Chapter 10
Transportation and Circulation Plan

Introduction

There is a direct connection between land use planning and transportation, one cannot plan for one and ignore the other. The transportation system will function properly only when each community has adequate access to the system. The identification of problem areas throughout a region's transportation network, as well as a logical land use plan that enables residents to make fewer vehicle trips are key components to a joint comprehensive plan.

Existing Roads

PA Route 183 (SR 0183) is the major thoroughfare through the Region. PA Route 183 connects the area to Reading to the south and to I-78 via Strausstown to the north. PA Route 183 also carries the area's highest average traffic volumes. 2005 traffic counts by the Pennsylvania Department of Transportation noted over 15,311 vehicles per day on PA Route 183 at the Bernville-Penn Township municipal boundary. Traffic volumes decrease moving northward through the Borough into Jefferson Township to the 12,000 range. Traffic volumes decrease again where PA Route 183 passes out of Jefferson and into Upper Tulpehocken Township. This reflects the fact that New Schaefferstown Road carries 4,104 trips from PA Route 183 at the two roads' intersection north of Bernville.

Roads have various functions; some roads are designed to expedite through traffic while others mainly provide access to local residential areas. Many of the roads in the Region were designed to handle rural traffic but with increased development in the Region, the roads have more traffic than they were designed for which results in substandard design.

Functional Classification of Roadways

Roads are classified by the volume of traffic that they are designed to handle and the degree of access that they provide to abutting properties. The Transportation Plan Map, Figure 10.1, includes the recommended functional classification for the Region's roads. Classifying roads by their intended function is important to decide how access onto a road should be allowed, including number of access points and how the access is designed. Functional classifications can also assist in prioritizing roads for future improvements. This functional classification of roads has other important implications as well. Rights-of-way should be wider and front yard setbacks greater on roads that carry higher traffic volumes. High volume roads should have more lanes and higher speed limits than local secondary streets.

HIGHWAY FUNCTIONAL CLASSIFICATIONS AND RECOMMENDED DESIGN FEATURES

Classification	General Provisions	Right-of-Way Width (ft)	Cartway Width
Expressway	55+ MPH Limited Access No Parking Noise Barrier/Buffer (where required)	Minimum 120; however, may be wider based on local conditions and design	Minimum four 12' wide travel lanes with 10' wide shoulders capable of supporting heavy vehicles
Arterial (Principal and Minor)	35-65 MPH Some access controls to and from adjacent development. Encourage use of reverse and side street frontage and parallel access road. No Parking	80	48-52 feet; 12' wide travel lanes with shoulders in rural area and curbing in urban areas
Collector (Major and Minor)	25-35 MPH Some access controls to and from adjacent development. Parking permitted on one or both sides.	60	34-40 feet; 12' wide travel lanes with stabilized shoulders or curbing; 8' wide lanes provided for parking.
Local	15-35 MPH No access control to and from adjacent development. Parking permitted on one or both sides.	53	28-34 feet with stabilized shoulders or curbing; cartway widths can be reduced based on interior traffic patterns.

The rural principal arterial system consists of a commercial rural road network of continuous routes having the following characteristics:

- Serve the corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel.
- Provides connections to all, or nearly all, urban areas of 50,000 and over population and a large majority of those with population of 25,000 and over.
- Provide an integrated network without stub connections except where unusual geographies of traffic flow conditions dictate otherwise (e.g., internal boundary connections and connections to coastal cities).

– Rural Principal Arterial System - The rural principal arterial system is stratified into the following two subsystems:

  Interstate System - The interstate system consists of all presently designated routes of the Interstate System located outside small urban and urbanized areas.

  Other Principal Arterial System - This system consists of all non-Interstate principal arterial highways located outside small urban and urbanized areas.

- Rural Minor Arterial System - The rural minor arterial system should, in conjunction with the principal arterial system, form a rural network having the following characteristics:

  - Link cities and towns (and other generators, such as a major resort area, that are capable of attracting travel over similarly long distances) and form an integrated network providing interstate and inter-county service.

  - Be spaced at such intervals, consistent with population density, so that all developed areas are within a reasonable distance of an arterial highway.

  - Provide service to corridors with trip lengths and travel density greater than those predominately served by rural collector or local systems. Minor arterial highways therefore constitute routes whose design should be expected to provide for relatively high overall travel speeds, with minimum interference to through movement.

- Rural Collector Road System - The rural collector routes generally serve travel of primarily intra-county rather than statewide importance and constitute those routes on where predominate travel distances are shorter than on arterial routes. Consequently, more moderate speeds may be typical, on the average.
  To define more clearly the characteristics of rural collectors, this system should be sub-classified according to the following criteria:

  - Major Collector Roads - These routes should: (1) Provide service to any county seat not arterial routes, to the larger towns not directly served by higher systems, and to other traffic generators of equivalent inter-county importance, such as a consolidated school, shipping points, county parks, important agricultural areas, and so forth; (2) Link these places with nearby larger towns or cities, or with routes of higher classification; and (3) Serve important intra-county travel corridors.

