

READING AREA TRANSPORTATION STUDY

BICYCLE AND PEDESTRIAN TRANSPORTATION PLAN

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READING AREA TRANSPORTATION STUDY
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G L O S S A R Y

BCPC- The Berks County Planning Commission is the lead planning agency within Berks County and serves as the lead staff agency to the Reading Metropolitan Planning Organization (MPO).

Long Range Transportation Plan (LRTP)- Must satisfy three different governmental levels- federal, state and county. It must be consistent with applicable laws, rules and regulations. It must be consistent with the state's transportation plans, programs and policies and also be consistent with Berks County Comprehensive Plan.

PennDOT- The Pennsylvania Department of Transportation. Its direct responsibilities include the maintenance, restoration and expansion of the state-owned highways and bridges.

Reading MPO- The Reading MPO is the federally-designated Metropolitan Planning Organization of state, county and local agencies, along with officials from the Berks Area Regional Transportation Authority (BARTA) and the Reading Regional Airport Authority. The MPO develops transportation plans and improvement programs, and provides oversight and analysis of the preparation of plans and studies affecting transportation planning in the county.

Safe Routes to Schools (SRTS)- programs are sustained efforts by parents, schools, community leaders and local, state, and federal governments to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school.

Shared-Use Path- Is a facility that is typically used by casual bicyclists and pedestrians. These do not preclude the need for on-road facilities.

Transportation Improvement Program (TIP) - A list of the transportation projects for which planning has been completed and that require funding for implementation. Projects are placed on the TIP by the MPO. The TIP serves as the first four-year period of the 12- Year Program.

Twelve Year Program- State legislation requires that the Commonwealth develops and maintains a 12 Year Transportation Program, and that the program be reviewed, revised, adjusted and extended every two years. Projects on the 12 Year Program can include major capacity adding projects but more typically are filled with projects related to the maintenance of the system's existing highways and bridges. Other types of projects can include "non traditional" transportation projects such as those funding through the Transportation Enhancement Program.

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CHAPTER 1:
BACKGROUND

PURPOSE OF UPDATE

Since the adoption of the Berks County Bicycle and Pedestrian Transportation Plan in March 2002, Berks County has continued to grow in population and vehicle congestion. Over the last seven years much has changed with transportation. As we begin this update, it is important to bring together citizens, businesses and governments collaborating on a joint committee. Working together to create, adopt and implement a bicycle and pedestrian plan that will be effective and useful is critical.

The current economic situation plays a major role in how people live their lives. Family vacations are at a minimum, memberships to local gyms are down and new ideas need to be established. Walking, biking and public transportation not only promote alternative means of travel and curb pollution but also encourage healthier lifestyles.

This plan update will attempt to further promote projects presented in the March 2002 plan that were not completed, as well as discuss new ideas. The plan will be designed so citizens, policymakers and county staff can use it effectively and efficiently. This update will provide a vision, goals and recommendations for improvements.

Most importantly it will provide greater emphasis on balancing pedestrian and bicycling with sidewalk and shared-use path development, connectivity, safety and accessibility. This plan will address updated legislative planning initiatives and funding.

VISION STATEMENT

Berks County values the importance of alternative transportation. Walking, bicycling and other non-motorized methods of transportation, along with access to mass transportation, recreation, air quality, health and wellness are considered top priorities for the county. The objective of this Plan is to incorporate the divergent ideologies of municipalities, developers and citizens into a document that accomplishes our priorities.

ACCOMPLISHMENTS FROM THE MARCH 2002 PLAN

A number of projects were proposed in the March 2002 Plan. Many of them have been either started or fully implemented; others have not. Following are some successes from the 2002 Plan:

- Completion of a walking/bicycling connection along the Wyomissing Creek between the railroad tracks on the east, through the West Reading Borough recreation area, to Museum Road on the west including a connection to the Thun Trail.
- Progress on a missing trail link between the Dana Memorial Park trail and the River Front Park trail.
- The addition of bicycle racks on some BARTA buses along with the implementation of a Bike and Ride program.
- Completion of the Blue Marsh Connector trail from the end of the Union Canal trail to the Blue Marsh stilling basin.
- The mostly completed Muhlenberg Township trail on former Reading Railroad Hill Line from Duke Street in Laureldale Borough to Hay Road in northern Muhlenberg Township.
- The addition of a pedestrian/cyclist bridge on the Thun Trail over the busy U.S. 422 / Lancaster Avenue / PA 10 interchange, and completion of a trail link between there and the newly created Brentwood Trailhead.
- The restoration of the Reading Area Community College (RACC) bridge over the Schuylkill River connecting Reading with West Reading and the Thun Trail.
- The completion of the Bartram Trail in Hamburg Borough.

BENEFITS OF NON-MOTORIZED TRANSPORTATION

According to Rails-To-Trails Conservancy, the average American motorist drives about 15,000 miles a year and wastes the equivalent of a full work week stuck in traffic every year. Below are some reasons non-motorized transportation is better than motorized transportation:

- Lower infrastructure costs;
- Lower vehicle operation and maintenance expenses;
- Less time spent in traffic;
- Single occupant vehicle trip reduction and resulting congestion management;
- Air quality benefits of less pollution;
- Lower reliance on dwindling fossil fuel resources;
- Promotion of a healthy lifestyle;
- Lower health care costs;
- Increased community connectivity; and
- Increased accessibility to destinations.

PEDESTRIAN AND BICYCLE ATTRACTORS

While medium range and long range travel may be typical for many Berks County residents, a number of them also travel locally, i.e., within walking/biking distance, between their homes and work, shopping, schools, recreation and other neighborhoods. Access to these areas is typically via their personal vehicle. It is important that these local trips be accessible without the need for a motorized vehicle. However, recent land use trends in Berks County are promoting the construction of, for example, new shopping centers adjacent to existing neighborhoods without safe and convenient accessibility between the two. School districts have built large schools outside of existing neighborhoods that require busing or next to existing neighborhoods without some form of connection between them. People are driving to work because business districts are not located within safe walking/biking distance or there is no perceived or actual safe accessibility from home to work.

There are gaps within our non-motorized transportation system that prevent safe, convenient accessibility, whether by walking or biking, to our county attractors. The basic question remains: Where do people go where walking and biking could be used? Some of the many places include:

- Elementary and secondary schools, public and private;
- Colleges and universities;
- Local playgrounds & parks and regional recreation areas;
- Libraries;
- Corner stores, street-level storefronts, strip centers and regional shopping malls;
- State, county and local government offices;
- Local and regional employment centers;
- Bus stops;
- Individual medical offices and large complexes; and
- Other nearby neighborhoods.

Examination of aerial photography notes that many of the above areas are located within very short distances of, if not right next to, residential areas. Yet many people who could walk or bike to them cannot or will not. For many, the lack of available, safe and useable walking and biking routes (sidewalks, shoulders, paths) between and among residential and non residential areas prevent them from walking and biking. This plan update hopes to promote the creation of walkable communities that create interaction amongst the community, all of its attractions, and residents from within the community and surrounding areas.

EXISTING ROADWAY, SIDEWALK, TRAIL & GREENWAY CONDITIONS

Identifying the existing bicycle and pedestrian infrastructure is an essential part of any bicycle and pedestrian plan. An inventory of the facilities in Berks County was compiled for the previous plan. More recently, the 2007 Berks County Greenway, Park and Recreation Plan reflects the current status of the facilities. The mapping process is one aid in determining the gaps and/or conflicts in the County's bicycle/pedestrian network that need to be mitigated. The maps (Appendix A) identify the existing facilities and barriers along those routes.

The existing facilities shown represent the primary network of pedestrian and roadway facilities that connect popular origins and destinations. These networks are generally suitable for bicycle and pedestrian travel, with exception of areas that have been identified as a barrier. A barrier is a part of the network that contributes to an unsafe or impassible condition and could include turning conflicts or a lack of space for the facility.

In identifying a bicycle/pedestrian network for the County, the 2002 plan noted a number of established pedestrian-only and multi-use trails and trail connections in Berks County. Those facilities are reflected here for use as part of the non-motorized transportation network

In conjunction with the existing multi-use trail network this plan identifies a network of roadway segments that are considered adequate for bicycle commuting and distance riding. Also, this plan examines sidewalks as they relate to safe pedestrian circulation and gaps in the sidewalk network that may exist in communities. These gaps serve as barriers for people walking to work, the store or even children walking to school.

Maintenance and the condition of the network is a major concern for bicycle and pedestrian transportation users. Examples of maintenance and accessibility issues include:

- Shoulder cutting to remove trees and overgrowth for increased visibility
- Shoulder, road, and curb ramp sweeping for cinders, glass and other debris
- Replacing missing signs or installing new signs
- Keeping paved shoulder edges in good condition
- Maintaining clear sidewalk and intersection access, particularly during inclement winter weather
- Proper sidewalk ramp construction
- Keeping sidewalk and paved paths in good condition
- Inconsistent shoulder width and location
- Centerline and shoulder edge rumble strips

THIS PLAN WITHIN THE OVERALL PLANNING SCHEME

The Reading Area Transportation Study (RATS) is the federally-designated Metropolitan Planning Organization (MPO) for Berks County. It 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). At present, the MPO provides transportation planning and programming for all of Berks County's 73 municipalities within an area of 864 square miles and an estimated 403,000 persons. The Reading Area Transportation Study is composed of two separate committees – the Technical Committee and the Coordinating Committee. The Technical Committee reviews items brought before the group and recommends 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 eight-member RATS Technical Committee consists of representatives from PENNDOT Central Office (1), PENNDOT District 5-0 (1), the City of Reading (2), the Berks County Planning Commission (2), the Berks Area Regional Transportation Authority (BARTA) (1), and the Reading Regional Airport Authority (1). The ten-member RATS Coordinating Committee consists of one representative each from the PENNDOT Central Office, PENNDOT District 5-0, Berks County Board of Commissioners, Berks County Planning Commission, City of Reading, Boroughs (1), 1st Class Townships (1), 2nd Class Townships (1), BARTA (1) and Reading Regional Airport Authority (RRAA) (1). The transportation planning staff of the Berks County Planning Commission serves as the technical staff to RATS.

RATS recognizes the connection 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. As such, RATS has no authority over local land use planning or zoning.

The Long Range Transportation Plan (LRTP) for Berks County must satisfy planning, policy and financial requirements at three different governmental levels – federal, state and county. At the federal level, it must be consistent with applicable laws, rules and regulations. It must be consistent with the state's transportation plans, programs and policies. The LRTP is consistent with the policies and objectives of the Berks County Comprehensive Plan and it serves as the Transportation component of the County Comprehensive Plan. The Bicycle and Pedestrian Transportation Plan serves as the non-motorized component of the LRTP and, by definition, will be adopted by reference as a part of the LRTP. This plan supports the overall goals and objectives of the Long Range Plan and strengthens the Long Range Plan's ties between transportation policies and land use policies contained in Vision 2020 County Comprehensive Plan. By federal planning regulation, any projects proposed to use federal money must be identified in

an approved LRTP (and other inclusive documents) before it can be placed on the 4-year Transportation Improvement Program (TIP) for funding.

In December 2007, the Berks County Commissioners adopted the Berks County Greenway, Park and Recreation Plan. This stand-alone Plan serves as the County's vision for fulfilling future recreation needs, and serves as the Recreation component of the County Comprehensive Plan. It identifies a network of existing and planned, interconnected greenway corridors and multi-use trails. The Bicycle and Pedestrian Transportation Plan not only incorporates those facilities into its network of non-motorized connections, but also promotes connections to those facilities in order to maximize transportation and recreation opportunities.

