COMMUNITY FACILITIES AND SERVICES PLAN

Community facilities include parks, fire stations, municipal buildings, public schools and similar facilities. Community services include police and fire protection, sewage and water services and municipal government.

GOAL: Provide high-quality community facilities and services in the most cost-efficient manner, including addressing needs for future growth.

Improve parks and playgrounds to meet a wide variety of recreational needs.

The locations of existing recreation areas are shown on the Existing Recreation Areas and Proposed Trails Map. The numbers on that map relate to the listing on the following pages.

Most of the Region is well-served by existing parks that are properly distributed to serve concentrations of residents. The Region's park system includes an appropriate variety of facilities, including playgrounds in denser areas, athletic fields, passive natural areas along creeks and other facilities. Continued efforts are needed to rehabilitate older recreation areas, particularly to make sure they meet modern safety standards.

It generally is most efficient and most convenient to concentrate most new athletic facilities for organized sports in a few centralized parks, preferably adjacent to a public school.

Greater cooperation and cooperation among the municipalities would be valuable in providing recreation facilities and services. A Recreation Coordinating Council should be formed within the borders of each school district. This Council should meet as needed and include representatives of the municipalities, the school district and the major non-profit recreation groups. The goal should be to:

1) collect basic data on the sizes of each recreation program and trends in their growth,
2) identify the greatest needs for recreation facilities, based upon actual use and current trends,
3) identify opportunities to share or jointly provide recreation facilities and programs, particularly to meet times of peak demand and avoid over-use of facilities, and
4) identify recreation programs that are needed but are currently not being provided. For example, it may be found that inadequate attention is being paid to recreation programs for adults.

There currently are indoor recreation facilities at the public schools, at the Alburtis Community Center, at the Macungie Park Building, and at the Lower Macungie Township Community Center. Consideration should be given to seeking an additional indoor recreation center, particularly in Emmaus. In addition, opportunities should be sought to maximize use of indoor facilities of the school district during hours when the facilities are not needed for school use.

Existing Recreation Areas and Trails Map

Bicycle Map

See Recreation Facility Tables at End

Complete a system of bicycle and pedestrian trails.

A trail and greenway system should be developed over time, especially along the Little Lehigh Creek. This greenway and trail should interconnect the existing parks along the creek, and where practical should ideally include a trail on both sides of the creek to allow "loops." A set of recommendations are illustrated on two maps on preceding pages.

Wherever practical, new developments should be required to include pedestrian and bicycle connections with nearby parks, residential developments and existing trails. These trail easements are particularly valuable to connect the end of one cul-de-sac street with another cul-de-sac street. This allows bicyclists and pedestrians to travel on wider low-traffic roads within newer developments, as opposed to being forced to walk and bicycle along older heavily traveled through-roads.

Lower Macungie Township has been requiring the construction of asphalt paths along major through-roads when the adjacent land develops. This is valuable not only for local residents, but also to allow employees of businesses to walk over their lunch-time.

In addition to serving local residents, trails can be valuable in attracting tourists to the region, particularly considering the dramatic increase in the popularity of mountain biking.

Proposed Trails in Southwestern Lehigh County
(The numbers provided below relate to the
"Existing Recreation Areas and Proposed Trails Map" on page 78)

Please note that some of the trail alternatives would need cooperation from private landowners. If permission would not be forthcoming, then the trail would need to be within a right-of-way of a public street.

Little Lehigh Trail

1) Connection between Creamery Road and Quarry Road through Lower Macungie Community Park. It would be desirable to eventually have a pedestrian bridge over the railroad, which would allow more efficient use of the east and west sections of the Park. If a bridge is not practical, then a pathway connection could be made along Creamery Road on the north side of the Park.

2) Trail eastward through Ancient Oaks West Recreation Area.

3) Inclusion of designed bike paths along creek in proposed developments.

4) Trail through Township-owned open space parcels in floodplain.

5) Trail through Township-owned Wild Cherry athletic fields.

6) Trail through Millbrook Farms Recreation Area (Homeowner's Association Land), if permission granted.

7) Crossing of Pennsylvania Turnpike underneath Little Lehigh Creek bridge.

8) Use portions of Little Lehigh Drive, Little Lehigh Drive North, and existing gravel road along creek.

9) Trail through privately-owned Pool Wildlife Sanctuary (not suitable for bicycles), or along Orchid Lane.

10) Trail along eastern boundary of Lehigh Country Club or along Country Club Road.

11) Bike lane / trail along Keystone Road and/or Little Lehigh Creek, connecting northward to the Lehigh Parkway, City of Allentown, and the Delaware & Lehigh Canal Towpath. Southward connection to downtown Emmaus using Keystone Avenue, which is wide.

Emmaus-Macungie-Alburtis Trail

12) Connection from Emmaus soccer field parking lot to existing trails in Robert Rodale Reserve, City of Allentown parkland and open space on South Mountain.

13) Trail along base of South Mountain, through Unami Fish & Game land (private) or along railroad right-of-way. Southward to county-owned property and borough-owned Shelterhouse. Continuing across 5th Street, past water tanks, to power line easement. Follow easement downslope to Rodale Press Recreation Area (private, company-owned).

14) Alternative to South Mountain trails - bike lane along Broad Street, Pennsylvania Avenue, and Shimerville Road.

15) Trail through Emmaus Community Park, along Leibert Creek under railroad bridge. Connection to Weis and adjacent commercial areas.

16) Trail along north side of Norfolk Southern, underneath Pennsylvania Turnpike and Route 29. Alternative - bike lane along Shimerville Road, 16th Street, Ramer Road, across Route 29 at traffic light at Colebrook Avenue to a pathway parallel to Buckeye Road (Another alternative would be to rebuild a pedestrian bridge over the railroad at Tank Farm Road to provide another north-south link. However, Norfolk Southern may not be cooperative in building a trail along the edge of the railroad right-of-way.)

17) Use existing roads for connections - Allen Road, Sauerkraut Lane, Macungie Road, Indian Creek Road to Lower Macungie Library/Community Center/Pool complex. As lands are developed, a north-south pathway connection would also be desirable along the Swabia Creek to connect to the Little Lehigh Creek paths. In addition, a pathway northward along Macungie Road would also be desirable to connect to the Little Lehigh Creek trails.

18) Paved pathway parallel to Buckeye Road adjacent to Buckeye Pipeline property.

19) Trail through / around East Penn Eyer school campus.

20) Inclusion of Macungie Borough trails (portions existing), connecting Macungie Memorial Park, Kalmbach Park, the Macungie Institute and the Flower Park. More detail is provided in the Macungie Trails Plan. Westward through Allen Organ property to Gehman Road.

21) Connection to paths being constructed as part of the Lock Ridge Farms development, along the south side of railroad. Connection to Lock Ridge County Park and Alburtis Borough.

North-South Connector

22) Existing bike path along Quarry Road, connecting Lock Ridge Park with Lower Macungie Community Park, completing loop.

23) Northward spur along west side of Spring Creek, through proposed developments and future Township land. Trail would skirt a wetland natural area. Connection to Lehigh Valley Velodrome and Rodale Cycling and Fitness Park (cross Hamilton Boulevard at Weilers Road, which is to be signalized).

South Mountain Trails

24) Inclusion of existing gravel drive from Kalmbach Park, through Macungie Borough Water Authority land, to Sweetwood Drive.

25) Pedestrian-only trail through Reimert Memorial Bird Haven. Eastward spur through private property (owner permitting) to Water Authority trail. Westward spur climbing to ridgeline, connecting to transmission line and substation on Reservoir Hill Road.

Upper and Lower Milford Trails

26) Connection from Emmaus to Jasper Park and Fulmer Tract. Eastern option cresting South Mountain at radio tower, descending through Burkhart Preserve to Leibert Creek and Fulmer Tract. Western option parallel to Vera Cruz Road and/or Leibert Creek.

27) Trail improvements at Jasper Park and Fulmer Tract, connecting all adjacent roads.

28) Bike lane / trail southward parallel to Vera Cruz Road, over Turnpike, left on Geho Road, left on Churchview Road.

29) Trail through county-owned conservancy tract.

30) Trail along a widened shoulder along Dillingersville Road (Alternative route - Trail southeastward along electric transmission line easement if permission granted by landowner) to right-of-way of the Turnpike).

31) Bike lane / trail along Elementary Road to Lower Milford Elementary School. (Note - A connecting nature trail along the Hosensack Creek would be desirable if permission could be obtained from property-owners. That include use of a trail along a transmission line easement that runs parallel to part of the Hosensack Creek. Also a transmission line right-of-way exists that might be used in the future over Mill Hill to connect to Kings Highway.).

    A trail link would be desirable to the Pennsburg area (2 miles from Lehigh County border) where it can link with existing trails on public parkland around the Green Lane Reservoir. Those trails link to the northern terminus of the Perkiomen Trail (approximately 8 miles from Lehigh County border). The Perkiomen Trail travels over 20 miles southward to Valley Forge National Military Park, where it connects to the Schuylkill River trail that extends to Center City Philadelphia. An on-road bicycle route is suggested on the Parks, Recreation and Potential Bicycle Routes Map on a following page.

32) Trail improvements along perimeter of county-owned Seem Seed Farm.

33) Consider trail parallel to the Perkiomen Branch Railroad, an active freight corridor with light usage.

Work to provide safer bicycling opportunities throughout the Region.

Local interest in bicycling is spurred by the presence of the Lehigh Valley Velodrome, a County-owned bicycle race track west of Trexlertown. The Velodrome sees nearly 60,000 visitors annually in the form of race participants, spectators, and bike riders.

Many riders, including organized groups like the Lehigh Wheelmen, meet at the Velodrome as a starting point for bike rides in the western Lehigh Valley. The Velodrome draws a significant amount of program participants from this Region, and has created a local enthusiasm for biking. This, combined with the abundance of gently-sloped rural roads here and westward, has resulted in an unusual concentration of bicycling activity on local roads. In addition, there is a significant number of mountain bikers in the area, who are attracted by the Robert Rodale Reserve on South Mountain, Bear Creek Ski Area in neighboring Longswamp, and other nearby off-road biking venues.

The increasing traffic is posing a challenge to safe bike riding. The following is a summary of some key concerns and desired improvements voiced by the Velodrome Director and other area riders.

- Rural local roads in the area were once a safe haven for cyclists. Now, all roads are heavily traveled by vehicles, with many former bike-friendly routes now seeing large volumes of traffic and/or high speed traffic at all hours of the day. This is true on Lower Macungie Road, Spring Creek Road and Willow Lane in Lower Macungie Township, Kings Highway, Vera Cruz Road and Limeport Pike in Upper and Lower Milford, and many others.

- With some exceptions, most roads in the Region have limited or no shoulders for safe cycling. Fortunately, all new roadways associated with the 222/100 bypass will have 8-10' shoulders, as

well as realigned portions of Sauerkraut Lane. Some roads lack white edge lines, which serve as visual barriers that help motorists and cyclists maintain their own domain. The area also lacks designated on-road bike routes with painted lanes and symbols. While the cyclist does not need paint symbols for safe riding, these improvements create known routes, increase motorist awareness of bicycle activity on the roadway, and can attract additional funding if design guidelines are followed.

- The few straight, gentle-grade roads in the area see excessive vehicular speeding, which creates a very dangerous situation for cyclists. Such roads include Buckeye Road, Brookside Road, Cedar Crest Boulevard in Lower Macungie Township, where vehicle speeds often exceed 60 MPH. The hazards from speeding are greatest when there is not a defined shoulder, and when there are curves and hills that limit motorist's visibility of bicyclists.

- Certain dangerous structures or places serve as choke points in bicycle safety. These include the Route 29 overpass over the Reading Railroad, the Brookside Road underpass of the same railroad, the Church Lane railroad bridge in Trexlertown, village areas such as East Texas, Wescosville, East Macungie, Vera Cruz and Shimerville, and numerous bridges over streams.

- Road and trail improvements for cyclists should consider different groups:

    - Higher speed cyclists who always use existing paved roads,
    - Lower speed and less experienced leisure riders, who may use roads or bike paths,
    - Children, who would be best directed onto separate bike paths with few road crossings, and
    - Mountain bikers that seek “singletrack” and other unpaved trails,.

- The Robert Rodale Reserve on South Mountain in Emmaus features mountain bike trails with a very high level of technical difficulty. While the trails here have gained regional fame and appear in many mountain biking books, these trails are not fit for the novice biker. The area should supplement this resource with trails that are both easier to ride, and can serve as alternate transportation links. These could be an assortment of dirt, gravel, and paved trails, and could exist in floodplains, utility right-of-ways, and other where it is easier to obtain permission for the trails because the areas cannot be developed.