- Minor Collector Roads - These routes should: (1) Be spaced at intervals, consistent with population density, to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road; (2) Provide service to the remaining smaller communities; and (3) Link the locally important traffic generators with their rural hinterland.

- Rural Local Road System - The rural local road should have the following characteristics: (1) Serve primarily to provide access to adjacent land; and (2) Provide service to travel over relatively short distances as compared with collector roads or other highway systems. Local roads will, of course, constitute the rural mileage not classified as part of the principal arterial highway, minor arterial, or collector road systems.

The area's roads can be classified as follows:

Arterials – Roads that provide a rapid connection between populated areas, such as between Reading and Bernville.

- PA Route 183 (SR 0183)

Collectors – Roads that collect traffic from local areas and funnel it onto arterials.

- New Schaefferstown Road (SR 4016)
- Christmas Village Road (SR 4010)
- Shartlesville Road/Main Street/North Garfield Road (SR 4020)
- Irish Creek Road
- Old Church Road
- North Heidelberg Road

Locals – Roads that provide direct access to residential areas.

- All other roads in Jefferson and Bernville.

IMPORTANCE OF TRANSPORTATION

Transportation affects the daily lives of most people. It is important to understand the impact of transportation needs on an area. One aspect of transportation needs is travel to and from work. The U.S. Census provides information that can be used to determine the circulation needs of a community. The following chart shows the methods used for commuting to work for the Region's labor force 16 years and older in 2000.

COMMUTING TO WORK - 2000

	Penn Township		Jefferson Township		Bernville Borough	
	Number	Percent	Number	Percent	Number	Percent
Workers 16 years and over	1090		799		450	
Drove alone to work	941	86.3%	648	81.1%	389	86.4%
Carpooled	55	5.0%	94	11.8%	32	7.1%
Public Transportation (including taxicabs)	0	0	0	0	0	0
Walked to work	46	4.2%	7	.9%	13	2.9%
Other means	1	.1	0	0	5	1.1
Worked at home	47	4.3%	45	5.6%	11	2.4
Mean travel time to work (minutes)	22.3		27.1		21.7	

Source: U.S. Census Bureau

The majority of workers 16 years of age and older, in the Region drove alone to work. Jefferson Township had 81% of their workers that drove alone to work as compared to Bernville Borough and Penn Township that each had 86% that drove alone. Jefferson Township had 11.8% of its workforce carpooling to work while Penn Township had 5% and Bernville Borough had 7%. Of note, 4.2% of Penn Township workers walked to work while only 2.9% of Bernville Borough workers walked. Jefferson Township had .9% of workers walking to work. Public Transportation was taken by no one, illustrating that there is a lack of public transportation in the Region. The mean travel time to work was 22.3 minutes for Penn Township, 27.1 for Jefferson Township and 21.7 for the Borough of Bernville. Both Penn Township and Bernville Borough were less than the Pennsylvania mean travel time which is 25.2 minutes and the National mean travel time to work, 25.5 minutes. Jefferson Township was higher than both with a mean travel time to work of 27.1 minutes.

Since the reliance on the automobile is so strong in the Region, it is very important that transportation and circulation issues are addressed.

Addressing transportation issues has three critical benefits:

- It increases the quality of life for the residents by facilitating circulation and making travel safer.

- Attractiveness of the Region as a destination and place of work or residence can be enhanced if congestion is mitigated; and, the level of service and visual attractiveness of area roads are maintained.

- PA Route 183, is considered the main economic growth corridor of the Region. Providing a well maintained transportation system is necessary to support optimum economic development.

COMPOSITION OF THE CIRCULATION NETWORK

Municipal and State road mileage for the Townships are listed below in Table 10.1.

Table 10.1: Road Miles

Municipality	State Miles	Municipal Miles	Total
Bernville Borough	1.15	4.75	5.9
Jefferson Township	16.80	26.57	43.37
Penn Township	21.34	26.86	48.20

Bernville has 5.90 miles of roadway: 1.15 miles of state roads and 4.75 miles of Borough roads. PA Route 183, Shartlesville Road, Main Street, North Garfield Road and on a portion of 2nd Street (between Main Street and PA Route 183) are the only state-owned roads in Bernville.

Jefferson Township has 43.37 miles of roads. This mileage is comprised of 16.80 miles of state-owned roads and 26.57 miles of municipally-owned roads. State-owned roads in Jefferson include PA Route 183, New Schaefferstown, Christmas Village, Shartlesville and Summer Mountain Roads.

Penn Township consists of 48.20 miles of roads. There are 26.86 of municipal miles and 21.34 of State roads. State owned roads are PA Route 183, Robesonia Road, Plum Creek Road, Shartlesville Road, Grange Road, Irish Creek Road, and Church Road.

Road Conditions

Road conditions vary between Penn and Jefferson Townships and Bernville Borough. Penn and Jefferson's rural character and varying topography create many situations not

prevalent in the Borough. The following are concerns in regard to several of Jefferson's roads including both state-owned and township-owned roads.