WHO IS OUR INTENDED AUDIENCE?

Before the process of Plan compilation begins, we have to define our audience. Though initially we think 'pedestrians and cyclists', we know that such a broad definition needs to be further refined and defined by the various users of the non-motorized transportation networks.

School age Children

According to the 2000 Census, there were almost 69,000 children aged 5-17 in Berks County, many of whom live within walking/biking distance to their school.

College Students

Local colleges and university campuses have a mixture of on-campus and off-campus residences and commuter students. Student and staff pedestrians and cyclists face challenges navigating between off-campus housing and parking and on-campus activities. In addition, campuses like Albright College have collector streets (N. 13th Street) cutting directly through campus providing a barrier to access between areas of campus.

Elderly

According to the 2000 Census, there were over 56,000 elderly persons aged 65+ in Berks County. As the population ages, physical infirmities make walking, seeing, hearing and navigating increasingly difficult for more and more persons.

Handicapped

The 2000 Census lists over 60,600 persons aged 5+ who classified themselves as having some type of disability. Those disabilities can be described as either sensory (vision, hearing), physical (mobility), mental or self-care. Many of these persons have difficulty using the pedestrian network but may rely heavily on it to obtain access to local shopping, medical appointments, government services, access to transit, and recreation.

Existing Non-motorized commuters

Census 2000 listed only 6, 840 non-motorized commuters (bicycle and walking) in Berks County (out of a total of 177,831 workers).

Transit Users

In 2007, BARTA proved services to over 2.7 million total passengers in 31 municipalities with a service area of over 200,000 persons. With the exception of those using Park-N-Ride lots, most passengers had to walk in order to access their bus.

CHAPTER 2:
GOALS AND OBJECTIVES

GOALS

Berks County's transportation system serves a wide range of functions, from the delivery of goods and services necessary for commerce to the movement of people for work, recreation, social and other activities.

Transportation systems must adapt to keep up with continued growth in the county. While counties and municipalities are not mandated to provide transportation facilities, they are empowered to construct and maintain them. The following is a list of the goals and objectives/implementation strategies that will be the focus of this plan.

GOALS:

1. The plan should ensure the provision of a system of safe, convenient and accessible bicycle and pedestrian facilities for all users through coordinated efforts of government agencies and the private sector.
2. The plan will encourage municipalities to adopt ordinances that promote the inclusion of bicycle and pedestrian facilities in, among and between developments.
3. The plan will promote the provision of safe and secure bicycle and pedestrian facilities for all users.
4. The County will promote transportation facilities and practices that minimize the impacts on both the natural and social environments and improve the quality of life.
5. Plans, programs and projects recommended by this plan should be consistent with and promote the practices outlined in the Safe Routes to Schools Program.
6. Government and non-profit agencies should actively pursue all eligible federal, state and private funds for bicycle and pedestrian planning and development.
7. Projects and programs recommended by this plan must meet the highest achievable design and safety standards of the Americans with Disabilities Act.
8. The plan should ensure that the bicycle and pedestrian system complements the existing transportation network in order to maximize and preserve capacity of the existing system.
9. The Plan will promote more choices in transportation modes and interconnections between those modes.

OBJECTIVES / IMPLEMENTATION STRATEGIES

1. The MPO needs to develop and implement a prioritized project/improvement list.
2. The plan needs to provide for a balance of roadway, public transportation, aviation, rail, bicycle and pedestrian networks and integrate them into a coordinated transportation system.
3. When designing new or improved roadways, special attention will be given to mass transportation and non-motorized means of transportation.
4. This plan must be consistent with other regional planning efforts including but not limited to the Vision 2020 County Comprehensive Plan and the Berks County Greenway, Park and Recreation Plan, along with the MPO's Long Range Transportation Plan, the Congestion Management Process, and the Transportation Improvement Program.
5. The MPO must establish and maintain a bicycle and pedestrian advisory committee to carry out the goals and objectives of the Plan and to represent bicycle and pedestrian concerns in the MPO's planning and programming processes.
6. MPO staff and the aforementioned advisory committee must work with municipal officials to amend their development processes to ensure the inclusion of bicycle and pedestrian facilities in new construction.
7. Bicycle and pedestrian facilities should, where possible, be physically separated from major traffic routes yet be able to cross them when necessary.
8. Shared rights-of-way should be considered in less heavily traveled areas and wherever feasible.

CHAPTER 3:

PEDESTRIAN ISSUES

PEDESTRIAN ISSUES

One of the key aspects in establishing a pedestrian circulation system that is safe and efficient for users is evaluating what already exists, what is lacking and what needs to be improved. Establishing what the existing system looks like ultimately enables us to prioritize projects based on this evaluation. This plan will identify and/or evaluate what is lacking in the pedestrian system throughout the County as well as some of the design attributes that contribute to improvement of the system.

The advisory committee identified the major obstacles in the way of establishing a safe and efficient pedestrian circulation system. Within this chapter, pedestrian issues will focus and follow the Safe Routes to Schools 5 E's Program. The 5 E's are evaluation, education, engineering, enforcement and encouragement. The obstacles identified by the committee are discussed in more depth throughout this chapter.

Through our Geographic Information System we were able to map and calculate how many miles of sidewalks exist in the County. In 2004 the County had 1,107 miles of sidewalk. Through new development, both commercial and residential, 56 miles have been added bringing the current sidewalk mileage to 1,163. Through analysis of County mapping, it was determined that sidewalks are located in areas of dense development such as cities and boroughs.

(EDITORS NOTE: Once mapping is complete, discussion will be included here).

The Safe Routes to School Program (SRTS)

SRTS enable community leaders, schools and parents across the United States to improve safety and encourage more children to safely walk and bicycle to school. In the process, programs are working to reduce traffic congestion and improve health and the environment, making communities more livable for everyone.

What is the Safe Routes to School Program?

Through the passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Congress designated a total of \$612 million toward developing the National Safe Routes to School Program. The program provides funds to the states to substantially improve the ability of primary and middle school students to walk and bicycle to school safely.

Each state administers its own program and develops its own procedures to solicit and select projects for funding. The program establishes two distinct types of funding opportunities: infrastructure projects, such as engineering improvements; and non-infrastructure related activities, such as education, enforcement, and encouragement programs.

SRTS programs are sustained efforts by parents, schools, community leaders and local, state, and federal governments to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school.

SRTS programs examine conditions around schools and promote projects and conduct activities that work to improve safety and reduce traffic and air pollution in the vicinity of schools. As a result, these programs help make bicycling and walking to school safer and more appealing transportation choices thus encouraging a healthy and active lifestyle from an early age.

For more information on the National Safe Routes to School Program, go to the FHWA website: <http://safety.fhwa.dot.gov/saferoutes/> or the National Center for Safe Routes to School website: <http://www.saferoutesinfo.org/>.

The Five E's defined:

Evaluation: Determine what deficiencies exist and how to address them. Examine short and long term planning and policy making for the built-environment. Find funding to support and sustain improvements long-term.

Education: Educate system users about rules, rights and responsibilities, as well as benefits of walking and cycling.

Engineering: Design and engineer safe and accessible roadways with pedestrian and bike facilities. Use design standards that accommodate pedestrian and bike facilities in subdivision and land use ordinances and improving connectivity to areas of interest and transit facilities.

Enforcement: Use ordinances and laws to enforce pedestrian and motor vehicle codes.

Encouragement: Promote walking and biking throughout the community using as many methods and venues as possible.

Planning and Designing for Pedestrian Safety

The automobile has forever changed the way in which transportation systems and the built environment are designed and constructed, often at the expense of pedestrians. In the majority of crashes between pedestrians and motorists, the pedestrian is trying to navigate in an environment designed primarily for automobile use. This section of the plan explains how some common roadway design practices can have negative impacts on pedestrian travel and safety as well as the policies that have led to these design practices. It also discusses other factors that affect pedestrian safety such as street connectivity, site design, land use, and access management. Next, it suggests changes that can lead to improvements in the pedestrian environment. Finally, it discusses the need to institutionalize these changes by reviewing, amending, and adopting policies and design guidelines to better accommodate pedestrian travel. It is important to be

proactive as well as responsive to pedestrian safety problems. This chapter reflects the need to develop a Pedestrian Safety Action Plan both as to a response to current design inefficiencies and as an effort to integrate pedestrians into the design process from the beginning to ensure the quality of future developments.

Understanding System Users

According to the Federal Highway Administration (FHA) and the National Highway Traffic Safety Administration (NHTSA) good pedestrian safety planning must include an understanding of the characteristics of pedestrians. With an understanding of pedestrian needs and characteristics, those involved in pedestrian safety planning can more effectively understand how new and existing facilities must operate, as well as how pedestrians will act when faced with certain conditions. Applying a practical understanding of pedestrian characteristics will provide insights when considering appropriate safety solutions and will particularly help ensure that facilities are inviting to pedestrians.

Important characteristics include understanding why and where pedestrians walk, what types of design features create a safer pedestrian environment, and what types of behavioral decisions pedestrians are likely to make. In addition, pedestrians also consist of specific populations with different characteristics, including children (who may be impulsive or unpredictable), persons with mobility impairments (who may require specific devices or facility features), and senior citizens (who may require additional time for roadway crossings).

The American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Planning, Design, and Operation of Pedestrian Facilities* (2004) includes a comprehensive discussion of pedestrian characteristics and needs.

Transportation Designs that Impact Pedestrian Safety

Several design practices and policies conceived to improve vehicular mobility are now recognized as barriers to a safe and efficient pedestrian environment. There are many factors that affect the safety and mobility of the pedestrian transportation network. The major planning, design, and policy elements that impact pedestrian safety include:

1. Street design
2. Street connectivity
3. Site design
4. Land use
5. Access management

A sidewalk or path to an attraction is functional only if it provides safe and efficient access for all persons. Safety includes but is not limited to pavement condition and the location of the access point. Scattered throughout the county, particularly in older

areas, are sidewalks in poor condition due to age, poor construction and/or lack of maintenance.

Maintenance becomes important because of the inherent safety concerns associated with a neglected or improperly maintained sidewalk system. As sidewalks become raised or cracked because of trees uprooting the concrete or the freeze-thaw cycle they become safety hazards for users. Mainly the user groups affected by a neglected sidewalk are the elderly and people with disabilities who need a wheelchair to get around. Furthermore, during cold weather water that pools in cracks can freeze making the sidewalk a falling hazard because of ice build-up.

The placement of curb cuts or pedestrian ramps is another important aspect of the pedestrian system for all users. There are numerous examples in Berks County of pedestrian ramps that are not connected to the rest of the pedestrian network. Ramps exist that go directly into a wall or landscaped area. These are examples of things that need to be improved when looking at our pedestrian system and how we evaluate it. It is dependent upon municipalities that sidewalks are installed in new developments and property owners maintain their sidewalks. This can be done through municipal ordinances.

Since this section includes improving pedestrian safety through street redesign and engineering related crash countermeasures, it provides a more detailed focus on the street design elements and those policies influencing street design choices. The interrelated subjects of street connectivity, site design, land use, and access management, major components of a well-built environment are discussed below.

