

CHAPTER 12

TRANSPORTATION

The transportation and land use patterns of a given area have a distinct correlation. The location and character of transportation routes often determine the general direction of growth within a community and are often deciding factors of residential, commercial, institutional and industrial developments. The effectiveness of a transportation system is measured by its ability to provide safe and efficient modes of travel on a local and regional level. Therefore, it is imperative to develop an effective plan for transportation in order to support growth and development within Muhlenberg Township. The objective of this chapter is to develop a detailed transportation profile and plan considering local and regional needs.

A. COMPOSITION OF PUBLIC ROADS

The roadway composition and patterns within Muhlenberg Township are more unique and carry heavier volumes of traffic than most municipalities within Berks County. The location of these public roads has influenced the land use composition and economy. The principal roads within Muhlenberg Township include Route 222 Bypass (also known as Route 3055 and recognized as the “Road to Nowhere”), Business Route 222 (also known as the 5th Street Highway), Route 61, Route 12 (also known as the Warren Street Bypass and Pricetown Road) and Kutztown Road. These expressways and arterial roads serve many local and regional interests since they have the capacities to accommodate large volumes of traffic at higher rates of speed. However, most of the residents within Muhlenberg Township are dependent upon collector or local access roads as an essential method to get from place to place. Since the automobile is the primary mode of transportation within Muhlenberg Township, the existing and future roadway network is vital to the overall land use composition, economic vitality and quality of life. The following chart categorizes the public road system by ownership and maintenance responsibility (state or local roads) and by the number of miles for Muhlenberg Township as compared to all of Berks County.

COMPOSITION OF PUBLIC ROADS					
Municipality	Total Length	State Roads		Local Roads	
		Length	Percentage	Length	Percentage
Muhlenberg Township	103.26 miles	31.17 miles	30.19 %	72.09 miles	69.81 %
Berks County	3,057.78 miles	993.08 miles	32.48 %	2,064.70 miles	67.52 %

Source: Pennsylvania Department of Transportation District 5-0, Municipal Services Unit, January 2002

The underlying control and maintenance responsibilities of the road system must be considered, as an essential component when planning for the future needs of Muhlenberg Township. Since most of the public roads within Muhlenberg Township are owned and maintained by Muhlenberg Township, regulatory control is a benefit and budgeting for infrastructure improvements is a detriment. It should be noted that within Berks County, only the City of Reading, Exeter Township and Greenwich Township have more public roads than Muhlenberg Township.

B. FUNCTIONAL CLASSIFICATION OF ROADS

The effectiveness of a transportation system is measured by the ability of the network to provide mobility and accessibility. The roads within Muhlenberg Township provide access to adjacent land uses, including residential, agricultural, and commercial activities. The functional classification of a roadway relates to how the specific roadway or roadway link provides *mobility* and *accessibility*.

Mobility is measured by the ability of the traveler to accomplish a trip safely and conveniently with minimal amounts of delay. A roadway link with a high design standard will have good horizontal and vertical alignments, desirable lane widths, wide shoulders, clear roadside areas, and will provide for appropriately high operating speeds and low travel times. Such desirable operating conditions are frequently referred to as good "levels of service."

Accessibility is measured by the ability of adjacent land uses to enter onto and exit from the highway network with safety and convenience. Desirable access is provided when driveways and local streets connect all adjacent land uses to the highway transportation system. Access can be restricted to adjacent land uses by design or operational features such as median barriers, limited access controls, one-way traffic flows, and turn prohibitions.

Individual roadways and linkages vary in the degree to which they are able to provide mobility and access. The functional classification of a roadway depends upon the particular role the roadway section has in providing mobility or access. The basic roadway classifications designated within Muhlenberg Township are as follows:

Expressway: This system consists of a network of routes providing for corridor movements that represent substantial statewide, interstate, or regional travel and movements between major urban areas. Expressways contain the most heavily traveled routes (10,000 to 100,000 trips per day) and including multi-lane roadways. This system provides links between developed areas and adjacent towns and cities. The system is designed for relatively high speeds (50 to 65 MPH) with a minimum of interference to through traffic. Expressways facilitate truck transport by providing optimum conditions. Mobility is the principal function and accessibility should be limited to carefully planned interchanges to preserve the functional classification of expressways.

Major Arterial: This system consists of a network of routes providing for corridor movements that represent substantial statewide or regional travel and movements between major urban areas. The major arterial system contains heavily traveled routes (10,000 to 30,000) including multi-lane roadways. This system provides links between developed areas and adjacent towns and cities. The system is designed for relatively high speeds (30 to 55 MPH) with a minor interference to through traffic. Major arterials facilitate truck transport by providing favorable conditions. Mobility is the major function and accessibility should be limited to preserve the functional classification of major arterials roads.

Minor Arterial: This system consists of a network of routes providing for corridor movements that represent local and regional travel with movements between major urban areas or intra-county trips. The minor arterial system contains moderately traveled routes (5,000 to 20,000) including two to four lane roads. This system provides links between developed areas and adjacent communities. The system is designed for relatively high speeds (30 to 45 MPH) with some

interference to through traffic. Minor arterial routes facilitate truck transport by providing slightly favorable conditions. Mobility is the major function and accessibility should be limited to preserve the functional classification of minor arterial roads.

Major Collector: This system serves primarily intra-county trips and represents those routes with shorter travel distances than arterial routes. Major collector roads contain well-traveled roads (2,000 to 10,000 trips per day) leading to specific destinations or to expressways and arterial routes. The system is designed for moderate speeds (30 to 45 MPH) with some interference with designed intersections to permit through traffic. Depending upon its structural integrity and design, major collector routes can facilitate truck transport. Mobility is a significant function and accessibility should be limited to street intersections in order to preserve the functional classification of major collector roads.

Minor Collector: This system serves primarily regional trips and represents those routes with shorter travel distances than arterial routes. Minor collector roads contain well-traveled roads (500 to 5,000 trips per day) leading to specific destinations or to major collector and arterial routes. The system is designed for moderate speeds (25 to 40 MPH) with interference with a number of designed intersections to permit some through traffic. Depending upon its structural integrity and design, minor collector routes can facilitate lightweight truck transport. Mobility is a function for minor collector routes and accessibility should be limited to street intersections and driveways in order to preserve their functional classification.



Local Roads: This system serves primarily local trips and represents those routes with shorter travel distances than collector routes. Local roads contain low volume to moderately traveled roads (less than 500 trips per day) leading to collector and arterial routes. The system is designed for lower speeds (20 to 35 MPH) with interference with a number of designed intersections. Local roads are typically designed to facilitate lightweight truck transport for local deliveries. Mobility is a minor function and accessibility to street intersections, driveways and adjacent land areas is significant for local roads.

Marginal Access Roads: This system primarily serves specific land uses, which are parallel or adjacent to an expressway, arterial or major collector roads. Marginal access roads are typically designed to accommodate the use(s) they directly serve. Accessibility between selective points is an essential design element with control at the point of destination. Many marginal access roads are privately owned and maintained.

A map showing the functional classification network of Muhlenberg Township is provided on Figure 13. The functional classification of roadways are further described and identified within the following chart:

FUNCTIONAL CLASSIFICATION OF PUBLIC ROADS			
Road Name	Control	ADT Range	Classification
Route 222 Bypass (State Route 0222)	PA DOT	21,000 - 39,000	Expressway
Route 12 (Warren Street Bypass)	PA DOT	15,000 - 77,000	Expressway
Business Route 222 (5 th Street Highway)	PA DOT	19,000 - 30,000	Major Arterial
Route 61 (Pottsville Pike)	PA DOT	22,000 - 23,000	Major Arterial
Kutztown Road (State Route 2011); from 11 th Street to Business Route 222	PA DOT	9,600 - 16,000	Minor Arterial
North 11 th Street (State Route 2011)	PA DOT	18,000	Minor Arterial
Bellevue Avenue (State Route 2016); from Route 61 to Business Route 222	PA DOT	12,000	Major Collector
Eisenbrown Avenue	Muhlenberg		Major Collector
Elizabeth Avenue	Muhlenberg	3,100 - 7,600	Major Collector
George Street; between Route 61 to Raymond Street	Muhlenberg		Major Collector
Hampden Boulevard	Muhlenberg		Major Collector
Hartman Road	Muhlenberg	3,900	Major Collector
Kutztown Road (State Route 2011); from City of Reading to 11 th Street	PA DOT	7,800	Major Collector
Mount Laurel Avenue (State Route 1004); between Kutztown Rd. and Alsace Twp.	PA DOT		Major Collector
Leisz's Bridge Road	Muhlenberg	3,900	Major Collector
Leesport Avenue (State Route 1004)	Muhlenberg PA DOT	3,000	Major Collector
Madison Street	Muhlenberg		Major Collector
Raymond Street; between Madison Street and George Street	Muhlenberg		Major Collector
Reading Crest Avenue	Muhlenberg		Major Collector
River Road	Muhlenberg		Major Collector
Spring Valley Road	Muhlenberg		Major Collector
Stoudts Ferry Bridge Road	Muhlenberg		Major Collector
Tuckerton Road; from River Road to Business Route 222	Muhlenberg		Major Collector
Bellevue Avenue; between Route 61 to Leisz's Bridge Rd.	Muhlenberg		Major Collector
Euclid Avenue	Muhlenberg		Minor Collector

FUNCTIONAL CLASSIFICATION OF PUBLIC ROADS

Road Name	Control	ADT Range	Classification
Frush Valley Road	Muhlenberg		Minor Collector
George Street; between Raymond Street and Kutztown Road	Muhlenberg		Minor Collector
Hain Avenue	Muhlenberg		Minor Collector
Hay Road	Muhlenberg		Minor Collector
Jefferson Street; between Madison Street to Kutztown Road	Muhlenberg		Minor Collector
Mount Laurel Avenue; between Kutztown Road to Business Route 222	Muhlenberg		Minor Collector
N. Temple Boulevard (State Route 2018); between Kutztown Rd. and Bus. Rt. 222	PA DOT		Minor Collector
S. Temple Road; between Kutztown Road and Business Route 222	Muhlenberg		Minor Collector
Tuckerton Road; between Leesport Ave. to Business Route 222	Muhlenberg		Minor Collector
Water Street	Muhlenberg		Minor Collector
12 th Street and Western Electric Drive	Muhlenberg		Minor Collector

Note 1: The average daily traffic volumes (ADT) are from counts taken by the Pennsylvania Department of Transportation (2000 base data). Traffic counts are not available for all public roads.

Note 2: All public roads that are not listed on this chart should be classified as local roads.

Note 3: Control refers to the primary ownership and maintenance responsibilities either by Muhlenberg Township or the Pennsylvania Department of Transportation.

In order to develop uniform design standards for the construction of new roads and/or for improving existing roads within Muhlenberg Township, the following design standards and specifications are recommended on the following chart. Muhlenberg Township should consider the adoption of these design standards as part of their respective Subdivision and Land Development Ordinance.