- Areas of poor sight distance, with buildings, slopes, curves, fences, parked vehicles or trees obstructing views of on-coming traffic,

- Streets intersecting at awkward angles, which obstructs sight distance and may encourage drivers to not come to a complete stop at intersections,

- Areas of sharp curves, which limit sight distance and may cause a driver to lose control,

- Intersections that are not aligned on both sides of a road, causing confusion to drivers making turns,

- Areas of steep slope, which are especially slippery during rainy, snowy or icy weather.

Specific concerns in Jefferson Township focus on New Schaefferstown Road, Koenig Road and existing unpaved roads. The 55 mph speed limit along New Schaefferstown Road is considered too fast by some Township residents, particularly from New Schaefferstown village to Pearl Road/School Road. The intersection of New Schaefferstown and PA Route 183 presents difficulties in terms of sight distance and alignment.

Penn Township's concerns are very similar to Jefferson with improper road alignments, insufficient sight distances or high volume roads at a high rate of speed. The intersections of Mt. Pleasant Road, Old Church Road, Plum Creek Road, Shartlesville Road and PA Route 183 are difficult and dangerous intersections due to speed and sight distances.

Bernville's traffic and roadway concerns focus around PA Route 183 and Main Street. Borough officials and other residents have indicated the need for a traffic signal to permit easier access from Third Street onto PA Route 183 . Similar concerns have been raised concerning the intersection of Shartlesville Road and PA Route 183, though this is actually located in Penn Township just outside the Borough boundary.

Public Transportation

No fixed route bus or passenger rail service exists in Penn, Jefferson or Bernville. Nor is there any realistic prospect of gaining these services in the foreseeable future.

BARTA, The Berks Area Reading Transportation Authority, was formed in 1973 after the City of Reading and Berks County purchased the assets of the former Reading Bus

Company. BARTA operates a fixed route bus service in the urban area of the County plus provides door-to-door on-demand van service to elderly and handicapped citizens throughout the County.

Long distance, inter-city bus service is provided by Capital Trailways and Bieber Tourways. Capital Trailways provides daily service from Reading to Philadelphia with a direct route and a route with stops depending on the time of departure. A route between Reading and Lebanon and Harrisburg via U.S. 422 is also available with service to Allentown and Pottsville. Bieber Buses provide service between Kutztown and Reading, plus offer routes to Atlantic City and New York.

Rail Service

There is no freight rail service or passenger rail service in the Region. The Norfolk Southern owns and operates the majority of railroad lines in the County. The majority of the activity occurs in the City of Reading with the line going from Harrisburg through Reading to Philadelphia.

The Reading Blue Mountain and Northern Railroad provides short line service to shippers on the Schuylkill Secondary Line that goes between Temple and Hamburg. Additional short line services run to northeastern Pennsylvania, Kutztown and Topton, and Pottstown to Boyertown.

AMTRAK has a commuter rail terminal in downtown Lancaster, Philadelphia and Harrisburg, both within a one to one and one-half hour drive.

Aviation

The nearest airport is the Reading Regional Airport approximately ten miles away. There are three charter services based at Reading. Additionally, there are Corporate and other general aviation aircraft operating out of the airport.

The nearest passenger, commuter, and charter air service are located between 55 and 65 miles away. They are Lehigh Valley International Airport (ABE), Philadelphia International Airport (PHL), and Harrisburg International Airport (MDT).

Two private airports are close to the planning region. Grimes Airport has a 2860 foot turf runway and is located in Bethel Township, north of Interstate 78. It provides fuel, minor maintenance, radio, and hangar facilities. Kutztown Airport is located east of the region in Maxatawny Township and includes a 2,068 foot turf runway and a 1,938 paved runway. Services provided are radio, fuel, maintenance and hangar facilities. The airport is the local center for sailplane activities in the County.

Pedestrian and Bicycle Access

The Borough of Bernville has an extensive network of sidewalks existing along most streets. The Village of New Schaefferstown in Jefferson Township also contains some sidewalks. In Bernville and New Schaefferstown gaps or missing links, poor conditions of certain segments and noncompliance with the Americans with Disabilities Act (ADA), hinders maximum and efficient use of sidewalks by pedestrians.

Recreational trails for hiking and biking are mainly located at Blue Marsh Lake.

The Berks County Open Space and Recreation Plan lists future trails along the Northkill Creek and Tulpehocken Creek as a high priority.

Bernville should initiate a sidewalk improvement program to reconstruct deteriorating sidewalks and to establish sidewalks where none now exist along the Main Street corridor and selected streets that connect to Main Street.

Opportunities exist for multi-purpose greenways in each community. Greenways are linear parks and open space corridors of all kinds, and may include walkways, bikeways, hiking trails, jogging paths, nature trails and/or simply wildlife habitats. The Army Corps of Engineers has a loop trail around Blue Marsh Lake.

Transportation Goal:

> Achieve a safe, efficient, multi-modal, and cost effective regional circulation system which will enhance pedestrian and bicycle movement, ease vehicular travel within the municipalities, minimize adverse impacts.