Street Design

The traditional street system is based on a simple hierarchy: most trips originate on local streets; travelers are then ferried via collector streets to arterials, which are intended to carry large amounts of motor vehicle traffic long distances at higher speeds. This system is based on the assumption that most trips occur by motor vehicle, so most of the facilities are designed primarily for motor vehicle travel. The system results in street designs that do not serve pedestrians well for several reasons:

1. **They lack pedestrian facilities:** Some collector and arterial streets are built with inadequate or no sidewalks or walkways, discouraging or limiting safe pedestrian movement along streets. Continuous lighting may not exist to provide adequate night time pedestrian conditions.
2. **They are wide or have multiple lanes that are difficult to cross:** Since arterial roads are designed to facilitate smooth and efficient motor vehicle flow, they often have multiple lanes in each direction to accommodate high volumes of motor vehicle traffic and multiple turn lanes. The number of lanes a pedestrian must cross has a direct impact on the complexity of the crossing task and the pedestrian crash risk. The pedestrian must find an adequate gap in the motor vehicle traffic, a task that increases exponentially with the number of lanes.

3. **They have high speeds:** Wide streets encourage and allow for higher vehicle speeds, which relate directly to more severe injuries (to motorists and pedestrians) when a crash occurs; the majority of pedestrian crashes and most fatalities occur on higher speed arterials.
4. **They have complex intersections:** Typically, wide arterial streets have intersections that are even wider due to the addition of multiple turn lanes. They also often have large turning radii to allow larger vehicles, such as trucks and buses, to make turns easily and quickly. This requires pedestrians to cross longer distances and watch for more vehicles in more lanes, an often challenging and dangerous task. Skewed intersection design and high volumes of vehicle right- and left-turns at an intersection can also add complexity to the crossing task. Left turn arrows can also be confusing to pedestrians.
5. **They create long delays for pedestrians at intersections:** Wide intersections and those with multiple turn lanes create a long wait for pedestrians. At times, crossing prohibitions may be designed for one or more crosswalks to facilitate turning movements. If a crosswalk is closed, the pedestrian is left with three choices: cross illegally with no signal protection, walk a long distance around the intersection, or walk to another location to cross.
6. **They provide little “friction” to protect pedestrians:** Much of the traffic engineering philosophy of the last few decades has been aimed at stripping roads of “friction” (for example, removing trees, etc.) in order to facilitate motor vehicle traffic flow. This creates a barren, unsafe, and unattractive environment for pedestrians, often with high vehicle speeds.

Many of the designs and solutions proposed for increased pedestrian safety require revisiting some of these assumptions. But none of the proposed designs will create a less safe environment for motorists or other roads users.

Street Design Policies that have Affected Pedestrians

Achieving a Desired Level of Service

Level of Service (LOS) for motor vehicle traffic is usually measured in letter grades A through E. LOS A describes free-flowing unimpeded motor vehicle traffic; LOS F is near gridlock. LOS D is typical of congested urban areas where streets are full and motor vehicle traffic is moving relatively slowly. It is common for some intersections to operate at LOS D or worse during the AM and/or PM peak periods.

The measurements and calculations needed to predict or determine LOS are quantitative. However, the desired LOS is often a political decision (or policy), based on how much congestion decision makers assume the public will tolerate. Those communities that have sought to have motor vehicle traffic flow smoothly often have characteristically wide roads with minimal pedestrian accommodations. Consequently,

they often experience higher crash rates for all roadway users, as both motorists and pedestrians suffer from the less safe conditions created to achieve these higher levels of vehicle mobility.

Accommodating Special Vehicles

Roadway design is usually predicated on the concept of the “design vehicle.” The design vehicle is the largest vehicle that can be expected to use the road often enough to justify designing the roadway to accommodate that vehicle. Large design vehicles are commonly trucks and buses, including trash collection trucks, moving vans, school buses, and fire trucks. A typical design vehicle for local streets is known as an SU (Single Unit delivery truck), such as those used by package delivery services.

The most critical application of this concept is at intersections, where the radius is made large enough so the design vehicle can make a right turn without encroaching into the opposing lane. This can have major negative effect on pedestrian safety and comfort, because a large radius allows passenger vehicles to make right turns at higher speeds and requires pedestrians to cross a longer distance. Large radii at intersections can contribute to a higher pedestrian crash risk as pedestrians are often hit by turning vehicles.

Street Connectivity

Within the context of the aforementioned street hierarchy, local streets typically do not connect well to each other, arterial streets, or destinations such as transit stops or stores/malls. This leads to larger collector and arterial streets to convey heavy motor vehicle traffic. This discontinuous pattern of local streets limits travel choices for pedestrians to higher-risk arterial streets that reduce both comfort and safety. A lack of street connectivity leads to intersections that are few in number – but often large in size – that are more difficult for pedestrians to navigate. Many local streets have curvilinear or cul-de-sac designs that:

1. Limit the pedestrians’ ability to travel in the most direct path;
2. May be disorienting;
3. Increase the distances to destinations, thereby discouraging walking; and
4. Increase pedestrian exposure time to other vehicles on the road.

Fewer pedestrians using the roadside reduce the motorist’s expectation of seeing them and, therefore, increase the incidence of mishaps.

These same street designs have some negative impacts on motorists as well, increasing driving distance and time, and affecting the response time for emergency vehicles.

Site Design

Many existing developments do not provide direct, clear, and convenient access for pedestrians; some do not provide any pedestrian facilities at all. Pedestrians wishing to access a site may have to determine their own path and navigate through driveways, parking lots, landscaping, and other buildings in order to reach the destination. This often leads to confusion and conflicts between pedestrians and motorists, resulting in more pedestrian crashes.

Land Use

The practice and evolution of land use planning is long, complex, and generally beyond the scope of this document; however, an acknowledgement of certain issues pertaining to pedestrian safety is in order. Land use practices that took shape after World War II have typically favored the segregation of land uses (e.g. commercial and employment areas, schools, and residences) and the concentration of commercial activities along auto-dominated arterial corridors. This has produced the following unintended consequences:

1. Trip origins and destinations are often far apart;
2. Longer travel distances lead to fewer people walking and more driving;
3. Increased vehicular use creates hectic traffic conditions not conducive to safe pedestrian environments. Those who do walk are exposed to long distances and high levels of risk when they walk along or try to cross busy high-speed arterials;
4. The premise that most trips will be made by automobile leads to street designs intended to accommodate only the automobile, built to handle large volumes of motor vehicle traffic. When this occurs, pedestrians are often minimally accommodated only as an afterthought, if at all;
5. Many of the destinations and commercial activities along a roadway corridor are also designed to serve motorists, fostering strip development with ample parking to capture passing motorists. As most of these destinations are located on arterials, they are hard for pedestrians to access.

The typical land use pattern of concentrating activities along auto-dominated corridors creates generic looking roads that are hard for pedestrians to cross. Unfortunately, it is these same corridors that transit uses. Users of the transit system, particularly the elderly and handicapped, have an exceptionally difficult time traversing these roadways.

Access Management

According to AASHTO, access management “involves providing (or managing) access to land development while simultaneously preserving the flow of traffic on the surrounding roadway system in terms of safety, capacity, and speed” (AASHTO, 2001). It has widely been used to improve the efficiency and flow of motor vehicle traffic by limiting the number of driveways and intersections on arterials and highways. In some cases this has improved safety for pedestrians and motorists alike, but in other

instances it has had the unintended consequence of facilitating the design of larger intersections spaced far apart. These intersections are often difficult and unsafe for pedestrians to cross due to their size and large numbers of turning vehicles. Pedestrians wishing to cross at an intersection may have to walk long distances out of their way.

For communities that do not limit the number of driveways and intersections, the issue of intersection size and spacing may not be a problem, but an excessive number of driveways can create another problem. For pedestrians, every driveway is a potential hazard or conflict point. Vehicles pull in and out of commercial driveways continuously, and when driveways are designed like street intersections, turning speeds can be quite high. Too many driveways along a street without proper driveway design can also create a challenging walking environment for people with disabilities.

Methods to Improve Pedestrian Safety

In addition to improving the compliance of all roadway users with traffic controls and laws, there are several measures that can be taken to improve conditions for pedestrians within these transportation conventions previously discussed. Improved pedestrian safety can be achieved in a variety of ways, including:

Street Design Improvements

To make streets safer for pedestrians; planners, designers, engineers and officials need to focus on:

- Slowing vehicle speeds;
- Reducing street crossing distances for pedestrians;
- Improving the visibility of pedestrians and motorists;
- Increasing the level of caution taken by pedestrians and motorists;
- Providing pedestrian facilities (sidewalks, crossing islands, etc.) where the needs and potential crash reductions are the greatest by establishing a routine system to identify gaps in the network along streets and highways, particularly in urban and suburban areas.

Achieving one or more of these objectives not only reduces the risk of pedestrian crashes, but also usually improves safety for motor vehicle drivers and passengers. Sometimes a design issue may result in a complication or delay to other roadway users, and transportation officials will have to make a choice to balance the competing interests. Officials may perceive these choices to be unpopular or difficult to make, especially for those whose job has been to move motor vehicle traffic and who may not be aware of values held by the community. However, most often a community will be supportive of improved pedestrian safety; it is important to educate and inform people about how and why certain choices are made. To achieve these objectives, some policies may require rethinking or reprioritization. These include:

Achieving a Desired Level of Service

Some effective pedestrian safety measures may increase motor vehicle travel time and have a slight negative impact on motor vehicle LOS. A rebalancing of the transportation system where pedestrian LOS and safety are included may sometimes mean a change in expectations about the priority that motor vehicle LOS is given in design and decision-making. If serious safety measures are to be achieved, the particular LOS may be lower for motor vehicles than if those measures were not taken. Improvements in capacity can be achieved in other ways: by expanding the capacity of other transportation options, re-thinking land use strategies, or determining where important destinations – such as schools – are located.

Accommodating Special Vehicles

The conflict between vehicle accommodation and pedestrian safety is usually considered a design decision, but it is also a values (policy) decision. An intersection can be designed with a smaller radius than is typically used for a particular design vehicle, thereby increasing pedestrian safety by reducing crossing distance/exposure. The motor vehicle driver can still make the turn, but the truck will have to maneuver into an inside lane to complete the turn. Communities with streets designed around the concept of “bigger is better” are communities that often provide poor pedestrian service and typically have poor pedestrian safety records. Conversely, communities that place a high priority on pedestrian safety and convenience do more to balance the needs of large vehicles with the needs of pedestrians in their street design. This does not mean trucks, school buses, and fire trucks cannot use the streets – they are accommodated; they just usually need to travel at a lower speed and take care in making turns. Transportation professionals are asked to carefully weigh these factors when making street design decisions.

Street Connectivity Improvements

Increasing street connectivity creates a safer, more pedestrian-friendly street system by:

- Reducing walking distances;
- Offering more route choices along quiet local streets;
- Dispersing motor vehicle traffic with more two-lane, neighborhood commercial streets, which relieve motor vehicle, traffic from arterials to make streets safer for pedestrians to walk along;
- Reducing the need for wide, difficult to cross streets and intersections.

Street connectivity with the transit network is very important. If people are to use transit, then their role as pedestrians on both ends of their trip is important and should be accommodated on well-connected streets.