MINIMUM STREET DESIGN STANDARDS AND SPECIFICATIONS

Type of Road	Design and Construction Requirements			Design Speed	Alignment/Curvature		Min. Sight Distance	Max. Grade
	ROW	Cartway	Shoulder/Parking		Horizontal	Vertical		
Expressway	120 feet	<ul style="list-style-type: none"> • 4 - 10 travel lanes • 12 feet per travel lane • 10 foot wide median • interchange accessibility 	<ul style="list-style-type: none"> • 12 foot wide shoulders • no parking permitted 	65 MPH	700 feet	500 feet	750 feet	6 %
Arterial	80 feet	<ul style="list-style-type: none"> • 2 to 4 travel lanes • 12 feet per lane • full or mid turning lanes • limited accessibility 	<ul style="list-style-type: none"> • 10 foot wide shoulders • no parking permitted 	55 MPH	500 feet	400 feet	675 feet	8 %
Major Collector	60 feet	<ul style="list-style-type: none"> • 2 travel lanes • 12 feet per travel lane • full turning lanes • controlled accessibility 	<ul style="list-style-type: none"> • 8 foot wide shoulders • no parking permitted 	45 MPH	300 feet	300 feet	450 feet	8 %
Minor Collector	60 feet	<ul style="list-style-type: none"> • 2 travel lanes • 12 feet per travel lane • left turning lanes • controlled accessibility 	<ul style="list-style-type: none"> • 8 foot wide shoulders or • 8 foot wide parking lanes 	35 MPH	250 feet	250 feet	300 feet	10 %
Local	50 feet	<ul style="list-style-type: none"> • 2 travel lanes • 9 to 12 feet/travel lane • no turning lanes • controlled accessibility 	<ul style="list-style-type: none"> • 4 foot wide shoulders or • 8 foot wide parking lanes 	25 MPH	150 feet	200 feet	200 feet	10 %
Marginal Access	33 feet	<ul style="list-style-type: none"> • 2 travel lanes • 12 feet per travel lane • controlled accessibility 	<ul style="list-style-type: none"> • 0 to 4 foot wide shoulders • no parking permitted 	25 MPH	100 feet	150 feet	200 feet	10 %

Note 1: The minimum design standards and specifications contained on this chart may vary depending upon the site condition, type of development, adjacent land use composition and/or condition of the street system.

Note 2: The final minimum design standards should be verified as part of traffic engineering study or as specified by the Pennsylvania Department of Transportation.

C. ACCESS MANAGEMENT

Proper access management is an essential design element to effectively plan land uses and developments, with the roads to which vehicular accessibility is provided. As new street intersections and driveways are introduced along the existing roads, the number of potential conflicts between vehicles, pedestrians and bicyclist increase, whereas, congestion and safety issues must be mitigated. This is particularly evident along Business Route 222 and Route 61, as well as other roads with heavy traffic volumes. Therefore, the following access management strategies should be considered:

1. Continue to develop effective design standards for proposed street intersections and driveways. This involves specifications for the location, design, construction and installation of all new street intersections and driveway cuts with consideration to the road to which it has access.
2. Minimize and/or consolidate unnecessary driveway cuts along public roads. The lot width, type of land use, and the anticipated traffic volumes should determine how many driveway cuts should be permitted along a public road.
3. Where appropriate, consider shared or common driveways for certain land uses or developments.
4. Continue to require the submission of traffic impact studies with applications involving major subdivision and land development plans.
5. Where appropriate, consider separate right turn lanes, left turn lanes and/or median barriers to efficiently separate and direct vehicular traffic to its intended destination.
6. Require traffic signalization at intersections involving high volumes of vehicular traffic.
7. Continue to develop and implement plans to safely accommodate pedestrians and bicyclist.
8. Require the installation of sidewalks, handicapped ramps and crosswalks as part of all major subdivision and land development applications.
9. Prohibit inappropriate turning movements along public roads.
10. Consider the adequacy of existing requirements for off-street parking and internal circulation, particularly within the commercial zoning districts.
11. Develop effective building setback and off-street parking regulations that ensure that adequate lines of sight are maintained.
12. Establish ultimate right-of-way requirements to provide sufficient area for future improvements.

The access management strategies listed above should be considered in the future by Muhlenberg Township. Where appropriate, amendments to the Zoning Ordinance and the Subdivision and Land Development Ordinance should be considered to effectively implement these access management strategies.

D. ROADWAY DEFICIENCIES AND NEEDS

Based upon an overall assessment of the existing road conditions within Muhlenberg Township, certain road segments have been identified as being deficient and/or in need of improvements as a result of various site conditions. It should be noted that these site conditions should not be construed as hazardous under existing conditions, but should be improved to optimize safety conditions, mobility, accessibility, and/or to accommodate future growth and development. Further, the description of the deficiencies and needs should be considered as an initial guide to municipal officials in the development of a capital transportation improvement program and budget. The following chart identifies and briefly describes these roadway deficiencies and prioritizes the needs as follows:

High Priority: The road segment should be studied and improved within the next 5 to 10 years.

Moderate Priority: The road segment should be studied and improved within the next 15 years.

Low Priority: The road segment should be studied and improved within the next 20 years.

The priority ratings have been assigned to each road segment to provide a goal for the state, county and local officials to resolve the deficiencies and needs, as described in the chart below. Pursuant to Section 303 of the Pennsylvania Municipalities Planning Code, Muhlenberg Township is not obligated to complete any or all of the recommended transportation improvements listed within this Chapter of the Plan. Further, based upon municipal budget limitations, it would be economically unfeasible to complete most of the recommended transportation improvements listed below in accordance with the tentative schedule. These priority ratings should be evaluated on an annual basis in an effort to determine if the conditions have been accurately described, justify the prescribed remedies, establish warrants, and determine how the project will be financed and eventually implemented.

PRIORITIZATION OF TRAFFIC DEFICIENCIES AND NEEDS		
Road Segment	Description of Deficiencies and Needs	Priority
State Route 61 (Pottsville Pike)	Inconsistency with the existing number of travel lanes, width of the travel lanes/shoulder, interchange ramps, and turning movements at intersections; a consistent cross section of 5 travel lanes (minimum) from the City of Reading to Ontelaunee Township is necessary to improve safety, efficiency, accessibility and mobility; where necessary jug handles should be designed and installed; all traffic signals should be linked to improve travel time; interchange ramps should be improved; reconstruction and drainage improvements will be required along this segment over time.	High
Business Route 222 State Route 0205 (5 th Street Highway)	A consistent cross section of 5 travel lanes (minimum) from Bellevue Avenue north to the Route 222 Bypass is necessary to improve safety, efficiency, accessibility and mobility; where necessary jug handles should be designed; all traffic signals along this segment should be linked to improve travel time between the City of Reading and Maiden Creek Township; reconstruction and drainage improvements will also be required over time.	High
State Route 12 (Warren Street Bypass)	The length of the ramps at Business Route 222, Route 61, River Road and North 11 th Street all need to be extended to improve safety, accessibility and mobility.	High

PRIORITIZATION OF TRAFFIC DEFICIENCIES AND NEEDS

Road Segment	Description of Deficiencies and Needs	Priority
Route 222 Bypass State Route 0222	A complete interchange within Muhlenberg Township is needed in the vicinity of Stoudts Ferry Bridge Road to alleviate traffic congestion and to improve safety.	High
Tuckerton Road	A consistent cross section of 3 to 4 travel lanes from Route 61 to Stoudts Ferry Bridge Road is necessary to improve safety, efficiency, accessibility and mobility; a new bridge over the railroad line and additional right-of-way will be necessary to implement this project; reconstruction and drainage improvements will also be required.	High
Bellevue Avenue	This road segment is only 1 of 5 roads within Muhlenberg Township that provides an east-west connection between Business Route 222 and Route 61; limitations associated the number of lanes and the width of the bridges over the railroad creates traffic congestion during peak hours; additional travel/turning lanes and a wider bridge is necessary to improve accessibility and mobility.	High
River Road	Travel lanes need to be widened to 12 foot wide lanes; an additional 4 foot wide bicycle or pedestrian lane should also be designed to provide recreation opportunities along the Schuylkill River.	High
Leesport Avenue	Travel lanes need to be widened, turning lanes need to be designed, and drainage improvements should be considered to accommodate the demand of this major collector road.	High
Sharp Avenue	Reconstruction of the cartway is needed.	High
Crystal Rock Road	Cartway widening and reconstruction of the road surface is needed; bridge width limitations must be accounted for as part of the design.	Moderate
Mannerchor Road	Cartway widening and reconstruction of the road surface is needed; horizontal and vertical curve alignments should be corrected; drainage improvements must be accounted for as part of the design.	Moderate
Intersections of Elizabeth Avenue with Ramich, Mannerchor and Herb	Multiple street intersections converging at single point; horizontal and vertical curve alignment limit sight distance and visibility; high traffic volumes exceeding the posted speed limit.	Moderate
Ramich Road	Reconstruction of the cartway is needed.	Moderate
Reading Crest Boulevard	Reconstruction of the cartway is needed; drainage improvements and curbing should be considered as part of the design; truck traffic should be limited to local deliveries.	Moderate
Carolina Avenue	Reconstruction of the cartway is needed; drainage improvements and curbing should be considered as part of the design.	Moderate
Stoudts Ferry Bridge Rd.	Cartway should be widened to a consistent width; reconstruction of the road surface should be completed by the private development community as part of a municipal improvements; emergency management coordination and accessibility must be monitored.	Moderate
Eisenbrown Avenue	Reconstruction of the cartway is needed; drainage improvements and curbing should be considered as part of the design.	Moderate
Kutztown Road	Drainage improvements should be designed and installed; all traffic signals along this segment should be linked to improve travel time between the City of Reading and Business Route 222.	Moderate

PRIORITIZATION OF TRAFFIC DEFICIENCIES AND NEEDS		
Road Segment	Description of Deficiencies and Needs	Priority
Mt. Laurel Avenue	Drainage improvements should be designed and installed; horizontal and vertical curve alignments should be improved.	Moderate
Beaumont Avenue	Drainage improvements should be designed and installed.	Moderate
Little Rock Road	Bridge replacement or reconstruction is necessary.	Moderate
Spring Valley Road	Bridge needs to be maintained or reconstructed; sedimentation and drainage problems need to be corrected.	Moderate
Hain Avenue	Bridge needs to be maintained or reconstructed.	Moderate
Leisz's Bridge Road	Bridge needs to be reconstructed, widened and/or replaced; vertical curve alignment needs to be improved along certain segments; sight distance and visibility should be improved at the intersection of Stoudts Ferry Bridge Road.	Moderate
Elizabeth Avenue	Narrow cartway width; poor horizontal and vertical alignment in certain segments; reconstruction and realignment are required.	Moderate
Hay Road	Narrow cartway width; poor horizontal and vertical alignment in certain segments; poor sight distance and visibility exist at certain intersections; reconstruction and realignment is required.	Moderate
Frush Valley Road	Horizontal and vertical curve problems; reconstruction and realignment is required.	Low
Commerce Street	Reconstruction of the cartway is needed; drainage improvements should be considered as part of the design.	Low
Columbia Avenue	Reconstruction of the cartway is needed; drainage improvements should be considered as part of the design.	Low
8 th Avenue	Reconstruction of the cartway is needed; drainage improvements should be considered as part of the design.	Low
Water Street	Reconstruction of the cartway is needed; drainage improvements should be considered as part of the design. This road segment is only 1 of 5 roads within Muhlenberg Township that provides an east-west connection between Business Route 222 and Route 61; limitations associated the number of lanes and the width of the bridge under the railroad could be problematic as part of the design; improved travel and turning lanes and a wider bridge may be necessary to improve traffic congestion at other vital east-west corridors.	Low
Sefranka Road	Horizontal and vertical curve problems; reconstruction and realignment is required.	Low
Sofianos Road	Cartway widening and reconstruction of the road surface is needed to accommodate potential industrial development; drainage and curbing improvements must be accounted for as part of the design.	Low
Herb Road	Horizontal and vertical curve problems; reconstruction and realignment is required.	Low
Rothermel Boulevard	Drainage improvements are needed; intersection alignment with Reading Crest Avenue should be improved.	Low

E. VEHICULAR ACCIDENT RECORDS

Another method to identify roadway conditions and needs is to analyze the vehicular accidents within a given area. Vehicular accidents are the result of numerous factors including driver error, reckless driving, inadequate road design, improper sight distance, weather, congestion, unforeseen obstacles, and conflicting land uses.