Objectives:

- Encourage regionally-oriented traffic to utilize regional arterial highways and discourage this traffic from using locally-oriented collector roads.

- Eliminate deficiencies in the Region's roadway network pursuant to the Transportation Plan concepts of this plan.

- Identify and generally set priorities for projects which are appropriate for inclusion on Berks County's Twelve-Year Transportation Improvements Program.

- Monitor opportunities and need for transit service in the Region with BARTA.

- Consider low-cost physical improvements to new roads and roads undergoing upgrading to accommodate bicyclists pursuant to municipal recreation plans and review of development plans.

- Improve the appearance of the PA Route 183 Corridor through adoption of design and performance standards.

- Establish roadway maintenance programs for each municipality to prevent deterioration and ensure safety of the existing road system.

- Manage access along roads pursuant to the Transportation Plan Concepts and adopted ordinance provisions.

- Work to enhance mobility for the elderly, the physically impaired, and those who do not own or lease an automobile.

- Address parking needs on Main Street in Bernville.

- Establish consistent signage policies along roads within the Region.

- Monitor impacts on roadway capacity from new development and require developers to address projected increased traffic volumes in the road system by improving the existing system.

- Encourage the development of a bicycle and pedestrian network that enhances connections between neighborhoods and activity centers such as the Blue Marsh Lake trail system that can serve as a regional recreation amenity, and that can contribute to maintaining community health.

Actions:

A. Update zoning ordinances as necessary.

1. Include access management standards in zoning and/or subdivision and land development ordinances as determined by the Townships and Borough:

a. Establish access location standards

b. Establish access point separation requirements

c. Require access to streets of lower functional classification

d. Require internal road systems

e. Require coordinated/shared ingress and egress

f. Require interconnection of properties, including access, parking, loading

g. Establish separations from intersections

h. Require coordinated traffic movements

i. Require acceleration and deceleration lanes where appropriate

j. Require left and right turn lanes where appropriate

k. Refine design standards for intersections, driveways, internal circulation, and parking lot design

l. Minimize entrances to roads

m. Prohibit inappropriate turning movements

n. Consider signalization of high volume driveways

o. Refine location, size, and design requirements for billboards and signs.

2. While particularly crucial along the PA 183 Corridor, access should be managed along all roads within the Region.

3. In mixed use areas, where pedestrian activity can be higher, discourage curb cuts over sidewalks to limit pedestrian/vehicular conflict.

B. Update subdivision and land development ordinances as necessary.

1. Establish appropriate design standards for each functional classification of road. Safe, buffered, and sufficiently set back bike and pedestrian lanes can be included in the cross-sections with consideration given to the Pennsylvania Statewide Bicycle and Pedestrian Master Plan and Guide for the Development of Bicycle Facilities by American Association of State Highway and Transportation Officials (AASHTO). Bike and pedestrian lanes may be required on those roads deemed appropriate by the municipality.

2. Require traffic impact studies for proposed developments. Such studies require analysis of existing circulation conditions, the impact of proposed development and resulting circulation conditions and the need for traffic improvements to adequately support the development.

3. Establish appropriate standards for driveway design and access to streets for access management. Coordinate with zoning ordinance design standards and access management provisions. Plans should be reviewed for access management concerns.

4. Require developers to recognize existing and planned trails and to provide new trails. Standards for trails can be included in the Ordinances. Sufficient rights-of-way and easements may be required during the review process.

5. Require developers to provide pedestrian paths and sidewalks to enhance foot traffic.

6. Request right-of-way dedication along existing roadways to meet design standards.

7. Require necessary roadway improvements along the frontage of developments.

8. Review setback and building location policies along major road corridors to refine regulations that will facilitate future road improvements.

C. Consider the adoption of Official Maps designating proposed public facilities, streets, intersection and road improvements, bike paths, and trails.

D. Establish pedestrian pathway improvement programs to enhance foot traffic in the Region, as well as provision of trails to provide improved access to schools, local shopping areas, community facilities, and employment opportunities. ADA requirements should be complied with.

E. Work with PennDOT to ensure adequate maintenance of roads with substantial volumes of truck and school bus traffic as well as automobile traffic.

F. Consider the adoption of Transportation Impact Fee ordinances to be used by the Townships and Borough individually or jointly and require land developers to address needed transportation improvements in the Region.

G. Work with PennDOT and the municipalities to establish appropriate speed limits, reducing them as necessary, in developed areas.

H Prepare multi-year programs for street maintenance and improvement.

I. Develop access management plans in cooperation with PennDOT to address access to major roads and access design standards. Encourage cooperative efforts of landowners to manage and share access.

J. Encourage landowners to cooperate with PennDOT and the municipalities in the redesign of existing strip development areas to manage access and improve streetscapes.

K. Coordinate utility and road improvements so that utilities are constructed before road improvements are made.

L. Require property owners to keep street rights-of-way available for required improvements and pedestrian systems.

M. Work together as a Region with the County, RATS, Legislators, and PennDOT to list needed transportation improvements on the Twelve-Year Transportation Program.