Street connections are vital to pedestrians, and there are many things that can be done to improve the connectivity of existing street networks and plan for the connectivity of future developments. Here are a few potential solutions:

- Improve existing local street connectivity and circulation by adding sidewalks, paths, stairs/ramps, gates, etc. that link dead-end streets and cul-de-sacs to other parts of the street network;
- Maintain a pedestrian connection (e.g. Provide a path in the right-of-way or sidewalk easement) when a street is being severed (it is more difficult to purchase an easement for a connection later);
- Increase the number of access points to and from neighborhoods and other destinations, so not all trips are funneled through one or two large intersections or access points. More neighborhood travel options means less motor vehicle traffic on any given street;
- Design future developments with improved circulation patterns within neighborhoods so more neighborhood automobile trips can be taken on local streets, reducing the need to widen arterials. This may conflict with some traffic-calming techniques, but speeds can be controlled through other measures.

Site Design Improvements

Both small-scale and large-scale residential and commercial developments should be directly accessible from the sidewalk through a safe and convenient sidewalk or pathway. Many communities are achieving better pedestrian safety records by requiring businesses and developments to locate close to the street (with parking provided in the back) in more pedestrian-oriented site developments that balance auto access with pedestrian needs and facilities. This does not mean that auto access is denied; it is just managed more appropriately. Additionally, pedestrian and bicycle facilities within the development, including marked crosswalks (including commercial centers between stores), bike racks, and driver warning signs must be included.

These site design goals are achieved by enacting local zoning ordinances, which must be enforced. These principles contribute greatly to the safety, comfort, and aesthetics of the walking experience.

Linking Land Use and Transportation

Land use planning has often been considered a discipline separate from transportation planning, street design, and traffic engineering, and insufficient emphasis has been placed on the coordination of the two planning processes. However, the relationship between land use and transportation is evident, and the responsibility to coordinate between the two is imperative. Some changes to land use patterns that may positively influence pedestrian safety include:

- Encouraging mixed-use development (such as allowing small-scale retail in neighborhoods or placing schools in the center of neighborhoods) to help create destinations within walking distance of where people live and work;

- Including traffic calming techniques in new and reconstruction designs. Such techniques include pedestrian refuges, crossing islands, bollards, enhanced lighting and signage;
- Designing new neighborhoods in a cluster pattern with many destinations accessible on foot to residents; and
- Working cooperatively with transit providers to design residential and commercial developments that are transit-friendly.

Access Management Improvements

One of the most important access management techniques includes reducing conflicts at driveways to improve the walking environment. Some driveways can be closed – increasing the safety of both pedestrians and motorists – without impeding access to local businesses. Access management tools should not be used to reduce public street connections, especially pedestrian connections to the transportation network. Other access management goals can work in favor of pedestrians within the context of other important planning and policy issues, including:

- Constructing medians to control turning movements;
- Encouraging clustered development and mixed land uses;
- Improving street and neighborhood connectivity;
- Converting auto-oriented strip development into more accessible land use patterns more suitable for pedestrians.

Education about Sidewalk Development and Maintenance

To ensure sidewalks are installed, it is important for municipalities to provide sidewalk ordinances. The ordinance could provide such language that governs the curb cuts, types of trees, safety, maintenance and design. However, an ordinance needs to be enforced in order to be effective. Aside from sidewalk ordinances, there are numerous education programs available to teach municipal officials, planning staff and the public on pedestrian issues. There is also literature and grants available for municipalities to develop safe and accessible pedestrian facilities.

Once sidewalks are installed, they must be maintained. This includes proper patching of damaged concrete, sweeping, snow and ice removal, and curb-cut clearing. Property owners must be made aware that these duties are their responsibility and are part of the property ownership experience. Furthermore, they must be held accountable when repairs become necessary but are not made.

CHAPTER 4:
BICYCLING ISSUES

BICYCLING ISSUES

Much like the previous section on Pedestrian Issues, this section will follow the same format. However, rather than repeat the Safe Routes to School information and street design information, this section will discuss the Pennsylvania Vehicle Code, PennDOT Bicycle and Pedestrian Plan and the Pennsylvania Bicycle Driver's Manual.

As with the sidewalk information, the County GIS staff calculated the miles of roads in Berks County. There is 3,669.75 miles of roadway as to date. Since 2004, an additional 45.6 miles of road has been built in the County.

The issues that cyclists face are similar to those faced by pedestrians. Issues such as safety, maintenance and accessibility are big problems for cyclists. There are also many different types of users of bicycles: Those riding for commuting purposes, school students, leisure cyclists and others. This section will present the legal aspect of bicycling and also focus on problems that may affect all type of users.

PENNSYLVANIA VEHICLE CODE

According to the Pennsylvania Vehicle Code, a bicycle is considered a vehicle and, as such, is governed by a general set of rules (common to all vehicles) and a specific set of rules (designed for bicycles). Pennsylvania Vehicle Code Chapter 33 Section 3336 and Chapter 35 are the main areas that discuss bicycle laws. The following are highlights from the Pennsylvania Vehicle Code:

- Method of giving hand and arm signals;
- As a general rule, every person riding a pedalcycle upon a roadway shall be granted all of the rights and shall be subject to all of the duties applicable to the driver of a vehicle by this title, except as to special provisions in this subchapter and except as to those provisions of this title which by their nature can have no application;
- Every person operating a pedalcycle upon a highway shall obey the applicable rules of the road as contained in this title;
- Every pedalcycle when in use between sunset and sunrise shall be equipped on the front with a lamp which emits a beam of white light intended to illuminate the pedalcycle operator's path and visible from a distance of at least 500 feet to the front, a red reflector facing to the rear which shall be visible at least 500 feet to the rear and an amber reflector on each side. Operators of pedalcycle may supplement the required front lamp with a white flashing lamp, light-emitting diode or similar device to enhance their visibility to other traffic and with a lamp emitting a red flashing lamp, light-emitting diode or similar device visible from a distance of 500 feet to the rear. A lamp or lamps worn by the operator of a pedalcycle shall comply with the requirements of this subsection if the lamp or lamps can be seen at the distances specified. ;

- A person riding a pedalcycle upon a sidewalk or pedalcycle path used by pedestrians shall yield the right-of-way to any pedestrian and shall give an audible signal before overtaking and passing a pedestrian;
- A person shall not ride a pedalcycle upon a sidewalk in a business district unless permitted by official traffic-control devices, nor when a usable pedalcycle-only lane has been provided adjacent to the sidewalk. ;
- A person under 12 years of age shall not operate a pedalcycle or ride as a passenger on a pedalcycle unless the person is wearing a pedalcycle helmet meeting the standards of the American National Standards Institute, the American Society for Testing and Materials, the Snell Memorial Foundation's Standards Protective Headgear for Use in Bicycling or any other nationally recognized standard for pedalcycle helmet approval. This subsection shall also apply to a person who rides:
 - Upon a pedalcycle while in a restraining seat attached to a pedalcycle; or
 - In a trailer towed by a pedalcycle.

PennDOT BICYCLE AND PEDESTRIAN PLAN (2007)

The 2007 plan is an update from the 1996 Bicycle and Pedestrian Plan that was initiated in 2003 and 2004. This plan is a component of the Pennsylvania Mobility Plan, the state's long range transportation plan. This plan was developed using four basic principles:

- Funding- It is not a funding plan and does not mandate special, separate funding for bicycle/pedestrian activities;
- Integration- It is a plan to integrate or blend the bicycle and pedestrian modes into the routine transportation planning design processes, which is the most efficient way to ensure that they are accorded proper consideration;
- Tools- Rather than extras or amenities to the transportation system, bicycle and transportation facilities and associated education, enforcement and encouragement activities are viewed as tools for solving transportation problems, like congestion, air quality, rising fuel costs and transportation choice. They can also serve secondary purposes like tax base stabilization, improved land use, improved citizens' health and overall quality of life;
- Complementary Components- Like any systematic approach, the engineering, education, enforcement and encouragement actions that form the Plan are meant to be implemented jointly to fully realize the potential of each. Partners in the complementary approach to implementation include other state agencies, the

Federal Highway Administration, the Metropolitan Planning Organization (MPO), County Planning Commission, advocacy organizations and others.

The Pennsylvania Bicycle Pedestrian Plan is attempting to institute the Safe, Accountable, Flexible, Efficient, Transportation Equity Act- a Legacy for Users (SAFETEA-LU) by integrating all modes of transportation, including bicycle and pedestrian, with land use. It will be important for Berks County's Bicycle and Pedestrian Plan to also follow the guidelines set by SAFETEA-LU in order for this plan to achieve integration of land use and transportation within the county.

TYPES OF BICYCLES

Bicycles are categorized by different things i.e. function, number of users, sport, propulsion et cetera. Some bicycles can fall into one specific category or can fall into a number of categories. No matter what the bicycle will be used for i.e. commuting, children, and a proper fit bicycle is necessary. The following is an abbreviated list of types of bicycles:

- Utility Bicycles (commuting bicycles)
- Mountain Bicycles
- Road/Racing Bicycles
- Derailleur Gear
- Single-Speed Bicycles and Fixed Gear Bicycles
- Tandem
- BMX
- Hand-Cranked Bicycles
- Hybrid Bicycles

DRIVING YOUR BICYCLE

Keeping in mind the Pennsylvania Vehicle Code Title 75, a bicycle is considered a vehicle. Aside from the laws established to keep cyclists safe, there is proper cycling etiquette. This section will briefly describe the safest way to ride a bicycle on the road.

First and foremost, the Pennsylvania Bicycle Driver's Manual states the best way to drive a bicycle is by going with the flow of traffic. This way will get a cyclist to his or her destination faster and with fewer chances to have an accident. The more the traffic patterns are followed the more predictable a cyclist becomes. Unlike walking, a cyclist

should not cycle against traffic. Depending on how wide the travel lane is, is there a shoulder and if so, is that shoulder covered in gravel which can cause blowouts and increase accidents, determines where in the lane the cyclist should be. Narrow travel lanes, a cyclist should be in the center of the lane; wider travel lanes a cyclist should be to the right of a car but not all the way to the right that could cause a potential crash with a car door or passing vehicle.

According to the Pennsylvania Bicycle Driver's Manual, depending if you are turning right or turning left, a cyclist may need to change lane positions. Turning right is easier than turning left; however, if a cyclist follows the methods of hand signals as described in Chapter 33 Section 3336 of the Pennsylvania Vehicle Code, a left turn can be safely executed. A cyclist when changing lane positions needs to be just as aware if not more aware of his/her surroundings. It is important to not just rely on hearing when switching lane positions, it is important to also look behind you and find the location of the cars and when it is safest to make the lane change.

It is most important to remember that driving a bicycle the smart way, most likely results in a safer commute for all roadway users. Remember, as a cyclist, if you are not following the laws set by Pennsylvania Vehicle Code Title 75 Chapter 35, you can be cited for a traffic violation. In Berks County there are various bicycle training classes. These classes incorporate the core issues and techniques as discussed in this section for cycling on the roadway.

WHY DO PEOPLE BICYCLE?

According to the League of American Bicyclists, people are using bicycles for various reasons: economics, environment, your health, for the joy of it and lastly, for transportation.

Economics:

With today's economy and the current recession, Americans are looking for numerous ways to save money. One way a person can save money is by getting out of their vehicle and using a bicycle. On average, a motorist drives 15,000 miles a year and wastes an equivalent of a full work week stuck in traffic (SOURCE: The Missing Piece in our Transportation System, Rails-Trails Conservancy). Half of all trips motorists take in their vehicles are three miles or less. People can eliminate using their vehicles all together on trips less than 3 miles. This would help save on wear and tear of a vehicle and also gasoline. Bicycles are much less to maintain and also purchase and have little wear and tear.