The Pennsylvania Department of Transportation, Bureau of Highway Safety and Traffic Engineering, maintains reportable accident records for all municipalities within the Commonwealth of Pennsylvania. The Muhlenberg Township Police Department, Pennsylvania State Police and/or the local police departments having jurisdiction to report the accidents when an injury or fatality occurs or if at least one (1) of the vehicles requires towing. The following table provides a summary of the reportable accidents within Muhlenberg Township between the years 1996 and 2000.

MUHLENBERG TOWNSHIP ACCIDENT SUMMARY (1996 – 2000)						
TOTAL ACCIDENTS		Total Count	Percentage	SEVERITY	Total Count	Percentage
By Calendar Year	1996	327	20.67 %	Fatal	13	0.82 %
	1997	351	22.19 %	Major Injury	40	2.53 %
	1998	322	20.35 %	Moderate Injury	141	8.91 %
	1999	284	17.95 %	Minor Injury	625	39.51 %
	2000	298	18.84 %	Unknown Injury	99	6.26 %
5 Year Total		1,582	100.00 %	Uninjured	664	41.97 %
PROBABLE FACTORS: 2012 TOTAL FACTORS WERE REPORTED INVOLVING THE 1,582 REPORTED ACCIDENTS						
PROBABLE FACTOR	Total	Percentage	PROBABLE FACTOR	Total	Percentage	
Failed to Heed Stopped Vehicle	261	12.97 %	Failed to Stop (Unknown Reason)	64	3.18 %	
Tailgating	191	9.49 %	Pulled Out Too Soon	60	2.98 %	
Improper Turning	187	9.29 %	Improper Exit	49	2.44 %	
Improper Entrance	107	5.32 %	Driving On Wrong Side	47	2.34 %	
Driver Drinking	91	4.52 %	Forced Movement	41	2.04 %	
Failed to Acknowledge or Stop at Red Light	78	3.88 %	Other Factors	765	38.02 %	
Driver Lost Control	71	3.53 %	Total Probable Factors	2,102	100.00 %	
<p>Note 1: The documentation contained within this table does not include non-reportable accidents.</p> <p>Note 2: All information is subject to the interpretation of the Police officer responding to the vehicular accident.</p> <p>Note 3: In certain instances, there may be more than one (1) probable factor for the vehicular accident. The Police Officer responding to the vehicular accident determines if more than one (1) probable factor applies.</p>						
<i>Source: Pennsylvania Department of Transportation, Bureau of Highway Safety and Engineering</i>						

INTERSECTION ACCIDENTS

The following table provides a cumulative summary of the reportable intersection accidents within Muhlenberg Township between years 1996 and 2000. The ranking is based upon the total number of vehicular accidents (minimum 10 reportable accidents) at the street intersection. The contributing factors for the vehicular accidents were arranged by frequency of occurrence, as reported by the local or state police officer assigned to the intersection accident.

REPORTABLE INTERSECTION ACCIDENTS (1996 – 2000)					
Rank	Intersection or Interchange	Total	Contributing Factors	Injuries	Fatalities
1	Interchange Ramps for Route 12 and Business Route 222	74	Failed to stop or yield; speeding; tailgating; pedestrian (fatality); overcompensation; weather; length of ramp; obstacle on road; inexperience; improper entrance/exit	57	1
2	Interchange Ramps for Route 12 and Route 61	47	Failed to stop or yield; speeding; tailgating; length of ramp; careless passing; control; improper entrance/exit; weather; fatigue; engine failure; obstacle on road	34	0
3	Business Route 222 and Madison Street	42	Improper turning; weather; glare condition; failed to heed or stop at red light; speeding; drinking; medical condition	45	0
4	Interchange Ramps for Route 61 and Route 222 Bypass	37	Speeding; tailgating; drinking (fatality); weather; failed to stop or yield; control; pulled out too soon; engine failure	28	1
5	Business Route 222 and Leesport Avenue	33	Improper turn; failed to heed or stop at red light; speeding; drinking; fatigue; weather; engine failure; tailgating	27	0
6	Route 61 and Tuckerton Road	31	Failed to heed or stop at red light; weather; improper turn; speeding; tailgating	29	0
7	Business Route 222 and Kutztown Road	29	Improper turn; failed to heed or stop at red light; speeding; tailgating; weather	19	0
8	Business Route 222 and George Street	25	Failed to heed or stop at red light; speeding; improper turning; tailgating; drinking	34	0
9	Business Route 222 and Elizabeth Avenue	24	Failed to heed or stop at red light; speeding; improper turning; pulled out too soon	27	0
10	Business Route 222 and Bellevue Avenue	22	Failed to heed or stop at red light; speeding; tailgating; pulled out too soon; weather	21	0
11	Route 61 and Bellevue Avenue	21	Improper turn; failed to heed or stop at red light; vehicle failure; weather; drinking	23	0
12	Route 61 and George Street	20	Failed to heed or stop at red light; speeding; tailgating; improper lane change; drinking	24	0
13	Interchange Ramps for Route 12 and North 11 th Street	20	Improper lane change/turning; tailgating; failed to stop or yield; speeding; drinking	15	0
14	Route 61 and Hartman Road	19	Failed to heed or stop at red light; speeding; improper turn; pulled out too soon; weather	14	0

REPORTABLE INTERSECTION ACCIDENTS (1996 – 2000)					
Rank	Intersection or Interchange	Total	Contributing Factors	Injuries	Fatalities
15	Kutztown Road with Leesport Avenue and Mt. Laurel Avenue	19	Failed to heed or stop at red light; speeding; pulled out too soon; improper turn; weather	12	0
16	Interchange Ramps for Route 12 with Spring Valley Road and Hampden Boulevard	17	Speeding; tailgating; drinking (fatality); failed to stop or yield; control; weather; pulled out too soon; improper entrance	7	1
17	Business Route 222 with North Temple Blvd. And Elnore Ave.	15	Speeding; pulled out too soon; tailgating; distraction; careless passing; improper turn	12	0
18	Business Route 222 and Water Street	12	Tailgating; failed to heed or stop at red light; improper turn; speeding; drinking; weather	11	0
19	Tuckerton Road and Leesport Avenue	12	Improper turn; failed to stop or yield; pulled out too soon; forced movement; drinking	9	0
20	Kutztown Road and Hay Road	11	Improper turn; pulled out too soon; weather; speeding; tailgating; failed to stop or yield	10	0
21	Business Route 222 and Tuckerton Road	10	Failed to heed or stop at red light; speeding; improper turn; pulled out too soon; weather	11	0
22	Business Route 222 with access roads to Fairgrounds Mall	10	Improper turn; failed to stop or yield; pulled out too soon; tailgating; distraction	9	0
23	Route 61 and Reading Crest Boulevard	10	Speeding; failed to heed or stop at red light; improper lane change; tailgating; weather	7	0
24	Business Route 12 And South Temple Boulevard	10	Speeding; pulled out too soon; tailgating; improper turn distraction; careless passing	7	0
<i>Source: Pennsylvania Department of Transportation, Bureau of Highway Safety and Engineering</i>					

Based upon a review of the engineering extracts for vehicular intersection accidents supplied by the Pennsylvania Department of Transportation, interviews with municipal officials, and a site review of the existing conditions, the following observations have been made:

1. The interchange ramps providing access between Route 12 and Business Route 222 had the highest number of vehicular accidents, which have resulted from speeding, tailgating, improper entrance or exit, insufficient ramp length and other factors relating to driver error. This interchange is further compromised by the volume of traffic (15,000 to 30,000 trips per day) utilizing these interchange ramps. Based upon the existing and projected volumes of pass through traffic at this interchange, a feasibility study should be conducted to determine if the ramps could be improved to reduce the number of vehicular accidents.
2. The interchange ramps providing access between Route 12 and Route 61 had the second highest number of vehicular accidents, which have resulted from speeding, tailgating, improper entrance or exit, insufficient ramp length and other factors relating to driver error. This interchange is further compromised by the volume of traffic (20,000 to 30,000 trips per day) utilizing these inadequately sized interchange ramps. Based upon the existing and projected volumes of pass through traffic at this interchange, a feasibility study should be conducted to determine if the ramps could be improved to reduce the number of vehicular accidents.

3. The intersection of Business Route 222 and Madison Avenue had the third highest number of vehicular accidents, which have resulted from a number of factors resulting from driver error, including speeding, improper turning, congestion and failure to observe traffic laws. This street intersection has existing control mechanisms and turning lanes to direct traffic flow. However, due to the heavy traffic volume along this section of Business Route 222 (estimated 30,000 trips per day), traffic congestion and delays are inevitable during peak hours. As a result, drivers tend to be impatient and take risks to get to their point of destination. A regional traffic study should be conducted to determine how travel time can be improved.
4. The balance of the intersections identified on the proceeding table all have special needs, which should be continually monitored and/or corrected in an effort to control and manage traffic. Since most of the street intersections involve state roads, coordination with the Berks County Planning Commission and Pennsylvania Department of Transportation should be a priority.
5. Of the 1,582 total reported vehicular accidents that have occurred within Muhlenberg Township between the years 1996 and 2000, 745 accidents or 47.1 percent of the total accidents were classified as intersection or interchange accidents.

MID-BLOCK ACCIDENTS

The following table provides a cumulative summary of the reportable mid-block accidents within Muhlenberg Township between years 1996 and 2000. The ranking is based upon the total number of vehicular accidents (minimum 5 reportable accidents) that have occurred within the mid-block street segments. The contributing factors for these vehicular accidents were arranged by frequency of occurrence, as reported by the police officer assigned to the accident.

