

Official Comprehensive Plan

Palmyra Area Region

Lebanon County, PA

Palmyra Borough

North Londonderry Township

South Londonderry Township

February, 2013



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All maps and aerials presented within this Plan rely upon digital information of the Lebanon County Geographic Information System. While the accuracy of this information is believed to be very high, it should only be used for community planning purposes and cannot be relied upon for definitive site survey delineation.



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Look forward to the future!

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Executive Summary

The Palmyra Region has much to be proud of. Its three municipalities are well managed with healthy and attractive neighborhoods, expansive productive farmlands, valuable natural features, and a sound local economy. These traits are not the result of just good luck; they require visionary forethought, deliberate strategizing and patient implementation. This Palmyra Area Region Comprehensive Plan embodies many of these tasks into a single grand strategy that balances the varying needs of each respective municipality and its corresponding landscape.



Here Palmyra Borough and both North and South Londonderry Townships have devised an efficient Future Land Use Plan to take advantage of their specific and unique needs and, in accordance with state law, allocated them efficiently across the entire region.

As Palmyra Borough celebrates its 250-year anniversary, the Plan provides very specific recommendations to revitalize “downtown.” Façade design and orientation strategies are coupled with pedestrian access and activity suggestions to reclaim Main Street as the focal center within the Region. Future growth potentials are largely based upon “infill” projects upon a few of the Borough’s larger scattered undeveloped sites and its many undeveloped lots.

North Londonderry Township is building a new sewer plant to serve its current and future demands as well as those of Palmyra Borough. To help offset the expensive costs of this needed system improvement, their planned future continues policies that promote suburban residential growth and quality economic development. Much of the Region’s planned growth has been accommodated within North Londonderry Township’s residential, commercial and industrial areas.

South Londonderry Township envisions a different future rooted largely in farmland preservation and conservation of sensitive natural features. Future growth is confined to locations already committed for service by local utilities. Growth areas are targeted into compact neighborhoods around Campbelltown where sidewalks and other important public facilities are to be provided.

In Chapter 2 this Comprehensive Plan first sets forth a set of Community Planning Goals. To derive these goals, members of the Palmyra Area Comprehensive Plan Committee completed a 36-question community development objectives survey that forced a comprehensive examination of the Region’s current conditions against what was perceived as the desired future. This exercise forced some “soul-searching” and prioritization of needs. It also offered a means for local officials to develop empathy across municipal boundaries as specific issues for each municipality were brought into focus and discussed.

In all some 120 different goals were identified among several functional topics such as environmental, community development, planning programs, public facilities and services, public utilities and transportation. While some goals were universally held across the region (e.g. health and safety) many were very specific to each municipality. These goals determined the course of the balance of the project.

Chapter 3 inventoried Natural and Cultural Features and their ability to serve the desired future across the Region and within each municipality. A thorough examination with detailed mapping of a wide range of natural features became the basis for improved environmental stewardship. Strategies for perpetual preservation of sacred resources along with management strategies for important features within the path of development were considered and presented. All of these analyses were used to implement a “proper site planning process” for future developments that respect important natural features.

Chapter 4 analyzed the socio-economic trends within the Region and each of the municipalities. The Region has realized a steady rate of growth since 1970 averaging about 2065 new residents each decade. Historically Palmyra Borough has had the largest population until the last decade when North Londonderry Township's accelerating growth caused it to overtake the Borough's wavering population changes. North Londonderry Township's relative population is likely to expand within the Region in response to national trends towards increased suburbanization and North Londonderry Township's willingness to accommodate growth. Unsurprisingly, the number of housing units has also steadily increased within the Region. On average the Region added about 1247 new housing units each decade during the last 40 years. The rate of housing growth is significantly greater than that of population. Between 1970 and 2000, the Region's population grew by just over 58%, while its number of housing units grew by over 106%. This occurred because fewer people are living together, as family sizes have decreased and more people are living by themselves.

These trends are projected to continue and year 2020 projections place the Region's population at 24,444 with almost 10,917 dwelling units. Future growth should also have a greater proportion of higher density attached and multiple family dwellings than in the past to reflect national housing trends and avoid legal challenges. This should provide greater availability of affordable housing for renters and first-time homeowners.

Chapter 5 inventoried existing land use for each property within the Region. Lebanon County Tax assessment records were field verified across a variety of land use categories (e.g. agriculture, private recreation, public, residential, mixed use, commercial, industrial, quarry and mining, parking, and vacant.) This information was used to ensure that proposed future land use designations have a high degree of consistency with current land use. This inventory also noted qualitative design characteristics of existing land uses so to suggest potential strengthening of zoning regulations and improve land use compatibility, function and appearance. This Chapter also inventoried and mapped development projects that are presently under review for potential construction.

Chapter 6 analyzed external planning policies and regulations that were considered in devising a future land use scheme. The specific future land use categories of municipalities that adjoin the Region were noted and mapped. In addition, the generalized land use recommendations within the Lebanon County Comprehensive Plan for the Palmyra Area Region were also noted and compared against the outcomes of this project. Finally this Chapter recognized areas enrolled within the PA Agricultural Security Area and/or permanently preserved under the PA Agricultural Easement Purchase Program.

Chapter 7 considered the adequacy of Public Facilities now and in the future. Based upon existing facilities and planned expansions the Palmyra Area School District appears to have sufficient building capacity to accommodate projected growth through the year 2020; however, it will be important that the School District and municipalities cooperate to ensure that adequate classroom space is located within close proximity with planned residential growth.

The Region's parks and recreation system was inventoried against National standards for parkland adequacy. The Palmyra Area Recreation and Parks Commission (PARPC) should continue to oversee all recreational planning and programming issues within the Region. The Region is well served by Regional parks that are largely PA State Gamelands. North Londonderry Township should immediately develop at least one of its two community parks to serve existing and future residents. South Londonderry Township should continue to pursue grant monies to develop its 16 acre property immediately to the east of the Campbelltown Fire Company Park for the purposes of enlarging its community park. Strategies for development of linear parks and trails are to be integrated within development review procedures. Finally, each municipality is recommended to implement a mandatory dedication of parkland requirement as part of its subdivision review process to enable developers to partner with the municipality in the provision of local parklands.

Each of the municipality's Police Departments was surveyed to assess current effectiveness and future needs. Good cooperation is acknowledged among the police and other emergency service departments across the Region. Some need to "regionalize" police protection was expressed and local officials are

open to this approach pending favorable outcomes of a regional police consolidation feasibility study to be conducted by the PA DCED's Governor's Center for Local Government Services.

Each of the local Fire and Ambulance Departments was surveyed to assess current effectiveness and future needs. Each of the fire and ambulance companies expressed a concern over declining numbers of volunteers, particularly "younger volunteers" who will become the next generation of emergency service providers. Similarly dwindling financial support threatens the future of local volunteer fire companies. Both enlistment and fund-raising strategies are listed along with other potential sources of information and support.

Chapter 8 analyzed the adequacy of public utilities to serve projected growth. Target projections of needed public water capacity have been tied to projected population and housing growth. These figures should assist local officials work with the PA American Water to ensure that its resources can efficiently serve the projected growth areas. North Londonderry Township is building a new sewer plant to serve its current and future demands as well as those of Palmyra Borough. To help offset the expensive costs of this needed system improvement, their planned future continues policies that promote suburban residential growth and quality economic development. Because of various limitations on system expansion, South Londonderry Township's planned growth has been confined to areas where public sewer commitments already exist. Each municipality is recommended to continue its participation with the Greater Lebanon Refuse Authority (GLRA) solid waste disposal and recycling programs.

Chapter 9 presents information about the Region's transportation networks. Roadway design and function were compared with accepted standards which yielded a list of needed improvements. Traffic accident data was compiled to prioritize potential needed safety improvements or adjustments. Strategies for reducing reliance upon motorized vehicle transport were presented along with recommendations to promote pedestrian and bicycle travel and safety. Recommendations were offered to coordinate road function with adjoining land use and improve vehicular access. The use of rail and mass transit was presented along with the need for protection of airport safety zones associated with the Reigle Airport.

Chapter 10 combined many of the analyses and recommendations into a cohesive future land use plan. Here areas of the Region were divided among many different land use categories that can steer growth into acceptable areas and protect natural features and rural character elsewhere. This Chapter is meant to serve as a direct link to each municipality's zoning ordinance and guide specific adjustments to those uses to be permitted and their respective design and operation standards. Chapter 10 also specifically suggests a future land use scheme that implements a regional allocation of land use in accordance with the PA Municipalities Planning Code.

Chapter 11 culminates the results of the Comprehensive Plan into an action-oriented schedule of needed tasks. Each specific task was listed along with a suggested timeframe for implementation and the party (ies) responsible for its completion. 93 tasks have been listed in various functional categories. This schedule should form the basis for work programs of local officials, planning commissions, staff and other volunteers towards the desired vision of the future for the Palmyra Area Region.

Chapter 12 lists the results of an attitudinal survey conducted in May, 2009 when 1500 surveys (500 per municipality) were distributed to the Region's households. The following lists survey return rates:

Attitudinal Survey Response Rate By Municipality		
Area	Number of Responses	Percentage Returned
Palmyra Borough	146	29%
North Londonderry Township	202	40%
South Londonderry Township	170	34%
Region-wide	518	34.5%

Results of the surveys were used to derive or confirm various community planning goals listed in Chapter 2 of the Comprehensive Plan and discussed above.

I. Introduction

A. PURPOSE OF THE PLAN



Healthy, attractive and economically-sound communities do not “just happen.” They are created through vision and foresight and grow and change successfully with the same. Today, local governments are responsible for guiding growth and development within communities, for setting aside open spaces, and for delivering public services. Like any business, local governments need to chart future plans so that they can assure the efficient use of resources. The preparation of a comprehensive plan provides a deliberate framework of information that can be used to make future decisions regarding local government functions. The Comprehensive Plan further provides a sound legal basis for specific implementing measures, such as zoning and subdivision regulations designed to carry out the intent of the Comprehensive Plan. One definition of comprehensive planning is “the allocation of municipal resources towards municipal goals and objectives”; this definition describes the essence of this work.

The Palmyra Area Regional Comprehensive Plan embodies a truly regional effort. The municipalities of Palmyra Borough and North and South Londonderry Townships have come together to prepare a sound plan for the future growth and development of the Palmyra Area Region. This regional cooperation has been enhanced by the Palmyra Area School District and the geographic information system (GIS) in large part provided by Lebanon County. The municipalities also prepared a regional Comprehensive Recreation and Open Space Plan which was adopted in December, 2008.

This Comprehensive Plan first sets forth a set of Community Planning Goals. These goals can include broad objectives, such as the provision of adequate housing and employment opportunities, the protection of the environment, and the provision of a balance of public services. They can also seek to correct existing or foreseeable deficiencies or problems, such as improving the design of a particular road intersection or reducing localized flooding through improved storm water management.

Next, this Plan inventories, maps and describes the Region's resources over several chapters. These resources include many features, such as land, streams, roads, utilities, parks, housing, schools, police and fire service, businesses, and so on. Analyses are performed within each of the Plan's chapters to determine their capabilities in meeting the Plan's community planning goals. Then, each chapter makes specific recommendations to improve the capabilities of these in attaining locally-expressed planning goals.

Next, the analyses of resources and recommendations are used together with the Community Planning Goals to develop a future land use scenario and a plan for the future delivery of public, private and other services. The time frame for this Comprehensive Plan is to the year 2020; all recommendations made within this Plan are structured around this time period.

Finally, implementation strategies are discussed and recommended that will enable the Region's municipalities to set in motion the goals, objectives and recommendations identified in the Plan. In the end, any planning process is meaningless unless its recommendations find application as part of the Region's business—the protection of public welfare and the delivery of public services.



B. MUNICIPALITIES PLANNING CODE – LEGAL FOUNDATION FOR THIS PLAN

Pennsylvania's Constitution gives the General Assembly the power to enact laws that protect the public health, safety and general welfare of its citizens. The General Assembly has, in turn, given local municipalities primary responsibility for community comprehensive planning. Municipalities in Pennsylvania are empowered by the Pennsylvania Municipalities Planning Code (MPC), Act 247 of 1968, to prepare and adopt comprehensive plans according to specified requirements and procedures. Revisions to the MPC made by Act 170 of 1988 expanded the subject matter and goals of comprehensive planning to enable municipalities to manage growth more effectively, and to provide greater protection for environmentally sensitive lands and important historic and cultural sites. Furthermore, Act 170 also requires that all counties in Pennsylvania prepare and adopt comprehensive plans and that municipal plans be generally consistent with the adopted county plans. Municipalities are also empowered by this Act to carry out joint planning with one another. Finally, the most recent amendments to the MPC in the year 2000 specifically enable municipalities to work together and develop regional plans for the allocation of growth and development, along with the delivery of public facilities and services.

These MPC standards are the foundation upon which the Comprehensive Plan for the Palmyra Area Region is built. This Plan, therefore, is born not only out of a belief that sound planning is the key to a healthy, attractive and economically sound community, but also out of a respect and regard for the laws of the Commonwealth of Pennsylvania.

C. HOW TO USE THIS PLAN

This Comprehensive Plan is designed to serve several important purposes. Principally, the Plan is intended to share with residents a vision for the Region's future. Secondly, it is designed to assist the Region in the administration of land use planning programs. A detailed table of contents appears at the beginning of the text that provides quick reference to the appropriate sections of the Plan. ***Action-oriented recommendations within each of the Plan's chapters are printed in bold, italicized letters so that the decision-maker's attention is immediately drawn to them.*** Many of these recommendations tie in to specific implementation strategies discussed in the Plan's final chapter.

The numerous maps within the Plan have been carefully prepared so that the information can be easily visualized and is meaningful. Related features are composited together so that the reader gains a better understanding of their connection. The many analyses utilized throughout the study are intended to maximize the utility of the findings. Step-by-step descriptions of these methodologies are furnished to enable the reader to gain a better understanding of the issues and their planning implications. All of these features will aid local decision-makers in their evaluation of future planning proposals. Data used to compile the maps in this Plan was largely furnished by the Lebanon County Geographic Information System (GIS). Therefore the data is readily consistent with the County's database and new layers of data created by this Plan are similarly compatible with the County's system.

An additional important function of this Plan is its collection of important information. The term *Comprehensive Plan* accurately describes the composition of this report; its contents are quite comprehensive. Accordingly, the Plan provides convenient access to a wealth of up-to-date factual information concerning the Region's resources. This information will not only serve local officials, but also property owners, residents, business leaders, prospective developers and service agencies. The inventories of existing conditions will also provide the groundwork upon which future Plan updates can be more easily accomplished.

Finally, the Plan provides a future land use scenario that can be useful to many landowners. For example, residents can get an idea of the land uses that are projected around their homes. Prospective developers can use the Plan to package development proposals that conform to the

regional and municipal goals, thereby ensuring a smooth development review process. Business leaders can glean a sense of secure investment climate from the Region's future land use scenario. In all, the Plan considers many competing interests and devises a strategy to assure their relative harmonious coexistence. The Plan will become a powerful and practical tool in local decision-making. ***All persons involved and/or interested in the future of the Palmyra Area Region should read and understand this Plan. Local decision-makers should utilize the Plan when evaluating future development proposals, service adjustments or public investments.***

D. REGIONAL SETTING

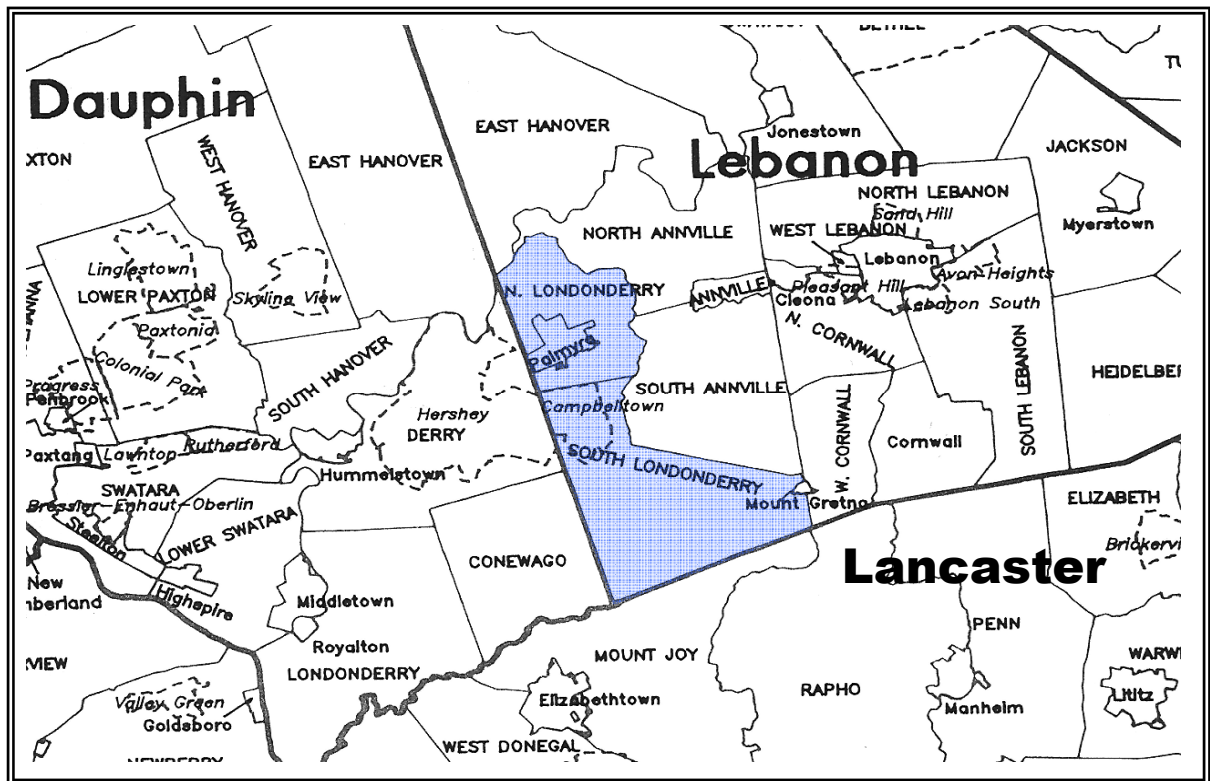
As mentioned previously, the Palmyra Area Region is comprised of Palmyra Borough and North and South Londonderry Townships. Fortunately for planning purposes, the Region coincides with the boundaries of the Palmyra Area School District. The Region is situated in the southwestern corner of Lebanon County in southcentral Pennsylvania. The Region is about 11.3 miles long from north to south and is about 6 miles wide at its widest point in South Londonderry Township.

The Palmyra Area Region contains a total of approximately 36.9 square miles or 23,616 acres. Palmyra Borough contains about 1.9 square miles (1,216 acres), North Londonderry Township contains about 10.7 square miles (6,878 acres) while South Londonderry Township contains 24.3 square miles (15,537 acres). The Region's proximity to major roads (e.g. I-76, I-78, I-81, I-83, and US Routes 22, 322 and 422) enables it to be economically linked with the many cities of central Pennsylvania and the northeastern US metropolis. The following table lists the Region's aerial distances (straight line measurements) to nearby communities and cities of interest:

Community / City	Distance from Region
Hershey	1.5 miles
Lebanon	6.6 miles
Harrisburg	12 miles
Lancaster	14 miles
Reading	38 miles
Philadelphia	57 miles
Baltimore, MD	61 miles
Washington D.C.	86 miles
New York City, NY	128 miles

Most of the Region's boundaries are man-made; however, the Swatara and Quittapahilla Creeks form the northern and eastern boundaries of North Londonderry Township and Killingier Creek forms the eastern boundaries for North and a portion of South Londonderry Township.

The Region also sets at a convergence of several adjoining Counties. Along its western boundary the Region abuts East Hanover, Derry and Conewago Townships all within Dauphin County. To the south is Mount Joy Township and Rapho Townships both within Lancaster County. To the north and east are East Hanover, North Annville, South Annville and West Cornwall Townships of Lebanon County. South Londonderry Township also adjoins the Borough of Mount Gretna along the Township's southeastern edge. The following maps depict the location of the Region amidst its adjoining municipalities and Counties and then within proximity of the larger northeast United States metropolis, respectively:



II. Planning Goals

"If you don't know where you are going, any road will take you there!"

-Lewis Carroll

In undertaking any planning effort it is important to first understand "where you want to go." By exploring a desired future first, local officials can ensure that a proper methodology of study is applied to those resources that offer the best opportunity for goal achievement and ultimate success.



To derive the goals for this Plan, members of the Palmyra Area Comprehensive Plan Committee were asked to individually complete a 36-question community development objectives survey. This survey offered local officials the means to consider a comprehensive examination of the Region's current conditions against what they perceive as a desired future. Then, during the summer of 2008, the Committee met and discussed the results of the survey. This exercise forced some "soul-searching" and prioritization of needs. It also offered a means for local officials to develop empathy across municipal boundaries as specific issues for each municipality were brought into focus and discussed.

In addition a visioning exercise was conducted during a town-hall meeting held on September 30, 2008 at the Campbelltown Fire Hall. As part of this exercise, local residents were given the opportunity to offer input regarding their needs and goals for the Region's future. Palmyra Borough's goals were extracted and adapted from their recently adopted individual Comprehensive Plan which were then reviewed and updated by local officials for overall consistency within the multi-municipal approach of this regional comprehensive plan. The following presents an overall narrative vision of the desired future followed by a detailed listing of specific planning goals for each municipality.

A. Community Vision

The Palmyra Area Region is comprised of two adjoining Townships and one Borough who share a common general location but have somewhat different visions for their future.

Palmyra Borough is a thriving community with a responsive government. The Borough and the Region are recognized as a desirable place to live, work, and raise children. The Borough has an integrated system of safe and well-maintained sidewalks, adequate street lighting, and safe intersections throughout the transportation network. The human environment is enhanced by tree-lined streets with benches. Designated bike routes and walking trails are well signed and interconnect environmental and man-made features.

Buildings and properties are well maintained and are being converted back to their original use and design as more and more people begin to appreciate the amenities of the Borough. Neighborhood bonds are strengthening through special community-wide social events, such as festivals and parades, and localized block parties. Community volunteerism is strong as young people become active on various committees, boards, and emergency services groups.

The Palmyra Area School District continues to provide a high quality education by providing the youth of the Region the necessary skills to continue their education or enter the workforce. The Borough's Police Force is community-minded and uses bike and foot patrols in the downtown area. Community interaction between the Police Force and residents has led to a reduction of crimes in the Borough.

Specialty retail shops and restaurants draw people back to the downtown and Main Street. Designated parking lots have been identified and are within an easy walk of the downtown area. The downtown area has well maintained sidewalks, trash receptacles, visible identification signs, benches, bike racks, and well-marked public transit stops. Storefronts are redeveloped with the assistance of a business

association or local chamber of commerce. Sidewalk sales and other outdoor events are daily occurrences during the summer months.

North Londonderry Township has served, and will continue to serve, as a community of growth and development. Local officials understand that they are located in the path of major development pressures, particularly from areas to the west (e.g. Hershey and Harrisburg). They believe that their landscape is suited for such growth better than many of those that surround it and by accommodating such growth it helps to relieve development pressures from nearby communities, including its partners in this Plan, Palmyra Borough and South Londonderry Township.

North Londonderry Township intends to focus its more urban developments in southern areas surrounding Palmyra Borough and adjoining South Londonderry Township. Areas further north along and beyond the “Gravel Hill” ridge overlooking Palmyra Borough will be strictly protected for more rural land uses with larger lot sizes. While the extension of public water may be necessary in these rural areas, they will still be protected in a rural condition.

North Londonderry Township will also provide for some of the Region’s largest commercial and industrial land uses. These uses provide for goods and services that require large showrooms and are too large or intensive for other more urban and/or sensitive areas of the Region. Important employment will also occur here and mineral resources will be extracted and processed for use as part of the Region’s community growth and development. These large and intensive land uses will be subject to strict land use controls to minimize adverse environmental and community impact.

South Londonderry Township shares some vision of growth and development in its northernmost reaches in and around the Village of Campbelltown and extending towards Palmyra Borough and North Londonderry Township. Here the Township intends to offer a full range of public utilities and services to accommodate staged community development. They too acknowledge their role in accommodating the new residents who desire to locate here. In the Village of Campbelltown, continued vitalization of the local retail conveniences and services in a pedestrian-friendly streetscape with adaptive reuse of historic buildings is the priority.

However, South Londonderry Township Officials will strengthen their planning policies and programs to offer greater preservation of their larger and more sensitive agricultural, rural and conservation landscapes south of the ridge that overlooks Campbelltown. This rural landscape has a pure and unspoiled quality that reminds residents of times-gone-by for much of the rest of Central Pennsylvania. Small crossroad Villages of Colebrook, Lawn, Mount Gretna and Mount Wilson feature old-fashioned character with a few local businesses rather than national franchises.

Finally, with recent events affecting the price of fuel and food, local officials believe that greater opportunities and profits will surround agriculture and support its long-term viability to contribute to the community. South Londonderry Township intends to support such preservation by a wide variety of techniques and programs. While some rural residences will also be accommodated, local officials intend to promote the use of rural cluster developments that minimize impact on the environment and feature permanently preserved open spaces.

Although many of the current residents rely upon employment outside of this locale, officials from both Townships hope to strengthen their local economy, tax base and employment opportunities by developing an economic development park. They commit to reinforce an overall community development strategy in which those who choose to live here can also work, play and shop close by. This will require a shift in policies across the landscape by promoting large-scale industrial and commercial uses, small scale local conveniences in developed areas and rural Villages, and even on-site home, rural and farm occupations.

As can be understood from the preceding vision statements for each municipality, many commonalities exist across the Region. However, some specific differences must be integrated within this Comprehensive Plan if it is to optimally guide each municipality’s allocation of resources towards its desired future. The following tables provide for specific and detailed community planning goals that acknowledge these differences and chart a course of action for the balance of this Plan.

B. Community Planning Goals

The following goals were derived from discussions with local officials and citizens of the Region, plus the review of completed surveys by local officials. These specific goals will guide the rest of this effort by allocating the Region's resources towards expressed needs. The goals are presented by functional category and each municipality.

Goal	Palmyra Borough	N. Londonderry	S. Londonderry
Environmental Goals			
1. Protect the watersheds and groundwater throughout the Region.	X	X	X
2. Preserve prime farmlands and productive farms amid historic settings.			X
3. Strengthen agricultural preservation techniques and devise means of financially assisting active farmers.			X
4. Develop strategies to protect important natural features (eg. woodlands, floodplains, wetlands, PA Gamelands, linear parks and camps.)	X	X	X
5. Protect important historical, architectural, and cultural features from development or redevelopment. Adaptive reuse of such buildings should be required without jeopardizing its historic or architectural value.	X	X	X
6. Integrate the protection of important natural features in rural areas and amid new developments.		X	X
7. Promote greenways along important streams as a means of protecting local surface water quality and providing wildlife habitats and migration.		X	X
8. Inventory and acknowledge properties that have sold or donated conservation/agricultural easements that prevent their future development and Agricultural Security Areas.			X
9. Replace the consumptive 2-acre zoning in rural areas with a scheme that offers rural protection and less environmental disturbance.			X
10. Encourage the use and protection of native plant species.	X	X	X
11. Protect wildlife and their habitats and avoid habitat fragmentation.	X	X	X
12. Promote green building and energy efficient designs	X	X	X
13. Promote the use and generation of alternative energy sources.	X	X	X
Community Development Goals			
14. Promote and maintain Downtown Palmyra as the focal node of the Region.	X	X	X
15. Coordinate public and private development strategies to encourage the development of public improvements and amenities in the Downtown.	X		
16. Stimulate public interest in redeveloping the Downtown Area by conducting outreach meetings with the businesses and residents of the Borough. Increase regular events and celebrations in the Downtown Area.	X		
17. Identify a centralized parking facility inter-connected with the Downtown Area via sidewalks that are well maintained and lighted. Improve parking resources behind existing buildings through a cooperative joint development partnership.	X		

Goal	Palmyra Borough	N. Londonderry	S. Londonderry
18. Encourage the establishment of entertainment, dining, and specialty retail shops that will encourage residents to patronize the Downtown beyond the normal daytime business hours. Encourage a mix of uses throughout Downtown Area that can thrive off each other and not compete with the larger strip centers located along U.S. 422.	X	X	
19. Establish a unified design theme throughout the downtown area. Install banners on utility poles identifying Main Street and the Downtown Area. Develop a building facade improvement program.	X		
20. Include features that invite downtown pedestrian use through the street-level design of structures, sidewalks, and streets. Install traffic calming and pedestrian-friendly improvements to eliminate traffic and pedestrian conflicts in the Downtown.	X		
21. Provide easy access to the Downtown Area from all parts of the Borough. Specially marked way-finding signs should be installed throughout the Borough directing residents to the Downtown Area. Develop maps of the Downtown Area for self-guiding tours.	X		
22. Encourage the preservation and enhancement of existing housing and development of new housing in and adjacent to the Downtown Area.	X		
23. Encourage infill and redevelopment of older areas as a way to bring neighborhood pride back in a form that respects the human scale and small-town character	X		
24. Support the Garden Club in its initiative to develop the square as a public gathering place.	X		
25. Compile facts, statistics, and records of the Downtown Area and the Village of Campbelltown for use by businesses wishing to initiate improvements and apply for loans and grants.	X		X
26. Install large easy-to-read signs welcoming people into the Borough.	X		
27. Tap into the tourism market associated with adjoining Derry Township.	X	X	X
28. Promote continuous vitalization of Campbelltown and the streetscapes closest to Palmyra Borough through adaptive reuse of historic and underutilized buildings and promote residential use of upper-level stories.	X	X	X
29. Devise strategies to promote historic preservation and coordinate with the Lebanon County Historical Society and the Lebanon Valley Conservancy.	X	X	X
30. Allocate and coordinate land uses on a regional basis.	X	X	X
31. Bring the comprehensive plan and other land use controls into general conformity in accordance with State law.	X	X	X
32. Coordinate planned growth areas with planned public utility service areas.	X	X	X
33. Coordinate proposed growth areas with projected population so as to properly size growth areas and relieve development pressures in outlying rural areas.	X	X	X
34. Provide for potential "additional" residential development that relieves development pressures on nearby communities that possess more valuable natural features and productive farmlands.	X	X	
35. Provide for a variety of housing types to serve all age groups and those of varying economic wealth on a regional basis.	X	X	X
36. Provide for conversion apartments only when adequate off-street parking is provided.	X		X
37. Provide for alternative forms of residential development designs as an option to suburban style neighborhoods.		X	X
38. Provide for large-lot residential development within the rural northern half of the Township,		X	
39. Locate and configure local commercial nodes at logical locations to promote local business ownership and operation, offer locally-based employment and generate local tax revenues.			X

Goal	Palmyra Borough	N. Londonderry	S. Londonderry
40. Acknowledge the impact of ongoing road improvements (e.g. east-west connector, and Lingle Ave extension) with related business relocations (Redner's Market.) and potential future growth.	X	X	X
41. Promote the creation of new businesses that add value to locally produced products and services (eg. processing and sale of local farm goods, tourism and etc.)	X	X	X
42. Support the rural character and lifestyle throughout much of the Region.		X	X
43. Seek to improve the appearance and function of older strip commercial developments.	X	X	X
44. Rely upon larger commercial centers in nearby areas (Lebanon, Lancaster, Hershey and Harrisburg) for regional commercial goods and services.	X	X	X
45. Encourage rural accessory businesses that can provide for local employment and contribute to an expanded tax base yet remain compatible within a rural setting.			X
46. Provide for large-scale commercial uses along the US Route 422 corridor.		X	
47. Provide for large-scale commercial uses along the Forge and Palmyra Road corridors that are separated from Campbelltown.			X
48. Provide for a high-quality campus office/employment park between both Townships that promotes multi-story design but complies with applicable airport safety zone requirements.		X	X
49. Acknowledge the presence of existing large-scale quarry operations and provide for their continued operation and already approved expansion in a manner that minimizes land use conflict and environmental impact.		X	
50. Support the Palmyra Area Business Association to encourage and assist with improvements to the Downtown Area and the Village of Campbelltown and commercial enterprise in general.	X	X	X
51. Encourage the use of street trees where possible to help improve the human environment.	X		X
Planning Program Goals			
52. Update planning policies to reflect current needs and conditions.	X	X	X
53. Provide specific planning recommendations to guide zoning policies.	X	X	X
54. Develop adequate landscaping, buffering and screening requirements to minimize development impact on adjoining properties.	X	X	X
55. Evaluate existing land use conditions and identify needed regulatory changes to improve existing and future development patterns.	X	X	X
56. Devise a technically competent and legally defensible strategy to accommodate a regional fair-share of growth.	X	X	X
57. Structure the Plan and its policies to enable a regional allocation of various land uses through the future development of one regional or individual zoning ordinance(s).	X	X	X
58. Devise a pro-active land use policy that eliminates the need for incremental rezoning and development reviews that lack coordination and overall vision.	X	X	X
59. Provide for a firm, yet cooperative, approach to development reviews that enable local officials to negotiate with prospective developers for needed public improvements.	X	X	X
60. Play an active role in promoting high-quality building and site design.	X	X	X
61. Engage a proactive plan development process that invites public participation and awareness.	X	X	X
62. Prepare this comprehensive plan in an unbiased manner that reflects direction from local officials and avoids undue influence from special interest groups.	X	X	X

Goal	Palmyra Borough	N. Londonderry	S. Londonderry
63. Develop an ongoing and regularly scheduled process of dialog between the municipalities to assist each other and meet future challenges together.	X	X	X
64. Coordinate this Plan with the Lebanon County Comprehensive Plan to ensure consistency between the local planning program and the County's planning program.	X	X	X
65. Encourage State coordination of plans, programs, and activities.	X	X	X
66. Continue to rely upon the Lebanon County Planning Department (LCPD) for ongoing planning administration support.	X	X	
67. Consider developing a community development office for enforcement of zoning administration/enforcement and codes violations.	X		
68. Promote the use of a sketch planning process before the Planning Commission to identify issues of critical importance before costly engineering services are rendered to assist in the development review process.			X
69. Require environmental review during the land development process.			X
70. Develop a Geographic Information System (GIS) to help with record-keeping.	X	X	X
Public Facilities & Services Goals			
71. Support and promote citizen input and involvement with the Region.	X	X	X
72. Continue to pursue opportunities for regional police force consolidation.	X	X	X
73. Continue to participate in the Palmyra Area Recreation and Parks Commission (PARPC) in the provision of a diverse system of recreation opportunities in response to current recreation preferences and priorities.	X	X	X
74. Supplement the School District's past offering of local park and recreation facilities and programs.	X	X	X
75. Improve and build upon the existing parks and recreational facilities within the Region, while aggressively pursuing future recreational sites in areas poorly served by parks in the region served by the PARPC (perform in partnership with PARPC and the school district).	X	X	X
76. Promote linear parks for hiking, biking and other similar activities.	X	X	X
77. Pursue grant money to assist in development of recreation programs and a community center and to offset costs associated with capital improvement projects with PARPC	X	X	X
78. Develop one large-scale community park at which multiple athletic fields can support tournaments.	X	X	X
79. Continue to investigate the possibility of a Community Center to serve all age groups. The Community Center Feasibility Study should be considered in the decision making process.	X	X	X
80. Continue to rely upon privately offered private recreation facilities (Palmyra pool, ice skating rink, Paramount Sport fitness center, In the Net, church fields, etc.) and avoid duplication of facilities currently offered by the private sector.	X	X	X
81. Promote the use of scattered site community based schools.			X
82. Coordinate local planning policies with the need to support local volunteer emergency services.	X	X	X
83. Pursue expansion by the Library Board of Trustees of the Palmyra Library to eliminate overcrowding.	X		
84. Continue support for a regional library system and explore sharing of library resources with the School District.	X	X	X
85. Seek to formally link the Region's overall planning review processes with that of the public School District.	X	X	X

Goal	Palmyra Borough	N. Londonderry	S. Londonderry
86. Work with the school district to ensure safe pick-up and drop-off points for school age children throughout the Region.	X	X	X
87. Support, through committees and private organizations, community-wide social events, such as parades, festivals, and neighborhood-level activities.	X	X	X
88. Continue implementing "outreach" services that include citizens, businesses, surrounding municipalities, and regional partners.	X	X	X
89. Promote the shared use of services or equipment by investigating regional approaches with adjacent municipalities.	X	X	X
90. Provide community services in a manner that makes the most efficient use of tax revenues.	X	X	X
Public Utilities Goals			
91. Determine the practical limitations of the Township's sewer system and devise a growth management strategy that maximizes use of residual capacity yet relies upon developer-provided extensions/upgrades as may be needed to accommodate projected growth.			X
92. Consider regional strategies to provide public sewer service.	X	X	X
93. Coordinate planned urban growth areas within compact planned public sewer and water service areas.		X	X
94. Accommodate the use of new innovative low-maintenance community wastewater systems to serve new rural cluster neighborhoods planned amid the rural landscape.			X
95. Coordinate zoning policies with the availability public utilities.	X	X	X
96. Promote the long-term viability of on-lot sewage disposal systems.		X	X
97. Encourage the continued upgrade of private services, such as, telephone, cable, and potable water services.	X	X	X
Transportation Goals			
98. Identify needed road improvements to alleviate dangerous road conditions and plot these on a map so that if and when developments are proposed in that locale, local officials can work with developers in gaining such improvements.	X	X	X
99. Support the plans to extend the Reigle Airport runway to accommodate general aviation.	X	X	X
100. Successfully transition from participation under the Harrisburg Area Transportation System (HATS) to the Lebanon County Metropolitan Planning Organization (LEBCO MPO).	X	X	X
101. Submit necessary highway improvement projects to the Pennsylvania Department of Transportation for consideration in the State's 12-year program.	X	X	X
102. Identify potential consequences of the ongoing east-west connector project with its related intersection improvements at South Forge Road and US Route 322 and Palmyra Road and US Routes 322 and 422 to target related needed improvements (e.g. Lingle Avenue) for left-over funds.	X	X	X
103. Assess current road conditions and compare with adopted design standards.	X	X	X
104. Promote transportation alternatives to the use of the private, single-occupancy vehicles.	X	X	X
105. Explore public/private transit opportunities, such as park-and-ride lots, car-pooling programs, busing, and elderly transit, in partnership with the County and adjoining municipalities.	X	X	X
106. Install traffic calming measures along Cherry Street to help control speed and desirability to use Cherry Street as a by-pass of SR 422.	X		

Goal	Palmyra Borough	N. Londonderry	S. Londonderry
107. Promote pedestrian travel with interconnected neighborhoods and streets.	X	X	X
108. Encourage pedestrian mobility by installing sidewalks where not presently located, and maintain existing sidewalks in a passable condition within Palmyra Borough and the Village of Campbelltown.	X		X
109. Develop a walking tour of sacred places, historic buildings, man-made features, and parks.	X	X	X
110. Identify convenient parking alternatives within the downtown area within Palmyra Borough and the Village of Campbelltown.	X		X
111. Clearly identify sidewalk crossings with roadway markings.	X	X	X
112. Monitor the long range plans concerning major road corridors and public transit that may affect the Region.	X	X	X
113. Coordinate future land uses with roads that have sufficient capacity to handle the additional traffic.	X	X	X
114. Investigate identifying a truck route through the Borough to eliminate truck traffic on back streets.	X		
115. Study signalized intersections in detail to ensure that all protected turning lanes have been installed.	X		
116. Synchronize signalization along SR 422 to ensure free flow of traffic through the Borough and North Londonderry Township.	X	X	
117. Develop a comprehensive road maintenance program based on problem areas identified in this plan.	X	X	X
118. Include minor road improvements, such as painting centerlines and edge lines and posting speed limit signs, in the Borough's road maintenance program.	X		
119. Investigate addressing any areas adversely affected by stormwater drainage from a normal storm event.	X		
120. Install easy-to-read street signs on traffic signal masts	X		

The Region intends to determine its future. Officials from each municipality understand the need to act decisively and commit to effective management strategies to produce healthy and vibrant neighborhoods, villages and rural communities. They hope to continually search for regional solutions and implementation strategies to more efficiently deliver costly public facilities and services. The analyses and recommendations contained in the following Chapters of this Plan have been developed in direct response to these important, optimistic and visionary community planning goals.

III. Natural & Cultural Features

This chapter will describe and map Palmyra Area Region's natural and cultural resources. This information is extremely useful in allocating future land uses within the Region, as well as in formulating policies and implementing measures that protect these natural and cultural resources.

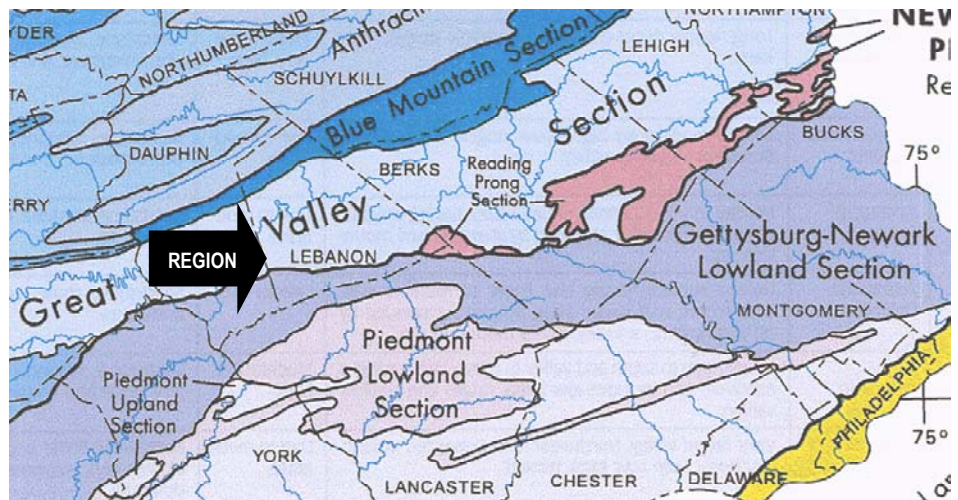


A. PHYSIOGRAPHY

Physiographic regions are areas that are broadly categorized based on terrain texture, rock type, and geologic structure and history. Like most of Lebanon County, the northern reaches of Region are located within the Ridge and Valley Province while the southern edges are located within the Piedmont Province.

A majority of the Region is within the Great Valley Section of the Ridge and Valley Province. This is a very broad lowland lying south of Blue Mountain with gently undulating hills eroded into shales and siltstones on the north side of the valley and a lower elevation flatter landscape developed on limestones and dolomites on the south side. Local elevations changes are generally less than 100 feet, particularly in areas underlain by the limestone, but may reach to 300 feet in the shale area and elevations extend up to 1,100 feet. Except for the Susquehanna and Schuylkill Rivers, most of the larger streams originate on the slopes of Blue Mountain and flow across the shales.¹

The southern half of the Region lies within the Gettysburg-Newark Lowland Section of the Piedmont Province. This section consists mainly of rolling low hills and valleys developed on red sedimentary rock. There are also isolated higher hills developed on diabase, baked sedimentary rock (hornfels), and



conglomerates. The topography has a northeast-southwest linearity and the basic drainage pattern is dendritic. Soils are usually red and are often have a visually striking contrast to the green of vegetation. Local elevation changes are usually between 100 to 200 feet, but can be as much as 600 feet on some of the isolated hills. Elevation in the Section ranges from 200 to 1,355 feet. The Section is made up of sedimentary rocks that were deposited in a long, narrow, inland basin that formed when the continents of North America and Africa separated more than 200 million years ago.²

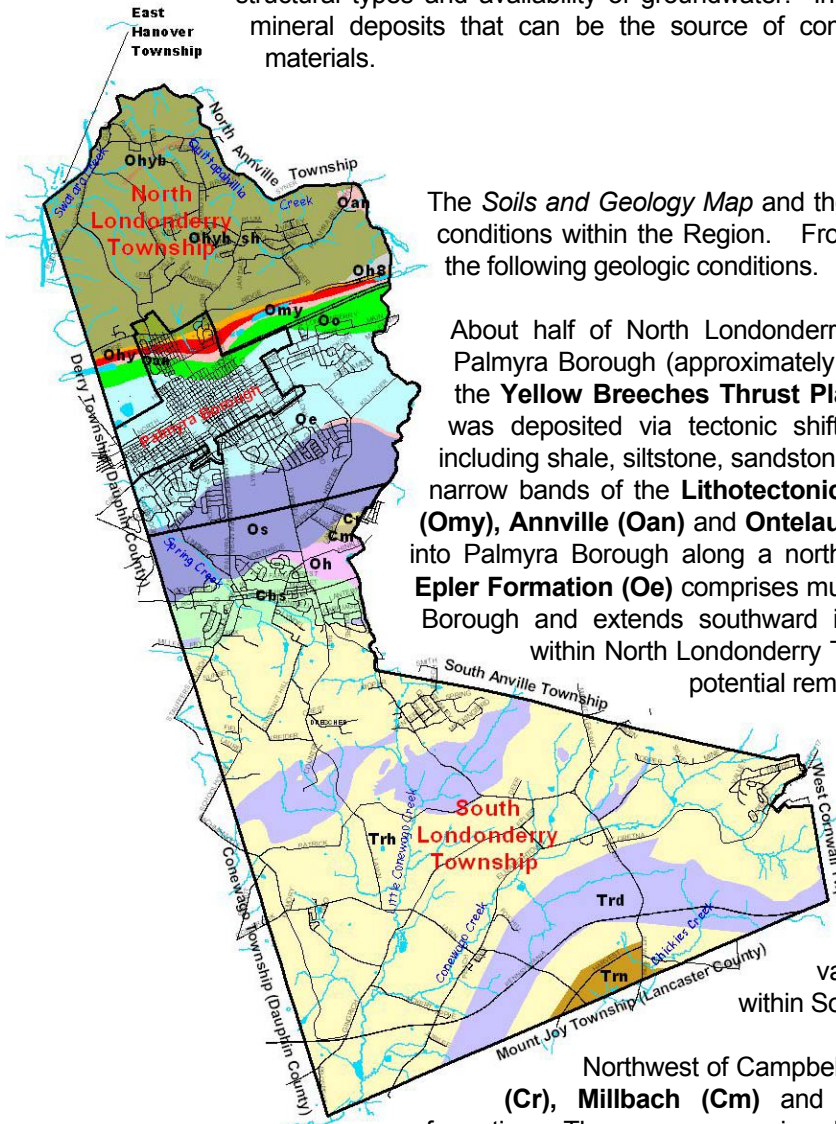
¹ <http://www.dcnr.state.pa.us/topogeo/map13/13gvs.aspx> - Aug. 13, 2008.

² <http://www.dcnr.state.pa.us/topogeo/map13/13gnls.aspx> - Aug. 13, 2008

B. GEOLOGY

The geology of an area plays an important role in determining the surfacial shape of the environment. Throughout the ages, underlying rock is subjected to natural weathering forces that chemically and physically erode its original shape. The physical properties of underlying rock determine its strength and suitability to support development, including the ease of excavation, and ability to support the foundations of various structural types and availability of groundwater. In addition, the geology offers valuable mineral deposits that can be the source of commercial enterprise and construction materials.

GEOLOGIC FORMATIONS



The *Soils and Geology Map* and the adjoining map illustrate the geologic conditions within the Region. From north to south, the Region exhibits the following geologic conditions.

About half of North Londonderry Township and the northern tip of Palmyra Borough (approximately north of Ridge Road) is underlain by the **Yellow Breeches Thrust Plate (Ohyb)** formation. This formation was deposited via tectonic shifting and has a variety of materials including shale, siltstone, sandstone and limestone. To the south several narrow bands of the **Lithotectonic (Oh8)**, **Hershey (Ohy)**, **Myerstown (Omy)**, **Annville (Oan)** and **Ontelaunee (Oo)** formations slope downward into Palmyra Borough along a northeasterly to southwesterly axis. The **Epler Formation (Oe)** comprises much of the area in and around Palmyra Borough and extends southward into the suburban residential growth within North Londonderry Township. Considerable development potential remains within this area.

The **Stonehenge Formation (Os)** straddles the North and South Londonderry Township boundaries between Palmyra Borough and Campbelltown. This area has experienced some suburban development and considerable vacant acreage remains, particularly within South Londonderry Township.

Northwest of Campbelltown is a small node of the **Richland (Cr)**, **Millbach (Cm)** and **Hamburg Sequence Rocks (Oh)** formations. These areas remain relatively undeveloped. Campbelltown south to the adjoining ridge is underlain by the **Buffalo Springs (Cbs)** formation. Then much of South Londonderry Township is atop the **Hammer Creek (Trh)** formation. Several large **Diabase (Trd)** sheets are located at prominent high spots and ridges in the terrain. A small node of the **New Oxford (Trn)** formation straddles South Londonderry Township's southern boundary with Lancaster County.

The following describes each formation along with its engineering characteristics as reported in *Engineering Characteristics of the Rocks of Pennsylvania* (Harrisburg, PA: Pennsylvania Geologic Survey, 1982) Alan R. Geyer and J. Peter Wilshusen.

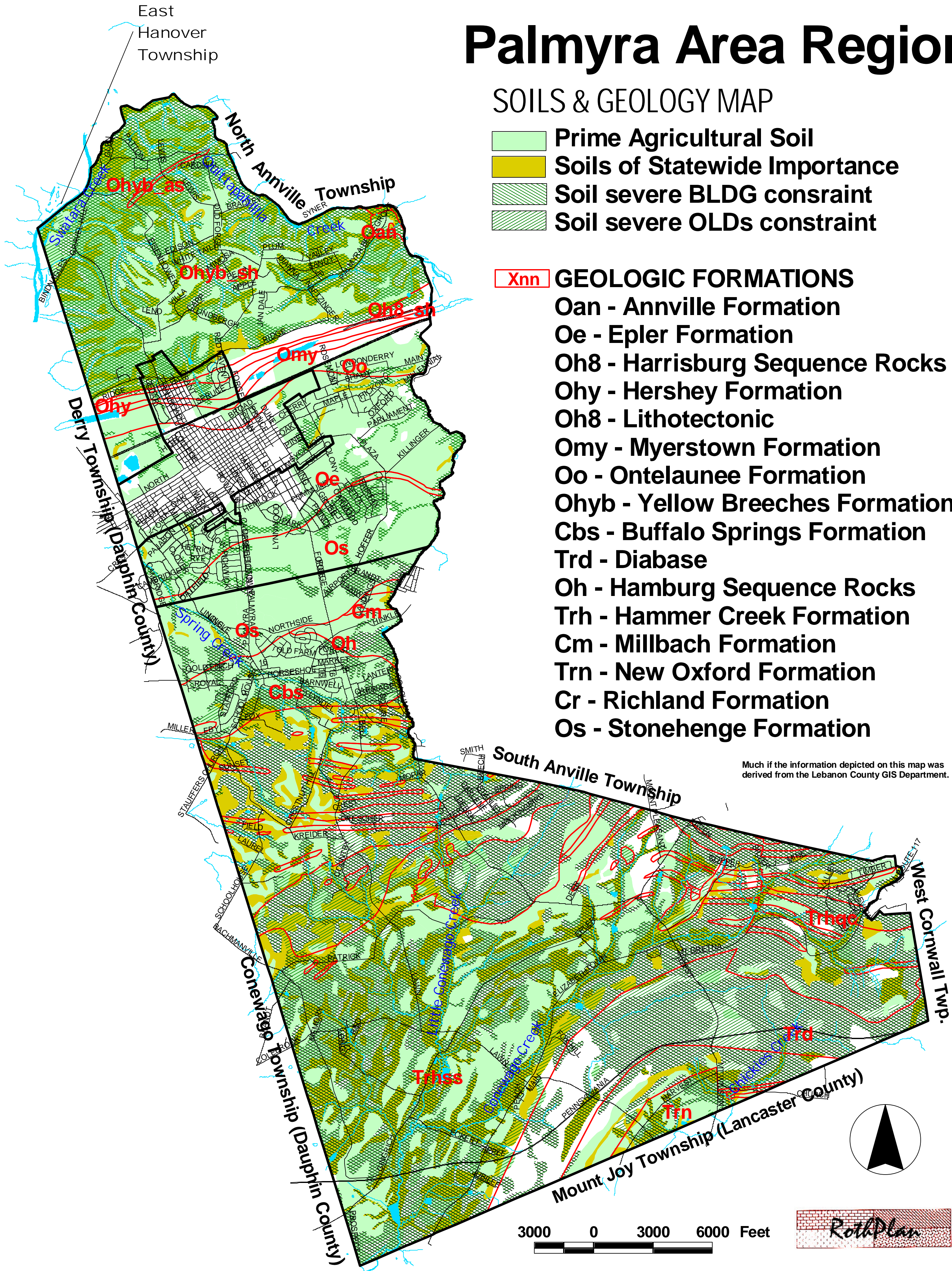
Palmyra Area Region

SOILS & GEOLOGY MAP

- Prime Agricultural Soil
- Soils of Statewide Importance
- Soil severe BLDG consraint
- Soil severe OLDs constraint

- Xnn** GEOLOGIC FORMATIONS
- Oan - Annville Formation
 - Oe - Epler Formation
 - Oh8 - Harrisburg Sequence Rocks
 - Ohy - Hershey Formation
 - Oh8 - Lithotectonic
 - Omy - Myerstown Formation
 - Oo - Ontelaunee Formation
 - Ohyb - Yellow Breeches Formation
 - Cbs - Buffalo Springs Formation
 - Trd - Diabase
 - Oh - Hamburg Sequence Rocks
 - Trh - Hammer Creek Formation
 - Cm - Millbach Formation
 - Trn - New Oxford Formation
 - Cr - Richland Formation
 - Os - Stonehenge Formation

Much if the information depicted on this map was derived from the Lebanon County GIS Department.



ENGINEERING CHARACTERISTICS OF GEOLOGIC FORMATIONS <i>for</i> NORTH LONDONDERRY TOWNSHIP & PALMYRA BOROUGH						
Formation Name (composition)	Map Symbol	Drainage	Porosity & Permeability	Groundwater	Ease of Excavation	Foundation Stability
ANNVILLE FORMATION - Light gray, high calcium limestone; mottled at base. Maximum thickness is about 250 feet.	Oan	Good subsurface, poor surface drainage; sink holes are common.	Joint and solution-channel openings provide a secondary porosity of moderate to high magnitude. Low permeability.	Industrial and public groundwater supplies are available; wells have encountered solution openings for very high yields. Quality is excellent for most uses although water may be hard.	Difficult; bedrock pinnacles are a special problem. Moderate drilling rates.	Good; however, steeply dipping beds inclined towards the construction have only fair stability.
EPLER FORMATION – Very finely crystalline, medium gray limestone interbedded with gray dolomite; coarsely crystalline lenses are present. About 1000 feet thick.	Oe	Good subsurface, sink holes and caves are a characteristic.	Joint and solution channel openings provide for a low to moderate secondary porosity; low permeability.	Median yield is 15 gallons per minute within the Lebanon Valley.	Difficult; bedrock pinnacles are a special problem. Fast drilling rates.	Good. Should be excavated to sound bedrock and thoroughly investigated for cavernous areas.
HAMBURG SEQUENCE ROCKS – Transported rocks of Hamburg overthrust. Gray to greenish-gray and maroon shale. Silty and siliceous in many places. Dark gray impure sandstone. Medium to light gray finely crystalline limestone and shaly limestone. Total thickness is about 3000 feet.	Oh8	Good surface drainage.	Joint and bedding plane openings provides a secondary porosity of moderate magnitude; locally solution openings in limestone produce very high porosity/permeability.	Yields of 10 to 50 gal/min are obtained from most wells; limestone may yield in excess of 100 gal/min; best location for high-yielding well is upland stream valley.	Moderately easy (shale) to difficult (sandstone and limestone); fast drilling rate.	Good; should be excavated to sound material; an investigation for solution cavities should be made in areas underlain by limestone.
HERSHEY FORMATION – Dark gray to black shiny limestone; weathers medium gray to brown. Finely crystalline with angular boulders of dolomite at base. Maximum thickness 1000 feet.	Ohy	Good surface and minor subsurface drainage.	Joint and solution channel openings provide for a low secondary porosity; low permeability.	Median yield is 25 gallons per minute; low median yield shows that solution channels are not common.	Moderately easy; difficult at depth where rock is unweathered. Fast drilling rate.	Good. Should be excavated to sound material and thoroughly investigated for solution channels.
LITHOTECTONIC*	Oh8	According to the staff of the PA Geological Survey this formation has engineering characteristics of the Hamburg Sequence Rocks.				
MYERSTOWN FORMATION – Medium to dark gray medium crystalline limestone; dark gray to black carbonaceous limestone at base; coarse calcarenite beds are common. Average thickness 220 feet.	Omy	Good surface and minor subsurface drainage.	Joint and solution channel openings provide for a low secondary porosity; low to moderate permeability.	Median yield is 25 gallons per minute; wells have encountered solution openings for very high yields. Water can be hard.	Moderately easy; difficult at depth where rock is unweathered. Moderate drilling rate.	Fair, due to disintegration when exposed to moisture for a relatively short period of time.
ONTELAUNEE FORMATION – Light to dark gray, very fine to medium crystalline dolomite; interbedded nodular chert at base. Average thickness is 750 feet.	Oo	Good surface and minor subsurface drainage.	Joint and solution channel openings provide for a moderate to high secondary porosity; generally highly permeable.	Wells in excess of 200 to 500 gallons per minute are common. Industrial and public groundwater supplies are available. Water is relatively hard.	Difficult; bedrock pinnacles are a special problem. Fast drilling rates. Chert beds and lenses slow the drilling rate.	Good. Should be investigated thoroughly for solution cavities.
STONEHENGE FORMATION – Gray finely crystalline limestone and dark gray laminated limestone, contains numerous flat-pebble breccia beds and shaly interbeds. Maximum thickness 1500 feet.	Os	Good subsurface, sink holes are a characteristic.	Joint and solution channel openings provide for a low to moderate secondary porosity; high permeability.	Median yield is 100 gallons per minute with highest yields from fractures and solution channels. Water is relatively hard.	Difficult; bedrock pinnacles are a special problem. Fast drilling rates.	Mostly good; only fair where severely fractured.
YELLOW BREECHES FORMATION* -	Ohyb	According to the staff of the PA Geological Survey this formation has engineering characteristics of the Hamburg Sequence Rocks.				