Environment:

With the increased traffic congestion there is an increase in pollution and emissions. People do not realize that when a car is driven on shorter trips, it is worse for the environment on a per mile basis. This is because 60 percent of the pollution from auto emissions is released during the first few minutes of operation of a vehicle. Providing

better air quality can provide a better standard of living. People are healthier and those with breathing problems are less likely to have flare-ups. By decreasing pollutants, it decreases the amount of smog and less acid rain on the environment.

Maintaining a Healthy Lifestyle:

Most people these days are interested in healthy living. According to the League of American Bicyclists, there were 400,000 deaths in 2000, 16.6 percent of all deaths were due to physical inactivity and poor diet. Bicycling can help eliminate obesity amongst adults and children. Since money is a key factor with all of these sections, it is important to remember that healthcare costs are on the rise like gasoline, oil and electricity.

According to the Center for Disease Control (CDC), 61 percent of adults in the United States are overweight or obese; 31 percent of kids aged 6-11 and 14 percent of kids 12-19 are overweight. Obesity is second behind tobacco in the nation's health risk factors, contributing to 300,000 deaths a year. Many of the nation's diseases are associated with being overweight or obese; heart disease and diabetes are just two of the leading causes of death associated with being overweight and obese.

Being physically fit provides many lifestyle benefits. Those who are more physically fit see a decrease in anxiety and depression as well as better cardio-vascular health. Active people are more likely to lead healthier, longer lives. A more active person tends to be a happier, more productive worker who has significantly lower healthcare costs. A way to incorporate exercise into a person's daily routine is to eliminate the vehicle on short trips. Invest in a bicycle and when running simple errands, use a bicycle and in turn, incorporating saving the environment, saving money on gasoline and staying healthy.

Transportation:

According to the Bureau of Transportation Statistics, October 2000 Omnibus Household Survey, 41.3 million Americans (20%) used a bicycle for transportation in the 30 days measured in the survey. People would cycle more often to work if better facilities/incentives were provided. If employers offered financial or other incentives, employees may be more inclined to cycle to work, i.e. their cost of insurance would decrease. Facilities include but are not limited to bicycle lockers and wider shoulders on the road. The infrastructure for bicycles is much cheaper than infrastructure for vehicles.

Berks County is not unique to the information that has been presented thus far. As with pedestrian issues, cyclists are facing similar problems. Cyclists are concerned for their safety; they have accessibility problems and also the maintenance of the infrastructure provided can be in poor condition. The following sections will attempt to link what is in the previous sections with Berks County.

SAFETY

Helmets:

Before a cyclist gets on his or her bicycle, one of the tools he or she should have is a helmet. According to the Pennsylvania Bicycle Driver's Manual, wearing a bicycle helmet whenever riding a bicycle can reduce a person's risk of a serious head injury by 85 percent. The United States has created standards for helmets that are regulated by the Consumer Product Safety Commission (CPCS). According to the International Bicycle Fund, a good bicycle helmet must be able to absorb impact energy just as motorcycle helmets do to prevent brain injury. Most of the best helmets have three elements: a shell, a liner and straps and buckle. Although the Pennsylvania Vehicle Code states that pedalcyclists under 12 years of age shall not operate a pedalcycle without a helmet, it is a good thing for all riders to use regardless of age.

Lights and Reflective Clothing

Helmets are important but also are lights and reflective clothing for cycles and cyclists. Should a cyclist be on the road after dusk and before dawn, it is imperative that lights be on the bicycle. Riding at night is dangerous enough with low visibility that not outfitting a bicycle or the rider will make it even more dangerous. Reflective clothing would be a good idea to have on as well. If the lights on the cycle are not strong enough, the reflective clothing can notify vehicle drivers to a cyclist on the road.

Roadway Signals

As mentioned previous, a person drives a bicycle, in turn, using correct hand signals, following correct traffic patterns are ways to keep safe. The cyclist is not the only person that needs to be aware of the laws and surroundings. Vehicle drivers also need to be aware that a cyclist has just as much right to use the roadway as does the vehicle. A vehicle driver should be aware of what is around a bicycle and if attempting to pass a cyclist, use caution and pass with ease.

Criminal Acts

Safety issues are also a concern at night not because of a cyclist getting hit but for other reasons. At night in some cities a cyclist is more likely to be robbed and/or attacked then to get into a bicycle crash with a vehicle (SOURCE: Pennsylvania Bicycle Driver's Manual). Pedestrian overpasses, parks and industrial areas generally provide a higher risk for being robbed or for personal attacks. It is essential that cyclists who must ride at night choose routes that are well lit and busy. A cyclist should consider going out of the way in order to remain safe from attacks.

Another security problem facing cyclists is theft. Theft of bicycles occurs either through a lack of proper locking or insufficient means of securing. In West Reading Borough, a program was instituted that allows the Borough to provide locks to individuals using municipal parks/pools. The program works with an individual leaving identification with

a municipal official and is handed a lock. Upon the return of the lock, the individual receives their identification. Measures similar to this should be considered in order to help maintain people using municipal parks and using their bicycles to travel to and from these areas.

MAINTENANCE

This section will address the maintenance of the roadways and shared-use paths. Municipalities set aside money in the budget for transportation and for maintenance of roadways. However, not every project slated for construction is completed due to varying outside influences i.e., excessive snow and lower than normal funding. The Pennsylvania Department of Transportation (PennDOT) also has budgets to follow and maintenance requests to be completed. Accommodations for bicycle infrastructure are considered at the beginning of the project stages and if federal and state funding is provided.

Many government agencies implement either a Preventative Maintenance schedule or a Corrective Maintenance schedule (SOURCE: Municipal Road Maintenance Guide-American Council of Engineering Companies). Coming up with a Preventative Maintenance schedule at the onset of a project proves to be a better judgment than waiting for the infrastructure to deteriorate beyond financial capacity. Maintenance to roadways includes but is not limited to, repaving, pothole repair, shoulder repair, pavement markings and street sweeping. Pavement markings are as essential as making repairs to the asphalt. Pavement markings aid the driver of the vehicle and the cyclist in correctly navigating the roadway.

Berks County has areas with insufficient roadways that require repair either immediately or in the future. Cyclists in the county need to be worried about potholes in driving lanes as these can result in either major damage to the bicycle or an outright crash. Some of the county's driving lanes are not conducive to shared use between vehicles and bicycles at the same time. Improved maintenance and signage would help in making narrow lanes more conducive to shared use. Until such time those accommodations can be made, signage indicating alternate bike routes would be beneficial.

ACCESSIBILITY/CONNECTIVITY

A street and/or shared-use path to an attraction is functional only if it provides safe and efficient access for all persons. Many of the roads in Berks County are deteriorating or have very limited accessibility/connectivity for cyclists. Street connectivity becomes a problem with cyclists on divided roadways such as Route 422 when shoulders are narrow. The issue of connectivity arises when discussing shared-use paths. Accessibility in this section will discuss a cyclists' ability to have access on a two-lane road.

Shared-Use Paths

Shared-use paths are convenient for cyclists if there is no safe road access or no road exists, to bypass obstructions i.e. construction areas, for safer travel and also a trail can provide a scenic setting for riding (SOURCE: Lancaster Bicycle Club). These paths are great for school children, if the path provides a connection between the neighborhood and the school. It can provide a safe way for children to bicycle to school and get the recommended 30-minute cardiovascular exercise a day. The paths are a good way for beginner cyclists to learn how to use and operate a bicycle before heading out onto the roadway (SOURCE: Lancaster Bicycle Club).

The disadvantage to shared-use paths is if no connection is made between a community and a destination such as a retail shopping area. Shared-use paths are not meant to replace using the roadway, they are meant to make safer more convenient connections when none is provided. In Berks County, some of our trail systems can be used as shared-use paths. This allows the cyclist to avoid heavy traffic congestion while still being able to cycle from one area to another.

However, shared-use paths can provide a whole other obstacle. A cyclist should not use a shared-use path at night as safety and security issues can become more pronounced.

Bike Lanes

Bike lanes are a controversial issue. In some areas of the nation bike lanes have been installed and are functioning well, while in other areas bike lanes have been installed but may not be functioning as hoped. Bike lanes should be planned, designed and installed after a careful evaluation of all potential impacts of such facilities. They require ideal situations and should be engineered with attention to details.

According to PennDOT District 5-0 Bicycle and Pedestrian Coordinator, Pennsylvania requires a minimum of 5 feet for a dedicated bicycle lane; AASHTO prefers 6 feet. The coordinator states that bike lanes are normally used where there is competition for space and a strong need to identify space so cyclists and motor vehicles can stay clear of one another, i.e. downtown Philadelphia and State College. If bicycle lanes are installed on state routes, PennDOT would be required to maintain the markings and sweep the shoulder. Bike lanes collect significant amount of debris from passing motorists which could cause an accident (SOURCE: Lancaster Bicycle Club).

On the contrary, bike lanes are not always a negative. Alan Wachtel, author of *About Bikes* says that, "a bike lane stripe serves the same engineering purpose as any other lane stripe, and should be employed under similar circumstances- to delineate travel paths that could otherwise be ambiguous, providing for more predictable movement." Bike lanes can provide better protection from using additional roadway space for vehicle travel lanes, simply by restriping it. As mentioned previous, predictability is an important component between vehicles and cyclists and bike lanes can remind vehicles that bicycles have a right to the road and should be expected on the road.

Bike Routes and other Wayfinding Techniques

Bike routes are becoming more commonplace. In this case, a formally striped lane is not provided. However, by using mapping and directional signage a recognized route is provided that aims to give cyclists a common, safe route between attractions. These routes may be either on- or off-road. In order to further enhance the notion of bike routes, Shared Lane Markings—otherwise known as Sharrows—can be added to existing travel lanes. Recently added to the Manual of Uniform Traffic Control Devices (MUTCD), the nationwide guide to roadway signage and marking, Sharrows designate a travel lane as one to be shared by both vehicles and bicycles. This marking informs motorists that there may be cyclists in their lane, and it informs cyclists that they will be sharing the lane with motorists. If a roadway or lane becomes heavily used by cyclists, formally marked and maintained bicycle lanes should be considered.

Roadway Shoulders

On many roads, bicyclists ride on the roadway shoulder. While this is appropriate in many instances, there are concerns that should be addressed by the roadway owners (PennDOT or municipalities):

- **Shoulder Consistency**: Does the physical shoulder width increase/decrease over distance, thus pushing cyclists into the cartway, or do obstacles such as guiderails, drainage facilities, brush and utilities change the shoulder size?
- **Maintenance**: Is there litter, gravel, glass, weeds, accident debris that needs to be removed? Are shoulders rutted, loosely paved, or generally in poor condition?
- **Rumble Strips**: A low-cost motorist safety improvement being added to many roadways is the shoulder-edge rumble strip. These consist of large grooves cut into the roadway surface along the painted edge of the road. They alert motorists through sound and vibration that they're straying from the road into the shoulder. Unfortunately, they make cycling in the shoulder difficult if the cyclists has to cross them. PennDOT has adopted guidance that specifies cyclist-friendly application of these rumble strips. Essentially, they have non-grooved sections spaced at even distances that allow cyclists to cross them safely.

By having consistent, clean and safe road shoulders cyclists can better use a road while adding a safety margin for himself/herself as well as the motorist.