- Lower Macungie Township typically requires developers to include paved paths along collector and arterial streets in their subdivision plans. While these paths are not used by serious road bikers, these paths are very attractive to other bicyclists, joggers and walkers. This municipal requirement is a forward-thinking effort. Different segments are now becoming inter-connected over long distances. It may be necessary for the Township to expend municipal funds to complete key links, particularly along segments that were developed before the requirement was in place.

- Many area roads are owned and maintained by PennDOT. If a municipality wants to widen and/or add bike lanes to a PennDOT road, the process is often more lengthy and difficult than it would be for a local road. There is the option of municipalities acquiring ownership of selected roads from PennDOT through the "turnback" process. This would make it easier and cheaper for a municipality to make all types of changes along the road, including adding

shoulders and improving pedestrian safety. Macungie Borough is in the process of acquiring Lehigh Street from PennDOT, in order to accommodate their plan for a borough-wide trail with portions on roadways.

- Some trail planning is already in progress, such as Macungie's trail linking three parks and proposed connections to Alburtis and Eyer Middle School, and several developer-built trails in Lower Macungie Township. Desired trail destinations in the area include the Emmaus Community Park, Lower Macungie Community Park at Creamery Road, and the Lehigh Valley Velodrome/Rodale Fitness Park in Upper Macungie.

- There is interest in a Little Lehigh Creek greenway trail. Much of the land along the creek is already protected as Township parkland or open space, and homeowner's association land. The configuration of the creek makes an ideal route from Lower Macungie Community Park, eastward to Ancient Oaks West Recreation Area, then through various open space parcels from Willow Lane to Cedar Crest Boulevard, along an edge of the Poole Wildlife Sanctuary, and finally connecting to the City of Allentown's Lehigh Parkway. The most difficult stretch to gain permission for public access may be through the Lehigh Country Club. A northward spur could connect to the Velodrome.

- The former closed Tank Farm Road bridge crossed the railroad to connect with Indian Creek Road in Lower Macungie Township. Right-of-way and abutments still exist here, and a simple bicycle/pedestrian bridge could be placed to serve as a trail link. While this link is not a high priority, it could serve as a safe alternative to several road overpasses and underpasses where the roadway is narrow and cyclists must share a travel lane with heavy traffic.

- A bicycle committee is regularly meeting with PennDOT to satisfy the safety and accessibility needs of cyclists during and after the Route 222/100 Bypass construction. As a result, shoulders are intended to remain open in the area, and flashing signs advise motorists to be wary of bicycle traffic on Route 222. Such cooperation should occur on any major road improvement project to insure the safety of cyclists, pedestrians and motorists alike.

The goal is to improve paths and trails building upon key destinations (such as parks, villages and shopping areas). Then, the appropriate road and parcel links between these destinations need to be identified, taking in consideration both physical limitations. Some improvements, such as trails within municipal park land, could be initiated immediately, while others would be a collaboration with PennDOT, private owners, and other entities. PennDOT may be more willing to "fill in the gaps" if they are presented with a formal plan for a workable and useful path network, and proof of local initiative is shown. Some projects can be awarded federal funding if certain design guidelines are followed. The end result would be an interconnected network of trails, paths and bike lanes that would serve both recreational and alternate transportation needs.

Provide central water and sewage services in the most cost-efficient manner, with regular investments to provide reliable services.

Care is needed to avoid pollution of water supplies, including areas around wells of central water systems. Recommendations to protect existing groundwater supplies and creeks are included in the

Natural Features Plan section. Central sewage issues are also addressed on page 95.

This Plan emphasizes coordination between central water and sewage services and the future land use plan. The Existing and Potential Central Sewage Service Areas Map highlights areas that are recommended by service by central sewage systems. Central sewage service should generally be avoided in other areas of the region unless it is necessary to support an Open Space Development that will preserve the majority of the land. The costs of utility extensions should be funded by developers whenever feasible.

The Existing and Potential Central Water Service Areas Plan recommends areas where central water service should be provided. Zoning regulations should not encourage intensive development and residential lots smaller than one acre in an area simply because central water service is available, if central sewage service is not available. Extensions of a public water system are particularly valuable for firefighting.

Business uses that involve process wastes generally are not appropriate unless central sewage service is provided.

Unless there is no logical alternative, new private sewage and water systems in isolated locations should generally be avoided because of concerns that they may not be financially viable and properly operated over the long-term. Where a new private water or sewage system is allowed, it should be designed so that it could be incorporated into a larger public system in the future, where feasible. If a new central water or sewage system is approved, consideration should be given to asking the Lehigh County Authority to operate it to ensure proper maintenance and operation.

The following statements are required to be included in the Comprehensive Plan under State law:

1. This Plan is generally consistent with the State Water Plan and water resources planning of the Delaware River Basin Commission.
2. Lawful activities, such as extraction of minerals, impact water supply sources. Such activities are governed by statutes regulating mineral extraction that specify replacement and restoration of water supplies affected by such activities.
3. Commercial agriculture production and livestock operations may impact water supply sources.

Work to protect water supplies.

Great care is needed to provide adequate water services and to protect the water quality of groundwater and creeks. For the vast majority of the Southwestern Lehigh County region, drinking water supplies come from groundwater within the region. This includes many scattered public water supply wells, as well as individual wells serving homes, farms and businesses. In addition, the Little Lehigh Creek and the Schantz Spring in Lower Macungie west of I-78 along Schantz Road are two of the major water supplies for the entire Allentown region.

The underground geology greatly affects the vulnerability of water supplies to contamination. Particularly in limestone/carbonate areas, underground voids and cracks can allow contaminates to quickly travel from the surface to the groundwater. Once contamination occurs, it can be extremely expensive to clean up, and may require that a well be abandoned. Emmaus, for example, had to

install expensive equipment on some of its wells to address contamination from an industrial use.

The following recommendations should be carried out to protect water supplies:

- The public and private central water systems should prepare "Wellhead Protection Plans" to protect the quality of water near major water supply wells. A State grant program is available that could help to fund these efforts. A wellhead protection plan identifies the land areas around a well that are most likely to contribute towards contamination of the well, considering the underlying geology. The plan then recommends methods that can be used to avoid contamination in these areas, such as purchasing a conservation easement around the water supply to keep the land in open space or to limit the types or intensities of development. This type of planning is particularly important for future well sites in areas that have not yet been developed.

  - The primary area of concern is a 400 feet radius around a well. The secondary area of concern around a well is typically determined by a hydro-geological study.
  - Emmaus is currently completing a wellhead protection plan for its six wells.
  - The goal is to avoid uses near wells that are most likely to cause contamination. If a source of contamination cannot be avoided, then the goal is to make sure that structures and procedures are in place to contain and address any spills.

  - The Lehigh Valley Planning Commission has prepared a model Wellhead Protection Ordinance that should be considered for adoption in some form by the municipalities. That ordinance is intended to prohibit uses with moderate hazards within 400 feet of public water supply wells. As written, within the 400 feet radius, the draft ordinance would prohibit most industrial uses that use hazardous materials, as well as prohibiting vehicle repairs. Uses with the greatest hazards would be prohibited within both the 400 feet radius and a much larger "secondary area." These uses with the greatest hazards include underground injection wells, pesticide dealers and distributors, land application of sewage sludge, mining and chemical manufacturers.

- Opportunities should be considered to combine acquisition of land for public recreation with purchase and/or preservation of public well sites. Where it does not make sense to acquire land, a "conservation easement" could be donated or purchased that would prevent most types of development of the land while it remains privately owned.

- High intensity development should be prohibited in areas that are particularly important as water supplies. This includes in key locations promoting land uses with a low percentage of the lot being covered by buildings and paving. In areas where there is the greatest threat to contamination of public water supplies, land uses that have the highest risks of causing contamination should be prohibited in zoning ordinances.

- Because of possible drought conditions and the threat of contamination, each water system needs excess water supplies. Ideally, each water system would have wells that are constructed but held in reserve until they are needed and/or have an emergency interconnection with a system with plentiful excess capacity. It is essential that every water system be able to serve its customers if one or more of its water sources would not be available. Well sites should also be sufficiently scattered so that a contamination problem would not threaten more than one well. The amount

of storage is also critical to avoid shortages in case a short-term problem arises, such as a mechanical problem.

- Wherever feasible, each private and public central water system should have an emergency interconnection with another water system. The interconnection would only be opened with the consent of each water supplier. These emergency interconnections are essential to make sure that another water source is available in case a primary water source is limited because of drought or contamination.
  - The greatest need for interconnections are with the Alburtis and Macungie water systems. Emmaus already has two emergency interconnections with Allentown's system. The Lehigh County Authority water system has interconnections with Allentown, Salisbury and South Whitehall's systems.

- Water systems and fire companies should update their emergency response and emergency operations plans, and complete related training. This is particularly important to know how to respond in case of a spill of a hazardous substance that could contaminate groundwater or a creek, especially near a public water source.

- The most likely sources of potential water contamination should be identified so that proper measures can be instituted with the business owner to avoid problems. This has already been accomplished along the Little Lehigh Creek.

- Open Space Development is described in the Land Use and Housing Plan section. This involves providing incentives so that homes are clustered on a portion of a tract of land, with large percentages of the tract being permanently preserved in some form of open space. This approach can be beneficial to provide a natural recharge and protective area near well sites.

- When a new development proposes to connect into a central water system, attention should be focused upon whether the system will have enough capacity and pressure. If not, the developer should be required to fund improvements to the system. For example, a developer might be required to provide a new well that provides sufficient capacity (particularly during droughts) to serve the additional development, or to fund improvements to increase the pressure .

- Whenever a new water or sewage system is approved, it should be required to be designed so that it could be efficiently incorporated into a larger system in the future. For example, easements should be provided to allow future connections from neighboring properties.

- It is desirable to use types of wastewater treatment that recharge water into the ground, after the water is treated. This particularly includes spray irrigation or drip irrigation (which involves underground hoses to distribute the treated water). These methods keep the water in the same watershed. This method also helps to preserve large areas of land, and works particularly well with a golf course. In comparison, most central sewage systems result in water being transported out of the watershed. For example, most water in the Little Lehigh Watershed is pulled out of the ground by wells, used by homes and businesses, and then transported to the Allentown sewage treatment plant. The treatment plant empties into the Lehigh River. This effectively transports millions of gallons of water a day from groundwater out of the watershed - without recharging the groundwater.

- Stormwater runoff should be considered a resource, instead of something to be disposed of. This includes maximizing recharge of stormwater runoff into the groundwater. However, there are justifiable concerns that many of the methods to promote recharge may not be appropriate in limestone/carbonate areas because they may cause sinkholes or groundwater contamination. In addition, many infiltration methods require regular maintenance in order to properly function over time.

- Each township should adopt a well construction ordinance. This is important to make sure that new wells are properly constructed, including proper grouting to prevent contaminates from entering the well. As of mid-2004, there are no State regulations on the construction of a well. This Ordinance should also require that proper measures be used to seal a well that is no longer used - to prevent pollutants from entering the groundwater.

- For large private water withdrawals (such as water bottling companies), the municipalities should consider requiring municipal approval. For a larger development, this should include a "draw down" test using a test well, and comparing changes in water levels in neighboring wells.

    - If a water study shows some negative impacts, consideration should be given to measures to reduce the impacts. For example, a use could commit in advance to reduce water use during drought conditions (Note - The State normally does not apply this restriction to a water bottler, which may continue to use millions of gallons of water a day during a drought.) Or a use could commit to provide an improved water supply if a neighbor's well goes dry (which typically involves drilling a deeper well). Or, a use could be required to permanently preserve a large area of land with a conservation easement so that there will be sufficient land area for recharge of the groundwater.
    - Large water bottling operations for off-site use should be controlled to the maximum extent allowed by the law. It is generally understood that they cannot be completely prohibited because of pre-emption by the Delaware River Basin Commission. Some communities treat these uses as industrial uses and limit them to an industrial district, because they involve large amounts of tractor-trailer trucks and loading and unloading operations. Other communities allow these uses with special exception approval, but require water studies and very large minimum lot size requirements. These lot size requirements are intended to make sure that land will be preserved to allow recharge.

- The County program should be continued that collect hazardous materials from households, so they can be sent for properly disposed. The municipalities can play important roles in publicizing this program.

- Educational programs are needed to make homeowners aware of actions they can take to avoid water contamination. These include minimizing the use of lawn chemicals and household chemical products, recycling used motor oil, keeping animals away from stream banks, and planting thick vegetation along creeks.

- The County Conservation District should continue to work with farmers to institute proper conservation measures to avoid water pollution, particularly from pesticides and manure.

- The County Conservation District and municipalities should continue to inspect land developments to make sure that proper soil erosion control measures are carried out.