REPORTABLE MID-BLOCK ACCIDENTS (1996 – 2000)					
Rank	Intersection or Interchange	Total	Contributing Factors	Injuries	Fatalities
1	Business Route 222 (5 th Street Highway)	207	Tailgating; improper entrance/exit; speeding; inexperience/control (2 fatalities); weather; drinking (1 fatality); pedestrians (1 fatality); failed to stop or yield; careless passing	105	4
2	Route 61 (Pottsville Pike)	125	Tailgating; careless passing (1 fatality); control; speeding; failed to stop or yield; inexperience/control; drinking; weather; distraction; forced movement	114	1
3	Route 12 (Warren Street Bypass)	63	Careless lane change; improper entrance/exit; speeding; tailgating; overcompensation; forced movement; drinking; fatigue; weather; deer/animal; obstacle on road	33	0
4	Kutztown Road	54	Distraction; improper entrance/exit; control; speeding; tailgating; pedestrians (1 fatality); fatigue; drinking; engine failure; parking	37	1
5	Route 222 Bypass	51	Careless lane change; speeding; tailgating; overcompensation; drinking (1 fatality); fatigue; weather; deer/animal; obstacle on road; forced movement; hydroplaning	33	1

REPORTABLE MID-BLOCK ACCIDENTS (1996 – 2000)

Rank	Intersection or Interchange	Total	Contributing Factors	Injuries	Fatalities
6	Tuckerton Road	24	Improper entrance/exit; tailgating; weather; speeding; forced movement; illegal turning; fail to stop or yield; vehicle failure.	14	0
7	River Road	22	Speeding (1 fatality); overcompensation; distraction; control; weather; vehicle failure; inexperience; pedestrian/bicycle traffic	12	1
8	North 11 th Street	22	Tailgating; improper entrance/exit; control; overcompensation; speeding; distraction; vehicle failure; drinking	10	0
9	Elizabeth Avenue	20	Overcompensation; speeding; weather; improper entrance/exist (1 fatality); control; drinking; deer/animal	9	1
10	Bellevue Avenue	19	Distraction; improper entrance/exit; weather; speeding; tailgating; overcompensation	9	0
11	Mt. Laurel Avenue	17	Speeding; improper entrance/exit; control; overcompensation; forced movement	15	0
12	Hampden Boulevard	12	Improper entrance/exit; overcompensation; weather; control; drinking; fail to stop/yield	15	0
13	Spring Valley Road	11	Overcompensation; speeding; tailgating; drinking; distraction; improper entrance/exit	4	0
14	Stoudts Ferry Bridge Road	10	Improper entrance/exit; overcompensation; speeding; forced movement; control	4	0
15	Frush Valley Road	6	Speeding; overcompensation; deer/animal; forced movement; control	7	0
16	Leesport Avenue	6	Improper entrance/exit; forced movement; speeding; tailgating; weather	3	0
17	Water Street	5	Overcompensation; vehicle failure; speeding; pedestrian traffic; weather	5	0
18	Madison Avenue	5	Improper entrance/exit; distraction; control; speeding; improper techniques	4	0
19	North 12 th Street	5	Distraction; improper entrance/exit; weather; parking; drinking	3	0

Source: Pennsylvania Department of Transportation, Bureau of Highway Safety and Engineering

Based upon a review of the engineering extracts for vehicular intersection accidents supplied by the Pennsylvania Department of Transportation, interviews with the local police departments, and a site review of the existing conditions, the following observations have been made:

1. The highest number of reported accidents occurred along the road segments with the highest daily traffic volumes. These road segments include Business Route 222, Route 61, Route 12, Kutztown Road and Route 222 Bypass.

2. Based upon the limited horizontal distance between interchanges along Route 12, most of the vehicular accidents along Route 12 are accounted for under the accident records for intersections and interchanges.
3. From a statistical standpoint utilizing the 5-year reportable accident total per road segment and the mid-range average daily traffic counts, the road segments with the highest probability of an accident occurrence can be calculated. Based upon this information, Business Route 222, Route 61 and Kutztown Road have the highest probability of an accident occurrence.
4. Most of the reportable mid-block accidents were the result of driver error, including speeding, overcompensation, tailgating, reckless driving and improper turning.
5. The balance of the mid-block accidents identified on the proceeding table all have special needs, which should be continually monitored and/or corrected in an effort to manage traffic. Since most of the mid-block road segments involve state roads, coordination with the Berks County Planning Commission and Pennsylvania Department of Transportation should be a priority.
6. Of the 1,582 total reported vehicular accidents that have occurred within Muhlenberg Township between the years 1996 and 2000, 837 accidents or 52.9 percent of the total accidents were classified as mid-block accidents.
7. Pedestrians and bicyclist were involved in 40 vehicular accidents (4 fatalities) within Muhlenberg Township between the years 1996 and 2000. These types of accidents were particularly evident along Business Route 222, Kutztown Road, River Road and Stoudts Ferry Bridge Road..



F. JOURNEY TO WORK

Traffic volumes are generally at their highest level during morning peak hours (6 a.m. to 9:00 a.m.) and afternoon peak hours (3:00 p.m. to 6:00 p.m.). These high traffic volumes are typically the result of commuters traveling to and from their place of work. In order to comprehend traffic patterns within Muhlenberg Township, the trip destination and assignment data concerning the municipal commuting patterns should be evaluated. The following table provides a summary of the commuting patterns within Muhlenberg Township, Berks County and Commonwealth of Pennsylvania for the year 2000.

JOURNEY TO WORK (2000)						
TRAVEL STATISTIC	PENNSYLVANIA		BERKS COUNTY		MUHLENBERG	
	Total	Percentage	Total	Percentage	Total	Percentage
Total Workers Over 16-Years Old	5,556,311	100.0	177,831	100.0	7,870	100.0
Drove Alone via Car, Truck or Van	4,247,836	76.5	144,140	81.1	6,886	87.5
Carpooled via Car, Truck or Van	577,364	10.4	17,825	10.0	620	7.9
Utilized Public Transportation	289,699	5.2	2,942	1.7	63	0.8
Walked to Work	229,725	4.1	6,453	3.6	153	1.9
Other Means of Transportation	47,041	0.8	1,346	0.8	5	0.1
Worked at Home	164,646	3.0	5,125	2.9	143	1.8
Mean Travel Time to Work (minutes)	25.2 minutes		22.3 minutes		17.3 minutes	
<i>Source: United States Bureau of the Census, Census 2000</i>						

Based upon the statistical information contained in the chart located above, the following observations can be made concerning the commuting patterns within Muhlenberg Township as they relate to those of Berks County and the Commonwealth of Pennsylvania:

1. Muhlenberg Township has a higher percentage of commuters driving alone (87.4 %) versus the cumulative totals for Berks County (81.1 %) and Pennsylvania (76.5 %).
2. Carpooling efforts within Muhlenberg Township are fairly low (7.9 %) as compared to the cumulative totals for Berks County (10.0%) and Pennsylvania (10.4%). Currently, the Berks Area Reading Transportation Authority (BARTA) offers a Park and Ride Shuttle between First Energy Stadium and four (4) designated stops within the City of Reading. Based upon the geographic proximity of expressways and arterial routes, additional opportunities for Park and Ride Programs should be encouraged and facilities should be strategically planned within Muhlenberg Township.
3. Public transportation opportunities have been available to the residents of Muhlenberg Township since 1901. Today, bus and taxicab services are readily available as an alternative mode of transportation. However, only 0.8 % of the residents utilize public transportation services. This percentage is considerably lower than those of Berks County (1.7 %) and Pennsylvania (5.2 %).

4. The percentage of residents opting to walk to work within Muhlenberg Township (1.9 %) is low compared to the cumulative totals for Berks County (3.6%) and Pennsylvania (4.1%). This number is unexplainable since large employment centers are not located within close proximity to residential neighborhoods.
5. The percentage of residents who work at home within Muhlenberg Township (1.8 %) is fairly low as compared with the cumulative totals for Berks County (2.9%) and Pennsylvania (3.0%). Based upon technology advances, this work at home trend is expected to increase significantly over the next 10 to 20 years.
6. The amount of travel time required for the residents within Muhlenberg Township to travel to work (17.3 minutes) is considerably less than the cumulative travel time for Berks County (22.3 minutes) and Pennsylvania (25.2 minutes). The following chart shows the differential for the travel time to work between the years 1990 and 2000 for Muhlenberg Township, Berks County and Pennsylvania.

Municipality	Travel Time to Work (Minutes)		Travel Time Differential	Percent Increase
	1990	2000		
Muhlenberg	16.0 minutes	17.3 minutes	+ 1.3 minutes	+ 8.1 %
Berks County	19.0 minutes	22.3 minutes	+ 3.3 minutes	+ 17.4 %
Pennsylvania	21.6 minutes	25.2 minutes	+ 3.6 minutes	+ 16.7 %

Source: United States Bureau of the Census, Census 1990 and 2000

Based upon the historical information concerning travel time to work, it would appear that a considerable portion of the residents within Muhlenberg Township are employed within or close to Muhlenberg Township. The average travel time to work is less in Muhlenberg Township as compared to most municipalities (Berks County and Pennsylvania). Further, the percent increase of average travel time to work between the years 1990 and 2000 has been significantly less than most municipalities (Berks County and Pennsylvania). In order to maintain this desired rate, Muhlenberg Township should continue to evaluate opportunities within its zoning and land use controls in an effort to encourage employment centers to remain, expand and/or locate within its municipal borders.



G. ALTERNATIVE MODES OF TRANSPORTATION

Alternative modes of transportation include transit services and facilities that are available to the residents of Muhlenberg Township, including bus, rail, aviation, bicycle and pedestrian. These alternative modes of transportation are provided by either the public or private sectors and serve the following functions:

1. Provides alternative modes for those who can not afford or operate an automobile.
2. Provides alternatives for commercial and industrial uses to ship and receive products.
3. Enables commuters to travel at higher rates of speed verses conventional vehicular speeds.
4. Reduces congestion by lowering the total number of vehicles occupying the existing road system.
5. Improves the quality of life by providing active and passive recreation opportunities.

This section of the Plan will focus upon the alternative modes of transportation, which directly and indirectly have an influence on the residents and businesses within Muhlenberg Township.

BUS SERVICE

The principal provider of mass transportation services in **Berks County is the Berks Area Reading Transportation Authority (BARTA)**. BARTA operates 24 routes within 21 municipalities and provides service to an estimated population of nearly 200,000 customers. Currently, BARTA has fixed bus routes within Muhlenberg Township, providing public transportation services along selected segments of Business Route 222, Kutztown Road, Tuckerton Road, Commons Boulevard, Madison Avenue, Elizabeth Avenue, Bellevue Avenue, Mt. Laurel Avenue and Hampden Boulevard. In general, the geographic areas of Hyde Park, South Temple, Temple, Tuckerton, College Heights, Laureldale and commercial centers along Business Route 222 have a fixed bus route schedule.



In addition to this service, BARTA also operates a number of specialty, express or tripper services, which are scheduled to meet the start and end times of workers, students and/or persons with special needs. Funding for BARTA operations comes from passenger revenues, sale of advertising space on the vehicles, and grants from the federal, state, county, and city governments.

RAIL AND FREIGHT SERVICE

Approximately 45,000 linear feet of rail line within Muhlenberg Township is currently owned and operated by either **Norfolk Southern** or the **Reading Blue Mountain and Northern Railroad**. These rail lines traverse the central portion of Muhlenberg Township in a north-south direction and is utilized by local and regional industries, which rely upon rail for transporting large quantities of bulk items including coal, stone, lumber, chemicals, metals (raw, finished, and scrap), manufactured items, and food products. The majority of industries, which rely on rail service, have private sidings, which provide direct shipment service. Within the past 20 years, Norfolk Southern has been abandoning certain segments of low volume track within Berks County. The abandonment of rail service within Muhlenberg Township could have a negative economic impact upon the existing industrial uses and may also discourage potential industrial uses from developing or redeveloping properties with rail service.

BARTA, in conjunction with **SEPTA** (Southeast Pennsylvania Transportation Authority), is in the process of studying the feasibility of renewing a passenger rail service line from Reading to Philadelphia. The opening of the **Schuylkill Valley Metro** in conjunction with proposed train stations within Pottstown, Douglassville, Lincoln Corporate Center and Reading could create a significant impact on Muhlenberg Township.



AVIATION

Muhlenberg Township is principally served by the **Reading Regional Airport**, located only 2,000 feet to the west of the Schuylkill River in Bern Township. The Airport provides a variety of aviation services including commuter airline and chartered service to the residents of Berks County and adjacent communities. During 1996, the Reading Regional Airport provided service to nearly 130,000 flights with general aviation accounting for 85% of the total traffic and the commercial sector accounting for 15% of the total traffic. Based upon existing and planned facilities, the Reading Regional Airport is well equipped to accommodate the future needs of Muhlenberg Township.