AMENITIES

A measure to think about when writing a plan like this, is to think of the cyclists not just getting from one place to another but what will the cyclist do once he/she reaches the destination. Many areas are not built for bicycle commuting in the road capacity but also many areas are not built for leisure cyclists, people going out for a nice bicycle ride and then stop for food. Something to remember is that cyclists need a place to put leave the bicycle, preferably a safe place. If amenities such as bicycle racks or lockers were available, it would attract more people to use a bicycle. An employer providing showers at work for a bicycle commuting employee could attract more cyclists.

Though bike racks and/or lockers would be assets in most areas, their location needs to be appropriate. Parked bicycles should not block sidewalks and storefronts in commercial areas, but should also not be relegated to out of the way areas such as loading docks or other inconvenient/undesirable spaces. Cyclists are more apt to use them if they are in areas where visibility helps prevent theft and/or damage. Additionally, bicycle amenities should be placed so that the amenities or parked bikes do not hinder handicapped accessibility in any way.

Increased route signage would encourage the use of bicycles. For instance, having baseball parks with better infrastructure, amenities and signage would be ideal because families are attending these types of events. Cycling as a family to a ballpark on a designated path is great exercise and increases the family time. Having amenities at ballparks can also lessen traffic and therefore lessen the amount of pollution being emitted.

EDUCATION

As with pedestrians, educating cyclists and motorists is a very important component. Education can be in different forms. For cyclists, it is important that they learn the Pennsylvania Vehicle Code which provides what is acceptable and not acceptable for cycling. Motorists should be taught the proper etiquette for dealing with cyclists on the roadways. It is important for motorists to realize that cyclists are driving their bicycles and have the same rights to the roadway as a vehicle.

Teaching children from a young age is imperative. Programs exist that allow local police departments to give school assemblies on what to do and not do when cycling. These programs will teach safety and security, allowing children to see the importance of wearing a bicycle helmet and reflective clothing and locking the bicycle up so it is not stolen. High school age children that are learning to drive could be learning about cycling and cyclists in a Driver's Education class.

Local shopping centers and bike dealers could provide pamphlets/brochures on bicycling. These pamphlets could list locations and times of classes for learning to ride a bicycle the correct way. It could provide points on vehicle responsibility.

CHAPTER 5:
RECOMMENDATIONS

BICYCLE AND PEDESTRIAN RECOMMENDATIONS

In the previous chapters, efforts were made to analyze existing conditions and identify issues and opportunities and this leads to one of the key components of any Bicycle and Pedestrian plan – establishing a set of recommendations to guide the plan and its users into the future.

The recommendations within this plan are generalized expressions of ways to direct users of this plan to thoughtfully look at the pedestrian and bicycle facilities within their communities and develop ways to create better and safer environments for users of this multi-modal system. Based on input from the Berks County Bicycle Plan Committee, data collected throughout the planning process and the Five E's of the Safe Routes to School Program the following recommendations were established:

- **Municipal ordinances should be amended to require developers to provide bicycle/pedestrian accommodations within new developments and also provide links to residences and other attractions.**

The planning process starts with municipalities. Every municipality within Berks County has their own ordinances that govern land use through both the Subdivision and Land Development Ordinance (SALDO) or zoning process. Developers should be engaged during the initial planning of new developments to include facilities for walking, biking and—where appropriate—transit access. Many times a new development is constructed and it is isolated from the rest of the community. Two different subdivisions could abut each other but there is no interconnection between them. As schools need to develop new campuses for their growing populations, they are increasingly moving further away from areas of dense development.

A municipality can enhance its community layout by providing a diverse transportation system. There are local community centers, colleges/universities that provide classes and workshops that teach planners and other municipal officials sound planning techniques. PennDOT provides pedestrian safety workshops that give examples of street layouts and tools municipalities can implement. Municipalities need to make sure that their ordinances contain adequate clauses to ensure that developers install proper pedestrian facilities when building new subdivisions and commercial areas.

Municipalities need to be proactive when it comes to development. Many of our new local bridges provide sidewalks; however, there is no sidewalk provided outside the bridge area thus making connectivity a problem. Roadways should include pedestrian signal heads that give adequate time to cross the street.

MPO staff and a bicycle and pedestrian advisory committee put together by the MPO must work together with municipal officials to amend their development processes to ensure the inclusion of bicycle and pedestrian facilities in new construction. Links should be provided between established neighborhoods and new residential and commercial areas. The Berks County Greenway and Parks and Recreation Plan have listed recommendations for non-motorized linkages that many municipalities could use as a starting point for connecting developments (commercial and residential).

Another important piece of information to remember is that in order for these recommendations to be implemented, would be for the municipality to not waive sidewalk/pathway requirements for new development (s). This is becoming an ever increasing practice and yet it is making the area vehicle oriented instead of providing multimodal transportation options. Many municipalities have a “fee in-lieu of” for open space in new developments; a recommendation could be to require a “fee in-lieu of” for sidewalks and other non-motorized linkages.

- **Ensure that the pedestrian system complements the existing transportation network to maximize and preserve the existing system and take advantage of public rights-of-way and corridors such as utility lines, future rail lines, linear waterways, etc., for bicycle and pedestrian facilities in order to minimize public costs.**

During the comprehensive planning and joint planning process, identify utility lines, rail lines, and linear waterways on the future land use map as possible routes for bicycling and walking. Municipalities should reference the Berks County Greenway Park and Recreation Plan, the Berks Vision 2020 Comprehensive Plan, along with the MPO’s Long Range Transportation Plan, the Congestion Management Process and the Transportation Improvement Program when developing new trails and pedestrian facilities. Municipalities should also be working with groups such as the Berks Bicycle Club and WalkBikeBerks to work on areas that are appropriate for bicycle and pedestrian facilities.

Municipalities need to be proactive when considering new roadway infrastructure or retrofitting established infrastructure. When federal and state funding is provided, municipalities must consider accommodations for cyclists and pedestrians. Considering these accommodations at the onset of communication between a community and a developer is imperative. Municipalities need to allocate an amount of monies be spent on updating roadways that includes but is not limited to, upon installation of new utility lines, installing new curbing and repaving roadways. Municipalities need to make it a priority that when improving roadway infrastructure safe facilities are retrofitted into the new design. The monies could be used for the installation of bicycle lanes and/or wider shoulders for bicycles. Signage could be installed designating a bicycle route or directional signage showing where bicycle routes are located.

Through a combined effort between all entities involved and the use of the aforementioned documents and resources there is more than enough reference material to adequately provide a safe and efficient multi-modal system of transportation throughout the County.

- **Educate elected officials, transportation officials and decision makers.**

Educating the pedestrian alone is not enough. An effective program to improve pedestrian safety and mobility should also address those responsible for approving, planning, designing, and developing a safe pedestrian network. Elected officials, transportation officials, and other decision makers must have buy in on the importance of walking and the need for safe walking conditions. Otherwise, they may not provide the resources to address the problems. Their support for pedestrian education programs, stepped-up enforcement activities, and infrastructure improvement is crucial. It is important for elected officials and transportation decision-makers to understand and believe that walking is an integral and critical part of the transportation system.

Educational messages and programs vary across the board. What is appropriate for a municipal official or decision maker will vary from what is appropriate for road users and school age children. Educational messages for road users commonly focus on improving personal safety and obedience to traffic laws. Campaigns aimed at commuters or employees often focus on messages to encourage drivers to use carpools or transit, or to consider non-motorized transportation modes. Education and training programs aimed at transportation officials and decision makers usually focus on encouraging stronger support for policies, programs, and facilities that promote safe walking.

Some strategies for educating elected officials and transportation officials and other decision-makers include: (1) Show the facts – improve data to better describe the nature of the pedestrian problem in the community and to justify attention to pedestrian concerns. (2) Conduct internal campaigns within the organization to build staff support for the pedestrian safety program. (3) Develop relationships and partner with other agencies that have an interest in pedestrian issues. (4) Plan events and activities that encourage officials to walk with an escort that can point out challenges and potential solutions. (5) Partner with safety groups, community groups, homeowners associations, and others to lobby the politicians and decision-makers at the local and state level.

- **Identify and evaluate problem areas (i.e. areas with high occurrences of bicycle and pedestrian related accidents) and plan ways to create a safer bicycle and pedestrian environment.**

In order to achieve the safest routes for all modes of transportation, municipalities, the Reading MPO and PennDOT need to work together. Each entity can provide information that would allow the correction of problem areas. PennDOT traffic crash data can be used as a tool to identify areas where there

have been abnormally high numbers of pedestrian related traffic accidents. Municipalities should review police logs for areas of high crash rates or high ticket volumes. After identifying the problem areas they can then be evaluated to determine what the cause of these instances are. Determining what the reasons for specific crashes involving pedestrians are a good tool for identifying problems areas and coming up with ways to fix them. With the help of PennDOT and its resources, sounder planning and project programming could be implemented with safety as a priority.

- **Review potential improvements to the transportation system to ensure minimal negative impacts to all users.**

Many improvements to the system, though well-intentioned, can have unplanned negative impacts on other users. Examples include shoulder-edge rumble strips (increase motorist safety but add difficulty for cyclists) and pedestrian bulb-outs at intersections (increase pedestrian safety but force cyclists further out into traffic). While this Plan is not advocating against improvements like these, it is advocating for complete investigations of all users and the impacts to them.

- **Work with the Safe Routes to School program to make walking and biking to school safer.**

School districts need to consider the importance of “neighborhood” schools and recognize that if amenities/infrastructure were provided many children would walk or bike to school. With the rise in childhood obesity, having schools provide proper amenities could promote healthy lifestyles and encourage children and teens to exercise by walking or biking to school. School districts can and should be encouraged to institute the Safe Routes to School Program. School districts can get grants through PennDOT and the safe routes to school program to substantially improve the ability of primary and middle school students to walk and bike to school safely. Through the program a safety audit can be performed to identify obstacles and safety issues facing student when they walk or bike to school. An action plan can then be put together that identifies these problem areas and come up with ways to rectify them. Parents need to advocate for safer walking and biking conditions to and from schools. Parents should lobby school districts to ensure they provide bicycle amenities at the schools.

- **Recommend that the Commonwealth of Pennsylvania become more involved in prioritizing bicycle and pedestrian issues.**

Transportation agencies often develop a ranking system for making improvements such as surface preservation, modernization, or safety. Pedestrian safety countermeasures are no different. The idea is to assign scoring to the various criteria, weighting each one according to the values of the community, available funding, political climate etc. Other scoring factors can be

added, and each one needs to be weighted as it represents an agreed upon value.

Although PennDOT has bicycle and pedestrian coordinators at both the statewide and district levels, those persons are used in many other capacities with bicycle and pedestrian issues being only part of their overall responsibilities. If the Commonwealth would ensure that bicycle and pedestrian issues were prioritized and viewed with higher regard, municipalities would potentially be more inclined to include provisions for cyclists and pedestrians. The Commonwealth needs to prioritize its bicycling and pedestrian support infrastructure.

Without a combined effort from all entities that have a stake in the multi-modal transportation system of a community, creating a valuable and efficient pedestrian and bicycle system will never come to fruition.

- **Enforce the Pennsylvania Vehicle Code Chapter 35.**

Pennsylvania has a vehicle code to ensure the safety of all its residents and visitors. However, the vehicle code is only useful if it is enforced. There are specific laws that govern pedestrian and cyclists; these laws need to be enforced for the safety of everyone. Motorists need to remember the rules that apply to them with regards to pedestrians and cyclists. Pedestrians have the right-of-way in Pennsylvania and therefore not yielding to a pedestrian, a vehicle driver can be cited. The only way to get responsible thinking and usage out of the transportation system is to enforce the laws of the Commonwealth.