N. Work with transportation organizations and agencies providing services to seniors to facilitate mobility of seniors by determining desired destinations and means of providing access to those destinations.

Reading Area Transportation Study (RATS)

The Berks County Planning Commission is the lead agency for the Region's Metropolitan Planning Organization, RATS. As the lead agency, the BCPC performs all tasks associated with the Unified Planning Work Program (UPWP). This includes Clean Air Act requirements, development of the PennDOT Twelve Year Program for Berks County, Transportation Enhancements, functional classification updates, and traffic volume counts.

Activities include:

- Transportation Planning Studies
- Development of the Twelve Year Program for Berks County
- Traffic Volume Counts
- RATS Transportation Improvement Program (TIP)

Recommended Road Improvements

Intersection Improvements, Realignment, and Widening Projects

The following transportation improvements in the Region should be included in future transportation capital improvement budgets, as well as the PennDOT Twelve-Year Program where applicable. These intersections or roads have been identified as having one or more of the following characteristics: poor sight distance; bad alignment; lack of proper signage or signalization; insufficient width; and / or lack of turning lanes.

	Jefferson Township	**Penn Township**	**Bernville Borough**
Suggested Intersection Improvements			
	New Schaefferstown Rd. and PA Route 183	Old Church Road and PA Route 183	Traffic Light at PA Route 183 and Third Street
	School Road and New Schaefferstown Road	Mt. Pleasant Road and PA Route 183	
		Add turn lanes to Shartlesville Road and PA Route 183	
		East Tulpehocken Drive and PA Route 183	
		Plum Creek Road and PA Route 183	
Realignment/New Road Section			
	New Schaefferstown Road. and PA Route 183	Realign intersections of PA Route 183, Robesonia Road, and Beyerle Road	
Road Widening/Repairs			
	PA Route 183 and New Schaefferstown Road, widen shoulder for right turn	Shartlesville Road (at elementary school)	Main Street – repaving, improve grading and drainage
	School Road at New Schaefferstown Road	Plum Creek Road – Widen Bridge	
	Widen Koenig Road between Groff Road and Clubhouse Road		
	Tannery Road - Resurfacing		
	Smith Lane - Resurfacing		
Other Improvements			
	Host Church Road Bridge Repair	Recommend reduced speed limit in Mt Pleasant area	

LONG RANGE PLANNING

The Reading Area Transportation Study (RATS), the Metropolitan Planning Organization (MPO) for Berks County, was created in 1964 through a legal agreement between the City of Reading, Berks County, and the Pennsylvania Department of Highways (now the Pennsylvania Department of Transportation). According to the Federal-Aid Highway Act of 1962, any urban area with a population of more than fifty thousand people must maintain a continuing, comprehensive and cooperative ("3C") transportation planning process consistent with the comprehensively planned development of the urbanized area in order to be eligible to receive Federal funding for transportation projects. RATS enables Berks County to be eligible to receive state and federal funding for highway and transit system capital improvements and operations.

An area was delineated as the Reading urban area in accordance with the U.S. Bureau of Census boundaries for the Reading urbanized area and the identified area became the subject of continuous transportation planning which has proceeded from 1964 to date. In 1992, in response to both the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the Clean Air Act Amendments (CAAA) of 1990, the study area was expanded to cover all of Berks County. This encompasses 864 square miles and includes 74 municipalities that have a 2000 Census population of 373,638. Additionally, the 2000 Census indicated that the Reading urbanized area contained a population of 240,264. On July 8, 2002, the Reading MPO was officially designated as a Transportation Management Area (TMA) and is therefore subject to additional planning regulations. This special designation applies to MPOs with an urbanized area of greater than 200,000.

There are two committees that comprise RATS: the Coordinating Committee and the Technical Committee. The Technical Committee is responsible for reviewing items brought before the group and recommending actions to the Coordinating Committee. The Coordinating Committee is the policy body that formally adopts items reviewed by the Technical Committee. The role of the MPO is to promote transportation plans, programs, projects and policies that are consistent with current federal transportation planning legislation and the Clean Air Act. The Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) is the current planning legislation. The transportation planning staff of the Berks County Planning Commission serves as the technical staff to RATS.

RATS recognizes the interconnection between transportation and land use issues. The Berks County Planning Commission works closely with local governments throughout Berks County on land use planning issues. However, under Pennsylvania law, implementation of land use policies is the responsibility of local governments therefore RATS has no authority over local land use planning or zoning.

Increased development in the Region will undoubtedly impact the local transportation system. Therefore, it is important to discuss long range transportation recommendations to mitigate the implications of increased development. This section will present a vision for the future transportation network in the Region, including strategies for priority corridors, which were identified as the most critical to the Region in terms of a functioning transportation system.