ENGINEERING CHARACTERISTICS OF GEOLOGIC FORMATIONS *for* SOUTH LONDONDERRY TOWNSHIP

Formation Name (composition)	Map Symbol	Drainage	Porosity & Permeability	Groundwater	Ease of Excavation	Foundation Stability
BUFFALO SPRINGS FORMATION - Light-gray to pinkish-gray, fine to coarsely crystalline limestone and interbedded dolomite. Sand beds are found locally. Maximum thickness is about 1000 feet.	Cbs	Good subsurface, little surface drainage.	Solution channels provide a secondary porosity of moderate magnitude. Low permeability.	Median yield is 160 gallons per minute within the Lebanon Valley.	Difficult; bedrock pinnacles are a special problem. Moderate drilling rates. Locally sandstone beds slow drilling rate.	Good; however, thorough investigation for sink holes and irregular bedrock surface should be undertaken.
DIABASE - Diabase occurs as dikes and sheets. Dikes are 5 to 100 feet thick; sheets are much thicker in most places. Rock is dark gray to black, dense and very fine grained.	Trd	Fair surface drainage.	Joint openings provide for a very low secondary porosity; low permeability.	Median yield is 5 gallons per minute. Yields usually obtained from the fractured weathered zone at the top of bedrock. Water levels show strong seasonal influence.	Difficult; large boulders are a special problem; Slow drilling rate.	Good. Should be excavated to sound material.
HAMBURG SEQUENCE ROCKS – Transported rocks of Hamburg overthrust. Gray to greenish-gray and maroon shale. Silty and siliceous in many places. Dark gray impure sandstone. Medium to light gray finely crystalline limestone and shaly limestone. Total thickness is about 3000 feet.	Oh	Good surface drainage.	Joint & bedding plane openings provides a secondary porosity of moderate magnitude; locally solution openings in limestone produce very high porosity/permeability.	Yields of 10 to 50 gal/min are obtained from most wells; limestone may yield in excess of 100 gal/min; best location for high-yielding well is upland stream valley.	Moderately easy (shale) to difficult (sandstone and limestone); fast drilling rate.	Good; should be excavated to sound material; an investigation for solution cavities should be made in areas underlain by limestone.
HAMMER CREEK FORMATION – Reddish-brown coarse grained sandstone having interbeds of red shale and quart-pebble conglomerate. Measured thickness is 9360 feet.	Trh	Good surface drainage.	Low primary porosity; moderate secondary porosity from joint & bedding plane openings. Low to moderate permeability.	Median yield is 66 gallons per minute. Hardness and total dissolved solids are frequently high.	Difficult; slow drilling rate due to quart-pebble conglomerate and in areas where rock is adjacent to Diabase.	Good; should be excavated to sound material.
MILLBACH FORMATION – Pinkish & medium gray laminated limestone; interbeds of light to medium gray dolomite that weathers to yellow gray. About 1500 feet thick.	Cm	Good subsurface, little surface drainage. Numerous sink holes.	Solution channels provide a secondary porosity of moderate magnitude. Low permeability.	Yields of 200 to 500 gallons per minute are common.	Difficult; bedrock pinnacles are a special problem. Moderate drilling rates.	Good; however, thorough investigation for solution cavities should be undertaken.
NEW OXFORD FORMATION – Light colored sandstone, arkosic sandstone and conglomerate sandstone; includes red to purplish sandstone, shale and mudstone. Total thickness is about 4000 feet.	Trn	Good surface drainage.	Moderate to high porosity in weathered portion & via joint & bedding plane openings. Moderate permeability.	Median yield is 66 gallons per minute. Hardness and total dissolved solids are frequently high	Moderately easy; fast drilling rate.	Good; should be excavated to sound material. Under-drainage may be required.
RICHLAND FORMATION – Gray, finely crystalline dolomite interbedded with medium gray oolitic limestone, chert, calcarenite and conglomerate. About 1300 feet thick.	Cr	Good subsurface, little surface drainage.	Solution channels provide a secondary porosity of low to moderate magnitude. Low to moderate permeability.	Median yield is 125 gallons per minute within the Lebanon Valley.	Difficult; bedrock pinnacles are a special problem. Moderate to slow drilling rates. Numerous sandstone beds & chert lenses slow drilling rate.	Good; however, thorough investigation for solution cavities should be undertaken.
STONEHENGE FORMATION – Gray finely crystalline limestone and dark gray laminated limestone, contains numerous flat-pebble breccia beds and shaly interbeds. Maximum thickness 1500 feet.	Os	Good subsurface, sink holes are a characteristic.	Joint and solution channel openings provide for moderate to high secondary porosity; high permeability.	Median yield is 100 gallons per minute with highest yields from fractures and solution channels. Water is relatively hard.	Difficult; bedrock pinnacles are a special problem. Fast drilling rates.	Mostly good; only fair where severely fractured.

Summary - From this analysis, several important land use implications can be derived. Within the northern half North Londonderry Township, the Yellow Breeches formation has variety of materials including shale, siltstone, sandstone and limestone; therefore, conditions are unpredictable. Rural land uses can likely be accommodated and on-lot wells should usually find adequate groundwater supply. However, underground investigations for solution cavities should be undertaken in areas underlain by limestone.

On the side slopes of “Gravel Hill” and south to US Route 422, varying geologic conditions exist across short distances. Here groundwater supply is greatest particularly straddling the railroad line on the east side of Palmyra Borough and to the north of the railroad line on the west side of the Borough. Excavation in these formations can be tricky with bedrock pinnacles and varying drilling rates that are needed.

Throughout most and to the east and south of Palmyra Borough, the Epler Formation dominates areas that have been largely previously developed. This formation lacks abundant groundwater yield despite its limestone composition; fortunately the Township provides for public utilities within this area. This formation is also plagued by sink holes and bedrock pinnacles. Again underground investigations for solution cavities should be undertaken prior to urban development. For more discussion regarding the Region’s incidence of sinkholes, refer to the Stormwater Management Section contained later in this Chapter.

Straddling the North and South Londonderry Township boundaries is the Stonehenge Formation and further south is the Buffalo Springs Formation. Also to the northwest of Campbelltown are a small area underlain by the Richland, Millbach and Hamburg Sequence Rocks formations. These limestone formations tend to have abundant groundwater yields but are characterized by sink holes, solution channels and cavities and bed rock pinnacles. Again underground investigations for solution cavities should be undertaken prior to urban development.

The southern rural expanse of South Londonderry Township is largely underlain by the Hammer Creek Formation. Here harder weather resistant sandstones and conglomerates have adequate groundwater yields for rural land uses with good foundations stability. This formation

underlies the Township’s rural villages of Colebrook, Lawn and Mount Gretna.

At several nodes of higher elevation and along the southern ridge straddling the PA Turnpike are Diabase sheets. These rocks are the hardest within the Region and produce marginal groundwater yields, even for rural residences. Excavation is difficult and large boulders are common, like the noteworthy “Dinosaur Rock.”

Last the New Oxford Formation is located central along the Township’s southern border with Lancaster County. This sandstone formation has adequate groundwater supply for rural uses and good foundation stability.



The Pennsy Supply quarry is a dominate feature within the complex geologic structure located northeast of the Borough in North Londonderry Township.

GROUNDWATER SUPPLY

Geology is also a primary determinant of groundwater quality and quantity. Groundwater is surface water that has seeped into and is contained by underground geological formations called aquifers. Water stored in aquifers is sometimes released to the surface through springs or can be pumped to the surface through wells. Groundwater aquifers are part of an interconnected network that includes surface waters, such as streams, ponds, wetlands, and lakes. Aquifers regulate the levels and flow rates of these surface waters by collecting and retaining water reaching the ground and gradually releasing it during dry periods.

Some of the primary geological determinants of groundwater quality and quantity are the type, structure, permeability, porosity, and chemical composition of the bedrock formations present in the area. An understanding of local groundwater conditions is necessary to (1) plan for future public sewer and water needs, (2) allocate future land uses so as to protect important groundwater recharge areas, and (3) protect existing and potential future groundwater sources from contamination.

A typical household with three family members requires an average flow of 0.2 to 0.4 gpm with a peak rate of use ranging between 3 and 5 gpm for domestic water supply. Therefore, the Region's geologic formations generally have median yields that suggest sufficient groundwater supply to accommodate a rural land use pattern; only the Diabase sheets' yield of 5 gallons per minute are close to the described minimum necessary to support domestic water supply on a lot by lot basis and this formation is subject to seasonal fluctuation.

The Region's best sources for public and industrial groundwater supply occur within the Annville, Millbach and Ontelaunee formations with yields in excess of 200 to 500 gallons per minute.

It is noted that the South Londonderry Township "turned-over" a public water well located on the south side of Lawn Road to the PA American Water Company; however, this well has been abandoned and, according to company representatives, is not expected to ever be used as a future source for public water supply. Nonetheless, Township Officials intend to protect this former public well in the event it becomes needed in the future. In fact all of the public water supply within the Region is derived from surface water sources. Should groundwater become a source for public water in the future, the affected municipalities should consider developing wellhead protection strategies at these locations. Wellhead and springhead protection is a particularly sound investment because protection is more effective and less expensive than cleaning a contaminated groundwater source, which may cost 30-40 times more than initial protection.

Given this Plan's goals and the Region's susceptible geologic conditions, it is recommended that all home or rural occupations should require the applicant for such uses to demonstrate the means by which he/she will properly handle materials, and dispose of any wastes, that could threaten groundwater contamination. In addition it is recommended that the following "Best Management Practices" (BMPs) for the control of stormwater be applied to:

1. Minimize on-site impervious areas by preserving natural wooded cover and drainage-ways on-site.
 2. Utilize pervious surfaces, such as porous pavement and gravel as ways to minimize runoff.
 3. Minimize directly connected impervious area. Promote natural removal of pollutants using vegetation and soil.
- Direct impervious area runoff to pervious. For example:



- a. roof downspouts to lawns
- b. driveways to lawns
- c. parking areas to lawns, rain gardens or grassed swales.
- 4. Eliminate the opportunity for pollutants to mix with storm water runoff by:
 - a. street sweeping
 - b. cover chemical storage areas
 - c. dike potential spill areas
 - d. regular sediment removal from drainage system
- 5. Minimize the potential for concentrating pollutants and concentrating storm water runoff by:
 - a. utilizing grass swales, rain gardens and filter strips: and,
 - b. utilizing infiltration trenches, where applicable.



Decades ago, it was a common practice to dispose of our wastes at convenient, low points such as sinkholes and mountain gaps. Today, with better scientific information on the health effects of common chemicals, we have learned that improper waste management can have some very undesirable consequences. For example, the contents of a full 2 ½ gallon gasoline container could make the drinking water for a town of 1,000 people unfit to drink for almost two months!

Homeowners can do a number of things to protect their home water supplies:

- 1. New wells benefit from the use of casing and grout.***
- 2. Periodic water quality testing may be beneficial. Some useful tests include coliform, bacteria and nitrate-nitrogen.***
- 3. Protect water quality by being careful with chemicals and fuels near the well.***
- 4. Some of the most common problems with home water supplies come from malfunctioning septic systems. Pump your septic tank regularly, and inspect your leach bed for proper functioning.***
- 5. If you use water treatment (such as softeners or disinfection), check the treatment equipment regularly.***

Another use of groundwater relates to ground source heat pumps that have become viable alternatives to conventional heating and cooling systems for buildings and homes. These systems are energy efficient and rely upon constant temperatures of underlying ground to overcome the dramatic seasonal temperature fluctuations common within Pennsylvania. Open loop systems withdraw and release groundwater using two wells but these are becoming less common. Closed systems install a ground loop where environmentally-friendly fluid is circulated underground to add heat during the winter and release heat in the summer. If wells are used in the system, they must be installed by licensed well drillers who must submit well logs and locations to the Bureau of Topographic and Geologic Survey, PA Department of Natural Resources. Additional information can be obtained from the DEP Bureau of Watershed Management, PO Box 8555, Harrisburg, PA 17105-8555 (tele: 717-787-9633.)

C. SOILS

A soils analysis is essential to planning for future land uses, which are best located on soils that are suitable and have complementary characteristics for specific land uses. For example, agricultural land uses are usually found where soils are level, well-drained and fertile. Residential land uses are suitably located where soils are fairly level and sufficiently above bedrock and the water table. The appropriate siting of development significantly reduces the costs associated with excavating a foundation, as well as locating and designing an on-lot sewage disposal system. Finally, industrial uses favor soils that are relatively flat and sturdy so as to withstand the heavy weights associated with the operation of large plants.

The Lebanon County Soils Survey forms the basis of information about the Region's soils. Soils are named for a town or geographic feature near where they were originally mapped. The Region's soils have been analyzed for their suitability for farming and development purposes; these results are depicted on the *Soils and Geology Map*. The constant weathering of geologic formations produces various soil types. The capabilities and constraints exhibited by these soils are related to the geologic characteristics of the underlying rock and the local climatic conditions.

There are 33 families of soils found within Palmyra Area Region. Palmyra Borough contains 18, North Londonderry Township contains 35 and South Londonderry contains 54 different soils types. The northern tip of Palmyra Borough and the northern half of North Londonderry Township (north of Ridge Road) is generally underlain by the Yellow Breaches Thrust Plate which produces the Berks shaly silt loam and Bedington shaly silt loam soils. Along drainageways are the Weikert shaly silt loam soils.

Moving south of Ridge Road the limestone Ontelaunee, Epler and Stonehenge geologic formations produce a valley dominated by the Hagerstown and Duffield silt loams soils. These soils extend south into South Londonderry Township as far as Campbelltown. Scattered occurrences of Clarksburg silt loam and Holly silt loam are also located here.

The southern ridge overlooking Campbelltown is underlain by the Buffalo Springs geologic formation which creates a landscape dominated by the Ungers loams and extremely stony loams.

Areas south of the ridge are underlain by the expansive Hammer Creek geologic formation which produces a complex landscape with numerous soil types. Generally the several Diabase sheets and ridge are located at elevation high spots and characterized by Neshaminy gravelly and extremely stony silt loams, Brecknock channery silt loams and Joanna extremely stony silt loams.

The following table lists the soil types and their characteristics found within Region:

SOIL CHARACTERISTICS WITHIN PALMYRA AREA REGION

Source: Lebanon County Soil Survey

Soil Symbol	Soil Name	Acres (% of Region)	Slope %	Agricultural Rating ¹	Hydric ²	Soils Limitations S=Severely and M=Moderately Limited			Specific Limitations ³
						Dwelling with basement	Small Commercial Buildings	Conventional on-lot sewers	
1JnB	Joanna loam	425 (1.8%)	3-8	P	P		M		SL
1JnD	Joanna loam	7 (0%)	15-25		P		S	S	SL
1JpB	Joanna loam, extremely stony	38 (0.2%)	0-8		P				
1JpD	Joanna loam, extremely stony	516 (2.2%)	8-25		P		S	S	SL
AbA	Abbottstown silt loam	287 (1.2%)	0-3	S		S	S	S	W, FA, PS
AbB	Abbottstown silt loam	2085 (8.9%)	3-8	S		S	S	S	W, FA, PS
BeA	Bedington shaly silt loam	295 (1.3%)	0-3	P			M	M	FA, D
BeB	Bedington shaly silt loam	668 (2.8%)	3-8	P		M	M	M	SL, D
BeC	Bedington shaly silt loam	50 (0.2%)	8-15	S		M	S	M	SL, D
BkB	Berks shaly silt loam	781 (3.3%)	3-8	S		M	M	S	D, SL, FA
BkC	Berks shaly silt loam	1072 (4.6%)	8-15	S		M	S	S	D, SL
BkD	Berks shaly silt loam	283 (1.2%)	15-25			S	S	S	SL, D
Bm	Bowmansville silt loam	1117 (4.8%)	0	S	H	S	S	S	FL, W, PS
BnB	Brecknock channery silt loam	565 (2.4%)	3-8	P		M	M	M	D, FA
BnC	Brecknock channery silt loam	230 (0.9%)	8-15	S		M	M	M	D, SL
BrA	Brinkerton silt loam	203 (0.9%)	0-3		H	S	S	S	W, FA, PS
BrB	Brinkerton silt loam	131 (0.6%)	3-8		H	S	S	S	W, FA, PS
BxC	Buchanan extremely stony loam	18 (0%)	8-25		P	S	S	S	SL, W, LG
ByB	Bucks silt loam	1482 (6.3%)	3-8	P			M	M	SL, FA, D
CkA	Clarksburg silt loam	204 (0.9%)	0-3	P	P	S	M	S	W, FA, PS
CkB	Clarksburg silt loam	234 (1.0%)	3-8	P	P	S	M	S	W, FA, PS
CmA	Comly silt loam	33 (0.1%)	0-3	P		S	S	S	W, PS

¹ **Agricultural ratings** – P=Prime farmland (Class 1 & 2) / S=Farmland of Statewide Importance (Class 3)

² **Hydric ratings** – H=All hydric components / P=Partially hydric components (*These soils are depicted on the Natural Features Map*)

³ **Specific Limitations** - D=Depth of soil / FL=Flooding / FA=Frost action / PS=Percolates slowly / SL=Slope / LG=Large Stones / LS= Low strength / SS=Shrink swell / W=Wetness

SOIL CHARACTERISTICS WITHIN PALMYRA AREA REGION Source: Lebanon County Soil Survey

Soil Symbol	Soil Name	Acres (% of Region)	Slope %	Agricultural Rating ¹	Hydric ²	Soils Limitations S=Severely and M=Moderately Limited			Specific Limitations ³
						Dwelling with basement	Small Commercial Buildings	Conventional on-lot sewers	
CmB	Comly silt loam	44 (0.2%)	3-8	P		S	S	S	W, PS
DfA	Duffield silt loam	285 (1.2%)	0-3	P		M	M	M	SS, FA, D
DfB	Duffield silt loam	817 (3.5%)	3-8	P		M	M	M	SS, FA, D
DfC	Duffield silt loam	5 (0%)	8-15	S		M	S	M	SL, SS, D
HaA	Hagerstown silt loam	278 (1.2%)	0-3	P		M	M	M	D, LS, FA
HaB	Hagerstown silt loam	2050 (8.7%)	3-8	P		M	M	M	D, LS, FA
HbC	Hagerstown silty clay loam	62 (0.3%)	8-15	S		M	S	M	SL, D, LS
HeB	Hagerstown-Rock outcrop complex	57 (0.3%)	3-8			M	M	M	D, LS, SS, SL, FA
HeC	Hagerstown-Rock outcrop complex	100 (0.4%)	8-25			S	S	S	SL
Ho	Holly silt loam	245 (1.0%)	0	S	H	S	S	S	FL, W, FA
KnB	Klinesville shaly silt loam	42 (0.2%)	3-8	S	P	M	M	S	SL, D, FA
KnC	Klinesville shaly silt loam	57 (0.2%)	8-15		P	M	S	S	SL, D
KnD	Klinesville shaly silt loam	58 (0.2%)	15-25			S	S	S	SL, D
LeB	Leck kill shaly silt loam	1.2 (0%)	3-8	P			M	M	FA, D
LhB	Lehigh silt loam	413 (1.8%)	2-10	S		S	S	S	W, FA, PS
Ls	Lindside silt loam	107 (0.5%)	0	P	P	S	S	S	FL, W, FA, PS
MaA	Markes silt loam	5.8 (0%)	0-5		H	S	S	S	W, FA, PS, D
Me	Melvin variant silt loam	26 (0.1%)	0	S	H	S	S	S	FL, W, FA
MoB	Mount Lucas silt loam	94 (0.4%)	3-8	P		S	S	S	WA, FA, PS
MsB	Mount Lucas extremely stony silt loam	276 (1.2%)	3-8		P	S	S	S	W, LS, FA, PS
MuB	Murrill gravelly silt loam	21 (0.1%)	3-8	P			M		FA, SL
NeB	Neshaminy gravelly silt loam	236 (1.0%)	3-8	P		M	M	S	D, FA, LS, PS
NeC	Neshaminy gravelly silt loam	348 (1.5%)	8-15	S		M	S	S	D, SL, PS

¹ **Agricultural ratings** – P=Prime farmland (Class 1 & 2) / S=Farmland of Statewide Importance (Class 3)

² **Hydric ratings** – H=All hydric components / P=Partially hydric components (**These soils are depicted on the Natural Features Map**)

³ **Specific Limitations** - D=Depth of soil / FL=Flooding / FA=Frost action / PS=Percolates slowly / SL=Slope / LG=Large Stones / LS= Low strength / SS=Shrink swell/W=Wetness Page 22

SOIL CHARACTERISTICS WITHIN PALMYRA AREA REGION Source: Lebanon County Soil Survey

Soil Symbol	Soil Name	Acres (% of Region)	Slope %	Agricultural Rating ¹	Hydric ²	Soils Limitations S=Severely and M=Moderately Limited			Specific Limitations ³
						Dwelling with basement	Small Commercial Buildings	Conventional on-lot sewers	
NhB	Neshaminy extremely stony silt loam	319 (1.4%)	3-8			S	S	S	LS, PS
NhC	Neshaminy extremely stony silt loam	1106 (4.7%)	8-15			S	S	S	SL, LS, PS
NHE	Neshaminy extremely stony silt loam	35 (0.1%)	steep			S	S	S	SL, LS, PS
No	Nolin variant silt loam	247 (1.1%)	0	P	P	S	S	S	FL, FA
PeB	Penn shaly silt loam	535 (2.3%)	3-8	P	P	M	M	S	D, SL, FA
PeC	Penn shaly silt loam	505 (2.2%)	8-15	S	P	M	M	S	D, SL
Ph	Philo silt loam	16 (0%)	0	P	P	S	S	S	FL, W
Po	Pope loam	1.5 (0%)	0	P	P	S	S	S	FL
Qu	Quarries	418 (1.8%)	NA						
ReB	Readington silt loam	688 (2.9%)	3-8	S	P	S	M	S	W, SL, FA, PS
Ro	Rowland silt loam	222 (0.9%)	0	P	P	S	S	S	W, FL, FA
ThA	Thorndale silt loam	22 (0.1%)	0-3		H	S	S	S	W, FA, PS
UnB	Ungers loam	179 (0.8%)	3-8	P			M	M	SL, FA, D
UnC	Ungers loam	662 (2.8%)	8-15	S		M	S	M	SL, D
UnD	Ungers loam	179 (0.8%)	15-25			S	S	S	SL
UoB	Ungers extremely stony loam	266 (1.1%)	3-8			S	S	S	LS
UoC	Ungers extremely stony loam	1379 (5.9%)	8-25			S	S	S	SL, LS
UPE	Ungers and Calvin soils	99 (0.4%)	steep			S	S	S	SL, LSD
UR	Urban land-Berks complex	2 (0%)	NA					S	D
US	Urban land-Hagerstown complex	796 (3.4%)	NA					M	SL, D
W	Water	65 (0.3%)	NA						
WaA	Watchung silt loam	307 (1.3%)	0-5		H	S	S	S	W, FA, PS
WbB	Watchung extremely stony silt loam	449 (1.9%)	0-8		H	S	S	S	W, FA, PS

¹ **Agricultural ratings** – P=Prime farmland (Class 1 & 2) / S=Farmland of Statewide Importance (Class 3)

² **Hydric ratings** – H=All hydric components / P=Partially hydric components (***These soils are depicted on the Natural Features Map***)

³ **Specific Limitations** - D=Depth of soil / FL=Flooding / FA=Frost action / PS=Percolates slowly / SL=Slope / LG=Large Stones / LS= Low strength / SS=Shrink swell / W=Wetness Page 23

SOIL CHARACTERISTICS WITHIN PALMYRA AREA REGION Source: <http://websoilsurvey.nrcs.usda.gov>

Soil Symbol	Soil Name	Acres (% of Regoin)	Slope %	Agricultural Rating ¹	Hydric ²	Soils Limitations S=Severely and M=Moderately Limited			Specific Limitations ³
						Dwelling with basement	Small Commercial Buildings	Conventional on-lot sewers	
WeB	Weikert shaly silt loam	7 (0%)	3-8	S		M	M	S	D, SL, FA
WeC	Weikert shaly silt loam	23 (0.1%)	8-15			M	S	S	D, SL
WeD	Weikert shaly silt loam	65 (0.3%)	15-25			S	S	S	SL, D
WeE	Weikert shaly silt loam	427 (1.8%)	25-50			S	S	S	SL, D

¹ **Agricultural ratings** – P=Prime farmland (Class 1 & 2) / S=Farmland of Statewide Importance (Class 3)

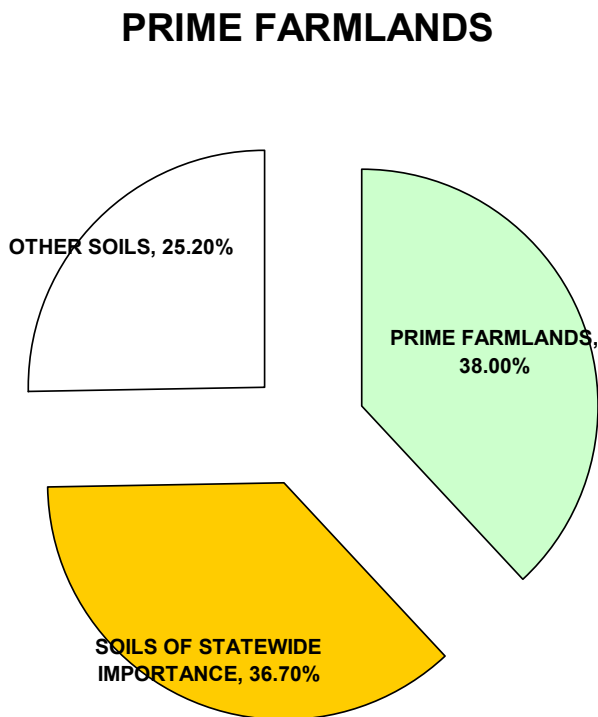
² **Hydric ratings** – H=All hydric components / P=Partially hydric components (*These soils are depicted on the Natural Features Map*)

³ **Specific Limitations** – D=Depth of soil / FL=Flooding / FA=Frost action / PS=Percolates slowly / SL=Slope / LG=Large Stones / LS= Low strength / SS=Shrink swell/W=Wetness Page 24



PRIME FARMLANDS

Section 604.3. of the Pennsylvania Municipalities Planning Code (MPC) requires municipalities to develop zoning ordinances that “preserve prime agriculture and farmland considering topography, soil type and classification and present use.”³ The United States Department of Agriculture (USDA) rates all soil suitability for agricultural purposes and assigns a numerical rating from Class I to Class VII. **Prime farmland** soils are those soils with an agricultural rating of Class I or II. In addition, the USDA considers Class III soils to be of **Statewide importance** to agriculture. The MPC recognizes Class I-III soils as prime farmlands. The USDA describes prime agricultural land as “the land that is best suited for producing food, feed, forage, fiber and oilseed crops.” It possesses the soil quality, growing season and water supply needed to economically produce a sustained high yield of crops when it is treated and managed using acceptable farming methods. Prime farmlands are rich in chemical nutrients, have good permeability to air and water with few rocks, are well-drained but resistant to erosion, and have relatively flat topography. Prime farmlands produce the highest yields with minimal inputs of energy and economic resources, and farming them results in the least damage to the environment. The USDA encourages all levels of government and private individuals to effectively use these valuable resources to meet the nation's food and fiber needs.



Surprisingly, a vast majority of the Region's landscape is comprised of important and fertile farm soils. Only the developed neighborhoods within Palmyra Borough and the Diabase ridge in South Londonderry Township and the quarry are generally devoid of productive soils. In all about 17,546 acres are comprised of Class 1, 2 and 3 agricultural soils representing 74.7 percent of the Region's total land area. The best farmland concentrations occur in the Region's two valleys. First the valley between Palmyra Borough and Campbelltown contains expansive fields of Hagerstown silt loam and Duffield silt loam soils with scattered occurrences of Clarksburg silt loam and Holly silt loam. However, many of these soils have already been developed and/or are planned for growth.

Second the valley extending in a northeast to southwest direction from Mount Wilson to Lawn also contains broad expanses of prime farmlands. Here the Abbottstown silt loam, Brecknock channery silt loam, Bucks silt loam, and Penn shaly silt loam soils abound with Bowmansville silt loams along the streambanks. These areas retain a rural character and are optimally suited for long term agricultural production for the foreseeable future.

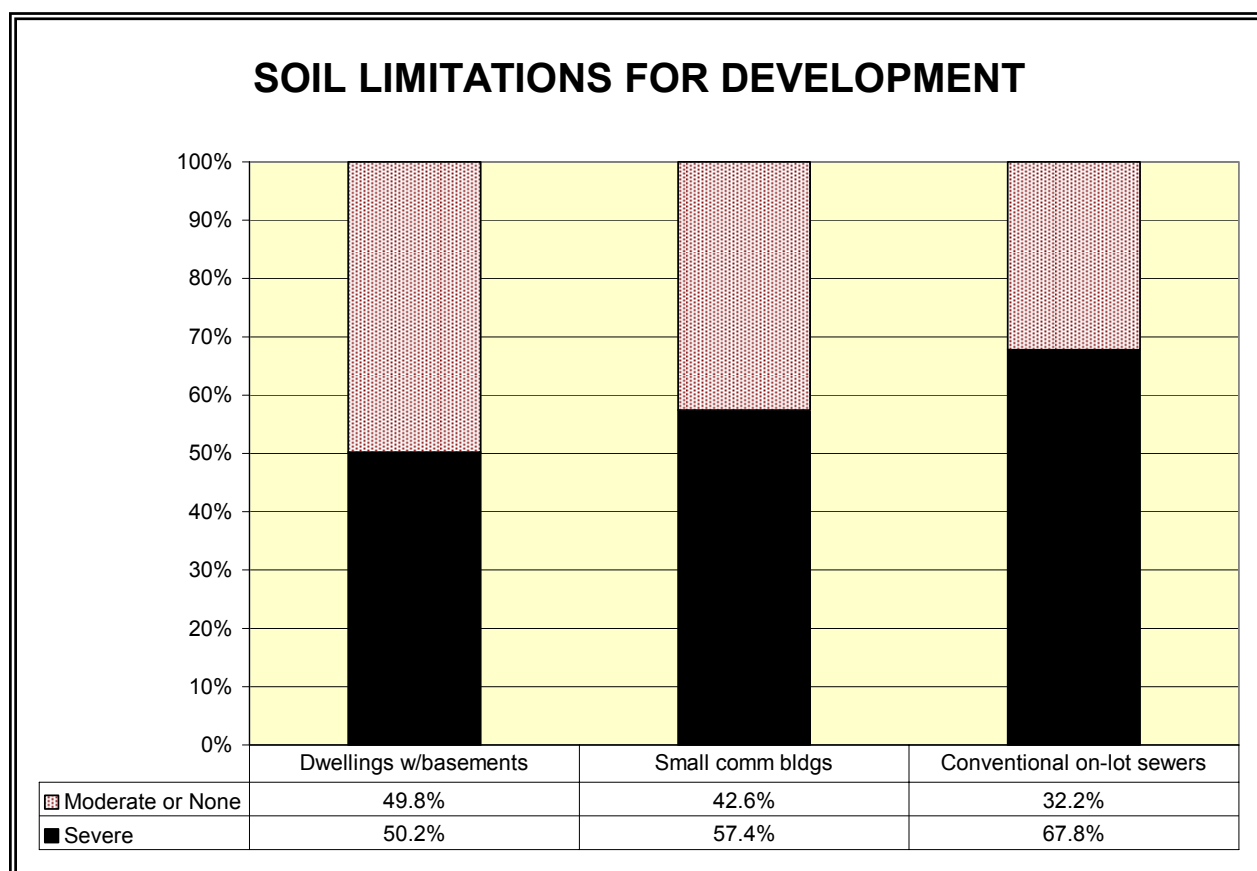
Unfortunately, the soils most suitable for agricultural purposes are also those most suitable for development, creating competition between these uses for these soils, and resulting in the loss and fragmentation of the most productive farmlands. Certainly some valuable farmlands have been lost within the Region but many remain. ***Where practicable, prime farm soils and soils of Statewide importance should be protected from conversion to other uses through appropriate planning and zoning.*** Information about various agricultural preservation programs is contained with Chapter VI of this Plan.

³ PA Municipalities Planning Code, Act 247, as amended, Section 604.3.

DEVELOPMENT CONSTRAINTS

Another important soils consideration relates to those soils that produce constraints for building development and the operation of on-lot utilities. Building development constraints can include a wide range of soil characteristics, including steep slopes, wetness, depth to bedrock, frost action, shrink-swell, low strength, large stones, and flooding. Other soil-related constraints become important if on-site sewage disposal systems are contemplated. Constraints associated with the installation and operation of these systems include steep slopes, wetness, flooding, slow percolation rates, poor filtration characteristics, and high secondary porosity due to the presence of fractures and solution channels. It is important to identify and map those soils that possess building development and conventional on-site sewage disposal constraints so that future land uses can be kept away from these environmentally sensitive areas.

Most of the “undeveloped” soils types within Palmyra Area Region possess some limitations for urban development. The following depicts the percentages of land area characterized by soils with development limitations for three different land uses (e.g. dwellings with basements, small commercial buildings and conventional on-lot sewer systems.)



The Soils and Geology Map only depicts soils that are considered to be “severely limited” for development purposes. As the map reveals, there is much overlap among limitations for both residential and small commercial buildings and on-lot sewage disposal systems. Over 50% of soils have severe limitations for dwellings with basements, over 57% have severe limitations for small commercial buildings and over 67% have severe limitations for on-lot sewage disposal systems. Soils with moderate limitations can be acceptable locations for development if care is exercised and severe limitations can sometimes be overcome with even greater care and management.

Clearly the largest concentrations of undeveloped soils without any severe development limitations occurs in the valley between Palmyra Borough and Campbelltown with its Hagerstown and Duffield silt loam soils and scattered occurrences of Clarksburg and Holly silt loams. As mentioned earlier, many of these soils have already been developed and/or are planned for growth.

Next about 463 acres of land located along the Diabase ridge to the southeast of the Village of Lawn is within the Joanna loam soil and has no development limitation for buildings or on-lot sewers. This soil type is also not well suited for farming. This could be an ideal location for rural residential development at a density greater than that permitted elsewhere if needed or it could also be suitable for a local commercial development at a village scale.

Beyond these two larger expanses, smaller isolated pockets of developable soils can be found throughout much of the Region. However, the northern perimeter of North Londonderry Township has particularly limited soils for development. Likewise, the two Diabase sheets located between the Lawn Valley and Campbelltown and the southeastern corner of South Londonderry Township has vast areas of soils with severe development limitations. These areas should be reserved for only the most rural of land uses and activities. Furthermore, accessory rural and/or farming related businesses should be carefully managed to prevent the creation of adverse environmental impact.

Both Palmyra Borough and North Londonderry Township should request that the Lebanon County Subdivision and Land Development Ordinance be amended and South Londonderry Township should amend its Subdivision and Land Development Ordinance to incorporate suitable environmental impact requirements to ensure that localized soils limitations (and others) are either adequately protected and/or managed prior to approval of development plans.

D. SURFACE WATERS

The way in which water moves through our environment has implications for land use planning. First, rivers, streams, creeks, runs, and their floodplains present hazards to development. Second, land areas adjacent to surface waters offer high quality habitat, conservation and recreational opportunities. Finally, the drainage basin within which surface waters flow is a basic geographic unit used to plan and design sanitary and storm sewers; systems that can make use of gravity-fed lines could reduce the costs of these types of utilities.

DRAINAGE BASINS

A drainage basin consists of the streams and associated floodplains that dispose of surface water from that area. Drainage basins are separated by ridgelines. All of the water draining from Palmyra Area Region flows into the Susquehanna River, Chesapeake Bay and ultimately the Atlantic Ocean. Because of the complex geologic formations that underlie the Region, its drainage patterns vary.

The northern tip of Palmyra Borough and the northern half of North Londonderry Township (north of Ridge Road) is generally underlain by the Yellow Breaches Thrust Plate. This formation produces a dense and dendritic drainage pattern with numerous faster moving streams that run short distances before outfalling into larger meandering larger creeks (e.g. Swatara and Quittapahilla).

To the south of Ridge Road the limestone Ontelaunee, Epler and Stonehenge geologic formations produce a valley with a very sparse drainage pattern with karst features. Aside from several large streams (e.g. Killinger and Spring Creeks) the landscape has relatively few watercourses as the soil and bedrock tend to readily absorb rainwater.

The southern ridge overlooking Campbelltown and the areas south of the ridge are underlain by the Buffalo Springs and the expansive Hammer Creek geologic formations which produces a complex landscape with a

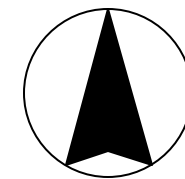
East
Hanover
Township

Palmyra Area Region

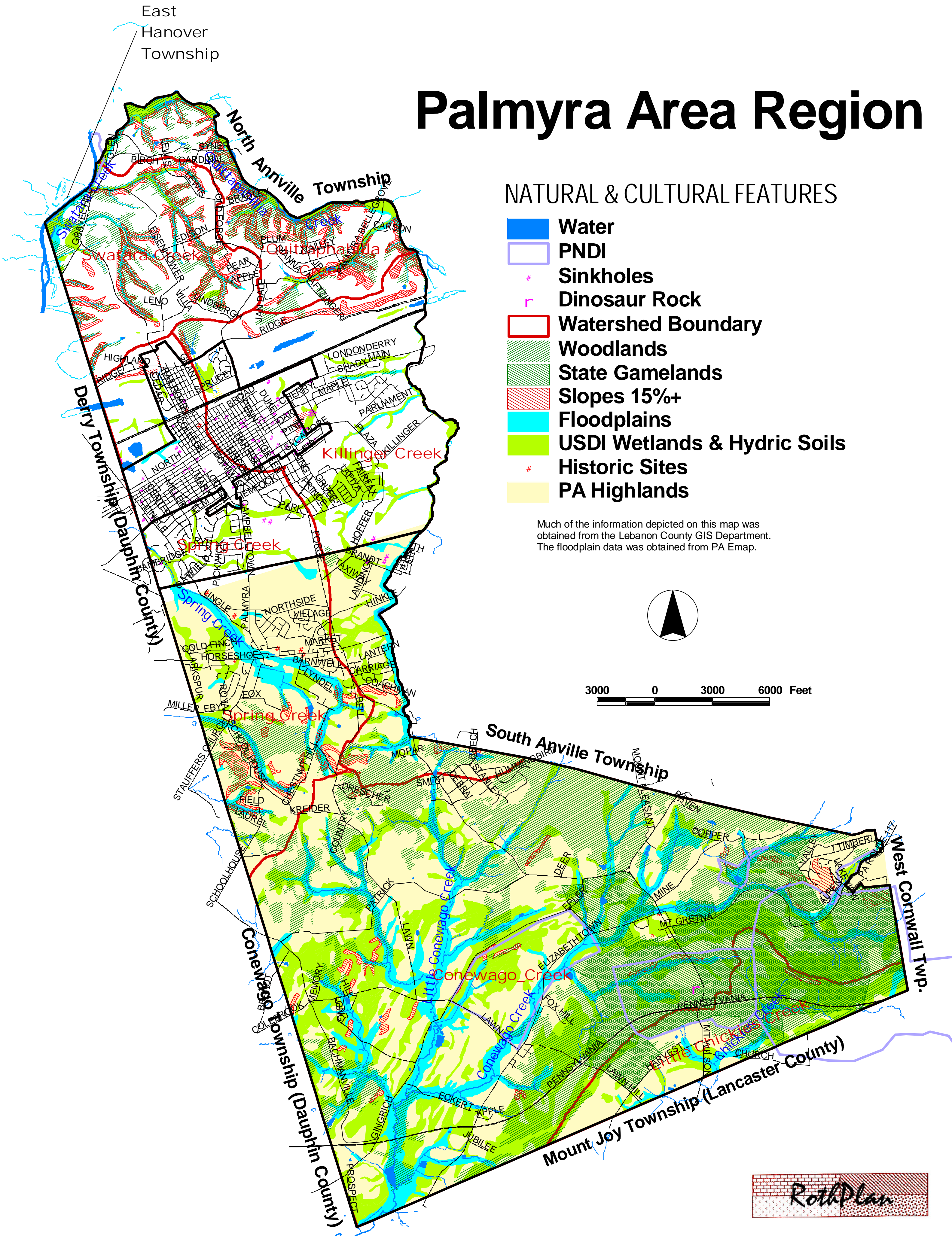
NATURAL & CULTURAL FEATURES

- Water
- PNDI
- Sinkholes
- Dinosaur Rock
- Watershed Boundary
- Woodlands
- State Gamelands
- Slopes 15%+
- Floodplains
- USDI Wetlands & Hydric Soils
- Historic Sites
- PA Highlands

Much of the information depicted on this map was obtained from the Lebanon County GIS Department. The floodplain data was obtained from PA Emap.

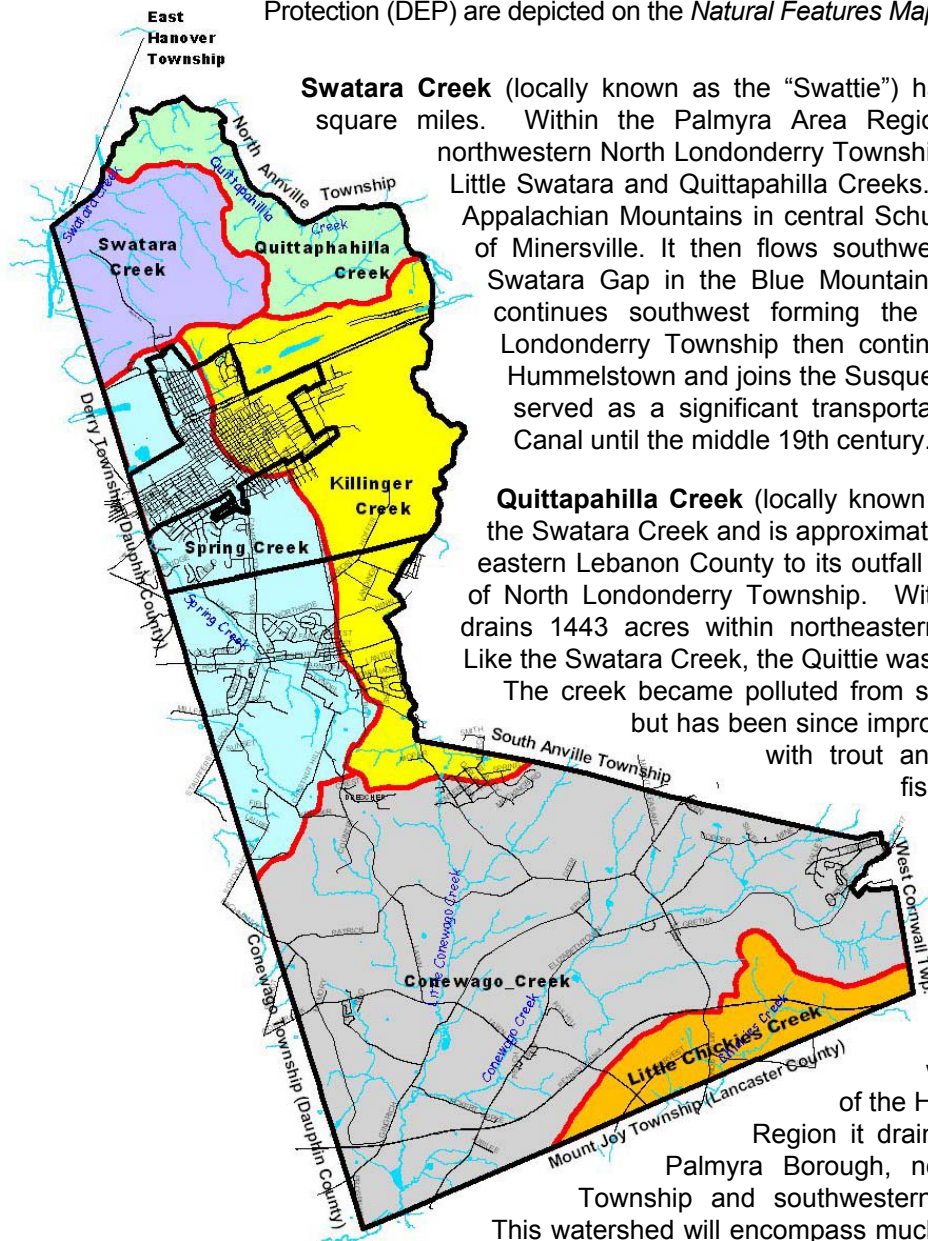


3000 0 3000 6000 Feet



medium drainage pattern density and an angular drainage pattern shape. Streams often follow the edges of geologic formations along a northeast to southwest axis.

The Region's major and minor drainage basins as identified by the PA Department of Environmental Protection (DEP) are depicted on the *Natural Features Map*.



Swatara Creek (locally known as the "Swattie") has a total drainage area of 570 square miles. Within the Palmyra Area Region it drains 1840 acres within northwestern North Londonderry Township. Its principal tributaries are the Little Swatara and Quittapahilla Creeks. The headwaters originate in the Appalachian Mountains in central Schuylkill County, about 5 miles west of Minersville. It then flows southwest in a winding course through Swatara Gap in the Blue Mountain ridge northwest of Lebanon. It continues southwest forming the northwest boundary on North Londonderry Township then continues just north of Hershey, past Hummelstown and joins the Susquehanna at Middletown. The creek served as a significant transportation route as part of the Union Canal until the middle 19th century.

Quittapahilla Creek (locally known as the "Quittie") is a tributary of the Swatara Creek and is approximately 25 miles long from its origin in eastern Lebanon County to its outfall along the northeastern boundary of North Londonderry Township. Within the Palmyra Area Region it drains 1443 acres within northeastern North Londonderry Township. Like the Swatara Creek, the Quittie was used as part of the Union Canal. The creek became polluted from steel mill waste during the 1900s but has been since improved so that it is stocked annually with trout and it has become a popular fly fishing destination.

Spring Creek is a local watercourse that originates south of Campbelltown in South Londonderry Township. It flows in a northwesterly direction through Hershey and joins with the Swatara Creek just west of the Hershey Park complex. Within the Region it drains about 4137 acres of western Palmyra Borough, northwestern South Londonderry Township and southwestern North Londonderry Township. This watershed will encompass much of the Region's planned growth area to the west of Forge Road and Lawn Road to the south of Palmyra Borough.

Killinger Creek is a local watercourse that originates southeast of Campbelltown in South Londonderry Township. It flows in a northeasterly direction and forms the boundary of South Londonderry Township to the north of PA Route 117 and then the boundary of North Londonderry Township to its outfall into the Quittapahilla Creek on the Mallard's quarry site. This watershed drains 4073 acres of important former and planned growth areas in eastern Palmyra Borough and Campbelltown and areas to the east of Palmyra Borough within both Townships.

Conewago Creek is a 22.9 miles long tributary of the Susquehanna River located in Lebanon, Dauphin, and Lancaster Counties. Its source originates in the Mount Gretna Heights in Lebanon County. The

mouth occurs at the confluence with the Susquehanna River just south of Three Mile Island in the river and just north of the Village of Falmouth, Lancaster County. The name of the creek means "at the rapids" which refer to the Conewago Falls in the Susquehanna River. Within the Region the Conewago Creek (and its important tributary the Little Conewago Creek) generally flow in a southwesterly direction. They encompass 10,783 acres which is the vast majority of the rural areas of South Londonderry Township and nearly half of the entire land area of the Region. As Conewago Creek leaves South Londonderry Township and Lebanon County, it forms the border between Dauphin County (to the north) and Lancaster County (to the south). A portion of this watershed is listed as a "PA Impaired Stream" as described in the next section.

Little Chickies Creek (also known as *Little Chiques Creek*) is a tributary of Chiques Creek in Lancaster County. The Little Chickies Creek joins Chickies Creek approximately 1 mile upstream from its mouth at the Susquehanna River. The name of the creek comes from the Lenape term "Chiquesalunga", which means the "place of crayfish". Only the northernmost headwaters of this creek are located within South Londonderry Township with its source located within the PA State Gamelands No. 145 to the south and east of Colebrook. This Creek drains 1373 acres within South Londonderry Township.

IMPAIRED WATERS

"The Department of Environmental Protection (DEP) has an ongoing program to assess the quality of waters in Pennsylvania and identify streams and other bodies of water that do not meet water quality standards as "impaired." Water quality standards are established for the different uses that waters can support and the respective goals established to protect those uses. Uses include, among other things, aquatic life, recreation, and drinking water. Water quality goals are numerical or narrative water quality criteria that express the in-stream levels of substances that must be achieved to support the uses. Periodic reports on the quality of waters in the Commonwealth are required under section 305(b) of the Federal Clean Water Act.

"Section 303(d) of the Act requires states to list all impaired waters not supporting uses even after appropriate and required water pollution control technologies have been applied. For example, a waterbody impacted by a point source discharge that is not complying with its effluent limit would not be listed on the 303(d) list. The Department would correct the water impairment by taking a compliance action against the discharger. Waterbodies that still do not meet water quality standards after this additional evaluation, however, must be included on the 303(d) list of impaired waters. The 303(d) list includes the reason for impairment, which may be one or more point sources (like industrial or sewage discharges), or non-point sources (like abandoned mine lands or agricultural runoff).

"States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to the quality that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water. If states do not develop TMDLs, EPA is required by regulation to do so.

"A TMDL is designed to reduce pollutant loads to impaired waters and enable these waters to meet water quality standards. Pennsylvania has committed to developing TMDLs for all impaired waterbodies and will use both traditional and new approaches to correct water quality problems.⁴

The following summarizes the status of water quality and monitoring in each of the Region's 6 watersheds according to the **2008 Pennsylvania Integrated Water Quality Monitoring and Assessment Report**:⁵

⁴ <http://www.dep.state.pa.us/dep/deputate/watermgmt/wqp/wqstandards/303d-report.htm>, March 26, 2003

⁵ <http://www.depweb.state.pa.us/watersupply/cwp/view.asp?a=1261&q=535678>, Sept. 3, 2008.

Surface Water Quality Status and Ongoing Monitoring			
Watershed	Fishing Status	TMDL Status	Attainment Status
Swatara Creek	Warm Water	NA	Attained tentative approval
Quittapahilla Creek	Trout Stocking	Final	Nonattainment, tentative approval
Spring Creek	Warm Water	NA	Nonattainment, tentative approval
Killinger Creek	Trout Stocking	Final	Nonattainment, tentative approval
Conewago Creek	Trout Stocking	Final	Attained approval
Little Chickies Creek	Trout Stocking	Final	Attained approval

Based upon the preceding summary, it appears that surface water quality is best in the southern reaches of the Region and along its eastern boundary. ***Township Officials should be aware that surface water pollution exists and that suitable stormwater management and erosion control practices should be applied accordingly. In addition, riparian buffers can dramatically improve surface water quality locally; more information on this subject is contained in Chapter VII of this Plan.***



WETLANDS

Wetlands are areas that are regularly inundated or saturated long enough to produce the particular types of vegetation associated with ***swamps, bogs and marshes***. While there are several definitions of wetlands used by regulatory agencies, all definitions require the presence of hydrophytic plants (plants that grow in wet soils), hydric (wet and anaerobic) soils, and the presence of water at or near the surface at some part of the growing season.

Wetland Protection Measures

1. Modifications to road maintenance practices(e.g., salt and de-icing chemicals).
2. Homeowner education (e.g., application of yard chemicals).
3. Development setbacks.
4. Limitations on land uses.
5. Filter strips.
6. Environmental Impact Assessment.

Recently, much attention has been focused upon the importance of wetlands. All wetlands have value, although their value is highly variable. Wetlands support an abundance and diversity of life unrivaled by most types of environments. The many benefits wetlands provide are summarized in the adjoining inset.

Benefits of Wetlands

1. Provide food and habitats for an abundance of animal life.
2. Are breeding, spawning, feeding, cover, and nursery areas for fish.
3. Are important nesting, migrating and wintering areas for waterfowl.
4. Act as natural storage areas during floods and storms.
5. Act as groundwater recharge areas, particularly during droughts.
6. Purify ground and surface waters by filtering and assimilating pollutants.

Wetlands within the Region have been identified from two sources. First the Lebanon County GIS data incorporates the U.S. Department of the Interior's National Wetlands Inventory, which is derived from high

altitude aerial photograph interpretation of surfacial features commonly associated with wetlands. This inventory tends to identify the larger wetland areas only. These include a combination of scattered palestrine, riverine and lacustrine wetlands. Palestrine wetlands are ponds and small lakes, riverine wetlands are associated with rivers, streams, runs, creeks, and brooks and lacustrine wetlands are associated with lakes.

Second, the latest Soil Survey completed for the County by the Natural Resources Conservation Service identifies about 6638 acres (28% of the Region) of hydric soils that can also indicate the presence of wetland areas. The following hydric soils within the Region have also been depicted with severe building and sewer constraints on the Soils & Geology Map contained earlier in this Chapter.

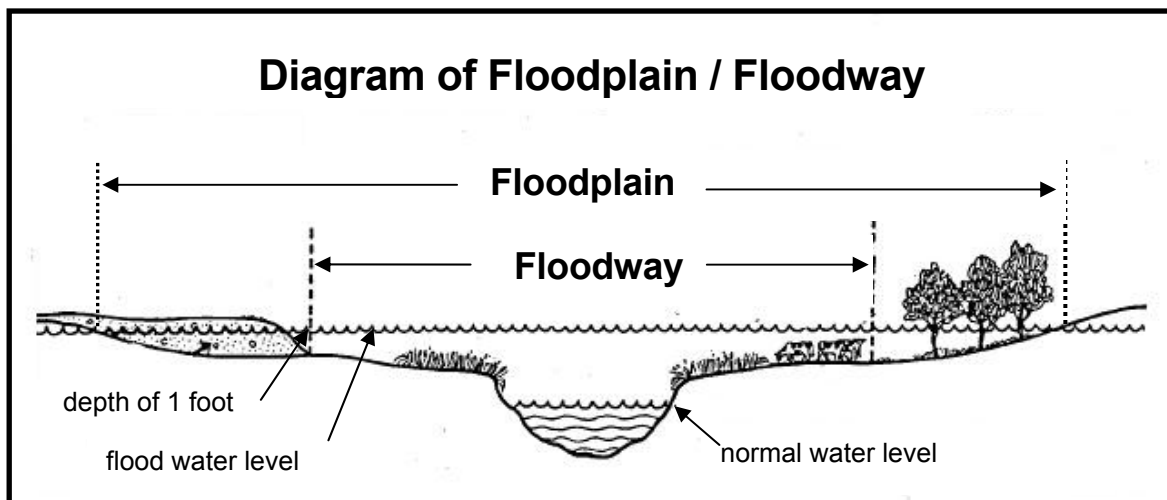
HYDRIC SOILS TABLE			
Soil Symbol	Soil Name	Acres	Hydric*
1JnB	Joanna Loam	425	P
1JnD	Joanna Loam	7	P
1JpB	Joanna Loam, extremely stony	38	P
1JpD	Joanna Loam, extremely stony	516	P
Bm	Bowmansville silt loam	1117	H
BrA	Brinkerton silt loam	203	H
BrB	Brinkerton silt loam	131	H
BxC	Buchanan extremely stony loam	18	P
CkA	Clarksburg silt loam	204	P
CkB	Clarksburg silt loam	234	P
Ho	Holly silt loam	245	H
KnB	Klinesville shaly silt loam	42	P
KnC	Klinesville shaly silt loam	57	P
Ls	Lindside silt loam	107	P
MaA	Markes silt loam	5.8	H
Me	Melvin variant silt loam	26	H
MsB	Mount Lucas extremely stony silt loam	276	P
No	Nolin variant silt loam	232	P
PeB	Penn shaly silt loam	535	P
PeC	Penn shaly silt loam	505	P
Ph	Philo silt loam	16	P
Po	Pope loam	1.5	P
Reb	Readington silt loam	688	P
Ro	Rowland silt loam	222	P
Tha	Thorndale silt loam	22	H
WaA	Watchung silt loam	307	H
WbB	Watchung extremely stony silt loam	449	H
*Hydric ratings – H=All hydric components / P=Partially hydric components			

As depicted on the Natural & Cultural Features Map, the vast majority of wetlands is located within the Conewago Creek watershed. Scattered wetlands are located within the Spring and Killinger Creek watersheds and very few are located in the Swatara, Quittapahilla and Little Chickies Creek watersheds.

A variety of laws have been passed to protect wetlands. Infill and development in larger wetlands are now regulated by the U.S. Environmental Protection Agency and subject to both State and Federal permitting processes. Careful local planning, education, and the incorporation of protective standards into local subdivision and land development ordinances could extend further protection to the Region's smaller wetlands as well as to land areas immediately surrounding wetlands. ***Future planning should avoid development in areas with wetlands and hydric soils.***

FLOODPLAINS

A floodplain is an area of land adjoining a water source, such as a river or stream, that is subject periodically to partial or complete inundation by the water source. The floodplain consists of the ***floodway*** and the ***floodway fringe***. The floodway is the stream channel plus an additional area that must be kept free of encroachments to avoid an increase in flood heights. The floodway fringe is the remaining portion of the floodplain within which encroachments must be limited.



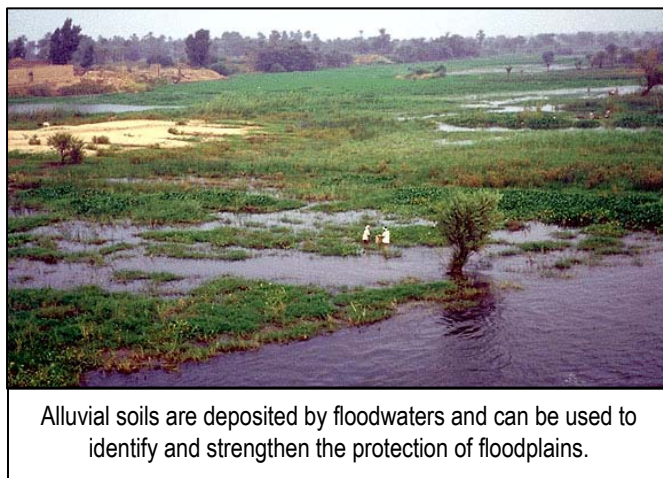
Flooding can result in the loss of life and property, health and safety hazards and significant public expenditures for flood protection and relief. Floodplains also often contain valuable prime farmlands and wildlife habitats. Floodplain protection safeguards the public health, safety and welfare, while protecting natural resource values.