- Contamination of water by high levels nitrates is also a public health concern. The health risks are particularly high for pregnant women and children. Nitrates are most commonly generated by spreading of manure upon fields or from runoff from livestock and poultry operations. In certain cases, where there are high existing nitrate levels in groundwater, State environmental regulations have required large lot sizes when new on-lot septic systems are proposed. The intent is to avoid increasing the nitrate levels by having a high concentration of septic systems.

- The municipalities should investigate alternatives to road salt that could be used for de-icing of roads. Road salt washes into creeks and affects fish habitats.

Consider extending central sewage to areas with failing septic systems.

Central sewage issues are discussed further on page 91. The Existing and Potential Central Sewage Service Map shows areas that are currently served by central sewage systems. In addition, that map highlights areas that over the long-term may be appropriate for central sewage service.

Almost all areas of the region that have central sewage service are connected to the Allentown wastewater treatment plant. This plant is at Kline's Island south of Martin Luther King Drive and empties treated effluent into the Lehigh River. The plant has a capacity of 40 million gallons per day. A portion of Limeport may be served in the future by the Upper Saucon Township sewage treatment plant. That plant is along Route 378 and empties into the North Branch of the Saucon Creek. It was completed in 1989 and has a capacity of 2 million gallons per day.

Upper Milford Township has prepared an updated Sewage Facilities Plan. That Plan recommends the following:

1. Provision of central sewage service within the village of Vera Cruz. This system would likely be connected into the Lehigh County Authority system. There is only limited buildable land available within Vera Cruz for new development.

2. Extension of central sewage service to serve the 7th Street area along the Emmaus border.

3. Extension of central sewage service to the Golf Circle area, which is also along the Emmaus border.

The Upper Milford Township Sewage Facilities Plan also recommends that other areas of the Township be considered for central sewage service on an "as needed" basis. However, the Sewage Facilities Plan states that the needs survey did not find an immediate need for central sewage in any other area of the Township at this time. In particular, Old Zionsville includes small lots and many older sewage systems that may need to be addressed over the long-term future by some type of central sewage. Any central sewage service in that area should be primarily intended to serve existing uses, and not major new development.

There may also be a need in the future to provide central sewage to the village of Limeport. This may involve an extension of public sewage from Upper Saucon Township. The primary intent is to serve existing homes and businesses, rather than to promote new development.

Make sure that on-lot septic systems are adequate.

Most properties in the rural areas of the townships rely upon on-lot septic systems. Public education is important to make sure that residents know how to properly take care of on-lot septic systems. Many residents have moved from suburban areas where they had public sewers and do not understand their septic systems. Of most importance, property-owners need to understand the need to have their septic systems pumped regularly (typically at least once every three years). If a system is not pumped regularly, the drain field eventually will need to be replaced.

In addition to education, enforcement is needed to make sure that inadequate or failing on-lot septic systems are repaired or replaced. Residents should be encouraged to have their well water tested regularly and to report any contamination that has been found to the township. These well water results can be used to identify areas of failing septic systems. In areas where there are a concentration of failing septic systems, the township should consider an ordinance that requires that the owner provide evidence that the system has been pumped and inspected at least once every three years. This is known as a Sewage Management Ordinance, which could apply within a defined district.

Every new lot that will be served by an on-lot septic system should be required by a municipal ordinance to have two separate locations that are tested and approved for a septic drain field. This is important to make sure that a suitable area will be available in case the initial drain field malfunctions. The back-up location should be required to be kept open and undisturbed.

Support high-quality library service.

There are currently three public libraries within the region: 1) the Emmaus Public Library serves Emmaus, Upper Milford and Macungie, 2) the Lower Macungie Library serves Lower Macungie and Alburtis, and 3) the Southern Lehigh Public Library serves Lower Milford (in addition to Coopersburg and Upper Saucon). A new Southern Lehigh Library is being built in Upper Saucon. Once a municipality is served by a library that meets certain minimum State standards, then the residents of that municipality are allowed to check out books from other libraries throughout the State.

Central Water Map

Central Sewage Map

Coordinate development with public schools.

The entirety of East Penn School District is found within the Region. In addition, Lower Milford Township is part of Southern Lehigh School District, which also includes Upper Saucon Township and Coopersburg Borough. Both districts are experiencing increased enrollment annually, with some schools very close to capacity levels. While numerous facility improvements are planned or underway, additional residential development would place an increased burden on public school facilities.

East Penn School District

As of the 2003-2004 school year, East Penn School District operates seven* elementary schools, two middle schools, and one high school, which are as follows:

SCHOOL	GRADES	LOCATION
Jefferson School	K-5	520 Elm Street, Emmaus Borough
Alburtis Elementary School	K-5	W. Third Street, Alburtis
Lincoln School	K-5	233 Seem Street, Emmaus Borough
Lower Macungie School	K-2	6043 Lower Macungie Road, Lower Macungie Township
Macungie School	K-5	4062 Brookside Road, Lower Macungie Township
Shoemaker School	K-5	4068 North Fairview Street, Lower Macungie Township
Wescosville School	K-5	1064 Liberty Lane, Lower Macungie Township
Lower Macungie Middle School	6-8	6299 Lower Macungie Road, Lower Macungie Township
Eyer Middle School	6-8	5616 Buckeye Road, Lower Macungie Township
Emmaus High School	9-12	500 Macungie Avenue, Emmaus Borough

In response to across-the-board crowding in East Penn's elementary schools, several improvements are underway. Alburtis Elementary School was recently replaced on the same site. Renovations are also underway at Shoemaker, including a larger boiler room, new administration offices, and a safer student drop-off area. The Kings Highway Elementary School closed in 2004. In March 2003, East Penn enrolled 6,970 students.

A building addition to Emmaus High School is in progress at the time of the report. The finished addition will house 12 new classrooms, a multi-media technology room with community access, and new administration offices. East Penn is carefully watching enrollment at the two middle schools, especially at Eyer Middle School. Millions of dollars of renovations are being considered at Eyer, but a final of course of action has not approved at the time of the report.

Several recreation improvements are underway at East Penn Schools. The ultimate goal is to have all School District extra-curricular sports activities on School District property, eliminating the need to use community recreation facilities. Improvements at Emmaus High School include a fieldhouse and all-weather track. At Lower Macungie Middle School, additional soccer and football fields are being added. The School District has reserved room on the Jefferson School property for a gymnasium. At Lincoln School, a District-owned house may be demolished to create additional playground space. Even after the completion of the approved projects, the District feels it will still need more soccer fields and gymnasiums to keep all activities on its own property. However, it will still be necessary for many years for the School District to seek use of municipal recreation facilities.

East Penn School District has been in contact with the municipalities regarding trail connections in the District. The proposed loop trail in Macungie is designed to connect to the campus of schools at the corner of Brookside and Buckeye Roads. District officials support this endeavor and would welcome further pedestrian improvement efforts in the District.

Several safety concerns affect School District busing. During the winter, the roads of Upper Milford Township and southwestern Lower Macungie Township are often not as safe and well-maintained as the roads in flatter, more developed areas. This commonly complicates school-closing decisions. In the boroughs, certain unsafe pedestrian situations force the District to bus students in areas where they are legally allowed to walk to school. One such area is the Macungie Avenue/Orchid Lane neighborhood. (Note - State law mandates that students be bused if they would otherwise have to walk along certain types of roads that are categorized as being safety hazards, even if the students live near the school.)

East Penn School District owns one prime vacant area for a new school. A larger tract is found on Sauerkraut Lane, adjacent to the proposed realignment segment east of Wild Cherry Lane. While this parcel is physically suitable and centrally located for a school, no plans exist to build on the land at this time. The School District uses a Borough-owned athletic field at the southern end of 4th St. in Emmaus, and owns a wooded wetland area behind the Shelterhouse that cannot be developed.

With its improvements in technology, recreation and educational facilities, the School District aims not only satisfy increased enrollment, but to keep a close connection with the community and its needs.

Southern Lehigh School District

The Southern Lehigh School District operates three Grade K-5 elementary schools, one Grade 6-8 middle school, and one high school. Students residing in Lower Milford Township attend Lower Milford Elementary School, Southern Lehigh Middle School and Southern Lehigh High School.

A recent $23 million expansion at the high school has eased capacity concerns at those grade levels, but the middle school and two of the three elementary schools are near or past their intended capacity as of the 2003-04 school year. Lower Milford Elementary School is currently using two modular classroom units, as is Hopewell Middle School in Upper Saucon Township. Starting in September 2003, Lower Milford Elementary instated an unprecedented three Kindergarten sessions per day. School District officials state that an additional 24 children at this school will require the addition of another modular unit. By 2008 to 2010, the School District hopes to add a seven-classroom wing

to Lower Milford School, expand the cafeteria, and install air conditioning. At the middle school level, it is projected that capacity will be exceeded by 2007.

The School District has determined that the best way to address capacity concerns at all levels is to build one Grade 5-6 school. This would eliminate the need to expand and/or build multiple schools at one time. The school would be built on a District-owned 33-acre parcel adjacent to the high school in Upper Saucon, and would share athletic facilities with the high school. Officials hope to have the building designed in 2004.

Southern Lehigh officials feel that recreation needs of the schools have been satisfied. At the high school, two new soccer fields, an all-weather track, practice field, and drainage improvements were added, in addition to a new gymnasium that was part of the recent expansion.

GOAL: Emphasize full coordination of municipal and emergency services across municipal borders.

Continued efforts are needed to make sure that fire, police and emergency medical services are fully coordinated across municipal borders. This includes joint training, and coordinating the provision of expensive specialized equipment and apparatus. The Putting this Plan into Action section describes several alternatives to increase inter-municipal cooperation in providing emergency services. As described in the "Putting this Plan Into Action" section, shared police services make it much more cost-efficient to provide 24 hour coverage than if each municipality having its own police department.

The coordination and cooperation between fire, police and emergency medical services will be aided by the construction of a new emergency services training facility near Schnecksville. The facility will be west of Route 309, south of the Lehigh Carbon Community College campus.

As of 2004, Alburtis, Macungie and Emmaus each operate their own police department. Lower Milford Township is considering whether to re-establish local police protection. All three townships are served by the State Police.

Lower Macungie Township (Wescosville) and Emmaus have municipal Fire Departments operating from a single station, while the other municipalities are served by independent fire companies, including the Alburtis, Vera Cruz Citizens, Lower Milford, Upper Milford and Macungie companies. Other companies provide assistance as needed, particularly for structure fires.

Emmaus has a mix of paid firefighters and volunteers, while the other fire companies/departments rely entirely upon volunteers. Most fire companies are having difficulties attracting sufficient numbers of trained volunteer firefighters. The greatest shortage is during weekday mornings and afternoons, when many volunteers work outside of the immediate area. It may become necessary in the future consider hiring a limited number of paid firefighters, particularly to drive fire apparatus to the scene of the incident on weekdays mornings and afternoons. This can reduce response times.

The municipalities should investigate ways to attract and retain additional numbers of volunteer emergency workers. This includes encouraging municipal employees to serve as volunteer firefighters and ambulance workers, and allowing them to leave work with a municipal vehicle when practical for emergency calls. Also, financial incentives should be considered, such as a pension program for long-time volunteers.

Most of the local ambulance/emergency medical services are staffed with a mix of paid personnel and volunteers. Advanced life support units with paramedics are also available for the more serious calls. Attention needs to be focused on the ability of each ambulance service to reach every part of the region within an acceptable period of time. The service areas of each ambulance service should be periodically re-examined for this purpose. Some merger of ambulance services may help to reduce response times.

THE PLAN FOR TRANSPORTATION

GOAL: PROVIDE A SAFE AND EFFICIENT NETWORK THAT IS VERY CLOSELY COORDINATED WITH THE PLANS FOR LAND USES.

The region's road system forms the framework for development. The location and types of roads influence the directions and types of development. The intent is to maximize safety and minimize congestion.

Road Classifications

The region should continue to carefully plan road patterns and access from development according to the function each road is intended to serve within the overall road network. Roads in the region are classified by four major types: Expressways, Arterial Roads, Collector Roads and Local Roads.

Expressways - These major highways connect cities and metropolitan areas. An expressway only allows traffic access at interchanges. These highways service high volumes of traffic at high speeds. The only expressways are I-476/PA. Turnpike and I-78 (which is adjacent to the northeast corner of the Region).

Arterial Roads - These roads provide access between major commercial developments and parts of the metropolitan area. Arterials are designed for high volumes of traffic at moderate speeds. Examples of arterial roads include Routes 222, 29 and 100, Chestnut/Main Streets in Emmaus and Limeport Pike. The Road Classification Map separates arterials into two types: Principal and Minor Arterials. The Principal Arterials generally carry heavier traffic volumes than the Minor Arterials.

