches to meeting transportation needs at the systems level. Proposes major capital investments, operational or management changes, and programs for meeting special transportation needs. Recommends strategies for achieving these.

3- year time frame.

Defines and schedules projects and actions that carry out transportation recommendations.

Includes new construction, upgrading of existing facilities, acquisition of right- of- way and equipment, and operating assistance. Describes programs meeting special transportation needs.

Immediate

Preliminary engineering, design, preparation of environmental impact statements.

Acquisition of right- of- way. Construction or reconstruction of facilities.

Acquisition of equipment.

Operation of facilities and services.

Source: 2002-2004 Transportation Improvement Program

Several projects are currently programmed for completion in Cumberland. Table IX-4 summarizes the projects for Cumberland that were included in the most recent TIP.

Preliminary projects have no associated target date.

Table IX-4 Proposed Transportation Improvements

FUNCTION	FUNCTION	PHASE	YEAR
Rawson Road Bridges #457 & 460	System Preservation	Construction	2007
Howard Road Bridge #459	System Preservation	Construction	2008
Lonsdale Mill Village Improvements TEAC-103	System Management/ Enhancement	Construction	2003
Manville Access/Blackstone Navigation Sys	System Management Enhancement	Construction	2003
Scott Road I-295 Overpass to Little Pond County Road	System Preservation Pavement management	Preliminary evaluation	N/A
Martin St. Mendon Rd to Martin St. Br	Study and Development	Preliminary evaluation	N/A

SOURCE: Transportation Improvement Program for the State of Rhode Island, October 1 2002 to September 30 2004, Statewide Planning Program, RI Department of Administration

Status of Projects Identified in the 1991 Plan

The 1991 Plan included projects from the 1989-1995 TIP, as well as RIDOT's 1987 Highway Improvement Plan (HIP - identified projects outside the TIP's 6-year timeframe). All but one of the projects identified in the TIP have been completed; renovations to the Berkeley Bridge are included on the most recent TIP and construction is scheduled to begin in the near future. Several projects included in the 1987 HIP have been included in the most recent TIP: remediation the Howard Road, Rawson Road, and Rawson Canal Bridges, as well as study and development of improvements to Martin Street. Abbott Run Valley Rd improvements will be constructed using funds from a local bond. Table IX-5 shows the status of all highway improvement projects from the 1991 Comprehensive Plan.

Table IX-5 Status of Projects from 1991 Plan

Project	1991 Status	2003 Status
Berkeley Bridge #769	1989-1995 TIP	2002-2004 TIP (2003)
Church Street RR Bridge #943	1989-1995 TIP	Complete
Mendon Road – Broad	1989-1995 TIP	Complete
Woonsocket Industrial Hwy	1989-1995 TIP	Complete
Route 116/Route 122	1989-1995 TIP	Complete
Chapel Four Corners Intersection	1989-1995 TIP	Complete
Howard Road Bridge # 459	1987 HIP	On TIP (2007)
Rawson Road and Rawson Canal Bridges #457 & #460	1987 HIP	On TIP (2008)
Rte 114 (Diamond Hill Road) Marshall Ave to Wrentham	1987 HIP	Complete
High Street Dexter street to Marshall Ave.	1987 HIP	Complete
Martin Street – Lincoln TL to Mendon Rd	1987 HIP	On TIP (study & dev't)
Abbott Run Valley RD Nate Whipple Hwy to Mass SL	1987 HIP	Will be completed as a local, bond-funded project

Public Transportation

Bus Service: Three Rhode Island Public Transportation Authority (RIPTA) bus routes provide regular service in Cumberland. The bus routes are as follows:

- **Route 71** (Broad Street) - Provides access to downtown Providence, Woonsocket, the Bonanza Bus Terminal, and Lincoln Mall from stops located generally in the southern sections of Town.
- **Route 88** (Cumberland Hill/Albion- Manville) - Operates on Saturday only providing service to Lincoln Mall and downtown Woonsocket
- **Route 90** (Park and Ride) - Express bus service on weekdays mornings from the Chimney Hill Apartments (near the intersection of Albion Road with Mendon Road) to Lincoln Mall and on to Providence. This service also runs on weekday evenings for the return trip. There is also service from Lincoln Mall to

Providence via Pawtucket to Woonsocket.