In addition to the Reading Regional Airport, there are several facilities providing local, regional and international aviation services located just outside Muhlenberg Township including the Pottstown Municipal Airport, Kutztown Airport, Philadelphia International Airport, Lehigh Valley International Airport and the Harrisburg International Airport.

NON-MOTORIZED FACILITIES

Muhlenberg Township has a variety of opportunities to facilitate pedestrians, boaters and bicyclists. Some of these facilities provide vital linkages to public land areas or road, thus providing the residents with opportunities to move from place to place without the use of an automobile. The following is brief description of the existing non-motorized modes of transportation within Muhlenberg Township.

The **Schuylkill River**, located along the northern perimeter of Muhlenberg Township, provides continuous non-motorized boating and recreation opportunities between Schuylkill County and the Delaware River. The Schuylkill River has been designated as a Pennsylvania Scenic River. Felix Dam, which was originally constructed for the Schuylkill Canal Navigation System in the 1,800's, provided motorized boating opportunities along a 19,000 foot segment along the Schuylkill River. As a result of Hurricane Floyd in September of 1999, portions of Felix Dam have given way and the volume of water contained within the upstream portion of the dam have been reduced significantly, whereas motorized boating and active recreation uses are no longer viable along this segment.

Laurel Run Park is a 114 acre stream valley/linear park located along the Laurel Run Creek. This park provides active and passive recreation activities. Muhlenberg Township owns and maintains all of the facilities including the existing trails within the park. The Muhlenberg Township Parks and Recreation Department is currently in the process of conducting a comprehensive update to the Muhlenberg Township Recreation and Open Space Plan. As part of this effort, Muhlenberg Township will consider a greenway and trail plan to link parks and recreation facilities, expand existing trails, and connect the systems planned by neighboring municipalities.

Pioneer Grove, Kelly's Lock Overlook and River Road Sites are linear parks located along the banks of the Schuylkill River. These liner parks and conservation areas (cumulative total is 15.84 acres) provide passive recreation opportunities with some improved trails. These sites are owned by the Commonwealth of Pennsylvania or City of Reading and leased by Muhlenberg Township.

Eagle's Landing Trail and Felix Dam are also linear parks located along the banks of the Schuylkill River. These liner parks and conservation areas (cumulative total is 10.54 acres) are owned by Muhlenberg Township provide passive recreation opportunities with some improved trails.

In addition to the existing non-motorized alternative modes of transportation described above, there are existing **sidewalks** along numerous roads within Muhlenberg Township. An integrated and contiguous sidewalk system is vital to establish linkages to public land areas, community facilities, schools, churches, recreation facilities, businesses and/or employment centers.



H. TRANSPORTATION IMPROVEMENT PROGRAMS

A Transportation Improvement Program (TIP) is a guide for developing a transportation agenda over a specified time period in an effort to address transportation needs and opportunities. Within Muhlenberg Township, the need for transportation improvements exceeds the available financial resources that are available to see a project planned, designed and constructed within a desirable period of time. The following text is intended to provide guidance for prioritizing transportation projects and to identify potential funding sources that may be available to assist Muhlenberg Township.

PENNSYLVANIA 12 - YEAR TRANSPORTATION PROGRAM

The Pennsylvania 12-Year Transportation Program is a list of potential projects and project phases for funding over the next 12-years. The 2003-2014 Twelve Year Program has been developed with emphasis on openness, management and partnerships. According to the Pennsylvania Department of Transportation, the key aspects of developing the first four-year period are as follows:

1. The Pennsylvania Department of Transportation (PA DOT), State Transportation Commission (STC), the Metropolitan Planning Organizations (MPO), Local Development Districts (LDD) and the independent counties coordinate on a number of public involvement initiatives.
2. PA DOT and its partners reached consensus on general, procedural and financial guidance for program development.
3. Partner agencies (MPO's, LDD and independent counties), with input from the PA DOT and STC, produce draft Transportation Improvement Programs (TIPs) for their respective areas and submit them to the PA DOT for review and consideration. At this point, issues are identified, differences could be resolved and consensus can be achieved.
4. The 2003 Program is a financially responsible and fiscally constrained program centered upon PA DOT's "maintenance-first" philosophy. The 2003 Program contains over 34 billion dollars worth of projects involving all modes of transportation and intermodal connections. Of this total, over 13 billion dollars is allocated to the first four-year period of the 2003 Program.

Within Muhlenberg Township, the following transportation projects are specifically referenced on the first four-year period of the 2003 Program.

12-YEAR TRANSPORTATION PROGRAM PROJECTS (2003)			
Traffic Route	Type of Project	Years	Total Cost
Business Route 222	Congestion Reduction	1 - 4	\$250,000 Preliminary Engineering \$250,000 Final Design \$500,000 Total Allocation *
* Denotes that the final report indicated that the total estimated cost for this project is \$1,000,000			
<i>Source: State Transportation Commission and Pennsylvania Department of Transportation</i>			

Additional finds may be allocated for transportation improvements through non-specific categories such as transportation enhancements, safety, betterments, reserve and restoration. The final determination on how these funds are disbursed is made by the Department of Transportation.

INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT (ISTEA)

In December of 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) was signed into law, authorizing funding and programs for highways, highway safety, bicycle and pedestrian travel lanes, and mass transit. ISTEA brought new requirements and a renewed focus to the State Transportation Improvement Program (STIP) and to county and regional Transportation Improvement Programs (TIPs), which are requirements for states to receive federal funding. Within the Commonwealth of Pennsylvania, the STIP and TIPs contain projects that are programmed over a four-year period with updates occurring every two-years so they sequence coincides with the Pennsylvania 12-Year Transportation Program. The following goals that were reflected by ISTEA included: creating a National Highway System consisting of existing Interstate routes and a portion of the federal-aid primary system; allowing state and local governments more flexibility in determining transportation solutions; promoting the use of new technologies; continuing funds for mass transit; making highway funds available to address environmental issues such as compliance with air quality; and requiring state uniformity in vehicle registration and fuel tax reporting to ease record keeping. ISTEA was originally intended to fund projects for six (6) successive years following the fiscal years of 1992 and 1997. ISTEA has been reauthorized and replaced by TEA-21.



TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY (TEA-21)

On June 9, 1998, the Transportation Equity Act for the 21st Century (TEA-21) was enacted to be the successor of ISTEA. TEA-21 authorizes the federal surface transportation programs for highways, highway safety, bicycle and pedestrian paths, and mass transit for six (6) successive years following the fiscal years of 1998 and 2003. TEA-21 refined prior planning requirements into the following seven (7) categories that must be considered when developing transportation programs: support economic vitality; increase safety and security; increase accessibility and mobility; protect the environment; integrate the transportation system; promote efficiency in the transportation system and preserve existing facilities. TEA-21 was landmark legislation since it continued the visionary policies of ISTEA and provided more funding than ever before for non-motorized transportation modes, specifically, bicycle and pedestrian modes. The Commonwealth of Pennsylvania is expected to receive \$120 million over the first six-year span of TEA-21 for Transportation Enhancements. Individual applicants submit their projects to the local MPO for review and consideration. The applications are reviewed, prioritized, and a recommendation is forwarded to PA DOT for final review and then passed on to the State Transportation Commission for consideration and final adoption. TEA-21 was originally intended to fund projects for six (6) successive years following the fiscal year of 1997. TEA-21 has been reauthorized and replaced by SAFETEA.

SAFE ACCOUNTABLE FLEXIBLE & EFFICIENT TRANSPORTATION EQUITY ACT

On May 16, 2003, The United States Department of Transportation introduced the Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2003 or SAFETEA. This 6 year reauthorization program replaces TEA-21. The purpose and objective is to make substantial improvements in the safety of the surface transportation system; simplify federal transportation programs; and make federal transportation programs smarter. Some of the more prominent highlights of SAFETEA include:

- Provide additional funding for highway safety improvements through a new core highway safety infrastructure program in lieu of the existing Surface Transportation Program.
- Create a new safety belt incentive program to strongly encourage States to enact primary safety belt laws and achieve substantially higher safety belt usage rates.
- Combine several safety programs administered by the National Highway Traffic Safety Administration into a consolidated grant program.
- States would be granted broad new flexibility to transfer safety funds among the diverse safety programs administered by the Department if they develop performance-based comprehensive strategic highway safety plans that identify their highest priority safety improvements.
- Provide increased funding for commercial vehicle safety and research programs enhancing the quality, stability, continuity, and uniformity of State commercial vehicle safety and enforcement programs.
- Expand and improve safety auditing of "New Entrant" motor carriers.

PENNSYLVANIA STATEWIDE TRANSPORTATION PLAN (*PennPlan MOVES*)

On January 13, 2000, the Pennsylvania Department of Transportation (PA DOT) officially released *PennPlan MOVES*, a state transportation plan for the next 25 years, which provides emphasis on ten (10) long-range goals including improved safety, land-use management and system maintenance. The plan represents an innovative effort to involve the public at the start of the transportation planning process. As part of this effort, PA DOT interviewed approximately 2,000 people for their views on transportation priorities before preparing and completing the long-range plan. Safety, high-speed rail, the ability to transfer between modes and smart highways were among the priorities participants cited. "MOVES" stands for the themes that emerged from the public involvement process including: Mobility, Options, Voices, Efficiency, Environment, Equity, Economy and Safety.

PA DOT and its partners will use *PennPlan MOVES* to link specific projects to broader policy goals. The plan also provides mechanisms for measuring success in meeting those goals, which include: promote safety of the transportation system; improve the environment; retain jobs and expand economic opportunities; make transportation decisions that support land-use objectives; maintain, upgrade and improve the transportation system; inform and involve the public and improve customer service; advance regional and corridor-based planning; develop transportation alternatives and manage demand; promote smooth, easy connections between transportation alternatives; and ensure accessibility of the system and mobility for everyone.

PennPlan MOVES also lists 30 statewide objectives and outlines performance measures and targets for each. In addition, *PennPlan MOVES* lists 28 corridors of statewide significance and objectives for each corridor. The realization of *PennPlan MOVES* is expected to begin immediately with potential funding programs to expedite the implementation of the goals and objectives.

BERKS COUNTY VISION 20/20

Berks County has developed a Transportation Plan in conjunction with *Berks County Vision 20/20*, A Comprehensive Plan for the County of Berks. This document provides a comprehensive listing of recommended transportation projects for the 2000 to 2020 planning period. The transportation improvements identified within *Berks County Vision 20/20* are proposed in an effort to implement the transportation goal of providing and maintaining a balanced transportation system that will safely and efficiently move people and goods in support of the land use policies of this plan. While the proposed recommendations contained within *Berks County Vision 20/20* provide guidance on the development of the transportation system within Berks County, the official document remains the Long Range Transportation Plan for Berks County and Transportation Improvement Programs as adopted by the Reading Area Transportation Study Coordinating Committee. This committee is the designated Metropolitan Planning Organization (MPO) for transportation issues in Berks County.

The Transportation Plan contained within *Berks County Vision 20/20* recognizes the essential components of the transportation system including: highways; transit; pedestrian/bicycle; aviation and rail. The following text summarizes the recommendations for transportation as contained within *Berks County Vision 20/20*.

Highway Projects: The primary emphasis for transportation improvements will be the routine monitoring and maintenance of existing highways and bridges. The major highway project recommendations focus on the maintenance of the existing system, the completion of the regional expressway system, minimization of congested areas, improvement of safety and the provision of access for economic growth where consistent with the land use plan. Projects that are exclusively maintenance of existing facilities and provide no capacity improvement are totally consistent with this plan but will not be listed. Project recommendations are grouped into three categories:

Short Range Projects are currently scheduled for completion by PA DOT within the plan horizon (before the year 2020).