Collector Roads - These roads provide connections between arterial roads, connect together residential neighborhoods and gather traffic from local roads. Collector roads are intended to provide for moderate volumes of traffic at low speeds. Examples include Brookside Road, Shimerville Road and Harrison Street.

Local Roads - These roads provide direct access from many adjacent properties, and channel traffic towards collector roads.

A system of classifying major roads and highways in the Region is illustrated on the map on the following page.

Seek cost-effective solutions for problem road segments, in cooperation with PennDOT and adjacent landowners/developers.

Traffic Issues that are Common Issues Throughout the Region

Total traffic volumes have greatly increased, and can be expected to continue to increase. The traffic volumes are not only caused by increased development and population, but also by the following factors:

Road Classification Map

Transportation Plan Map

- A dramatic increase in the miles driven by every person on the average, which is as part of a national trend. This trend is caused by longer commutes to work and increased percentages of the population holding jobs (particularly including women).
- An increase in the number of vehicles per household on the average, which is part of a national trend, and which results in an increased number of trips with only one person in a vehicle.
- An increase in the geographic area covered by development, with development being much more dispersed. This results in longer trips and decreased ability to take a bus, ride a bike or walk to a destination.

As traffic congestion increases on main roads, more and more drivers seek alternative routes. Many of these alternative routes involve narrow winding rural roads or roads through residential areas, which creates noise and safety problems. Many roads are seeing much more traffic than they were ever designed to handle. Many rural roads are difficult or impossible to improve because of the closeness of homes, historic buildings, steep cliffs, creeks and wetlands.

Very few new through-roads have been built over the last 60 years. Instead, most developments involve cul-de-sacs or looped streets that do not serve through-traffic. Many developments do not include any road connections, which requires a driver to go back onto a main road to travel from one subdivision to an adjacent subdivision, or from one commercial business to an adjacent commercial business. While this trend does help to reduce volumes and speeds on residential streets, it allows few alternative routes.

The road network should provide at least two methods to move between any two areas so that no one route becomes congested and so there are alternatives in case of construction or accidents.

- Minimizing Through-Traffic on Residential Streets - Road/street patterns need to be designed so that local residential streets handle lower-speed lower-volume traffic, while through-traffic and truck traffic is directed to more suitable routes. This involves making sure that the through-roads are sufficiently free-flowing - so that motorists are not encouraged to seek alternative routes through residential neighborhoods. Local residential streets should continue to be designed in a fashion that does not allow higher-speed direct through-routes and thereby discourages through-traffic. However, an excessive amount of cul-de-sac streets should be avoided.

  At best, new two lane collector roads around congestion spots should be constructed as part of new business development. In residential areas, new collector roads can be appropriate if the road is designed with that intent from the very beginning. This should include designing the new through-road with sidewalks or pedestrian/bicycle paths so that there are fewer conflicts with traffic. New homes should be designed with their driveways entering local internal roads, as opposed to the new through-road. The rear or sides of residential lots can then be landscaped along the through-road, preferably with any rear fencing on the inside of the landscaping provided by the developer. Earth berms can also be combined with landscaping along the through-roads to provide a noise barrier. Two of the most prominent examples are along Brookside Road in Lower Macungie and along Walbert Avenue in South Whitehall west of Cedar Crest Boulevard.

Some communities use a "boulevard" design for new through-roads, with a landscaped center median. This decreases hazards from head-on collisions and provides room at intersections for turn lanes by having breaks in the median.

- Speeding - One of the most common complaints in the region concerns excessive speeding. For those municipalities that have local police protection, it is very difficult to enforce speed limits without the ability to use radar. A bill has been introduced in the State Legislature to allow full-time municipal police officers to use radar to enforce speed limits.

- Signal Timing and Coordination - In most of the developed area of the region, there is little room for new road links or major widenings. Instead, the only way to maximize capacity of the current road system is to refine the timing of traffic signals and to make sure the timing of signals is fully coordinated along a corridor. This involves trying to maximize the capacity of existing rights-of-way to serve additional traffic.

- Intersection Improvements - Wherever feasible, developers of new projects should be required to complete improvements to immediately adjacent road segments, or at least to provide the needed right-of-way. In some cases, turn lanes could greatly reduce congestion. Developers should also provide needed turn lanes and traffic signals whenever feasible.

- Railroad Crossing Gates - All railroad crossings should have gates. This is especially true for crossings of the main Norfolk Southern tracks, which involve high speed trains. There is one rural crossing west of Alburtis that is completely unsignalized, and several crossings in Emmaus that would benefit from the installation of crossing gates.

Alburtis

There are plans to close the at-grade railroad crossing at Church Street near the eastern border of Alburtis. In addition, in Lower Macungie, the railroad crossings at Schoeneck Road and Orchard Road east of Alburtis will be closed. In their place, a new bridge would be built over the railroad further east. A new east-west road (Scenic Dr.) will connect Church Street to the new bridge. This bridge is critical to improving emergency access when other roads are blocked by a train.

Many streets in Alburtis are narrow. Franklin Street in the southern part of the Borough includes curves, limited sight distances and slopes. Additional four-way stops should be considered in the Borough. The intersection of Franklin and Church Sts. is being realigned, and sight distance is being improved. The Franklin Street bridge over the Swabia Creek at the south end of Alburtis is being rebuilt and widened.

The center of Alburtis is being used as a short-cut between businesses to the north and homes to the west. The most accident prone segments in Alburtis are near the downtown railroad crossings. These include where E. Penn meets Main Street, where Front Street meets W. Penn Avenue, and where W. Front Street meets Main Street. It would be desirable to eventually signalize the intersection of E. Penn and Main Street. This would require the signal to be electronically coordinated with the railroad crossing signals so that traffic does not back up over the railroad tracks. A signal at one intersection would create breaks in traffic that would make it easier for vehicles to make turns at other intersections. However, a traffic study conducted in 2003 found that the

intersection of E. Penn and Main Sts. would not presently meet PennDOT requirements to warrant a traffic signal.

The intersection of W. Penn Avenue and W. Front Street is awkward and does not have crossing gates at the railroad crossing. Ideally, this intersection would be rebuilt into more of a "T" angle.

Lower Macungie Township

As seen on the map on the following page, over $140 million is being spent to construct a new Route 222 bypass from west of the PA. Turnpike to west of Breinigsville. This will be a 4 lane divided highway, with several at-grade intersections with traffic signals. In addition, a new Route 100 bypass is being built around the west side of Trexlertown.

Hamilton Boulevard (the existing Route 222) suffers from very serious congestion during much of the week, particularly in the vicinity of Brookside Road. It is uncertain how much traffic will be diverted from Hamilton Boulevard by the new Route 222 bypass. One projection estimated about 25 percent. A series of new road connections are proposed from Hamilton Boulevard to the bypass to make it convenient to use the bypass, including a relocated Weilers Road, an extension of Millcreek Road and a new Krocks Road.

If traffic is diverted from Hamilton Boulevard, consideration should be given to some improvements to turn Wescosville into more of a village setting, and to improve pedestrian and bicycle access.

There is a concern that the new Route 100 bypass around the west side of Trexlertown will attract more through-traffic to the Route 100 corridor. This will severely impact segments of Route 100 in Lower Macungie, Macungie and Upper Milford. While there may be room to eventually construct two through-lanes of traffic in each direction in parts of Lower Macungie south of the Rt. 100/Trexlertown bypass, that option is not practical in Macungie (see discussion below under Macungie). Note - the widening of Route 100 to four lanes north of Macungie is not currently programmed for PennDOT funding.

For many years, Lower Macungie has been working with developers to complete two major new roads. Sauerkraut Lane will soon be completed from Route 100 near Quarry Road to the new signal at Brookside Road. Sauerkraut Lane then continues to Indian Creek Road. Sauerkraut Lane will effectively serve as an east-west bypass around all of the Macungie area. Most truck traffic is prohibited from Sauerkraut Lane. One segment of Sauerkraut Lane that includes a sharp curve and a narrow bridge west of Macungie Road should be required to be improved in the future when the adjacent land is developed.

Mill Creek Road was built adjacent to the Walmart from Route 222 to Lower Macungie Road. It will be extended to the north to the Route 222 bypass. A new Mill Creek Road is also being extended to the south to link with Spring Creek Road and then the existing Mill Creek Road. This road segment will allow traffic to avoid an often-flooded segment of Spring Creek Road. This new route is expected to take some of the burden off of Krocks Road through the Shepard Hills development and the intersection of Spring Creek Road at Lower Macungie Road. Truck traffic will be prohibited on Mill Creek Road.

There is severe congestion in the area of Lower Macungie Road near E. Texas Road and Willow Lane. It is hoped that the improvement of Mill Creek Road and the completion of Sauerkraut Lane will shift some traffic away from this road segment. Once Mill Creek Road is extended, no left turns should be allowed at the existing Spring Creek and Lower Macungie Roads. intersection. A left turn widening should be accomplished at E. Texas and Lower Macungie Roads, together with restrictions on turns at Willow Spur.

A traffic count conducted in 2003 found that the intersection of Wild Cherry Lane and Lower Macungie Road did not currently meet PennDOT requirements to warrant the installation of a traffic signal. As additional developments are completed in the area, this intersection should be considered in the future for a traffic signal.

Improvements are currently being planned for the intersection of Lower Macungie and Brookside Roads. This will include new traffic signals and a left turn widening.

Consideration should be given to sight distance improvements at the intersection of East Texas and Hidden Valley Roads.

Just east of Macungie, the intersections of Brookside Road with Walnut Street and Lehigh Street are narrow with limited sight distance. These intersections cannot be easily improved. Consideration should be given to prohibiting left hand turns from Walnut and Lehigh Streets.

There are several narrow bridges in Lower Macungie. The most prominent one is a very old bridge along Church Lane over the railroad, east of Route 100. Like other narrow bridges, this bridge serves a purpose of slowing down traffic, limiting truck traffic and avoiding an overloading of the current Route 100/Church Lane intersection. One option would be to replace the bridge. Another option would be to seek a new street crossing of the railroad to the south as part of a new development. Narrow bridges also exist on Macungie Road, Sauerkraut Lane and Wild Cherry Lane.

Congestion at the intersection of Lower Macungie Road and Cedar Crest Boulevard causes long backups of traffic on Cedar Crest Boulevard. The narrowness of a bridge along Cedar Crest Boulevard limits the ability to provide a long turn lane. The timing of the traffic signals at peak hours should be re-examined.

The intersection of Minesite Road and Cedar Crest Boulevard may warrant a traffic signal. Because this intersection is along the Salisbury Township border, discussions should be sought with Salisbury officials about a fair sharing of costs to improve the intersection. A traffic signal at Minesite Road and Cedar Crest Boulevard would reduce congestion at the Cedar Crest Boulevard/Riverbend Road intersection.

bypass map to be inserted

Macungie

Please see the discussion above about through-traffic on Route 100. In addition, PennDOT has long-range plans that propose spending several million dollars for improvements along Route 100 between Macungie and the Route 29 intersection in Upper Milford. If the curves are reduced in Route 100 south of Macungie, the current limitations on trucks are likely to be removed. This could promote additional truck traffic in Macungie, particularly in the more residential south end. Because this involves a hill, significant noise can be expected from trucks.

Great care is needed to try to use "traffic calming" as opposed to promoting high speeds along Route 100 in Macungie, to:

- avoid encouraging excessive amounts of truck traffic to pass through Macungie,
- slow traffic (which reduces noise and safety hazards) to make it possible for pedestrians to cross and to allow Main Street to continue to serve as a desirable residential area, and
- allow Main Street to serve as a pedestrian-friendly downtown, with traffic speeds that promote the visibility of businesses and that allow persons to safely park on-street.

This Plan recommends that Main Street in the center of Macungie continue to most places as a three lane road, including a center turn lane and on-street parking on each side. As discussed in the Land Use Plan section, it is recommended that a landscaped median be installed in segments where there is little need for a center turn lane.

Many intersections in Macungie have awkward alignments with Main Street, which limits visibility of on-coming traffic. The intersections of Race and Church Streets with Route 100 are particularly awkward.

Macungie Borough has a desire to see the intersection of Church and Main signalized, but it currently does not meet PennDOT warrants for a signal. This may change as traffic increases, particularly from development between Alburtis and Macungie. A traffic signal at this location would not only increase safety from vehicles turning, but would also make it possible to have a pedestrian crossing with "walk" signals. Consideration should be given to making Cotton Street (which is narrow) one way in the half block east of Church Street. This may divert enough traffic to Church Street to warrant a traffic signal.

Many alleys and very narrow streets in Macungie are being used for through-traffic, such as between Lehigh and Main Streets. Consideration should be given to widening Lumber Street to provide a proper connection. The alleys and narrow streets connecting with Main Street reportedly are accident-prone.