Paratransit/Elderly Transportation - The Cumberland Senior Center owns and operates a van transportation service for members of the Center. However, the van is old and requires replacement. Transportation for regional workshops, meal sites, medical treatment, and purposes is also available to segments of the elderly and disabled population from operators including:

- Northwest Transportation Services (Woonsocket)
- Blackstone Valley Chapter, RIARC (Pawtucket)
- Comprehensive Older Adult Services, Inc. (Pawtucket)
- R.I. Chapter of the National Multiple Sclerosis Society (Cranston)
- United Cerebral Palsy of R.I. (Pawtucket)
- RIPTA - RIDE Program (ADA Complementary Paratransit Service)

2. Rail Transportation

The Providence and Worcester (P&W) railroad provides the only interstate freight service in Rhode Island; one of its principle yard operations is located in the Valley Falls area of Cumberland. While no commuter railroads or stations are located within Cumberland itself, several are located in the vicinity of the town. Figure IX-1, which illustrates the location of railroads and depots in and near the Town.

Commuter Rail

Commuter rail service to Boston via the Massachusetts Bay Transit Authority (MBTA) commuter rail is available within a short driving distance in Attleboro and South Attleboro, Massachusetts as well as in Providence, Rhode Island. AMTRAK scheduled service is also available with direct connections to locations along the northeast corridor such as New York, Philadelphia, Baltimore, and Washington, D.C. The new AMTRAK Acela Express is available at the Providence station for high-speed service to Boston, MA and Washington, DC.

Freight

The P & W main freight rail line generally follows the historic Blackstone River/Canal

route. Figure IX-1 shows the location of railroads in Cumberland. Several spurs and sidings provide direct rail access to industries along the route.

The Wrentham Industrial Track was originally part of the R.I. Mining Railroad Company and later became part of the Rhode Island and Massachusetts Railroad with service from Valley Falls to Franklin, Massachusetts. The entire northern part of this route from Adamsdale to Franklin in Massachusetts was abandoned in 1941. The P & W received permission from the Interstate Commerce Commission to abandon the Wrentham line as it no longer carried any revenue traffic.

The Rhode Island State Rail Plan prepared by the R. I. Department of Transportation-Division of Planning (June 1990) identified over 400 acres of vacant land along the P & W main line in Cumberland currently industrial. Although the 1991 Plan identified this property as an opportunity for a rail supported industrial park, the development potential of this site is limited due to environmental constraints (floodplain location, CERCLA listing).

3. Pedestrian Walkways/Bike Paths

In 1991 there were no formal pedestrian walkways or bike paths in Cumberland, although plans for a linear bike path in conjunction with the Blackstone River State Park, a bikeway along Route 116, and development of hiking trails just north of Albion bridge and expansion of the trail system onto town-owned land between Manville and Albion were underway. Since the original Plan there have been several improvements to pedestrian and bicycle circulation. Additionally, the Subdivision Regulations, while already requiring the construction of sidewalks as part of any new development, are in the process of being revised to include requirements for the creation of linkages to existing bike and pedestrian paths. Construction of the Blackstone Valley Bikepath is under way. Cumberland's bikepaths are illustrated in Figure IX-1.

A series of local trails have been improved by the Recreation Department in conjunction with the Department of Public Works and the Boy Scouts. The Town is eager to continue improving its trails and is currently trying to secure funds to inventory its entire trail system, purchase a machine to assist with trail grooming, and to improve an existing trail on the Monastery. As identified in the Blackstone River Valley Corridor

Commission's 2003 report, *Trails and Greenways*, many of Cumberland's trails are not connected to one another and therefore are not as useful as they could be. The report also cites the regional Warner Trail running through Cumberland as one more important trail that could greatly benefit from improvement.