Intermediate Range Projects are not currently scheduled for completion by PA DOT, but these projects could reasonably be achieved within the plan horizon.

Long Range Projects are important to Berks County, but are not currently scheduled for completion by PA DOT and it is not reasonable to assume could be completed within the plan horizon without major increases in available funding levels. While not likely to be completed, activities initiating the implementation of these projects should begin within the plan horizon.

The following chart identifies the highway projects, which are located within Muhlenberg Township or will have a significant impact on Muhlenberg Township. The project descriptions and rationale for their inclusion has been summarized from the Future Land Use Plan for *Berks County Vision 20/20*.

BERKS COUNTY VISION 20/20 PROPOSED HIGHWAY PROJECTS		
Traffic Route	Project Description	Priority
Business Route 222	Provision of turning lanes, signal coordination and access control through the commercial area of north of the City of Reading and Muhlenberg Township to improve capacity and safety	Short Range
Route 61: segment in Ontelaunee Township	Provide median barriers, turning lanes, traffic signals and consolidation of access points to conserve capacity, improve safety and support surrounding growth areas. This project will also address short-term congestion at the interchange between Route 222 and Route 61	Short Range
Route 222 Bypass and Route 61 Interchange	Reconstruction of substandard interchange to allow full range of movements, and increase both capacity and safety.	Intermediate Range
Route 222 Bypass (Regional Project)	Complete corridor links and connect gaps within the regional expressway system from Muhlenberg Township to the Lehigh County line. Berks County in conjunction with PA DOT has initiated a study to assess a wide range of transportation solutions to satisfy long-term safety and capacity issues.	Intermediate Range
Route 12 and Route 61 Interchange	Reconstruct substandard interchange to provide full range of movements and provide safe, efficient access to the surrounding urban area	Intermediate Range
Route 61	Widening to four lanes with turn lanes at intersections, widen railroad underpass, eliminate at-grade rail crossing and consolidate access points between Bellevue Avenue and the Route 222 Bypass.	Intermediate Range
Bellevue Avenue	Widen Bellevue Avenue to four lanes and reconstruct bridges over railroad between Business Route 222 and Route 61.	Intermediate Range
Route 61 (Regional Project)	Provide a new limited access connection between Route 222 Bypass and Interstate 78. Consideration should be given to combining this project with upgrades to existing expressways to provide a new Interstate link from Interstate 76 in Morgantown through the Reading area to Interstate 78 and possibly continuing on to I-81 in Schuylkill County.	Long Range
<i>Source: Transportation Plan, Berks County Vision 20/20, A Comprehensive Plan for the County of Berks</i>		

Transit: The Transportation Plan contained within *Berks County Vision 20/20* provides a number of recommendations pertaining to the use of transit as a means of transportation for those without automobiles, providing an optional means of transportation for those with automobiles, reducing highway congestion by reducing the total number of vehicles on the highway and improving air quality. The following recommendation apply to Muhlenberg Township:

1. The Berks Area Reading Transportation Authority (BARTA) should continue to monitor routes, operating characteristics and development trends throughout the county and adjust their route structure accordingly to maximize ridership.

2. Extension of services into Berks County by other public transit providers will be supported only if they are complementary to services provided by BARTA.
3. BARTA should continue to provide devices to allow persons with disabilities to access fixed route transit as well as paratransit services in accordance with the Americans with Disabilities Act.
4. BARTA should upgrade its fleet of vehicles and facilities to ensure the continued availability of clean, safe service. This upgrade should maximize the use of alternative fueled vehicles.
5. Public transit services should be coordinated with private services such as intercity buses and taxi services to maximize connectivity and ensure a range of transportation options.
6. The Schuylkill Valley Metro passenger rail service from Wyomissing to Philadelphia should be implemented if it is financially feasible. This service should be designed in a manner that does not inhibit the ability to provide rail freight services.
7. Urban municipalities should adopt development controls that promote the use of transit.

Pedestrian/Bicycle Modes: The following actions are recommended by *Berks County 20/20* to support pedestrian / bicycle movements:

1. The Reading MPO will develop a Bicycle / Pedestrian Plan as an element of the Long Range Transportation Plan. It will identify specific actions / improvements to promote pedestrian and bicycle movements throughout the county. The County will support the implementation of these recommendations. This document is adopted by reference as an element of this plan.
2. Enact development controls that promote the safe movement of pedestrians and bicycles.

Aviation: Aviation within Muhlenberg Township is limited to the Reading regional Airport, which is located 2,000 feet to the west of the Schuylkill River in Bern Township. The following actions are recommended by *Berks County 20/20* concerning aviation within Muhlenberg Township:

1. The Reading Regional Airport should develop a Master Plan in accordance with Federal Aviation Administration requirements that documents the future role and physical needs of the airport. This document will be prepared and updated as necessary in cooperation with the state, county and the surrounding municipalities.
2. Municipalities should adopt appropriate development controls surrounding airports to ensure the safety of both the aircraft and its contents and those on the ground.

Rail: Rail freight service maximizes intermodal capabilities. Within Muhlenberg Township, and active rail lines are owned and maintained by either Norfolk Southern or the Reading Blue Mountain and Northern Railroad. These rail lines are located within central portion of Muhlenberg Township. The following actions are recommended by *Berks County 20/20* concerning active and inactive rail lines within Muhlenberg Township:

1. Municipal zoning of industrial sites should make maximum use of rail facilities provided the location is consistent with other growth policies in this plan.

2. Operators should conduct systematic inspection and maintenance programs of tracks, signals and rolling stock to ensure safe operations.
3. Operators should investigate the adequacy of public sidings and expand as necessary. The County will support the development of intermodal (rail/truck) facilities where appropriately sited.
4. At-grade crossings on arterials and major collector highways should be eliminated and replaced with grade-separated structures. Structures carrying highways over rails should provide sufficient clearance for modern high-capacity rail cars.
5. Rail corridors abandoned by private operators should be acquired, when feasible, for their reuse at some later time as transportation corridors (highway, rail or pedestrian / bicycle trail).

MUNICIPAL AND REGIONAL CAPITAL IMPROVEMENT PLANS

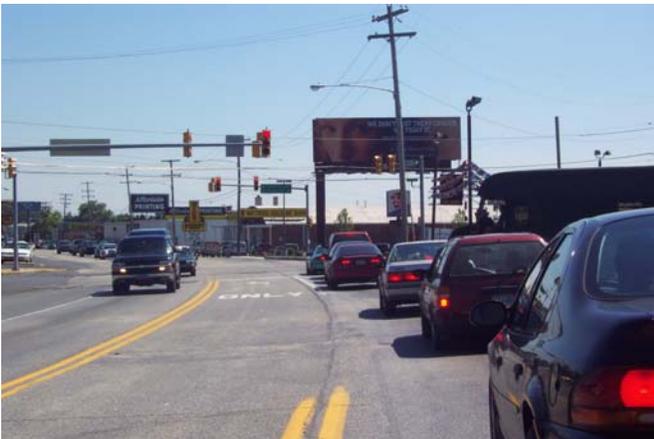
Currently, Muhlenberg Township funds its transportation projects utilizing a combination of resources including the use of municipal capital improvement funds for roads (\$ 460,000 for 2003 budget), liquid fuel tax allocations (\$321,600 for 2003 budget), grants and/or contributions from the private development community. The prioritization and scheduling of these municipal transportation improvements is typically accomplished thorough periodic road inspections by the municipal officials and consultants. In addition, Muhlenberg Township has developed a Pavement Management Program and a Traffic Sign Program. The following recommendations are presented to provide guidance for the development of a municipal and regional capital improvement plan:

1. Muhlenberg Township should conduct periodic road inspections (at least two times per year) in order to identify transportation deficiencies and needs. The municipal officials and consultants should meet annually to prioritize needs and to tentatively schedule projects over a 10-year planning period. A ranking system to prioritize the projects and preliminary cost estimates should be developed for each project.
2. Utilize the initial list of roadway deficiencies and needs as a guideline to develop a more comprehensive list of improvements.
3. Consider establishing a regional transportation committee to consider and prioritize transportation needs and regional projects. As part of this effort, Muhlenberg Township could solicit municipal partnerships to resolve specific regional transportation or corridor problems. An example of this cooperative effort would be as follows:
 - Muhlenberg Township in conjunction with the City of Reading, Laureldale Borough, Ontelaunee Township and Maiden creek Township could focus on regional transportation needs along Business Route 222 and Kutztown Road.
 - Muhlenberg Township in conjunction with the City of Reading, Laureldale Borough and Ontelaunee Township could focus on regional transportation needs along Route 61.

- Muhlenberg Township in conjunction with Bern Township, Spring Township, Ontelaunee Township, Maiden creek Township and Richmond Township could focus on transportation needs along the Route 222 Bypass, between and Kutztown Bypass and the City of Reading.
- Muhlenberg Township in conjunction with the City of Reading, Laureldale Borough and Alsace Township could focus on regional transportation needs along Route 12.

The purpose and objective of the regional transportation committee is to identify and prioritize regional transportation needs. The municipal road inspection reports, cost estimates, priority assignments and schedule (as outlined above) should be utilized to develop a comprehensive list of regional needs.

4. A regional transportation committee meeting could be scheduled on an as needed basis to coordinate municipal and regional transportation planning efforts. Representatives from the Pennsylvania Department of Transportation, the Reading Metropolitan Planning Organization (MPO) and the Berks County Planning Commission should be invited to the meeting to assist the regional transportation committee with assigning projects to specific programs and/or potential funding opportunities.
5. Regional transportation projects should be formally identified and prioritized. The Reading MPO and Berks County Planning Commission should evaluate these potential projects in terms of regional benefits and if they could qualify for funding through federal and state sources. If the transportation project is not eligible for federal or state financial assistance, alternative funding opportunities should be investigated by the municipalities who will directly benefit from the proposed transportation project.
6. Municipal transportation projects that are specifically relevant to Muhlenberg Township should be formally identified and prioritized. These projects should be evaluated by the Reading MPO and Berks County Planning Commission in terms of regional benefits and if they could qualify for funding through federal and state sources. If the transportation project is not eligible for federal or state financial assistance, the project should be assigned to the municipal capital improvements plan and budget.



PENNSYLVANIA TRAFFIC IMPACT FEE LAW (PA ACT 209)

In December of 1990, the Pennsylvania Traffic Impact Fee Law (PA Act 209) was signed into law by the state legislature. Pennsylvania Act 209 amends the Pennsylvania Municipalities Planning Code by adding Article V-A, titled "Municipal Capital Improvement". This article authorizes traffic impact fees, in accordance with conditions, standards, and procedures, to cover the estimated cost of off-site road improvements necessitated by, attributable to, and directly related to new development. This authority is given to every municipality as defined within the Pennsylvania Municipalities Planning Code, other than a county, if the municipality has adopted a comprehensive plan, a zoning ordinance, and a subdivision and land development ordinance.

Prior to the establishment of a Traffic Impact Fee District (Maximum land area 7 square miles), the governing body appoints a Traffic Advisory Committee by resolution. The Traffic Advisory Committee is responsible for overseeing the development of a Land Use Assumptions Report, a Roadway Sufficiency Analysis, a Capital Improvements Plan, and a Transportation Impact Fee Ordinance. Upon adoption of the Traffic Impact Fee Ordinance by the governing body, the municipality can charge a traffic impact fee for all new subdivision and land development activity within the Traffic Impact Fee District.