Flood hazard areas within the Region have been identified by the Federal Emergency Management Agency (FEMA). Local governments which regulate development and fill within flood hazard areas qualify to participate in the Federal Flood Insurance Program. Flood hazard areas have been identified for the Region, which participates in the Federal Program.

Federal floodplain mapping denotes estimated 100 and 500-year floodplain boundaries, areas within which there is the probability that flooding will occur once in 100 and 500 years, respectively. These areas are identified on the *Natural Features Map*. The presence of alluvial soils (soils deposited by water) may also be used to identify additional areas subject to periodic inundation. The latest Soil Survey for the County identifies the following alluvial soil types for the Region and their respective characteristics:

ALLUVIAL SOILS TABLE			
Soil Symbol	Soil Name	Acres	Hydric*
Bm	Bowmansville silt loam	1117	H
Ho	Holly silt loam	245	H
Ls	Lindside silt loam	107	P
Me	Melvin variant silt loam	26	H
No	Nolin variant silt loam	247	P
Ph	Philo silt loam	16	P
Po	Pope loam	1.5	P
Ro	Rowland silt loam	222	P
*Hydric ratings – H=All hydric components / P=Partially hydric components			

The delineation of alluvial soils often provides wider floodplains than those identified by FEMA; this is an option for increased protection against flooding. The Region's alluvial soils total some 1982 acres (8.4% of the Region) and have been depicted with severe building and/or sewer limitations on the Soils and Geology Map and the Natural Features Map contained earlier in this Chapter. Again, the greatest concentration of alluvial soils is located along the Conewago and Little Conewago Creeks in South Londonderry Township. Another large occurrence is located along Spring Creek on the south side Campbelltown.



Palmyra Borough has no surface water bodies located within its borders. Consequently, there are no floodplains mapped by the Federal Emergency Management Agency within the Borough. However, about 15 acres of alluvial soil (Nolin Soil) is located at three separate peripheral locations along the Borough's outer borders. ***The Borough could adopt environmental requirements or incorporate zoning incentives for the protection of these sensitive areas that have historically flooded.***

Article XIII of the North Londonderry Township Zoning Ordinance regulates activities and improvements within the floodplain. This ordinance relies upon the study conducted by the Federal Insurance Administration to identify flood-prone areas. Specifically, the ordinance establishes the 100 year floodplains as the regulatory floodplain. It provides for a wide range of techniques to determine floodplain boundaries including FEMA mapping, alluvial soils, 1972 historical flood data, US Army Corps of Engineers floodplain information reports, USGS flood prone quadrangles and other sources.

Section 213 of the South Londonderry Township Zoning Ordinance regulates activities and improvements within the floodplain. This ordinance relies upon the study conducted by the Federal Insurance Administration to identify flood-prone areas. Specifically, the ordinance establishes the 100 year floodplains as the regulatory floodplain. It provides for a wide range of techniques to determine floodplain boundaries including FEMA mapping, historical flood data, US Army Corps of Engineers floodplain information reports, and USGS flood prone quadrangles.

As of March, 2012 the Federal Emergency Management Agency has released preliminary digital floodplain maps with adoption scheduled for May, 2012. In addition the County is in the process of updating its Floodproofing Building Code. ***Both Townships should consider strengthening their regulatory***

floodplain to identify floodplains as including the 100, and 500 year floods, alluvial soils and historical known high water levels. Also the Townships should keep abreast of any future regulatory changes that may be forthcoming from FEMA to stay eligible for federal flood insurance protection.

STORM WATER MANAGEMENT

One of the most frequently described planning problems is the impact from storm water runoff. As an area develops, the patterns, volume and velocities of storm water runoff are likely to change. Individual developments produce marginal impacts; however, these impacts produce major cumulative problems unless measures are used to protect the capacity of watersheds to discharge surface water in a timely manner and at a safe rate. ***Storm water runoff can and should be managed.*** The benefits of storm water management are summarized in the adjacent inset.

Benefits of Storm Water Management

1. Reduces off-site and downstream flooding.
2. Reduces soil erosion, sediment loading and habitat loss.
3. Protects surface water quality.
4. Improves groundwater recharge.

As can be seen on the Natural and Cultural Features map, specific areas within the Region (especially Palmyra Borough) have been very susceptible to sinkhole development, which requires enormous expense for repairs and remediation. Palmyra Borough is a vintage town lacking a Borough-wide storm water management system, and has been almost entirely developed for quite some time. There is no place for storm water to be properly conveyed and released outside of these sink-hole susceptible areas. Additionally, the terrain of the area is very flat with very little grade and no recipient streams or tributaries within the municipality. This results in flooding, sinkholes, and underground water pollution because the run-off is taken into natural and man-made openings to the underground voids.

Since the 1970s the Borough has undertaken various studies and acquired cost estimates to install improvements to alleviate these problems. Some of these plans were immense in scope costing over 9 million dollars to implement. Some of the more specific local improvement projects were completed in the 1990's and the Borough hopes for the eventual installation of a regional storm water management system that will serve all of the Borough effectively.

Recognizing the need to resolve serious problems associated with flooding the Pennsylvania General Assembly enacted Act 167, the Pennsylvania Stormwater Management Act. This Act changed the way local stormwater management occurred by applying a watershed-based, comprehensive program of Township stormwater management. Act 167 requires all counties within Pennsylvania to prepare and adopt stormwater management plans for each of its watersheds, as designated by the Pennsylvania Department of Environmental Protection (DEP). These plans are to be prepared in consultation with municipalities within the watershed, working through a Watershed Plan Advisory Committee. The plans are to contain stormwater controls to manage stormwater runoff from proposed subdivision and land development applications. Once adopted, local municipalities are required to implement stormwater management ordinances that rely upon selected management techniques within 6 months or risk the loss of future State funding for a variety of projects and activities.

Lebanon County's Official Comprehensive Plan recommends that the following priority watershed-based stormwater management plans be developed within the following order and scheduling:

Lebanon County Priority Stormwater Management Plans	
Basin	Schedule (Years)
Quittapahilla & Spring Creeks	2008 - 2009
Swatara Creek	2010 - 2011
Conewago & Little Chickies Creek	2012 - 2013
Stony Creek	2014 - 2015

As can be seen, most of the Region's drainage basins are scheduled for preparation of watershed-based

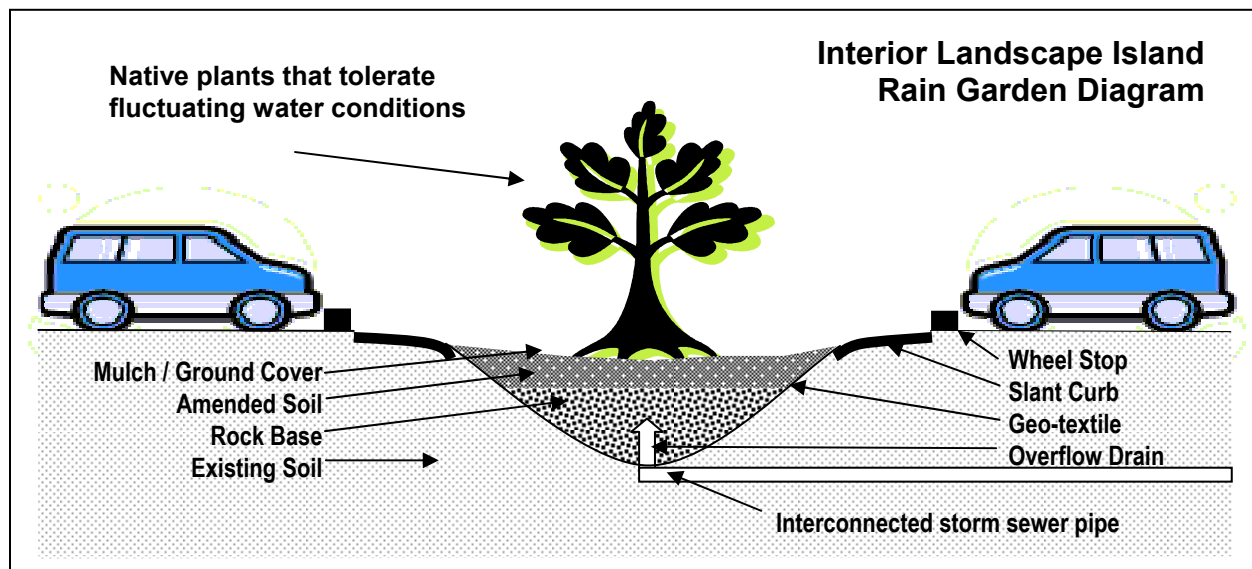
stormwater management plans in the near future. **Local officials should play an active yet supporting role in this process which will be lead by the PA DEP, Bureau of Watershed Management, the Lebanon County Conservation District and the Lebanon County Planning Department.**⁶ However, **local officials must ensure that the specific concerns regarding the unique problems associated with the Region's sinkhole problems receive due attention with effective outcomes. Then, once the respective Plans are completed, each municipality should adopt suitable stormwater management regulations and commit to other needed improvements that will implement the Plans' findings.**

In the meantime, Palmyra Borough and both Townships have been engaged in complying with the PA Department of Environmental Program's Small Municipal Separate Storm Sewer Systems Program (MS4 Program) by submitting annual reports and obtaining a National Pollutant Discharge Elimination System (NPDES) storm water permit each 5 years. Under the MS4 Program the Townships must abide with 6 categories of minimum control measures with specific annual goals and an implementation schedule:

1. Public Education and Outreach.
2. Public Participation and Involvement.
3. Illicit Discharge Detection and Elimination.
4. Construction Site Runoff Control.
5. Post Construction Stormwater Management.
6. Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance.



One of the most important components of a local stormwater management program is an effective stormwater management ordinance. Within Palmyra Borough and North Londonderry Township, Section 5.07 of the Lebanon County Subdivision and Land Development Ordinance is administered by Lebanon County to regulate the collection, storage and release of stormwater. Within South Londonderry Township, Section 4.14 of the 5.07 of the South Londonderry Township Subdivision and Land Development regulates stormwater. Both ordinances incorporate best management practices.



Best Management Practices (BMPs) are techniques that manage stormwater from particular land uses in a manner that is more consistent with the natural characteristics of the resources of the watershed. BMPs are a broad series of land and water management strategies designed to minimize the adverse

⁶ 2007 Lebanon County Comprehensive Plan, Lebanon County Planning Dept., pg. 9-47.

impacts from developments and other disruptive activities. BMPs provide varying levels of protection and are becoming more widely utilized within Pennsylvania.

BMPs can be “structural” or “non-structural”. Structural BMPs are measures that require the design and physical constructions of a facility to assist with reducing or eliminating a non-point source of pollution and control stormwater. Structural BMPs are most often applied to agricultural operations and stormwater management. Non-structural BMPs are approaches to planning, site design or regulations that positively affect water quality and reduce stormwater runoff. Nonstructural BMPs are generally implemented through the enactment of municipal ordinances that specify site design and construction standards and operational procedures and activities. The following table lists BMPs for various land use settings.

<p>Agricultural BMPs include requirements that adequately address soil erosion control measures, nutrient management and pest control.</p> <p>Conservation management, tillage and contour farming techniques intended to limit disturbance and erosion.</p> <ul style="list-style-type: none"> • Provisions for grass or filter strips intended to remove sediment or other non-point pollutants from runoff. • Providing stream fencing intended to keep livestock out of stream channels. • Establishing programs for pesticide management intended to reduce the off-site impacts or spraying or applying pesticides. • Developing a manure management program to reduce runoff of nutrients and pathogens to streams. 	<p>Conservation BMPs include requirements that adequately address soil erosion control measures and stabilization techniques.</p> <p>Stabilize stream embankments by utilizing structural or natural techniques designed to minimize erosion.</p> <ul style="list-style-type: none"> • Provisions for grass or filter strips intended to remove sediment from point or non-point pollutant sources. • Preserve natural resources and habitats. • Establish networks of forested riparian buffers. • Establish mandatory setback requirements from wetlands and floodplains. • Develop a public education program to provide information (seminars and literature) to the residents of the community on the importance of protecting our natural and hydrological resources.
<p>Stormwater Management BMPs include requirements that adequately address surface drainage, groundwater recharge and soil erosion control measures.</p> <ul style="list-style-type: none"> • Minimize the volume of stormwater runoff generated by minimizing impervious surfaces required to support development. • Promote effective groundwater recharge within all stormwater management facilities including detention ponds, swales and downspouts. • Protect receiving stream channels by routing outfall locations from detention basins through grass or filter strips intended to remove contaminants. • Protect adjacent land areas from direct stormwater discharge by establishing a minimum isolation distance to enhance stabilization and groundwater recharge. • Establish stormwater management and natural features easements. • Utilize pervious surfaces to promote groundwater recharge. • Establish networks of forested riparian buffers. 	<p>Land Development BMPs include requirements that adequately address design requirements and conservation management techniques.</p> <ul style="list-style-type: none"> • Reduction of infrastructure required to adequately support subdivision and land development activity. • Develop effective requirements to minimize the environmental impacts resulting from the change in land use. • Promote groundwater recharge by establishing minimum standards to maintain a balanced water budget of what is required to support the needs of the development versus the amount of water that is lost as a result of the development. • Incorporate the use of non-structural stormwater management techniques into site landscaping to minimize stormwater runoff and maximize infiltration. • Establish networks of forested riparian buffers as part of the landscaping requirements. • Include incentives in municipal regulations to achieve site design that is sensitive to existing environmental, natural, scenic, historical and cultural resources.

However, the Region’s carbonate geologic formations (e.g. Epler, Stonehenge, Buffalo Springs, Richland, Millbach and Hamburg Sequence Rocks formations may exhibit karst features that are considered to be “Special Management Areas” under the PA DEP’s *Pennsylvania Best Management Practices Manual* (December, 2006) within which the use of BMPs may be limited due to the risk of sinkhole and/or solution channel development. ***Therefore, underground investigations should be undertaken prior to urban development in these formations. Then corresponding construction, stabilization and drainage***

methods should be carefully applied in response to local conditions as warranted.

E. IMPORTANT PLANT AND WILDLIFE HABITATS

As an area is converted from its natural to a manmade state, the delicate balance of the local ecosystem is often disrupted. This imbalance degrades or strains the environment's ability to support varied forms of plant and animal species. In turn, local species become threatened or endangered. State and Federal agencies have become increasingly concerned over the protection of local natural habitats as a means of protecting wildlife diversity. The protection of these habitats can also serve other equally important functions, like the control of erosion, the recharge of groundwater, the attenuation of pollutants, the abatement of noise, dust and glare, and the provision of valuable, passive recreation opportunities. For these reasons, all levels of government and other conservation-oriented groups have become involved in the protection of these habitats.

Benefits of Habitat Protection

1. Protection of plant and wildlife diversity.
2. Protection of threatened and endangered species.
3. Protection of woodlands and linear corridors.
4. Provision of passive recreation opportunities.

Information for this section was obtained from the Pennsylvania Natural Heritage Project (PNHP). This inventory represents an ongoing process that cumulatively updates and refines data regarding rare, endangered, or otherwise significant natural features. This inventory uses some 800 sources of information to map, describe and disseminate facts about important natural features.

NATURAL AREAS & HABITATS

Information for this section was obtained from the Natural Areas Inventory of Lebanon County, Pennsylvania (1996). This inventory is a document compiled and written by the Pennsylvania Science Office of The Nature Conservancy. It contains information on the locations of rare, threatened, and endangered species and of the highest quality natural areas in the county.

Natural Areas/Habitats Protection Measures

1. Development and vegetation removal setbacks.
2. Modifications to road maintenance (e.g., snow and ice removal; salt and de-icing chemicals).
3. Limitations on land use.
4. Homeowner education (e.g., application of yard chemicals/removing plants).
5. Environmental Impact Assessments.

Accompanying each site description are general management recommendations that would help to ensure the protection and continued existence of these rare plants, animals and natural communities. The recommendations are based on the biological needs of these elements (species and communities). Implementation of the recommendations is up to the discretion of the landowners. However, cooperative efforts to protect the highest quality natural features through the development of site-specific management plans are greatly encouraged. Landowners working on management or site plans of specific areas described in this document are encouraged to contact the Pennsylvania Science Office of The Nature Conservancy for further information.⁷

Through its partnership in the Pennsylvania Natural Diversity Inventory (PNDI), the Nature Conservancy uses some 800 sources of information to map, describe and disseminate facts about important natural features. The inventory includes animals, plants, habitats, and natural communities that are unique biological resources within the county. The end results provide a list of the most important biological sites, identify their living resources, and provide a map of their locations. Recommendations are included with the inventory on the management of the living resources present.



It is the policy of the PNDI not to release detailed site-specific information about significant natural features for

⁷ A Natural Areas Inventory of Lebanon County, PA, (2003) pg. 3.

general exposure to the public. This protects the feature from persons who become curious and attempt to locate and collect such features. Instead, PNDI provides generalized locations of known or historic natural features occurrences.


The following lists various excerpts from the 2003 study entitled “A Natural Areas Inventory of Lebanon County Pennsylvania:”

Exceptional Natural Feature	
Feature	Description
Swatara Creek, North Londonderry Twp.	Swatara Creek, a significant tributary to the Susquehanna River, is the most significant water resource in Lebanon County (Pennsylvania Department of Natural Resources, 2001). This creek stretches 71 miles through four counties and has a watershed area of approximately 570 square miles through south central Pennsylvania. This creek provides excellent recreational opportunities, fish habitat and is a primary source of potable (drinking) water to the Lebanon Water Authority and the Middletown Water Authority Company. Continual loss of habitat and runoff pollution prompted the need for conservation efforts to be made for the Swatara Creek. A Rivers Conservation Plan for the Swatara Creek was designed to protect, conserve, and enhance the resources that the creek has to offer. This is done through a cooperative partnership with municipalities, other river support organizations and watershed organizations like the Swatara Creek Watershed. The municipalities are surveyed to see what land management and flood plain control practices are being used. Programs such as the annual canoe and river clean up as well as monthly water quality monitoring are examples of efforts undertaken to protect the Creek (Pennsylvania Department of Conservation and Natural Resources, Swatara Creek Conservation Plan, 2000).

Sites of Statewide Importance		
Rank*	Feature	Description
S2	CHICKIES CREEK HEADWATERS South Londonderry Twp.	This historic property was bequeathed in 1953 to preserve 1,105 acres of land that has not been logged for many years. This land was indentured to be “maintained and preserved forever as forest and woodland and where possible additional portions shall be planted as forest and woodland” (www.governordick.com). This site contains a good-quality population of Clinton’s Wood Fern (<i>Dryopteris clintoniana</i>), an S2 Pennsylvania plant species of concern. This area is described as low and wet Red Maple (<i>Acer rubrum</i>) woods along a stream. Associated species include Cinnamon Fern (<i>Osmunda cinnamomea</i>), Skunk Cabbage (<i>Symplocarpus foetidus</i>), Sedges (<i>Carex intumescens</i> , <i>C. lurida</i> , <i>C. folliculata</i>), and Fowl mannagrass (<i>Glyceria striata</i>). Another area of this property is described as a “Tuliptree- Beech-White Oak-Chestnut Oak forest” with Skunk Cabbage/False Hellebore graminoid seeps. This area has potential for additional plant species of concern. Plant species identified in this area include Wild Comfrey (<i>Cynoglossum virginianum</i>), Chestnut Oak (<i>Quercus montana</i>), Tulip Poplar (<i>Liriodendron tulipifera</i>), American Beech (<i>Fagus grandifolia</i>), Black Birch (<i>Betula lenta</i>), Red Maple (<i>Acer rubrum</i>), Witch Hazel (<i>Hamamelis virginiana</i>), Skunk Cabbage (<i>Symplocarpus foetidus</i>), False Hellebore (<i>Veratrum viride</i>), False Solomon’s Seals (<i>Smilacina racemosa</i>), New York Fern (<i>Thelypteris noveboracensis</i>), Dwarf Ginseng (<i>Panax trifolius</i>), Miterwort (<i>Mitella diphylla</i>), Spicebush (<i>Lindera benzoin</i>), Christmas Fern (<i>Polystichum acrostichoides</i>), Bladdernut (<i>Staphylea trifolia</i>), Pawpaw (<i>Asimina triloba</i>), Black Ash (<i>Fraxinus nigra</i>), Long-leaved Stitchwort (<i>Stellaria longifolia</i>), and Trout Lily (<i>Erythronium americanum</i>). The streamside substrate was predominantly boulders with some wet seepy spots. Some of the notable birds recorded in

S2	CHICKIES CREEK HEADWATERS South Londonderry Twp. Cont'd.	<p>this area include Blue-winged Warbler (<i>Vermivora pinus</i>), Indigo Bunting (<i>Cyarea passerina</i>), Eastern Towhee (<i>Pipilo erythrophthalmus</i>), Wood Thrush (<i>Hylocichla mustelina</i>), Eastern Wood-Pewee (<i>Contopus virens</i>), Ovenbird (<i>Seiurus aurocapillus</i>), Redeyed Vireo (<i>Vireo olivaceus</i>), Louisiana Waterthrush (<i>Seiurus motacilla</i>), and Scarlet Tanager (<i>Pyrranga olivacea</i>).</p> <p>Another interesting area of Governor Dick Forest was a forested wetland that was dominated by Red Maple (<i>Acer rubrum</i>), but also had considerable amounts of Black Ash (<i>Fraxinus nigra</i>). Interesting species found in this extensive wetland and surrounding uplands include Northern Maidenhair Fern (<i>Adiantum pedatum</i>), Wood Anemone (<i>Anemone quinquefolia</i>), Devil's Bit (<i>Chamaelirium luteum</i>), Black Bugbane (<i>Cimicifuga racemosa</i>), Evergreen Woodfern (<i>Dryopteris goldiana</i>), American Golden-Saxifrage (<i>Chrysosplenium americanum</i>), Graceful Sedge (<i>Carex gracillima</i>), Rosy Sedge (<i>Carex rosea</i>), Slender Wood Sedge (<i>Carex digitalis</i>), Bloodroot (<i>Sanguinaria canadensis</i>), and White Wood Aster (<i>Aster divaricatus</i>).</p> <p>This forest contains 1,105 acres of relatively undisturbed open space and has the potential to contain additional interesting plants and animals. This site contains large undisturbed land that is uncommon in this part of Lebanon County. However, there is consensus from the surveys that have been conducted that there is a serious overbrowsing of vegetation by deer in this area. It is therefore recommended that a limited hunting season be allowed in this area for White-tailed Deer. There is also a serious invasive plant problem, most notably Japanese Barberry (<i>Berberis thunbergii</i>).</p>
S3	STATE GAME LANDS #145 at Mount Gretna, South Londonderry Twp.	<p>One fair and one good population of Bog Bluegrass (<i>Poa paludigena</i>), an S3 Pennsylvania-Threatened plant species, were found on this site. This site contains habitats such as a hardwood swamp, mixed-hardwood forests with moss-covered rocky streams. Associated species of one population included Pennsylvania bitter-cress (<i>Cardamine pensylvanica</i>), Sedge (<i>Carex prasina</i>), Sedge (<i>Carex laevivaginata</i>), Swamp Oats (<i>Sphenopholis pensylvanica</i>), Orange Jewelweed (<i>Impatiens capensis</i>), Hooked Crowfoot (<i>Ranunculus recurvatus</i>), Fowl Mannagrass (<i>Glyceria striata</i>), Blue Marsh Violet (<i>Viola cucullata</i>), Skunk Cabbage (<i>Symplocarpus foetidus</i>), Rough Bluegrass (<i>Poa trivialis</i>), Marsh Pennywort (<i>Hydrocotyle americana</i>), and bryophyte species. Associated species of another population included Skunk Cabbage (<i>Symplocarpus foetidus</i>), Blue Marsh Violet (<i>Viola cucullata</i>), Golden Saxifrage (<i>Chrysosplenium americanum</i>), Fowl Mannagrass (<i>Glyceria striata</i>), Sedge (<i>Carex bromoides</i>), Sedge (<i>Carex leptalea</i>), Spicebush (<i>Lindera benzoin</i>), Red Maple (<i>Acer rubrum</i>), Black Ash (<i>Fraxinus nigra</i>), and Poison Sumac (<i>Toxicodendron vernix</i>). Disturbances at this site include exotic species, especially rough bluegrass. Even with the presence of exotic species, there are no real threats that are imminent to either area of this site.</p>
S3	VALLEY GLENN FLOODPLAIN (North Londonderry Township)	<p>This area contains a fair to good-quality population of Nodding Trillium (<i>Trillium cernuum</i>), an S3 Pennsylvania plant species of concern. The species is found on a bottomland hardwood forest at the confluence of the Quittapahilla Creek and Swatara Creek. Associated and dominant species include Virginia Bluebells (<i>Mertensia virginica</i>), Garlic- Mustard (<i>Alliaria petiolata</i>), Trout Lily (<i>Erythronium americanum</i>), False-Mermaid (<i>Floerkea proserpinacoides</i>), Box-Elder (<i>Acer negundo</i>), Sugar Maple (<i>Acer saccharum</i>), Black Walnut (<i>Juglans nigra</i>), Shagbark Hickory (<i>Carya ovata</i>), American Basswood (<i>Tilia americana</i>), American Sycamore (<i>Platanus occidentalis</i>), Hackberry (<i>Celtis occidentalis</i>), Spicebush (<i>Lindera benzoin</i>), and Poison Ivy (<i>Toxicodendron radicans</i>). This area has abundant exotic plant species, especially Garlic Mustard, which is a threat to the population of Nodding Trillium. The area has also previously been logged. The abundant amount of exotic species degrades the habitat for this species and threatens the population to the point that the exotic species should be controlled.</p>
S5	COLEBROOK MEADOW, South	<p>This large meadow has supported Upland Sandpiper (<i>Bartramia longicauda</i>), an S1S2B Pennsylvania-Threatened animal species in the past.</p>

S5	Londonderry Twp. COLEBROOK MEADOW, South Londonderry Twp. Cont'd.	A pair of this threatened species has been seen in the field where nests and young have been found. As many as sixteen pairs of this species have occurred on this site in the past. The area is described as a grassy field in a similar habitat mixed with cropland. The main threat to this area is the conversion of grassy fields to row crop fields that would provide unsuitable habitat for this species. The initial plowing of land for crops adversely affects this grassland specialist even more than most other grassland species (Bowen and Houston, 2001). Another threat to this area is the possible conversion of old farms to development. It is recommended that this site be surveyed for future activity for this species, and monitored for the threats mentioned above. It is also recommended that grasslands suitable for this species be of various heights with few shrubs (Bowen and Houston, 2001). This species requires short vegetation for foraging, taller vegetation for nesting, and short to medium vegetation for brood cover. Overall, grasslands should be preserved of at least 100 hectares (247 acres) in size (Bowen and Houston, 2001).
S5	DINOSAUR ROCK WOODS/SGL #145, South Londonderry Twp.	<p>This area contains a small population of a Common Juniper (<i>Juniperus communis</i>), an S2 Pennsylvania plant species of concern. This area is described as a young and rather open woods that are dominated by hardwoods such as Flowering Dogwood (<i>Cornus florida</i>), Black Cherry (<i>Prunus serotina</i>), Black Gum (<i>Nyssa sylvatica</i>), and Tulip Poplar (<i>Liriodendron tulipifera</i>). This area contains numerous amounts of exotic plant species. It is recommended that the population of this S2 species and its habitat be monitored for the further spreading of exotic species.</p> <p>The Dinosaur Rock erosional remnant is a Triassic-Jurassic diabase sheet. The diabase of this large structural intrusion is a medium to coarse-grained, dark gray rock having ophitic texture. The very massive rock usually weathers into large spheroidal boulders (Geyer & Bolles 1979).</p> <p>Bird species found in this area include Eastern Kingbird (<i>Tyrannus tyrannus</i>), Wood Thrush (<i>Hylocichla mustelina</i>), Great Blue Heron (<i>Ardea herodias</i>), Baltimore Oriole (<i>Icterus galbula</i>), Common Yellowthroat (<i>Geothlypis trachias</i>), Ovenbird (<i>Seiurus aurocapillus</i>), Northern Rough-winged Swallow (<i>Stelgidopteryx serripennis</i>), Red-eyed Vireo (<i>Vireo olivaceus</i>), and Great-crested Flycatcher (<i>Myiarchus crinitus</i>). Other animal species that were seen included Twelve-spotted Dragonfly (<i>Libellula pulchella</i>), Pickerel Frog (<i>Rana palustris</i>), Box Turtle (<i>Terrapene carolina carolina</i>), Green Frog (<i>Rana clamitans melanota</i>), and Painted Turtle (<i>Chrysemys picta marginata</i>). This area has abundant exotic plant species in some of the surrounding uplands around the pond. It is recommended that exotic species be controlled in some of these areas in order to retain the integrity of the uplands. However, this area is locally significant due to the potential of containing species of concern within the wetland area. The wetland and the lake also serve as important habitat for many species of wildlife that are dependent on such areas for breeding.</p>
* Sites are ranked from 1 to 5 with 1 indicating the highest priority sites for protection based on state or national significance, and 5 indicating the lowest priority for protection. Ranks take into account quality of the population, potential threats, management needs and existing protection. Sites of similar rank are listed alphabetically by quadrangle.		

Areas of Local Significance		
Rank*	Feature	Description
Medium	Lake Conewago At Mount Gretna, South Londonderry Twp.	<p>This locally significant site has a known historical record for an S2 Pennsylvania- Endangered animal species of concern. The lake area is altered for recreation, but the creek leading into the lake has habitats that are suitable for this species. The marshy infeed area to the lake consisted of plant species such as Skunk Cabbage (<i>Symplocarpus foetidus</i>), Tussock Sedge (<i>Carex stricta</i>), and Alder (<i>Alnus sp.</i>). This area had a canopy cover of species such as Red Maple (<i>Acer rubrum</i>), Tulip Poplar (<i>Liriodendron tulipifera</i>), and Black Gum (<i>Nyssa sylvatica</i>). Other species included Poison Ivy (<i>Toxicodendron radicans</i>), Wild Grape (<i>Vitis sp.</i>), Jack-in-the-pulpit (<i>Arisaema triphyllum</i>), Spicebush (<i>Lindera benzoin</i>), Northern Arrow-wood (<i>Viburnum recognitum</i>), Jewelweed (<i>Impatiens sp.</i>), False Nettle (<i>Boehmeria cylindrica</i>), Meadow-rue (<i>Thalictrum sp.</i>), White Ash (<i>Fraxinus americana</i>), White Oak (<i>Quercus alba</i>), Silky Dogwood (<i>Cornus amomum</i>), and Morrow's Honeysuckle (<i>Lonicera morrowii</i>). This area is considered to be locally significant due to the potential habitat for an S2 Pennsylvania-Endangered animal species of concern, and for the extensiveness of the creek and the wetland feeding into the lake. It is recommended that future monitoring for this species be conducted to determine the presence/absence on the property.</p> 
Low	Lake Duffy-SGL #145 South Londonderry Twp.	<p>This site is considered a locally significant site with a variable wetland on one side of Lake Duffy. The uplands on one side of the lake consist of White Oak (<i>Quercus alba</i>), Red Oak (<i>Quercus rubra</i>), Sassafras (<i>Sassafras albidum</i>), Early low blueberry (<i>Vaccinium angustifolium</i>), Witch Hazel (<i>Hamamelis virginiana</i>), Northern Arrow-wood (<i>Viburnum recognitum</i>), Hazelnut (<i>Corylus sp.</i>), Maple-leaved Viburnum (<i>Viburnum acerifolium</i>), Spicebush (<i>Lindera benzoin</i>), Mayapple (<i>Podophyllum peltatum</i>), Black Gum (<i>Nyssa sylvatica</i>) and Red Maple (<i>Acer rubrum</i>). This side of the lake also contained abundant exotic species such as Multiflora rose (<i>Rosa multiflora</i>), Morrow's Honeysuckle (<i>Lonicera morrowii</i>), and Garlic Mustard (<i>Alliaria petiolata</i>). The other side of the lake edge contained a diverse wetland. This area gradually shifted from a graminoid marshy opening to a shrub swamp to a forested wetland. A more extensive shrub swamp with Alder (<i>Alnus sp.</i>) as the dominant species was found on the north side of the lake. Associated species with this wetland include Highbush Blueberry (<i>Vaccinium corymbosum</i>), Silky Dogwood (<i>Cornus amomum</i>), Wild Grape (<i>Vitis sp.</i>), Arrow-leaved Tearthumb (<i>Polygonum sagittatum</i>), Cattails (<i>Typha latifolia</i>), Sedges (<i>Carex spp.</i>), Swamp Azalea (<i>Rhododendron viscosum</i>), Jewelweed (<i>Impatiens sp.</i>), Poison Sumac (<i>Toxicodendron vernix</i>), Skunk Cabbage (<i>Symplocarpus foetidus</i>), Swamp Rose (<i>Rosa palustris</i>), Winterberry Holly (<i>Ilex verticillata</i>), Cinnamon Fern (<i>Osmunda cinnamomea</i>), and Spicebush (<i>Lindera benzoin</i>). The shrub swamp area gradually shifted into a small Red Maple Swamp.</p>
<p>* Areas of Local Significance are ranked from high to medium to low based on size, diversity of wildlife and plant life, water quality protection, and recreation potential (These sites do not include high quality natural communities and no species of special concern have been documented at the sites although several of the areas have potential for rare species to occur).</p>		

RECOMMENDATIONS AND SUMMARY

Lebanon County has a number of groups pursuing the protection of natural areas within the county. The following are general recommendations for protecting biological diversity within the county.

1. All sites that are ranked 1 or 2 should be targeted immediately for protection and/or management of the site and the surrounding lands.
2. Management plans on public and private lands should address species of special concern and natural communities and assess the need for additional acres to complete protection.
3. Conservation easements or other low cost protection can be pursued on lower-ranked sites.
4. Low quality sites (e.g., with marginal or poor populations of listed species in marginal areas) should be carefully assessed before pursuing protection or management efforts.
5. Locally Significant sites may be protected as higher priority sites are completed or as new information emerges.
6. Protection of the reservoirs, wetlands, rivers, and creeks of Lebanon County is vital, especially those that protect biodiversity, supply drinking water, and are attractive recreational resources.
7. Minimize encroachment on the parks and conservation lands throughout Lebanon County.
8. County and township officials can encourage landowners whose land includes waterways to maintain vegetated buffer zones along shorelines.
9. Scrutinize development proposals for their impact on entire watersheds not just the immediate impact area.
10. Development plans should provide for creating natural buffers between the development and the core preserve area, be it a barrens community, wetland, water body, or forest.
11. Grassroots organizations are needed.
12. Encourage development in sites that have already seen past disturbances.



Dinosaur Rock – An “Outstanding Scenic Geologic Feature of PA” & an element of a state-designated natural heritage site.

A requirement for an Environmental Impact Assessment (EIA) prior to any subdivision land development approval should be applied to areas within these natural habitats. These EIAs can be applied universally within rural areas or imposed as a special overlay zone within the designated areas. EIAs should require a thorough investigation of the extent of the habitat followed by the identification of potential adverse impacts as well as opportunities and mitigating measures that could protect these areas amid development. Applicants should be required to provide written evidence of review and approval of the proposed use from the PNHP prior to Township approval of the plans. The Township might also want to establish mandatory clustering in these areas so that these important resources can be protected amid rural-density developments. Transferrable development rights could also be used to financially compensate landowners who are willing to accept permanent conservation easements on these sites.

WOODLANDS

Much of the Region has been cultivated and/or developed; however, several large masses of woodland remain and many smaller concentrations are scattered throughout the Region particularly along watercourses. The Region's woodlands have been depicted identified using aerial photography. In all about 6100 acres of woodland exist representing about 26% of the total land area. The largest single concentration of woodlands occurs upon the PA State Gamelands No. 145 in south east South Londonderry Township. Next other large masses are located atop the Diabase geologic formation that produces a landscape difficult to cultivate and develop, again in central South Londonderry Township. As expected the valley between Campbelltown and Palmyra are relatively devoid of woodlands owing to their agricultural fertility and develop-ability. Other woodlands are concentrated along stream and upon steep slopes in both North and South Londonderry Townships.



sensitivity of wooded areas and adjoining neighbors from the deleterious impacts of uncontrolled logging uses and operations. More on this subject and a model forestry ordinance can be found on in Chapter X of this Plan.

Next, the concentrations of woodland deserve protection particularly in light of the Region's desire to protect its ground and surface waters. Reforestation and tree preservation requirements can require that a majority of existing trees in proposed subdivisions or land developments be maintained or replaced, except those whose removal is necessary for the proposed structures and required improvements.

The Region should consider the adoption of other protective measures for woodlands, such as limiting the removal of trees adjacent to streams, in steep sloped areas, and in or adjacent to identified natural habitat areas. In addition, developers as well as woodlot managers should be encouraged to maintain established wildlife corridors in the form of linkages to other wooded areas. ***Municipal***

Benefits of Woodlands Protection

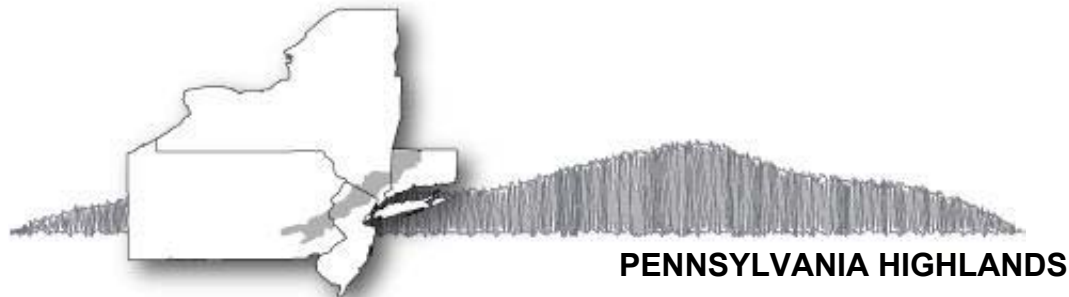
1. Slows erosion by stabilizing steep slopes and stream banks through extensive root systems.
2. Aids in storm water management and replenishment of aquifers by promoting groundwater recharge.
3. Aids in purifying groundwater by filtering runoff and reducing sediment wash caused by erosion.
4. Provides important wildlife habitat areas, particularly when large, unbroken areas of forest cover or linkages to other blocks of woodland can be maintained.
5. Offers excellent passive recreation opportunities, such as hiking, horseback riding, photography, hunting, and camping.
6. Helps reduce the level of air pollution by absorbing airborne pollutants and producing beneficial carbon dioxide.
7. Moderates climatic conditions by providing wind-breaks and shade from direct sunlight.

Recent amendments to the Pennsylvania Municipalities Planning Code (MPC) specifically enable local governments to protect significant woodland areas by preventing extensive development in those areas and/or engaging development review procedures that conserve these important natural features. However, the MPC also requires every municipality to permit forestry uses by right in every zone within the Commonwealth. ***Therefore, the Region must make this required change within its Zoning Ordinance. Furthermore it is vital that the Region develop and adopt sound forestry management regulations that can protect the***

Woodland Protection Measures

1. Tree removal setbacks adjacent to streams.
2. Tree removal limitations in steep-sloped areas and in and near natural habitat areas.
3. Maintenance of wildlife corridors.

officials should adopt zoning and subdivision and land development standards limiting the removal of trees in sensitive areas, and encouraging the preservation of wildlife corridors. Some municipalities also regulate non-emergency tree cutting unrelated to commercial timber harvest. Local officials should consider the benefits of these approaches that can be applied across the entire Region or by zone.



The Highlands Conservation Act authorizes the Secretary of the Interior and the Secretary of Agriculture to financially assist several states (including Pennsylvania) in the preservation of high priority highland areas. Appropriations total \$10,000,000 each year from 2005 through 2014 to be used in 50% matching grants submitted by each state's governor for worthy land conservation partnership projects. Within Pennsylvania, the Highlands extend from Northampton and Bucks Counties, where they adjoin the New Jersey Highlands across the Delaware River, southwest to the South Mountain on the border of Adams and Franklin Counties.

The Highlands separate the historically rural, and by now heavily urbanized, counties in the Philadelphia metropolitan area, Bucks, Montgomery and Chester, from the Great Valley Counties of Northampton, Lehigh, Berks, Lebanon and Dauphin. Lancaster County nestles in its own fertile basin, framed by Highlands on the northwest, north, and east. Along this broad, irregular spine of ridges and hills, one can trace the boundaries joining all ten of the Highlands' Counties. More rugged and less fertile than the lands that border them, the Highlands discouraged the plow, and despite repeated exploitation for timber and fuel, they retain large tracts of forest.

Within the Region, the PA Highlands encompass all of South Londonderry Township as part of the Furnace Hills section. This Section is characterized by the Middle Creek Wildlife Management Area, historic sites associated with the nation's iron era, the Horseshoe Trail, PA State Gamelands, the Victorian Mount Hope Mansion and the Village of Mount Gretna.

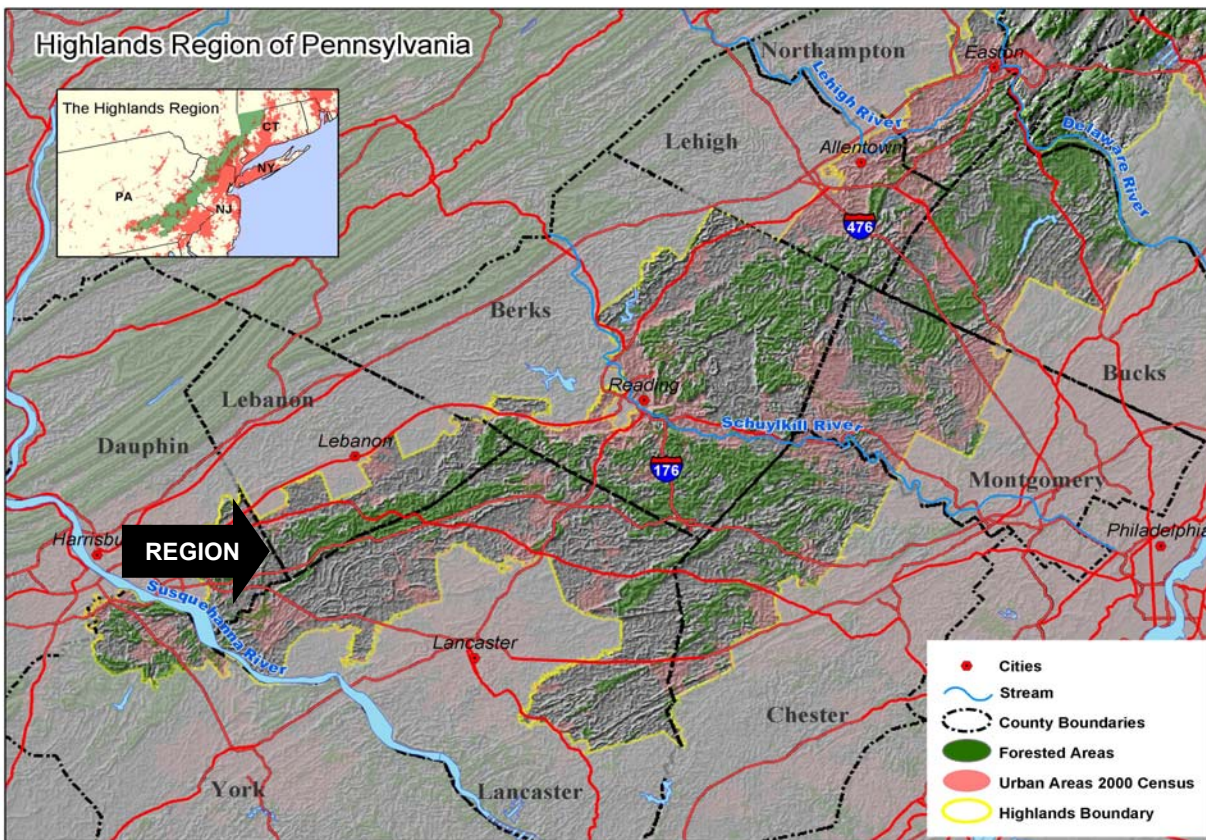
Because of its proximity to many of the Commonwealth's eastern and central urban centers, this large land area is under exceptional pressure from urban expansion. Residential development, reflecting the desire of urbanites to have a home in a suburban setting, is common in this region. Expanding commercial and industrial development is also occurring on lands that in their not too distant past were actively engaged in commercial agriculture. Conversion of the remaining forest and agricultural lands to other uses will have a major impact on the character of this region and the sustainability of its natural resources.

U. S. Forest Service Studies in the Highlands - The USDA Forest Service has been engaged in the Highlands since 1990, when the first study of the New York and New Jersey Highlands was initiated; the Forest Service completed an updated study in 2002. The regional study has been the basis for legislation in New Jersey to protect the Highlands, and for land conservation activities in New Jersey and New York. The goals and strategies set forth by the regional study have also informed private groups and municipal councils in their co-operative efforts.

The study of the New York-New Jersey Highlands identified the region's resources and indicated areas of

high conservation value. The study then examined patterns of land-use change, developed a model for predicting future change, and assessed the impacts on regional resources likely to result from land-use change.

Study of the Pennsylvania Highlands - The Highlands Conservation Act of 2004 authorizes federal assistance to the Highlands states for land conservation projects; it assigns to the USDA Forest Service responsibility for expanding the Regional Study to cover the Highlands in Connecticut and Pennsylvania. The overarching questions addressed by the study are: What are the natural resources of the Highlands, where are they located, and what are the implications of continued land use change for the resources?



The study will include a resource assessment. The objective of the resource assessment is a thorough description and evaluation of the natural resources in the Highlands. A set of resource evaluation maps that cover the Pennsylvania Highlands Region, and a composite Conservation Values Assessment map to identify areas of high conservation value will be produced. A report describing the data, the assessment process, and the results will accompany the maps.

The study will be led, and largely carried out, by a team from the Pennsylvania State University School of Forest Resources; they will focus on an assessment of five natural resource categories: water, biodiversity, recreation and open space, farmland, forestland. With the aid and cooperation of the Pennsylvania Department of Conservation and Natural Resources, the Forest Service will organize public listening sessions and work group sessions to be held periodically during the course of the study, with the purpose of enabling citizens and stakeholders to meet the study team, learn about what they are doing, and voice their suggestions or opinions regarding the study and the region.⁸

Regional Officials should monitor this process to ensure that any recommendations align with local objectives for the protection and conservation of the Township's sensitive and valuable

⁸ Email from Edward Boyer, PA Highlands, June 21, 2005.

natural features. Then once local highlands have been assessed, the Region should package land conservation partnership projects and submit these to the PA DCNR for consideration by the Governor and the Federal government.

F. HISTORICAL SKETCH, SITES & DISTRICTS

Palmyra Borough (source- 1968 Community Plan for Palmyra Borough)

Palmyra Borough is a town with a historical heritage to remember and preserve. It is also a town that must meet the changing conditions wrought by our dynamic new society. To better understand present-day Palmyra, something of its past should be known. A brief statement of the development of the Borough can be important in attaining a perspective of patterns and relationships that exist today.



Palmyra Bank historic site. Source <http://www.palmyrapa.com/>

Incorporation: Palmyra was incorporated as a Borough from part of North Londonderry Township on November 10, 1913. North and South

Londonderry Townships were formed from Londonderry Township. The name Londonderry was brought over by the Scotch-Irish from their home in Ireland where there is a city and county by the name of Londonderry. Londonderry Township was formed in 1768 as a result of the petition of the people of Derry Township, Lancaster County. In this petition, the residents begged for a division of the very extensive township. In 1813/ when Lebanon County was created, the eastern portion of the township was included in the new county.

Founder: Dr. John Palm (1713-1799) founded Palmstown, now known as Palmyra. He was a physician and soldier. He came from Heilbronn, Electorate of Brandenburg, in the Kingdom of Bavaria. Dr. Palm first settled in northern New Jersey near Elizabeth. On June 17/ 1766/ Dr. Palm secured a 100-acre tract of land from Conrad Raaisch. This was the third transfer of title since the time it was surveyed for Johannes Deininger in 1751. This tract can be roughly located today by the boundaries of North Railroad Street on the east, West Maple Street on the south, and the Dauphin County line on the west. His house stood at about the center of the 100 block on West Main Street. Dr. Palm is buried at Bindnagles Cemetery, and a memorial boulder was erected in his honor on a triangle on South Railroad Street on November 20, 1932.

Early Settlement: The present-day Palmyra Borough was originally the abode of the Lenni Lenape Indians who were commonly called Delawares. The Delawares were members of the Algonquin family. The Indians dwelt in the area because it was abundant with fish and game. Several names given to nearby streams are of Indian derivation. The first white settlers came to the area circa 1650 to trade with the Indians. A trading post with a stockade built by Indian traders was located several hundred yards north of the 300 block of West Main Street. Probably the first settlers in the Lebanon Valley were the Scotch-Irish who settled along the banks of the Swatara Creek in Derry Township before 1720. The Scotch-Irish did not remain in the area long. During the early part of the eighteenth century, Germans also settled the area. The Germans were attracted to the soil and remained in the area.

It is interesting to note that settlers approached the Lebanon Valley from the west and not the east. The settlers migrated along a water route following the Susquehanna River. From New York State, they floated down the Susquehanna River to Middletown, where the Swatara Creek joins the Susquehanna,

and from there turned inland. This is a significant fact because it indicates that the Palmyra region may have been settled before any other part of Lebanon County.

The selection of a point for settlement was determined by waterways, springs, terrain, and tillable soil. It has often been said that where a walnut tree grows on limestone soil, there is good fertile ground. The pioneers were skilled at finding the best ground. The German settlers were from the Palatinate section and the soil of the Lebanon Valley reminded them of the soil of their native Germany that they had tilled for so many years.

The People: The Scotch-Irish were Scots who had migrated to Northern Ireland and then to America. The decision to emigrate from Europe was largely dictated by circumstances of economics. The Scotch-Irish were a rugged and boldly independent people who adapted to the pioneer life. They led the westward advance of the frontier. Many of the Scotch-Irish were professional soldiers accustomed to hardship and outdoor living. They were not particularly interested in farming. They dwelled on areas of ground near Campbelltown, Paxtang, Indiantown Gap, and points in the mountainous sections. With a ring of forts about 12 miles apart, they protected the German farms from Indian raids.

The Germans and the Scotch-Irish shared two qualities: they both were clannish and self-reliant. In other respects, however, they were different. The Germans and Scotch Irish each spoke in their native tongues. The language barrier kept them from mixing readily. The Germans were not politically minded and let others run the government, unlike the Scotch-Irish who readily adapted themselves to politics. The two groups also differed from each other in their religious denominations. The first Germans were mostly Lutheran, while the Scotch-Irish were Presbyterians.

Being of a restless nature, the Scotch-Irish moved on to Cumberland County. Although much of the Scotch-Irish influence is no longer present, they did leave behind interests in fraternal, religious, and educational endeavors. A Masonic lodge built in 1809, church at Derry built in 1732, and the old Sessions School House attached to the church were all created by the Scotch-Irish.

The following are a few of the early Scotch-Irish settlers whose surnames can still be found among present day residents of Palmyra: David Mitchell, Henry Walker, James Wilson, and John McCord.

The Germans of Pennsylvania are commonly referred to as the Pennsylvania Dutch. "Dutch" is actually the anglicized assimilation of the foreign word "Deutsch," which means German. These Germans had undergone a great war and were devastated by the French in 1693. After the war came famine, pestilence, and religious persecution. In 1708, they experienced an extremely bad winter, and in 1709 they migrated to England. The following year, they emigrated to America and settled in Schoharie Valley in New York. The Germans felt they were oppressed by the English, and at the invitation of Pennsylvania Governor Keith, they decided to move. Most of these people who came to the Lebanon Valley in the 1700s were farmers, and they stuck to the land. It was not uncommon to find farmsteads remaining in family ownership for several generations. Some of the early German settlers whose names have been carried down to present residents of the Borough include: John Early, Joseph Carmony, John Bowman, Jacob Ricker, Joseph Forney, Anthony Hemperly, John Nye, Hans Kettering, John Gingrich, and John Zimmerman.

Development: The growth of communities is often influenced by modes and routes of transportation. In the case of Palmyra, this is specifically true. Palmyra's development was affected by the distance to and commercial generation attached with the pike, water transportation, and the railroad.

At first, all transportation around Palmyra was over dirt roads by horseback, coach, or wagon. Most of the early settlers built along Hill Road north of Palmyra, leading from Millerstown (now Annville) to Derry and on to Harris Ferry. The road from the Bindnagle area to the settlement at Campbelltown crossed this east to west road and then passed through Palmyra. Another of the main routes to and from Palmyra was the Downingtown, Ephrata and Harrisburg Pike, now commonly known as the Horseshoe Pike. Over this road, the farmers took their grain and produce to Philadelphia and brought back merchandise for the shopkeepers.

The Berks and Dauphin Turnpike was opened to traffic in 1817. It was built at a cost of \$3,800 per mile. This turnpike was a toll road connecting Reading to Harrisburg, and traversed the only street in the village of Palmyra, now West Main Street. The construction of this road brought more traffic—the stagecoach carrying passengers and U.S. mail. Palmyra was a horse stop and gained a reputation among travelers as a place to eat, drink, and be merry. During this period, Palmyra had five taverns. All of these taverns were located on West Main Street between the 100 and 700 blocks. Later, several other hotels were opened. In addition to taverns and lodging places, livery stables and blacksmith shops also benefited from the Berks and Dauphin Turnpike.

As time passed, farmers and business owners demanded faster and cheaper freight transportation. This demand resulted in the construction of the Union Canal several miles north of Palmyra. By means of the Swatara and Tulpehocken Creeks, the Union Canal connected the Schuylkill River at Reading with the Susquehanna River at Middletown. The Union Canal was completed in 1827 and transported over 267,000 tons of cargo in a single year. The farmers and merchants in Palmyra benefited from this new mode of transportation.

With the invention of the steam engine came another change in travel and transportation. The steam locomotive came to Palmyra on November 30, 1857, on the newly completed Lebanon Valley Railroad. Two years later, it merged with the Philadelphia and Reading Company and was later renamed the Reading Railroad. For many years, Palmyra was a town of one street. The location of the Lebanon Valley Railroad, whose tracks were laid some distance from present-day Main Street, caused the laying out of a thoroughfare at right angles with the main street of town, thus giving the Borough an "L" shape. After the railroad, most of the population lived on North Railroad Street as well as West Main Street. This is the oldest part of the Borough. With the advent of the new railroad, the turnpike (as a toll road) and the Canal faded into oblivion.

The town of Hershey was laid out in 1903. The building of the chocolate factory was a great stimulus to the growth of Palmyra. Shortly after the chocolate factory was opened, the Borough became large enough to be incorporated.

The following narrative was developed by Don Rhoads a local historian within Lebanon County:

Londonderry Township – In 1768, the inhabitants of Derry Township in Lancaster County petitioned the courts for the division of Derry. Their reasoning was that the boundaries of Derry were very extensive, and the inhabitants labored under many inconveniences. As a result, Londonderry Township was born.

Named after a county and a city located in the northern Irish province of Ulster, the township remained a part of Lancaster County until 1785 when Dauphin County was established. Almost three decades later in February 1813, Lebanon County was formed and Londonderry Township became a part of this newly established county.

The first humans to inhabit the area were the Indians. Their presence here has been established since at least 6,000 B.C. Just prior to white settlement, an Iroquoian speaking tribe known as the Susquehannocks settled here. They remained until defeated as a nation by the Iroquois in 1675, thus ending a permanent Indian presence in the area.

William Penn's spiritual tolerance and governmental participation brought many immigrants to Pennsylvania, particularly the Scotch-Irish, Germans and Swiss Germans. It was the Scotch-Irish—a group of Presbyterian people from the Scottish lowlands who settled the Northern Province of Ulster during the seventeenth century—who migrated to the United States and settled in the Londonderry Township area. Names such as Sawyer, Campbell, Kelly, Logan, and Hayes were represented. Their most notable contribution was the oldest church congregation in the area, Derry Presbyterian Church. The sexton house built in 1732 and the neighboring cemetery remain as monuments to them.

A westward migration by the Scotch-Irish in the late seventeenth century saw the names change to those of Germanic origins. Names such as Deininger, Early, Risser, Naftzinger, Brandt, Wolfersberger, and Gingrich became synonymous with the area. Their contributions were numerous including the bank barn, limestone farmhouse, and the Lutheran and Reformed churches that survive today.

Transportation played an important role in the township's history. First it was the Indians who produced various trails through the countryside, then the early turnpikes and finally the railroads.

Pennsylvania founder, William Penn's idea of reserving six percent of land purchases for road construction was the beginning of the state's road network. Crude roads were constructed bringing people into the township.

In an attempt to improve the road conditions, toll-collecting companies were formed. Londonderry Township gained two such roads when the General Assembly chartered the Downingtown, Ephrata, and Harrisburg turnpike in 1803 and the Berks and Dauphin Turnpike in 1805. Both remained until purchase by the Commonwealth of Pennsylvania, thus establishing the tax-based "free" system of roads. Today they are Routes 322 and 422, respectively.

Railroads were another important aspect of the township's history. The earliest line was established by the Philadelphia and Reading Railroad, which opened through the township in 1857. Palmyra became the main stopping point along the line. This line still operates under the auspices of Norfolk Southern as a main east west shipping route.

Robert H. Coleman, local iron magnate, established the Colebrook Valley Railroad in 1883, which brought great prosperity to the southern portion of the township, especially to the communities of Lawn and Colebrook. It remained operational until its abandonment by the Penn Central Railroad Company after the Agnes Flood in 1972. Today, it is part of the Lebanon Valley Rail Trail (LVRT).

Londonderry Township remained a whole entity until a division was made into North and South on March 16, 1894.

North Londonderry Township was comprised of one major community, Palmyra. Dr. John Palm, a Revolutionary War physician, established the town sometime in 1776 on a 100-acre tract Palm secured from Conrad Raish in 1766. He named it "Palmstown."

Historically speaking, Palmyra's industrial hallmarks were those of the shoe and bologna industries. Shoes came to the area in 1890, while bologna, in 1902, with Seltzer's remaining as a local landmark.