C. Findings

Land use patterns along Diamond Hill Road and Mendon Road exacerbate traffic pressures along those roadways. Increased frontage commercial development brings additional curb cuts and attracts additional traffic. Turning, stopping, exiting and entering automobile and truck traffic impede normal through traffic flow. Traffic volumes along Cumberland's principle arterials, Mendon Road and Diamond Hill Road, have increased significantly over the past two decades years. Intersections with the most frequent accidents are along Diamond Hill Road, Mendon Road, and Broad Street. The Chapel Hill Four Corners intersection also continues to be a location of high accident numbers.

Traffic problems are an important issue for many of Cumberland's residents, and will be an important component of the Town's growth management plan. While improving traffic flow is one consideration, for ease of maintenance in certain areas the effects of traffic calming methods need to be considered, especially in areas already congested where safety needs are paramount. On occasion, dead end streets may be preferable to connected streets in order to preserve neighborhoods or protect the environment.

The Pedestrian walkway and bikepath system has improved over the past decade. Extension of these alternative means of transportation, including creation of a Cumberland Greenway Trail System (identified in the Open Space Element of this Plan), is a high priority for the town.

D. Goals, Policies, and Recommendations

Goals and policies for circulation were formulated based upon the inventory and analysis of the previous sections. Recognizing the mutual compatible interests of the State and of the Town is important for formulation circulation goals. The State has formulated goals, which local plans should consider.

State Planning Act Goals

- To promote orderly growth and development that recognizes the natural characteristics of the land, its suitability for use and the availability of existing and proposed public and/or private services and facilities.
- To promote an economic climate which increases quality job opportunities and overall economic well being of each municipality and
- To encourage the use of innovative development regulations and techniques that promote the development of land suitable for development while protecting our natural, cultural, historical and recreational resources and achieving a balanced pattern of land uses.

Cumberland Circulation Goals

Goal C.1 IMPROVE AND MAINTAIN A SAFE, CONVENIENT AND EFFICIENT TRAFFIC CIRCULATION SYSTEM THROUGHOUT THE TOWN.

Policy C.1.1 Continue to encourage and cooperate with the State Department of Transportation to maintain and improve the State road system in Cumberland.

Action C.1.1.1 Establish a systematic and comprehensive program for road maintenance.

Policy C.1.2 Provide for the orderly and adequate integration of roads within existing and proposed subdivisions.

Action C.1.2.1 Modify subdivision regulations to connect adjacent

subdivisions when possible.

Policy C.1.3 Maintain the functional integrity of the existing road system by appropriate land use controls and design review standards.

Action C.1.3.1 The Town should adopt a requirement for Traffic Impact Statements in the Zoning Ordinance and Subdivision Regulations.

Action C.1.3.2 Prepare, adopt, and implement design standards for local roads based on the functional classification of these roads as part of its revisions to the Subdivision Regulations.

Action C.1.3.3 Implement the design objectives, especially the landscaping and aesthetic goals, contained in the document titled “Cumberland’s Vision: Using the Past to Enrich the Future” to transform the Town’s transportation corridors into tree-lined greenways.

Policy C.1.4 Consider the transit needs of the elderly, disabled and people without automobiles.

Action C.1.4.1 Continue providing the transportation services of the Senior Center van and continue working with RIPTA to maintain or expand the bus routes through Town.

Action C.1.4.2 Locate new housing units/complexes for the elderly, disabled and people with low to moderate incomes near the RIPTA bus routes.

Goal C.2 CORRECT EXISTING ROAD DEFICIENCIES TO IMPROVE SAFETY AND TRAFFIC FLOW.

Policy C.2.1 Encourage the State to proceed with their planned improvements to

Diamond Hill Road and Mendon Road.

Policy C.2.2 Provide for proper construction of new roads and accompanying drainage facilities.

Goal C.3 ENCOURAGE THE DEVELOPMENT OF LINEAR RECREATIONAL TRANSPORTATION FACILITIES WHICH PROVIDE AN ALTERNATIVE TO AUTOMOBILE TRAVEL.

Policy C.3.1 Plan and integrate a trail system linking major areas by pedestrian and bicycle trails.

Action C.3.1.1 Continue Development of the pedestrian and bicycle trail in conjunction with the Blackstone River Valley National Heritage Corridor.