- **Encourage employers to work with commuter agencies.**

As roadway congestion has grown, agencies that promote alternative commuting methods have been created. Berks County employers have begun working with Commuter Services of Pennsylvania, an organization that works directly with employers to promote alternative commuting to their employees. Through their outreach efforts, Commuter Services has taken 10 million miles of single occupancy vehicles off the road and converted those trips into vanpools, transit and bicycling.

<u>BICYCLE RECOMMENDATIONS</u>

- **Municipalities should establish bicycle routes.**

A municipality in its zoning ordinance or subdivision and land development ordinance can regulate the placement, size and shape of signs. Provisions can also be added regulating the bicycle route. A municipality can erect signage directing cyclists to local commuting trails and bicycle commuting routes.

Signage can also be an indication that the road is a designated bicycle route which would alert vehicle drivers to the possibility of cyclists sharing the road.

- **Municipalities and PennDOT should consider marking bicycle lanes.**

Where heavily-used on road facilities create multiple conflicts with motorists, and where other alternatives may not exist, municipalities and/or PennDOT, after appropriate consideration and study, should consider the creation of marked bicycle lanes and their continued maintenance.

- **Employers should encourage and accommodate employee commuting to work via bicycle.**

There are cyclists who wish to commute to work every day on their bicycles, however, there is no safe place for the storage of a bike. Many employers do not provide bicycle racks or bicycle lockers and some businesses do not allow bicycles to be brought into the building. For equipment that is very expensive, leaving a bicycle outside is just not an option. Also, fear of theft or damage to equipment keep people from commuting to work by bicycle. Other Incentives should be given to those employees who commute to work by bicycle. Providing lower cost healthcare is a good incentive for employers to have. Obesity is rising at a high rate and healthcare costs are also rising for employers and the employees. A reimbursement plan could be established which would allow employees to get money back that is not spent on using health insurance or parking. Since many people may not cycle to work because of not having a place to freshen up afterwards, employers should investigate the provision of locker areas and shower facilities.

- **Employers should be encouraged to work with commuter agencies.**

As roadway congestion has grown, agencies that promote alternative commuting methods have been created. Berks County employers have begun working with Commuter Services of Pennsylvania, an organization that works directly with employers to promote alternative commuting to their employees. Through their outreach efforts, Commuter Services has taken 10 million miles of single occupancy vehicles off the road and converted those trips into vanpools, transit and bicycling.

- **Encourage educating children and teens about bicycle etiquette.**

This can be achieved through the cooperative partnerships of schools, parents, local police departments and outside organizations like the North Central Highway Safety Network, AAA and the Safe Routes to School Clearinghouse. Police departments will come to schools and speak of the importance of riding a bicycle and driving a car responsibly. School districts need to utilize their resources when encouraging alternative methods to school other than car or bus. Once a child grows up and becomes a teenager and is

driving, schools need to provide this education in Driver's Education classes. Parents are not exempt from educating their own children on safety. Children learn by example and children need to see the proper technique of riding on a sidewalk or roadway. At home, it is important that parents reinforce what is taught at schools on bicycle and driving rules.

- **BARTA should continue its program of installing bike racks on busses.**

The Berks Area Regional Transportation Authority (BARTA) recently began installing bike racks on their fixed-route busses. BARTA is encouraged to expand this program to all fixed-route busses as funding permits and to more aggressively advertise their presence to the public.

- **Encourage increased safety among all cyclists.**

Safety is important with children and all cyclists. Being safe includes being visible, using lights at night, wearing reflective clothing and also wearing helmets. It is most important to be a visible cyclist and wear proper clothing. When riding at night time having a light on the bicycle along with reflectors is crucial. Using a helmet is of the utmost importance. According to the Pennsylvania Bicycle Driver's Manual, wearing a bicycle helmet whenever riding a bicycle can reduce a person's risk of a serious head injury by 85 percent.

What most kids do not know is that Section 3510 of the Pennsylvania Vehicle Code governs the use of helmets by children under 12. Helmets are very important items that are necessary when riding a bicycle at any age. A program should be devised that gives back to the children who wear helmets even over the age of 12. School districts need to be involved in promoting safe bicycle usage. Schools could provide programs similar to the Book-It program that give out rewards for those kids who wear helmets when biking to and from school. If there is a local bicycle shop that could sponsor a helmet give-away or provide discounts on merchandise to children who wear helmets, it might encourage more children/teens to use helmets all the time. Parents need to relay the importance of using bicycle helmets to children.

PEDESTRIAN RECOMMENDATIONS

- **Require that projects when implemented meet American's with Disabilities Act (ADA) requirements.**

Municipalities, county planning and local disabilities advocates need to cooperate together to make this recommendation a reality. There is no reason that when infrastructure is added or replaced that ADA compliancy cannot be met. Sidewalks need to be retrofitted with the correct slope of ramps and rumble bumps need to be provided for the blind and visually

impaired. At the on-set of planning, the correct slope can be figured into the engineering costs as well as other requirements for ADA compliancy. Sound and safe design standards can be instituted from the beginning by working together.

- **Prioritize pedestrian improvements to enable a conservative approach to rectifying pedestrian safety issues – not all projects need to be “high cost.”**

Not every pedestrian safety improvement needs to be high cost. A project that increases pedestrian safety can be done at a relatively low cost but can have a high value in safety. An example would be installing pavement markings or signs where appropriate instead of building new, more elaborate infrastructure. A low cost approach can have a greater impact on the safety of pedestrians without the need for municipalities to overextend them monetarily.

- **Develop strategies on how projects would be funded and identify funding streams that can be used to build projects.**

Most projects have some type of cost attached to them. With municipal budgets becoming tighter every year, many are hesitant to include funding for bicycle projects. Project sponsors must educate themselves on funding streams available through federal, state, county, municipal, non-profit and other local sources. These funding streams all have various rules attached that need to be followed in order to obtain and use the funds.

- **Educate pedestrians on the proper use of the pedestrian system.**

Local police departments, American Automobile Association (AAA), crossing guards, non-profits, educators and parents all must work together to teach each other how to walk safely. Without basic education at an early age, bad habits can turn into potentially dangerous habits.

CHAPTER 6:

FUNDING

FUNDING

Throughout this document, ideas for bicycle and pedestrian planning have been laid out. Recommendations have been provided in order to ensure that bicycle and pedestrian planning can be accomplished. There is another factor that determines if bicycle and pedestrian facilities can be implemented, that is funding. Funding can come from a variety of places, government- federal, state and local, private sector sources, community fundraising and creative partnerships and lastly from foundations (SOURCE: Bicyclinginfor.org).

Government funding can not only be broken down amongst the different levels but also transportation related versus non-transportation related. Various entities will offer monies but not for every project and only for certain parts of the projects, i.e. feasibility studies and construction. It is important for the grant writer to ensure that the monies that are being asked for can be used for a particular project. It would be wasteful to spend time completing applications for which the community does not qualify.

Motor vehicle fuel tax is one way that many states use to fund highway and transportation infrastructure. Since states have their own constitutions and governments, how to spend the fuel tax is a state issue. Not all states will allocate fuel tax monies to bicycle and pedestrian facilities, while some will make bicycle and pedestrian projects eligible for fuel tax monies. Non-transportation revenue streams can be used for bicycle and pedestrian facilities, i.e. state lotteries and real-estate transfer tax.

Local communities can do its own share of funding projects and should not be excluded from this chapter. There are three common approaches to local funding: special bond issues, dedications of a portion of local sales taxes or a voter-approved sales tax increase and use of the annual capital improvement budgets of Public Works and/or Parks agencies. (SOURCE: Bicyclinginfo.org)

With most cases, funding does not come at 100 percent. Many communities must match funds or provide matching services.

Section 217 of Title 23 of the U.S. Code (USC) calls for the integration of bicycling and walking into the transportation mainstream and enhances the abilities of communities to invest in projects to improve the safety and practicality of biking and walking everyday. Many bicycle projects must be for transportation purposes rather than recreation. Listed below are Federal-aid Highway Program funding types from the Federal Highway Administration (FHWA):

- National Highway System (23 USC Section 217 {b})
 - Used for construction of bicycle transportation facilities and pedestrian walkways on land adjacent to any highway on the National Highway system and Interstate Highways.

- Surface Transportation Program (STP) (23 USC Section 217 {a})
 - Used for construction of bicycle and pedestrian facilities or nonconstruction projects related to safe bicycle use and walking.
 - Modification of sidewalks to meet ADA requirements.
 - 10 percent of monies are set aside for Transportation Enhancement Activities (TEA).
 - 10 percent is set aside for Hazard Elimination and Railway-Highway Crossing programs.
 - Hometown Streets/Safe Routes to Schools administered through TEA monies. This is not grant money but a reimbursement through PennDOT.

- Congestion Mitigation and Air Quality Improvement Program
 - Like STP funds, this money can be used for construction and nonconstruction projects. (23 USC Section 217 {a})

- Recreational Trails Program (23 USC Section 206)
 - Used for trail projects.
 - 30 percent must be used for motorized trail use.
 - 30 percent must be used for nonmotorized trail use.
 - 40 percent for diverse trail use.

- National Scenic Byways Program (23 USC Section 162 {c} {4})
 - Funds can be used for “construction along a scenic byway of a facility for bicyclists and pedestrians.

- Job Access and Reverse Commute Grants (TEA-21 Section 3037)
 - Grant that supports projects, including bicycle-related services, designed to transport welfare recipients and eligible low-income individuals to and from employment.

- High Priority Projects and Designated Transportation Enhancement Activities
 - Section 1602 of TEA-21 identifies projects that include bicycle, pedestrian, trail and traffic calming projects in communities throughout the country.

Federal Transit Program:

Title 49 USC, which was amended by TEA-21 allows for Urbanized Area Formula Grants, Capital Investment Grants and Loans, and Formula Program for Other than Urbanized Area transit funds that can be used to improve bicycle and pedestrian access to transit facilities (SOURCE: FHWA). Activities that are eligible for these funds are investments in “pedestrian and bicycle access to a mass transportation facility” that either enhances coordination between various transportation types or establishes the coordination. (49 USC Section 5307)

The Transit Enhancement Activity program that was created by TEA-21 sets aside one percent of Urbanized Area Formula Grant funds for pedestrian access and walkways and bicycle access that includes bicycle storage facilities and installing equipment on mass transportation for bicycles.

Highway Safety Programs:

State and Community Highway Safety grants bring the focus of safety back to pedestrian and cyclists. These grants require a Performance plan and Highway Safety plan in order to be eligible. The Performance plan needs to establish goals and measures for improving highway safety. The Highway Safety plan would describe activities that would be used to achieve the goals. (23 USC Section 402)

Federal government programs typically fund 80 percent of projects, however, there are exceptions: (SOURCE: FHWA)

- Federal Lands Highway projects and Section 402 Highway Safety funds are 100 percent federally funded.
- Bicycle related Transit Enhancement Activities are 95 percent federally funded.
- Hazard elimination projects are 90 percent federally funded. Bicycle related transit projects, not Transit Enhancement Activities, may be up to 90 percent federally funded.
- Individual Transportation Enhancement Activity projects under the STP can have a match higher or lower than 80 percent. Overall, federal share of each state’s Transportation Enhancement Program must be 80 percent.
- States with higher percentages of federal lands have higher federal shares calculated in proportion to their percentage of federal lands.
- Funds to match may be in-kind contributions i.e. donations. Funds from other federal programs can be used as a match for Transportation Enhancement, Scenic Byways and Recreational Trails program funds. A federal agency project sponsor may provide matching funds to Recreational Trails funds provided the federal share does not exceed 95 percent.