The post office was established in 1804, but by 1810 the name Palmyra was chosen. Once the Philadelphia and Reading Railroad arrived in 1857, Palmyra continued to grow beyond its simple boundary. Palmyra earned borough status on November 13, 1913, and is now a separately governed body.



Bindnagle's Church

The oldest church in North Londonderry Township is Bindnagle's Church. The congregation dates sometime before 1753, when John "Hans" Bindnagle donated land on which the original Lutheran church building of log was built. The present church was built between 1802 and 1804 on the same ground, and the cornerstone was laid in 1803. Some unique features are the original wine glass pulpit, the original door hardware produced by locksmith John Rohrer, of Lebanon, PA, and late-nineteenth-century "Swedish" marbleized technique by artist John Cardell in 1885. Founder of Palmyra, Dr. John Palm, is buried in the nearby cemetery.

North Londonderry Township's educational needs were originally served by Bindnagle's Church. With the signing of the free school act into law on April 1, 1834, the free school system in Pennsylvania was born.

A few one-room school houses were erected. Beginning in 1952, the North Londonderry Township School District operated their schools jointly with the Palmyra Borough School District, and in 1955 both merged to form the Palmyra Area School District.

Currently, North Londonderry Township is a community consisting of 10.8 square miles with a population of 6,771 as reported by the 2000 census. The governing body consists of a three-member Board of Supervisors who is elected at large. Their staff consists of personnel to provide administration, highway, sanitary sewer, and police services to the community.

South Londonderry Township is comprised of three major communities— Campbelltown, Colebrook, and Lawn. It once operated its own system of schools and continues to have various church congregations, businesses, and organizations operating within its boundaries.

The first schools in present day South Londonderry Township were established and operated by the church. The Township received its first place of education, according to William Egle (1883), when the Presbyterians erected a school near Colebrook in 1772. Campbelltown was soon to follow with a religious school being held there. Then in the early 1840s, a public school system was formed and a board of directors named. The “Directors of the Common Schools of Londonderry Township” began purchasing land throughout the township to erect schoolhouses. South Londonderry had a total of seven until consolidation in 1936 brought their number to two: Campbelltown and Lawn.



The historic Campbelltown School was operated until 1972. Today it houses the offices of South Londonderry Township.

The Township operated its own school system separately until a jointure with the Palmyra Area School District in 1956. They merged with the School District in 1962. The remaining schoolhouses at Campbelltown and Lawn were operated well into the twentieth century and closed in 1972 and 1981, respectively.

South Londonderry Township Churches remain an important link to the township’s past. Some have survived for over 200 years such as Trinity Evangelical Lutheran Church of Colebrook (1771) and Salem United Church of Christ in Campbelltown (1792/93). Others have celebrated their 100th Anniversaries such as Lawn Evangelical Congregational Church (1895), United Christian Church at Campbelltown (1877), and Colebrook (1889). Still others celebrate their existence within this century, among them Campbelltown United Methodist Church (1921), Grace Brethren Church (1956), and Calvary Bible Church of Colebrook. A few have been lost, but contributed to the area’s religious heritage such as St. Lawrence Catholic Church, the Episcopal and Presbyterian Church at Colebrook, and the Moyer’s Meeting House.

Various communities, large and small, are present in the township and each has a unique story to tell. Some areas with names such as Plainville or Kellyville, Kellys Corner (now Upper Lawn), and Mt. Wilson exist as locations known to the local inhabitants, but the largest and oldest established community in the township is Campbelltown.

Located on Route 322, it was founded by John Campbell about 1759/60 on a 352- acre tract of land he patented in 1759. Lots were laid out subject to the ground rent system and the town was born. Mr. Campbell died intestate in 1776. The land passed to his only male heir, brother Patrick. Peter Grubb purchased the same tract, ground rents, and other lands in 1779. When Robert Coleman began to acquire the Grubb’s interest in the Cornwall furnace and ore banks, the town of Campbelltown became his possession in 1780. Philip Wolfersberger, a native of Schaefferstown, purchased the same 352 acres from Robert in 1785. The Campbellstown tract was eventually split into four parcels among Philip’s sons,

Peter, John, Frederick, and Philip. A branch of the U.S. Post Office was established here about 1811 with John Wolfersberger as the first postmaster.

The town's industrial, residential, and social growth could be measured by the many items that gave Campbelltown its identity. Some past examples include a wagon- making facility, two taverns, a bank, a harness shop, hardware store, bakery, creamery, and various grocery stores. The local Fire Company was organized in 1925, Lions Club (1952), and an American Legion. Also, the town's amenities grew especially during the 20th century with the establishment of electric lights (1916), public water (1922), natural gas (1930), and recently public sewer (1980s).

Colebrook, the second oldest community, began with the erection of the "Mt Joy," later Colebrook, furnace by Robert Coleman in 1791. Workers' housing, the company store, iron master's mansion, furnace, mill, and sawmill became the nucleus of this once thriving industrial area. The 1883 arrival of the Cornwall and Lebanon Railroad brought forth the ice, wood, and milling trades replacing what the furnace had started. A hotel opened in the ironmaster's mansion by Edward Youtz about 1907. Rosa Youtz opened the Colemanor Tea Shoppe and the 104th Cavalry based its summer training camp here starting in 1921.

Today the community still retains a lot of its historical charm including the original iron master's mansion. Colebrook Tavern, formerly the site of the Colemanor Tea Shoppe, is an eating establishment for the surrounding area.

The newest community is Lawn. Originally called Roseland, its name was given as a result of the abundance of the multi-floral rose growing on the above hillside. It came about as the Colebrook Valley Railroad was being constructed in 1883. Thus, when the train arrived, so did a railroad station, feed mill, hotel, collapsible box factory, and a locally famous stockyard. The establishment of the Lawn Stock Yard in 1892 by Henry and Christian Gingrich, H. Gruber, and B.S. Stauffer saw from its earliest beginnings six car loads of cattle being shipped on the railroad per week. The establishment in 1889 of a post office by Aaron S. Kreider resulted in the renaming of the community. Roseland was found to be used elsewhere in the state, so Mr. Kreider decided to call the town Lawn, because of the beautiful, well kept lawns surrounding him. Another mentionable business was David B. Flory's butcher shop that opened on Railroad Street about 1890. The business remained in the family for another two generations until it closed in 1968 due to government regulations.

Today, Lawn retains its identity with its own branch of the U.S. Post Office and the Lawn Community Fire Company, founded in 1942.

Currently, the Township not only has its communities but also its newest form of community, the development. The various developments— Country Squire Estates, Londonderry Village, Mountain View Heights, Timber Hills, and Eagle Estates—help to make up the present population, 4,502 (1990 census), of the township.

Milton S. Hershey supplied a great service to the township with the establishment of the Hummelstown and Campbellstown Street Railway in 1903. The first car, a "line car," arrived in Campbelltown in 1906. With the arrival of the "toonerville" a network of trolley connections enabled everyone to travel to Lebanon, Harrisburg, and beyond. WWII retained the trolley's use until the evening of December 21, 1946, when the last car left Campbelltown for good. Bus service was then instituted but ceased to operate after a few years.

Today, South Londonderry Township still continues to retain a lot of its charm and personality through its very historic architecture, small community atmosphere, and undeveloped nature. Current development surrounding the village of Campbelltown has been increasing at a steady pace. State Game Lands #45 can be found within the township as well as a few small parks for the recreation of its residents. A police force and two community fire companies also exist. The governing body consists of a Board of Supervisors and 12 full- time employees.

Palmyra Area Region, like much of southeastern Pennsylvania, is fortunate to possess a rich cultural heritage. Today this heritage is apparent from the many older individual buildings, structures and related settlements that are scattered throughout the Region. Local officials and residents recognize the value of conservation, rehabilitation, and adaptive reuse of these historic resources features as a means of providing a glimpse into the area's important past. Additionally, historic preservation can provide educational opportunities regarding historic lifestyles and architecture. Well-maintained historic areas create a sense of unique identity that stimulates civic pride and economic vitality, and can become a basis for tourism.

The Lebanon City / County GIS Department has mapped those sites that have been previously listed on the Federal Register of Historic Places or have been determined to be eligible for listing by the Pennsylvania Historical and Museum Commission. While hundreds of other potential historic sites exist within the Region, they have not been yet mapped and inventoried.

It is clear that historic preservation is a planning approach that has not been fully realized within the Region. Local officials are encouraged to consider the benefits of undertaking one or more of several historic preservation approaches and gauge public reaction. The following list some of the actions that can better incorporate historic preservation within the Region. The Region should solicit interest in the creation of a local or regional conservancy devoted to the updating of historic site inventories and then advocating any of the following preservation strategies.

- 1. "Establishing realistic goals to implement suitable preservation guidelines and standards. Realistic goals should be established that are adopted with considerable public scrutiny and support (make sure that goals are achievable);***
- 2. Identifying individual resources and districts based on the survey that could be eligible for the National Register of Historic Places and apply for listing in the Register;***
- 3. Adding regulations into the zoning ordinance which will help achieve historic preservation goals, like the review of demolitions; design guidelines for infill construction; Historic Overlay Zones; incentives for adaptive reuse, rather than demolition, etc.;***
- 4. Updating existing zoning regulations to resolve conflicts with historic preservation goals, like incompatible uses, excessive setbacks, required off-street parking, reduced lot coverage, etc.; and,***
- 5. Developing partnerships with community groups and organizations to facilitate a public education initiative about local history and the historic resources in the municipality.⁹***

⁹Letter from Carol E. Wilson, Historic Preservation Specialist to Harry Roth

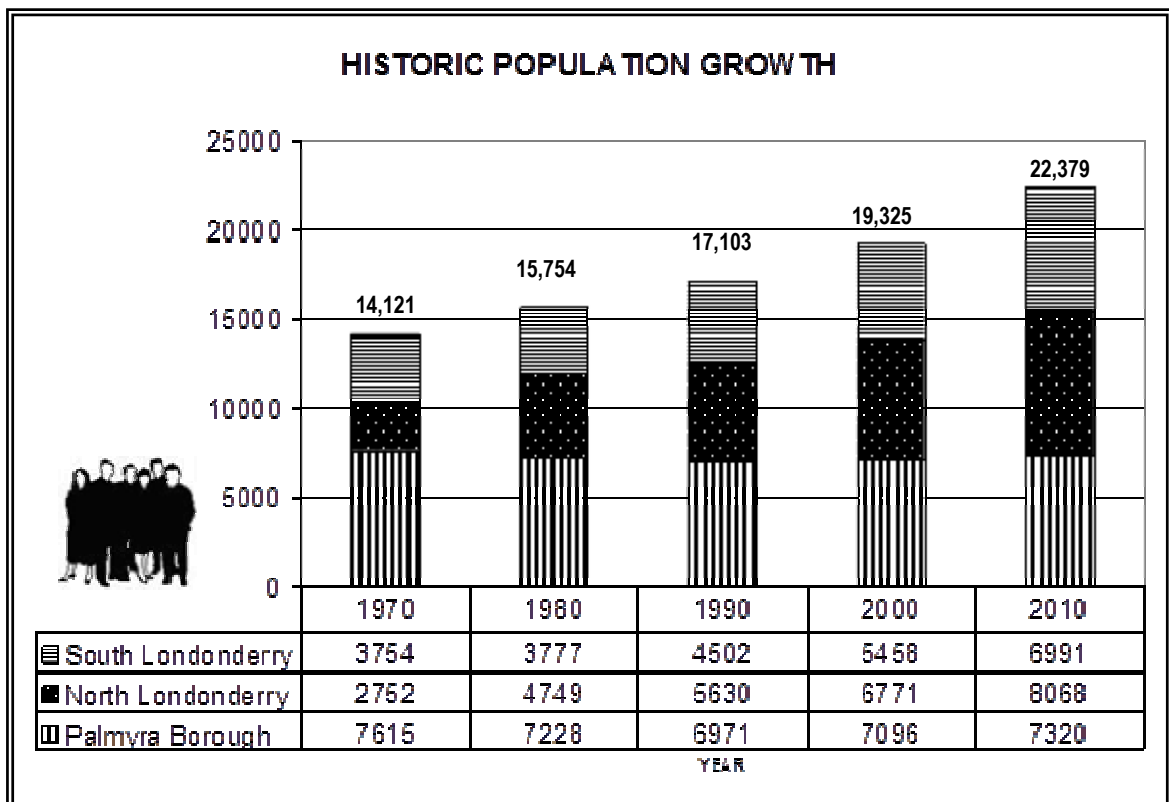
IV. Demographics

The allocation of municipal resources must consider the population to be served. Population, housing and economic analyses are a principal component of any comprehensive plan. Obviously, the overall size and composition of a population is related to the amount of land, manpower and services to be provided. In addition, particular groups within the population have different needs. This section will present past, current and expected population statistics in order to determine the Region's needs.



A. Historic Population Growth

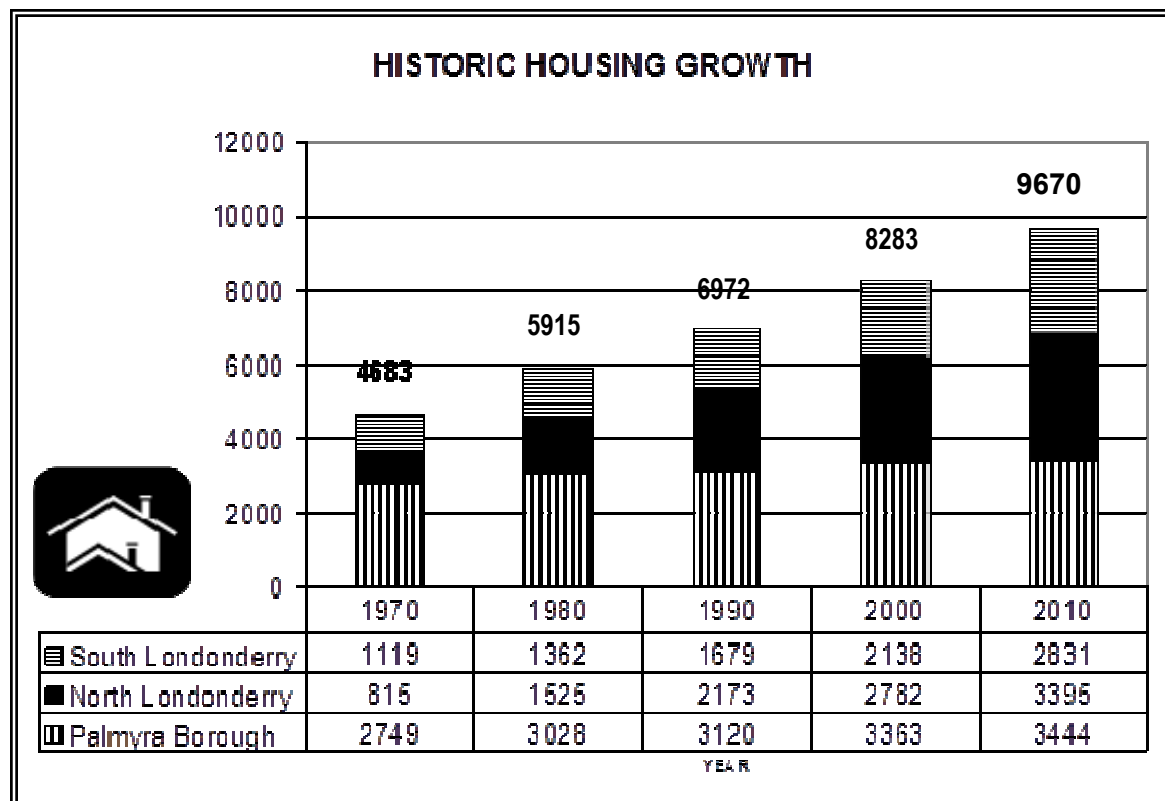
The historical growth pattern of an area provides insight as to the growth that might be expected in the future. The following table lists the amount of population growth that has occurred over the last 40 years within each municipality of the Region.



From the above graph, several trends are visualized. First, the Region has realized a steady rate of growth since 1970 averaging about 2065 new residents each decade. Next Palmyra Borough's share of the Region's population was greatest in 1970 and declined for 30 years but has largely regained its losses since the turn of the century. Palmyra Borough's population decline and South Londonderry Township's minimal growth during the 1970s was offset by the large gain by North Londonderry Township during that decade. Since 1980 both Townships have experienced greater increases while the Borough has added less than 100 people. Today North Londonderry Township has the greatest share of total population within the Region.

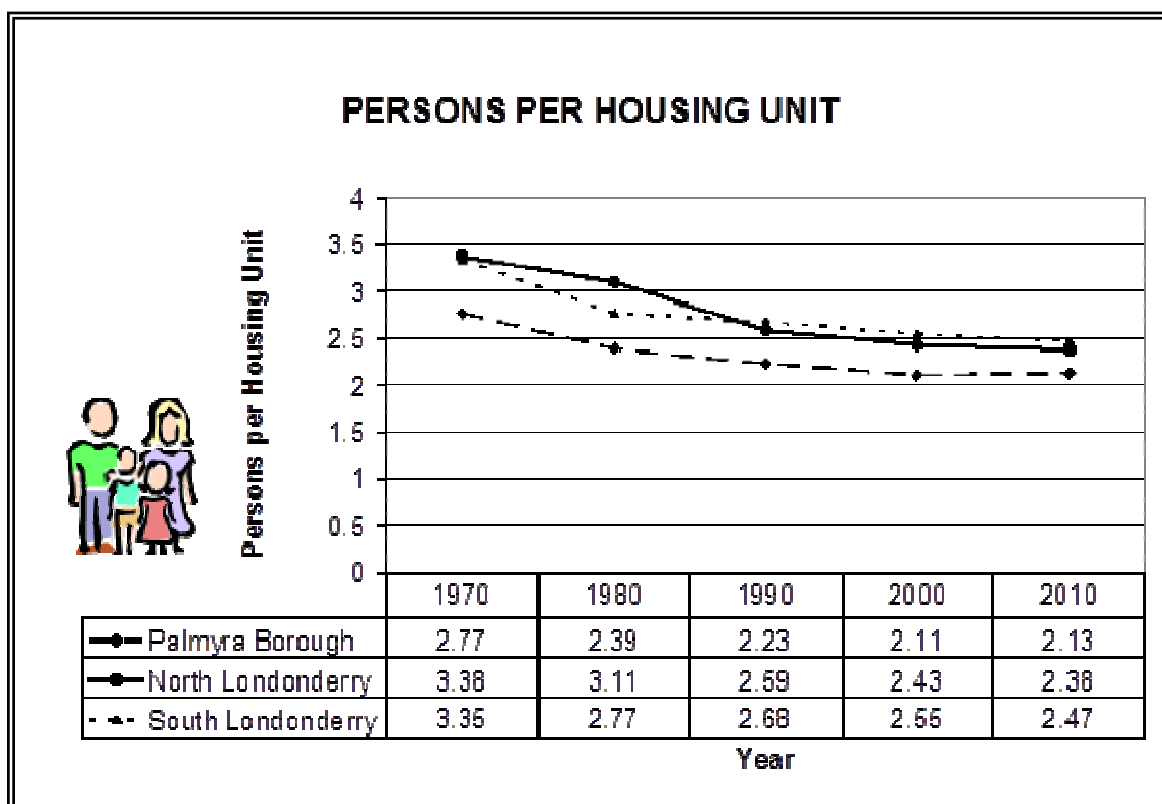
B. Historic Housing Growth

In addition to population growth, another important consideration when projecting how fast an area will grow relates to its number of housing units. The following table lists the number of housing units within each municipality since the US Census Bureau began reporting such information in 1970 through the most recent count in 2010.



Unsurprisingly, the number of housing units has steadily increased within the Region. On average the Region added about 1247 new housing units each decade during the last 40 years. Palmyra Borough has at all times contained the most housing units; however, their proportion of units within the Region has declined from 59% in 1970 to 36% in year 2010. North Londonderry Township's housing stock has experienced the highest rate of growth within the Region and will almost certainly surpass the Borough during the projected timeframe of this Plan. South Londonderry Township's rate of housing growth has steadily accelerated over the last 40 years.

Next, the rate of housing growth is slightly greater than that of population. Between 1970 and 2010, the Region's population grew by just over 58%, while its number of housing units grew by over 106%. This occurred because fewer people are living together, as family sizes have decreased and more people are living by themselves. This trend is true for both Townships since 1970. This trend has also occurred nationally for several decades.



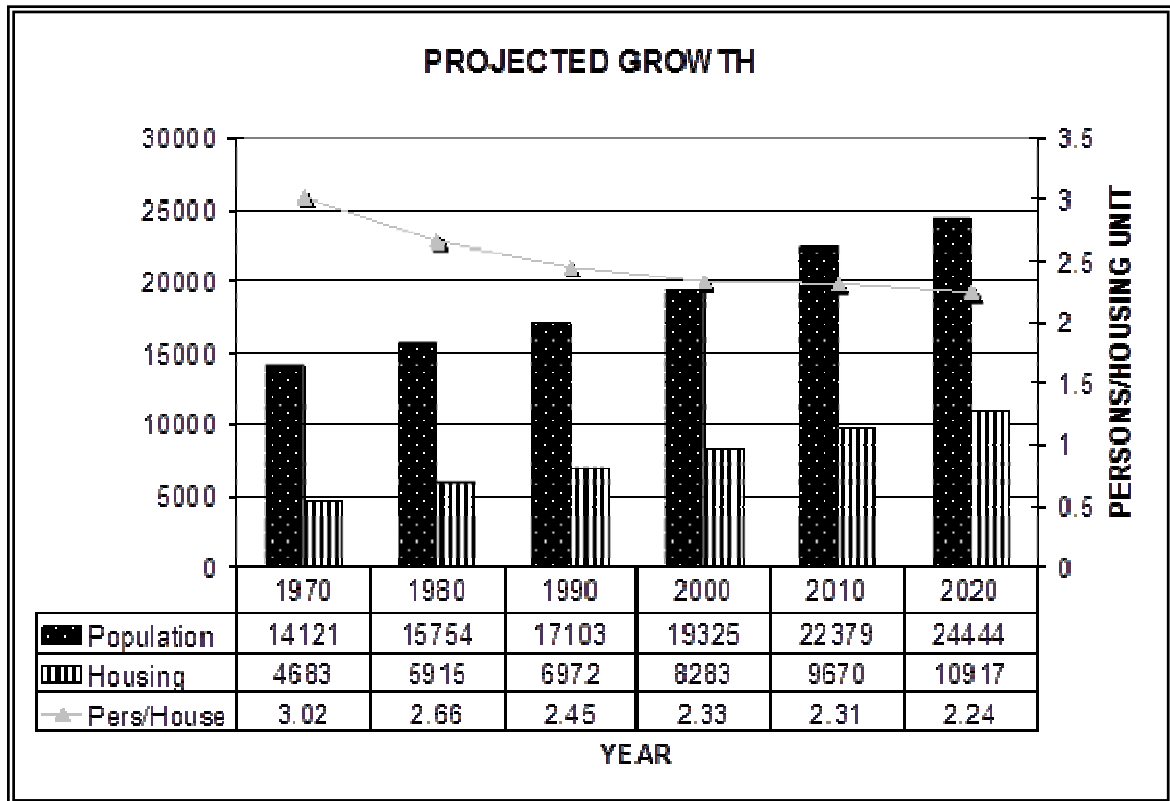
Palmyra Borough has historically had smaller household sizes which is customary when compared with their suburban and rural counterparts. Regionally, each household lost about 0.8 of a person between 1970 and 2000. Palmyra Borough lost about 0.64 of a person, North Londonderry Township lost about one person while South Londonderry Township lost 0.88 of a person. It is important that population and housing projections for the Region take into account this trend so that adequate growth area can be assigned for projected new housing units.

C. Population & Housing Projections

Review of the population and housing trends for the Region over the last few decades reveals a steady rate of growth. Although the Borough has experienced, two decade of slight decline, the Townships have experienced a corresponding increase in development. This is testimony to the local nature of growth pressures occurring within the Region as growth shifts to the area able to accommodate it at that time. Clearly actions taken in one municipality affect growth within the others. Even with the slight population declines experienced within the Borough, each decade recorded increases in housing units for each municipality within the Region.

Therefore, because these growth trends are similar and linked with each municipality, an arithmetic or linear extrapolation should produce reliable predictions of growth for the Region. While this technique is considered one of the most basic of projection techniques, it also is one of the most powerful as it considers all of the factors that have affected past growth. For these reasons the linear projections for years 2010 through 2020 will be used to allocate the Region's resources through the balance of this Plan.

Population and housing projections were developed separately using the US Census Bureau actual counts between years 1970 and 2010.



As can be seen in the preceding graph, a “natural” growth curve extends for both the population and housing bars between the historic rate experienced in the past through the projected growth to the year 2020. Similarly, the descending line depicting the reducing average household size also follows a “normal” curve since the large reduction experienced during the 1970s. These traits typify projections that are realistic and reliable.

Projected Net Changes Per Decade		
Year	2000 to 2010	2000 to 2020
Population	2065	4130
Housing	1247	2494
Persons/Unit	-0.02	-0.10

The above Table following tabulates the net changes projected within the Region. Because this Comprehensive Plan can allocate the growth throughout the Region to best “fit” expressed planning goals no individual municipal projections are provided. Rather this Plan will focus upon the Region-wide projections and the above projected net changes will become target figures for allocating resources to meet growth by decade across all three municipalities.

D. Socio-Economic Characteristics

This section will present US Census Bureau statistics from the years 2000 and 2010 on a wide array of characteristics of the Region.

Age Profile					
Age Group	Palmyra Borough	North Londonderry	South Londonderry	Region	Lebanon County
0-5 yrs	409	370	438	1217 (5.4%)	6.3%
5-9 yrs	436	509	493	1438 (6.4%)	6.3%
10-14 yrs	433	471	496	1400 (6.3%)	6.4%
15-19 yrs	443	427	396	1266 (5.7%)	6.5%
20-24 yrs	437	250	271	958 (4.3%)	5.8%
25-64 yrs	3958	4134	3792	11,884 (53.1%)	51.5%
65+ yrs	1258	1907	1105	4270 (19.0%)	16.9%
Median Age	40.2	48.0	42.3	43.4	41.0
Comments: Overall, the Region's population has a median age 2.4 years older than that of Lebanon County. The Region's concentration of senior citizens and all municipalities' concentration of working age adults contribute to this high median age. The Region has a suspicious lack of teens and young adults that could suggest a trend towards out-migration after school. By contrast Palmyra Borough's concentration of young adults (46% of the Region) and children (32% of the Region) suggest that the Borough remains a desirable community within which to begin and raise a family. This is a surprising finding when compared with other older Boroughs located within central Pennsylvania.					

Racial Composition & Hispanic/Latino Origin					
Race	Palmyra Borough	North Londonderry	South Londonderry	Region	Lebanon County
White	6968	7782	6724	21,474 (95.9%)	91.0%
African American	76	60	48	184 (0.8%)	2.2%
Native American	11	7	4	10 (0.0%)	0.2%
Asian	118	131	116	365 (1.6%)	1.1%
Pacific Islander	1	0	1	2 (0%)	0.0%
Other	36	17	27	80 (0.4%)	3.9%
Bi-racial	110	71	71	252 (1.1%)	1.6%
Hispanic/Latino	220	119	125	464 (2.0%)	9.3%
Comments: Each of the municipalities and the Region, has far less racial diversity than does Lebanon County. In total minorities comprise only 2.8 percent of the Region's population as compared with 7.4 percent of the County's makeup. The Region has a slightly higher proportion of Asian descendants than Lebanon County but this still accounts for only 1.6 percent of the Region's population. Residents are of Hispanic/Latino descent, account for only 2 percent within the Region, a rate slightly higher than 1/5 that of the entire County.					

Gender Profile					
Gender	Palmyra Borough	North Londonderry	South Londonderry	Region	Lebanon County
Male	3502	3806	3437	10,745 (48.0%)	48.8%
Female	3818	4262	3554	11,634 (52.0%)	51.2%
Comments: Like Lebanon County as a whole, the Region, and each of its municipalities has more females than males.					

Educational Attainment for Adults 25+ Years (US Census 2000 data)		
Area	High School Diploma	4+ Year @ College
Palmyra Borough	86.6%	20.1%
North Londonderry Township	89.9%	30.8%
South Londonderry Township	83.7%	21.8%
Palmyra Area Region	87.0%	24.5%
Lebanon County	78.6%	15.4%
Comments: All municipalities within the Region enjoy educational attainment levels exceeding those of Lebanon County as a whole. North Londonderry Township has advanced educational attainment levels twice the County average.		

Income (US Census 2000 data)				
Area	Per Capita	Median Family	Median Household	Persons Below Poverty
Palmyra Borough	\$20,500	\$49,091	\$39,677	370 (5.2%)
North Londonderry	\$27,664	\$68,962	\$56,426	267 (3.9%)
South Londonderry	\$24,296	\$63,112	\$51,699	79 (1.5%)
Palmyra Area Region	\$24,082	\$60,410	\$48,500	716 (3.7%)
Lebanon County	\$19,773	\$48,906	\$40,838	8,728 (7.5%)
Comments: Both Townships enjoy individual, family and household incomes well above the Lebanon County averages and those of Palmyra Borough. The Borough has income levels slightly higher than those for the entire County with the exception of median household incomes which are slightly less. This finding is consistent with the results of the Borough's age composition which revealed that the Borough has a high incidence of entry level households and young families who tend to be just entering their income earning careers. North Londonderry Township has income levels about 40 percent higher than those of the entire County while South Londonderry Township has incomes about 26 percent higher than those of the County. South Londonderry Township enjoys a level of poverty well below that North Londonderry Township and Lebanon County. The Statewide average for persons living in poverty is 11 percent; therefore, the Region and Lebanon County has fewer people living in poverty than across the State. <i>However, if special outreach programs are contemplated within the Region, they should be targeted within Palmyra Borough and North Londonderry Township where poverty is higher.</i>				

Employment Status & Commuting (US Census 2000 data)					
Area	Total Labor Force (16 yrs +)	Unemployed	Carpooled	Public Transit	Average commute
Palmyra Borough	66.1%	2.4%	9.9%	0.2%	20 mins.
North Londonderry	68.2%	4.5%	7.4%	0	24 mins.
South Londonderry	70.7%	2.0%	10.0%	0.3%	22 mins
Palmyra Area Region	68.1%	3.0%	9.0%	0.2%	22 mins
Lebanon County	65.7%	2.6%	10.3%	0.6%	21.8 mins
Comments: The Region has a higher percentage of workers than does the County. However, North Londonderry Township has an unemployment rate more than twice that of South Londonderry Township and 73 percent higher than that of Lebanon County as a whole; this causes the Region's unemployment rate to slightly exceed that Countywide. Carpooling is relied upon more heavily within Palmyra Borough and South Londonderry Township at just below the County average and public transit also occurs at half the Countywide level within South Londonderry Township and 1/3 across the Region. North Londonderry Township commuters carpool less often and make no use of public transit. The Region requires an average commute of slightly longer than that throughout Lebanon County.					

Civilian Labor Force (US Census 2000 data)					
Occupation	Palmyra Borough	North Londonderry	South Londonderry	Region (Rank)	County
Agriculture, forestry, fishing, hunting, mining	0.6%	0.6%	1.0%	0.7% (13)	2.8%
Construction	7.2%	8.0%	6.6%	7.3% (5)	6.5%
Manufacturing	19.3%	21.5%	23.0%	21.2% (2)	21.9%
Wholesale trade	4.9%	4.1%	2.5%	3.9% (10)	4.9%
Retail trade	9.1%	9.9%	8.9%	9.3% (3)	11.3%
Transportation, warehousing, utilities	2.7%	3.3%	6.1%	3.9% (10)	4.6%
Information	2.7%	2.9%	1.1%	2.3% (12)	1.7%
Finances, insurance, real estate	5.3%	4.5%	4.3%	4.7% (8)	3.8%
Professional, scientific, management, waste	7.0%	5.6%	7.1%	6.5% (6)	5.6%
Educational, health, social services	24.3%	24.7%	21.2%	23.5% (1)	21.1%
Arts, entertainment, recreation, lodging, food	8.9%	5.5%	7.7%	7.4% (4)	7.4%
Other services	4.9%	3.7%	4.4%	4.3% (9)	4.6%
Public administration	3.3%	5.4%	5.9%	4.8% (7)	3.8%
Comments: Like in Lebanon County as a whole, educational, health and social services represent the largest single sector of employment within the Region. Manufacturing is the second leading employer within the Region at a rate slightly below that of the Countywide average. Retail trade ranks third within the Region again at a rate below the Countywide average. Arts, entertainment, recreation, lodging and food service ranks fourth within the Region at the same rate as the Countywide average. Construction ranks fifth within the Region. Each of the Region's Townships have higher concentrations of construction workers who tend to favor rural home sites where housing is more affordable and on-site storage of equipment and supplies can occur; this may suggest the need for rural occupation regulations. Agriculture provides for the least employment within the Region at a rate of about 1/3 the Countywide average. Overall the Region's civilians are engaged in more diversified employment than Lebanon County as a whole.					

Housing & Household Characteristics					
Characteristic	Palmyra Borough	North Londonderry Twp	South Londonderry Twp	Region	Lebanon County
Group Quarters	38 (0.5%)	125 (1.5%)	67 (1.3%)	230 (1.0%)	2.7%
Family Households	1939 (59.4%)	2413 (73.1%)	2005 (74.5%)	6357 (68.7%)	69.1%
Rental Units	1375 (42.1%)	475 (14.4%)	396 (17.7%)	2246 (23.2%)	28.0%
Vacant Units	181 (5.3%)	93 (2.7%)	141 (5.0%)	415 (4.3%)	6.0%
Seasonal Units	15 (0.4%)	15 (0.4%)	17 (0.6%)	47 (0.5%)	0.9%
Comments: Within the Region, both North and South Londonderry Townships have a significant number of residents living within group quarters (those units where people live in communal or dormitory settings) but still less than the average occurring Countywide. Palmyra Borough has substantially lower percentage of family households than both Townships within the Region and the County as a whole. However the overall Region has a slightly lower percentage of family households than does Lebanon County. Palmyra Borough currently contains 61% of the Region's rental housing units at a rate that is more than 2.6 times higher than the two Townships. The entire Region has a lower percentage of rental units than that within the County. Palmyra Borough has the highest vacancy rate within the Region but overall the Region's vacancy rates is only 72% that occurring Countywide. A low ratio of rental housing units and a low housing vacancy rate, are both primary indicators of a lack of availability of affordable housing opportunities. <i>Given that these rates are both low within the Region suggests that future land use policies should pay particular attention to ensuring higher-density housing types, which tend to be more affordable.</i> Seasonal housing units comprise only 0.5% of the Region's housing stock which is less than that throughout Lebanon County.					

Housing Condition (US Census 2000 data)				
Area	Units Lacking Complete Plumbing	Units Lacking Complete Kitchen	Units Relying Upon Solar Heat	Built Pre-1940
Palmyra Borough	8 (0.3%)	25 (0.8%)	0	1134 (33.7%)
N. Londonderry Twp.	8 (0.3%)	8 (0.3%)	0	255 (9.2%)
S. Londonderry Twp.	0	0	0	458 (21.4%)
Palmyra Area Region	16 (0.2%)	33 (0.4%)	0	1847 (22.3%)
Lebanon County	(0.4%)	(0.5%)	4 (0.0%)	(30.8%)
Comments: Up to 49 housing units within the Region are considered to be substandard none of which are located within South Londonderry Township. Solar energy as a primary source for heating has not emerged within the Region and only minimally within Lebanon County. Recent events may stimulate renewed interest within solar heat and the Region should make sure that local land use policies promote, rather than block, such use. Palmyra Borough has the highest concentration of older homes while each of the Townships within the Region has a lower percentage of homes built pre-1940 than that of the County as a whole. These can be indicative of housing that may need replaced but it can also indicate the presence of homes that are considered to be "historic" by local, State and National agencies. <i>This Plan should pay attention to the condition of these older homes and inventory any historic resources and then devise suitable strategies for their repair, rehabilitation, demolition and or preservation, as may be indicated.</i> More information on historic preservation is contained within Chapter 3 of this Plan.				

Housing Tenure & Vacancy				
Area	Owner-occupied Units	Owner-occupied Vacancy Rate	Renter-occupied Units	Renter-occupied Vacancy Rate
Palmyra Borough	1888 (57.9%)	1.7%	1375 (42.1%)	5.5%
N. Londonderry Twp.	2827 (85.6%)	0.8%	475 (14.4%)	4.0%
S. Londonderry Twp.	2294 (85.3%)	1.0%	396 (14.7%)	3.6%
Palmyra Area Region	7009 (72.5%)	1.1%	2246 (23.2%)	4.8%
Lebanon County	(72.7%)	(1.7%)	(27.3%)	6.5%
Comments: Homeownership within Palmyra Borough is substantially lower than the two Townships within the Region. However, overall the rate of homeownership within the Region is only slightly below that across Lebanon County. Likewise owner-occupied vacancies are also 35% lower within the Region when compared with the Countywide average. Palmyra Borough currently contains 61% of the Region's rental housing units at a rate that is almost 2.6 times higher than the two Townships. The entire Region has a lower percentage of rental units than that within the County. Rental vacancy rates within the Region are 26% lower than the County average.				

Housing Costs (US Census 2000 data)				
Area	Average Monthly Rental Costs	Household Rents 35%+ of Income	Average Owner-Occupied Housing Values	Household Mortgage 35%+ of Income
Palmyra Borough	\$468	215 (15.9%)	\$94,400	190 (11.9%)
N. Londonderry Twp.	\$487	8 (2.8%)	\$132,300	214 (9.8%)
S. Londonderry Twp.	\$564	56 (20.5%)	\$131,100	173 (12.1%)
Palmyra Area Region	\$485	279 (14.6%)	\$120,557	577 (11.1%)
Lebanon County	\$470	(21.2%)	\$100,700	12.6%
Comments: Given the Region's suburban location and proximity to more affluent Dauphin County and Hershey it is understandable that its housing stock comes at greater expense than other less developed areas within Lebanon County. Monthly rents within the Borough are lowest within the Region and slightly lower than those collected throughout the County. However, across the entire Region rents are about 3% higher than throughout Lebanon County. Those households who are spending 35% or more of their income on rent are concentrated within Palmyra Borough and South Londonderry Township and the Region's rate is 31% lower than the Countywide average. Palmyra Borough's owner-occupied housing values are lowest within the Region and 6% lower than the Countywide average. The Townships owner-occupied housing values average 31% higher than those across Lebanon County. The rate of those owner-occupied households who are spending 35% or more of their income on housing costs within the Region are slightly lower than those across Lebanon County.				

Housing Type (US Census 2000 data)					
Area	Single-family Detached	Single-family Attached	Two-family	Multiple-family	Mobile Home
Palmyra Borough	1361 (40.5%)	731 (21.7%)	351 (10.4%)	797 (23.7%)	123 (3.7%)
N. Londonderry Twp.	2006 (72.1%)	585 (21.0%)	51 (1.8%)	116 (4.1%)	16 (0.6%)
S. Londonderry Twp.	1478 (69.1%)	201 (9.4%)	80 (3.7%)	97 (4.6%)	282 (13.2%)
Palmyra Area Region	4845 (58.5%)	1517 (18.3%)	482 (5.8%)	1010 (12.2%)	421 (5.1%)
Lebanon County	(57.2%)	(18.5%)	(5.3%)	(12.9%)	(5.9%)
Comments: As can be seen, the Region exhibits a very balanced diversity of housing types, mostly due to the concentration of higher-density housing within Palmyra Borough. High preference towards single-family detached housing within the Townships is largely offset by the Borough's concentrations of two and multi-family dwelling units. Nonetheless, the Region must provide for its fair share of a wide range of housing types; therefore, future residential growth areas must seek to attract a similar balance of housing types. Overall the Region has a large stock of mobile homes that is slightly below the Countywide average in large measure because of the units contained within South Londonderry Township.					

In order to avoid claims of exclusionary zoning practices and to reflect contemporary housing styles, it is recommended that the Region specifically plan to rely less upon single-family detached units in the future. In addition, national housing trends suggest greater reliance on more dense/multi-family units and compact detached units. For these reasons it is recommended that the Region allocate future land use to meet the target growth in the following residential categories:

Target Projected New Housing Units by Structural Type (US Census 2000 data)					
Year	Total Units	Target single-family detached	Target attached and duplex	Total multi-family	Mobile Homes
2000	8283	4845 (58.5%)	2420 (24.1%)	1010 (12.2%)	421 (5.9%)
2000-2020	+2494 = 10,777	+1082 = 5927 (55%)	+813 = 3233 (30%)	+ 607 = 1617 (15%)	+225 = 646 (6%)*
* The figures for mobile homes are included within the projections for single family detached dwelling units in accordance with prevailing PA case law.					

Methods to achieve this mix of future housing are presented in Chapter XI of this Plan. In compliance with the Municipalities Planning Code, the allocation of this projected housing can be accomplished anywhere within the three participating municipalities of the Palmyra Area Region according to each's respective community development goals expressed within Chapter II of this Plan.

V. Existing Land Use

For a land use plan to be practical, it must accurately inventory existing land uses and development characteristics. Then, with proper analysis, future land use schemes can reflect reality, and avoid the creation of nonconforming uses when implemented through zoning regulations. To determine existing land uses, several sources were consulted. First, the Lebanon County GIS Department maintains tax parcel record information for each property within the County. This was used as a base for both North and South Londonderry Townships. Within Palmyra Borough a separate existing land use GIS file was extracted from the March, 2007 Comprehensive Plan as a beginning layer of data. Then, a windshield survey was conducted using the County's GIS aerial photography in March and April, 2009 to verify existing community characteristics.



Regionally, the existing land use pattern varies widely. Overall the Region has most of its land area still devoted to agriculture and open spaces, many of which are PA State Gamelands. Clearly the largest concentration of farming and open space is within South Londonderry Township; however, North Londonderry has a large measure of farmland and open space.

Densely populated neighborhoods within central Palmyra Borough give way to medium density neighborhoods around the Borough's edge that extend into older neighborhoods within North Londonderry Township. Some higher density developments occur at scattered locations throughout the Region and the Lebanon Brethren Home is a significant medical residential campus that serves the entire Region and beyond. Newer suburban developments are rapidly converting farmlands within the fertile Lebanon Valley areas from Palmyra Borough to the Village of Campbelltown. Rural and farm residences dominate most of South Londonderry Township although some newer developments are occurring around the Villages of Lawn and Mount Gretna. Many residences have home and rural occupations.

Commercial developments also cover a wide range of sizes and configurations. Massive regional shopping centers have extended over time spreading eastward from the Borough on the north side of US Route 422 in North Londonderry Township. These centers offer a wide range of national franchise stores, services and eateries among some local businesses within several coordinated settings. It would appear that newer centers have strained the demand for uses within the older centers as many storefronts are vacant at this time. Along the south side of US Route 422 are numerous freestanding strip commercial uses that generally lack shared features and coordinated vehicular access. This pattern of development extends into Palmyra Borough along both sides of Main Street to Harrison Street. Palmyra Borough's central business area had served as the Region's center for commerce during the first half of the 1900s and many of these

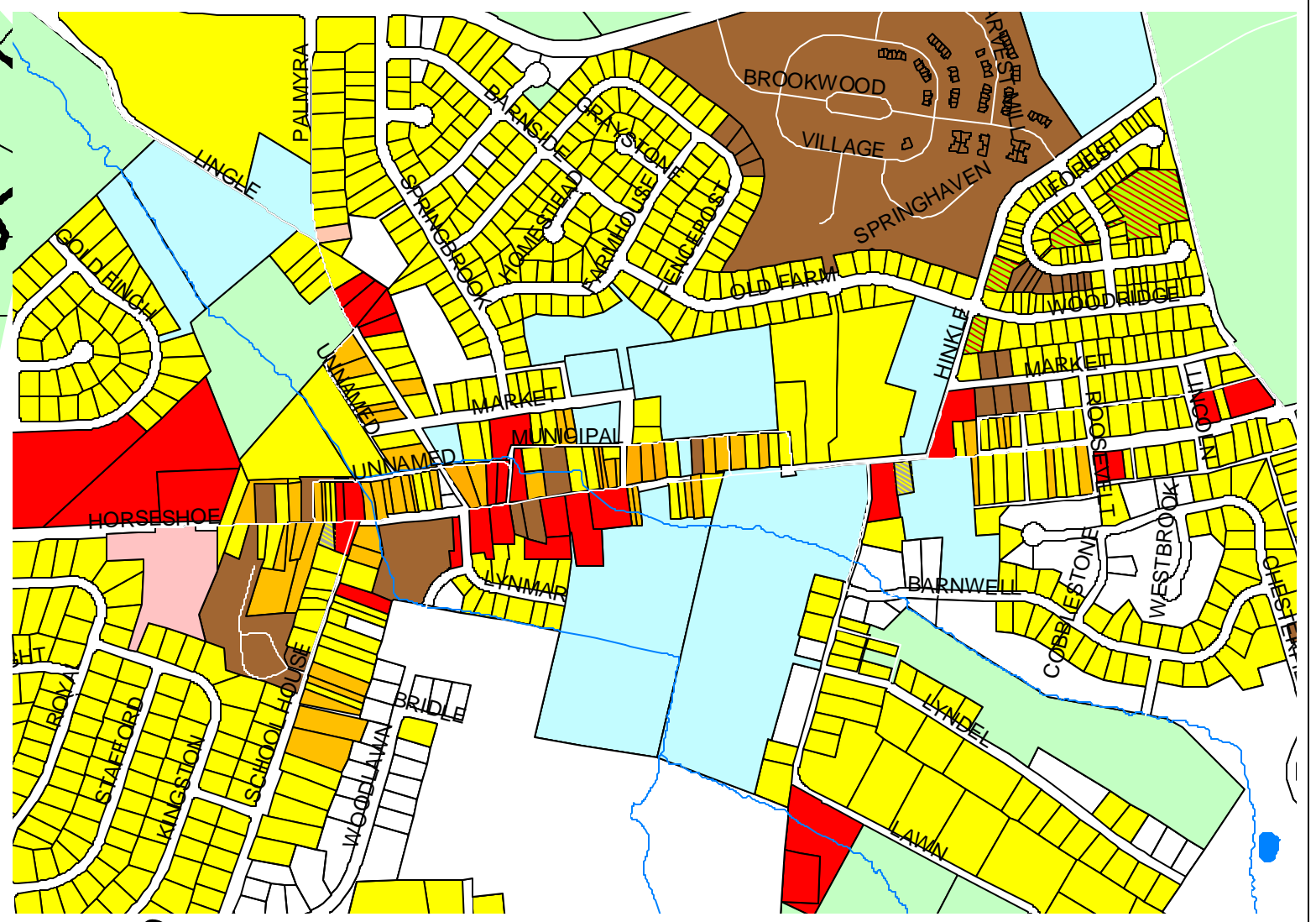


GIS aerial photo of "Town Square" within Palmyra Borough

Palmyra Area Region

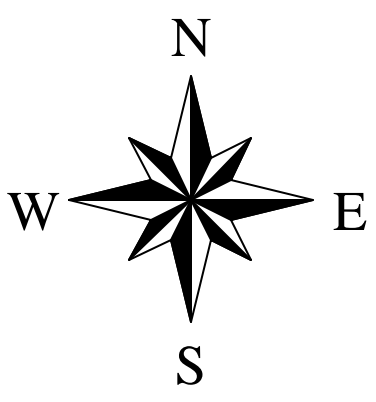
Lebanon County, PA

Campbelltown Inset 800 0 800 Feet



EXISTING LAND USE

- Agriculture
- Private Recreation
- Public
- Single-Family Residential
- Two Family & Conversion Residential
- Multi-Family Residential
- Mobile Home Park
- Mixed Use & Occupations
- Commercial
- Industrial
- Parking Lot
- Quarry & Mining
- Vacant
- N1 Pipeline Development

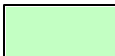
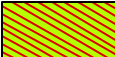
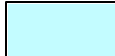








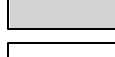




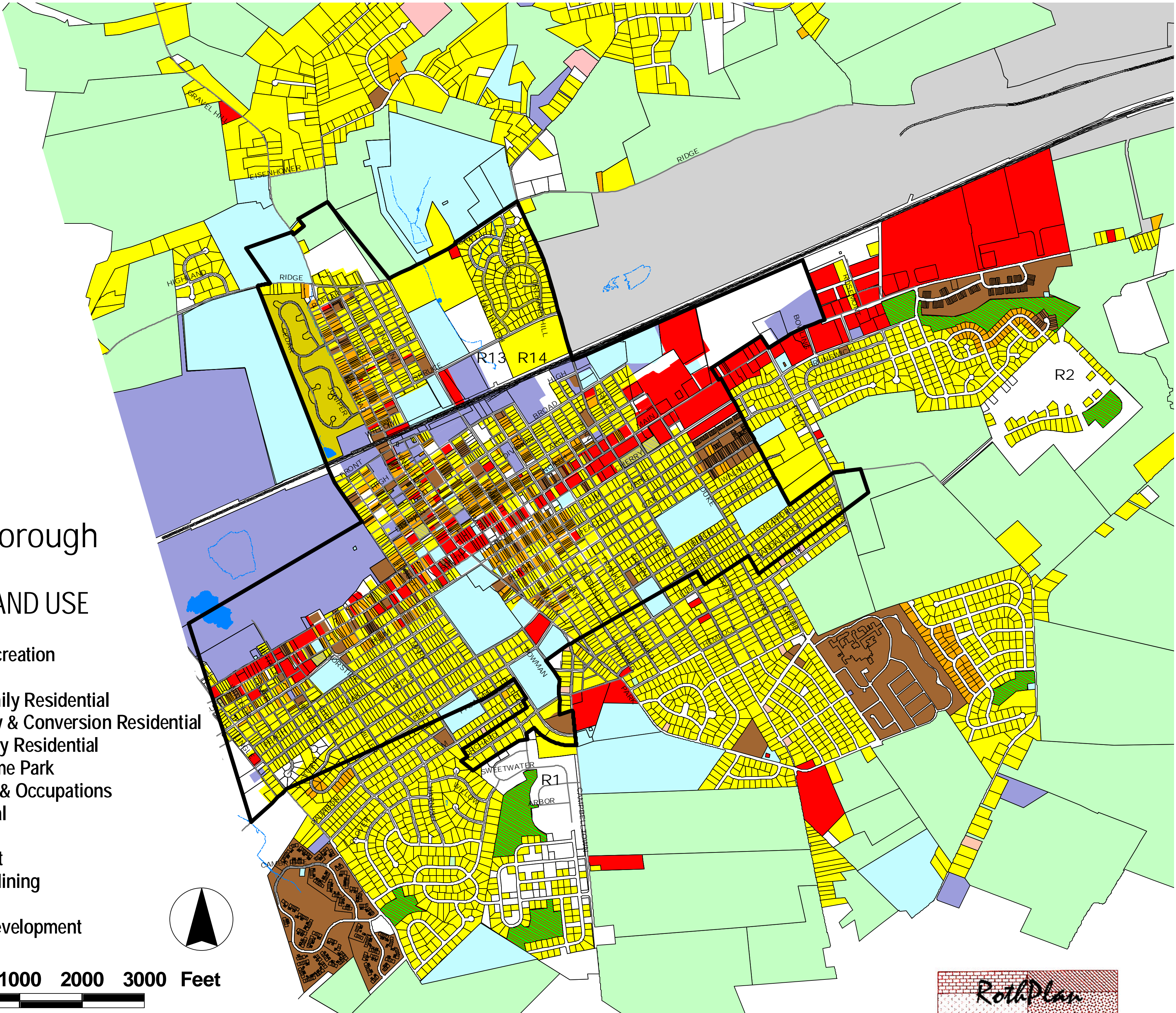
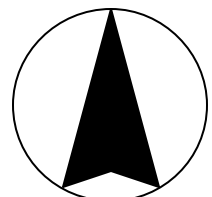
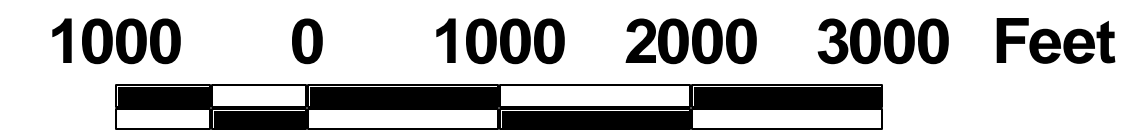
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Palmyra Borough

EXISTING LAND USE

-  Agriculture
-  Private Recreation
-  Public
-  Single-Family Residential
-  Two Family & Conversion Residential
-  Multi-Family Residential
-  Mobile Home Park
-  Mixed Use & Occupations
-  Commercial
-  Industrial
-  Parking Lot
-  Quarry & Mining
-  Vacant
-  N1 Pipeline Development



storefronts still exist although uses come and go. On the west end of town, additional strip commercial development again straddles Main Street. The Village of Campbelltown has a few smaller nodes of commercial land use, the largest of which is located along the south side of US Route 322 between West Market Street and Palmyra Roads. Just west of the Village is a larger area of highway commercial land use that appears of recent design and construction.

The largest concentration of the Region's industry is anchored straddling the railroad line that runs through Palmyra Borough and North Londonderry Township. The Pennsy Supply limestone quarry and processing facilities encompasses a huge area that extends for nearly two miles along the north side of the railroad from the Borough through North Londonderry Township and into adjoining North Annville Township. Next three large warehouses are located on the east side of Lingle Avenue extending northwesterly from Palmyra Borough, through North Londonderry Township and into adjoining Derry Township. The Borough has a variety of industrial uses straddling the railroad line and some former industrial buildings have been converted for residential use. Within South Londonderry Township the Flightpath Industrial Park combines new limited manufacturing, office and storage with several large-scale private recreation land uses.

Individual land uses are described in more detail below and depicted on the ***Existing Land Use Map***.

A. Agriculture

Agriculture comprises the largest land area within the Region. Both North and South Londonderry Townships have abundant farmlands particularly within the low-lying limestone valleys. The Region's most fertile farmlands are located generally between Palmyra Borough and the Village of Campbelltown and farming is active here. However, much of this area has been developed and targeted for future utility service areas and transportation improvements.

The southwestern half of South Londonderry Township is very rural with many productive farms. Crop farms dominate with alfalfa, corn, hay, and beans. In addition livestock farming exists with several large-scale dairy cow and chicken operations. To a lesser extent smaller farms are found in the undeveloped areas of North Londonderry Township, amid the rolling topography.



Cropland with large-scale chicken house in the background in South Londonderry Township.

The Region appears that have few "plain-sect" farmers. Most if not all of the farms appear to be family farms; however, several farms appear to have dairy and livestock contracts with larger corporate producers. Limited use of farm occupations occurs. Many of the Regions' farmsteads exhibit historic architecture and orientation; some of exceptional integrity and scenic value. Farmland is used very intensively and tilling occurs to the road and streambank edge. For the most part farms are well kept and maintained although some "mini-junkyards" were observed.

B. Private Recreation

Unlike in many other areas, the Region benefits from a wealth of private recreation properties and facilities. Some of these are large and serve a wide market area (e.g. Mount Gretna Lake).

Many of these sites are used by private clubs (Palmyra Area Sportsmen's Association, Dela-Chase Fishing Club) for hunting and fishing. These clubs usually have a clubhouse and shooting ranges and some even have recreational vehicle camping areas. Private recreation uses located within a rural setting often have "rural-style" parking lots with gravel surfaces.



Conewago Lake is a popular swimming facility that is privately owned and operated.



Palmyra Area Sportsmen's Association Clubhouse

South Londonderry Township's Flightpath Industrial Park, has an assemblage of high quality private recreation sites that offer very high levels of specialized athletic and fitness facilities and programs. The Paramount Sports Complex, In-the-Net, Bounce-U, and Klick Lewis Arena.

This category also identifies areas within residential developments that have been set aside as open space, often associated with stormwater management basins that are owned privately (e.g. homeowners associations.)

A private shooting range is located on the south side of Krieder Road and the Campbelltown Fire Company owns a wooded lot to the north of the Forest Ridge development located along PA Route 117, both in South Londonderry Township.



Paramount Fitness Center

C. Public

The single largest land holding within the Region is the PA State Game Lands No. 145 which contains approximately 2,816 acres in southeastern South Londonderry Township. This State-owned site extends from Mount Gretna on the east straddling the PA Turnpike and PA Route 117 to Colebrook and beyond towards both Lawn and Mount Wilson. It is home to a variety of important plant and animal habitats inventories in Chapter III of this Plan. The site is mostly wooded and is available for public hiking and hunting. Portions of the site have been damaged by gypsy moth infestation and efforts are ongoing to re-plant destroyed vegetation.



Gypsy moth damage in PA State Gamelands



Aerial perspective of Reigle Airfield

Other large public uses include the Kirchenwald Church Camp in Mount Wilson, the Penn Woods Church Camp located next to the Palmyra Area Sportsmen's Association in North Londonderry Township and the Reigle Airfield along Forge Road in South Londonderry Township.

The Palmyra Area School District has several school sites the largest of which is the High School Campus along Park Road in North Londonderry Township followed by the Middle School Campus and football stadium located south of Cherry Street within Palmyra Borough. Other elementary school sites are all presently

located within Palmyra Borough (Pine Street, Forge Street and Northside elementary schools).

This category also focuses upon smaller community-based facilities and many numerous governmental uses such as post offices, firehouses, EMS stations, police stations, libraries, clubhouses for civic and fraternal organizations, public utility sites, churches, cemeteries, and rectories. Municipal offices, maintenance sheds, and parks are also depicted within this category.

D. Residential

PALMYRA BOROUGH

In the older sections of the Borough an historic pattern of residential development exists. When Palmyra Borough was first laid out, the plan relied on a traditional "grid" pattern of development. As part of the grid design, streets were generally set apart by the same distance. The street pattern is further divided by the use of alleys running between the streets. As lots were platted, their depths, running from the centerline of the street back to the centerline of the alley, were the same length; about 180 feet. Therefore, the difference among the various densities within the Borough is largely determined by lot widths that typically range from about 20 feet for duplexes and 40 feet



The Borough's uniform grid street pattern largely shaped the central residential neighborhoods.

for detached homes, but can go larger for several of the Borough's largest historic homes. Certainly, some minor variations exist, but most of the Borough adheres to this traditional development pattern.