Highest Priority Corridors - PA Route 183

PA Route 183 in the Region is the corridor most in need of future upgrades. This corridor has the highest traffic volumes and intersects the entire Region and is the largest designated growth area, where future residential, commercial, and industrial development is expected. This impending development will increase traffic in the corridor, and eventually surpass the highway's carrying capacity. The Region must coordinate efforts with PennDOT to implement a plan for this corridor.

High Priority Corridor- New Schaefferstown Road, Plum Creek Road

New Schaefferstown Road, though not currently experiencing substantial traffic problems, is a key corridor in the Region. New Schaefferstown Road is an east/west route through Jefferson Township. The Future Land Use Map, Figure 7.1 has designated the area around New Schaefferstown as a growth area which could lead to increased traffic on this road.

Plum Creek Road is a northeast/southwest corridor at the southern entrance of Penn Township. This road intersects PA Route 183.

Long Range Strategies

The corridors identified are State and municipally-owned and maintained highways. It is critical that the Townships and Borough continue communications with PennDOT and RATS, to discuss future planning and upgrades. Reactionary spot improvements will not suffice, and will ultimately lead to a poorly functioning transportation system. The Townships, Borough, PennDOT, and RATS need to agree on a vision for these corridors and plan accordingly to accommodate future development. Some of the improvements and concepts recommended by this Plan include the following:

- Road Widening: add travel and turning lanes to improve traffic flow. The Townships should include provisions for right-of-way preservation in their subdivision ordinances and develop standard design criteria to ensure seamless road corridors between Townships.

- Signal light coordination: new traffic signals should be located at least one-half mile apart. The cycle lengths of each light should be coordinated to allow for smooth traffic flow along the corridor. Signals with self-adjusting timing mechanisms can optimize flow at intersections. Higher density and village development should occur near signalized intersections, to lessen the need for additional signals.

- Access management: An effective transportation system cannot allow unlimited land access. Every additional driveway and street intersection introduces traffic and reduces the road's ability to move traffic safely and efficiently. Especially within the designated growth areas, it is imperative to limit the access points, particularly along PA Route 183. This applies to the Region's collector roads as well. The Townships and Borough must discourage subdivision along the frontages of main transportation corridors to lessen points of access. PennDOT has developed guidelines for municipalities to use when formulating their own access management regulations. The Townships and Borough should coordinate with PennDOT to develop access management regulations to include in their respective ordinances.

- Act 209 Traffic Impact Fee: Steps required to establish and implement a traffic impact ordinance are shown in Table 10.2.

Access Management

Access management is a concern for all of the roads in the Region, but particularly along PA Route 183 and New Schaefferstown Road and PA Route 183 and Third Street. The Townships and Borough should consider working with PennDOT to develop a joint access management plan for the area.

The major elements in access management include the following:

- Driveway design standards
- Access management regulations, in coordination with PennDOT.
- Limited number of road entrances
- Traffic Impact Analysis where development is proposed
- Left and right turn lanes constructed at road and driveway intersections
- Installation of medians
- Adequate parking lot/internal circulation design in developments
- Shared access to properties

- Interconnection of properties developed along roads
- Improved intersection design/spacing
- Signals at high volume driveways
- Control of access
- Direct new development access to roads with traffic signals.
- Prohibition of inappropriate turning movements

Transportation Development Districts

The Transportation Partnership Act (Act 47 of 1985 as amended) allows municipalities to create Transportation Development Districts to assist in the financing of transportation facilities and services including roads, railroads, and public transit systems. If municipalities propose a district, property owners who represent more than fifty percent of the assessed valuation in a proposed district must be in favor of the district. The creation of the Transportation Development District allows municipalities to impose assessments upon benefited properties in the District to construct transportation improvements. The needs for such districts along PA Route 183 should be monitored.

Congestion Management System Strategies

Congestion management system strategies have been used by some communities to reduce traffic. The major elements are:

- Employee trip reduction plans to increase average vehicle occupancy
- Creation of transportation management associations in which municipalities work with local businesses to identify measures to reduce travel demand. These may include:
  - -- reducing vehicle concentrations at peak periods by staggering work hours;
  - -- encouraging commuting by carpool and public transit rather than by single occupancy vehicles;
  - -- eliminating unnecessary commutes;
  - -- funding informal paratransit/vanpool operations.
  - -- utilization of rideshare services,

With the potential for more commercial and residential development in the Region, the appropriateness of these strategies should be reviewed. The Transportation Plan Map

includes Annual Average Daily Traffic (AADT) numbers for major road segments in the Region. High traffic volume areas, such as the PA Route 183 corridors, are most in need of congestion management techniques.

Impact Fees and Negotiated Financial Contributions

The Municipalities Planning Code allows municipalities to assess a traffic impact fee provided they have adopted a traffic impact fee ordinance. With a traffic impact fee system in place, a municipality can collect fees to finance improvements to the road system.

The Municipalities Planning Code indicates that when municipalities have prepared a multi-municipal plan, to allow for the provision of transportation capital improvements in a cooperative manner, the municipalities may cooperate to enact joint transportation impact fee ordinances.