Signed into law on August 10, 2005, SAFETEA-LU (Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users) is a six year funding bill that authorizes \$244.1 billion in federal gas-tax revenue and other federal funds for all modes of surface transportation. None of these funds is dedicated solely to bicycle and pedestrian facilities or programs. There are funds that are non-transportation related that can be used for bicycle and pedestrian facilities. Below is a list of these funds: (SOURCE: Bicyclinginfo.org)

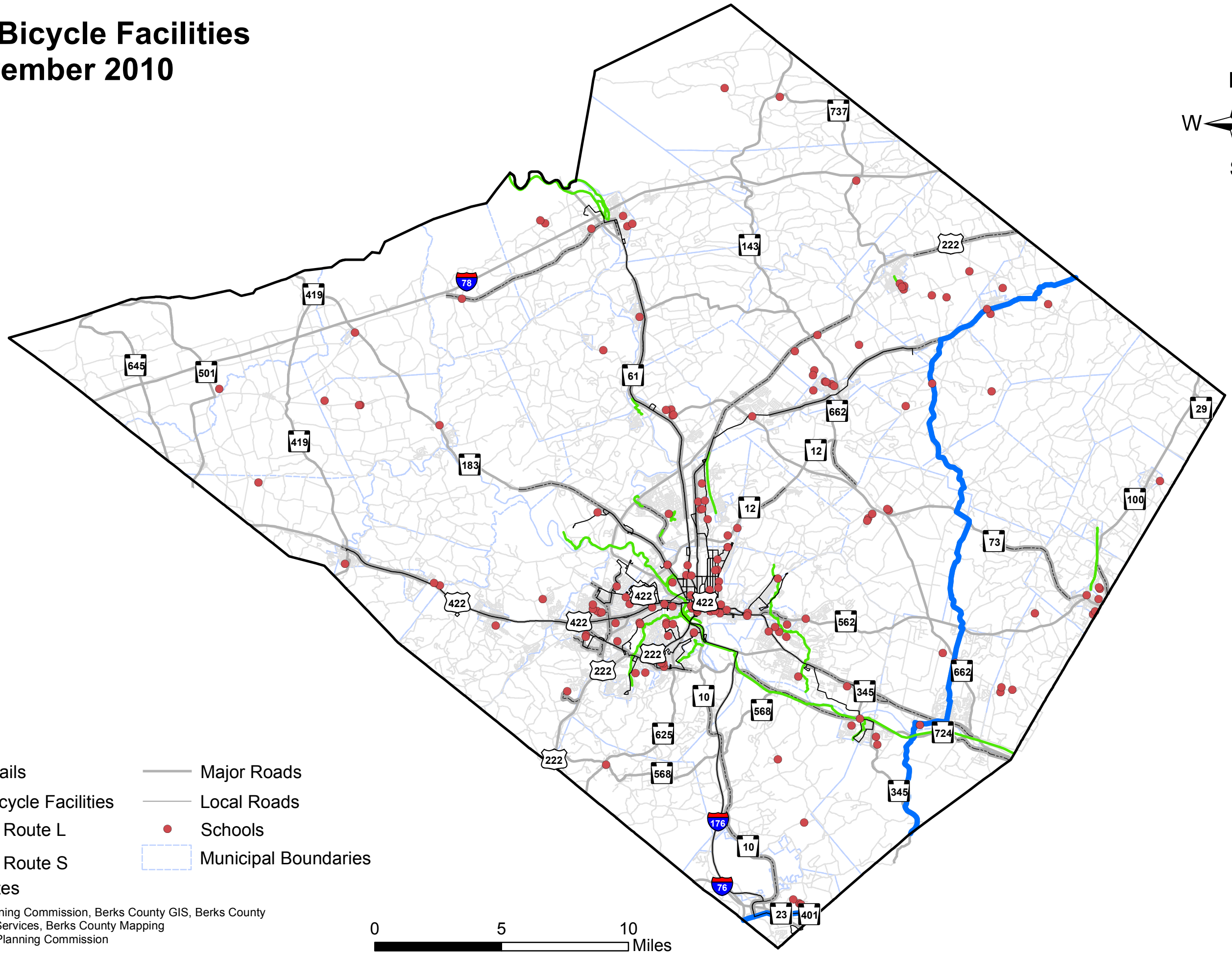
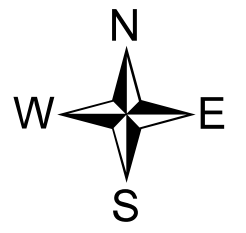
- National Forest Service, National Park Service or Bureau of Land Management
 - Primarily used for trails and must be on federal lands.
- Community Development Block Grants, Department of Housing and Urban Developments
 - Funds for community based projects
 - Commercial district streetscape improvements
 - Sidewalk improvements
 - Safe Routes to School
 - Neighborhood based bicycling and walking facilities that improve local transportation or help revitalize neighborhoods.

Government funding is not the only type of funding that is available for bicycle and pedestrian issues. As mentioned earlier in this section, private sector sources are available. Local organizations and land trusts have become large donors especially for shared-use trails. Their donations typically are used for purchasing land, planning projects and constructing the projects.

Community partnerships and foundations are other areas groups can look to for funding projects. Communities can sponsor yard sales or purchase an engraved brick to raise funds for bicycle and pedestrian projects. There are national, regional and local foundations that can help support bicycle and pedestrian projects. The American Automobile Association (AAA) can be a place to find funding. AAA has a Foundation for Traffic Safety that is a not-for-profit and dedicated to saving lives and reducing injuries (SOURCE: AAA Foundation for Traffic Safety). Since 1947, the Foundation has funded over 200 projects designed to discover the causes of traffic crashes, prevent them, and minimize injuries when they do occur. We have used this research to develop dozens of focused, high-impact educational materials for drivers, pedestrians, bicyclists and other road users (SOURCE: AAA Foundation for Traffic Safety).

Funding is available; however, it takes a community to locate and fight for the funding. Most projects need to be shovel ready so it is important that the group is organized for when monies become available.

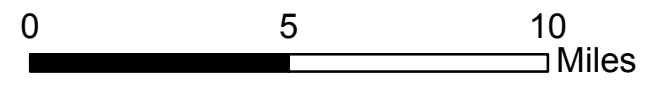
Existing Bicycle Facilities November 2010



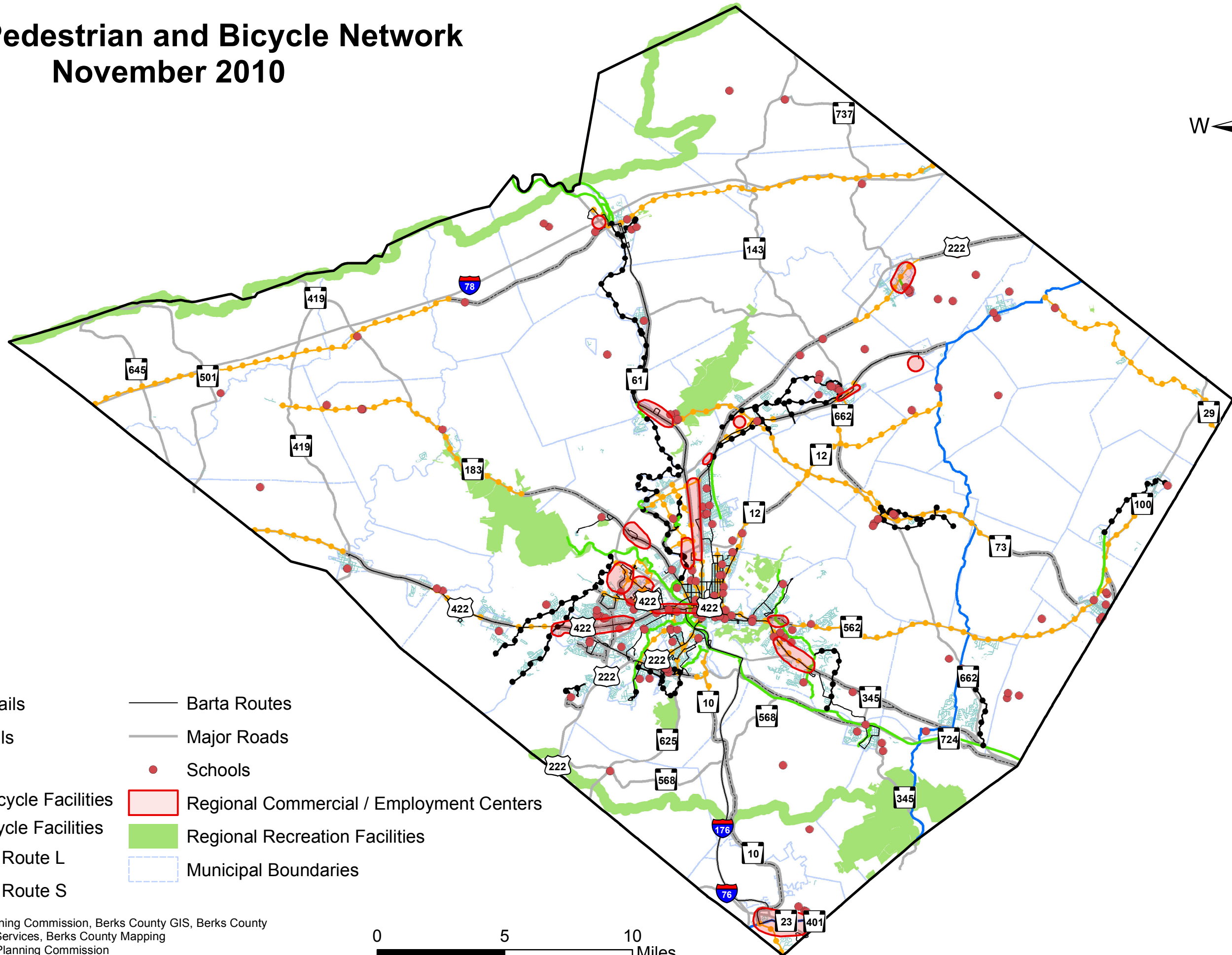
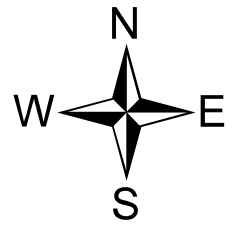
Legend

- Existing Trails
- Existing Bicycle Facilities
- Bicycle PA Route L
- Bicycle PA Route S
- Barta Routes
- Major Roads
- Local Roads
- Schools
- Municipal Boundaries

Source: Berks County Planning Commission, Berks County GIS, Berks County Department of Emergency Services, Berks County Mapping
 Created by: Berks County Planning Commission
 BAB 11/10



Future Pedestrian and Bicycle Network November 2010



Legend

- Existing Trails
- Future Trails
- Sidewalks
- Existing Bicycle Facilities
- Future Bicycle Facilities
- Bicycle PA Route L
- Bicycle PA Route S
- Barta Routes
- Major Roads
- Schools
- Regional Commercial / Employment Centers
- Regional Recreation Facilities
- Municipal Boundaries

Source: Berks County Planning Commission, Berks County GIS, Berks County Department of Emergency Services, Berks County Mapping
 Created by: Berks County Planning Commission
 BAB 11/10