Within the central neighborhoods, many of the buildings were originally constructed as side-by-side duplexes. Entire blocks are devoted to duplexes usually found within one or two blocks north or south of Main Street or along North Railroad Street. Still more single family homes have been converted to two-family or multi-family dwelling units. The Borough also contains a wide variety of multi-family developments, garden apartment and townhouses. Most of these have been constructed for such purposes; however, some have been adapted from vacant warehouses.



The Borough has distinct boundaries where one can plainly see a change in the pattern of residential development that likely resulted from the application of original zoning regulations. Just beyond the central neighborhoods, the uniform grid street pattern still determines lot depth (180 feet from road to alley centerlines) but lot depths are no longer measured between the centerlines of the roads/alleys but to the edges of the rights-of way so that lot depths lessened to 150 feet while lot widths doubled to 80 feet. Accordingly density was reduced by 50 percent on a block-by-block basis. This pattern of development holds throughout nearly all of the Borough's residential neighborhoods except those associated with the older blocks and several other isolated examples (extreme southeast corner and within Orchard Hill Estates).



The adjoining photograph depicts the deeper front yards and wider lots of homes located on the 500 block of East Maple Street. By contrast the white homes depicted in the background are located across Franklin Street on the 400 block of East Maple Street and were probably constructed before zoning was adopted. They are characterized with narrower lots and shallow front yards. Similar boundaries surround the central neighborhoods of the Borough as residential growth tended to expand from its central core.

Most recent residential developments within the Borough have produced a suburban community and a contemporary mobile home park. Orchard Hill Estates is located in the northeast corner of the Borough and features a curvilinear street pattern of detached dwellings with front yard driveways and attached garages. Although lot sizes and widths are similar to the neighborhoods built after zoning was adopted throughout the Borough, the front yard driveways and attached garages create a different "suburban feel" to this neighborhood.



Likewise a recent mobile home park located in the northwest corner adds yet another form of housing available within the Borough. The Shadow Stone Village mobile home park contains approximately 184 mobile home spaces on a common property on a series of two loop streets with short courtyards and cul-de-sac turnarounds. The park has sidewalks and a community center. Two-car pads are provided for each space with about 20 foot front yard and 10 foot side yard setbacks. The park is very well maintained.



Shadow Stone Village
mobile home park



Nicely kept historic home on
North Green Street

Residential properties within the Borough tend to be well maintained. Some of the blocks along and adjoining North Railroad Street exhibit the need for repair and painting but most homes within the Borough are very well kept. Some of the larger properties along Main Street have large historic homes that offer a solid base for a meaningful historic preservation program.

NORTH LONDONDERRY TOWNSHIP

The residential growth patterns within North Londonderry are of two distinct types; those with public utilities and those without. In areas beyond the reach of public sewer and water, rural home sites are generally larger and some have deep driveways. While some of the older residences along the Township's older roads can be located close together and nearer the road, most of the Township's residential growth occurred during the last half of the twentieth century when the use of personal automobiles enabled larger "country" home sites. Accordingly, rural homes tend to have minimal sizes of at least one-half acre and a width of at least 100 feet, as was customary. Certainly larger and wider lots exist as rural residents tend to favor greater open area and privacy; however, most lots were designed close to these standards.

However, over time as on-lot sewers began to fail in rural areas, the PA DEP advocated that minimum lot sizes for lots that relied upon on-lot sewage disposal systems (OLDs) have a minimum of one acre so that an alternative on-lot sewage system could be located on the same property. In turn North Londonderry Township's zoning regulations implemented this recommendation. Therefore, the newer residential developments that have occurred in the northern half of the Township reflect these density changes. Lots are at least one acre in size and usually between 180 and 220 feet wide. The adjoining aerial of Valley Drive depicts where an older development of ½ acre lots (west side) converges with a newer development of 1-acre lots (east side).



Valley Drive, where older ½ acre lots converge with newer
1-acre lots in North Londonderry Township.

Next, within those neighborhoods of North Londonderry Township that directly adjoin Palmyra Borough, public sewer and water are available. In turn, zoning regulations permit a more dense suburban residential development pattern. Residential streets just south and east of the Borough boundaries were developed with homes during the 1950s through the 1970s and have very similar densities as those within those adjoining neighborhoods of the Borough. The same grid street pattern with sidewalks was extended to the

Township; however, front yard driveways most often replaced the use of alleys for vehicular access to each property. The grid street pattern was followed usually for several blocks and then curvilinear streets without sidewalks began to be constructed.



Panoramic photo of streetscape within Old Stone Way development of North Londonderry Township



Townhouses along Pin Oak Circle

While the vast majority of homes constructed within North Londonderry Township are detached single family dwellings, several duplex and townhouse neighborhoods have also been constructed. Rockledge is a large-scale townhouse development located on the west side of Lingle Avenue that extends into adjoining Derry Township (Dauphin County.) Forest Glen is another townhouse development that is located



Townhouses in Forest Glen

on the south side of US Route 422 near the eastern boundary of the Township. Both of these developments feature two-story townhouses with detached garages located in the front yard. Neither of these developments have sidewalks.



Duplex along Old Stone Way

Pockets of duplexes are located along Victoria Lane, Lexington Drive, Early Lane, Windsor Way, Fairfax Lane, Hickory Street, and Truman Street. These duplexes have an unusual orientation where the longest axis of the building runs parallel to the street. This may be the result of a minimum lot



Duplex along Victoria's Lane

width requirement that is too wide for this attached form of housing.

Finally, North Londonderry Township is also home to the Lebanon Valley Brethren Home. This is a large medical residential campus that offers a full spectrum of independent living, personal, nursing, dementia and skilled nursing care. It includes separate cottages and duplexes through group care buildings. A full compliment of related buildings and facilities are also on site.



Lebanon Valley Brethren Home offers a complete medical residential retirement community

SOUTH LONDONDERRY TOWNSHIP

Historically, South Londonderry Township had little residential growth when compared with Palmyra Borough and North Londonderry Township until the year 2000. During the last decade the Township has witnessed a marked acceleration in residential development pressure.

Still, most of South Londonderry Township is characterized by farming and rural residences. Scattered strip housing occurs along the older roads that connect the many villages and the pattern of these homes suggests that most predate any zoning regulations. Wide variations in lot sizes, widths and setbacks reflect a pattern of land use of times gone by. In many cases lot sizes are very large and driveways extend far away from the street frontage. South Forge, Lawn and Mine Roads have the greatest concentration of roadside residences.

Forest Ridge is a development within the rural landscape that introduces a pattern of residential development that is more predictable than the roadside pattern. Here a modified grid street pattern extends east from South Forge Road and winds up a wooded hillside. Although lot sizes still vary widely, the uniform pattern of street and front yard setbacks present a tidy and pleasing appearance. The preserved trees amid the development add to its rural charm.



Historic log home in rural area of Township



Forest Ridge development



Duplexes in Colebrook

South Londonderry Township is also characterized by its villages. Campbelltown is the largest and closest to the other “urban” areas of the Region. However, Colebrook, Lawn, Mount Gretna and Mount Wilson all have distinct residential neighborhoods. **Colebrook** straddles Mount Wilson Road and is dominated by its tightly-knit duplexes. The uniform style of buildings suggests that this neighborhood may have been constructed by a local industry as housing for its employees in the distant past. Alleys provide for rear yard access for garages and other outbuildings. By contrast a new larger single family detached

neighborhood is located on the south side of Lawn Road just west of its intersection with Mount Wilson Road with more suburban features.

The **Village of Lawn and Upper Lawn** also has a tightly-knit pattern of mostly detached dwelling units. Lots range up from 50 feet wide and have lot areas of about 10,000 square feet. Minimal front and side yard setbacks contribute to the tight village character. Parking usually occurs in a driveway along one of the side yards. Like in Colebrook a new suburban style subdivision is locating on the south side of Lawn Road, just east of the Village of Lawn with larger lots and detached homes.

Areas within South Londonderry Township that adjoin **Mount Gretna** are more of an extension of the Borough than a separate village. As a popular tourist destination and seasonal community, land values are higher than in the other traditional villages. Consequently the pattern of development features less density, detached dwelling units and more recent construction. The

exception are the several multi-family dwellings that are located along the northeast perimeter of Soldier's Field.

The Village of **Mount Wilson** has a very diverse mix of lot sizes with some lots as small as 10,000 square feet and others well over an acre in size. Most homes are detached in this Village. Housing condition also varies widely here with some properties in need of exterior clean-up.

Within the oldest portions of the Village of **Campbelltown**, again a tightly-knit pattern of residential land use exists, consisting mostly of duplexes. Here lot sizes are generally deep and narrow with the smallest side-by-side duplexes contained upon 20 foot wide lots; although most are 40 feet wide. Lot depth is very uniform at 190 feet with rear yard alleys used for off-street parking, mostly within detached garages and other outbuildings. Sidewalks exist along all but a few properties. Front yards are usually about 10 feet wide as measured to the outside edge of the sidewalk along the street. Other residential uses within the central village include the Twin Oaks nursing home and the Four Little Acres mobile home park.



Country Squire development

However, today Campbelltown can be thought to include much more than its historic core. Newer suburban subdivisions have been developing around all sides of the historic village for the last few decades. Hundreds of new dwellings have been added and more are planned. Typically these developments

include single family detached homes on lots of at least 12,000 square feet with on-street parking, sidewalks with curbs and street lighting.



Spring Brook Farms (Old Farm Road)



Quad courts in "The Village"

However, some higher density forms of housing are beginning to emerge in this vicinity as well. "The Village" features attached townhouses and quadplexes in a condominium ownership pattern.



Traditions retirement home

"Weak-link" townhouses (those joined by garages) are also located along Forest Road. A large-scale retirement home (Traditions) is located just west of Campbelltown along the north side of US Route 322.



"The Village" development



Weak link townhouses (Forest Road)

Finally, South Londonderry Township has several small scale mobile home parks. Olivers mobile home park is located on the south side of Colebrook Road in a rural area of the Township. Four Little Acres mobile home park is located on the west side of School House Road in Campbelltown. Another unnamed small mobile home park is located adjoining the Campbelltown Fire Company site also within the Village of Campbelltown; however, this property is depicted as mixed use on



Olivers Mobile Home Park

the Existing Land Use Map because it contains a variety of other land uses.

To get a more defined sense of the characteristics of the Region's varied residential neighborhoods, the GIS data was used and on-site measurements were taken. Specifically, various "typical" residential uses were sampled and analyzed to determine relevant residential site traits. The locations of such settings are noted to verify their suitability. Because zoning requirements are generally expressed by minimum required standards, within each particular setting, traits that would be shared by most of the properties were noted. These traits often represent a low common denominator among the properties within the setting, so as not to suggest design standards that would create zoning nonconformity. The table below presents the results of this analysis.

"TYPICAL" DESIGN CHARACTERISTICS OF RESIDENCES						
Type – Location	Min. Lot Size	Min. Lot Width	Front Setback*	Side setback	Parking Location	Sidewalks
Palmyra Borough						
SFD – East Oak & Maple Streets (100 block)	7,200 sf	40 ft.	25 ft.	5 ft.	On street and along rear alleys, often in garage with no setbacks.	yes
SFD – East Oak & Maple Streets (600 block)	12,000 sf	80 ft.	40 ft.	10 ft.	On street and along rear alleys, occasionally w/garage with 20 ft. setbacks. Some front & joint use driveways exist.	yes
SFD – Orchard Hill Drive (100 block)	12,000 sf	80 ft.	35 ft.	10 ft.	On street with front yard driveways and attached garages	yes
2FD – E. Cherry St. (200 block)	3,800 sf	20 ft.	18 ft.	2 ft.	On street and along rear alleys, often in garage with no setbacks	yes
2FD – N. Lincoln (200 block)	4,800 sf	30 ft.	18 ft.	10 ft.	On street and along rear alleys, often in garage with no setbacks	yes
Townhouse – E. Oak St. (900 block)	2,790 sf	18 ft.	40 ft.	10 ft.	Front yard or rear yard parking lots	yes
MFD – N. Penn St. (100 block)	34,000 s.f.	120 ft.	25 ft.	NA	On street and rear yard parking lot	yes
North Londonderry Township						
SFD – Valley Road (00 block)	43,560 s.f.	180 ft.	50 ft.	50 ft.	Front yard driveways	no
SFD – Eisenhower Road (200 block)	20,000 s.f.	100 ft.	40 ft.	15 ft.	Front yard driveways	no
SFD – South Harrison Street (800 block)	11,550 sf	70 ft.	40 ft.	15 ft.	On street and in front driveway.	no
SFD – Pajabon Drive (600 block)	12,500	100 ft.	25 ft.	15 ft.	On street and in front driveway.	yes
2FD – Victoria Lane (800 block)	10,000	75 ft.	35 ft.	10 ft.	On street and in front driveway	yes
Townhouse – Hickory St. (00 block)	2,900 sf	27 ft.	15 ft.	20 ft.	Front yard driveways & attached garages	no
MFD – S. College St. (800 block)	2+ acres	200+ ft.	45 ft.	15 ft.	Rear yard parking lot	yes
South Londonderry Township						
2FD – Colebrook	5,250 sf	35 ft.	15 ft.	15 ft.	Along street and rear yard alley often with garages	no
SFD – Lawn	22,000 sf	100 ft.	20 ft.	6 ft.	Variable & along street	no
SFD – Mount Gretna	17,500 sf	120 ft.	40 ft.	15 ft.	Front driveways	no
SFD – Mount Wilson	10,000 sf	70 ft.	25 ft.	10 ft.	Front driveways	no
2FD – Campbelltown	3,800 sf	20 ft.	10 ft.	0 ft.	Rear yard alley often with garages	usually
SFD Lantern Lane (100 block)	12,000 sf	80 ft.	40 ft.	10 ft.	Front yard driveways & on-street	yes
Townhouse – Forest Cr. (00 block)	2,800 sf	34 ft.	30 ft.	20 ft.	On street, front yard driveways & attached garages	yes
MFD – Valley Rd. (00 block)	46,000 sf	200 ft.	50 ft.	30 ft.	Front yard parking lot	no

E. Mixed Use & Occupations

This category of land use represents properties that either contain several principal uses that are not of the same basic type (e.g. residence vs. commercial) or is a property that is used principally for residential or agricultural purposes and has an accessory occupation (e.g. home occupation, rural occupation or farm occupation).

Within the central areas of Palmyra Borough, many properties contain multiple uses and in these cases if one particular use dominates the property, then its primary classification is depicted. For example if a large storefront exists on the first floor and an apartment is located upstairs, then the property would be identified with a commercial land use since it dominates the site.

Occupation uses are identified if they are in keeping with the overall character of the principal use. If an accessory occupation dominates the property then its classification would be depicted. For example, if an electrical contractor has a large storage building with outdoor storage of equipment and materials and happens to live on the same property, it would likely be depicted as an industrial land use, not an occupation.

Palmyra Borough and the Village of Campbelltown have the greatest numbers of mixed uses while the Townships tend to have more accessory occupations, particularly South Londonderry Township, where a more rural lifestyle exists.

F. Commercial

Within the Region commercial developments can be found in all sizes and configurations. Until about the second half of the twentieth century, Palmyra Borough was the local commercial destination within the Region. Since then, the widespread use of personal automobiles has enabled residents to live outside of town and commute to work and shop. Also residents are able to travel farther for goods and services.

Palmyra's Central Business District (CBD)

Downtown Palmyra Borough is a special place. It features an historical setting that continues to serve the community. Pedestrians stroll along the sidewalks and await the passage of considerable vehicular traffic that also shares this active space. A surprising mixture of commercial storefronts, offices, studios, barbers, salons, services, repair shops, and restaurants combine with numerous nearby public/civic uses like government offices, the post office, the library, Borough Hall, schools and churches to create an important hub of commerce and social service.

While newer and larger shopping centers may have replaced this central business



Looking east through "The Square" in Palmyra Borough

district for many of the Region's commercial needs, the local shop keepers have adapted to offer specialized goods and services that cater more to "walk-up" patrons from the Borough's adjoining neighborhoods. Still more homes have been converted for limited commercial and office use.

But the CBD is more than a home to its businesses and civic uses. Many people also choose to live here. Numerous freestanding and converted housing units are co-mingled within the CBD. In addition, above-grade floor space is available and offers efficient opportunity for upper level apartments.

But a successful CBD is more than a collection of uses. It must invite use and convenience. Palmyra's CBD relies upon an extensive system of sidewalks that traverse all of the CBD's streets and connect with adjoining neighborhoods. Painted crosswalks with pedestrian yield signs compel motorist attention. Many storefronts have established build-to-lines to create a uniform and cohesive streetscape design. However, it is apparent that the ready-adaptability to change uses and convert buildings has come at some cost.



Converted porch spoils historic facade

The most successful CBDs usually recreate their historic past with themed amenities and improvements. Much of the Borough's historic commercial architecture has been covered by more contemporary storefront designs. Historic porches and valuable sidewalk space have been converted into "boxy" storefront displays. Signs that



Adapted storefronts lack cohesive style



Signs geared towards passing motorists



Windowless storefront along Main Street

were once at street level and sized for slow moving pedestrians now feature larger backlit sign boxes that rise above the storefront to be easily seen from farther away. While these responses are logical and may have enabled the Borough to keep a somewhat vitalized CBD over the years, they ultimately prevent and limit a higher potential that has been achieved in other similar towns.

CBD revitalization must employ a comprehensive approach across many features and efforts. Certainly adaptive reuse is of principal concern and the Borough appears to be handling that topic well. However, more focused effort will be required. Streetscape and building design are vital. For example, the newly constructed Today's Chef deli is a valuable addition to the local CBD economy; however, its storefront windows face Chestnut Street rather than Main Street.

This recent addition to the CBD overlooked one simple design element that dramatically reduced its streetscape appeal. The Borough must strive to achieve better results; more recommendations are presented in Chapter X (Future Land Use).

Highway Commercial

For many decades the commercialization of US Route 422 has transferred a majority of the market share of commercial uses away from the Borough's central core. Initially, the, then, new Palmyra Shopping Center was built on the north side of Main Street along the east end of the Borough. This and the adjoining Klick Lewis automobile dealership anchored a rapid commercial expansion as new uses emerged to serve the growing population.

The Londonderry Square shopping center, Lowes Home Improvement Store and a Wal-Mart Supercenter have all since been added on the north side of US Route 422 in North Londonderry Township. These centers offer a wide range of national franchise stores, services and eateries among some local businesses within several coordinated settings. It would appear that newer uses have strained the demand for uses within the older centers as many storefronts are vacant at this time. These uses are arranged in a traditional shopping center configuration characteristic to developments of the 1960s and 70s. While these centers offer shared amenity for parking, access, signs, off-street loading and stormwater management, they offer little amenity in design and beautification.



Londonderry Square shopping center has considerable storefront vacancy

Among and along-side the shopping centers are highway commercial areas. Concentrations of highway commerce are found along the south side of US Route 422 which extends into Palmyra Borough along both sides of Main Street to Harrison Street. On the



Many of the strip commercial uses lack proper access drive curb cuts

west end of Palmyra Borough, additional strip commercial development again straddles Main Street. On the west end of Campbelltown is a relatively new concentration of highway commerce. Except for several small mini-malls, these uses were typically built with minimal design amenity and most are "laid-out" with their longest lot axis parallel to the adjoining road. Off-street parking is located in the front yard and accessed by one or two access drives. Most uses are designed as freestanding lots with separate signs and driveways. Curbs with defined points of access are infrequent as are



Strip commercial uses in west end of Palmyra

landscaped strips and internal parking lot landscaping. Off-street loading spaces are not apparent and screening of outdoor storage areas is rare. Newer uses tend to have better designs, particularly to the west of Campbelltown, but these are the exceptions within any given locale. It is noted that some streetscape improvements made near the intersection of Forge Road and Main Street within Palmyra Borough have incorporated better design.

These highway commercial areas and shopping centers provide for the Region's residents "day-to-day" needs. A wide variety of retail uses include several grocers, hardware, pharmacy, banks, auto sales, parts and tires, beauty salons, movie cinema, fitness center, rentals, gas stations, fast-food, restaurants, florists, cards and gift shops, medical supplies, and convenience stores. Services include offices for a newspaper, attorneys, tax firms, realtors, physicians, dentists, chiropractors and optometrists. This concentration is critical to the Region's commercial self-sufficiency.



Campbelltown's commercial core is located on the south side of US Route 322 between West Market Street and Palmyra Roads.

The Village of Campbelltown has a few smaller nodes of commercial land use, the largest of which is located along the south side of US Route 322 between West Market Street and Palmyra Roads. Again these uses lack contemporary design features and are of utility design.

Just west of the Village is a larger area of highway commercial land use that appears of recent design and construction.

The Villages of Colebrook and Lawn have small isolated nodes of local commerce (e.g. gas station, auto repair, drive-in restaurant, tavern, and general store) that offer local conveniences to the rural residents of South Londonderry Township.



Highway commercial uses located to the west of the Village of Campbelltown

G. Industrial

Like most old towns, Palmyra Borough once had thriving industry that was an "engine" for the

local economy. Remnants of this past are located along the railroad line that bisects the Borough and along North Avenue on the west side of town. Within central areas of the Borough many of the former important industries have been lost; however, several sites remain. Seltzers Bologna factory, Waste Management of PA office and storage yards, Hershey Laundry Plant, White Oak Display and Design plant, the Palmyra Business Center, Penn Med Consultants, Aradiant Drying Systems, miniwarehouses, and other various underutilized properties offer existing and potential valuable employment and economic base. The ASK food packaging plant is located on the north side of North Avenue near the western border of the Borough. Other smaller scattered industrial uses also front along North Avenue.



Expanded and relocated ASK food packaging plant located along North Avenue in Palmyra Borough

However, from a land use perspective, the bulk of the Region's industry is concentrated straddling the railroad line on the west end of the Borough and extends into North Londonderry Township. Here two massive warehouses (General Mills and Hershey Foods) are located with frontage and vehicle access limited to the east side of Lingle Avenue. Fortunately, it would appear that the large volume of heavy truck traffic generated by these facilities gravitates away from the Region into adjoining Derry Township where substantial road improvements have been made to West Lingle Avenue and East Hershey Park Drive. Another benefit of these facilities is the massive vegetative berm constructed along their southern boundary which effectively screens the views between the site and the adjoining areas of Palmyra Borough which have a mixture of residential and commercial land uses.



Vegetative berm effectively screens warehouses from adjoining neighborhoods



Panoramic view of the Hershey Foods Warehouse from Lingle Avenue looking northeast.

South Londonderry Township's Flightpath Industrial Park, is located in the southeast corner of the Airport and Forge Roads. As described earlier, this developing suburban industrial park has an assemblage of high quality private recreation sites that offer very high levels of specialized athletic and fitness facilities and programs. In addition this developing park now includes a cable television parts distribution warehouse, a tool and die shop, a classic car parts manufacturer, a heavy equipment refinishing shop, a plant bulb distributor, a kitchen cabinet

manufacturer, a moving service and warehouse, a recreational vehicle sales, service and storage facility, and two sites of miniwarehouses. This park also contains the Campbelltown East Wastewater Treatment Plant.



Four industrial sites located on the north side of Airport Road within the Flightpath Industrial Park

As the preceding aerial photo depicts, the industrial land uses within this park appear to be tidy and logically designed. However, a more tightly regulated orientation, design and screening of exterior use areas (off-street loading, outdoor storage, etc.) would benefit the Township and neighboring properties. Joint use of access drives with front yard landscape strips would also improve the function and appearance of these properties from the road. There appears to be no residential buffer or screening imposed along the outside of the industrial park. Even though farms adjoin the site now, they will likely be converted for residential use in the future. Therefore it is important to have such buffers/screens installed by the industry when they are proposed to protect the eventual adjoining residential land use.

Within both North and South Londonderry Townships, there are several scattered freestanding industrial uses amid the rural landscape. While some of these may have begun as home occupations, or predate zoning, this inventory recognizes their distinct industrial character. Within North Londonderry are two junk yards, an electrical contractor shop, a grain storage silo, a machine shop and building systems company. Within South Londonderry Township are an electronics distribution facility, a commercial display case manufacturer, two machine shops and a junk yard. These uses should be treated as nonconforming and whenever alterations are proposed, local officials should seek to improve the compatibility of these uses amid their settings.

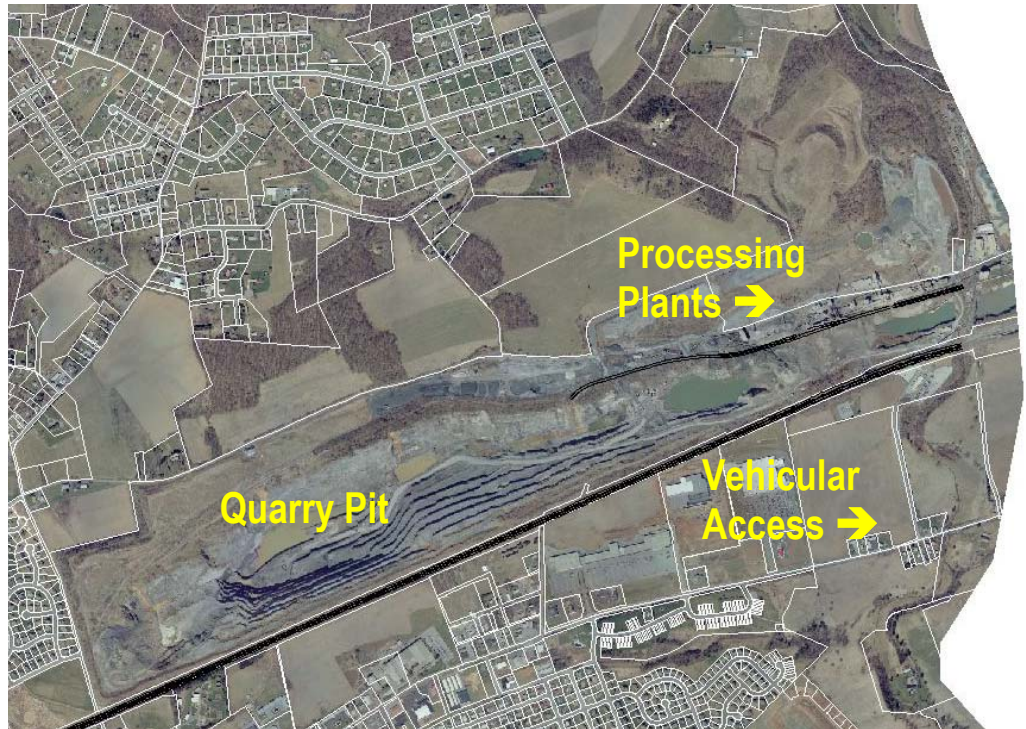
H. Quarry & Mining

Unquestionably, mining operations have been an enduring economic force within the Palmyra Area Region. The Pennsy Supply Quarry is generally located along the north side of the railroad on the east side of Palmyra Borough entirely within North Londonderry Township. This

quarry extends to the east into adjoining North Annville Township. Locally known as “Gravel Hill” this ridge is underlain several bands of different geologic formations.

Quarries and mines are important uses that provide for needed materials largely used in the construction and road building industry.

While many object to the perceived historical impacts attributed to quarrying, dramatic improvements to the operational and blasting activities have lessened actual impacts of noise, pressure and dust.



Ironically, because of the high cost of material transport, quarries should be located in relative close proximity with their service area. The Pennsy Supply Inc. quarry's location has several other locational advantages. First, it directly adjoins the active Reading Railroad line which acts as a physical barrier for adjoining properties to the south. Furthermore, North Londonderry Township's past planning and zoning policies have justifiably located large scale commercial uses between US Route 422 and the quarry. These commercial uses are less vulnerable to typical quarry impacts, which as described above have been reduced in recent decades.



To the north, exists a band of undeveloped farmland and woodland that acts to buffer residential areas further north. In addition, a rise in the topography effectively screens views between these rural neighborhoods on the north and the quarry to the south.

In addition, the actual quarry pit, the site contains materials processing plants for crushing and screening, a rotary kiln and a bagging operation. The on-site location of these processing plants at some distance reduces impact within the community and lessens traffic congestion.

The area depicted includes two properties that are used to extract high calcium and dolomite

limestone. According to company representatives approximately 3 million tons of are extracted annually using surface mining methods. Quarry trucks departing the site rely upon an access drive that connects with Syner Road on the east in adjoining North Annville Township; employees use a narrow right-of-way that connects with US Route 422 near the Township's eastern boundary. Current reserves at the site are estimated to enable this location to operate for approximately 60 more years.

I. Parking

A handful of freestanding parking lots are located within Palmyra Borough. These parking lots have paved surfaces and managed access but lack contemporary landscaping and screening.

J. Vacant

Some vacant sites are recorded by the County's GIS data. Some of these sites are void of buildings and structures while others have structures that are unoccupied.

K. Pipeline Developments

In planning for future land uses, and calculating acreage needed to accommodate projected growth, it is important to know the location and types of developments within the Region that have been approved for development, but have not yet been fully developed. This information will also ensure that future planned uses are consistent or compatible with those already approved for construction. The following lists, by municipality, that development which has been approved and not yet constructed:

PIPELINE DEVELOPMENT PROJECTS		
Development Name	Map No.	Uses Yet To Be Built
Palmyra Borough		
Macintosh Crossing	R13	68 townhouses
Spruce Village	R14	48 multi-family units
North Londonderry Township		
Arbor Green (Lewis)	R1	108 single family detached dwelling units
London Croft (Bucher)	R2	120 single family detached dwelling units
omitted	R3	omitted
South Londonderry Township		
Thistledown	R4	7 single family detached dwelling units
Northside Crossing	M1	33 duplexes, 142 townhouses, 76 multi-family units & 4 commercial uses
Springbrook Farms	R5	35 single family detached dwelling units
Village @ Springbrook Farms	R6	160 townhouses
Flightpath Business Park	I-1	4 industrial lots
Carriage Park	R7	104 single family detached dwelling units
Stone Knoll	R8	63 single family detached dwelling units
Forest Ridge	R9	3 single family detached dwelling units
Estates @ Forest Ridge	R10	27 single family detached dwelling units
Timberbridge	R11	4 single family detached dwelling units
Fox Hill Estates	R12	8 single family detached dwelling units

The map numbers for each of these pipeline projects has been depicted on the Existing Land Use Map.

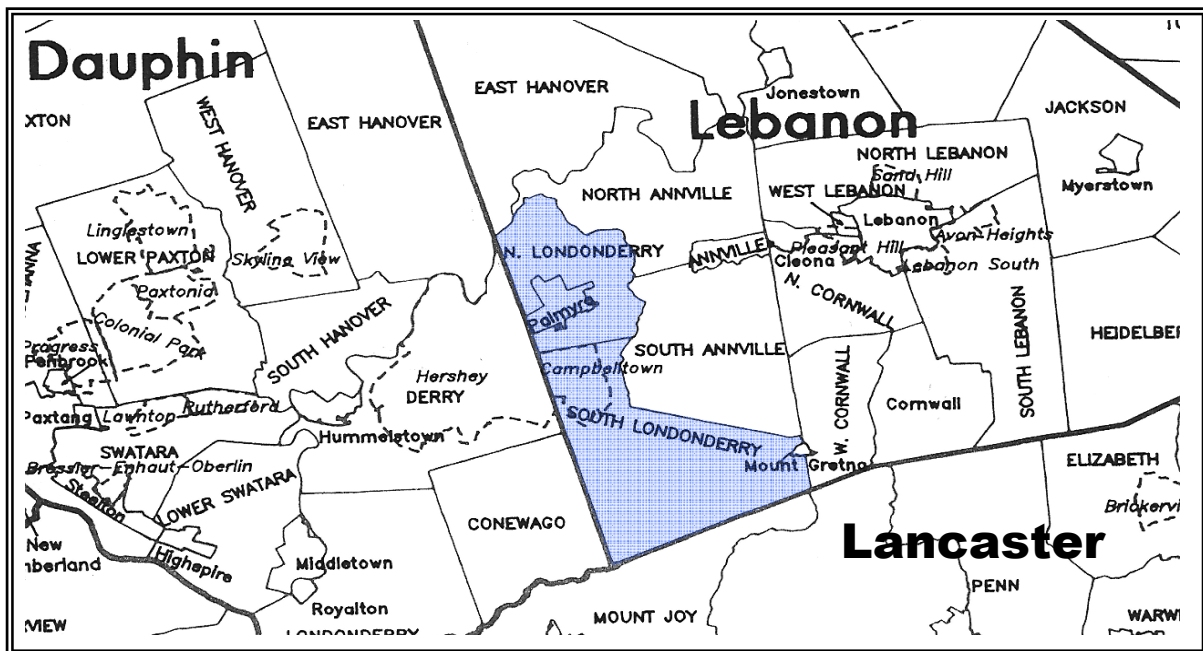
VI. Adjacent & Regional Planning

The preparation of any comprehensive plan must always consider and, if possible, complement the planning policies in effect in adjoining communities. Section 301.(5) of the Pennsylvania Municipalities Planning Code lists the basic elements of a comprehensive plan which must include [among other elements]:



“(5) A statement indicating that the existing and proposed development of the municipality is compatible with the existing and proposed development and plans in contiguous portions of neighboring municipalities, or a statement indicating measures which have been taken to provide buffers or other transitional devices between disparate uses, and a statement indicating that the existing and proposed development of the municipality is generally consistent with the objectives and plans of the county comprehensive plan.”

The highest level of consideration could include a cooperative planning effort of several adjoining municipalities, such as that of this Regional study. At a minimum such effort should seek to coordinate land use activities across municipal boundaries to assure compatibility and function. This Chapter presents this analysis and findings of general consistency with the Lebanon County Comprehensive Plan for the Region.



The Region's boundaries are a combination of man-made and natural features. The Region sets at a convergence of Dauphin, Lancaster and Lebanon Counties. Along the western boundary the Region abuts Conewago and Derry Townships in adjoining Dauphin County. To the south is Mount Joy Township in adjoining Lancaster County. North and east of Region are East Hanover, North Annville, South Annville and West Cornwall Townships and Mount Gretna Borough all within Lebanon County. The following is a brief summary of those land uses planned for each municipality bordering the Region.

Palmyra Area Region

Lebanon County, PA

ADJACENT & REGIONAL PLANNING

Conewago Township

Agriculture

Rural Resource

Derry Township

Agriculture - Conservation

Economic Development

Attached - Residential

Office - Commercial

Institutional

Mount Joy Twp

Agriculture

Lebanon County Comprehensive Plan

Natural Areas

Agricultural

Rural Resource Protection

Suburban Neighborhood

Village Neighborhood

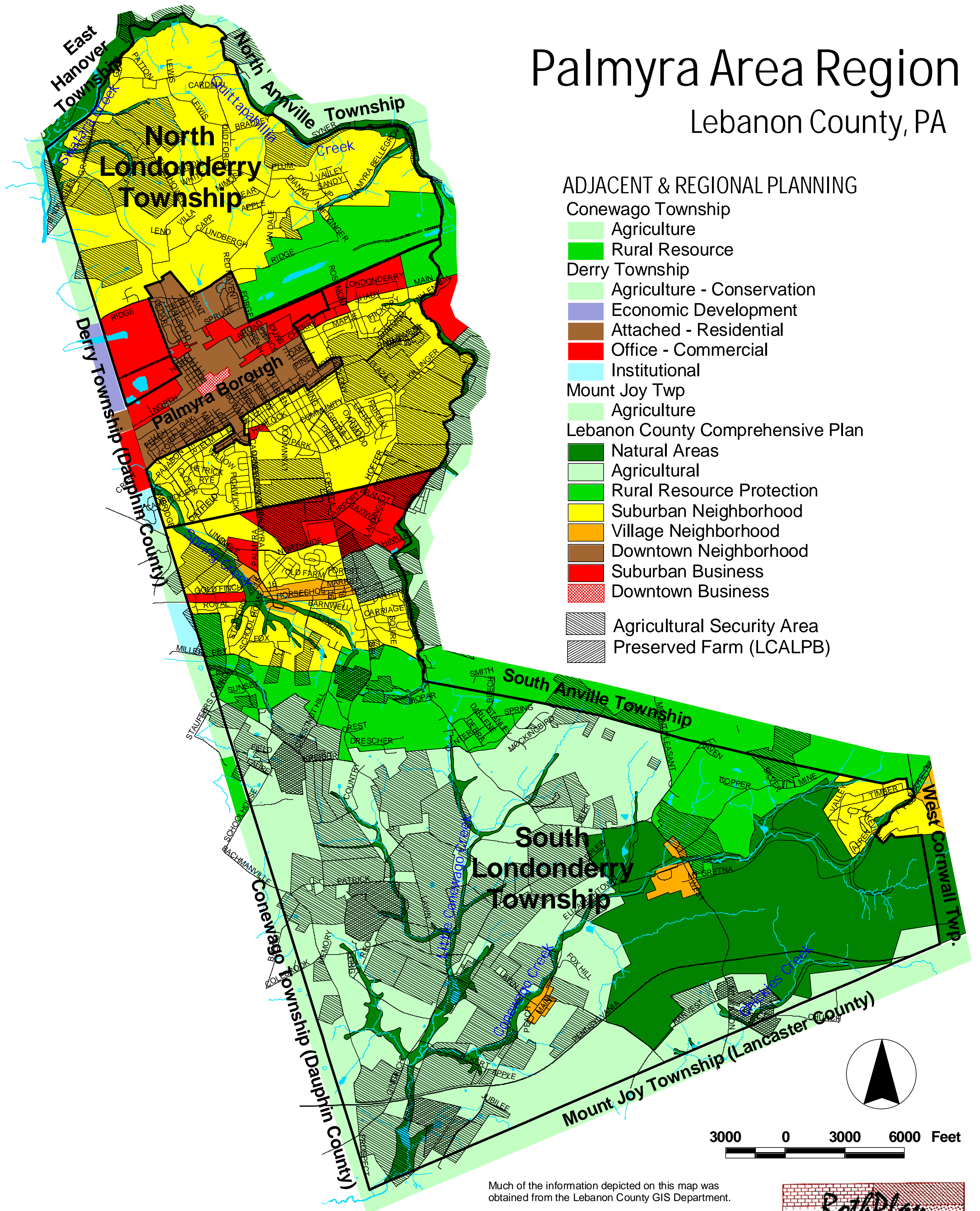
Downtown Neighborhood

Suburban Business

Downtown Business

Agricultural Security Area

Preserved Farm (LCALPB)



Much of the information depicted on this map was obtained from the Lebanon County GIS Department.

RothPlan

A. Municipalities Adjoining the Region

Conewago Township (Dauphin County) – adjoins southwest South Londonderry Township between the Lancaster County line and Derry Township (Dauphin County.) The vast majority of this area is planned for continued “Agriculture,” with an effective sliding-scale zoning density that favors agricultural activities over residential developments. Residential minimum lots sizes are suggested between 15. and 3 acres, when they are permitted.

Another smaller section adjoins South Londonderry Township just north of Schoolhouse Road within the “Rural Resource” designation. Here a rural residential setting is expected generally lacking in public facilities and utilities. However, where public sewers are available permitted residential densities increase from 0.66 to 1.5 units per acre. Again farming is favored over new developments and residents will be expected to tolerate farming impacts.

Derry Township (Dauphin County) – adjoins the western boundary of the Region and each of its municipalities. The area adjoining North Londonderry Township between the Swatara Creek south to Ridge Road is depicted for “Agricultural and Conservation.” This category anticipates a rural landscape that relies upon the use of transferrable development rights to offer permanent preservation of farmlands and natural features. From Ridge Road south to the Palmyra Borough boundary is planned for “Economic Development” that is meant to accommodate corporate and other offices, high-tech and research facilities, assembly operations and tax generating institutions. A small band of “Attached Residential” adjoins the north side of US Route 422 which proposes high-density attached housing.

On the south side of US Route 422 is planned “Business/Office” which extends south beyond Palmyra Borough and adjoins North Londonderry Township. This category is generally described as reflecting Hershey-owned property. Further south is an area depicted within the “MHS” which presumably denotes areas owned by Milton S. Hershey estate as the category is described as a non-urban institutional land use lacking public utilities. Finally another area of “Agricultural and Conservation extends south to meet the Conewago Township line both adjoining South Londonderry Township.

Mount Joy Township (Lancaster County) – adjoins the entire southern boundary of the Region and South Londonderry Township. Presently, Mount Joy Township is in the process of updating its comprehensive plan as part of a larger multi-municipal effort. However, it would appear from previous comprehensive plans and the current zoning ordinance that the area adjoining South Londonderry Township will likely remain planned for continued agriculture. Today, Mount Joy Township enforces an effective agricultural zone in this area with residential densities permitted at only one dwelling unit for each 30 acres of farmland. Absent some dramatic shift in policy, this area will continue to present a rural neighboring landscape along the southern boundary of the Region.

All Municipalities Within Lebanon County – Aside from several isolated examples where a municipality has undertaken a specific planning study for a particular purpose (e.g. floodplain management, etc.) or specific area, those municipalities that adjoin the Region within Lebanon County have municipal comprehensive plans that date back 25 to 35 years. In some cases no municipal comprehensive plans have ever been adopted.

Over the last several decades, community planning has evolved by quantum measures and the policies of today are vastly more specific and defensible when effectively

implemented. Lebanon County adopted its Comprehensive Plan in December of 2007 after a lengthy and extensive campaign of municipal outreach and consensus building. For these reasons and after consultation with the staff of the Lebanon County Planning Department, it was decided that the future land use designation depicted upon the Land Use Policy Plan within recently-adopted Lebanon County Comprehensive Plan would form the basis of local planning, rather than the “older” municipal comprehensive plans. The following describes those land use planning designations assigned that directly adjoin the Palmyra Area Region’s boundaries:

East Hanover Township (Lebanon County) adjoins the northwestern tip of North Londonderry Township is a “Natural Area” within East Hanover Township that is associated with a broad greenway straddling the Swatara Creek. A narrower similar designation also can be found on the south side of the Creek within North Londonderry Township of the Region.

North Annville Township (Lebanon County) – adjoins the northern and eastern boundaries of North Londonderry Township between the confluence of the Swatara and Quittapahilla Creeks and US Route 422. Most of the areas adjoining the Quittapahilla Creek have a varying width “Natural Area” designation beyond which and mixed in with are designated “Agricultural Areas.” Similar configurations adjoin the Killinger Creek south to the quarry where the designation changes to “Rural Resource Protection” on to US Route 422.

South Annville Township (Lebanon County) – adjoins the southeastern boundaries of North Londonderry Township and the eastern boundary of South Londonderry Township. A large “Suburban Business” area fronts along the south side of US Route 422 which extends south to Killinger Road. A narrow strip of “Natural Areas” adjoins Killinger Creek beyond which and mixed in with are designated “Agricultural Areas.” Along the top of the ridge located on the south side of Campbelltown at the approximate location where Old Forge Road briefly departs South Londonderry Township, the planned land use designation with South Annville Township changes to “Rural Resource Protection” which then extends all the way to the boundary with West Cornwall Township just outside of Mount Gretna Borough.

West Cornwall Township (Lebanon County) – straddles Mount Gretna Borough along South Londonderry Township southeastern border. On the northwestern side of PA Route 117 a “Rural Resource Protection” area is shared with adjoining South Annville Township. Across PA Route 117 is a “Village Neighborhood” area associated with the historic “Campmeeting Neighborhood,” and a “Suburban Neighborhood” area identifying the “Chataqua Neighborhood.” Further south is a “Natural Area” that reflects the PA Gamelands which also extends into South Londonderry Township.

B. Lebanon County Comprehensive Plan

The Process - The Lebanon County Comprehensive Plan was adopted by the County Commissioners in December of 2007. Adoption of this Plan followed a several-year comprehensive planning process that involved numerous officials at local, county and State levels of government along with input from countless citizens. A four-phase methodology was employed which spanned January, 2005 to December, 2007.

Phase 1 explored issues and concerns among public and community representatives. Phase 1 also assembled a 15-member Task Force to oversee development of the Plan. 123 interviews were conducted and six regional meeting were held. Phase 1 culminated in

the development of a preliminary list of goals and objectives in Fall 2005 that guided the rest of the planning process.

Phase 2 assessed current physical character and resources along with recent trends across ten profiles (e.g. demographics, housing, economy, parks and recreation, natural resources, historic resources, transportation, community facilities and utilities, land use, and energy conservation.) Background reports produced relevant mapping along with the narrative descriptions of the various topics. Results were validated by the Task Force and planning goals were refined through the administration of a series of municipal and public surveys in late 2005 and early 2006.

Phase 3 analyzed the results of the technical background research for their capacity to achieve a refined vision for Lebanon County that residents would “embrace and support.” Goals and objectives were revised to sustain the County’s “quality-of-life” yet accommodate change. Phase 3 transitioned from inventory and analysis to plan development in 2006 and 2007.

Phase 4 focused upon developing an Action Plan for each planning element. Action Plans contained recommendation for policy and regulatory changes, best practices, educational outreach and partnership coordination. The Task Force assigned responsibilities to implementation partners along with suggested time frames and potential funding sources. Action Plans were presented to local officials and the general public at a series of workshops and open houses conducted during Spring, 2007. Next the Task Force and the Lebanon County Planning Department prioritized recommended actions to be implemented immediately and the Plan navigated the public hearing process and was adopted in December, 2007.

The Vision – The Lebanon County Comprehensive Plan’s overall vision as stated in its Executive Summary is:

“A logical land use pattern that provides for a variety of development types, recognizes land and infrastructure capabilities and limitations, is served by a multi-modal, efficient transportation system and manages rural lands for resource industries and conservation.”

The Principles – To achieve “the Vision” the Plan outlines eight growth and Resource Conservation Principles as follows:

- 1. Encourage distinctive, attractive communities with a strong sense of place;**
- 2. Plan for economic growth and development that expands employment, sustains businesses and provides family-sustaining wages;**
- 3. Protect the diverse and cultural landscape that defines our local identity as Lebanon County;**
- 4. Encourage compact building and development designs;**
- 5. Broaden the range of housing opportunities;**
- 6. Provide transportation choices for residents, businesses and visitors;;**
- 7. Provide adequate cost-effective public services to meet the needs of the community; and,**
- 8. Think, communicate and plan regionally; implement locally.**

The Land Use Plan – The resulting land use plan for Lebanon County reflects a considered scheme of generalized areas that balances the need to accommodate projected growth (Growth Areas) while reserving important natural features and

Natural Areas are meant to protect and restore the most sensitive natural resources from impacts of development. Resource management techniques should protect floodplains, steep slopes, wetlands and riparian buffers. Limited outdoor-oriented public recreation and housing is permitted with on-lot utilities and rural roads, trails and stream access points. Within the Region, Natural Areas are located along major waterways and upon the PA State Gamelands.

Chapter VI – Adjacent & Regional Planning

accommodated with on-lot utilities and rural roads. Preservation tools should be applied to permanently protect valuable farmlands like, conservation easements, TDRs and Agricultural Security Areas. South Londonderry Township contains all of the Agricultural Areas which comprise roughly the southwestern half of the Region.

Rural Resource Areas support the County's forestry, mining and natural resource based industries. Here mining and forestry operations are to be accommodated along with farming, low density housing and limited recreation uses. On-lot utilities and rural roads and off-road trails will serve these areas. Reforestation, reclamation, wetland and riparian buffers along with sound operational management practices are priorities to protect natural resources. These areas are located straddling Mine Road and along the ridge just south of the Village of Campbelltown within South Londonderry Township. The Pennsy Quarry property is also within this category within North Londonderry Township.

Suburban Neighborhoods are meant to sustain the viability of existing areas and accommodate residential growth areas of similar design and density. Low to medium densities with some multi-family uses are planned that rely upon both public sewer and water. Neighborhood based schools, parks, businesses and services are also anticipated here. Streets with sidewalks/crosswalks and bus stops will provide principal access and bike routes and off-road trails can offer secondary access. A wide range of design options can be employed including planned residential developments, transit oriented developments, low impact developments, conservation design, cluster design, traditional neighborhood design and transferrable development rights (receiving area).

Within the Region, vast areas of North Londonderry Township are within this category both north and south of Palmyra Borough. Within South Londonderry Township Suburban Neighborhoods are planned just beyond the main street areas of Campbelltown and within the western areas just outside of Mount Gretna Borough.

Village Neighborhoods reflect the important of the County's many older and historic neighborhoods. Future developments should adopt in-fill design characteristic that most closely mimic traditional development patterns and can include low-to medium density residences and small scale businesses and civic uses. Local parks, schools and clinics can supplement residential uses and even light industry in limited cases. Public and/or community based utilities and pedestrian streetscapes with bus stops and bicycle paths are contemplated. The Villages of Campbelltown, Colebrook and Lawn are all located within this category.

Downtown Neighborhoods sustain existing urban neighborhoods and maximize compatible infill and redevelopments. Future developments should adopt in-fill design characteristic that most closely mimic traditional development patterns and can include medium-to-high density residences and small scale businesses and civic uses. Local parks, schools and clinics can supplement residential uses. Public water and sewer and pedestrian streetscapes with bus stops and on-road bike lanes are expected. Shade trees and other greenways and buffers can extend natural amenity into these urban settings. Adaptive reuse of historic buildings and conserved facades should be encouraged along with designated historic districts. All of the residential areas within Palmyra Borough are contained within this category. No other Downtown Neighborhoods are located within either Township.

Downtown Business reflects a mixed use pattern of land use with small to mid-sized residential, commercial, institutional and recreation uses. Densities can range from low

to high and both public sewer and water are available. Pedestrian streetscapes of high amenity with way-finding signs, benches, decorative lighting, street-side parking, bus stops and on-road bike lanes are expected. Shade trees and other greenways and buffers can extend natural amenity into these urban settings. Adaptive reuse of historic buildings and conserved facades should be encouraged along with designated historic districts. All of the Downtown Business areas are located within a few blocks of the “square” within Palmyra Borough.

Suburban Business areas are meant to sustain existing locations and enhance their physical connection with nearby downtowns and suburban neighborhoods. A wide range of commercial, light industrial, warehousing, institutional, educational, health care and governmental uses should predominate. Secondary uses could include heavy manufacturing, regional commercial centers, recreation and medium-to-high density residential. Public sewer and water are available. Streets, transit routes and stops, rail lines sidewalks/crosswalks bike lanes and trails all can offer access. Shade trees and other greenways and buffers can extend natural amenity into these urban settings. Design standards should limit impervious coverage and require landscaped buffers. Architectural design guidelines could be employed.

Generally Suburban Business locations within the Palmyra Area Region are anchored along US Routes 322 and 422. These generally reflect a “strip-commercial” pattern along with some of the larger integrated shopping centers. Two large outlying locations are also depicted. One is located south of Ridge Road within North Londonderry Township straddling the railroad line on the west side of Palmyra Borough. The next is located along the southern boundary of North Londonderry Township on either side of South Forge Road in South Londonderry Township. Several other smaller nodes exist within Palmyra Borough and South Londonderry Township which appear to represent existing freestanding uses.

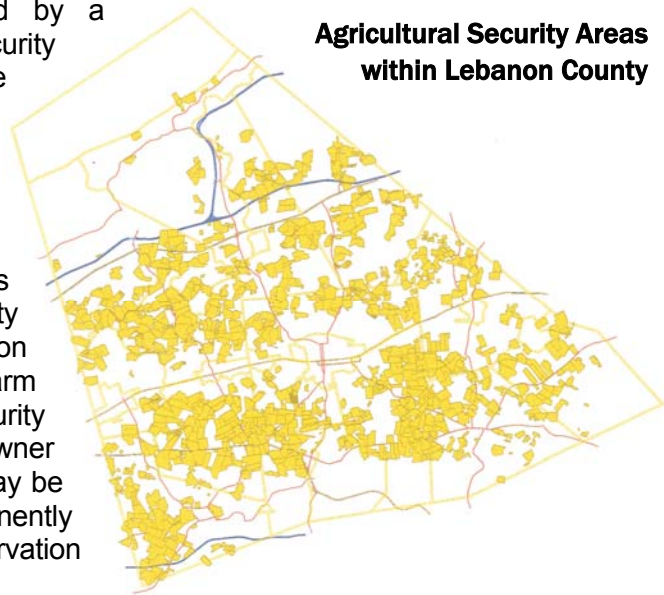
Summary - Overall, the Lebanon County Comprehensive Plan’s goals, vision, planning principles and future land use map very closely align with the goals expressed by local officials for the Palmyra Area Region. Hence it is very likely that the Region’s future land use scheme will closely reflect the recommendations advanced by Lebanon County. Some differentiation will be required to better reflect various densities in respective neighborhoods and different land use categories (e.g. commercial vs. industrial). However, the overall growth management staged growth strategy with “growing-greener” practices should produce a Regional Plan that can be implemented effectively at the local level.

C. Pennsylvania Agricultural Security Area

Act 43 of the Commonwealth of Pennsylvania was passed in 1981 to allow municipalities to establish Agricultural Security Areas (ASA) to promote more permanent and viable farming operations over the long run by strengthening the farming community's sense of security in land use and right to farm. Individual landowners petition the Township to create an ASA. Each parcel must be at least 10 acres in size and the entire ASA must be at least 250 acres. By establishing an ASA, farmers who want to farm benefit as follows:

1. The Township Supervisors agree to support agriculture by not passing local ordinances that restrict normal farming operations or structures;

2. The condemnation of farmland by a government in the agricultural security area must first be approved by the State Agricultural Lands Condemnation Approval Board to determine if alternative sites are available for condemnation;
3. The farmland preservation options offered by the Lebanon County Agricultural Land Preservation Board are available to qualified farm owners in an agricultural security area. For example, only a farm owner in an agricultural security area may be eligible to receive cash for permanently preserving the farm with a conservation easement; and,
4. Hazardous waste and low-level radioactive waste disposal areas cannot be sited.



Each landowner decides if they want to participate in the program. The farms that make up the 250-acre minimum do not have to be adjacent to one another but do have to be in the same Township. The agricultural security area does not stop development nor restrict farmers in any way; only Township zoning laws regulate what land can be developed.

The following tabulates areas currently within Agricultural Security Areas of the Region which have been depicted on the Adjacent and Regional Planning Map:

Municipality	Parcels in Agricultural Security Area	Acres in Agricultural Security Area
North Londonderry Township	15	1322
Palmyra Borough	0	0
South Londonderry Township	83	5434
Region-wide	98	6756

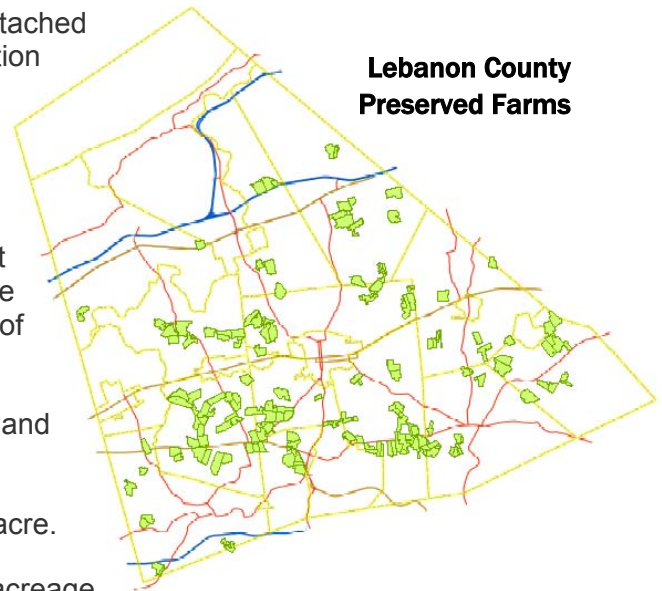
D. Pennsylvania Agricultural Easement Purchase Program

In 1988, the State of Pennsylvania established an Agricultural Easement Purchase program (3 P.S. 914.1 et. seq.) pursuant to which the State purchases agricultural conservation easements to permanently insure that land remains in agricultural use. Each county establishes a point system to prioritize applications.

Since spring of 1991, the Lebanon County Conservation District has administered the farmland preservation program under the direction of the Agricultural Land Preservation Board. Over the past 18 years, Lebanon County has contributed \$1,848,692 towards the purchase of farmland development rights. This contribution has leveraged \$3,923,137 in federal funds, \$17,296,977 in state funds and \$428,900 in private (Township and District donated) funding sources, respectively.

To be eligible, a landowners farm must:

1. Be located in the municipality's Agricultural Security Area.
2. Contain at least 50% of soils which are available for agricultural production and are of capability classes I-IV.
3. Contain 50% harvested crop land, pasture lands or grazing lands.
4. Be at least 50 contiguous acres in size unless a minimum of 10 acres is of a unique crop or adjoining an attached perpetual agricultural conservation easement.
5. Have a conservation plan meeting Resource Management System (RMS) standards and approved by the LCCD, including an "Act 38 level" of nutrient management plan review by the Conservation District by the time of closing.
6. Be compatible with municipal land development plans.
7. Be willing to accept a cap of \$2500 per acre.
8. Not have more than 50% of it's acreage enrolled in a reserve program such as CRP.



To date, Lebanon County has preserved 124 farms covering more than 14,559 acres. Within the Region 6 farms within South Londonderry Township have been awarded paid farmland conservation easements totaling some 603.6 acres.

As can be seen on the adjoining map, Lebanon County has awarded paid easements in larger numbers in neighboring townships. Despite efforts by local officials to encourage landowner applications, the County's criteria for selection do not favor farms within the Region. Local officials and landowners (particularly in South Londonderry Township) may want to consider lobbying members of the Agricultural Land Preservation Board to amend their selection criteria so that more farms would be selected from within the Region.

In any event local landowners should consider the benefits of paid farmland preservation easements and apply under this program. More information can be obtained at the following website:

<http://www.lccd.org/farmpres.php>

As can be seen, some preservation tools have been applied within the Region to protect farmland. Despite this involvement, many farmers still don't understand these various programs. Public awareness and understanding appears to be gradual among the farmers. Therefore, ***it is recommended that the Region conduct a special meeting during the winter months of each year. This Farmland Preservation Summit should bring together local officials and farmers with "experts" from the various***

agencies responsible for administration of the preservation programs. There, township officials can invite farmers to sign-up, farmers can get the information that they need and local experts can gauge support/participation under each program.