The downslope on Main Street in the southern part of Macungie encourages speeding. This speeding causes conflicts with vehicles turning from adjacent streets. This speeding and safety concern would increase if the truck weight limitations would be eliminated in the future along Route 100 south of Macungie.

Upper Milford

Upper Milford has limited good roads that provide for north-south travel. Additional four-way stops should be considered, especially where there is limited sight distance.

The intersection of Routes 29 and 100 has an awkward alignment, is accident prone and needs substantial improvements. It is difficult to improve the intersection because of the very steep slopes in the area, particularly to the north. While an expensive full-scale reconstruction or relocation would be desirable, it is more important to seek a traffic signal as an immediate solution. PennDOT has budgeted $1.8 million for traffic signals and a turn lane at this intersection. See information below about proposed PennDOT improvements to Route 100.

The intersection of Shimerville Road and Rt. 100 is congested. The signal timing should be carefully re-examined with an intent to give more preference to traffic along Route 100. It is difficult to improve this intersection because of historic buildings at all the corners of the intersection.

The intersection of Kings Highway and Route 100/29 north of Old Zionsville is severely skewed. A traffic count conducted in 2003 found that this intersection would currently warrant the installation of a traffic signal. A left-turn lane should be added on southbound Route 100, which should include a left turn arrow when signal is installed. Kings Highway is increasingly being used as a short-cut to Upper Bucks County.

Upper Milford includes many one-lane bridges. These bridges are becoming more of a problem with increased traffic volumes, particularly when country roads are forced to serve through-traffic when there is an accident along Routes 29 or 100 and traffic is detoured.

Once Sauerkraut Lane is extended, it will serve as a major route for through-traffic. This will likely result in increased traffic on Allen Street in Upper Milford, which may need to be signalized at Chestnut Street. Consideration should be given to realigning Allen Street to meet with Sauerkraut Lane at Indian Creek Road.

There is significant congestion along Chestnut Street between Cedar Crest Boulevard and Buckeye Road. The signal timing should be examined and turn lanes added where practical, especially at the intersections of Chestnut Street with Buckeye Road and Colebrook Road. The railroad overpass on Chestnut Street west of Emmaus has limited sight distance, is on a curve and is narrow. This is particularly a problem when wide trucks are crossing the bridge. The hill and curve create a particular hazard when traffic is backed up and stopped east of the bridge, and northbound vehicles cannot see the backup until the last minute. Over the long-term, the bridge should be rebuilt.

Upper Milford includes a number of rural roads with sharp curves, steep inclines and limited sight distances. The intersection of Indian Creek Road and Cedar Crest Boulevard has particularly bad alignment and sight distance. Consideration should be given to vacating the intersection so that its use is limited to serving as a driveway for existing properties and for emergency vehicles. If this is not practical, then left-hand turns should be prohibited, using a right-hand turn in and right-hand turn out configuration.

Consideration should be given to adding a four way stop at the intersection of Vera Cruz and Dillingersville Roads.

Emmaus

Like Main Street/Rt. 100 in Macungie, the lengths of Main and Chestnut Sts. in Emmaus experience heavy traffic, including high amounts of tractor-trailer traffic. These streets are suitable for only lower-speed traffic in order to make it possible for pedestrians to cross the streets. The Land Use and Housing Plan section includes recommends for "traffic calming" along these streets, including ways to improve pedestrian crossings. Emmaus has applied for a Federal Transportation Enhancement grant to accomplish some of the improvements in the Downtown.

Emmaus has had recent success in controlling heavy truck traffic through use of a truck scale. Overweight trucks are required to pay large fines. Other municipalities should considering asking to share use of this scale and Emmaus' trained officers. This can be authorized by an inter-municipal agreement, with shared funding.

There also are traffic accidents along State Street (Lehigh Street) where it is 3 to 4 lanes through the Auto Mile. However, these accidents are probably mainly caused by speeding and carelessness in turns, and cannot be easily addressed through physical improvements.

Similarly, there are many accidents from turning movements from businesses along Chestnut Street, especially between 10th and Cedar Crest Boulevard, which cannot be easily addressed. For motorists headed east or south, signs could be used to direct them to use Green Street behind the businesses and then turn right (south) onto Cedar Crest Boulevard. Green Street runs parallel to Chestnut Street. The use of Green Street allows motorists to avoid making left-hand turns onto southbound Chestnut Street at unsignalized intersections.

The intersection of Cedar Crest Boulevard and Chestnut Street experiences congestion, although a 2003 traffic count did not find that there were serious traffic capacity problems. The traffic signal timing should be examined, particularly to make sure that the length of time for the left-turn arrow for northbound traffic properly takes into account all of the peak hours of the day.

The need for an additional turn lane at the State Street/Harrison Street intersection should be examined. However, it would be difficult to obtain the needed right-of-way from adjacent businesses. The traffic signal timing at this intersection should be re-examined once again to make sure that it sufficiently accommodates left-hand turns from Harrison Street onto northbound State Street.

Harrison Street is mostly residential and connects to several schools. This street is serving as a major alternative route to Main Street. This trend is difficult to address, except by enforcement of speed limits. Trucks are not allowed on Harrison Street.

The intersection of Pennsylvania Avenue and Shimerville Road (near the Community Park) is very awkward with limited sight distance. This is particularly a problem when there is heavy use of the Community Park. As an interim solution, consideration should be given to installing stop signs in all directions. Over the long-run, consideration should be given to channelizing the intersection

and/or signalizing it.

Lower Milford

The intersection of Beverly Hills/Church View Roads and Limeport Pike may eventually need a traffic signal. A 4 way stop was installed in 2003. A 4-way stop and a blinking signal exist, which are appropriate interim measures.

Lower Milford has a number of narrow bridges, as well as roads with sharp curves and limited sight distances. Bridges are scheduled for replacement in Hosensack and along Spinnerstown Road. The replacement of the Spinnerstown Road bridge may increase truck traffic on that road.

The intersection of Limeport Pike and Blue Church Road in Limeport has limited sight distance. Wherever sight distance problems exist on a rural road, consideration should be given to installing a 4 way stop.

Many intersections along Limeport Pike should be examined to consider ways to improve the sight distance. The intersection of Elementary Road and Limeport Pike also should be examined for possible improvements, particularly to serve traffic from the Lower Milford Elementary School.

Many roads are being used as short-cuts to the Quakertown interchange of the Turnpike, including Kings Highway, Spinnerstown Road, Limeport Pike and Bell Gate Road.

Current Transportation Projects Scheduled for State and Federal Funding

As of 2003, the following is a listing of road and highway projects within the region that are currently scheduled for funding, according the Transportation Plan for the Lehigh Valley, which is prepared by the Lehigh Valley Planning Commission staff and approved by the Lehigh Valley Transportation Study Committee. The budgeting is subject to change each year by PennDOT as part of its 12 year plan.

It is important to note that few major road improvement projects are scheduled for funding other than the Route 222 bypass. If this situation continues, then the existing road system will have to suffice despite continually increasing traffic - except for improvements funded by developers or municipalities.

Intended for Funding - 2003-2006:

- $140 million to build a new Route 222 and related improvements from Wescosville to west of Trexlertown, and a new Route 100 around Trexlertown
- $2 million to replace the Hosensack Bridge in Lower Milford
- $1.8 million to replace the Spinnerstown Road Bridge in Lower Milford

Intended for Funding - 2007 to 2014 (Note - These projects are not scheduled for funding on the Lehigh Valley Transportation Improvement Plan):

- $5.5 million for curve removal and realignment of Route 100 in Upper Milford (note - this could

conceivably open the road to heavier truck traffic)
- $1.8 million to add traffic signals and a turn lane to the Route 100/29 intersection in Upper Milford
- $0.9 million to replace the Church Lane Bridge in Lower Macungie (west of Route 100)

Intended for Funding - 2015 and Beyond:

- $2.9 million to improve signals and add turn lane at the Route 100/Shimerville Road intersection

Take the initiative in municipal funding of engineering of needed road improvements.

More detailed engineering studies are needed to design specific improvements to the problem intersections and road segments. It is important for municipalities to take the lead in identifying needed improvements on State roads. An improvement to a State road is much more likely to be funded by PennDOT in a timely manner if the municipality or a developer takes the initiative to pay for the initial engineering of improvements. A project is even more likely to receive State funding if the adjacent property owners donate the needed right-of-way. In such case, the value of the engineering and the donated right-of-way count as a "local match" that allows a project to receive priority for State funding.

However, wherever practical, a road improvement should be completed without using State funds. This is because a project can typically be completed in a fraction of the time and at less total expense if the project is funded by a developer and/or municipality.

Carefully manage access of traffic onto major roads.

Special attention needs to be paid to controlling the number, design and location of driveways onto major roads. PennDOT controls the actual engineering of a driveway onto a State road after a lot is created or a use is allowed by the municipality. However, the municipality has the primary control over where different uses are allowed and how land is allowed to be subdivided. This authority can be used to control traffic access management onto major roads.

For example, rear or side driveway access should be used where practical to reduce the number of turning movements directly onto major roads. This method works best when uses are able to gain access to a traffic signal. Connections between adjacent uses should be completed parallel to main roads to allow traffic to enter the road at carefully designed locations, where feasible.

The municipalities should seek inter-connections between adjacent non-residential uses along major roads, including interconnected parking lots or use of a rear service road. These interconnections allow motorists to visit more than one use without needing to enter and re-enter major roads. These inter-connections can be required for a new development. If an existing adjacent use will not allow an inter-connection, then the new development should be required to provide the link as a stub. This stub can then be opened in the future when any development approval is sought on the adjacent lot.

Seek new collector roads through major new developments.

When a tract of land is proposed for a new development, the municipality should consider whether a new collector road is needed in that area. If a new through-road connection is needed, the

municipality should work with the developer (preferably at a sketch plan stage) to seek that the road be constructed as part of the new development. In most cases, the goal of a collector road is to get from point A to point B, with the developer being able to choose the most appropriate route through the developer's property. New collector roads through business development can be especially valuable to provide alternative routes around bottlenecks.

If a new collector road is intended to serve significant new traffic, ideally, residential driveways should not enter directly onto the collector road. Instead, new homes should enter onto a local street, and the rear of homes should be adjacent to the collector road. In this case, substantial landscaping should be used to buffer the new road from the rears of the homes.

Examine whether a traffic impact fee system would be appropriate.

State law allows a municipality to establish a system of charging new development traffic impact fees. The fees correspond to the amount of traffic the development will generate during peak hours. The fee is determined at the time of development approval, and cannot be charged for development that has already been approved or already been submitted for development.

Because of the cumbersome process, the expenses of the required studies, and the many limitations in State law, this Plan does not recommend that traffic impact fees be adopted by the boroughs. The townships should seriously consider the pros and cons of a traffic impact fee system. The resulting fees are often not sufficient to justify the upfront costs if most land has already been approved for development (such as Lower Macungie) or if allowed densities are low (such as Lower Milford). Many municipalities believe that they can more efficiently obtain road improvements from developers through a process of negotiation than through a formal fee system.

Promote public transit use.

Opportunities should be sought to continue to expand bus service from major residential centers to expanding employment centers. This is not only important to reduce traffic, but also to increase access to jobs. Public transit is particularly important for persons who cannot afford to maintain their own car (including families with more drivers than cars), for persons who are unable to drive (such as persons with disabilities, persons with suspended licenses and some elderly persons), for young people who have not yet learned to drive, and for people who prefer alternatives (such as bicyclists who can attach their bikes on the front of a bus). Public transit is also important to serve residents of the increasing number of nursing homes, assisted living centers and age-restricted housing developments in the region, as well as residents who have "aged in place." Public transit also reduces traffic congestion, energy consumption, parking needs and air pollution.

Public transit services are provided by the Lehigh and Northampton Transportation Authority (LANTA) system, mainly through Metro fixed-route bus service. In addition, flexible "para-transit" service is available through the Metro Plus service. This service is particularly valuable for persons over age 65 and persons with disabilities that make it difficult for them to use the regular bus routes. Although there are no restrictions on the purposes of the trips, this system is particularly valuable to help persons reach medical offices, human services and other necessary services. Door-to-door services are provided, although advance reservations are required.

The Public Transit Routes Map on a following page shows the locations of fixed bus routes operated by LANTA. Center City Allentown and the Lehigh Valley Mall serve as major transfer centers between different bus routes.

Western Lehigh County is one of eight "Areas of Focus" that LANTA has identified as being appropriate places for expanded service. Over the years, LANTA has been incrementally improving service to the Region, particularly by increasing the frequency of service. Much of this increase in service has been geared towards serving employers in Upper Macungie Township. Sunday service has been restored from Emmaus to the Lehigh Valley Mall.