Based upon the amount of undeveloped land area, potential growth areas for new development, and the amount of pass-through traffic within Muhlenberg Township, it does not appear that it will be economically feasible for Muhlenberg Township to consider this planning option. A feasibility study should be conducted by Muhlenberg Township to determine if the cost to prepare the required background studies will be worth the amount of impact fees that will be collected over time to pay for the transportation improvements.

OTHER TRANSPORTATION PROGRAMS AND FUNDING ALTERNATIVES

In addition to the transportation programs and funding alternatives presented in this chapter, the following sources may also provide guidance and financial support in an effort to implement needed transportation improvements within Muhlenberg Township.

National Highway System funds may be used to construct bicycle transportation facilities and pedestrian walkways on land adjacent to any highway on the National Highway System, including Interstate highways.

Surface Transportation Program (STP) funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or non-construction projects, such as maps, brochures, and public service announcements related to safe bicycle use and walking. TEA-21 adds the modification of public sidewalks to comply with the Americans with Disabilities Act as an activity that is specifically eligible for the use of these funds.

Hazard Elimination and Railway-Highway Crossing Programs are two programs under the safety category, which address bicycle and pedestrian safety issues. The Commonwealth of Pennsylvania is required to implement a Hazard Elimination Program to identify and correct locations that may constitute a danger to motorists, bicyclists, and pedestrians. Funds may be used for certain activities, including a survey of hazardous locations, for projects on any publicly owned bicycle or pedestrian pathway or trail, or for any safety-related traffic calming measure. Improvements to railway-highway crossings shall take into account bicycle safety.

Congestion Mitigation and Air Quality Improvement Program funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways or non-construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use.

Federal Lands Highway Program funds provide for improvements for pedestrians and bicyclists who are eligible under the various categories of the in conjunction with roads, highways, and parkways. Priority for funding projects is determined by the appropriate Federal Land Agency or Tribal government.

National Scenic Byways Program funds may be used for construction along a scenic byway of a facility for bicyclists and pedestrians.

Job Access and Reverse Commute Grants are available to support projects, including bicycle-related services, designed to transport welfare recipients and eligible low-income individuals to and from employment.

Urbanized Area Formula Grants, the Capital Investment Grants, and the Loans and Formula Program for Other than Urbanized Areas allows for transit funds to be utilized for improving bicycle and pedestrian access to transit facilities and vehicles. Eligible activities include investments in pedestrian and bicycle access to a mass transportation facility that establishes or enhances coordination between mass transportation and other transportation.

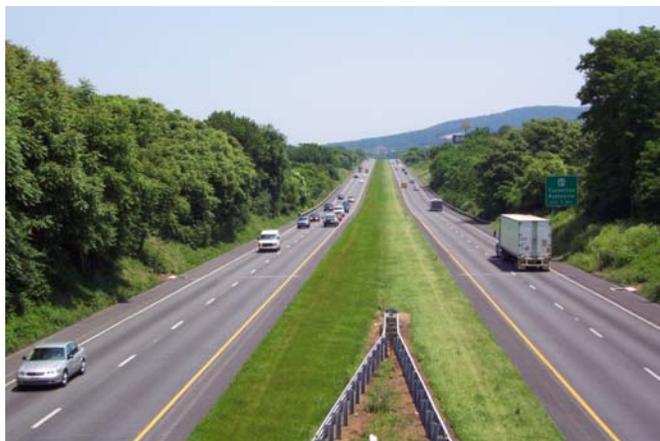
Keystone Planning, Implementation and Technical Assistance Program (PITA) provides funds through the Pennsylvania Department of Conservation and Natural Resources for community planning grants. **Keystone Community Grants** provide funds for comprehensive recreation, park and open space plans, greenway plans, site master plans for neighborhood or regional parks, county natural area inventories, and peer-to-peer technical assistance. Municipal governments (including counties), councils of government and authorities are the only eligible applicants. **Rails-to-Trails Grants** may be requested by appropriate non-profit organizations, as well as municipalities. Money is provided for rail-trail feasibility studies and master plans and for special-purpose studies, such as studies of bridges and tunnels of special concern. **Rivers Conservation Grants** are available to municipalities and appropriate non-profit organizations for conducting watershed and river corridor studies and plans, many of which include greenway and trail elements.

Keystone Acquisition and Development Grant Program provide funds through the Pennsylvania Department of Conservation and Natural Resources for land acquisition and development projects. Although the grant programs bear the same name as the grant programs under the PITA grants, they are separate programs with distinct features. Under the **Community Program**, municipalities, council of government and some authorities are the only eligible applicants. These grants provide funding for the purchase of land for park, recreation, or conservation purposes and the rehabilitation and development of park and recreation areas and facilities, including greenways and trails. The **Rails-to-Trails Program** is open to municipalities and non-profit organizations. Grant funds may be used for acquisition of abandoned railroad rights-of-way and adjacent land, and to develop them for recreational trail use. Under the **Rivers Conservation Program**, funding is available to both municipalities and appropriate organizations for acquisition and development projects recommended in an approved Rivers Conservation Plan (such as those created under the PITA Program). To be eligible for acquisition or development funding, the Rivers Conservation Plan must be listed in the Pennsylvania Rivers Registry.

The Keystone Land Trust Program provides funds administered by the Pennsylvania Department of Conservation and Natural Resources to non-profit land trusts' conservancies and organizations. The funds require a 50-percent match and are used for acquisition and planning of open space and critical natural areas that face imminent loss. Lands must be open to public use and the acquisition must be coordinated with the communities or counties in which the property is located. Although these funds are targeted to protecting critical habitat with threatened species, many of these lands also provide key open space, greenway, bikeway, trail and heritage corridor opportunities and connections in greenway systems. Many land trusts and conservancies are undertaking greenway initiatives and are willing partners in greenway projects.

The Recreational Trails Program is administered by the Pennsylvania Department of Conservation and Natural Resources but uses Federal Highway Administration (FHWA) and federal Intermodal Surface Transportation Efficiency Act (ISTEA) funds. Recreational Trails Program grants are available to federal and state agencies, municipal government, organizations, and even private individuals. Grant money may be used for a variety of purposes, including work on trails to mitigate or minimize the impact on the natural environment, provide urban trail linkages, and develop trail-side and trail-head facilities. These grants also require a 50-percent local match.

Heritage Parks Program is administered by the Pennsylvania Department of Conservation and Natural Resources in conjunction with a task force of other state agencies and non-profit organizations. Annual appropriations from the General Assembly are used to fund study, planning, implementation and management projects in officially designated State Heritage Parks within the Commonwealth of Pennsylvania. Heritage Parks are large multi-county corridor and geographic areas that contain heritage elements of national or state significance related to historic industrial themes, such as oil, steel, coal, railroads, and transportation. Through public-private partnerships and a bottom-up grassroots public participation process, regional management action plans are completed to protect and enhance the natural, cultural, recreational, historic and scenic resources of the area. These resources are interpreted, packaged and promoted to create economic development opportunities based on tourism for the area.



I. FUTURE TRANSPORTATION PLAN AND RECOMMENDATIONS

The effectiveness of a transportation system is measured by its ability to provide safe and efficient modes of travel on a local and regional level. Therefore, it is imperative to develop an effective plan for transportation in order to support growth and development within Muhlenberg Township over the next 20-years. The following recommendations provide a summary of the transportation profile and plan considering the needs of Muhlenberg Township.

Transportation Planning and Design Issues

1. Recognize the functional classification of all public roads and understand their limitations to support future growth and development.
2. Maintain the functional integrity of existing and future transportation routes through appropriate land use controls and design standards to alleviate congestion, promote safety, and reduce the needs for new highways.
3. Adopt uniform design standards for the construction of new roads and/or for the improvement of existing roads within Muhlenberg Township. The minimum design standards and specifications recommended within the chapter should be considered by within Muhlenberg Township.
4. Purchase a traffic counter in order to determine and/or verify average daily traffic counts along existing arterial, collector and minor streets. Continue to maintain, monitor and update records to accurately determine the average daily traffic counts. Coordinate efforts with PA DOT and the Berks County Planning Commission to avoid unnecessary duplication of work.
5. Initiate a municipal capital improvements plan, schedule and budget for transportation projects that are necessary to provide safe and efficient modes of travel on a local and regional level. Solicit advice from transportation experts from the public and private sectors.
6. During the planning process, obtain all necessary rights-of-way and/or easements to facilitate future transportation improvements for future roads, trails and utilities.
7. Consider access management strategies along Business Route 222, Route 61, and other roads with traffic congestion, to increase mobility and limit accessibility. As part of this effort, consider the access management strategies contained within this Chapter of the Plan.
8. Consider establishing a regional transportation committee to consider and prioritize transportation needs and regional projects. As part of this effort, Muhlenberg Township could solicit municipal partnerships to resolve specific regional transportation or corridor problems. Utilize municipal road inspection reports, cost estimates, priority assignments and schedules to develop a comprehensive list of regional needs. Hold a regional transportation committee meeting (on an at need basis) to coordinate municipal and regional transportation planning efforts. Representatives from the Pennsylvania Department of Transportation, the Reading MPO and the Berks County Planning Commission should be invited to the meeting to assist the regional transportation committee with assigning projects to specific programs and/or potential funding opportunities.

9. Require a Traffic Impact Study (TIS) for all proposed subdivision and land development plans generating more than five hundred (500) or more trips per day. The TIS will enable Muhlenberg Township to assess the impact of a proposed development on the existing transportation system. The purpose of the TIS is to ensure that proposed development does not adversely affect the transportation system and to identify any problems associated with access from the site onto the exiting roads. The TIS shall also identify solutions to potential traffic problems and present improvements that are to be incorporated into the proposed development.
10. Monitor existing levels of service at intersections involving collector and arterial highways.

High Priority Transportation Improvements

11. Conduct a detailed corridor study along Route 61 (Pottsville Pike) to evaluate traffic management solutions considering congestion, numerous vehicular access points, mid-block and intersection accidents, cartway widths and building setback limitations. At a minimum, the following issues should be considered:
 - Establish a consistent cross section of 5 travel lanes (minimum) from the City of Reading into Ontelaunee Township to improve safety, efficiency, accessibility and mobility;
 - Where necessary jug handles should be designed and installed to improve turning movements;
 - All traffic signals should be linked to improve travel time;
 - Reconstruction and drainage improvements should be will be required along this segment over time;
 - Minimize, combine or eliminate unnecessary driveways cuts; and
 - Evaluate reported and non-reported vehicular accident records to determine if Route 61 can be designed to improve safety.

Coordination with the Pennsylvania Department of Transportation and Reading MPO will be essential to consider design alternatives and implementation of this project. In addition, Muhlenberg Township should solicit municipal support from the City of Reading, Laureldale Borough and Ontelaunee Township.

12. Conduct a corridor study along Business Route 222 (5th Street Highway) to evaluate traffic management solutions considering congestion, numerous vehicular access points, mid-block and intersection accidents, cartway widths and building setback limitations. At a minimum, the following issues should be considered:
 - Establish a consistent cross section of 5 travel lanes (minimum) from the City of Reading to the Route 222 Bypass to improve safety, efficiency, accessibility and mobility;
 - All traffic signals should be linked to improve travel time;

- Reconstruction and drainage improvements should be will be required along this segment over time;
- Minimize, combine or eliminate unnecessary driveways cuts; and
- Evaluate reported and non-reported vehicular accident records to determine if Business Route 222 can be designed to improve safety.