VII. Public Facilities

A. Public Schools



A high quality education is a widely-held objective for most of our society. Historically, public, private and parochial schools, have forecast short-term future demands for school facilities, enabling them to program additional building expansion, construction, consolidations, and closures to meet forecasted demands. School facilities planning can have a direct effect on, as well as be affected by, the land use activities within an area. For instance, new or expanded schools may generate increased nearby residential development, and school closures may contribute to the de-population of communities. At the same time, long-range municipal land use planning may designate new growth areas at some distance from existing or planned school facilities. All of these issues underlie the importance of coordinating school district and municipal comprehensive planning processes to assure that existing and future schools and planned community growth occur hand-in-hand.

The Palmyra Area Region is served by the Palmyra Area School District. The Palmyra Area School District is governed by a 9-member School Board whose members serve 4-year terms. The Public Facilities Map, illustrates the location of the Region's public school sites. The remainder of this section will focus upon conditions at the public schools within the Region.

In addition to the normal academic curriculums offered by public schools across the State, the Palmyra Area Area School District offers learning support, gifted support, and speech and language support in Grades K-12. "For learners with more severe needs, the district is a member of the Lebanon County Special Education Consortium which provides instruction for students with low-incidence disabilities."¹ The District also offers a complete program of extra curricular and sports offerings.

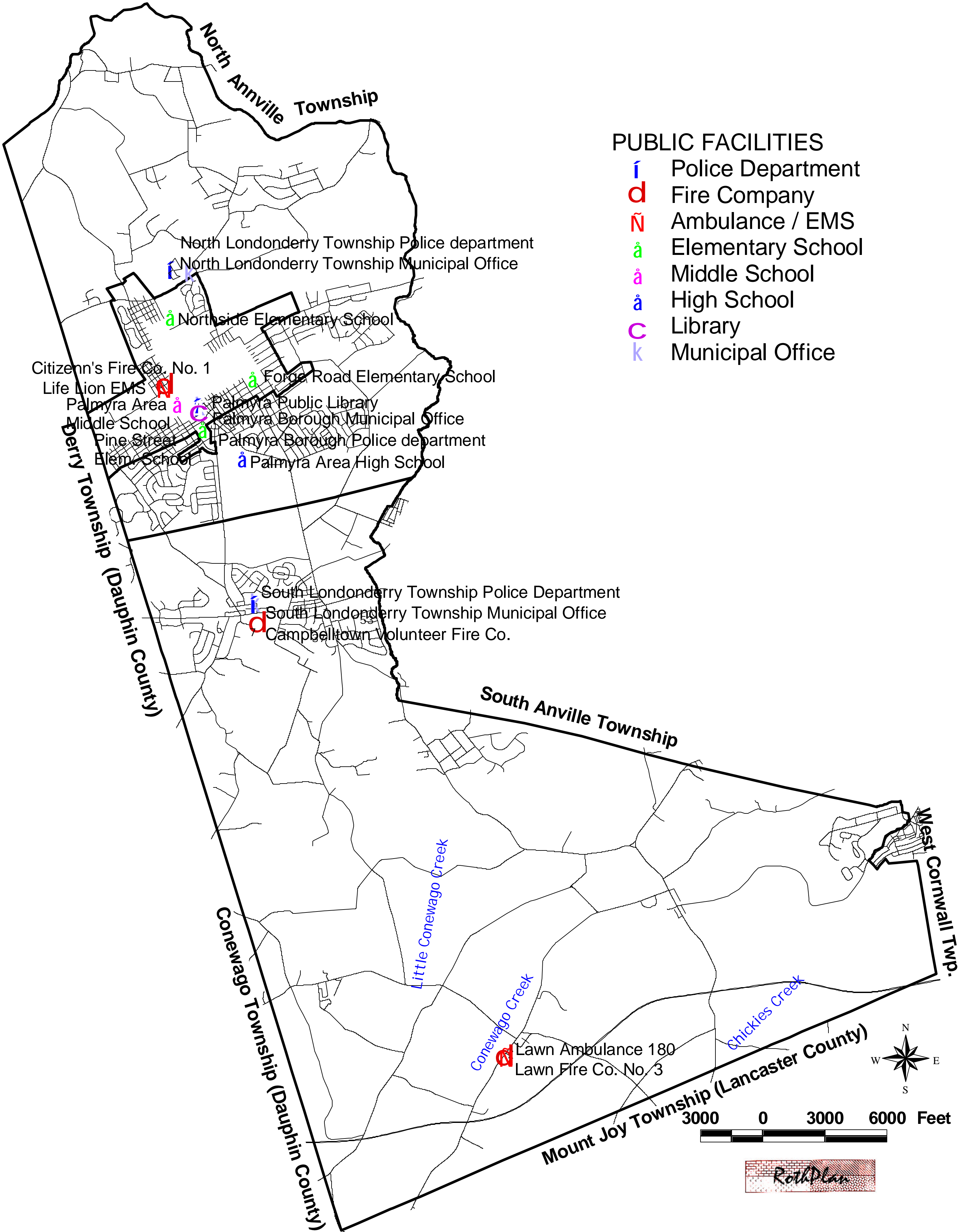
Furthermore, the Lebanon County Career and Technical Center offers 25 different vocational programs to students of the District. These programs are offered in various formats from "half-day" curriculums over two to three years to senior only programs and located in nearby Lebanon City.

The School District employs the following grade format:

Public School Grade Format	
Elementary Schools	K-5
Middle Schools	6-8
High Schools	9-12

¹ http://www.palmyra.k12.pa.us/district_information.shtml, July 31, 2009

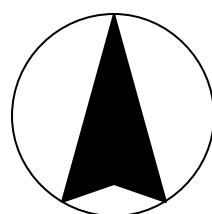
Palmyra Area Region



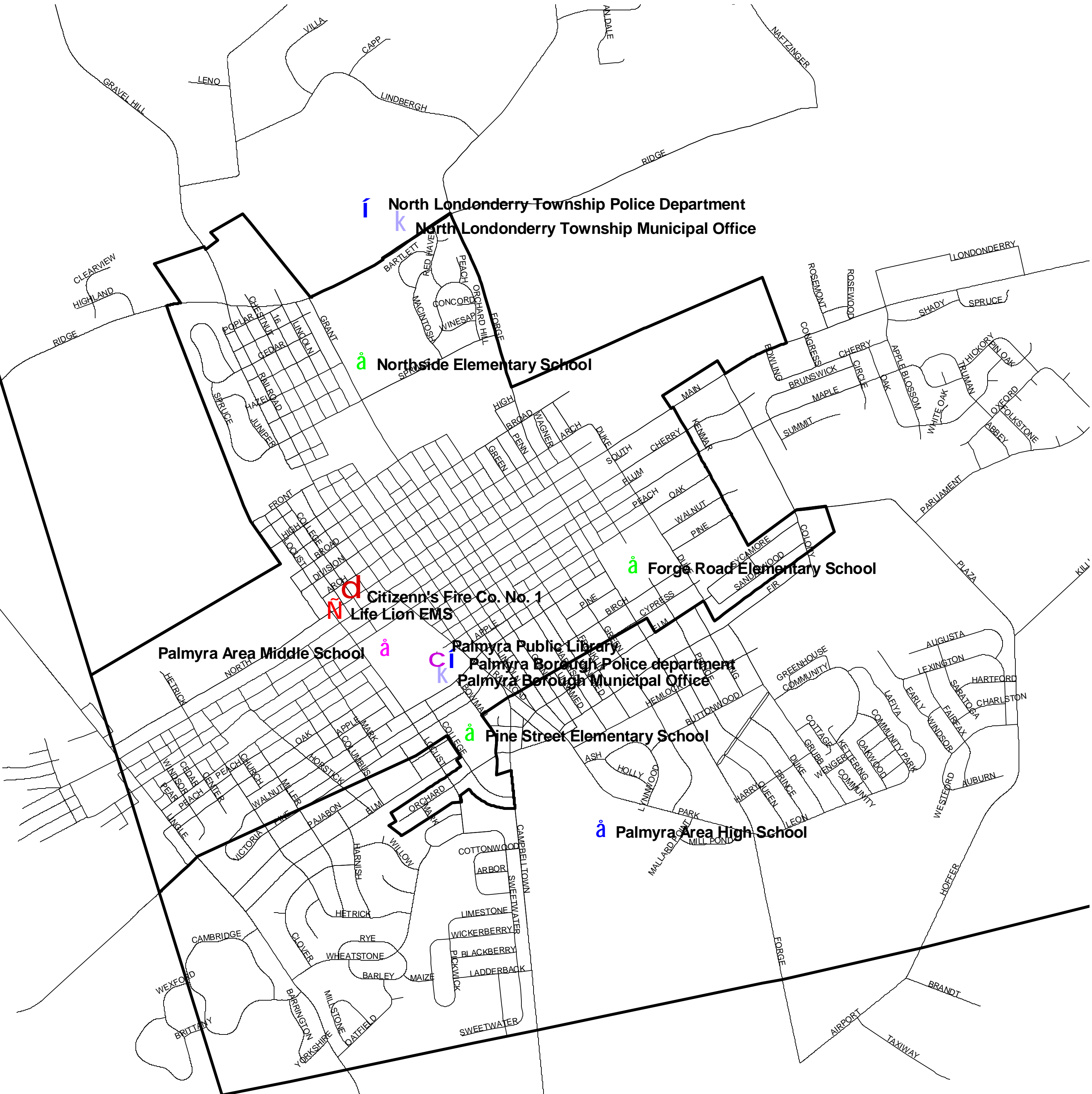
Palmyra Borough
Lebanon County, PA

PUBLIC FACILITIES

- í Police Department
- d Fire Company
- Ñ Ambulance / EMS
- â Elementary School
- â Middle School
- â High School
- C Library
- k Municipal Office



1000 0 1000 2000 Feet



The following tabulates conditions at each of the School District's school sites:

Summary of Palmyra Area School District Facilities							
School Name	Year Built	Renovation Dates	Site Size (acres)	Rated Structural Condition	Grades Housed	Rated Capacity	2008-2009 Enrollment
Forge Road Elementary	1958	1990	12.9	Good	K-5	525	409
Northside Elementary	1967	1990	12.9	Good	K-5	475	596 (modulars)
Pine Street Elementary	1962	2004	10	Excellent	K-5	600	459
Proposed Elementary School	Near future	NA	21.1	Proposed	All K* 1-5	500+	NA
Palmyra Area Middle	1936	1957/1981	30	Good	6-8	836	706
Palmyra Area High	1972	1996/2007	40	Excellent	9-12	1,200	1005
* The proposed elementary school is to serve all of the Kindergarten students from the District plus Grades 1 through 5.							

Source: School District



Forge Road Elementary



Pine Street Elementary



Northside Elementary



Middle School



High School

The Palmyra Area School District has the same boundaries as the Palmyra Area Region; therefore, all of the schools are located within the Region. Each elementary school is located at a separate location although all are located within Palmyra Borough, as is the Middle School. The High School is located with North Londonderry Township.

Geographically, the District's elementary schools are centralized and each serves students from every municipality within the Region. Presently each elementary school serves all elementary school grades (K-5).

The **Forge Road Elementary School** (K-5) is located along the east side of Forge Road within the Borough and offers convenient school bus access along one of the Region's important collector roads (PA Route 117) which connects and serves all municipalities within the Region. This location also provides for convenient pedestrian access to the eastern half of Palmyra Borough and the adjoining neighborhoods within North Londonderry Township. This school was constructed in 1958 and renovated in 1990; it is rated in "good" condition by District representatives and has a residual capacity of 116 students. Beyond education, this site also provides access to important recreational and cultural facilities including a playground, multiple athletic fields, an all purpose gymnasium, music room, library and computer lab.

The **Northside Elementary School** (K-5) is located on the northeast corner of Grant and Spruce Streets within northern Palmyra Borough. This location provides for convenient pedestrian access to the north and central areas of the Borough and students are bussed from both Townships. This school was constructed in 1967 and renovated in 1990; it is rated in "good" condition by District representatives but has an enrollment that is 121 students in excess of its rated capacity. Excess students are housed in modular classrooms. This site also provides access to important recreational and cultural facilities including a playground, multiple athletic fields and courts, an all purpose gymnasium, music room, library and computer lab.

The **Pine Street Elementary School** (K-5) is located on the southwest corner of Pine and Bowman Streets within southcentral Palmyra Borough. This location provides for convenient pedestrian access to the south, west and central areas of the Borough and adjoining neighborhoods within North Londonderry Township. Students are bussed from both Townships. This school was constructed in 1962 and renovated in 2004; it is rated in "excellent" condition by District representatives and has a residual capacity of 141 students. This site also provides access to important recreational and cultural facilities including a playground, multiple athletic fields, a gymnasium with locker rooms, music room, library and computer lab.

In addition, the District has recently acquired a 21-acre site located on the east side of Lingle Avenue straddling the North and South Londonderry Township lines. This location is to construct a **proposed elementary school** that is to serve all of the District's Kindergarten students plus offer classrooms for Grades 1 through 5. It is to have a rated capacity of 675 students and will be constructed for use during the fall of 2011. In addition, site plans for the school identify two soccer/multi-purpose fields, a baseball field and two playgrounds.

The **Palmyra Area Middle School** (6-8) is the oldest existing school still in operation within the District which was built in 1937 with renovations in both 1957 and 1981. Two modular classrooms were added in 2008 and additions are planned to occur following completion of the construction of the new elementary school. As the former Senior High School campus, its location is central within the Borough and offers both convenient pedestrian access from all areas of the Borough and its contiguous neighborhoods with North Londonderry Township. It also sets one block from the town square within the Borough but more importantly along Railroad Street which connects with Campbelltown Road to the south and Gravel Hill Road to the north, all of which form an important

collector road serving all municipalities within the Region. School District representatives rate this school in “good” condition with a residual capacity of 130 students. This location shares some of the District’s most important recreational facilities including its lighted football stadium and track, as well as multiple athletic fields, a gymnasium with a full basketball court, locker rooms, and a weight room. Cultural facilities include an auditorium, two music rooms, two industrial arts rooms, three computer labs and a library.

The **Palmyra Area High School** (9-12) is the newest school within the District which was built in 1972 with renovations in both 1996 and 2007. The High School is scheduled for additions and renovations by the year 2017. This school’s location between Park Road Campbelltown Roads offers both convenient pedestrian access from all areas of the Borough and its contiguous neighborhoods with North Londonderry Township. Equally important is its connection with Campbelltown Road which affords direct school bus access to an important collector road serving all municipalities within the Region. School District representatives rate this school in “excellent” condition with a residual capacity of 195 students. This location too shares some of the District’s most important recreational facilities including its indoor swimming pool, six lighted tennis courts, practice football field, two soccer/field hockey fields, and three baseball/softball fields. Its indoor facilities include a gymnasium with full basketball court, a weight room, a wrestling room, six locker rooms and the competitive swimming pool. Cultural facilities include an auditorium, two music rooms, two industrial arts rooms, five computer labs, four meeting rooms and a library.

Residual Capacity of Schools Serving Region			
School	Rated Capacity	2008-2009 Enrollment	Residual Capacity
Forge Road Elementary	525	409	116
Northside Elementary	475	596 (modulars)	-121
Pine Street Elementary	600	459	141
Palmyra Area Middle	836	706	130
Palmyra Area High	1,200	1005	195
Total Residual Capacity			461

In the year 2000, the number of school-aged children within the Region totaled about 3,275 or 17.2% of the total population. At that time 2717 students attended public school or about 83 percent. Assuming a similar future ratio, the following tabulates the number of new school-aged students that are projected based upon population growth:

Year	Total Population	Total Children Ages 5-18	Total Children Attending Public School (Net additions since year 2000)
2000	19,325	3275	2717
2010	22,379	3849 (+574)	3194 (+477)
2020	24,444	4204 (+929)	3489 (+772)

By calculating the projected number of public school students who would be added between years 2010 and 2020 (295 new students) and comparing that with the total

residual capacity listed for all of the Schools within the District in year 2009 (461), it would appear that sufficient overall school capacity exists to accommodate proposed growth over the life of this plan. However, school districts must plan ahead and be ready for growth when it occurs. The planning, programming, land acquisition, school design and construction can take years to accomplish. The District's ongoing plans for its new elementary school followed immediately by expansion of the middle school and eventual renovations to the High School to be completed by year 2017 testify to the District's commitment to meet its charge.

However, actual use of space within respective buildings can vary widely and reduce the effective capacity of any particular school site. ***For this reason it is recommended that the Palmyra Area School District closely monitor growth within the Region so as to proactively plan for facility expansion well in advance of actual demand for space.*** The School District could benefit from an improved process of residential development review. By learning of proposed developments early, the District can better prepare for needed school expansion and bus routing.

Subdivision and land development application requirements should be revised so that adequate and timely notification to the School District is assured. Similarly, the School District should allocate manpower and resources so as to properly respond to such applications and provide meaningful feedback to the municipalities and their School Board.

Next, the District offers physical education and a variety of competitive interscholastic athletic programs. In addition, intramural recreation programs for the students are conducted "after-school." The District is also an active participant in the Palmyra Area Recreation Commission. Local officials acknowledge the School District's past contributions to the availability of parks and recreation facilities and programs within the Region to the benefit of all residents and municipalities. This represents savings in the amount of millions of dollars to local municipalities who would otherwise need to fulfill this need.

B. Parks and Recreation

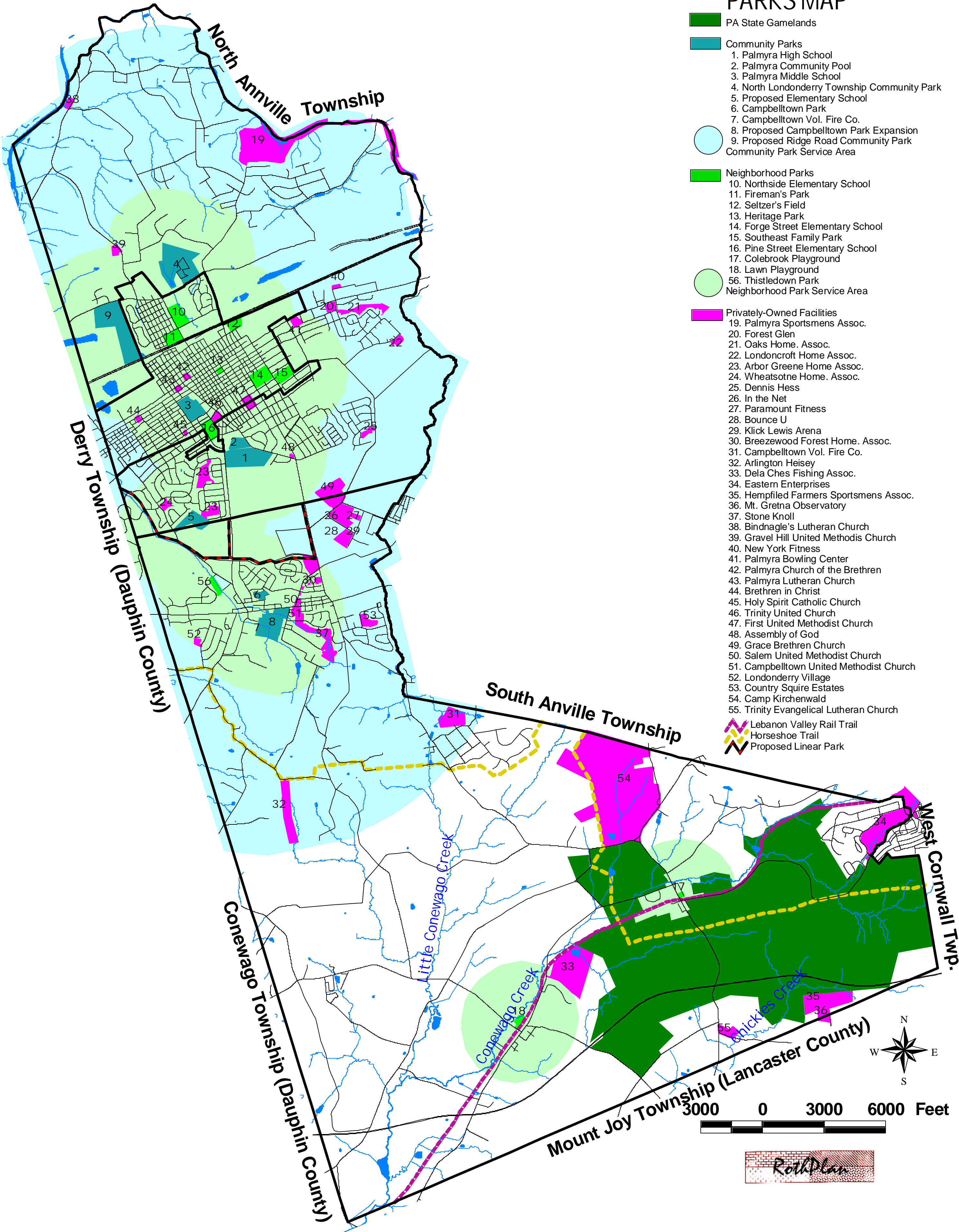
The planning for both passive and active recreation opportunities is an important component of any comprehensive planning effort. Recreation planning seeks to determine the level of demand for recreation facilities and programs, and where needed parks and recreation facilities should be located. Finally, certain widely-used procedures for the acquisition of parklands via dedication/fee-in-lieu thereof subdivision requirements are only legally defensible if they seek to implement legitimate and logical recreation goals and objectives. For these various reasons, the following recreation analysis is offered.

In 1974 the three municipalities of Palmyra Borough, North Londonderry Township and South Londonderry Township, along with the Palmyra Area School District combined their recreational planning efforts to create the **Palmyra Area Recreation and Parks Commission (PARPC)**. Since then, this agency has continued to oversee all recreational planning and programming issues within the Region.


In accordance with the agreement between the three municipalities and the Palmyra

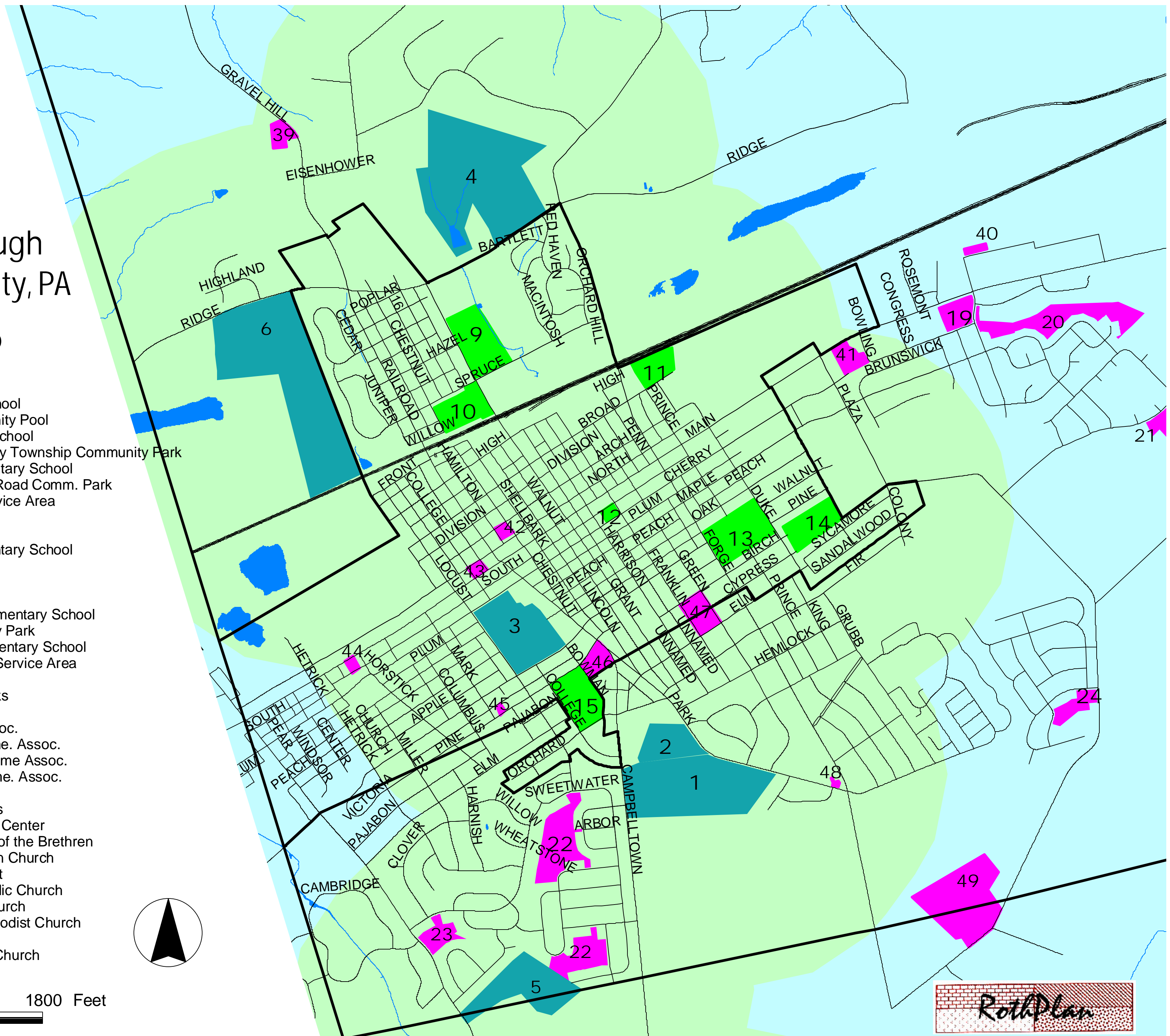
Palmyra Area Region

PARKS MAP



PARKS MAP

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RothPlan

Area School District drafted in 1986, the commission consists of 9 voting members. Two (2) members are appointed from each of the participating municipalities and the School District. The final member is appointed by the first eight appointed members. The Commission has appointed three regular committees - the Committee on Finance, the Committee on Programming, and the Committee on Personnel. Besides these standing committees the Commission also can appoint other advisory committees as needed.

The office of the Recreation Director for the PARPC is centrally located within Palmyra Borough in the basement level of the Palmyra Borough Municipal Building located at 325 S. Railroad Street, Palmyra, PA 17078. The current role of the recreation director is to manage all recreation related activity within the PARPC Region. The Recreation Director has one permanent staff member who serves in an administrative role. Seasonally this office may have additional support staff.

The PARPC has an annual budget which is financially supported through appropriations by each municipality based on assessed valuation of their respected area or population. The School District's contribution has been through the use of its school facilities for PARPC recreation programs. Funding is also supported by user fees. It's the intention of the PARPC to achieve a balance between operating costs and revenue generated from programming fees to lessen the direct funding required from the member communities.

Within the PARPC there are numerous recreation facilities that are owned and operated by one of the four groups. Therefore an essential organizational agreement establishes the shared use of such facilities. The agreement provides for the public use of any School District recreation facilities as long as it does not conflict with School District scheduling. The agreement also provides for reciprocal use of municipal facilities by the School District.

Facilities Inventory

The first step in a recreation analysis is an inventory of existing recreation facilities serving the Region's residents. The inventory below lists the indoor facilities available at the Region's various public schools and other public sites. The inventory on the following pages is a series of tables which lists all identified public recreation sites and their improvements within the Palmyra Area Region. This inventory indicates the site name, the site's ownership and maintenance responsibilities, the site type, and its total recreation acreage. Following this is a specific list of recreation improvements at each site. This list is broken out under several major subheadings, including playgrounds, fields and courts, picnic facilities, pools, trails, and support facilities. A final section at the bottom of the table allows for comments concerning a particular site, or the listing of any additional improvements.

The Parks Map utilizes the information from the inventory to illustrate the geographic distribution of all recreation sites within the Palmyra Area Region, including their types, and service radii for public-owned facilities.

INDOOR FACILITIES INVENTORY

SITE NAME	Forge Road Elementary School	Northside Elementary School	Pine Street Elementary School	Proposed Elementary School	Palmyra Area Middle School	Palmyra Area High School
SITE TYPE	Neighborhood	Neighborhood	Neighborhood	Community	Community	Community
Gymnasium			1		1	1
All Purpose	1	1				
Full Basketball Court			1		1	1
Swimming Pool						1
Locker Rooms			2		2	6
Weight Room					1	1
Wrestling Room						1
Multipurpose Room	1	1				
Auditorium (no. of seats)					1	1
Music Room	1	1	1		2	2
Gymnastics Room (equipment)						
Library	1	1	1		1	1
Meeting Room					2	4
Dark Room						
Computer Lab	1	1	1		3	5
Industrial Arts					1	2
Other, comments						

FACILITIES INVENTORY

BACKGROUND	SITE NAME	PA State Gamelands #145	Palmyra Area Middle School	Palmyra Area High School	Palmyra Area Proposed Elementary School
	OWNERSHIP & MAINTENANCE	Commonwealth of PA	Palmyra Area School District	Palmyra Area School District	Palmyra Area School District
	SITE TYPE	Regional	Community	Community	Community
	TOTAL ACREAGE (DEVELOPED)	2,816 ac.	30 ac.	40 ac.	21 ac.
PLAYGROUNDS	Swing Sets				
	Sliding Boards				
	Climbing Equipment				
	Merry Go-Rounds				
	Seesaws				
	Sand Boxes				
	Rocking Toys				
	Big Toys				
	Hopscotch				
	Four-Square				
FIELDS & COURTS	Baseball/Softball Fields		1	3	1
	Soccer/Hockey Fields		1	2	2
	Football Fields		1	1 practice	
	Basketball Courts (hoops)			1	1
	Tennis Courts			6	
	Volleyball Courts				
	Bleachers		x	x	
	Track		¼ mile		
	Media Booth		1		
PICNIC	Pavilions				
	Total Picnic Tables (in pavilion)				
	Barbecue Pits & Grills				
	Benches				
TRAILS	Walking/Exercise Trails (length)				
	Biking Trails (length)	LVRT			
	Fitness Trails (no. of stations)				
	Measured Path				
SUPPORT	Parking Spaces		X	X	x
	Rest Rooms		X	X	
	Water Fountains		X	X	
	Snack Bar		X	X	
	Waste Receptacles		X	X	x
	Bike Rack		X	X	x
	Signs		x	x	x
Other/Comments		•	•	•	•

FACILITIES INVENTORY

BACKGROUND	SITE NAME	Palmyra Community Pool	North Londonderry Township Community Park	Campbelltown Park*	Campbelltown Vol. Fire Co.
	OWNERSHIP & MAINTENANCE	Palmyra Area Recreation Assoc.	North Londonderry Township	South Londonderry Township	Campbelltown Vol. Fire Co.
	SITE TYPE	Community - Private	Community	Community	Community- Private
	TOTAL ACREAGE	10.3	56.0	4.6	16.3
PLAYGROUNDS	Swing Sets				X
	Sliding Boards				X
	Climbing Equipment				x
	Merry Go-Rounds				
	Seesaws				
	Sand Boxes				
	Rocking Toys				
	Big Toys			X	
	Hopscotch				
	Four-Square				
FIELDS & COURTS	Baseball/Softball Fields	1		1	2
	Soccer/Hockey Fields			1	4
	Football Fields				
	Basketball Courts (hoops)				
	Tennis Courts				
	Volleyball Courts			1 sand	
	Bleachers				
	Track				
	Media Booth				
PICNIC	Pavilions	1	X	1	1
	Total Picnic Tables (in pavilion)				
	Barbecue Pits & Grills				
	Benches		X		
POOLS	Outdoor Pools	2			
	Indoor Pools				
	Wading Pools	1			
	Bathhouse	1			
TRAILS	Walking Trails (length)		5 with 1.56 mi.		
	Biking Trails (length)				
	Fitness Trails (no. of stations)				
	Measured Path				
SUPPORT	Parking Spaces	X	X	X	X
	Rest Rooms	X	X		porta
	Water Fountains	X	X		
	Snack Bar	X			
	Waste Receptacles	X	X		X
	Bike Rack	X			X
	Signs	X	X	X	X
	Other/Comments	* Area measured minus garage and compost.	<ul style="list-style-type: none"> • Municipal office • Municipal garage • Municipal compost 	<ul style="list-style-type: none"> • Open area 	<ul style="list-style-type: none"> • Open area • Meeting room • amphitheater
*Although this park doesn't meet the size requirements for community parks, its location near the Campbelltown Volunteer Fire Co. Park allows for these parks to be combined for the purposes of serving the community.					

FACILITIES INVENTORY

BACKGROUND	SITE NAME	Forge Road Elementary School	Northside Elementary School	Pine Street Elementary School
	OWNERSHIP & MAINTENANCE	Palmyra Area School District	Palmyra Area School District	Palmyra Area School District
	SITE TYPE	Neighborhood	Neighborhood	Neighborhood
	TOTAL ACREAGE	12.9	12.9	10
PLAYGROUNDS	Swing Sets	X	X	X
	Sliding Boards	X	X	X
	Climbing Equipment	x	x	x
	Merry Go-Rounds		x	
	Seesaws			
	Sand Boxes			
	Rocking Toys			
	Big Toys			
	Hopscotch			
	Four-Square			
FIELDS & COURTS	Baseball/Softball Fields	4	2	2
	Soccer/Hockey Fields	2		
	Football Fields			
	Basketball Courts (hoops)		2	2
	Tennis Courts			
	Volleyball Courts			
	Bleachers			
	Track			
	Media Booth			
PICNIC	Pavilions			
	Total Picnic Tables (in pavilion)			
	Barbecue Pits & Grills			
	Benches			
POOLS	Outdoor Pools			
	Indoor Pools			
	Wading Pools			
	Bathhouse			
TRAILS	Walking Trails (length)			
	Biking Trails (length)			
	Fitness Trails (no. of stations)			
	Measured Path			
SUPPORT	Parking Spaces	x	x	x
	Rest Rooms			
	Water Fountains			
	Snack Bar			
	Waste Receptacles	x	x	x
	Bike Rack	x	x	x
	Signs	x	x	x
Other/Comments		•	•	•

FACILITIES INVENTORY

BACKGROUND	SITE NAME	Fireman's Park	Seltzer's Field	Heritage Park
	OWNERSHIP & MAINTENANCE	Palmyra Borough	Palmyra Bologna Co.	Palmyra Borough
	SITE TYPE	Neighborhood	Neighborhood - Private	Neighborhood
	TOTAL ACREAGE	4.9	5.6	0.8
PLAYGROUNDS	Swing Sets			
	Sliding Boards			
	Climbing Equipment			
	Merry Go-Rounds			
	Seesaws			
	Sand Boxes			
	Rocking Toys			
	Big Toys	X		x
	Hopscotch			
	Four-Square			
FIELDS & COURTS	Baseball/Softball Fields	1	1 (lighted)	
	Soccer/Hockey Fields	2		
	Football Fields			
	Basketball Courts (hoops)			1
	Tennis Courts			
	Volleyball Courts			
	Bleachers			
	Track			
	Media Booth			
PICNIC	Pavilions	2	x	1
	Total Picnic Tables (in pavilion)			
	Barbecue Pits & Grills			
	Benches			
POOLS	Outdoor Pools			
	Indoor Pools			
	Wading Pools			
	Bathhouse			
TRAILS	Walking Trails (length)			
	Biking Trails (length)			
	Fitness Trails (no. of stations)			
	Measured Path			
SUPPORT	Parking Spaces			
	Rest Rooms	porta	porta	
	Water Fountains			
	Snack Bar			
	Waste Receptacles			
	Bike Rack			
	Signs			
Other/Comments		<ul style="list-style-type: none"> Open area amphitheater 	<ul style="list-style-type: none"> open area 	<ul style="list-style-type: none">

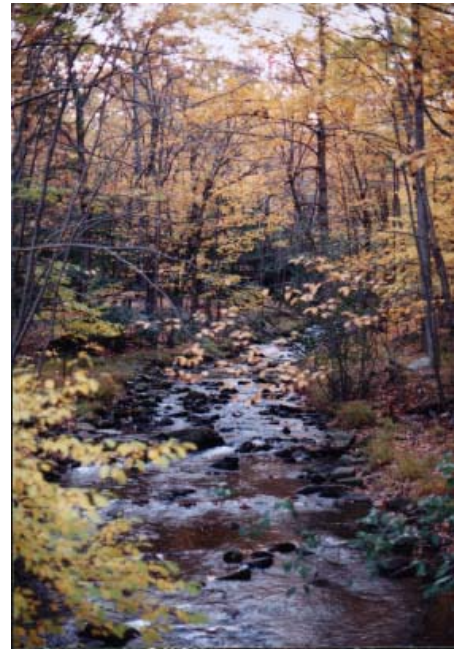
FACILITIES INVENTORY

BACKGROUND	SITE NAME	Southeast Family Park	Colebrook Playground	Lawn Park	Thistledown Park
	OWNERSHIP & MAINTENANCE	Palmyra Borough	South Londonderry Township	South Londonderry Township	South Londonderry Township
	SITE TYPE	Neighborhood	Neighborhood	Neighborhood	Neighborhood
	TOTAL ACREAGE	8.7	0.5	2.7	3.1
PLAYGROUNDS	Swing Sets		x		
	Sliding Boards				
	Climbing Equipment				
	Merry Go-Rounds				
	Seesaws				
	Sand Boxes				
	Rocking Toys				
	Big Toys	x	x	x	
	Hopscotch				
	Four-Square				
FIELDS & COURTS	Baseball/Softball Fields	2		x	
	Soccer/Hockey Fields	2			
	Football Fields				
	Basketball Courts (hoops)		1/2		
	Tennis Courts				
	Volleyball Courts				
	Bleachers				
	Track				
	Media Booth				
PICNIC	Pavilions	x	1	1	
	Total Picnic Tables (in pavilion)				
	Barbecue Pits & Grills				
	Benches				
POOLS	Outdoor Pools				
	Indoor Pools				
	Wading Pools				
	Bathhouse				
TRAILS	Walking Trails (length)		Trailhead for LVRT	Trailhead for LVRT	proposed
	Biking Trails (length)				
	Fitness Trails (no. of stations)				
	Measured Path				
SUPPORT	Parking Spaces	x	x	x	
	Rest Rooms	porta	porta	porta	
	Water Fountains				
	Snack Bar				
	Waste Receptacles				
	Bike Rack				
	Signs				
Other/Comments		• Open area	• Open area	• Open area	• Riparian buffer

Spatial Park Analysis

With a complete inventory of parks, it becomes possible to analyze the level of park service available within the Palmyra Area Region. Within this analysis, every publicly-owned park and/or recreation facility (Township, Borough, and School District) is identified. In some cases, privately-owned sites are included if they are typically available for public use. Then, its size and service area is evaluated in relation to its intended service population. Conversely, this analysis also identifies those areas of the Region that lack close, convenient, and safe access to public parkland. Typically, these evaluations are based upon prescribed standards for park size per 1,000 persons being served and also for predetermined service radii. The National Recreation and Park Association (NRPA) generally assigns such standards for various park types. These standards are applied to evaluate the allocation and spatial distribution of the Region's park system.

Regional parks generally contain 200± acres and are typically located within a one hour driving time from the population being served. These parks are generally located throughout a large metropolitan region, and can accommodate a wide variety of recreational activities. Often, these parks are owned and operated by the State and Federal government, and in the case of Pennsylvania, many State Game Lands are included in this category. Regional parks usually have a natural orientation with hiking, camping, and picnicking facilities. Other “activity-oriented” facilities, as well as significant historic or archaeological resources, might also be included.



Within the Palmyra Area Region is one the PA State Gamelands No. 145 with approximately 2816 acres of typically wooded land that is available for hunting, fishing, hiking and other passive pursuits. Clearly the Region enjoys more than its share of regional parklands. However, because the size and cost usually associated with regional parks transcend the responsibilities of local government, this Plan does not recommend any specific actions associated with the acquisition and development of more regional parks. However, it is recommended that future land use planning directly reflect these important features which contribute to the Region's economic, natural and cultural well-being.

Community parks usually contain 20+ acres and are intended to serve a population within a 2 mile-service radius. They should be sized at the rate of 5 to 8 acres for 1,000 persons served. These parks generally involve a high level of improvement with multiple sets of athletic fields and courts. Sometimes swimming pools and indoor recreation centers are situated on these community-wide parks. Larger school sites (usually middle, and high schools) have the facilities to qualify as community-based parks, and represent valuable recreation resources that can significantly enhance the level of recreation services offered to a given area. Finally, sometimes smaller specialized facilities (like the Palmyra

Community Pool) qualify as community parks due to their use by a larger service area than that of a neighborhood park. The table below lists all publicly-owned and/or publicly-accessible community parks.

Community Parks Within the Palmyra Area Region		
Park Name	Municipality	Acreage
Palmyra Area Middle School	Palmyra Borough	30
Palmyra Area High School	N. Londonderry Twp.	40
North Londonderry Township Community Park	N. Londonderry Twp.	56
Palmyra Community Pool	N. Londonderry Twp.	10.3
Campbelltown Park	S. Londonderry Twp.	4.6
Campbelltown Volunteer Fire Co.	S. Londonderry Twp.	16.3
Total Community Park Acreage within the Region		157.2 ac.

Within the Region, residents are currently highly dependent upon the School District for their community park needs. While North Londonderry Township, already has approximately 56 acres of available land for a community park, this park lacks many of the improvements needed to function at the expected level of recreation service. In addition, the School District has acquired a 70.91-acre parcel located on the south side of Ridge Road adjoining North Londonderry Township's western boundary. Presently this park is vacant however, ongoing discussions among the PARPC suggest that this site will be used for additional athletic fields which would thereby qualify as a community park. ***Development of at least one of these two parks in North Londonderry Township should be an immediate priority as revenues can be collected by the Township and/or the PARPC.***



Palmyra Community Pool

By contrast the School District sites and the Palmyra Community Pool are highly developed. Within South Londonderry Township, the Campbelltown Park by itself is too small to qualify as a community park; however, its close proximity with the larger Campbelltown Volunteer Fire Company Park enables these facilities to be combined in meeting the needs of the community. In addition, South Londonderry Township has made application for grant monies to develop its 16 acre property immediately to the east of the Fire Company Park for the purposes of enlarging this community park. All total these three parcels would combine with 36.9 acres.

The Parks Map illustrates the locations and configurations of all community parks within the Region. Additionally, a two-mile service radius was drawn around the perimeter of each park to determine its respective service areas. The areas shaded in light blue illustrate

those portions of the Region located within the existing two-mile service boundaries. Fortunately these larger parks are found within or within close proximity with Palmyra Borough and the more densely developed neighborhoods within North and South Londonderry Townships. In fact, all of Palmyra Borough and North Londonderry Township fall within this suggested community park service area. However, for this analysis and finding to be valid, it will be necessary to develop either the North Londonderry Township Community Park beyond its existing trail system or the proposed Ridge Road Community Park. Multiple sets of athletic fields and courts, a safe-surface playground, picnic pavilions and related facilities (e.g. parking, waste receptacles, park benches, rest rooms, water fountains, BBQ grills and even park lights) are typical improvements to a community park.

Although the most developed areas of South Londonderry Township (i.e. Village of Campbelltown) lie within the two-mile radius service area for the Region's community parks, vast areas do not. Given its elongated configuration and rural character, it would seem impractical to provide for community park service area coverage throughout the all of South Londonderry Township. Instead, it is common practice to distinguish between "urban growth areas" in which a full range of public facilities and services will be focused (including parklands), and rural areas where lesser or no amenities will be delivered. Therefore, it is important that future residential growth areas be targeted to areas where community parklands exist or can be provided. Accordingly, South Londonderry Township should continue its ongoing efforts to expand the Campbelltown Parks then, like North Londonderry Township, follow-through with suitable improvements.

The following lists a "typical" community park schedule of improvements and their respective costs for a 20± acre site:

"Typical" Community Park Improvements	Area Required (Square feet)	Estimated Cost
master site plan;	NA	\$35,000
2 6-table picnic pavilions/tables/BBQ grills/waste receptacles;	12,000	\$16,200
2 lighted multi-purpose (soccer/baseball) athletic fields;	6 acres	\$196,000
1 modular playground with safety surfaces;	5,000	\$30,000
a looping trail with 10-foot wide asphalt surface (about 1 mi.);	52,800	\$176,800
a 50-space parking lot;	150,000	\$47,850
2 bike racks;	NA	\$1,000
2 lighted basketball courts;	14,000	\$102,400
2 lighted tennis courts;	14,000	\$82,100
2 lighted sand volleyball courts;	8,000	\$42,400
park & trail signs and maps;	3,200	\$10,000
rest rooms and drinking fountains;	1,000	\$46,800
landscaping and shade trees;	NA	\$30,000
contingency, bonding, and design costs (20% of improvement costs)	NA	\$156,310
Totals	12± acres	\$972,850

Next, local officials need to know how much community parkland is needed to meet current and future demand. Based upon the NRPA minimum guidelines and a recently completed recreation plan prepared for the PARPC, the standard of 8 acres of community parkland for each 1,000 residents will be applied to the population projections provided in Chapter IV of

this Plan. The following table illustrates the community parkland area needed to adequately serve the Region now and in the future:

Existing & Projected Community Parkland Needed Within the Region				
Year	Population	NRPA-Recommended Acres 8 ac. per 1000 persons	Existing Acres	Surplus/ Deficiency
2000	19,325	154	157.2	+ 3.2
2010	22,379	179	157.2	-21.8
2020	24,444	196	157.2	-38.8

From the preceding table, it appears that the Region had previously provided for just over 8 acres of community parkland per 1000 population in the year 2000. However, it is likely that since then the population growth has exceeded this recommended ratio and the Region has a deficiency of about 22 acres. By the year 2020, the Region will need an additional 39 acres of community parkland.

Fortunately as discussed earlier in this Chapter, the School District has programmed the development of a new elementary school with 21.1 acres, two multi-purpose athletic fields, a baseball field and two playgrounds. The School District also owns the proposed 70.91-acre Ridge Road Community Park located on the south side of Ridge Road in North Londonderry Township which is planned to be developed and programmed for multiple sets of athletic fields by the PARPC. In addition, South Londonderry Township has applied for a grant to develop its 16 25.4 acre parcel located immediately to the east of the Campbelltown Volunteer Fire Company site to enlarge the Campbelltown Park. The addition of these three proposed facilities will provide 291.8 total acres of community parkland and offer sufficient area to meet the projected demands associated with population growth well beyond the year 2020. However, the Region must commit to a campaign of improvement at these community parks to ensure adequate recreation facilities are made available.

Neighborhood parks are the third park type advocated by recreation experts. These parks are generally between 1 and 20 acres in size and meant to serve a population of 2,000 to 10,000. The recommended service area for these parks is a one-quarter to one-half mile radius. As implied by the name, these parks are intended to provide close-to-home areas for limited athletic activities, playgrounds, and passive pursuits. The NRPA recommends that one to two acres of publicly-owned land be devoted to neighborhood parks for each 1,000 residents; however, based upon a recreation plan prepared for the PARPC, the Region has adopted a neighborhood parkland ratio of 2.5 acres per 1000 residents.

Within the Region, several neighborhood parks are owned by public agencies and serve the general public. The following tabulates all neighborhood parks by municipality within the Region:

Neighborhood Parks Within the Palmyra Area Region		
Park Name	Municipality	Acreage
Northside Elementary School	Palmyra Borough	12.9
Forge Road Elementary School	Palmyra Borough	12.9
Pine Street Elementary School	Palmyra Borough	10
Fireman's Park	Palmyra Borough	4.9
Seltzer's Field	Palmyra Borough	5.6
Heritage Park	Palmyra Borough	0.8
Southeast Family Park	Palmyra Borough	8.7
Colebrook Playground	S. Londonderry Twp.	0.5
Lawn Park	S. Londonderry Twp.	2.7
Thistledown Park	S. Londonderry Twp.	3.1
Total Neighborhood Park Acreage within the Region		62.1 ac.

The Parks Map identifies the locations and configurations of all neighborhood parks in the Region. Like community parks, a service radius was drawn around the perimeter of each neighborhood park to determine its service area. The NRPA recommends a maximum one-half mile service radius. In addition, the same ½ mile service radius was mapped around existing community parks as these facilities too can serve neighborhood park needs of nearby residents. The neighborhood park service areas are shaded in light green on the Parks Map. The neighborhood park service areas also blanket most of the developed portions of the Region and are concentrated within Palmyra Borough. Colebrook's Playground and Lawn's Park offer convenient recreation access for these small Villages which often lack any parkland. In addition these playgrounds offer access trailheads for the Lebanon Valley Rail Trail.

Like for community parks, local officials should know how much neighborhood parkland is needed to meet current and future demand. Based upon the population projections for the Region as a whole, the table below illustrates the neighborhood parkland area needed to adequately serve projected growth:

Existing & Projected Neighborhood Parkland Needed Within the Region				
Year	Population	NRPA-Recommended Acres 2.5 ac. per 1000 persons	Existing Acres	Surplus/ Deficiency
2000	19,325	48.25	62.1	+ 13.85
2010	22,379	56.0	62.1	+ 6.1
2020	24,444	61.0	62.1	+ 1.1

From an acreage standpoint the Region has a surplus of neighborhood parkland now and just barely in the projected future. Furthermore, its coverage of densely-populated areas is also generally adequate; however, the western edges of Palmyra Borough and

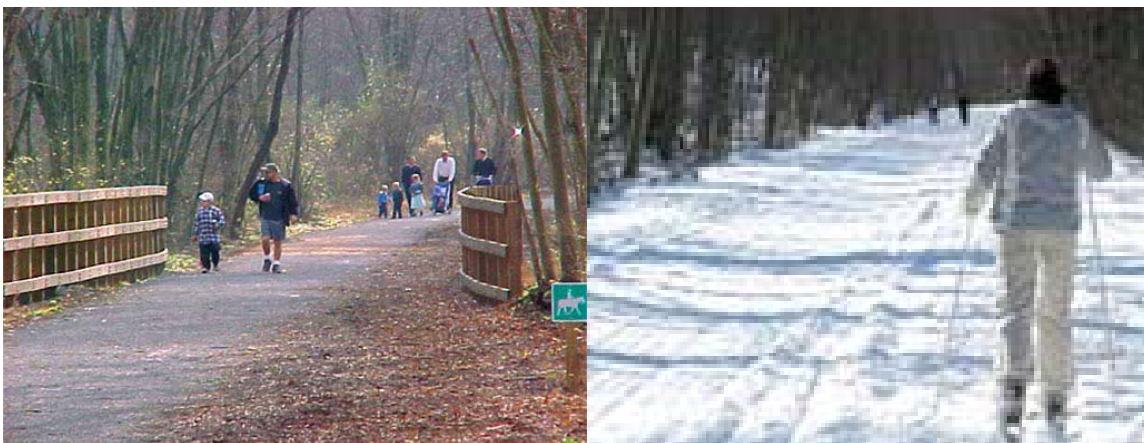
the Country Squire and Country Squire Estates neighborhoods located just east of Campbelltown fall beyond the ½ mile recommended neighborhood park service radii. Local officials from Palmyra Borough and South Londonderry Township should remain aware of opportunities to extend neighborhood parks in these areas. Within North Londonderry Township local officials intend to concentrate resources on needed improvements to their community parks rather than neighborhood parks. Fortunately, most of the developed neighborhoods within North Londonderry Township are located within the recommended service areas for existing neighborhood parks. Neighborhood parks have played and continue to play a vital role in meeting the Region's recreation needs. These parks should be maintained and adapted as recreation preferences shift.

Linear Parks - Based upon the planning goals expressed for this Plan, local officials understand that the creation of a network of open spaces throughout the Region is of principal concern to its residents. Consistently citizens cite the creation of pedestrian pathways and trails as among its highest recreation priorities. These findings testify to the acquisition and development of greenways and linear parks as a priority within the Region.

Two existing trails traverse South Londonderry Township which offer tremendous walking, hiking, biking and cross country skiing opportunities.

First the **Lebanon Valley Rail Trail** follows a continuous 15 mile course along the abandoned Pennsylvania Railroad right-of-way between 9th Street in the City of Lebanon to the Lancaster/Lebanon County line. At the western end, the trail connects with the Conewago Recreation Trail which continues another five miles into Lancaster County.

In December 1999, Lebanon Valley Rails-to-Trail, Inc. (LVRT) acquired the corridor to develop a multiple use trail. Lebanon Valley Rails-to-Trail, Inc. is the non-profit organization formed in 1996 to spearhead this rail-trail's development and management. All fundraising, construction management, trail maintenance and public relations is performed by a core group of volunteers. Local legislators were so impressed by the public support and the success of a private fundraising campaign which raised over \$300,000 dollars for the first phase of the trail, that they responded by providing state grants to extend and complete development of subsequent sections.



Photos source: www.lvrailtrail.com/photos.htm#

The Lebanon Valley Rail-Trail passes through the heart of “Pennsylvania Dutch Country”. Proceeding north from the Colebrook trailhead (at the Colebrook Playground), trail users will pass through pristine woodlands of the adjacent state gamelands. Mt. Gretna lies just a short distance from the trail near milepost six where hiking trails lead to the 80-foot observation tower locally referred to as the “Governor Dick Recreation Area” with views of the surrounding countryside. Further east is the Cornwall Furnace National Historic Site, a revolutionary war era iron foundry.

West of Colebrook the scenery changes into expansive vistas across rolling farmlands and bucolic pasture with a wide adjoining floodplain of the Conewago Creek. In the Village of Lawn, another trailhead adjoins the Lawn Park.

During the summer of 2009 the LVRT was extended 2.5 miles from its previous acquired and construct a 2.5 mile section from the eastern terminus near Zinns Mill Road, into the City of Lebanon. This extension will passes close to the Lebanon Expo Center in North Cornwall Township, South Hills Park in South Lebanon Township, and both Lebanon High and Cedar Crest High Schools.

“Trail improvements consist of a 10-foot wide bituminous paved surface suitable for all non-motorized recreational uses and a parallel equestrian path. The project included installation of a new above-grade bicycle/pedestrian bridge across Wilhelm Ave in South Lebanon Township. Construction of this extension cost approximately \$575,000 which was funded through the Lebanon County MPO within the current round of transportation enhancements eligible for Federal Highway Administration funding.”²

Second, the Region is fortunate to have a 4.5-mile segment of the 140-mile **Horseshoe Trail** cross South Londonderry Township, on its way between Valley Forge to the east and the Appalachian Trail on Stony Mountain in Dauphin County to the west. The trail enters the east side of South Londonderry Township just south of the Borough of Mt. Gretna where it extends west through the PA Gamelands past Colebrook then turning north along the west side of Camp Kirchenwald and briefly out of the Township. The trail then again enters the Township just south of the Estates of Forest Ridge neighborhood and generally follows a northwesterly course alternating between road and overland alignments. Near its western segment within the Region, the trail adjoins the Village of Campbelltown just south of the Londonderry Village neighborhood.

“The history of the Trail is entwined with the development of the iron industry in this part of Pennsylvania during the 18th and 19th centuries. The many furnaces and forges were connected by trails, portions of which have survived to form the foundation of to day's Horse-Shoe Trail. The trail expanded and evolved over time and has been open to the public since 1935, providing hikers with the opportunity to explore the region's lush rural landscapes



² www.lvtrail.com/project.htm, Aug. 13, 2009

and visit local landmarks, including Hopewell Furnace, French Creek State Park, Middle Creek Wildlife Management Area, Cornwall Iron Furnace, Governor Dick and Mt. Gretna.

“The Horse-Shoe Trail Conservancy is a nonprofit, volunteer organization originally established as the Horse-Shoe Trail Club in 1935 by a small group of individuals interested in preserving and protecting the natural and cultural heritage of the Trail. The Conservancy owns no land. The trail is kept open on both public and private lands in Chester, Berks, Lancaster, Lebanon and Dauphin counties by agreements with landowners, who have given permission to hikers and equestrians to cross their properties. The mission to protect, preserve, and maintain the Trail for hikers and equestrians now and for generations to come requires active legal protection for the Trail through rights-of-way and conservation easements.”³



*Horseshoe Trail monument to founder
Henry N. Wollman in Valley Forge at trailhead.*

Local officials within South Londonderry Township should seek ways to protect and incorporate these valuable resources within the Region’s overall park and open space system and programs. Development plans proposed along these trails should protect the overland alignments by reflecting the trail use and designing developments that respect their integrity. Density bonuses through zoning and cluster developments can be used to incentivize this process.

As depicted on the Natural Features Map within Chapter III of this Plan, the Region exhibits a somewhat extensive system of drainageways amid its low-lying valleys particularly within South Londonderry Township. The Townships’ larger watercourses extend to all areas and generally have an adjoining floodplain; in many cases an even wider wetland extends landward.

With proper attention, these creeks can offer tremendous environmental, recreational and educational value. These natural corridors represent the Townships’ best opportunities for greenways that fulfill the goals expressed for the protection of open spaces and pedestrian linkages.

Municipalities are required to regulate those areas contained within the 100-year floodplain, to be eligible under the National Flood Insurance Program. However, as depicted on the Natural Features Map, the Township should impose the same level of protection to areas within the 500 year floodplain and upon alluvial soils. However, additional protection and management is warranted if the Township wants to improve water quality and offer better streamside recreation opportunities.

While protection of floodplains and wetlands are widely accepted land use management techniques, recent awareness of diminishing surface water quality suggests the need for more protection. Floodplain regulations are generally concerned with the construction of new buildings and structures that would displace or obstruct the flow of flood waters; riparian buffer standards extend this concern to include the proper management and maintenance of the vegetative cover in these areas. Studies conducted by the U.S. Forest Service demonstrate that riparian buffers offer real advantages in the removal of

³ www.hstrail.org, Aug. 13, 2009

harmful nutrients and sediment from storm water before it enters the stream. These same riparian buffers can increase the food supply and create interconnected natural systems of movement for local wildlife. Riparian buffers are areas adjoining streams where naturally successive vegetation is provided and protected.

The USDA Department of Forestry recommends a minimum riparian buffer of 90-feet wide radius from the streambanks. This width is based upon the climatic conditions of this area to sustain natural streamside buffers. Essentially, riparian buffers comprise three distinct zones, as depicted below. The following will describe where to establish, and how to plant and maintain each of these three zones:



Photo of creek with and without a riparian buffer through farmland. Source: York County Planning Commission.