For approximately a dozen years, Air Products subsidized the operation of two round-trip public bus routes to its headquarters. However, the subsidy was discontinued because of insufficient use. LANTA reports that there is an interest among many employers in western Lehigh County in expanded bus service, but that the employers have been unwilling to offer continuing subsidies. LANTA has been using a Federal "Job Access" grant to provide additional late evening service that is geared towards persons working evening shifts.

To serve the industrial parks north of Easton, a new bus route was initially subsidized by employers. After the ridership was built up over time, it was able to be justified as a regular bus route without an employer subsidy.

It is difficult to extend the length of existing bus routes because of the need to have the routes meet together at transfer points at certain times.

The Lehigh Valley Planning Commission's report Community Planning and Transit includes recommendations to promote use of public transit. Many of these recommendations can also promote walking as an alternative to short vehicle trips. These recommendations include:

- when deciding where to zone for denser types of development, consider locations along public bus routes, so that the bus routes are more convenient to more persons,

- allow residential development in close proximity to business development, so people can live close to their work,

- promote the placement of buildings relatively close to roads served by public transit, as opposed to forcing persons to walk long distances across parking lots to reach the building, and as opposed to trying to divert a bus through the middle of a large parking lot to reach a building entrance,

- improve pedestrian access so people can easily walk from their homes, workplaces or other destinations to bus stops, including:

    - provide well-maintained sidewalks or pathways, particularly to complete "missing links" between existing safe pedestrian routes, or at an absolute minimum provide flat grass areas for walking,
    - install sufficient lighting for security and for motorists to see pedestrians,
    - avoid unsafe conditions in crossing roads (such as "walk" signals and well-marked

crosswalks),
  - avoid excessively wide intersections that are difficult for pedestrians to cross and which promote high speed turns by vehicles that are a hazard to pedestrians,
  - consider raised islands in the middle of wide roads, which provide a safe refuge for pedestrians crossing the road,
  - provide safer conditions in crossing large parking lots, such as directing most traffic to the edge of a site, as opposed to having the heaviest traffic running in front of the main pedestrian entrance,
  - minime the number of cul-de-sac streets and/or providing pedestrian connections at the end of cul-de-sacs, to avoid long circuitous walks,

- provide pedestrian entrances to businesses and stores as close to transit stops as possible, and require that safe pedestrian connections be provided between the business and the nearest bus stops,

- at intersections that may be served by public buses, make sure the street corners have turning radii that can accommodate buses,

- provide wheelchair accessible curb cuts,

- encourage the placement of transit shelters, which are particularly important during periods of snow, rain, high winds and extreme heat, or at least shade trees at transit stops, and which are typically funded by advertising,

- carefully locate transit stops as part of road improvements and major new developments, in consultation with LANTA and in coordination with sidewalks,

- enforce no parking limits and clear snow where illegal parking and snow piles would obstruct movements by buses,

- publicize State laws about when motorists must allow pedestrians the right-of-way,

- publicize the availability of public transit services and how persons can obtain information about schedules, and

- consider incentives for employers that commit to long-term subsidies of public transit or vanpooling use by their employees, such as reduced parking requirements.

Promote use of carpooling.

Federal funds should be sought for additional park and ride lots. These parking lots are the easiest way to encourage carpooling of persons to work. Park and ride lots are also valuable to promote use of the public bus system. The need for park and ride lots is driven by the high numbers of local residents who work outside of the region. The most appropriate places for park and ride lots are near ramps of I-78 and along the Route 222 corridor. One park and ride lot is being built behind the Charcoal Drive-In near the juncture of the Route 222 bypass and I-78. Another new park and ride lot is currently scheduled for State funding - in Upper Macungie Township to serve the Lehigh

Valley interchange of the Turnpike. A park and ride lot was recently completed at the Quakertown exit of the Turnpike.

Zoning incentives could be offered to developers of new commercial projects to provide parking areas that could be used as park and ride lots. This use would be feasible because the peak parking demand for a retail use is on weekends, not during weekday mornings and afternoons when there would be the main demand for a park and ride lot.

Promote safe bicycle and pedestrian travel.

The Community Facilities Plan section (see previously in this document) addresses recreation trails for bicycling and walking. However, bicycling and walking can also be important methods of transportation.

Efforts are needed to improve opportunities throughout the region for safe bicycle and pedestrian travel. In most new developments along the more heavily traveled roads, sidewalks or asphalt paths should be required. However, where sidewalks or paths are not practical, new development should include cleared flat grass pathways along roads that are suitable for safe walking.

Roads should have sufficient width to provide room for bicyclists. Where curbing is not provided, shoulders should be provided that are wide enough and smooth enough for bicyclists. Cooperative efforts are needed with PennDOT to seek shoulders along the most heavily traveled State roads. Shoulders should be separated from the travel lanes by white lines to avoid conflicts between vehicles and bicyclists and to discourage speeding by motorists.

Public transit routes map

PUTTING THIS PLAN INTO ACTION

This section describes methods that should be considered to implement this Plan.

GOAL: Promote substantial citizen input, including making sure residents are well-informed about community issues and encouraging volunteer efforts to improve the community.

The volunteer efforts of neighborhood and civic organizations and individuals are essential to further improve the region and to carry out this Plan. The objective is to strengthen community pride and emphasize volunteer efforts for residents and property-owners to improve their surroundings.

> It is essential to keep citizens informed and provide opportunities for meaningful citizen input, while making use of new technologies for communication.

Each municipality should have an internet site that is regularly updated with information that will help spur public interest, enthusiasm and involvement. This should include information on recreation programs and agendas for upcoming municipal meetings. Opportunities for citizen involvement should also be highlighted through the newspaper and other media.

GOAL: Continually work to put this Plan into action - through a program of updated planning and many short-term actions within a long-range perspective.

Planning is an on-going process. The Comprehensive Plan should be implemented through a continuous process of follow-up planning and action. The most immediate action will be updating as needed of each municipality's development regulations.

> Maximize communications, coordination and cooperative efforts between the municipalities, the School Districts, adjacent municipalities, the County, PennDOT and other agencies and organizations.

To be effective, community development efforts need wide participation. A close working relationship is needed with Federal, State and County agencies and adjacent municipalities.

> The municipalities cannot implement this Comprehensive Plan alone. Involvement is needed by residents, neighborhood organizations, civic groups, businesses, institutions, property-owners and many other groups.

This Comprehensive Plan should be consistently used as an overall guide for land use and transportation decisions. In addition, the Plan needs to be reviewed periodically and, if necessary, updated to reflect changing trends.

Use a Full Set of Tools to Implement this Plan

This Comprehensive Plan establishes overall policies for guiding the future development and conservation of the region. However, this Plan is not a regulation. The following major tools are available to help implement this Plan:

- the municipal Zoning Ordinances,
- the municipal Subdivision and Land Development Ordinances,
- the Construction Codes,
- an Official Map,
- computerized mapping,
- Capital Improvements Planning,
- the municipality's annual spending, and
- seeking Federal, State and County grant funds to accomplish important projects.

Construction Codes

A new State law is establishing a process in which modern construction codes will apply within all municipalities. The State is using the International Construction Codes, which were prepared by a national organization. These codes are particularly important to minimize fire hazards. The Historic Preservation Plan section discusses the need at times for appeals boards to adjust some of these codes to spur renovation of older buildings.

A municipal Property Maintenance Code is an essential part of controlling blight. That code needs to be adopted separately, because it is not part of the mandatory Statewide codes.

Official Map

The State Municipalities Planning Code grants municipalities the authority to adopt an "Official Map." An Official Map can designate proposed locations of new streets, street widenings, intersection improvements, municipal uses and parks. The Map may cover an entire municipality, or only certain areas. This process may be particularly useful, for example, to reserve right-of-way for a future street widening.

Once an Official Map is officially adopted by the governing body, then the municipality is provided with a limited amount of authority to reserve land for the projects on the map. If the land affected by the proposed project is proposed for development, then the municipality would have one year to either purchase the land for its fair market value or decide not to go forward with the project. This one year period is intended to provide time to raise funds to acquire the land, and avoid lost opportunities. If this one year period is not in effect, a person could obtain a building permit almost immediately in many cases and construct a building that could obstruct an important project. An Official Map also serves to provide notice to property-owners about the municipality's future plans.

Computerized Mapping

The County and the Lehigh Valley Planning Commission operate a modern computerized mapping/ "Geographic Information System ("GIS"). This system has been used for the maps in the Plan. Increased efforts are needed to fully integrate this system with operations of municipal agencies. For example, regular mapping of traffic accident locations can be helpful to identify hazardous conditions that need to be resolved, such as sight distance problems.

Capital Improvements Planning

Each municipality should have a system in place to continually plan and budget for major capital expenditures. "Capital" improvements are projects involving a substantial expense for the construction or improvement of major public facilities that have a long life span and that are not annual operating expenses. Examples of capital projects include major street improvements, acquisition of parkland, major storm sewer construction projects and new bridges.

A municipal Capital Improvements Program (CIP) can help identify projects that will be needed, prioritize the projects, identify possible funding sources and then budget for their completion. A typical CIP looks five years in the future. A CIP should identify major street reconstruction projects that will be needed over the next few years, which can help coordinate the reconstruction with underground construction projects by various utilities. This avoids the need to cut into a street after it has been recently repaved. Through a CIP, many different projects can be combined into a single bond issue, which avoids the high administrative costs of multiple bond issues. A CIP also can allow a municipality to carefully time any bond issues to take advantage of the lowest interest rates.

Other Implementation Tools

Many other tools are available to carry out the Comprehensive Plan, including the following:

- priorities decided as part of each municipality's annual budget, and the the annual setting of tax rates, which affect decisions of businesses and residents on whether to remain or move into a municipality, and
- aggressively seeking Federal, State and County grants to reduce the burden upon local taxpayers.

GOAL: Update municipal development regulations to carry out this Plan, and periodically update the Plan and regulations as needed.

Zoning Ordinance

The municipalities' Zoning Ordinances are the primary legal tool to regulate the uses of land and buildings. Each Zoning Ordinance includes a Zoning Map that divides the municipality into different zoning districts. Each district permits a set of activities and establishes a maximum density of development. Each Zoning Ordinance and Map should be updated as needed to be generally consistent with this Comprehensive Plan, to modernize standards and to address local concerns.

In addition to regulating land uses and densities, zoning also controls the following:

- the heights of buildings,
- the percentage of a lot that may be covered by buildings and paving,
- the minimum distances that buildings may be placed from streets and property lines,
- the minimum size of lots,
- the maximum sizes and heights of signs, and
- the protection of important natural features.

Subdivision and Land Development Ordinance

Each municipality is regulated by its own Subdivision and Land Development Ordinance. These Ordinances mainly regulate the creation of new lots, the construction of new streets by developers, and the site engineering of new commercial, industrial and institutional buildings.

GOAL: Maximize communications, coordination and cooperative efforts between the municipalities, the school districts, adjacent municipalities, the County, PennDOT and other agencies and organizations.

This Plan helps to establish a framework for further cooperative ventures among the municipalities in the region, and between municipalities and the County. Intergovernmental cooperation can not only decrease the costs of many services, it can also improve the quality of services. The Pennsylvania Intergovernmental Cooperation Act provides broad and flexible authority to organize joint efforts as municipalities deem appropriate. In general, the Act allows two or more municipalities to jointly accomplish anything that an individual municipality is allowed to do. In most cases, the Act promotes the use of ordinances that are adopted by each municipality to formalize an agreement. One option involves one municipality providing a service to a second municipality through a contract.

These same concepts can also apply between a municipality and a school district. For example, a municipality may agree to plow snow from school parking lots and driveways in return for free municipal use of some school facilities.

An Intergovernmental Agreement is proposed to be adopted by each municipality to assist in carrying out this Plan.

A State law also provides that State agencies must treat a Council of Governments in the same manner as a municipality in any funding program.

The following types of alternatives should be considered to promote inter-governmental cooperation:

- Shared Services and Shared Staff-persons - Shared staff-persons can be particular beneficial for specialized staff, such as different types of construction inspectors or zoning officers. Two or more municipalities could hire the same person to do the same job, with so many hours assigned to each municipality. This allows each municipality to hire a highly qualified person who is working full-time, as opposed to each trying to find a part-time person. This can reduce turnover, which reduces training costs and reduces the potential for mistakes being made by inexperienced staff. In addition, sharing staff makes staff-persons available during more hours of the day, which is beneficial to residents and business-persons. It also provides greater coverage during periods of illness or vacation. Some municipalities also have a joint application and testing program for police officer

applicants, which reduces costs and results in a larger pool of applicants.