In municipalities where traffic impact fee systems are not in place, financial contributions from developers for road improvements should be negotiated. Developer-financed road improvements at existing intersections and along road segments could correct current deficiencies and mitigate traffic increases associated with new development. Table 10.2 identifies the steps involved in setting up and implementing an impact fee ordinance.

Table 10.2: Summary of the Steps for Implementing Traffic Impact Fee Ordinance

Task	Responsible Entity
1. Establish Transportation Service Area and appoint an advisory committee. *Note: Committee must be at least 7 members, can be the entire Planning Commission, with ad hoc members if necessary to meet the 40% builder/realtor requirement. Other than this, the committee cannot contain municipal officials or employees.*	**Governing Body**
2. Public Notice of Intent to implement a Traffic Impact Fee Ordinance. *Note: This allows for fees to start being collected and starts an 18 month clock, by which time the Ordinance must be adopted.*	**Governing Body**
3. Committee oversees preparation of Land Use Assumptions plan, holds public hearing, forwards to Governing Body for adoption.	**Impact Fee Advisory Committee**
4. Committee oversees preparation of Roadway Sufficiency Analysis and forwards to Governing Body for approval.	**Impact Fee Advisory Committee**
5. Committee oversees preparation of Capital Improvements Plan, holds public hearing, forwards to Governing Body for approval.	**Impact Fee Advisory Committee**
6. Impact Fee Ordinance text developed and Ordinance adopted.	**Governing Body**

Shoulder Improvements

Developers should be required to improve shoulders along the frontages of the tracts they develop. In addition, the municipalities should improve the shoulders along existing Township and Borough roads where appropriate. Shoulders should be wide enough to accommodate trails in accordance with the guidelines in the Statewide Bicycle and Pedestrian Master Plan. The Region's ordinances currently mandate these actions, and should continue to do so.

Gateways

Formal gateways should be considered at the entrances to the Region and Borough of Bernville along PA Route 183. A gateway is an entrance corridor that defines the arrival point as a destination. Gateway planning addresses the arrangement of the landscape to create a visual experience that establishes a sense of arrival at the destination and provides a positive image of the destination. The Borough and Townships can work with property owners to enhance these gateways. Consistent road corridor overlay zoning could be adopted along the major roadways.

The primary gateways to the Region include both ends of PA Route 183. Gateway enhancement opportunities also exist at the entrances to the Villages of New Schaefferstown and Mt. Pleasant. At these gateways, the Townships can work with property owners to enhance commercial areas through coordinated landscaping, signage, lighting, street furniture, paving materials, site improvement design, building facades, and window displays. When infill, redevelopment, or new development occurs, developers should be required to comply with performance and design standards that would address these elements. When new parking facilities are constructed, they should be landscaped, buffered, and located to the side or rear of buildings.

Signage should be minimal, and appropriate to the character of the Townships.

Property owners should be encouraged to maintain and improve properties, particularly those that may have negative impacts on surrounding properties. In places where the rear of commercial properties face or abut residential properties, the appearance of the commercial properties and their impact on the residences should be mitigated.

Scenic Roads

Scenic roads are an important element in the circulation system within the Region and should be maintained. Scenic roads include roadways that offer picturesque views of the surrounding countryside, or offer a pleasant drive under a canopy of trees. The Townships should decide whether it would be appropriate to adopt scenic road overlay zoning along scenic roads. Within such overlay areas, greater setbacks along the roads may be required, additional landscaping and screening requirements may be established, and design standards for siting of buildings may be established in order to minimize visual impacts of any development.

Discouraging intensive development along the scenic roads also has another benefit. It can lessen traffic volumes and driveway intersections along roads, which are typically not suited for intensive traffic volumes.

Bicycle/Pedestrian Circulation

The Borough and Townships should incorporate bicycle and pedestrian improvements into the transportation planning process. The Community Facilities Plan recommends that the Townships strengthen their zoning and subdivision ordinances to ensure that bicyclists and pedestrians are accommodated in the transportation system. As roads are maintained and improved, design requirements for pedestrian and bicycle access should be addressed, such as the provision of bike lanes, sidewalks, and appropriate curb radii at intersections. Limiting radii at intersections to the minimum necessary to allow safe traffic flow can make intersections more pedestrian and bicycle friendly. According to the U.S. Department of Transportation, a curb radius measurement of zero to ten feet is safest for pedestrians. Pedestrian crossings at street intersections, particularly along the trail routes, should be facilitated by crosswalks, stop signs, and pedestrian islands. Gaps in the sidewalk system (where feasible) should be eliminated. New developments, particularly within Designated Growth Areas, should have sidewalks. Access to community facilities and commercial areas in the Region should be enhanced through expanded and repaired sidewalks and greenways and by establishing crosswalks. Streetscape amenities such as benches, trash receptacles, information signs, and landscaping should be provided in the villages where appropriate.

The Recreation component of the Community Facilities Plan, Chapter 9, recommends a greenway and bike trail network for the Region.