Zone 1 is the landward area located between the streambank edge under typical flow conditions, and fifteen (15) feet, as measured directly perpendicular from the streambank edge. This Zone must include mature canopy trees and a ground cover of warm season grasses. New tree plantings should be selected, arranged and managed to accelerate canopy growth, and offer native species habitat and food supply. New grass plantings should be selected and managed to filter-out pollutants and offer habitat. All vegetation within this Zone must thrive in wet conditions. Zone 1 requires little maintenance. As trees mature, die and decay, it is important that such natural debris be allowed to decompose within the stream. This will provide important food and habitat for beneficial microorganisms, fish and amphibians. Streamside grasses should similarly be allowed to seasonally flourish and recede. Manmade activities should be very limited and confined to perpendicular passages from Zone 2. Intensively-used locations should be fitted with raised walkways and reinforced embankments. Streamside cleanup of junk and manmade debris is permitted. No animal watering and crossing locations are permitted, unless they are reinforced.

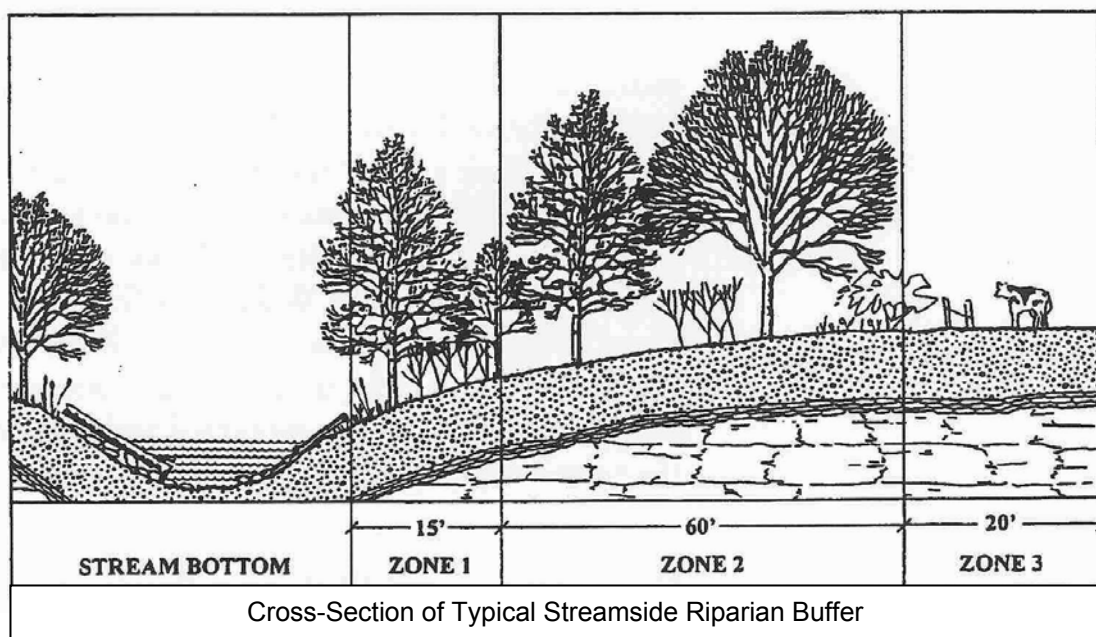
Zone 2 begins at the inland edge of the above-described Zone 1 and extends at least sixty (60) feet inland there from but also includes the largest width of any of the following:

- the 100-year floodplain;
- any adjoining identified wetlands; and/or,
- any adjoining area characterized by slopes exceeding twenty-five percent (25%).

This Zone must also include mature canopy trees generally three rows deep, and a natural undercover. New tree plantings should be selected that grow rapidly, so as to intercept passing nutrients. Such trees should also be arranged and managed to accelerate canopy growth, and offer native species habitat and food supply. Successive undercover plants should also be allowed to “evolve” with the canopy of this Zone. This Zone requires the most attention, but not for some time after initial planting. Here, the objective is to develop a stable and broad canopy of tree cover. The trees within Zone 2 are fast-growing and, therefore, consume many nutrients. The regular pruning and trimming of these trees will increase their nutrient consumption, but should not jeopardize the important overhead

canopy of shade. The natural undercover should be undisturbed, except for periodic litter cleanup. Pedestrian paths can weave through Zone 2, but should be arranged and periodically re-aligned provided to prevent compacted soils and root damage.

Zone 3 begins at the inland edge of the above-described Zone 2, and extends at least fifteen (15) feet inland there-from. Where a pasture is proposed just beyond the above-described Zone 2, no Zone 3 is required. This Zone should be planted with warm season grasses that are allowed to mature naturally without mowing. The tall grasses ensure that overland storm water flows do not “channel” into Zone 2. New grass plantings should be selected and managed to enable controlled grazing or haying, so long as the grasses are not reduced to a point where they are no longer able to effectively disperse the surface water flows. This Zone also requires little maintenance. Long summer grasses should be allowed to flourish and recede with the seasons. Grazing and haying is permitted, so long as the residual grass length is sufficient to disperse overland storm water flows into Zone 2 and avoid channelization.



Streamside buffers must be generally undisturbed. Mature trees and long grasses absorb more nutrients than do manicured plants. Similarly, the more extensive root systems retain passing sediments. These characteristics reduce pollution and yield abundant food and habitat for wildlife. The temptation to “over-maintain” the streamside must be overcome.

Local officials should educate landowners and developers of the importance of riparian buffers, and the Region's intent to provide for them. Newsletter articles should be used occasionally to introduce these concepts, and then to feature successful implementation examples as they occur. Local officials should also mount a campaign to implement streamside restoration and riparian buffer planting projects, as suggested in the Natural Features Inventory. A sample riparian buffer ordinance contained in Chapter 10 (Future Land Use) should be incorporated into both Township Zoning Ordinances.

But zoning regulations alone will not get this job done, as most land uses don't require zoning approval to continue to operate. In these areas, other options exist.

First, the Chesapeake Bay Foundation administers the **PA Conservation Resources Enhancement Program (CREP)**; a voluntary program available to productive farms to help safeguard environmentally sensitive land. Enrollees plant long-term, riparian buffers to improve the quality of water, control soil erosion, and enhance wildlife habitat. In return, CREP provides participants with rental payments and cost-share assistance. Contract duration is between 10 and 15 years.

- **Rental Payments** –In return for establishing long-term, riparian buffers, CREP provides annual rental payments to participants. CREP bases rental rates on the relative productivity of the soils within each county and the average dryland cash rent or cash-rent equivalent. The maximum CREP rental rate for each offer is calculated in advance of enrollment. Within Lebanon County these rents range between \$147-\$211 per acre
- **Cost-share Assistance** – CREP provides cost-share assistance to pay for the installation of fencing, livestock crossing (if needed), tree and shrub planting.

Many of the success stories surrounding riparian buffers have been the results of dedicated volunteers from conservation and sporting groups. Across the State, local anglers have made it their mission to rehabilitate and save stream habitats for fishing purposes. ***These captive groups should be educated about the benefits of riparian buffers and energized into action. These “neighbors” can probably best effect the peer pressure to convince local landowners to get involved.*** A “hip-boot-brigade” should be formed from local sportsmen who should regularly travel up the waterways and meet with adjoining landowners, and describe the benefits and programs of riparian buffers.

Another powerful ally is the Region’s youth. Environmental studies classes can develop pilot riparian buffers at visible school and park locations; these focused successes enable the benefits of these buffers to be experienced first-hand by the general public. The School Districts should develop and regularly offer a streamside riparian buffer workshop as part of its curriculum, for students to learn “first-hand” about how man can co-exist with nature. Local and School District officials should cooperate on a number of these pilot projects at visible locations throughout the Region. Then, as successes mount, they should be featured in local newsletter and media articles that widen awareness and attention about their use and benefits. Such projects represent excellent candidates for Growing Greener grants from the State. Once momentum is achieved, other civic groups are likely to get involved.

Finally, the South Londonderry Township Official Map depicts an extensive network of interconnected sidewalks, bike paths and linear trails that promotes connectivity throughout the neighborhoods within and around the Village of Campbelltown. This network also includes connection with the existing trails system in adjoining Derry Township and an extension to connect into the neighborhoods of North Londonderry Township and Palmyra Borough. These trail extensions are depicted in concept on the Parks Map.

The connectivity expressed by this system will rely upon a multi-pronged approach by requiring neighborhoods to integrate sidewalks and roads that can safely accommodate bicycle mobility along side motorized vehicles. In addition, some segments of this system will likely require the provision of linear parks that are separate from the road / sidewalk network. Local officials from each municipality should devise flexible

development regulations that incentivize the provision of "cross-country" linear parks along these segments. Then local officials should seize every opportunity to secure these connections during the review of adjoining development projects.

However, some of these connections will cross lands that are not planned for development. In these cases it may be necessary to secure easements and/or rights-of-way for linear trails. The Pennsylvania Department of Conservation and Natural Resources, Pennsylvania Recreational Trails Program Grants, provide funds to develop and maintain recreational trails and trail-related facilities for motorized and non-motorized recreational trail use. Match requirements are 80% grant money, up to a maximum of \$100,000, and 20% project applicant money. Acquisition projects require a 50/50 match. Funding is provided through the Federal Highway Administration and the Transportation Equity Act for the 21st Century (TEA-21).(www.dcnr.state.pa.us)

The Palmyra Area Recreation Commission should make application for such monies to undertake this feasibility study. Results from this study should then be subsequently integrated into this Regional Comprehensive Plan, the Regional Comprehensive Recreation and Open Space Plan and any municipal Official Maps.

Mandatory Dedication (or fee-in-lieu thereof) of Recreation Land

Mandatory dedication of parkland has become a standard technique for local park systems to keep pace with growth since it was enabled by the Pennsylvania Municipalities Planning Code in the late 1980s. This is one of the few techniques authorized to help municipalities obtain revenues and resources to keep pace with growth and development. Each municipality is recommended to make use of this technique and "tap" new developments for lands and/or funds to be developed into parks.

In order to adopt mandatory dedication standards, municipalities must undertake some background analysis so as to identify "reasonable" standards that relate to the need for parkland. Using the Region's demographics, land values and parkland needs it is possible to calculate mandatory dedication standards and their related fees-in-lieu-thereof. The following will provide a basis for such calculations:

The following locally-adopted standards for parklands were used to determine the adequacy of existing parks earlier in this Chapter are listed below:

NRPA Local Park Acreage Standards	
Park Type	Minimum Acres Needed per 1,000 Population
Community Park	8 acres
Neighborhood Park	2.5 acres
Conservation Park	5 acres
Total	15.5 acres

From the preceding chart, it can be seen that 15.5 acres of local public parkland should be provided for each 1,000 persons. To derive a per unit or per lot standard, the 1,000

population is divided by the average household size (year 2010) reported for the each municipality as follows:

Mandatory Parkland Dedication Calculations			
Municipality	2000 Average Household Size	No. of Dwellings per 1,000 Population	Required Park Acres per Dwelling Unit
Palmyra	2.13	469	.033 acres
N. Londonderry	2.38	420	.037 acres
S. Londonderry	2.47	405	.038 acres
Region	2.31	433	.036 acres

If raw land was all that was needed to provide for local parks, then the preceding required park acres per dwelling unit would enable the Region to collect parkland that would to keep pace with its projected growth. But a community park is more than raw land, it requires a high level of infrastructure and improvement. Generally, the value of these improvements equals the value of the parkland itself. Therefore, it is recommended that each municipality double the preceding acreage figures to derive needed mandatory dedication standards to effectively meet expected demand for developed parks. By contrast, conservation parks do not require as much improvement; therefore, their incidental costs require only about 20 percent increase beyond the cost of the land. The following lists the adjusted values of each park type based upon its total cost of acquisition and improvement:

Suggested Mandatory Parkland Dedication Standards by Park Type for Palmyra Borough	
PARK TYPE	REQUIRED PARK ACRES PER DWELLING UNIT
Community (10.5 ac./ 469 units X 2)	.044 acres
Conservation Park (5ac. / 469 units X 1.2)	.013 acres
Total Parkland	.057 acres

Suggested Mandatory Parkland Dedication Standards by Park Type for N. Londonderry Twp.	
PARK TYPE	REQUIRED PARK ACRES PER DWELLING UNIT
Community (10.5 ac./ 420 units X 2)	.050 acres
Conservation park (5ac. / 420 units X 1.2)	.014 acres
Total Parkland	.064 acres

Suggested Mandatory Parkland Dedication Standards by Park Type for S. Londonderry Twp.	
PARK TYPE	REQUIRED PARK ACRES PER DWELLING UNIT
Community (10.5 ac./ 405 units X 2)	.052 acres
Conservation park (5ac. / 405 units X 1.2)	.015 acres
Total Parkland	.067 acres

Suggested Mandatory Parkland Dedication Standards by Park Type for Region	
PARK TYPE	REQUIRED PARK ACRES PER DWELLING UNIT
Community (10.5 ac./ 433 units X 2)	.048 acres
Conservation park (5ac. / 433 units X 1.2)	.014 acres
Total Parkland	.062 acres

As an alternative to parkland dedication, municipalities can accept a fee-in-lieu of parkland dedication. This approach can only be used in those instances where the developer and municipality agree on the amount of the fee-in-lieu. In addition, such funds cannot be used merely to maintain existing facilities, but must be used to:

1. purchase new parkland;
2. purchase new equipment for new or existing parks; and/or,
3. make improvements to existing parks that will serve existing residents and those of the proposed development.

According to requirements within the Municipalities Planning Code, amounts of the fees-in-lieu should be derived from the following approach:

An appraiser should be retained by the municipality to analyze recent real estate transactions and derive estimates of fair market value. Such estimates can be based upon all properties within the municipality, or on a neighborhood basis. It is important that the appraiser be informed of the development features (e.g., utilities, zoning, curbs, sidewalks, etc.) common to such lands so that accurate real estate comparisons can be identified. Once these estimates are derived, they should be periodically updated to reflect the ever-changing value of land. When disputes between the developer and municipality occur, both the developer and municipality should select an appraiser who, in turn, should jointly select a third appraiser. This third appraiser should then determine the fair market value of the land.

Funds collected under this approach must be used to provide for recreation facilities that are accessible to residents of the proposed development. In determining accessibility to the park, local officials should be guided by the respective park service areas as listed in this Plan.

According to recent real estate transactions and appraisals within South Londonderry Township an average value of \$60,000 and \$15,000 per acre will be used to estimate expected fees for community parklands and conservation parks, respectively. The following lists such values by park type.

Suggested Mandatory Parkland Dedication/Fees-In-Lieu Standards for Palmyra Borough		
PARK TYPE	REQUIRED ACRES / DWELLING UNIT	FEE-IN-LIEU OF PARKLAND
Community/Neighborhood Park	.044 acres	\$2,640 per dwelling
Conservation Park	.013 acres	\$195 per dwelling
Total for all Parks	.057 acres	\$2,835 per dwelling

Suggested Mandatory Parkland Dedication/Fees-In-Lieu Standards for N. Londonderry Twp.		
PARK TYPE	REQUIRED ACRES / DWELLING UNIT	FEE-IN-LIEU OF PARKLAND
Community Park	.050 acres	\$3,000 per dwelling
Conservation Park	.014 acres	\$210 per dwelling
Total for all Parks	.064 acres	\$3,210 per dwelling

Suggested Mandatory Parkland Dedication/Fees-In-Lieu Standards for S. Londonderry Twp.		
PARK TYPE	REQUIRED ACRES / DWELLING UNIT	FEE-IN-LIEU OF PARKLAND
Community/Neighborhood Park	.052 acres	\$3,120 per dwelling
Conservation Park	.015 acres	\$225 per dwelling
Total for all Parks	.067 acres	\$3,345 per dwelling

Suggested Mandatory Parkland Dedication/Fees-In-Lieu Standards for Region		
PARK TYPE	REQUIRED ACRES / DWELLING UNIT	FEE-IN-LIEU OF PARKLAND
Community/Neighborhood Park	.048 acres	\$2,880 per dwelling
Conservation Park	.014 acres	\$210 per dwelling
Total for all Parks	.062 acres	\$3,090 per dwelling

By applying these above figures to the Townships' projected growth described in Chapter III, the following dedicated acres and/or fees-in-lieu can be collected to meet increasing park demand generated by growth:

Projected Dedicated Parklands or Fees-In-Lieu-Thereof 2010 to 2020 for Region			
PARK TYPE	PROJECTED NEW DWELLINGS YEARS 2010-2020	PROJECTED DEDICATED PARKLANDS	PROJECTED FEES-IN-LIEU OF PARKLAND DEDICATION
Comm. Neigh. Park	1247	61.1 acres	\$3,666,180
Conservation Park	1247	17.5 acres	\$261,870
Totals	1247	78.6 acres	\$3,928,050

As can be seen, the value of updated mandatory dedication/fee-in-lieu-thereof standards is about 3.9 million dollars through the year 2020 across the Region. Of this total \$261,870 should be earmarked for publicly-accessible conservation parks and \$3,666,180 should be spent on community parks. Since conservation parks and community parks can serve large areas, all municipalities can spend these monies throughout the Region; however, local residents would benefit from pockets of conservation parks amid the Townships' more densely-developed neighborhoods.

For this reason, it is vital that each municipality within the Region either adopt its own mandatory dedication standards within their respective Subdivision and Land Development Ordinances or that it coordinate its standards with Lebanon County in the administration of the County Subdivision and Land Development Ordinance.

The revenues/parklands acquired through this process should be used across the Region with PARPC oversight. Given the fact that the Region intends to focus its efforts upon developing centralized community parks, and each municipality is planned to have sufficient community park acreage (after South Londonderry Township's acquisition of the Alger property) municipality's should seek to acquire fees-in-lieu of parkland dedication. Such fees can then be used to improve the underdeveloped community parks within both Townships.

In coming years, the calculations contained in this section should be updated so as to allow for parkland/ revenues to keep pace with changing demographics and land values.

C. Police Protection

Police protection is an obvious public service benefiting residents and businesses. The traditional role of the police involves three functions: law enforcement, order maintenance, and community service. Law enforcement involves the application of legal sanctions, usually arrest, to persons who injure or deprive others of life or property. Order maintenance involves the handling of disputes, or of behavior which threatens to produce disputes. The third aspect of the police function, and the one most likely to occupy the major portion of an officer's time, varies from community to community according to tradition and local ordinances. These activities include such tasks as traffic control, rescue operations, animal control, and ambulance and first-aid services.

Police protection within the Palmyra Area Region is provided by each municipality's separate police department. In addition, all emergency police calls are dispatched through the Lebanon County "911" program. The **Public Facilities Map** illustrates the location of the Region's police departments.

PALMYRA BOROUGH POLICE DEPARTMENT

The following information was obtained from Chief Stanley Jasinski, Jr. of the Palmyra Borough Police Department via a mail-back survey.

This Department serves only Palmyra Borough within the Palmyra Area Region. The Department is presently housed at 325 South Railroad Street, Palmyra, PA 17078.

Currently, the Department consists of nine full-time officers with 1 officer acting as a part-time investigator and 1 office assistant. Staffing levels are determined by the Borough Council.

Palmyra Police Station Facilities:

- Reception area
- Secretary's office
- 3 police offices
- Holding/processing room
- Evidence room
- Records room
- Locker/conference room
- Equipment closet

The following tabulates this Department's activities over the last three years for its entire patrol area.

Palmyra Borough Police Department Activity				
Year	No of Total Incidents	Traffic Accident Responses	No. of Serious Offenses	No. of Cases Closed
2005	4097	118	187	326
2006	3834	98	196	281
2007	3793	102	153	228

The Borough's Department provides 24 hour per day patrol coverage three 8-hour shifts. From the Department's shifts it would appear that there are generally three active patrols within the Borough except between during the weekdays between 8:00 A.M. to 4:00 P.M.; this drops to one shift over the weekend. The evening shift is always patrolled by two officers except on Wednesday when there are three patrols. The overnight shift is always patrolled by two officers except on Wednesday when there is only one patrol on duty.

Palmyra Borough Police Police Patrol Shifts							
Shift	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
8am-4pm	3	3	3	3	3	1	1
4pm-12am	2	2	3	2	2	2	2
12am-8am	2	2	2	1	2	2	2

Emergency response times average 2 to 3 minutes while non-emergency response times average 4 to 5 minutes.

The Department operates with 2 marked police vehicles, an unmarked vehicle and a D.A.R.E. car. The Department has a base radio, three mobile sets and 9 portable radios. The office has 5 workstation computers and one laptop and three patrol vehicles each have a laptop computer and a speed timing device. The Department also uses two automatic defibrillators, two shotguns and a breathalyzer device.



The Chief describes cooperation among the Region's emergency service providers as good. He believes that a joint department with North and South Londonderry Townships would improve police protection within the Region. Absent a joint Department he believes that his Department would benefit from more space and another full-time officer who could be criminal investigator.

NORTH LONDONDERRY TOWNSHIP POLICE DEPARTMENT

The following information was obtained from Chief Kevin L. Snyder of the North Londonderry Township Police Department via a mail-back survey.

This Department serves only North Londonderry Township within the Palmyra Area Region. The department presently shares space with the Township Office located at 655 East Ridge Road, Palmyra, PA 17078. The station



includes numerous rooms and offices which the Chief describes as adequate now and for the future.

Currently, the department consists of eight full-time officers and 1 office assistant. The Township's Department provides 24 hour per day patrol coverage in three regular 8-hour shifts and two additional overlapping shifts. Manpower is assigned to provide for two active patrol officers on duty for most shifts; however, these manpower assignments are reduced by vacation, sick leave, personal days, holidays and training. The Chief believes that manpower is provided at a "good" level and falls within the range recommended by the FBI of one officer per 1000 population.

North Londonderry Township Police Patrol Shifts	
Regular Daytime	8:00 A.M. to 4:00 P.M.
Overlap Daytime/Evening	Noon to 8:00 P.M.
Regular Evening	4:00 P.M. to Midnight
Overlap Evening/Night	8:00 P.M. to 4:00 A.M.
Regular Night	Midnight to 8:00 A.M.

Emergency response times are usually less than 5 minutes while non-emergency responses usually take between 10 to 15 minutes. The Chief believes that these are both acceptable response times.

The following tabulates this Department's activities over the last three years for its entire patrol area.

North Londonderry Township Police Department Activity				
Year	No of Total Incidents	Traffic Accident Responses	No. of Serious Offenses	No. of Cases Closed
2005	2,417	175	143	2,296
2006	2,146	182	119	2,066
2007	2,365	191	156	2,256

The Department operates with 4 marked patrol police vehicles, one of which is a four-wheel drive vehicle for inclement weather. Three of the patrol vehicles are equipped with on-board computers. All units have mobile radios and a first aid kit. The office also has five computers a base radio and eight portable radios.

The Chief describes cooperation among the Region's emergency service providers as excellent. He knows of no major problems confronting his Department but further believes that a consolidated regional police department with neighboring municipalities would enable specialized police functions and positions (e.g. detective, traffic safety, crime scene

North Londonderry Township Police Station Facilities:

- Secretary/Receptionist room/lobby;
- Chief's Office;
- Sergeant's Office
- Senior Patrolman's Office;
- Patrol Office;
- Processing Room
- 2 storage rooms
- Interview Room;
- Vault (records and firearms storage)
- Other ancillary rooms

investigators, document handlers, etc.) and improve police protection and service.

SOUTH LONDONDERRY TOWNSHIP POLICE DEPARTMENT



The following information was obtained from Chief Jeffrey Arnold of the South Londonderry Township Police Department via a mail-back survey.

This Department serves only South Londonderry Township within the Palmyra Area Region. The department presently shares space with the Township Office located at 20 West Market Street, Campbelltown, PA 17010. The station includes six rooms and offices which the Chief describes as "extremely cramped with no room for expansion." adequate now and for the future.

South Londonderry Township Police Station Facilities:

- Outer office of Secretary;
- Chief's Office;
- Patrol Locker Room;
- Evidence Lab;
- Interview Room;
- Filing and Storage Room.

Currently, the department consists of six full-time officers and 1 office assistant. The Township's Department provides

South Londonderry Township Police Patrol Shifts	
Regular Daytime	7:00 A.M. to 5:00 P.M.
Regular Evening	2:00 P.M. to Midnight
Regular Night	9 P.M. to 7:00 A.M.

24 hour per day patrol coverage in three regular 10-hour shifts which overlap. The Chief describes manpower levels as "significantly below average and severely lacking at times." Patrol coverage problems arise when available manpower is further reduced by vacation, sick leave, personal days, holidays and regular off-duty hours.

Emergency response times are usually between five to ten minutes depending upon where a patrol officer is when a call is received. The Chief believes that this is an acceptable response time.

The following tabulates this Department's activities over the last three years for its entire patrol area. The Chief describes there to be "a significant increase in call volume and severity."

South Londonderry Township Police Department Activity				
Year	No of Total Incidents	Traffic Accident Responses	No. of Serious Offenses	No. of Cases Closed
2005	1,904	92	199	104
2006*	1,809	122	173	93
2007	2,364	138	217	86
* Manpower was reduced to four for 9 months				

The Department operates with 4 marked patrol police vehicles. The Department has three desktop computers and five laptop computers. The Department has seven portable radios and four mobile radios. The Department also uses one automatic defibrillator, two rifles and six handguns. The Chief believes that the Department should have more weapons in case of malfunction or breakage and more automatic defibrillators.

The Chief believes that all of the emergency service providers operating within the Township cooperate “extremely well.” He concludes by describing that there exists a general lack of manpower to offer full-time patrol coverage, and keep up with the growing number of calls / investigations due to increases in population and roads.

FUTURE REGIONAL POLICE PROTECTION

One of the goals for this Plan specifically calls to “continue to pursue opportunities for regional police force consolidation.” Both Chief Stanley Jasinski of the Palmyra Borough Police Department and Chief Kevin L. Snyder of the North Londonderry Township Police Department would concur with this goal as both specifically suggest a regional police force too improve police patrol and service. Furthermore the manpower and office space deficiencies described by Chief Jeffrey Arnold of the South Londonderry Township Police Department could be addressed by a more efficient allocation of resources which typically results when local individual police departments are consolidated into a regional department.

Regional police forces usually occur within areas that are growing like the Palmyra Area Region. As an area develops, local officials find themselves torn between retaining low levels of taxation, and providing for increasing levels of public facilities and services that are usually expected by the “newcomers.” This often pits long-time residents of the community who want things to remain as they were against new residents who move from more urbanized locations, and are often surprised and disappointed by the relative lack of public services. At some point, the new residents usually outnumber the existing inhabitants and the political winds change. At that time, new officials are elected on platforms of better delivery of more services, and real ill-will within the community develops.

Furthermore, with the suburbanization of central Pennsylvania, population centers are shifting away from the historic urban cores which are generally saturated with development (e.g. Palmyra Borough) and into the growing Townships where abundant development potential still exists. While each municipality generally has a similar population at the present time, it is likely that this will change in the near future.

Local officials need to know and understand these pressures if they are to persevere through the transition. The question is not **if** better services and higher taxes result, but **when!** Fortunately, State programs exist to assist municipalities with these difficult studies and decisions and offer independent expert advice. Some of these programs are free, while others are offered in the form of peer-to-peer grants. In any event, these programs and grants can provide invaluable assistance to the open-minded elected official who is trying to “cut through” all of the local politics and emotion.

For this reason, it is suggested that all three municipalities participate in a regional police consolidation feasibility study conducted by the PA DCED's Governor's Center for Local Government Services. Details about this program can be found by "clicking" on "Regional Police Services in Pennsylvania" at the following website:

www.newpa.com/get-local-gov-support/publications/index.aspx

To initiate this feasibility study review process each municipality will be required to formally complete a "Letter of Intent" during a public hearing which must then be submitted to the PA DCED's Governor's Center for Local Government Services. A copy of this "Letter of Intent" can be found at the following website:

www.newpa.com/site-search/index.aspx

Additional information can be obtained by telephoning Ron Stern at the PA DCED's Governor's Center for Local Government Services at 888-223-6837 or by emailing him at:

rstern@state.pa.us

Should the Region decide to consolidate into a Regional Police Department it may be eligible for funding under the PA DCED Regional Police Assistance Grant Program. This program provides grants for a period of up to three years for the start-up of consolidated police departments. It helps to pay (up to \$99,000) for a Regional Police Chief salary and other related expenses. More information can be obtained from Ron Stern at the above contacts.

D. Fire Protection and Ambulance Service

Fire protection is a basic public safety service that is important to the Region. Obviously, fire protection is intended to minimize the loss of life and property due to fire and related hazards. The level of fire protection a community offers also affects the rate which area residents and business owners must pay for fire insurance. Three fire companies are located within the Palmyra Area Region. In addition to being responsible for their primary service areas, these companies provide reciprocal, mutual-aid assistance to each other and to other surrounding fire companies as needed. Mutual-aid assistance enables neighboring fire departments to supplement manpower and equipment, and thereby respond more effectively to multiple or major calls.

Ambulance service is an obvious lifesaving benefit. Emergency ambulance service involves the pick-up of patients at the scene of an accident or other medical emergency, and their transport to local medical care facilities for treatment. Ambulance service can also involve routine transport, which is the transport of patients from one medical facility to another, or to their home. Two ambulance companies are located within the Region.

The table on the following page summarizes fire protection and ambulance services within the Region, respectively.

Summary Characteristics of Fire & Ambulance Companies Within the Palmyra Area Region						
Company		Campbelltown Volunteer Fire Co.	Citizen's Fire Co. No. 1	Lawn Fire Co. No. 3 ¹	Lawn Ambulance 180	Life Lion EMS
First Call Service Areas Within the Region (see <i>Public Facilities Map</i>)		<i>S. Londonderry Twp.</i> South Annville & Conewago Twp.	<i>N. Londonderry Twp, Palmyra Borough</i>	<i>Lawn & South Londonderry Township</i>	South Londonderry Township, South Annville & West Cornwall Twp. And Mt. Gretna Borough.	<i>N. & S. Londonderry Twp., Palmyra Borough</i> , Derry, Lower Swatara Twp., Hummelstown Borough, parts of Conewago & Hanover Twp.
Mutual-Aid Service Areas Within the Region		<i>Palmyra Borough, N. Londonderry Twp.,</i> Annville, Conewago, Derry, E. Hanover, Londonderry, Mt. Joy, N. Annville, S. Annville, S. Hanover & W. Cornwall Twp. Mt. Gretna Borough.	<i>S. Londonderry Twp.,</i> Annville, Conewago, Derry, E. Hanover, Londonderry, Mt. Joy, N. Annville, S. Annville, S. Hanover Twp. Hummelstown Borough	NA	Other areas of Lebanon, Lancaster and Dauphin Counties on an infrequent basis.	Annville & Middletown Boroughs, Conewago, E. Hanover, Londonderry, Lower Paxton, North Annville, South Annville & West Hanover Twp.
Station Locations Within the Region (see <i>Public Facilities Map</i>)		2818 Horseshoe Pike, Campbelltown PA 17078***	21 North College Street, Palmyra, PA 17078****	5596 Elizabethtown Road, Lawn PA	5596 Elizabethtown Rd Palmyra, PA 17078*****	111 West North Avenue, Palmyra PA 17078
Average No. of Volunteers		41 active volunteers 7 fire police	35 volunteers/ 21 active 1 full-time live in 1 part-time live in 10 fire police/ 5 active	35 part-time- info obtained from website	35 part-time	51 full-time paid staff 23 part-time paid staff
1st Due Calls 2005-2007	2005	261	465	NA	Unavailable	1391
	2006	257	450	NA	119 (S. Londonderry Twp. only)	1456
	2007	451	572	NA	90 (S. Londonderry Twp. only)	1528
Mutual-Aid Calls 2005-2007	2005	150	208	NA	Minimal routine transports	514 routine transports
	2006	165	175	NA	Minimal routine transports	539 routine transports
	2007	177	173	NA	Minimal routine transports	565 routine transports
Average Emergency Response Time*		Between 1 and 8 mins. depending upon vehicle	1-2 mins.	NA	>6 mins.	8 mins.
Major Equipment		<ul style="list-style-type: none"> • 2 engines** • 1 heavy-rescue • 1 chief's car • 2- 4,000-gal tank trucks • 1 utility/fire police • 1 special unit.QRS 	<ul style="list-style-type: none"> • '79 Mack Wagon • '01 Ford Utility • '05 ALF Rescue/ Engine • '04 ALF Tower - Ladder • '05 education trailer • '99-'07 3 autos 	<ul style="list-style-type: none"> • Pumper/Tanker 3 • Attack 3 • Tanker 40 	<ul style="list-style-type: none"> • 2 basic life support amb. • Quick Response Service • AEDs • Electronic stretchers 	<ul style="list-style-type: none"> • 11 transport ambulances***** • 1 Squad vehicle (Suburban) • 2 wheelchair vans • 1 squad car

*Time that it takes the vehicle to leave the station.

**Need to replace Engine 2-1 in about 5 years.

*** Chief William Jurell believes that they will need more office space, living quarters or a bunkroom.

**** Chief David Dugan explains that there is presently discussion with the Borough to relocate the Dept. to a new municipal building or renovate the existing station.

***** Many of the Life Lion EMS vehicles have high mileage (200k to 300K miles) and incur high maintenance costs. They will need to be replaced in near future.

***** Lawn EMS will need to expand its station and hopes to establish another ambulance station in Campbelltown.

¹ Lawn Fire Company Information obtained from their website.

FUTURE VOLUNTEER MANPOWER

Each of the fire and ambulance companies expressed a concern over declining numbers of volunteers. This is particularly true of “younger volunteers” who will become the next generation of emergency service providers. However, given the projected growth within the Region, future demands will rise and more manpower will be needed. Nationally, volunteerism is declining. The National Volunteer Fire Council reported that the number of volunteer firefighters dropped 12% since its record high in 1983. And, despite President Bush's call to public service after "9/11", the downward trend continues. This often forces mutual-aid responses from distant companies; this strategy may work in the short term, but will eventually overburden volunteers who will get frustrated and quit. The more you demand of a volunteer, the less you are likely to receive! Declining manpower response is most problematic during the day when many volunteers work outside of their first-due response area.

Presently, 3 separate fire companies serve the Palmyra Area Region with approximately 111 volunteer firefighters. A 1999 study conducted by the Pennsylvania Fire and Emergency Services Institute showed that most fire companies have between 11 and 20 active members. Consequently, the Palmyra Area Region's average of 37 members per company suggests that volunteerism is at a high level. Nonetheless, local fire officials have observed a decline in new membership and know that difficult times lie ahead. Furthermore, in light of the terrorist attacks committed against the United States on September 11, 2001, many experts argue that the capacity to respond to local emergency crises needs to be expanded. Fortunately, many citizens within our society have begun to acknowledge the important and life-saving roles volunteer firefighters, EMTs and local police officers provide.

To enlist more volunteer firefighters/EMTs, particularly during the daytime, it is recommended that the Region create a new Emergency Services Alliance of local officials (say, one from each municipality), the fire chiefs from each fire company and the ambulance chiefs from each ambulance company. The Alliance should seek to ensure that the following possible sources of daytime and other volunteers are put in place:

- 1. Recruit firefighters/EMTs who live within the Region and work for businesses located here;***
- 2. Recruit firefighters/EMTs who live outside of the Region, but work for businesses located here;***
- 3. Recruit firefighters/EMTs who may be attending college within nearby communities who would be willing to volunteer in local responses. Palmyra's Citizen's Fire Co. No. 1 is contemplating rent-free live-in space for those college students willing to volunteer, once the renovation to their station has been completed.***
- 4. Establish policies with local governments, businesses and industries that enable their employees to respond to daytime emergencies;***

5. *Identify local volunteer firefighters/EMTs who may work for Lebanon County and State and Federal agencies, and establish policies for their release from work duties to respond to daytime emergencies within the Region;*
6. *Design ongoing recruitment strategies for new resident volunteers and retention strategies for existing volunteers; and,*
7. *Explore the offering of a “junior” firefighting curriculum within the public School Districts as a means of developing interest and expertise among potential future volunteers.*

Prior to actual recruiting, the Alliance should complete the following evaluation process:

- A. *Determine the need by local fire/ambulance chiefs for more volunteers from any of the preceding sources within their respective companies;*
- B. *Establish policies within the Region’s fire and ambulance companies that allow for nonresidents to become members of their respective companies;*
- C. *Identify those local and nonresident volunteers who work for companies within the Region who could potentially respond to daytime emergency calls;*
- D. *Determine the level of competence of potential volunteers and/or training needed to “run” with local companies;*
- E. *Establish ongoing working agreements with local businesses for the release of volunteer firefighters/EMTs during daytime emergencies;*
- F. *Require the potential “daytime” employee volunteer firefighter/EMTs to become an official member of the respective fire/ambulance company, so that they can be covered by the municipality’s workmen’s compensation insurance policy; and,*
- G. *Establish an ongoing mechanism that periodically reinitializes the recruitment process.*

Today, emergency services often involve specialized equipment and training. The Region’s fire and ambulance companies already conduct joint training exercises and classes to efficiently use the specialized skills and expertise of existing volunteers. ***The Emergency Services Alliance should also formalize a program to deliver specialized training to ensure a wide and uniform coverage of specialized skills and expertise throughout the Region.*** In addition, the PA DCED’s Shared Municipal Services Program offers matching grants for any two or more municipalities who jointly perform local government functions. Such grants have been awarded to fund paid administrators to over see the preceding recruitment and training activities. ***The Palmyra Area Region could benefit from the same type of position to carry out these same***

duties, as discussed in this section of the Plan. Chief Dugan also indicates that the Palmyra Company is in the process of contracting for a paid administrator to relieve paperwork duties and coordinate other functions. He believes that if the number of volunteers continue to dwindle, the Region's Fire Companies should investigate the hiring of an engine driver/engineer who can be relied upon to respond during the daytime when volunteers are in shortest supply; he opines that this should be accomplished jointly among the Region's fire companies.

Finally, in May, 2007 the United States Fire Administration released a study entitled the Retention and Recruitment for the Volunteer Emergency Services to assist local companies meet the challenges of volunteer manpower. Each municipality should obtain copies of this important study for in-house use and distribution to each of the local volunteer fire and ambulance companies. A web-based version of this study is available at:

<http://www.pfesi.org/Docs/2007/2007-retention-and-recruitment-guide.pdf>

FUTURE FUND-RAISING

Like a lack of manpower, local volunteer fire and ambulance companies are plagued by rising costs associated with the need to purchase equipment and supplies. A 2001 study conducted by the Pennsylvania Fire and Emergency Services Institute provided information about the costs saved by the Commonwealth's volunteer fire companies. Essentially, they assumed that, in the absence of volunteer fire companies, paid companies would require:

"Typical Costs Associated with Fire Protection in Year 2001"
<ul style="list-style-type: none"> • One fire company serves each 10,000 population; • Each company requires 20 full-time paid firefighters; • Each firefighter would be paid \$55,000, including benefits; • Each company would have an average annual operating budget of \$50,000; • The cost of protective clothing/gear for each firefighter would total \$5,688; • Each company would average 4 emergency vehicles at a cost of \$275,000 per vehicle.

Using these assumptions, the Palmyra Area Region would incur the following costs:

"Estimated Costs of Providing Fire Protection Within the Palmyra Area Region in Year 2010"
<ul style="list-style-type: none"> • Palmyra Area Region population of 21,181 (year 2010) would require 2.1 fire companies; • \$2,310,000 annual salaries of 42 paid firefighters; • \$105,000 annual operating expenses of 2.4 fire companies; • \$238,896 cost of protective clothing/gear; and, • \$2,310,000 cost of emergency vehicles.

The following tabulates the amounts contributed by each municipality to their respective fire and ambulance companies in year 2008:

Summary of 2008 Municipal Contributions to Local Fire & Ambulance Companies			
Municipality	Fire Companies	Ambulance Companies	Total Contribution
Palmyra Borough	\$114,468	\$0	\$114,468
N. Londonderry Township	\$95,200	\$0	\$95,200
S. Londonderry Township	\$109,493	\$0	\$109,493
Total Region	\$319,161	\$0	\$319,161

A comparison of the Region's 2008 known contribution to the local volunteer fire companies of \$319,161 is about 13.2 percent of the annual expenses needed to man and operate a paid equivalent complement of fire companies. ***In order to offset the financial value of local volunteer efforts, each of the Region's estimated 9484 households would need to pay about \$255 per year to cover operating expenses.*** These figures do not even consider the capital costs associated with protective clothing/gear and emergency vehicles that would substantially increase monies needed. Also keep in mind that this analysis only relates to fire protection; volunteer ambulance services also provides for considerable cost savings. Undeniably, local volunteers have made, and continue to make, huge contributions to the safety and financial well-being of the Region. It is vital that their efforts continue!

Local officials and volunteers are aware of these difficulties. Yet, in many cases, an area's long-time residents usually financially support local fire and ambulance companies at an appropriate level. They have been historically educated about the value of local volunteer efforts. However, as the Region has grown and will continue to do so, many new residents have moved here from other, more urban, locations where paid fire-fighting and ambulance services are normal. These new residents are unaware of their reliance upon, and the plight of, local volunteer companies. Therefore, ***the Region must cultivate awareness among the newly-arrived residents of the need for their financial and manpower support to sustain volunteer firefighting and ambulance services.***

To accomplish this awareness, the local fire and ambulance chiefs must work with local municipalities on a regular and ongoing basis to mount an educational and media campaign. Such campaign must exceed the traditional general campaign that merely includes statements like the following:

- "Local volunteer fire and ambulance campaigns depend entirely upon your donations";
- "Not a single tax dollar is used by local volunteer fire and ambulance companies."

The new campaign should be more of an "in-your-face" effort that presents specific findings and presents hard, "credible" facts about the cost of delivering these services and the foreseeable equipment needs of the various companies. It should explain the benefits of new equipment and what it can mean to the Region. It should also portray the competent plans of the local companies in their attempts to ensure an adequate level of protection in the near and long-range future. Schedules for equipment replacements and upgrades should be accompanied with target financial goals to which the public can respond. Citizens

should gain an understanding that local companies really need this equipment, and that they are not just “after” the newest and shiniest truck on the market.

To demonstrate these facts, the Region should (through the above-described Alliance) apply to the PA DCED for the preparation of a technical review, as part of its Shared Municipal Service Program, at no cost to the Region. This will require the preparation of a “Single Application for Assistance,” a copy of which can be found online at www.esa.dced.state.pa.us. The PA DCED will examine the adequacy of the Region’s equipment to provide adequate service. Then, the results of these impartial and objective analyses should be used to program needed equipment purchases, and justify funding requests and pledge drives in the ongoing media and educational campaign. In addition, the results of the analysis can be used as justification for additional application to the PA DCED for 50/50 matching grants for other equipment needs, like communications and dry-hydrant programs.

Other related facts that should be emphasized to the public include:

- Local volunteer fire and ambulance companies are responding to ever-increasing numbers of calls based upon the Region’s growth with actual figures presented; and,
- Local volunteer fire and ambulance companies are responding to a wider variety of types of calls and that the amount of time spent per incident is also increasing.

As a byproduct of this campaign, the municipalities should annually, publicly present the names of those businesses and individuals who contribute to the various companies. This will publicly recognize those who offered support, and potentially impose peer pressure to others who have not contributed to these important efforts. An annual subscription program can simplify this process. In addition, some volunteer ambulance companies have begun to affix advertising logos on the sides of their vehicles for private sponsors who contribute substantial sums each year.

Even though local volunteer firefighters are described as strong willed, determined and fiercely independent, most agree that difficult times lie ahead. ***With this in mind, local officials should continue to pursue opportunities for regional volunteer fire service consolidation on the west side of Lebanon County. Fire services could be consolidated for North and South Annville Townships, Cleona Borough, Palmyra Borough, and North and South Londonderry Townships.***

Local official understand the pressures on volunteer fire services as listed previously in this chapter. In order to preserve the volunteer fire services through changing times, economies of scale and better utilization of equipment and volunteers must be considered. State programs exist to assist municipalities with these studies and can offer expert advice in this area.

As a long-term strategy, ***local volunteer fire companies and municipal officials should begin to explore the partial and gradual use of other funding mechanisms (e.g., billing for responses, fire tax, etc.), so that these measures can be phased-in, in support of local volunteer efforts, rather than allowing for complete failure of the volunteer system which would then be replaced by a completely-paid force.***

South Londonderry Township already imposes a 1.5 mill real estate fire tax which generated \$109,493 in year 2008. Palmyra Borough and North Londonderry Township may need to consider similar taxes should volunteer fund-raising efforts come up short.

Other issues raised by local fire and ambulance companies that could improve emergency service to the Region include:

DRIVEWAY DESIGN AND ADDRESSING - *As a means of improving emergency access and response, each municipality within the Region should adopt minimum driveway design standards that facilitate adequate emergency access and resist efforts to waive or vary from these safety-related standards. Such standards should require:*

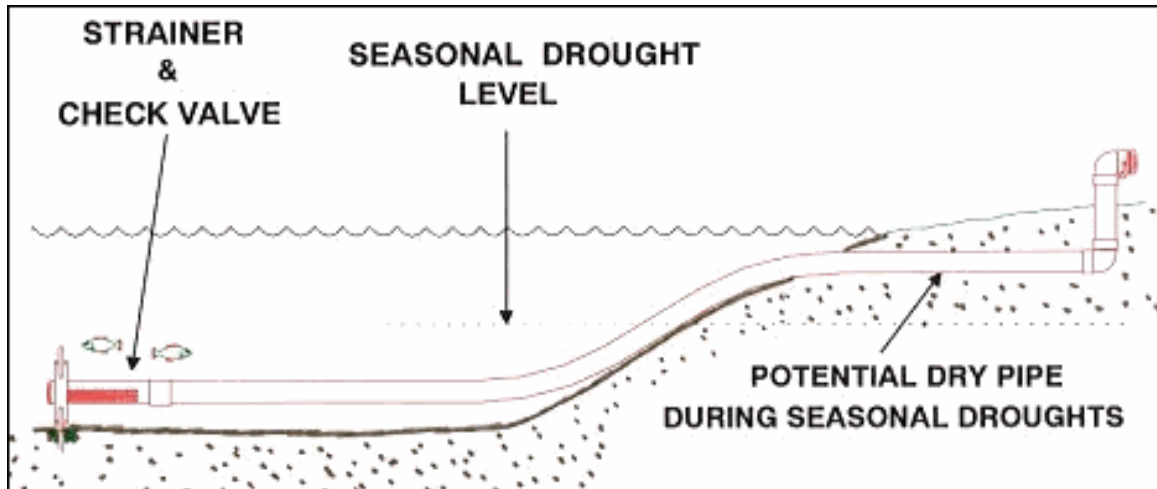
- A minimum 10 foot-wide improved (paved or stone surface) cartway for single-use driveways and 16 feet for joint-use driveways;
- A paved apron connection with the public or private street that extends at least 25 feet off-of the road cartway and has a slope of no more than 8 percent;
- A minimum 12-foot high clear vertical path along the driveway between the road and all structures that is free of vegetation and other obstruction;
- A maximum driveway length of 600 feet for single-use driveways and 1000 feet for joint-use driveways; and,
- Posting of reflective road address number signs at all driveway entrances or turn-outs along joint-use driveways. On paved driveways reflective paint can be used upon the driveway apron to portray the street address number as an alternative to reflective sign posting.

In addition, the County's improving GIS mapping database can provide each fire and ambulance company with emergency response mapping that clearly depicts every property and its address. As this database continues to evolve in the coming years, such maps can depict actual driveway and structure locations and aerial photographs. This can greatly assist in emergency response in rural areas that are difficult to negotiate at street level.

DRY HYDRANT INSTALLATION – *One Fire Chief expressed the need for better sources of water for firefighting within the rural areas of the Region. Dry hydrants are permanently mounted pipes that are located at local sources of water (ponds and streams) that firefighters can readily access during times of emergency. Typically these hydrants are located alongside an improved public street about 10 feet away from the cartway. They appear as 5" PVC pipes extending out of the ground with suitable tap fittings. From here the pipes travel underground into the water source where strainers are*



used to keep them clear of debris and silt. Installation of these hydrants costs about \$750 to \$1000 and can be less if volunteer or Township excavating can be used. The installation of these hydrants can affect a reduction in homeowner insurance rates. Easements from private property owners need to be negotiated and recorded so that future conveyances of the property preserve the water access. In addition, prior to installation a GP-4 permit may be required from the Southcentral Regional Office of DEP, Watershed Management Program located at 909 Elmerton Avenue, Harrisburg, PA 17110; tele:(717) 705-4802.



DEVELOPMENT REVIEW - One Fire Chief believes that a better system of development review should be engaged that provides local fire companies an opportunity to offer input on emergency-related design. Another believes that residents must be required to “post” their assigned street numbers to facilitate better property identification during emergency response. Specifically, concerns over public and private road widths, turning radii, cul-de-sac lengths, fire hydrant placement and fire lanes are all issues that should be considered before a final subdivision/land development plan is approved. Furthermore, changes to use and occupancy of existing buildings can have profound effect upon the types of materials and activities that take place within a building. These changes should be communicated to local fire companies so that they are optimally prepared to respond to emergencies. Spring Township already engages a development referral process to local Fire Chiefs but with no established standards. It is also noted that the nearby Centre Region has developed and proposed a fire protection ordinance that could be adapted for use within the Palmyra Area Region depending upon its specific requirements.

For all of these reasons it is recommended that the ESA develop minimum design standards for road width, turning radii, cul-de-sac length, hydrant placement and fire lanes based upon local needs and equipment. Then these standards should be incorporated into local zoning and subdivision/land development ordinances. Any applications for variances or waivers to these standards should require a referral to the local fire chief for input prior to the decision on the matter. Also it is recommended that each municipality develop zoning regulations that compel the reporting of materials and waste handing practices as part of any zoning permit or use and occupancy permit. Then copies of this information should be provided to the local fire companies to aid in their emergency preparedness and response.

E. Municipal Government

This section provides a description of local government structure and function in the Region's three municipalities. The role of local officials, boards, commissions, authorities, committees, and staff are set forth to provide an understanding of the hierarchy of local decision-making, input into these decisions, and the role of citizen involvement.

PALMYRA BOROUGH

Office Address & Location: 325 S. Railroad St.,
Palmyra, PA 17078-2400

Office Phone Number - (717) 838-6361

Office Fax Number - (717) 838-1051

Office Hours: M-F: 8:00 a.m.–4:30 p.m.

Email Address: rpowl@palmyraborough.com



Description of Office and Facilities: The Municipal Center was constructed as an American Legion in the late 1940s and is described in bad condition and energy inefficient. Today it houses not just the Borough Offices (2,541 sq. ft.) but the Palmyra Area Public Library (5,006 sq. ft.), the Phoenix Youth Center (4,932 sq. ft.) the Borough Police Department (1,773 sq. ft.), the Palmyra Area Recreation Commission (321 sq. ft.) and the District Justice (1,326 sq. ft.). In addition the Council Chambers meeting room has a rated capacity of 30 and the recreation room can accommodate up to 500 guests. The Municipal Center is not ADA compliant.

Because of the need to accommodate expansion of the Palmyra Area Public Library, the Borough is exploring the possibility of constructing a new building on the current site to accommodate all of the current users plus the Citizen's Fire Co. No. 1 station. The Borough hopes to secure grant funding for this project. The Borough is currently reviewing a proposal to design the new building which will encompass about three times the floor area of the current building or over 62,000 square feet.

Municipal Staff: The Borough has a Manager, Assistant Manager, Accountant and 3 full-time office staff. Eleven highway crew with 2 part-time assistant seasonal employees are responsible for refuse and recycling collection, and highway and park maintenance. Eight full time employees operate and maintain the Borough's wastewater system.

Mayor: The Mayor is elected to a four-year term and oversees the Police Department and breaks tie votes by the Borough Council.

Borough Council: Borough Council is the elected governing body of the Borough. The 7-member Council meets regularly on the 4th Monday of the month, in the Borough Building. These regular public meetings begin at 7:30 p.m.

Planning Commission: Members are appointed by Borough Council for 4-year terms. The 5 members meet in the Borough Building on the first Wednesday of each month

beginning at 7:30 p.m. The Planning Commission is an advisory board to Borough Council on matters of land use and community development.

Zoning Hearing Board: Members are appointed by Borough Council for 3-year terms. The 3 members meet in the Borough Building on Thursdays at 4:00PM on an as needed basis. The Board reviews and acts upon requests for variances or special exceptions from the Borough Zoning Ordinance at the request of property owners.

NORTH LONDONDERRY TOWNSHIP

Office Address & Location: 655 East Ridge Road, Palmyra, PA 17078.



MUNICIPAL BUILDING - NORTH LONDONDERRY TOWNSHIP 655 E RIDGE ROAD PALMYRA PA 17078

Office Phone Number -
(717) 838-1373

Office Hours: M-F: 7:30 a.m.– 4:00 p.m.

Website Address: www.nlondtwp.com

Description of Office and Facilities: Current 1½-story municipal center was built in 1976 and remodeled in 1996. This facility houses both the Township administration and staff and the Police Department. It includes a 50-seat meeting room, offices for the manager, assistant manager, mapping and an open area for three staff members. It also includes a lunch room and vault. On the Police side the building contains a secretary/receptionist room/lobby, chief's office, sergeant's office, senior patrolman's office, patrol office, processing room, 2 storage rooms, interview room, vault (records and firearms storage), and other ancillary rooms. The entire building is ADA compliant.

Municipal Staff: The Township has the following paid positions:

- Township Manager;
- Assistant Township Manager;
- Secretary Treasurer;
- Assistant Secretary Treasurer; and,
- Part-time office employee.
- Road Master
- 2 Crew Leaders
- Highway Laborer

Board of Supervisors: The North Londonderry Township Board of Supervisors is the elected governing body of the Township. The 3-member Board meets regularly on the 3rd Monday of the month, in the Township Office Building. These regular public meetings begin at 7:30 p.m. Each Board member serves a 6-year term, reviews issues involved in operating the municipality, addresses resident concerns and sets future policy standards.

Planning & Zoning Commission: Members are appointed by Board of Supervisors for 4-year terms. The 5 members meet in the Township Office Building on the 3rd Monday of the month beginning at 6:30 p.m. The Planning & Zoning Commission is an advisory board to Board of Supervisors on matters of land use and community development.

Zoning Hearing Board: Members are appointed by Board of Supervisors for 3-year terms. The 3 members meet in the Township Office Building on the 3rd Thursday of the month as needed. The Board reviews and acts upon requests for variances or special exceptions from the Township Zoning Ordinance at the request of property owners.

Township Authority: This 5-member Board oversees the operation of the sewer system. Members are appointed by the Board of Supervisors and serve 5-year terms. The Board meets in January, April, July and October, as advertised at the Township Office beginning at 7:30 P.M.

Palmyra Area Recreation and Parks Commission: One of the members of the Board of Supervisors is appointed to serve on this Regional recreation agency.

SOUTH LONDONDERRY TOWNSHIP

Office Address: 20 West Market Street, P.O. box 3, Campbelltown, PA 17010

Office Hours: 7:30 a.m. - 4:00 p.m.

Meeting Times: All of the Township's public meetings are held in the meeting room of the municipal building at 7:00 p.m.

Description of Office and Facilities: Since 1972, the South Londonderry Municipal Offices have been located in the former Campbelltown Elementary School that was constructed in 1927 and expanded again in the 1930's. The 15,000 square foot school house provides adequate space for the Township's Administrative and Police Departments and meeting rooms. Several former class rooms on the second floor are used by the community for Boy Scout and Girl Scout meetings as well as dance classes.



The historic Campbelltown School was operated until 1972. Today it houses the offices of South Londonderry Township and its police department.

Municipal staff by position:

The South Londonderry Township staff consists of 19 full time employees and one part time employee.

The Administrative Department has five employees each with specific duties related to support this function and these are:

- Township Manager
- Public Works Director
- Administrative Secretary (Building)
- Administrative Secretary (Public Works)

- Accounts Administrator

Governing Body: The South Londonderry Township Board of Supervisors is comprised of three members. They are elected during a general election for six-year terms. The Board's primary responsibility is making policy for the Township and maintaining fiscal stability for Township services. The Supervisors meet the second Tuesday of each month.

Planning Commission: The Planning Commission consists of seven members appointed by the Board of Supervisors. Terms are four years in length. This Commission advises the Board of Supervisors on matters pertaining to land use planning and subdivisions. The Planning Commission meets the third Tuesday of each month.

Zoning Hearing Board: The Zoning Hearing Board consists of three members appointed by the Board of Supervisors. The terms are for three years. The Zoning Hearing Board is responsible for hearing appeals to the Community Development Official's determinations and for hearing appeals to the regulations set forth in the Township's Zoning Ordinance. Actions by the Zoning Hearing Board are governed by the PA Act 247 as amended, the Municipalities Planning Code, as supplemented by the Township Zoning Ordinance. The ZHB meets the fourth Tuesday of each month.

Municipal Authorities: The South Londonderry Township Municipal Authority owns the sanitary system serving the Campbelltown, Colebrook and Lawn areas. The Authority has five members appointed by the Board of Supervisors. Each member's term is five years. The collection system in the Timber Hills area is owned by South Londonderry Township. Sewer treatment is purchased from the Mt. Gretna Municipal Authority. The Authority meets the first Thursday of each month.

Palmyra Area Recreation and Park Commission: South Londonderry Township has two members on the Palmyra Area Recreation and Parks Commission (PARPC), and they are appointed by the Board of Supervisors. One member is on the Board of Supervisors, appointed annually, and the second member is a citizen of the Township, appointed to a four year term. The PARPC is comprised of the South Londonderry Township, North Londonderry Township, Palmyra Borough and the Palmyra Area School District. Various activities, for all ages, are sponsored by the PARPC. The PARPC sponsors many sport activities. Their office is located at the Palmyra Borough Municipal Building

Agricultural Security Area Advisory Committee: The Agricultural Security Committee is comprised of five members, three members from the agricultural community, one citizen representative and one Township Supervisor and they meet on an as needed basis to evaluate applications for inclusion within the Township agricultural Security Area.

Environmental Advisory Committee: The EAC is an 11 member board that is charged with evaluating and mitigating impacts on the natural environment of the Township and to develop criteria for the evaluation and designation of Natural Areas within the Township. Each member serves a four year term and the EAC meets the third Wednesday of each month.