- Shared Consulting Staff - There are also great efficiencies when adjacent municipalities choose the same consultants, such as municipal engineers, sewage engineers or solicitors. This promotes good communications between municipal governments. It also reduces the costs of having different professionals having to become educated about complex issues and having to spend time meeting with consultants of other municipalities to share information.

- Shared Recreation Programs - When municipalities share and coordinate recreation programs, it greatly increases the types of programs that can be offered. For example, one municipality may offer a gymnastics program, while another municipality offers basketball programs, with residents of each municipality being allowed to participate in each at the same cost per person. There has been great success in parts of Pennsylvania with multi-municipal recreation programs, where each municipality contributes funds towards one set of programs. These programs are often organized in partnership with a school district.

- Joint Yard Waste Collection and Composting - This is a very cost-effective way of handling the disposal of yard waste, which requires significant land and expensive equipment.

- The toughest issue in joint municipal services is determining a fair allocation of costs. The State Department of Community and Economic Development has several publications that can assist in these issues.

- Snowplowing - There may be cases where two municipalities must each send out a snowplow to clear different segments of the same street. It may be beneficial to trade responsibility for different street segments, so that a single snowplow can be used to clear the entire length of a street.

- Joint Purchasing - Joint purchasing can reduce the costs to each municipality of preparing bid documents and legal ads. It also can result in lower costs because larger volumes are being purchased. This process is particularly useful for annual purchases of standardized materials, such as road salt. The State also has arrangements that allow municipalities to "piggyback" upon State purchases. State law allows a similar process of "piggyback" bids between municipalities and a County. The State Intergovernmental Cooperation Act includes rules for joint municipal purchasing. Under State law, one municipality can be the lead municipality in purchases, without requiring multiple municipalities to seek bids. Municipalities can also join together to jointly purchase insurance, to hire traffic signal maintenance services, or to jointly contract for solid waste collection. Joint auctions can also be used to sell surplus vehicles and equipment.

- Sharing of Equipment - This sharing is most beneficial for expensive equipment that is needed by each municipality for only portions of the year, such as paving, rolling or grading equipment. The equipment could be jointly owned, or be owned by one

municipality and leased other municipalities. Or an arrangement could allow trading of equipment.

- Joint Tax Collection - The Local Tax Enabling Act allows municipalities and to school districts to contract with each other to have one office jointly collect local taxes.

- Councils of Governments (COGs) - A COG can provide municipal services if authorized by municipalities. For example, some COGs take care of code enforcement. Other COGs primarily serve to promote good communications between municipal officials, to study issues, and to lobby for State or Federal funding for projects.

- Joint Authorities - Municipalities can create formal joint municipal authorities to address many types of matters.

- Joint Planning Commissions - Municipalities can appoint joint planning commissions. These joint commissions could serve in place of municipal planning commissions, or in addition to them.

- Cooperation Between or Merger of Fire Companies - Consideration should be given to promoting additional cooperation between or merger of fire companies, including one or more fire companies in neighboring municipalities. Merger or cooperation are particularly beneficial to make the best use of extremely expensive fire apparatus, such as rescue trucks, hazardous materials equipment, tanker trucks and aerial ladder trucks. Merger or cooperation are also important to make the best use of the limited number of volunteers.

- Joint Police Forces - A joint police force involves two or more municipalities establishing one police force that is directed by commission members appointed by each municipality. Another option is to have one municipality contract for police services from a second municipality, which then manages the force. A joint police force makes it easier to provide 24 hour service and specialized services, such as for investigations and youth. A joint police force can result in increased training and professionalism, which can reduce liability costs. A joint force also makes it easier to investigate crime that crosses municipal borders.

- Incentives for Intergovernmental Cooperation in Grants - Many competitive State grant programs provide preference to projects that involve cooperation between more than one municipality. Therefore, if two similar projects are in competition for a grant, and one involves cooperation between two municipalities, the two municipality project is most likely to be funded.

Role of the Planning Commissions

Some of the greatest responsibilities of each Planning Commission are to oversee the preparation and implementation of the Comprehensive Plan and the preparation of Zoning and Subdivision Ordinance revisions. On a monthly basis, the Planning Commission also reviews proposed developments. The Planning Commission also has a role in reviewing proposals of other government agencies.

Role of the Boards of Supervisors and Borough Councils

The final decision on nearly all matters affecting the growth and preservation of each municipality rests with its Borough Council or Board of Supervisors. Therefore, close communications and cooperation between the Planning Commissions, the municipal staff, and the elected officials will be essential in continuing to improve quality of life in the Southwestern Lehigh County Region.

ACTION PROGRAM

The following table summarizes the major recommendations of this Plan. Certain items are recommended as high priorities. The timing of each recommendation is listed, as well which agencies should have the primary responsibility to carry out the recommendation.

NATURAL AND AGRICULTURAL CONSERVATION PLAN

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations at end of this table)
Continue to expand Agricultural Security Areas to make more land eligible for easement purchase and to protect farmers against nuisance challenges.	✓	Short-range	Supervisors, PC, property-owners.
Consider zoning provisions that preserve farmland and natural areas, particularly through "Open Space Development" and promoting the optional transfer of density to more suitable portions of a township.	✓	Conti-nuous	Supervisors, PC, property-owners.
In agricultural areas, permit a range of activities that allow opportunities for supplemental income for farmers on larger tracts of land.	✓	Conti-nuous	Supervisors, & PC, Property-owners
Consider proper controls on very intense Concentrated Animal Feeding Operations.	✓	Conti-nuous	Supervisors and PC
To protect water quality and fish habitats, carefully enforce State regulations on erosion control through on-site inspections.	✓	Short-range	Governing Bodies, PCs
Minimize unnecessary removal of trees during construction, and make sure temporary fencing is used to avoid damage to tree trunks and root systems.	✓	Short-range	Governing Bodies, PC
The townships should consider prohibit new buildings in the entire 100 year floodplain, and to require studies by developers where there is any question that an unmapped floodplain may exist. The boroughs should continue to carefully regulate but allow building in the floodplain in conformance with State and Federal regulations.		On-going	Governing Bodies, PCs, property-owners
Seek Federal Floodplain Mitigation funds to offer to buy and remove the most flood-prone homes.		Mid-range	Governing Bodies, PCs, property-owners, business owners

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations at end of this table)
Require professional wetland studies whenever development is proposed in suspect areas, and establish a 20 feet building setback around wetlands to avoid intrusions by construction equipment. Require a building and paving setback from all creeks. A smaller width is appropriate in more urban areas, while a larger width should be required in rural areas.		On-going	Governing Bodies, PC, property-owners, PennDOT
Require professional geologic studies to address sinkhole/subsidance hazards at the time any major new development is submitted for approval within areas with limestone geology.	✓	Con-tinuous	Supervisors, PC and Staff
Continue to use mandatory dedication provisions in subdivision ordinances to require dedication of open space or payment of recreation fees as part of major new residential developments.		Short-range	Governing Bodies, PC, property-owners
Protect important natural features, with a special emphasis upon the creeks, steep slopes and mature woods. - Carefully regulate development of steeply sloped lands. - Maintain and plant thick vegetation along streams to protect water quality and fishing habitats, including carrying out the Best Management Practices recommendations in the regional stormwater management plans.	✓	Con-tinuous	Governing Bodies, PC, property-owners

LAND USE AND HOUSING PLAN

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations at end of this table)
Update each municipality's development regulations to carry out the Land Use Plan.	✓	Short-term	PCs, Governing Bodies
Use zoning regulations to direct most housing away from areas planned for agricultural preservation and important natural areas. Provide moderate densities on areas that can be served by existing public water and sewage services - to minimize the total amount of land consumed by development.	✓	Conti-nuous	Twp. PC, Property-owners, Co. Conserva-tion District

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations at end of this table)
Update zoning ordinances to make sure that excessive setbacks are not required for routine additions to homes and for decks and pools. These types of improvements should not be over-regulated, in order to encourage residents to invest in older homes, instead of moving to new homes in outlying areas. This policy is particularly important in areas where many homes are relatively small. Also, excessive setback requirements cause an administrative burden upon property-owners and the municipalities.	✓	Short-term	Governing Bodies, PCs
Update zoning ordinances to make sure that all desirable types of businesses are allowed in appropriate business zoning districts. Hold requirements for special zoning approvals to a reasonable minimum and minimize setbacks between adjacent businesses. These steps are important to promote economic development and a wider choice of employment opportunities.	✓	Short-range	Governing Bodies, PCs
Update zoning ordinances to carefully control the types and locations of intense business uses near neighborhoods. This particularly includes gas stations, 24 hour stores, adult uses and similar uses that may cause nuisances for neighboring homes.	✓	Short-range	Governing Bodies, PCs
Carefully control the types of industrial uses through zoning ordinance requirements. Require "special exception" approval by the municipal zoning hearing board for industrial uses that may generate significant hazards or nuisances. Limit the most intensive industrial uses to the northeast corner of Lower Macungie.	✓	Conti-nuous	Governing Bodies, PCs, ZHBs
Work with adjacent municipalities to ensure that compatible land uses and road patterns are in place.	✓	Short-range	Governing Bodies, PCs, Adj. Mun.
Emphasize code enforcement to avoid blight in neighborhoods. Consider a systematic housing inspection program for older rental units in the boroughs.	✓	Conti-nous	Governing Bodies
Help to link residents that are in need of assistance with the resources that are available, including housing rehabilitation programs and job training programs.		Short-range	Municipal staffs and non-profit organi-zations.
Work to increase home ownership, including expanding programs to help persons afford closing costs of home purchases.	✓	Conti-nous	Co. agencies, financial institutions, PHFA.

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations at end of this table)
Make sure that local regulations and permit processes are as streamlined as is reasonable, to avoid unnecessary delays and higher housing costs. This is particularly important for routine changes to existing homes and for new and expanding employers.		Short-range	Governing Bodies, PCs, ZHBs, Municipal Staffs

DOWNTOWNS

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations)
Strengthen older commercial areas as business, entertainment, cultural and civic centers for the region. - Stress key markets for Downtown businesses, including persons who work or live nearby, and persons attending special events in the area. - Try to direct a larger number of visitors to major attractions (such as outlets) to also visit other nearby businesses.	✓	Conti-nous	Local merchants, property-owners, Governing Bodies, Business associations
- Stress greater coordination among hours of businesses in older areas. Encourage longer evening business hours - especially to at least 6 p.m. Aggressively market older business areas to businesses and customers, particularly through joint promotions among nearby businesses. These joint promotions are more cost-effective than each business buying its own advertising. Use special events to attract additional numbers of visitors, customers and businesses to older business areas.		Conti-nous	Merchants, Business associations, L.V. Visitors Bureau
- Complete streetscape and pedestrian safety improvements in the boroughs.		Conti-nous	Governing bodies, business associations
- Promote a balanced mix of uses in older commercial areas. Develop additional high quality market-rate upper story apartments. Some upper stories may also be suitable as office space.	✓	Conti-nous	Business associations, Governing Bodies, PCs.

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations)
- Improve the appearance of the fronts of buildings that have not yet been restored. Add additional landscaping in rear parking areas, and improve the appearance and feeling of safety of walkways between parking areas and businesses.		Conti-nous	Governing Bodies, PC, Property-owners, Business associations
- Locate as many government offices as possible in older business areas, to help generate foot-traffic that will provide customers for private businesses.		Conti-nous	County, State and Federal agencies.
- Properly manage parking to serve different needs, with an emphasis upon making sure the most convenient spaces are available for high turnover by customers parking for less than 2 hours.		Conti-nous	Borough Staffs
- Consider financial incentive programs to attract private investment into older business areas, such low-interest funding for facade rehabilitation and fire safety improvements. Through the building code of appeals process, consider reasonable modification of requirements to recognize the problems of reusing older buildings.		Conti-nous	Governing Bodies, Co. Community Dev. Office
- Emphasize a feeling of security in older business areas, including bicycle patrols and controls on disruptive behavior.		Conti-nous	Governing Bodies, Police
- Improve pedestrian safety in the Downtown, including additional extensions of curbs at intersections so pedestrians do not have to cross as great a distance across a street, more button-activated pedestrian-crossing signals and more prominent cross-walks.	✓	Conti-nous	Governing Bodies, Police, Borough Staffs

HISTORIC PRESERVATION PLAN

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations)
Consider alternative ways to preserve important historic buildings, such as requiring special zoning approval by the governing body or zoning hearing board before demolition is allowed. This alternative would not regulate architecture or routine changes to buildings.	✓	Conti-nous	Governing Bodies, PCs Historic organi-zations

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations)
Seek cost-effective ways of preserving historic buildings, including providing information, guidelines and advice to property-owners. Promote greater interest in the region's history and historic buildings.		Conti-nous	Municipal Staff, Historic organi-zations
Consider zoning incentives to promote the preservation of historic buildings. This could include allowing certain uses within restored historic buildings that otherwise would not be allowed in the zoning district. For example, a restored historic building in a residential district might be allowed to be used as an office or bed and breakfast inn.		Short-range	Governing Bodies, PC

TRANSPORTATION PLAN

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations)
Work with PennDOT to resolve traffic congestion bottlenecks and traffic safety problems, such as encouraging new road links around trouble-spots (as described in plan text). Seek funding through the 12 Year Plan to resolve traffic problems in the region.	✓	Conti-nous	PennDOT, LVPC, Governing Bodies, Adj. Mun.
Design residential streets to discourage use by through-traffic, limit truck traffic on residential streets where feasible, and improve major roads to relieve congestion so traffic will not be diverted to residential streets.		Conti-nous	PennDOT, LVPC, PCs, Governing Bodies, Adj. Mun.
Adopt an "Official Map" to design locations where additional land will be needed to improve existing roads or to build new road connections. This type of Official Map allows a municipality to reserve land for improvements for a limited period of time.		On-going	Governing Bodies, PC
Investigate the pros and cons of a traffic impact fee system.		Conti-nous	PennDOT, Supervisors, PCs
Improve pedestrian and bicycle access and encourage greater use of public transit, including providing additional park and ride lots. Study the feasibility of expanded public transit to link with new employers.		Conti-nous	PennDOT, LANTA, LVPC, Governing Bodies, Adj. Mun.