Coordination with the Pennsylvania Department of Transportation and Reading MPO will be essential to consider design alternatives and implementation of this project. In addition, Muhlenberg Township should solicit municipal support from the City of Reading, Laureldale Borough, Ontelaunee Township and Maiden creek Township.

13. Conduct a corridor study along Route 12 (Warren Street Highway) to evaluate traffic management solutions considering congestion, numerous interchange accidents and inadequate ramp lengths. At a minimum, the length of the interchange ramps at Business Route 222, Route 61, River Road and North 11th Street must be extended to improve safety, accessibility and mobility at these existing interchanges. Coordination with the Pennsylvania Department of Transportation and Reading MPO will be essential to implement this project. In addition, Muhlenberg Township should solicit municipal support from the City of Reading, Laureldale Borough and Alsace Township.
14. Design and construct a consistent cross section of 3 to 4 travel lanes along Tuckerton Road (from Route 61 to Stoudts Ferry Bridge Road) to improve safety, efficiency, accessibility and mobility. As part of this effort, a new bridge over the railroad line and additional right-of-way will be necessary to implement this project. In addition, reconstruction of the existing cartway and drainage improvements should be designed and completed. Coordination with the Pennsylvania Department of Transportation and Reading MPO will be essential to implement this project.
15. Encourage the Pennsylvania Department of Transportation to conduct a Point of Access Study to determine if a full service interchange (eastbound and westbound) along the Route 222 Bypass at Stoudts Ferry Bridge Road can be designed and constructed. Coordinate efforts with the Reading MPO and Berks County Planning Commission.
16. Design and construct a consistent cross section of 4 travel lanes along Bellevue Avenue (from Business Route 222 to Route 61) to improve safety, efficiency, accessibility and mobility. As part of this effort, a new bridge over the railroad line and additional right-of-way will be necessary to implement this project. In addition, reconstruction of the existing cartway and drainage improvements should be designed and completed. Coordination with the Pennsylvania Department of Transportation and Reading MPO will be essential to implement this project.
17. Widen the vehicular travel lanes to 12 foot wide lanes along River Road. As part of this effort; an additional 4 foot wide bicycle or pedestrian lane should also be designed to provide recreation opportunities along the Schuylkill River.
18. Widen the vehicular travel lanes to 12 foot wide lanes along Leesport Avenue and provide turning lanes at appropriate locations. In addition, reconstruction of the existing cartway and

drainage improvements should be designed and completed. Coordination with the Pennsylvania Department of Transportation and Reading MPO will be essential to implement this project.

19. Improve visibility, alignment and sight distance along all existing street intersections with Business Route 222, Route 61 and Kutztown Road. Based upon the number of reportable intersection accidents and increased traffic volumes along these routes, specific attention should be provided to improve safety.
20. Minimize, combine or eliminate unnecessary driveways cutes along Business Route 222, Route 61 and Kutztown Road. Determine if vehicular accessibility to residential and commercial uses can be achieved through common driveways or marginal access roads.
21. Reconstruct and improve Sharp Avenue to accommodate existing and proposed traffic volumes. Where feasible, consider cartway widening and drainage improvements. Coordinate efforts with the Muhlenberg School District.

Moderate Priority Transportation Improvements

22. Consider cartway widening, realignments (vertical and horizontal) and reconstruction improvements along Crystal Rock Road. As part of this effort consider bridge replacement and stormwater management improvement issues.
23. Consider cartway widening, realignments (vertical and horizontal), stormwater management and reconstruction improvements along Mannerchor Road.
24. Consider realignments (vertical and horizontal), sight distance and visibility improvements at the multiple street intersection of Elizabeth Avenue with Ramich Road, Mannerchor Road and Herb Road. Coordinate efforts with the Pennsylvania Department of Transportation, Laureldale Borough, existing property owners and/or private development community.
25. Consider cartway reconstruction, curbing and stormwater management improvements along Reading Crest Boulevard. As part of this effort, conduct the necessary engineering studies to prohibit or limit truck traffic on Reading Crest Boulevard.
26. Consider cartway reconstruction, curbing and stormwater management improvements along Carolina Boulevard.
27. Consider cartway widening (consistent width), reconstruction, curbing and stormwater management improvements along Stoudts Ferry Bridge Road. As part of this effort, consider emergency management coordination and response issues for residential development within the northwestern section of Muhlenberg Township.
28. Consider cartway reconstruction, curbing and stormwater management improvements along Eisenbrown Avenue.
29. Consider traffic control and stormwater management improvements along Kutztown Road. Coordinate efforts with the Pennsylvania Department of Transportation, Reading MPO and Laureldale Borough.

30. Consider realignments (vertical and horizontal) and stormwater management improvements along Mt. Laurel Avenue.
31. Consider realignments stormwater management improvements along Beaumont Avenue.
32. Consider bridge replacement or reconstruction improvements along Little Rock Road.
33. Consider bridge replacement or reconstruction improvements along Hain Avenue.
34. Consider bridge replacement or reconstruction improvements along Leisz’s Bridge Road. As part of this effort, consider cartway widening, realignments (vertical and horizontal) and reconstruction as part of the design. Coordinate efforts with the Pennsylvania Department of Transportation and Reading MPO.
35. Consider realignments (vertical and horizontal), cartway widening and drainage improvements along Elizabeth Avenue to manage existing and projected traffic volumes. Coordinate efforts with the Pennsylvania Department of Transportation and Reading MPO.
36. Consider cartway reconstruction, widening, realignments (vertical and horizontal), sight distance and stormwater management improvements along Hay Road.

Low Priority Transportation Improvements

37. Correct the sedimentation/structural problems and improve stormwater management facilities at all existing bridges and culverts. Coordinate planning and engineering efforts with the Berks County Planning Commission, Reading MPO, Pennsylvania Department of Transportation and the Pennsylvania Department of Environmental Protection.
38. Consider all other potential transportation projects designated with a lower priority, as described within this chapter.

Aesthetic Design Criteria

39. Establish “gateways” along the main entrances of the major corridors to Muhlenberg Township in an effort to define the arrival point as a destination. Gateways should be considered along Route 222 Bypass, Business Route 222, Route 61 and Kutztown Road. Gateway planning should address landscaping, lighting, architecture, signage and visual amenities to promote a positive image.
40. Identify scenic roads and vistas within Muhlenberg Township. Consider zoning, subdivision and land development requirements to provide limitations on woodland extraction while considering enhancements to preserve the integrity of the scenic roads.
41. Coordinate and integrate land use development with transportation infrastructure so that higher intensity land uses are located in the vicinity of transportations routes with sufficient capacities.
42. Develop a Transportation Enhancement Plan for Business Route 222, Route 61 and/or Kutztown Road in an effort to consider landscaping, pedestrian circulation, public transportation, lighting, visual effects at the gateways and other beautification efforts.

43. Consider traffic calming methods in an effort to reduce vehicular speeds, provide opportunities of pedestrians and bicyclist, enhance the appearance of the streetscape, and to minimize the impacts of diverging land uses.

Financing Capital Improvements

44. Develop and adopt a municipal capital improvements plan, schedule and budget for transportation projects that are necessary to provide safe and efficient modes of travel on a local and regional level. Solicit advice from the Pennsylvania Department of Transportation, the Reading Metropolitan Planning Organization (MPO) and the Berks County Planning Commission Pennsylvania concerning potential state and federal assistance programs that could be beneficial to subsidize the cost of specific transportation improvements.
45. Consider a line item budget increase or special tax initiative to finance all necessary transportation improvements over the next 20-years. Currently, the municipal budget does not address the long term needs of maintaining a massive transportation system. With more than 72 miles of municipal roads and 31 miles of state roads, the transportation needs of Muhlenberg Township are among the highest within Berks County. Through the development of a municipal capital improvements plan, Muhlenberg Township could address immediate and long term solutions.
46. Conduct a feasibility study to determine if the cost to prepare the background documents for an Act 209 Study (as required under the provisions of PA Act 209) will be worth the amount of traffic impact fees that will be collected over time to pay for the improvements. Solicit the aid of a qualified transportation consultant to provide guidance for the feasibility study.
47. Evaluate transportation funding opportunities that are available to assist municipalities in the implementation of needed transportation projects. These programs include, but are not limited to: the Pennsylvania 12-Year Transportation Program; the Transportation Equity Act for the 21st Century (TEA-21); the Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2003 (SAFETEA); the Pennsylvania Statewide Transportation Plan (PennPlan MOVES); the Pennsylvania Traffic Impact Fee Law (PA Act 209); and other transportation and funding alternatives listed within this chapter. Solicit the guidance of the Pennsylvania Department of Transportation, Berks County Planning Commission, the Reading MPO and/or a transportation consultant to provide guidance as to match the appropriate program to the problem or need.
48. Support the transportation improvement projects, which are currently scheduled to be implemented as part of the Pennsylvania 12-Year Transportation Program. Coordinate efforts with the Pennsylvania Department of Transportation, Berks County Planning Commission, the Reading MPO and adjacent municipalities to add high and moderate priority projects to this list in future years.
49. Continue to evaluate the acceptance of state roads through the Pennsylvania Turnback Program and private roads through the appropriate municipal improvement guarantees offered by the private development community.

Other Transportation Planning Implications and Design Considerations

50. Strategically locate full service areas to accommodate Park and Ride Facilities in the vicinity of the Route 222 Bypass and Route 12. As part of this effort, seek the cooperation of local employment and commerce centers to allocate portions of their off-street parking areas to resident Promote carpooling efforts within Muhlenberg Township.
51. Support the existing and planned non-motorized trail systems within Muhlenberg Township as a method of providing alternative transportation opportunities for pedestrians, bicyclist and horseback riders. Encourage linkages to public areas and regional trails (existing and planned) including the Schuylkill River, Laurel Run Park, Bernharts Reservoir, Eagles landing Trail, Pioneer Grove, Kelley's Lock Overlook and Muhlenberg School District. Develop zoning requirements to buffer land use activities.
52. Evaluate opportunities to link the eastern and western portions of Muhlenberg Township with a planned bicycle and pedestrian trail. Coordinate future planning endeavors with the Berks County Planning Commission, Berks County Conservancy, Berks County Parks and Recreation Department, Schuylkill River Greenway Association, Muhlenberg School District, adjacent municipalities, and other public or private agencies.
53. Recognize the navigational value of the Schuylkill River and encourage non-motorized boating opportunities along this Pennsylvania Scenic River.
54. Encourage the Berks Area Reading Transportation Authority (BARTA) to evaluate the feasibility of extending their regular route system to encompass populated areas and employment centers within Muhlenberg Township.
55. Encourage the extension of the Schuylkill Valley Metro passenger rail service from Philadelphia to Wyomissing provided the projects could be implemented within a reasonable budget. Support local train station locations within Pottstown, Douglassville, the Lincoln Corporate Center, Reading and Wyomissing.
56. Acquire rail corridors abandoned by private operators for their reuse as transportation corridors (highway, rail or pedestrian / bicycle trail).
57. Develop municipal zoning incentives for industrial sites to make maximum use of existing rail facilities provided the location is consistent with other growth policies in this plan.
58. Encourage Norfolk Southern and Reading Blue Mountain and Northern Railroad to conduct systematic inspection and maintenance programs of tracks, sidings, signals and rolling stock to ensure safe operations.