Safe Routes to School

This program is designed to work with school districts and pedestrian and bicycle safety advocates to make physical improvements that promote safe walking and biking passages to schools. Collectively, these efforts would save on school busing costs and promote a healthy lifestyle for children. In addition, some funding may be used for pedestrian education efforts. Examples of these types of improvements include sidewalks, crosswalks, bike lanes or trails, traffic diversion improvements, curb extensions, traffic circles, and raised median islands.

Traffic Calming

As development in the Region occurs and traffic volumes increase, residential streets and roads will have more traffic. Means of dealing with this additional volume include road improvements, providing increased opportunities for pedestrian and bicycle traffic, supporting efforts to increase automobile occupancy rates, and managing access. If these steps are not sufficient, the municipalities may consider traffic calming techniques.

The purpose of traffic calming is to manage movement through an area in a way that is

compatible with the nearby land uses. Streets should be safe for local drivers, and traffic should not adversely affect the quality of life of residents.

The general methods of traffic calming include the following:

- Active speed reduction (constructing barriers to traffic movements)
- Passive speed reduction (installation of signage)
- Streetside design (landscaping that changes the appearance of the area and driver attitudes)
- Regional planning efforts that direct external traffic to other routes
- Opportunities for use of alternative modes (mass transportation, pedestrian, bicycle)

1. *Active Speed Reduction (constructing barriers)*

   a. Speed humps and speed tables are raised areas in the street surface that extend across the width of the street. Speed humps present liability and are also annoying to local residents. Speed tables, which are really raised pedestrian crosswalks, may be more successful. They are most appropriate in areas with substantial pedestrian traffic.

   b. Changes in roadway surface may include rumble strips, milling, and special roadway surfaces. These techniques can increase noise in areas and raise objections from area residents.

   c. Intersection diverters may involve a barrier placed across an intersection, typically to alter travel plans, such as permitting right turns only, to make travel through a neighborhood more indirect.

   d. Channelization may involve provision of pedestrian refuge areas, providing protected parking bays through landscaped islands, altering motor vehicle traffic movements, and restricting movements at intersections by narrowing the space available for vehicular movement.

   The active controls require changes in driver behavior. Although active methods convey that the street is not just for through traffic, such methods are costly, and can be viewed negatively by some.

2. *Passive Methods of Control*

a. Traffic signs saying “Do Not Enter”, “Stop”, “Not a Through Street”, “Local Access Only”, “No Trucks”, or signs establishing speed limits, indicating one-way street, or prohibiting turns.

b. Traffic signals.

c. Pavement markings, including crosswalks, edgelines, and use of different materials for pedestrian crosswalks.

d. Permitting on-street parking.

e. Speed watch.

These methods have lower costs and can apply to only certain times of the day, if appropriate; however, signs are often ignored and enforcement is necessary.

The main emphasis should on the passive traffic calming techniques. Active traffic calming techniques should be used only if passive techniques are not successful due to their cost and the inconvenience of their construction.

Prior to implementing any traffic calming program, it is necessary to identify the specific problems to be addressed; identify and evaluate the alternative techniques and their drawbacks, benefits, and cost; to identify alternative traffic patterns that could result from implementation of the techniques and the effects of those patterns on other streets and neighborhoods; and to involve residents in the evaluation and selection of techniques. Such techniques should not detract from the character or visual quality of a neighborhood.

Capital Improvements Planning

Capital Improvements planning should be considered for programmed transportation improvements. Capital improvements planning includes financial analysis of past trends in the community, present conditions, and a projection of the community's revenues and expenditures, debt limit, and tax rates, to determine what the financial capabilities of the municipality are. It also includes a capital improvements program which establishes a system of priorities. The final element is the capital budget which lists the schedule of improvements over a 5-year period on the basis of the community's financial capacity and availability of grant money.

In the capital improvements program, capital expenditures are separated from Operational expenditures. Operational expenditures are those for administration, payroll,

employee benefits, maintenance and similar functions, and are short term. Capital expenditures are for assets which have a substantial value compared to the total municipal budget and are expected to provide service for a number of years. The construction of a road is an example of a capital expenditure.

The capital improvements program schedules the purchase of capital items in a systematic manner rather than allocating a large amount of money for all expenditures in one year. Based on the assessment of future needs, future expenditures are planned so that the municipality can anticipate major expenditures prior to the budget year. The program is based on identified capital needs, goals for capital acquisitions, and a priority list of all proposed capital expenditures.

A time frame is established for the capital improvements program. Five-year programs are typical. Every year the schedule for capital improvements must be revised and updated as necessary, based on the current municipal priorities. For each project included in the program, estimated costs must be established and a budget prepared.

Benefits of capital improvements programs include the following:

- It ensures that projects will be based upon the ability to pay and upon a schedule of priorities determined in advance.
- It helps ensure that capital improvements are viewed comprehensively and in the best public interest of the municipality as a whole.
- It promotes financial stability by scheduling projects at the proper intervals.
- It avoids severe changes in the tax structure by the proper scheduling of projects and facilitates the best allocation of community resources.