COMMUNITY FACILITIES AND SERVICES PLAN

Recommended Action	High Priority?	Timing	Prime Responsi-bilities (see abbreviations)
Improve existing parks and playgrounds to meet a wide variety of recreational needs.		Conti-nous	Governing Bodies, Municipal Parks and Recreation
Emphasize high-quality police, emergency medical and fire protection services. Promote continued cooperation between providers, including those in adjacent municipalities.	✓	Conti-nous	Emergency providers, Governing Bodies, Adj. Mun.
Continually explore ways to minimize local government expenses and increase revenues, including use of grants.	✓	Conti-nous	Governing Bodies, Borough Staff
Continue to provide excellent water and sewage services, with regular investments to provide reliable services.		Conti-nous	Municipal Authorities and water companies

Abbreviations of Responsible Agencies/Groups:

Governing Bodies = Borough Councils and Township Boards of Supervisors
PC = Municipal Planning Commissions
ZHB = Zoning Hearing Boards
Adj. Mun. = Adjacent Municipalities
DA = Downtown Associations
LVEDC. = Lehigh Valley Economic Development Corporation
LVPC = Lehigh Valley Planning Commission
PennDOT = Pennsylvania Department of Transportation
PHFA = Pennsylvania Housing Finance Agency
PHMC = Pennsylvania Historical and Museum Commission

EXISTING MAJOR RECREATION AREAS - 2003

The map numbers on this table relate to the locations on the Existing Major Recreation Areas and Bicycle Routes Map.

Map #	NAME	MUNICIPALITY	CLASS	TYPE	OWNER	ACCESS	ACREAGE *
1	Alburtis Field	Alburtis	Neighborhood	Ball Field	Municipality	Public	5.50
2	Alburtis Mountain Road Tract	Alburtis	Conservancy	County Natural Area	County	Public	14.50
3	Alburtis Recreation Association	Alburtis	Neighborhood	Ball Field	Other	Public	5.60
4	Alburtis Swimming Pool	Alburtis	Neighborhood	Outdoor Swimming Pool	Other	Public	2.00
5	Cobblestone Court Recreation Area	Alburtis	Neighborhood	Sub-Neighborhood Park	Municipality	Public	0.40
6	Lock Ridge Park and Furnace Museum	Alburtis	Special Use	National Register Historic Site	County	Public	59.50
7	Playground of Adventures	Alburtis	Neighborhood	Sub-Neighborhood Park	Municipality	Public	1.00
8	Borough Line Park	Emmaus	Neighborhood	Neighborhood Park / Playground	Municipality	Public	5.50
9	Catholic War Vets Field	Emmaus	Neighborhood	Sub-Neighborhood Park	Other	Public	1.50
10	Citizens Fire Company Number 2 Ballfield	Emmaus	Neighborhood	Ball Field	Other	Public	5.80
11	Community Park (Emmaus Borough)	Emmaus	Neighborhood	Community Park	Municipality	Public	35.00
12	Furnace Dam Park	Emmaus	Neighborhood	Fishing (Public Access)	Municipality	Public	3.50
13	Lions Field	Emmaus	Neighborhood	Neighborhood Park / Playground	Municipality	Public	2.20
14	Marks Farm Tracts / Knauss Homestead	Emmaus	Special Use	Ball Fields / Historic Site	Municipality	Public	36.58
15	Meadow Pool Association	Emmaus	Neighborhood	Outdoor Swimming Pool	Other	Private	2.00
16	Robert Rodale Reserve	Emmaus	Conservancy	Land Preserve	Other	Public	465.50
17	Rodale Press Recreation Area	Emmaus	Neighborhood	Private Multi-Purpose Park	Other	Private	10.00
18	Shelter House	Emmaus	Special Use	National Register Historic Site	Municipality	Public	25.70
19	Soccer Field (Emmaus)	Emmaus	Neighborhood	Multi-purpose Field	Municipality	Public	3.00

Map #	NAME	MUNICIPALITY	CLASS	TYPE	OWNER	ACCESS	ACREAGE *
20	South 4th Street Field	Emmaus	Neighborhood	Multi-purpose Field	Other	Public	2.30
21	Unami Fish and Game Association	Emmaus	Special Use	Sportsman Club	Other	Private	45.50
22	West End Playground	Emmaus	Neighborhood	Sub-Neighborhood Park	Municipality	Public	0.30
23	Williams Street Playground	Emmaus	Neighborhood	Neighborhood Park / Playground	Municipality	Public	7.10
24	Alburtis Rod and Gun Club	Lower Macungie	Special Use	Sportsman Club	Other	Private	42.30
25	Ancient Oak South Park	Lower Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	3.70
26	Ancient Oak West Park	Lower Macungie	Neighborhood	Neighborhood Park / Playground	Municipality	Public	26.90
27	Bridal Path West Passive Recreation Area	Lower Macungie	Conservancy	Open Space	Municipality	Public	14.80
28	Brookfield Recreation Area	Lower Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	4.00
29	Brookside Municipal Complex	Lower Macungie	Neighborhood	Community Park	Municipality	Public	30.00
30	Brookside Villas Open Space	Lower Macungie	Conservancy	Open Space	Municipality	Public	2.60
31	Calvary Jubilee Park Camp	Lower Macungie	Special Use	Church Camp	Other	Private	11.30
32	Camp Olympic	Lower Macungie	Special Use	Specialized Recreation Camp	Other	Private	20.30
33	Church Lane Park	Lower Macungie	Neighborhood	Neighborhood Park / Playground	Municipality	Public	13.60 (+expan-sion)
34	Cross Timbers Recreation Area	Lower Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	2.60
35	Danfield Run Passive Recreation Area	Lower Macungie	Conservancy	Open Space	Municipality	Public	9.20
36	East Texas Playground	Lower Macungie	Neighborhood	Neighborhood Park / Playground	Municipality	Public	9.10
37	Fairways-at-Brookside Recreation Areas	Lower Macungie	Neighborhood	Homeowner's Association Land	Other	Private	5.00

Map #	NAME	MUNICIPALITY	CLASS	TYPE	OWNER	ACCESS	ACREAGE *
38	Farmington Hills Active Recreation Area	Lower Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	3.30
39	Harris-York Public Open Space	Lower Macungie	Conservancy	Open Space	Municipality	Public	3.60
40	Hidden Valley Recreation Area	Lower Macungie	Neighborhood	Homeowner's Association Land	Municipality	Public	5.70
41	Joseph M. Prater Memorial Park	Lower Macungie	Neighborhood	Homeowner's Association Land	Municipality	Public	3.80
42	Lehigh Country Club	Lower Macungie	Special Use	Golf Course	Other	Private	242.20
43	Little Lehigh Creek Flood Plain	Lower Macungie	Conservancy	Open Space	Municipality	Public	90.20
44	Lower Macungie Township Community Park	Lower Macungie	Neighborhood	Community Park	Municipality	Public	90.80
45	Millbrook Farms Recreation Area	Lower Macungie	Conservancy	Homeowner's Association Land	Other	Private	37.10
46	Pool Wildlife Sanctuary	Lower Macungie	Special Use	Land Preserve	Other	Semi-Public	70.40
47	Reimert Memorial Bird Haven	Lower Macungie	Conservancy	Land Preserve	Other	Public	10.80
48	Rodale Park	Lower Macungie	Neighborhood	Neighborhood Park / Playground	Municipality	Public	10.20
49	Shepherd Hills Country Club	Lower Macungie	Special Use	Golf Course	Other	Public	106.10
50	Shepherd Hills Recreation Area	Lower Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	1.40
51	Trexlertown Grange	Lower Macungie	Special Use	Picnic Grove	Other	Public	5.30
52	Watermill Recreation Area	Lower Macungie	Conservancy	Open Space	Municipality	Public	5.20
53	Wescosville Park	Lower Macungie	Neighborhood	Neighborhood Park / Playground	Municipality	Public	6.20
54	Wild Cherry Park	Lower Macungie	Special Use	Ball Field	Municipality	Public	41.62

Map #	NAME	MUNICIPALITY	CLASS	TYPE	OWNER	ACCESS	ACREAGE *
55	Winding Brook Manor Recreation Area	Lower Macungie	Neighborhood	Neighborhood Park	Municipality	Public	11.30
56	Ballfield (Lower Milford Township)	Lower Milford	Neighborhood	Ball Field	Other	Public	3.20
57	Limeport Stadium (Fegley Stadium)	Lower Milford	Neighborhood	Ball Field	Other	Public	5.70
58	Picnic Grove and Ballfield (Trinity Church)	Lower Milford	Neighborhood	Picnic Grove	Other	Private	15.00
59	Twin 'S' Gun Club	Lower Milford	Special Use	Sportsman Club	Other	Private	171.30
60	Brookside Country Club	Macungie	Special Use	Golf Course	Other	Private	140.00
61	Firehouse Ballfield	Macungie	Neighborhood	Ball Field	Other	Public	2.00
62	Kalmbach Memorial Park	Macungie	Neighborhood	Community Park	Other	Public	19.00
63	Macungie Flower Park	Macungie	Special Use	Open Space	Municipality	Public	0.20
64	Memorial Park (Macungie Borough)	Macungie	Neighborhood	Community Park	Other	Public	37.95
65	Playlot (250 Village Walk Drive)	Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	1.70
66	Playlot (976 Hillcrest Drive South)	Macungie	Neighborhood	Open Space	Municipality	Public	1.30
67	Playlot (Spruce Street)	Macungie	Neighborhood	Open Space	Municipality	Public	3.30
68	The Ridings Recreation Area	Macungie	Neighborhood	Sub-Neighborhood Park	Other	Private	2.00
69	B. Leroy and Elizabeth Burkhart Preserve	Upper Milford	Conservancy	Land Preserve	Other	Public	25.30
70	Churchview Park	Upper Milford	Neighborhood	Community Park	County	Public	17.00
71	Fulmer Tract	Upper Milford	Conservancy	Open Space	Municipality	Public	35.30
72	Indian Creek Golf Course	Upper Milford	Special Use	Golf Course	Other	Private	75.00
73	Jasper Park	Upper Milford	Neighborhood	Community Park	Municipality	Public	26.70
74	Lehigh County Conservation Demonstration Project	Upper Milford	Conservancy	County Natural Area	County	Public	61.00
75	Lenape Park	Upper Milford	Neighborhood	Neighborhood Park / Playground	Municipality	Public	12.10
76	Milford Park Bible Camp	Upper Milford	Special Use	Church Camp	Other	Private	31.00
77	Mystic Chain Park	Upper Milford	Neighborhood	Open Space	Other	Private	3.40
78	Shimerville Recreation	Upper Milford	Special Use	Miniature Golf	Other	Public	4.20
79	Upper Milford Field and Stream Association	Upper Milford	Special Use	Sportsman Club	Other	Private	14.90

Map #	NAME	MUNICIPALITY	CLASS	TYPE	OWNER	ACCESS	ACREAGE *
80	Upper Milford South Mountain Property	Upper Milford	Conservancy	County Natural Area	County	Public	15.60
81	Victory Valley Camp	Upper Milford	Special Use	Church Camp	Other	Private	40.30
82	Hidden Valley Farms Park	Lower Macungie	Neighborhood	Neighborhood Park	Municipality	Public	Approx. 8

Source - Lehigh Valley Planning Commission, 2003, with revisions by URDC.