F. Palmyra Public Library*

Office Address: 325 South Railroad Street,
Palmyra, PA 17078

Phone: (717) 838-1347

Fax: (717) 838-1236

Website:

www.lebanoncountylibraries.org/palmyra/about.php



Hours: Monday - Wednesday: 10 am to 8 pm

Thursday - Friday: 10 am to 5 pm

Saturday: 9 am to 4 pm - Summer Saturday (July and August): 9 am to 1 pm

Description of Office and Facilities: Established in 1954, the library is committed to providing the community with access to intellectual, educational, cultural and recreational information. The library serves the communities of Palmyra and North and South Londonderry Townships. The library has undergone recent renovations including access to high-speed Internet which have helped to enhance the services offered. In addition aesthetic changes have helped to make the library warm and welcoming.

Library staff by position:

- Executive Director: Karla Marsteller
- Circulation & Tech Services Coordinator: Elise Jackson
- Children's Librarian: Amy Shaffer-Duong
- Inter-Library Loan: Lorna Melhorn

Library Services:

- Library cards are available to community members free of charge. Youth ages 17 and under must have a parent or guardian sign a card issued in the child's name. Replacement cost for a lost card is \$1.00.
- Over 45,000 books and materials are available in the library's growing collection. These include large print and audio books.
- The library offers a selection of news, sports, women's, health, craft, computing, and other magazines. We also have two local and three national newspapers.
- Over 1,500 videocassettes and DVD's are available for loan at the library.
- A collection of puppets is on hand for check out.
- Both adult and children's CD's are offered including music, children's games, periodicals and encyclopedias.
- As a part of the Lebanon County Library System and the Lebanon Library District material from other libraries are available to be borrowed free through Inter-Library loan. Library staff is available to help you obtain such materials.
- Materials circulate at the library for varied periods of time based on the type of material. The circulation schedule is as follows:

- Books and audio books, except for reference, seven-day, or inter-library loan, generally circulate for three weeks.
- Current month periodicals are viewable only in the library. Past month issues circulate for three weeks.
- Videos and DVD's can be borrowed for one week free-of-charge.
- Puppets and CD's circulate for three weeks.
- The library may limit the number of a particular type of material a patron may borrow in any given time frame.
- Materials can be renewed via telephone by calling (717) 838-1347 during library hours or online through the [Online Catalog](#) link on our web site. *Your library card number and password are required to access this function.*
- Overdue fines are charged at \$.25 per day for books, audio books, periodicals, puppets and CD's. Videos and DVD's are charged at \$1.00 per day overdue.
- Patrons are charged for materials lost, damaged or never returned plus a \$5.00 processing fee.
- A fax machine and a photocopier and printers are available.
 - Copies - \$.20 per page
 - Faxes - \$1.50 per page to send; \$.50 per page to receive
 - Printing - \$.20 per page black and white; \$.30 per page for color
- High speed Internet access is available free-of-charge to library patrons according to the library Internet policy.
- Computers equipped with Microsoft Office 2003 are available free-of-charge for public use for word processing and other computing needs. Diskettes are for sale at the library for \$1.00 each.

*The above information was obtained from the Library's website listed above.

Local officials hope to explore the potential for consolidation of the public library facilities with those offered within the Palmyra Area High School to make better use of publicly-funded facilities.

VIII. Utilities

Note – Much of the information presented in this Chapter is derived from the Lebanon County Comprehensive Plan with updates as are available.



A. PUBLIC WATER - PA AMERICAN WATER

History & Service Area

Public water systems were created in the early 1900s to serve each of the Region's municipalities. The Palmyra Water Company serving Palmyra Borough and portions of North Londonderry Twp was acquired by the American Water system in 1936. The American system acquired the Hershey Water Company in 1977 and combined the operation of the two systems (Hershey and Palmyra). The Campbelltown Water Company served the town of Campbelltown in South Londonderry Township until it was acquired by the American Water system in 1986.

Today the PA American serves the western portion of Lebanon County and eastern Dauphin County. Essentially the interconnected piping allows for the Company to serve as one consolidated system between Hershey on the west to Annville on the east. The service area generally includes all of Palmyra Borough and Annville Township; 73% of North Londonderry adjacent to Palmyra Borough; 33% of South Londonderry including Campbelltown; 8% of South Annville adjacent to Annville Township; and 4% of North Annville (two reservoirs are located there). The water system is interconnected with Hershey at the Dauphin County line and with Lebanon City at east end of Annville Township. The Public Utilities Map depicts those areas within the Palmyra Area Region that have been identified as within the PA American Water Company's service area.

PA American Water Service Areas vs. Well Use Areas						
Area	Generalized Water Service Area		Generalized Future Water Service Area		Generalized Well Use Areas	
	Acres	% of Area	Acres	% of Area	Acres	% of Area
Region	4,798.6	20.3%	1,076.8	4.6%	17,775.0	75.2%
N. Londonderry	1,709.1	24.9%	1,076.8	5.7%	4,090.9	59.5%
Palmyra	1,235.1	100.0%	0.0	0.0%	0.0	0.0%
S. Londonderry	1,854.4	11.9%	0.0	0.0%	13,684.1	88.1%

The system serves a total of approximately 7,014 residential customers, 650 commercial customers and 69 bulk customers from these municipalities, as shown in the following Table:

Palmyra Area Region

Lebanon County, PA

PUBLIC UTILITIES

PUBLIC SEWER SERVICE AREAS

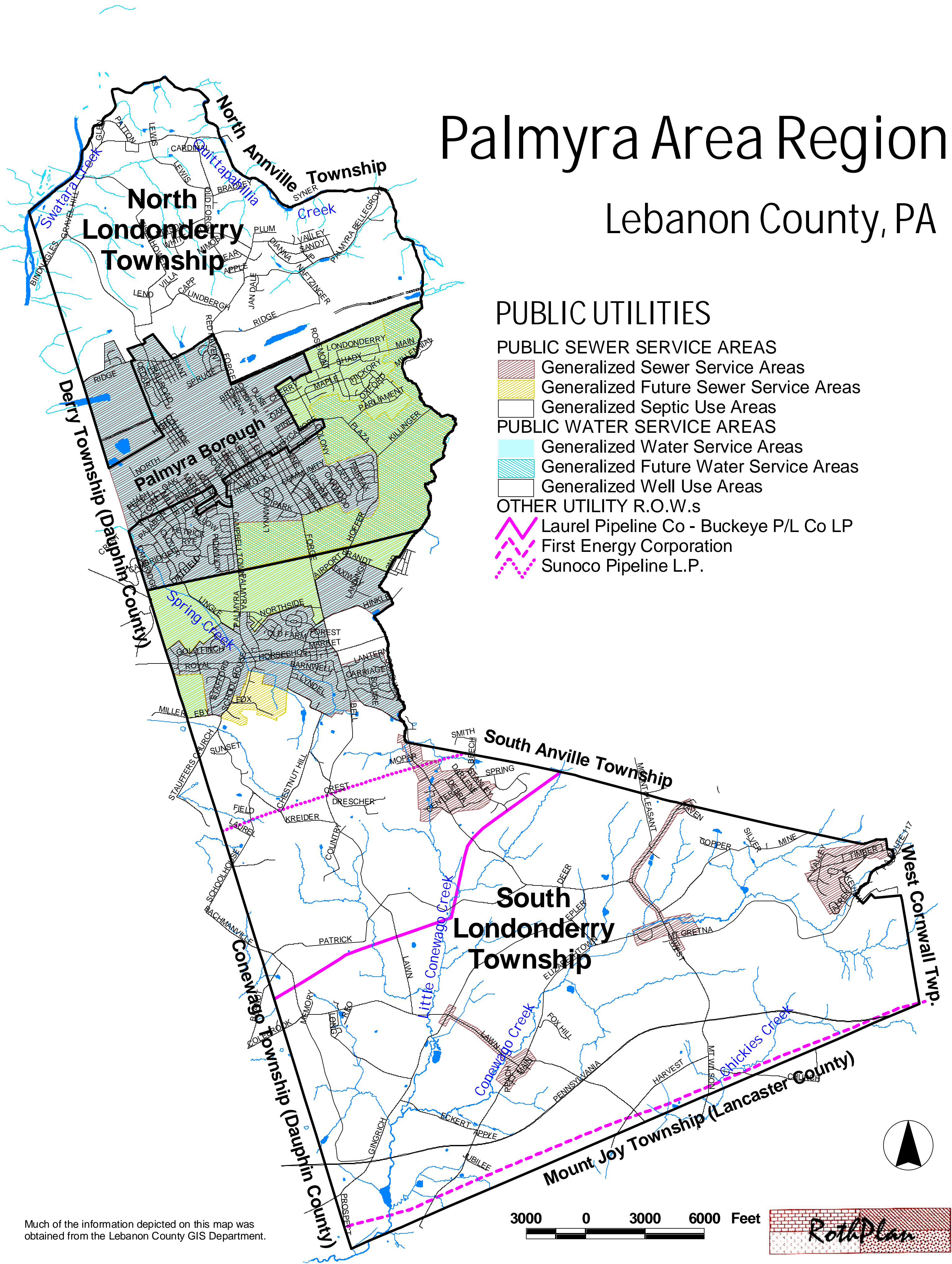
-  Generalized Sewer Service Areas
-  Generalized Future Sewer Service Areas
-  Generalized Septic Use Areas

PUBLIC WATER SERVICE AREAS

-  Generalized Water Service Areas
-  Generalized Future Water Service Areas
-  Generalized Well Use Areas

OTHER UTILITY R.O.W.s

-  Laurel Pipeline Co - Buckeye P/L Co LP
-  First Energy Corporation
-  Sunoco Pipeline L.P.



Much of the information depicted on this map was obtained from the Lebanon County GIS Department.

3000 0 3000 6000 Feet



Existing Customers of PA American Water					
Municipality	Residential Customers	Commercial Customers	Industrial Customers	Institutional Customers	Other Customers
Annville	1,190	105	4	8	13
North Annville	33	3			
South Annville	93	1			
North Londonderry*	2,120	80		5	5
Palmyra	2,745	431	10	9	12
South Londonderry*	824	30		3	2
System Total	7,014	650	14	25	32
Figures updated from Lebanon County Comprehensive Plan by letter from PA American Water Co.					

Raw water for the PA American Water system is drawn from the Manada and Swatara Creeks with permitted allocations of 5 and 11 million gallons per day (MGD), respectively. The creeks are prone to surface pollution and high turbidity. Water is treated at the Gerald C. Smith treatment plant located near Hershey in South Hanover Township, Dauphin County. Treatment processes of this facility include coagulation, flocculation, disinfection and corrosion control. In 2007 the system drew and treated 6.5 MGD on average, but is permitted up to 9 MGD. A plant expansion is planned by 2011 to increase treatment capacity to 11 MGD.

Treated water goes into one of seven storage tanks/reservoirs with a combined capacity of 6.28 million gallons. The Region primarily relies upon the Londonderry standpipe for adequate, safe and reliable water pressure and fire protection; however, both the North steel tank and the South concrete reservoir also serve the Region. These storage facilities have a combined capacity of 5.29 million gallons.

The distribution system includes approximately 225 public fire hydrants with various main sizes ranging from two inches to twelve inches in diameter. Main lines consist of un-lined and cement-lined cast iron, asbestos-cement and ductile-iron pipes. Customer service lines are typically copper type K tubing.

There is no system tap-on fee for customers, however an initial \$30 fee is charged to cover administrative set-up costs. PA American Water follows a series of aggressive maintenance programs. Its distribution infrastructure replacement program covers mains, and service lines. Water lines (mains and service lines to the curb) are characterized by age, pressure, flow, water quality, and breaks to prioritize inspection. Leaks are detected via an electronic sounding system and repairs made as they are found. The costs for maintenance are shared system wide with a single tariff system; no one customer pays more for maintenance than another. The company offers a meter replacement program for customers to defray the cost of a new meter over a period of time.

Future Public Water Needs

As presented earlier in this Plan (Chapter 2 Community Planning Goals) the Region hopes to *“Coordinate planned urban growth areas within compact planned public sewer and water*

service areas” to relieve development pressures in outlying rural areas characterized by sensitive and/or productive natural features. These compact growth areas are to accommodate the majority of the Region’s planned urban growth through the year 2020. Therefore the following assumptions are used to project future water demands:

Assumptions to Project Future Public Water Demand	
1.	The Region will grow by 2065 persons per decade between 2000 and 2020 as presented in Chapter IV of this Plan;
2.	The Region will grow by 1247 housing units per decade between 2000 and 2020 as presented in Chapter IV of this Plan;
3.	The average household size will continue to reduce through year 2020 as presented in Chapter IV of this Plan;
4.	In response to goals of this plan that call for targeting growth into public utility service areas, 90% of growth will occur within areas planned for public sewer service;
5.	The current ratio of flows for residential versus commercial, industrial and institutional uses accounting for same share of water loss will be maintained in the future; and,
6.	The average daily flow generated per residential connection accounting for same share of water loss is 186 gpd.

With these assumptions it becomes possible to project the amount of public sewage capacity needed to accommodate future growth. The following table presents this information:

Projected Public Water Demand 2007 to 2020				
Year	Projected new dwelling units served by public water (90%) of total	Projected water needed for new residences (186 gpd/unit)	Projected nonresidential needs (131.6% of residential demand)	Projected total needed water*
2007	NA	1,145,202 gpd (existing)	1,507,085 gpd (existing)	2,652,287 gpd (existing)
2008-2010	360	1,212,162 gpd	1,595,205 gpd	2,807,367 gpd
2010-2020	1122	1,420,854 gpd	1,869,843 gpd	3,290,697 gpd

*When public utilities are extended through existing developments to serve proposed growth, some properties that have previously relied upon on-lot wells are generally connected. While it is impossible to calculate these connections at this time, these potential customers should be considered when determining needed system conveyance and treatment capacity.

As can be seen the Region will need approximately 638,410 additional gallons per day to accommodate its planned growth through year 2020 to be served by public water. With this information municipal officials should ensure that adequate public water capacity is available to legitimize its land use policies that rely upon adequate and ready access to public utilities to accommodate compact “urban” developments.

B. PUBLIC SEWER SYSTEMS

The Pennsylvania Sewage Facilities Act of 1965 requires every municipality to have a sewage facilities plan approved and filed with the Pennsylvania Department of Environmental Protection. The plan outlines the municipality's needs for public and private sewerage facilities for the next 20 years. The plan requires testing of at least 15 percent of residents' septic systems and wells to ensure that systems are not malfunctioning and contaminating drinking water.

Status of Official Sewage Planning within the Palmyra Region		
Municipality	Plan Approval Date	Status
Palmyra Borough	09/01/1969	Plan older than 20 years
North Londonderry Township	10/16/2008	Plan less than 5 years old
South Londonderry Township	06/09/2005	Plan less than 5 years old
Source: PA DEP		

The Lebanon County Planning Department enforces the Pennsylvania Sewage Facilities Act for 23 of the 26 municipalities in Lebanon County including all of the municipalities within the Palmyra Region. As part of those duties, the planning department conducts permitting and inspections of on-lot sewage disposal systems.

As part of its County-wide comprehensive planning process, Lebanon County identified generalized existing and future public sewer service areas as depicted upon the Public Utilities Map and as tabulated below:

Area	Generalized Sewer Service Area		Generalized Future Sewer Area		Generalized Septic Use	
	Acres	% of Area	Acres	% of Area	Acres	% of Area
Region	3,981.8	16.8%	1,607.7	6.8%	18,060.9	76.4%
N. Londonderry	1,277.1	18.6%	1,508.8	21.9%	4,090.9	59.5%
Palmyra	1,235.1	100.0%	0.0	0.0%	0.0	0.0%
S. Londonderry	1,469.6	9.5%	98.9	0.6%	13,970.0	89.9%
Source: Gannett Fleming, Inc.						

NORTH LONDONDERRY TOWNSHIP

The Past & Present

The North Londonderry Township Authority (NLTA) provides public sewer service to areas of the Township adjacent to Palmyra Borough. In 1977 North Londonderry Township and Palmyra Borough reached an agreement to extend public sewer into areas of the Township adjoining the Borough. At that time 420,000 gpd of treatment capacity was purchased within the Borough's Wastewater Treatment Plant and actual service became operational in 1978. In 1992 an additional 150,000 gpd of treatment capacity was purchased from the Borough to accommodate the Township's considerable growth. For a description of the

Palmyra Borough Wastewater treatment Plant, see the following description of sewer service within Palmyra Borough. Beginning on July 1, 1988, Palmyra Borough maintenance staff had maintained the Township's pumping stations under a maintenance agreement between the Township and Borough. However, as of January 1, 2007, the Township assumed responsibility for all maintenance of the Township's pump stations.

The existing collection and conveyance system serving North Londonderry Township consists of approximately 16 miles of gravity lines and force mains ranging in size from 8-inches to 15-inches, with six (6) pumping stations. Nearly all of the wastewater generated in the Township is conveyed to Pumping Station 5, which discharges to the Palmyra Borough wastewater treatment plant. Pumping Station 5 is equipped with three pumps rated at 720 gallons per minute each. This system was constructed in the early 1980's and consists primarily of concrete and plastic pipe.

Pumping Station 2 (Rockledge) discharges in Pumping Station 4 (Campbelltown Road), and in combination serve the southwestern portion of the Township. Pump Station 2 was replaced with a new pumping station in 2005, which provides better service to existing customers, and provides additional capacity to accommodate future development to the west of Forge Road.

Pumping Station 6 (Grubb Road), Pumping Station 7 (The Pines), and Pumping Station 8 (Olde Stone Way) each serve smaller residential housing developments in the southeastern part of the Township. All of the stations are equipped with emergency generators to operate the stations in the event of power failure.

North Londonderry Township has developed significantly through the 1990s and early 2000s and expects to continue to grow. The Palmyra Borough Wastewater Treatment Plant does not have sufficient design capacity to handle the expected growth in the Township. In fact because of limited pump stations capacity, the Township has been unable to consider any major subdivisions since 2003.

The Future

The NLTA's Official Sewage Facilities Plan recommends the construction of a new 1.5 MGD / 4,066 BOD/day wastewater treatment plant in South Annville Township which will serve all of the existing and future users within both North Londonderry Township and Palmyra Borough. The new NLTA plant is expected to come fully on-line by the end of 2012.

This facility will enable the elimination of three existing Township pumping stations (# 5, 7, & 8); three other pumping stations (# 2, 4, & 6) would remain in use. Within the Borough all of the existing pumping stations are to be upgraded (due to age) and a new interceptor will be constructed between the existing Palmyra Borough Wastewater Treatment Plant and an interconnect with the Township's conveyance system to the new treatment plant. Once operational, the NLTA will become the operating agency while Palmyra Borough will become its customer under binding agreement.

The planned capacity of the treatment plan would accommodate all existing and planned public sewage users within both North Londonderry Township and Palmyra Borough. Its hydraulic capacity of 1.5 MGD and its organic capacity of 4,066 lbs BOD/day is based upon a full build-out of the planned sewer service areas within North Londonderry Township and the potential for additional flows generated by the Borough's several industrial users who contribute significant flows.

During the design phase of the new plant local officials from South Londonderry Township were approached for potential participation in the programming of reserve capacity for a regional public sewer system. At this time officials from South Londonderry Township could not commit to such participation because of the residual capacity existing within their own sewage treatment plants which are expected to serve planned growth through at least 2017.

The northern part of the Township would remain served largely by on-lot septic systems. The North Londonderry Township On-lot Management Program includes a requirement that on-lot systems be maintained and pumped every three years.

PALMYRA BOROUGH

(Much of the following information was derived from the Palmyra Borough Comprehensive Plan August, 2002.)

The Borough of Palmyra owns and operates a wastewater collection and conveyance system serving the Borough, and a regional wastewater treatment plant serving the Borough and a portion of North Londonderry Township. The Borough's collection and conveyance system consists of approximately 126,000 lineal feet of sanitary sewers ranging in size from 8-inches to 18-inches in diameter, and four (4) pumping stations. The bulk of the collection system was constructed in the late 1960's and consists primarily of vitrified clay pipe. The pumping stations serving the Borough were also constructed at the same time, and the main pumping station was expanded when the wastewater treatment plant was expanded in the early 1980's. Pump Station # 2 was also upgraded in 2000.

The existing wastewater treatment plant was built in the 1955 with a permitted hydraulic capacity of 1.0 MGD. In the mid 1970s an upgrade increased plant capacity to the current hydraulic loading capacity of 1.42 mgd, of which 0.57 mgd is owned by North Londonderry Township. The regional plant serves approximately 3300 connections in the Borough and 2000 connections in the Township. Virtually all of the wastewater generated in the Borough is conveyed to the plant through the Borough's Main Pumping Station. Similarly, virtually all of the flow originating in the Township is conveyed to the regional treatment plant through the Township's Pumping Station NO.5.

This plant utilizes a two-stage biological treatment process. The treatment train consists of the following unit treatment processes:

- ➔ Screening/Grinding;
- ➔ Degritting;
- ➔ Primary Clarification;
- ➔ First-stage biological treatment by rock-media trickling filters for BOD removal;
- ➔ Second-stage biological treatment by activated sludge for residual BOD removal and for nitrification;
- ➔ Secondary Clarification; and,
- ➔ Disinfection by chlorination using sodium hypochlorite

Ferrous sulfate is added in the second-stage aeration units for the precipitation of phosphorus. Treated effluent is discharged into the Killinger Creek which is part of the Chesapeake Bay Watershed.

The waste solids generated by the wet-end treatment processes are dewatered and post-treated with quick-lime (calcium oxide) producing an exceptional quality biosolids for

agricultural land application under PA Biosolids Permit No. PAG07-3505.

Currently, average daily flows to the treatment facility are averaging 0.75 to 0.9 mgd. Over the past 5 years, the Borough has undertaken remediation efforts to reduce Inflow/Infiltration (I/I) problems. Except for the occasional overflows which have occurred during extreme wet weather conditions, no hydraulic overloading conditions are anticipated to be generated as a direct result of new growth in the regional service area. Current and projected maximum flows to the Borough's pumping stations are well within the design capacities of the stations. Little additional growth is anticipated in the service areas tributary to Borough pumping stations 1, 2, and 3. Based on a projected population growth of 293 people over the next 20 years, Palmyra expects to contribute an additional 29,300 gallons of sewage to the system over the next 20 years.

The collection and conveyance system serving North Londonderry Township consists of approximately 75,200 lineal feet of sewer pipe ranging in size from 8-inches to 15-inches, and five (5) pumping stations. This system was constructed in the early 1980's and consists primarily of concrete and plastic pipe.

During extreme wet-weather conditions, short-duration overflows at the wastewater treatment plant used to occur at the primary clarifiers when peak flows exceeded 2.7 mgd for an extended period of time. This resulted from a bottleneck in the piping associated with the treatment plant.

To mitigate this problem installation of a 250,000 gallon side-line equalization basin stores excess peak flows until the influent flow rate decreases to a manageable level. The stored wastewater can then be conveyed at a controlled rate to the aeration tanks for further treatment. This provides the operations staff the flexibility to choose the peak flow rate to be conveyed through the plant during a storm event.

Although the hydraulic overloading conditions at the wastewater treatment plant have been mitigated, the Borough intends to continue its efforts to identify and remediate sources of inflow within its collection system. Smoke and dye testing will be performed over the remaining drainage areas in the Borough to identify and mitigate remaining inflow sources in the main lines, service laterals, and other outside sources such as downspouts and area drains.

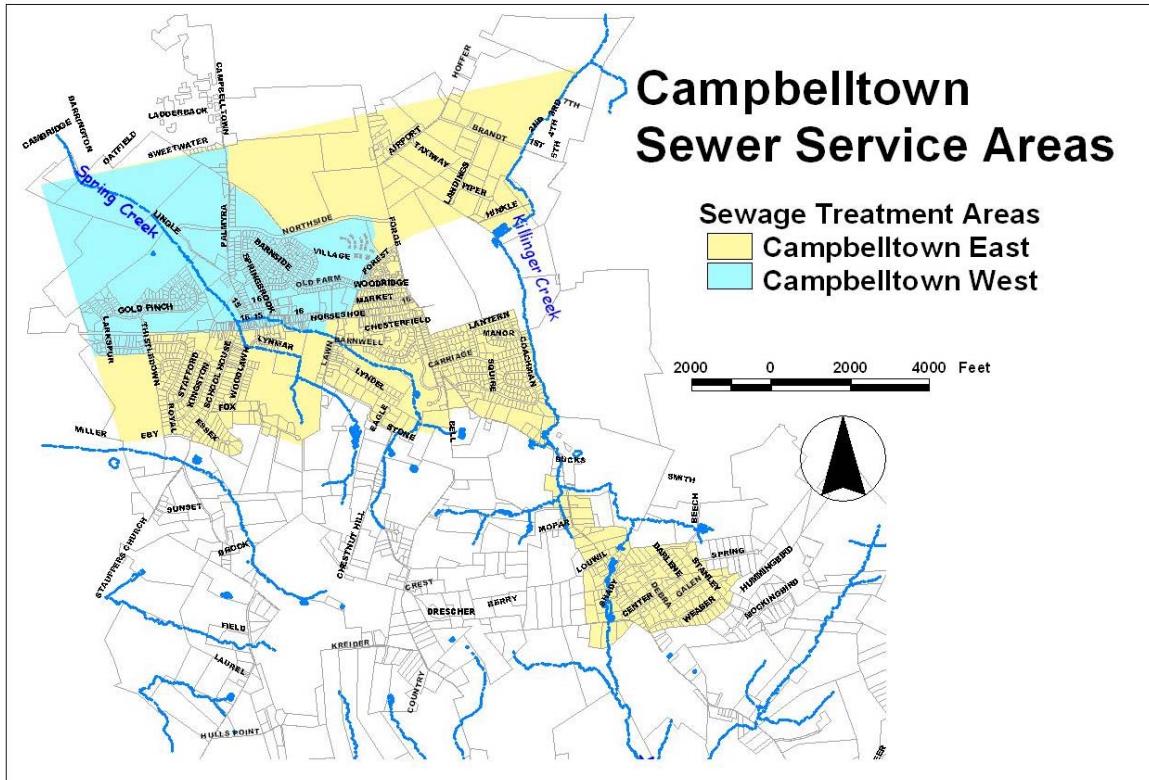
SOUTH LONDONDERRY TOWNSHIP

In the late 1960s, South Londonderry Township began to offer public sewer service in the Villages of Campbelltown, Colebrook and Lawn. At that time the Township's original Official Sewage Facilities Plan was developed and adopted in 1969 and the South Londonderry Township Municipal Authority (SLTMA) was created to oversee the system. Since then, amendments to the Sewage Plan have been adopted through June, 2005 as public sewers have been extended to remediate concentrations of malfunctioning on-lot systems and to accommodate planned growth.

Because of the size and topography of the Township and the scattered location of its rural villages, the SLTMA owns and operates four treatment plants to serve these areas:

1. Campbelltown West, is an extended aeration facility with an oxidation ditch to provide secondary treatment to serve the light blue areas as depicted on the following map and discharges into Spring Creek;

2. Campbelltown East, is an extended aeration package plant to provide secondary treatment to serve the light yellow areas as depicted on the following map and discharges into Killinger Creek;
3. Lawn is an extended aeration package plant to provide secondary treatment to serve both of the Villages of Lawn and Upper Lawn, and which discharges into Conewago Creek; and,
4. Colebrook is an aerated facultative lagoon to provide secondary treatment which also serves both of the Villages of Colebrook and Mount Wilson, and which discharges into Conewago Creek.



5. Areas just west of the Borough of Mount Gretna within South Londonderry Township are served by the Borough's treatment plant which is also located within the South Londonderry Township. Other private sewage treatment facilities are located in the Township and operated by the Pennsylvania Turnpike Commission and Olivers Mobile Home Park.

In order to meet State mandated water quality discharge standards and to provide sewer service of new growth adjoining the Campbelltown West Treatment Plant, the SLTMA has diverted 100,131 gpd of flow (via the Carriage Park Pump Station) from the Campbelltown West Treatment Plant to the Campbelltown East Treatment Plant. In addition, the extension of public sewers into the Village of Mount Wilson to remediate on-lot sewer malfunctions will be served by the Colebrook sewage treatment plant. With these recent adjustments, the SLTMA's four treatment plants have the following hydraulic capacities:

Name	Permitted Capacity	Average Flow (Oct. 2009)	Reserved Capacity ²	Residual Capacity ²
Campbelltown East	210,000 gpd ¹	-132,000 gpd	-58,725 gpd	19,275 gpd
Campbelltown West	215,000 gpd	-66,000 gpd	-92,081 gpd	56,919 gpd
Colebrook	44,000 gpd	With the completion of the extension of sewer lines into Mount Wilson, this facility is operating at capacity and is not recommended for planned expansions and extensions. ³		
Lawn	22,500 gpd	This plant is operating within its planned capacity and fill-in connections could be accommodated on a case-by-case basis; however, no extensions of the collection system are recommended. ³		

¹ The existing capacity of this facility is 210,000 gpd; however, it is permitted to expand to 315,000 gpd under the Official Sewage Plan. The Township has applied to the PA DEP to expand the plant and if approved should be operational between 2015 and 2017.

² Both reserved and residual capacity represent available capacity with which to serve planned growth. The reserved capacity is assigned to those “pipeline developments” as described and mapped within Chapter V (Existing Land Use) of this Plan.

³ 2008 Wastewater Treatment Plant Capacity Report.

Although the preceding table suggests that some 227,000 gpd of residual hydraulic capacity is permitted within the combined Campbelltown Wastewater Treatment Plants, Township staff believe that no capacity remains that has not already been assigned to the those "pipeline developments" as described and mapped within Chapter V (Existing Land Use) of this Plan. This opinion is confirmed by the SLTMA's Engineer whose Feb. 20, 2008 letter to the Township states:

"Taking all these variables into account, it is our opinion that the projected flow increases with reservations of capacity already approved will be accommodated by the existing Treatment Plants [Campbelltown East and West] and their planned improvements. Because of the margin of error associated with the projections and because of year-to-year flow variations at the Treatment Plants, we do not recommend new allocation of capacity for either the Campbelltown West Plant or the Campbelltown East Plant."

Furthermore the staff believes that the provision of public sewer to any properties within the planned sewer service areas as reflected on the Official Sewage Facilities Plan that are not one of those identified "pipeline developments" would require expansion of treatment plant capacity. These circumstances give rise to the following planning goals as listed in Chapter II of this Plan for South Londonderry Township:

"Determine the practical limitations of the Township's sewer system and devise a growth management strategy that maximizes use of residual capacity yet relies upon developer-provided extensions/upgrades as may be needed to accommodate projected growth."

This "pay as you go" policy rests the marginal cost increase of sewer system expansion/upgrade with each developer as the Township grows. However some other limitations may affect the Township's ability to accommodate planned growth regardless of who pays.

First, the Campbelltown West Treatment Plant's site lacks land area for facility expansion. With ongoing developments within the gravity-fed basin of this Plant, the remaining capacity will be depleted. Therefore, any additional growth areas beyond those that have already reserved treatment capacity at this facility would not be possible. Furthermore, recent information received from the Pennsylvania Department of Environmental Protection, suggests that more stringent effluent discharge limits may be imposed to protect the quality of Spring Creek.¹ This could affect the amount of discharge permitted from the Campbelltown West Plant into the Spring Creek or impose treatment processes that would be too costly to implement at this facility. Fortunately such areas are in close proximity with the adjoining North Londonderry Township Authority (NLTA) sewer service areas.

Similarly, the Campbelltown East Plant faces discharge limitations into the Killinger Creek for the same reasons. While this plant's site offers room to expand the treatment capacity, more stringent effluent discharge limits may be imposed by the PA DEP to protect the quality of Killinger Creek.² This could affect the amount of discharge permitted from the Campbelltown East Plant into the Killinger Creek or impose treatment processes that would again be too costly to implement at this facility.

South Londonderry Township should seek to avoid the unnecessary extension of its planned sewer service areas beyond those properties already served and those properties that have already reserved such capacities. While strict adherence to this policy is likely impossible due to legal equal protection land use mandates, it should nonetheless guide land use decision-making to the extent possible.

South Londonderry Township administers its required pump-out ordinance which requires the regular pumping of on-lot disposal systems every 3 years in targeted areas where conditions are prone to malfunctioning on-lot systems. Requiring pumping gives the property owner and the municipalities a way to identify and fix problems before they become severe. Contractor's pumping costs vary widely. Fines ranging from \$100 to \$300 are imposed for violations of the ordinances.

ON LOT SEWAGE DISPOSAL SYSTEMS (OLDS)

Given portions of the Region's rural character, some use of on-lot sewage disposal systems (OLDS) will continue. As presented in Chapter 3, many of the Townships' soils are characterized with severe limitations for on-lot sewage disposal systems. This reinforces the need for policies and goals that:

1. require most growth be targeted in the public sewer service areas;
2. permitted residential densities located beyond public sewer service areas be limited at very rural levels; and,
3. the Townships exercise careful scrutiny in the review of proposed sewer modules for new uses to rely upon OLDS.

¹ Letter from Lee A. McDonnell, P.E., Program Manager, Water Management Program, PA DEP, Sept. 30, 2009., pg. 1.

² Ibid.



Many OLDs were installed before State regulations governing design and installation methods were in place. Consequently, these older systems tend to fail over time and the sewage rises to the land surface.

On-lot disposal systems, if constructed and maintained properly, can provide a reliable and efficient means of wastewater treatment in rural areas where population density is low. However, where such systems are improperly installed or not maintained, contamination of on-site water supplies can result. The goals of this plan emphasize protection of the Region's rural character therefore, it is critical that the Townships implement requirements to ensure OLDs long-term use and effectiveness.

Therefore, it is recommended that each Township continue to implement its OLDs management program.

This program requires the routine maintenance of systems to include the regular "pumping-out" of subsurface septic tanks. Specifically residents are required to submit receipts from licensed "pumpers" at least once every three years. ***In addition, local officials from***

South Londonderry Township should consider expanding their on-lot maintenance program beyond the targeted areas to all on-lot systems of the entire Township.

1. ***All future use of on-lot and/or community sewer systems should be carefully scrutinized regarding potential effects on groundwater quality; this would be accomplished through the preliminary hydrogeologic study requirements of the PA DEP module review process.***
2. ***For future growth that relies upon on-lot disposal techniques, it is recommended that zoning policies provide for a minimum lot size of one acre. This dimension generally provides sufficient lot area for one on-lot disposal system and another, should the initial system fail. This may require that the Township allow the enlargement of lot size, beyond specified maximums, to avoid an unacceptable level of nitrate-nitrogen in adjoining groundwater to be determined through the DEP sewer module review process. As an alternative, the Township could enable the use of a sewage effluent dispersal easement on adjoining undeveloped properties.***
3. ***It is also advised that each lot be required to specifically test for, and reserve, an on-site location for the second drain field as part of its sewage permit compliance. Such alternate drain field should then be protected from all grading and construction activities, in the event it is activated due to malfunction of the initial system.***

4. ***Finally each Township should continue to enforce its On-Lot Sewage Disposal System Management Ordinance that requires landowners to regularly pump-out their subsurface septic tanks and then provide written notification of such action to the Township.***

C. SOLID WASTE MANAGEMENT

The Pennsylvania Municipal Waste Planning, Recycling and Waste Reduction Act 101 of 1988 requires counties to develop formal plans for managing municipal wastes. Plans are subject to municipal ratification and approval from the Pennsylvania Department of Environmental Protection (PA DEP). In accordance with the Act, each county must ensure 10 years of available disposal capacity and establish a post-closure care trust fund for landfills.

The Greater Lebanon Refuse Authority (GLRA) was formed under the guidance of the Regional Planning Commission in 1957. Today, the GLRA is responsible for managing a comprehensive solid waste disposal system for Lebanon County, in accordance with the 2000 Lebanon County Solid Waste Management Plan. The GLRA owns land and is responsible for contiguous landfill masses located in North Annville, Swatara, and North Lebanon Townships, with active land filling taking place in North Lebanon Township.

All told, the GLRA occupies 412 acres of land. Of this, approximately 115 acres is made up of the old "inactive" landfills, and 38 acres is of state-of-the-art RCRA (Resource Conservation and Recovery Act) Subtitle "D" double lined landfill cells. The remainder of the property consists of offices, a maintenance building, the scale house, a leachate treatment facility, a waste-to-energy methane plant, a natural aquatic treatment system, the recycling area, a composting area, borrow areas, and a trail along three original locks of the Union Canal.

Waste transferred to the Greater Lebanon Refuse Authority (GLRA) landfill site comes from the 26 municipalities within the County and Fort Indiantown Gap. With the exception of "out-of-state" disposal facilities, Lebanon County directs all Lebanon County-generated municipal waste to the GLRA landfill. The facility currently accepts municipal solid waste (MSW) and municipal-like residual waste (Type "S"). The waste that is delivered to the GLRA landfill site is hauled directly by commercial haulers to the disposal face of the landfill for dumping.

GLRA requires a hauler permit to dispose of waste at the GLRA site. Hauler permits enable the county to impose minimum standards on waste collection and transportation and to exercise waste management and flow control. Flow control is particularly important as the facility is permitted to accept an average of 366 tons per day, with a maximum of 535 tons of MSW in any one day.

During the 1995-1999 period, the GLRA accepted 82,700 tons of waste annually (approximately 227 tons per day); approximately 53% from residential sources, 25% from commercial sources, 19% from construction/demolition sources, and 4% from industrial sources. This tonnage represents a 10% increase over the 10 year average of 75,000 tons.

Trends indicate that the annual disposal volume rose to 88,510 tons from 2000-2006. The quantity of refuse disposed is projected to rise to 90,000 tons annually by the year 2010. Given these current and projected waste generation rates, the site is expected to reach capacity no sooner than 2016, which satisfies the available disposal capacity requirement of Act 101.

Leachate from the lined landfill is collected by a network of collection pipes that were placed in the liner. Leachate may be pumped to a one million gallon storage tank before going to the Lebanon City Sewage Treatment Plant. The GLRA Pre-Treatment plant is fully capable of handling the liquid waste, however, it is not currently used because the quality of the leachate does not require pre-treatment. The leachate from the lined landfill areas is effectively treated via a natural wetland treatment system located on the landfill property. 36 Greater Lebanon Refuse Authority website, <http://www.goglra.org>

GLRA Landfill Disposal Trends			
Year	Total Tons Disposed in Landfill	Population	Tons/Person
1992	73,861		
1993	73,907		
1994	83,267		
1995	82,317		
1996	88,480		
1997	81,749		
1998	88,722		
1999	83,858		
2000	84,993	120,327	0.71
2001	86,746	120,999	0.72
2002	100,915	121,633	0.83
2003	98,801	123,057	0.80
2004	104,300	124,489	0.84
2005	99,158	125,429	0.79
2006	96,576	126,883	0.76
Average	88,510		
Change 2000-06	11,582	6,556	0.05
% Change 2000-06	13.6%	5.4%	7.8%
Source: Greater Lebanon Refuse Authority			

The Greater Lebanon Refuse Authority has become a model landfill because of its innovative natural wetland treatment system. GLRA uses a combination of native warm-season grasses, wildflowers, shrubs and other plants to help with the natural decomposition process and to create a productive wildlife habitat. Animals that have made a home on GLRA's treatment ponds include turtles, snakes, egrets, blue heron, ring-necked pheasants, bluebirds, geese, ducks, red winged blackbirds, muskrats, rabbits, red fox, deer, and a variety of other wildlife.

Aerators have been placed in some of the ponds to give the water a higher dissolved oxygen level, keeping the bacteria strong. These bacteria feed on the organics in leachate to naturally decompose the liquid refuse. It takes about a month for the leachate to travel from the first pond to the discharge point at which the water is clean and the quality is high. The Authority has received numerous awards and national recognition for its economically and environmentally pleasing answer to the problem of leachate refuse.

The Greater Lebanon Refuse Authority, in cooperation with Lebanon Methane Recovery, currently has a collection program that burns landfill gas to produce electricity. Lebanon Methane Recovery, Inc., a methane recovery facility located on GLRA's property, has been in operation since 1986. The facility generates an average of 1,200 kilowatts of electricity per hour. This is enough electricity to supply approximately 120 homes with electricity each day. The process removes the gas from GLRA's landfill, burns the gas in a converted diesel engine to produce electricity, and sells the electricity to GPU Energy. In return for the use of the gas by Lebanon Methane Recovery, the GLRA receives a royalty payment from the sale of the electricity. The vacuum that a waste-to-energy plant uses to collect the gas eliminates the problem of dangerous methane gas escaping from the landfill and at the same time it recycles a by-product of the landfill into an extremely valuable resource.

As a secondary means of landfill gas management, the Greater Lebanon Refuse Authority has recently added a flaring unit to its landfill gas management program. In the event that Lebanon Methane Recovery Inc. is unable to operate its facility to produce electricity, the gas will be directed from the network of gas collection pipes to an "Enclosed Flare". The Enclosed Flare is so named because its burners are located at the base of a 40-foot high stack. This flaring unit is adjacent to Lebanon Methane Recovery Inc.'s facility. The flare uses the flammable portion of landfill gas, methane, to destroy the balance gases that are the cause of landfill odors, controlling both the explosive issues and the odor issues with one operation.

The 2000 Lebanon County Solid Waste Management Plan recommends several programs to sustain and improve management and potentially extend the life of the landfill. The current status of each program is noted below.

- Diversion of waste from landfill disposal by increasing recycling activity through municipal efforts, e.g. ordinance modifications and standardized recycling methods, and by processing waste to minimize disposal quantities, e.g. incineration and materials recovery facility (MRF) operations. These programs were initiated shortly after the 2000 plan was adopted with the exception of the MRF initiatives, which were programmed for 2006-2008.
- Development and implementation of a standardized hauler licensing program to provide a single license to operate and collect waste, decreasing administrative burden. This program was implemented in 2000.
- Flow control management to address landfill capacity and revenue requirements to sustain operations. This program began prior to the 2000 plan and is on-going.
- Landfill gas recovery and disposal to make economic use of landfill gas for power generation. This program began in 1986 and is on-going.
- Leachate monitoring to identify needs for leachate pre-treatment prior to release to the sanitary sewer system. This program began prior to the 2000 plan and is on-going.
- Additional evaluation of site recovery potential to recover recyclables and re-dispose of non-recyclable materials in lined sites. This program was scheduled to be implemented 2006-2008.

- Public education programs to promote waste reduction and recycling and municipal education regarding enforcement of waste management ordinances. Public education is on-going, while municipal education was implemented in 2000.
- Emergency disposal plans 1) to assure disposal capacity for waste resulting from natural disasters, 2) to assure waste management services in the event that the waste management system (collection and disposal) is in-operational, and 3) to assure recyclables are collected during an emergency. This planning effort was completed between 2000 and 2001.

Several issues, not addressed through recommendations, were noted in the plan for future consideration.

- County Waste Generation Database – to collect waste generation data and standardize reporting for improved accountability and monitoring.
- Forwarding Facility – As previously mentioned, the waste that is currently delivered to the GLRA landfill site is hauled directly by commercial haulers to the disposal face of the landfill for dumping. This creates a lot of on-site traffic and potential safety problems for individuals traveling onto the landfill site. Construction of a “forwarding” facility would allow waste to be received onto a tipping floor at a single on-site location. The GLRA staff would then move the waste to the face of the landfill for disposal with on-site vehicles. A forwarding facility was not recommended in the short term, but was noted for GLRA’s future consideration.
- Materials Recovery Facility (MRF) – to process commingled waste.

In addition, four programs were suggested but were not able to be evaluated during the 2000 plan preparation:

- Green Waste Collection
- Centralized Waste Collection
- Pay As You Throw (PAYT)
- Contract Hauling

The plan recommends evaluating these programs in future waste management planning efforts.

Finally, Lebanon County has negotiated back up agreements with other landfills to assure the availability of capacity to be used in the event that the GLRA’s Waste Management System is unable to accept waste for any reason. However, a method for collection of Lebanon County waste consistent with these back up agreements should be defined as part of an emergency plan in the event that an abnormal event would occur that would prevent waste collection in any area of the County. Tentative agreements would then need to be established with the disposal sites and haulers. This information would be input as part of the emergency plan for approval by the municipalities, the GLRA, and the County Commissioners.

Recycling

All municipalities with a population of more than 5,000 people (or a population density of more than 300 people per square mile) are required to implement a curbside collection-recycling program per Section 1501 of Act 101. Recycling in the county is done by both curbside collection and drop-off centers. Currently there are eleven drop off centers; of these, six receive Act 101 recyclable materials. Items that are recycled at no charge include glass bottles and jars; steel and aluminum cans; soda, milk, water and detergent bottles; newspapers, phone books, magazines, catalogs, office paper and junk mail; corrugated cardboard; and empty propane tanks. Typical costs to the county to collect recyclables range from \$1.00 to \$1.50 per residence per collection. Recycling collection is funded through landfill tipping fees and DEP grants.

Lebanon County's recycling rate was 28% in 2006 – up from 17% in 2000. This increase is due, in part, to the increasing number of municipalities participating in recycling programs; 13 municipal curbside collection programs existed in the county in 1999, while at most recent count, 17 municipalities have curbside recycling programs and another two rely on drop-off centers. The increase in recycling is also due to increased use of these programs by Lebanon County residents.

Recycling Rates within Lebanon County vs. Palmyra Region			
Municipality	2000 Recycling Rate	2006 Recycling Rate	Change In % Recycling Rate
Lebanon County	17%	28%	6.95%
Palmyra Region	16%	22%	6.49%
N. Londonderry	11%	30%	18.97%
Palmyra	32%	30%	-1.48%
S. Londonderry	5%	7%	1.97%
Source: Greater Solid Waste Authority of Lebanon County			

While 50% of paper, metals, and yard wastes are recycled throughout the County, recycling of glass is low and could be increased. Less than a fourth of the plastics generated are being recycled. Demand for household hazardous waste disposal for such items as paint, car batteries, used oil, poisons and spray cans, old computers, TVs and VCRs is growing. Recycling rates can be improved through several methods. Lebanon County could increase the number and types of components being recycled. Improved marketing and public education of recycling efforts, either by program or countywide, would also support higher rates. In addition, ordinance review and modification could identify restrictions in existing municipal ordinances that hinder recycling efforts, identify restrictions in waste collection and hauling that do not promote recycling, and support preparation of ordinances for municipalities that currently do not practice recycling.

During 2009 and 2010 DEP grant programs that support waste planning and municipal recycling programs are scheduled to shut down. This will affect various programs that are used to oversee and financially assist municipal recycling efforts within the Palmyra Region. Pending legislation (House Bill 1768) would extend the sunset date for DEP to assess a \$2/ton recycling fee on waste disposed of within the Commonwealth through the end of year 2019 as was originally authorized by Act 101 in 1988. **Local Officials should**

consider support for this legislation so that greater recycling trends can be continued.

Garbage collection within both North and South Londonderry Townships are on the free enterprise (private hauler) system. Property owners must contract with any available hauler licensed by the Greater Lebanon Refuse Authority. Curbside recycling is mandatory for aluminum, glass, steel and bimetallic materials and newspaper.

Within Palmyra Borough weekly waste collection is provided by Borough employees. Curbside recycling of aluminum, glass, steel and bimetallic materials and newspaper is collected every other week. Waste is then deposited in the Greater Lebanon Refuse Authority (GLRA) landfill site.

D. OTHER UTILITIES

Aside from the public sewer and water utilities described earlier in this section, several other utility lines pass through the South Londonderry. Many of the rights-of-way (ROW) associated with these utilities have distinct implications for future land use and proposed activities. This analysis inventories and maps major utility lines. ***Potential land developers and residents living near ROW should use the PA One Call System at 800-242-1776 to contact representatives of the various utility companies with regard to any proposed projects.*** The locations of the ROWs are plotted on the *Public Utilities Map*. The following describes these major rights-of-way:

Buckeye Partners, L.P. and Affiliates

Buckeye Partners, L.P. and Affiliates owns one underground petroleum pipeline that crosses South Londonderry Township in an east-west direction about 2 miles south of the Village of Campbelltown. The two lines run along a parallel course as depicted on the Public Utilities Map. The pipeline is a 24-inch diameter high pressure refined petroleum products pipeline that originates in Boothe, PA and terminates in Coraopolis, PA. This pipeline carries unleaded gasoline, diesel fuel, heating oil and jet fuel. The pipeline is constructed of carbon steel and was installed in 1959. The following lists the general restrictions enforced by the company around active lines.

Purpose and Scope

This Right-of-Way Use Restrictions Specification (hereinafter called "Specification") has been developed by Buckeye Partners, L.P. and Affiliates (hereinafter called "Buckeye") and is intended for landowners, utility owners, general contractors and their sub-contractors, pipeline/utility contractors, real estate developers, brokers and agents, lending officers and title underwriters, engineers, architects, surveyors, and local / governmental elected staffs (hereinafter called "Crossing Party") as a guideline for the design and construction of proposed land development.

Buckeye appreciates this opportunity to work with you in the planning stages of your development (or construction activity), and we look forward to working with you proactively. Buckeye's primary concern when activities are taking place near our pipeline is public safety and environmental protection. The intent of this Specification is to provide a clear and consistent set of requirements that will: (1) reduce the risk of damage to our pipeline and related facilities; (2) ensure unencumbered access to our right-of-way and pipeline facilities and the availability of adequate workspace for routine maintenance, future

inspection, and/or repair work on our pipeline; and (3) enable the effective corrosion protection of our pipeline.

All such activities and projects that are performed near Buckeye's pipeline facilities are subject to formal review by Buckeye prior to issuance of final written approval. Depending on the scope of the project and its impact on Buckeye's pipeline facilities, additional engineering requirements and protective measures may apply. The following requirements are not only the policy of Buckeye, but comply with regulations set forth by the United States Department of Transportation, Safety Regulations, 49 CFR, Parts 192 and 195.

We want to be a good neighbor, but to do so requires us to act responsibly in protecting our right-of-way and preventing damage to the pipeline system. While we want to make every effort to accommodate your desired use of your property, our responsibility for public safety is paramount. Through proper planning and communications, we can ensure the safety and integrity of our pipeline system and the welfare of our neighbors.

1.0 General Guidelines

- 1.1 The safety of the pipeline must be considered at all times. No attempt to probe for or engage in any construction activities which might damage the pipeline is permitted.
- 1.2 Before any preliminary field work or construction begins in the vicinity of Buckeye's pipeline, a determination of the exact location and elevation of the pipeline must be made. To coordinate this procedure, please contact our local Field Operations Supervisor in Mechanicsburg (717) 766-7633.
- 1.3 All proposed drawings/plans must be submitted to both Buckeye's Right of Way and Engineering Departments for review to determine to what extent, if any, the pipeline or right-of-way will be affected by the proposed construction and/or development. These drawings/plans must be prepared in strict compliance to Attachment 4, "Requirements for Submission of Design Plans".
- 1.4 When any construction activity is conducted in or around our pipeline right-of-way, Buckeye's On-Site Inspector must be present at all times. **NO WORK SHALL TAKE PLACE WITHOUT A BUCKEYE ON-SITE INSPECTOR PRESENT.** For this free-of-charge service, contact our local Field Operations Supervisor at the Buckeye facility nearest to your proposed project.
- 1.5 The Crossing Party shall contact Buckeye for re-marking of a pipeline if the existing markers are inadequate for any reason, including disturbance due to construction activities. Note: Federal law prohibits the removal of pipeline markers.
- 1.6 The Crossing Party shall not burn trash, brush, or other items or substances within 50 feet of the pipeline.
- 1.7 The Crossing Party shall not store any equipment or materials on the right-of-way.
- 1.8 During routine or emergency maintenance on the pipeline, the cost to restore approved surface improvements (e.g., pavement, landscaping, sidewalks, etc.) shall be the responsibility of the Crossing Party.

Sun Pipe Line Company

Sun Pipe Line Company owns two underground petroleum pipelines that cross South Londonderry Township in an east-west direction about a mile south of the Village of Campbelltown. The two lines run along a parallel course as depicted on the Public Utilities

Map. The first pipeline is a six-inch diameter high pressure refined petroleum products pipeline that runs between the Boroughs of Cornwall and Mechanicsburg; this line is currently out of service. The second pipeline is an eight-inch diameter high pressure refined petroleum products pipeline that runs between the Borough of Cornwall and the City of Pittsburgh; this line is currently active. Both of these pipelines were constructed of welded steel in the early 1930's with a 50-foot-wide private right of way and easement agreements that were purchased from the landowners whose property was crossed by the pipeline. The following lists the general restrictions enforced by the company around active lines.

1. Detailed plans for proposed construction in accordance with Sunoco Pipeline L.P.'s ("SPLP") Engineering Restrictions must be submitted to SPLP's Engineering Department for review and approval to determine to what extent, if any, the pipeline or right-of-way will be affected by the proposed construction and/or development.
2. A driveway or roadway may Cross the right-of-way and pipeline perpendicularly, but at no time will it be parallel to, over and within the right-of-way.
3. Buildings, swimming pools, sheds, decks, trees, shrubs or any obstruction of a permanent nature shall not be constructed, planted or placed within the right-of-way and easement. The width of the easements vary, but typically structures closer than (25') feet to any existing pipeline (50' easement) are not permitted. You must contact SPLP's Right-of-Way Department at (610) 670-3322 (Eastern U.S.) or (281) 637-6415 (Southwestern U.S.) to determine the easement width for a specific property.
4. Wells~ leach beds, cesspools or sewer systems of any type shall not be placed within the right-of-way.
5. All underground facilities crossing the right-of-way shall cross under the existing pipeline with a minimum of 24-inches clearance. This includes, but is not limited to, sewer drain lines.
6. The earth cover over the pipelines shall be maintained and never changed in any manner without the express written permission of SPLP.
7. Any parking area placed over the pipeline with permission of SPLP shall be subject to an amendment to agreement entered into by subject parties prior to construction of same.
8. If heavy equipment is to cross the existing pipeline for any reason, it will be necessary for the crossing party to provide and maintain a ramp of sufficient material to protect said pipeline. Sunoco Logistics will make the decision as to how much fill and what other type of protective structure, if any; will be required for the ramp. Upon completion of construction and discontinuation of heavy equipment passage over the pipeline, the ramp may be removed.
9. A SPLP inspector must be present at the time that any work is done within Sunoco Logistics' right-of-way.
10. No blasting is permitted within 300 feet of the pipeline. Anything less than 300 feet must have the written approval of and instruction from SPLP's Engineering Department.
11. Should you have any questions or need additional information on the aforementioned Paragraphs 1 through 10, please call SPLP's Right-of-Way Department at (610) 6703322 (Eastern U.S.) or (281) 637-6415 (Southwestern U.S.).
12. State law requires you to contact your State One Call Center at least two or three days in advance, as required by your state, prior to any construction activity. The nationwide telephone number for your State One Call Center is "811". The PA One Call Center "800"

number is (800)242-1776.

13. In addition to the legally required notice referenced above and to schedule a SPLP Inspector to witness work in the vicinity of the pipeline, please call the Reading SPLP Office at (610)670-3250. **Note:** CONTACTING SUNOCO PIPELINE L.P. DIRECTLY DOES NOT RELIEVE YOU OF THE LEGAL OBLIGATION TO NOTIFY YOUR STATE ONE CALL CENTER. (Please call COLLECT if outside the area.)

First Energy Corporation

The 500 kV TMI-Hosenack overhead electric transmission line generally parallels closely the southern boundary of South Londonderry Township. This 200 foot wide right-of-way...

Any encroachment will create a hazardous condition. Contact with or arcing of the energized conductors will cause property damage or **serious bodily injury, including death.** Other restrictions may apply for specific situations.

Safety

OSHA safe-working clearance from a person or any conductive object to the energized bare wires shall be maintained at all times.

500,000 volt (500-kV) lines -----	Minimum 19 feet, in any direction.
345,000 volt (345-kV) lines -----	Minimum 16 feet, in any direction.
230,000 volt (230-kV) lines -----	Minimum 13 feet, in any direction.
138,000 volt (138-kV) lines -----	Minimum 12 feet, in any direction.
115,000 volt (115-kV) lines -----	Minimum 11 feet, in any direction.
23,000 volt (23-kV) to 69,000 volt (69-kV) lines ----	Minimum 10 feet, in any direction

Any driveways or parking areas near FirstEnergy structures (poles, towers, guys, etc.) shall include protective barriers. Parking or operating a vehicle within or adjacent to the right-of-way may induce an electric charge on the vehicle. Induced charges may also be imposed on objects such as fences, signs, or any other conductive object. An engineering firm should be consulted to provide a proper grounding system to prevent induced electric shock. Construction vehicles operating near transmission lines should also be properly grounded.

No explosive or combustible liquid, substance, or material shall be located within the right-of-way. Prohibited materials include but are not limited to: fuel, wood chips, mulch, brush, and tires.

Vegetation

All vegetation on or adjacent to the right-of-way shall be low growing, (10-foot maximum mature height).

Shrubby planted near FirstEnergy structures (poles, towers, guys, etc.) shall allow for working area at ground level. (No closer than 10-feet from the structure, in any direction).

Access

No buildings, signs, billboards, swimming pools, decks, flag posts, sheds, barns, garages, playgrounds, fences or other structures shall be located within the right-of-way.

Truck and equipment access to all Transmission-line structures shall be provided at all times.

No septic systems or wells shall be located within the right-of-way.

Lighting fixtures

No lighting fixtures shall be located within the right-of-way without written approval from FirstEnergy.

Grading/Excavation

No changes to grade elevations within the right-of-way shall be made without written approval from FirstEnergy.

No excavations near Transmission structures (poles, towers, guys, etc.) shall occur without written approval from FirstEnergy.

Other activities

Kite flying, model airplane flying, or similar activities is prohibited on or near FirstEnergy right-of-way.

IX. Transportation

Mobility has become one of the most sought-after qualities of life of this century. The widespread use and development of automobiles, trucks and their road networks have enabled motorists to travel independently with great flexibility as to origins and destinations. Only recently, with increased congestion, has society begun to realize that the extensive use of the automobile may, in fact, be threatening both mobility, safety and quality of life. This realization has led to efforts to better understand the relationship between transportation planning and land use planning, and has created renewed interest in alternative modes of transport.



This chapter will inventory the Region's transportation system, beginning by categorizing roadway functional classifications, as determined by the PA Department of Transportation (PENNDOT), describing roadway design standards, and presenting available traffic volume data and accident locations according to PENNDOT records. A brief discussion of regional traffic impacts is followed by a description of alternative modes of transport and railway access. All of this data is then analyzed and applied to the Region's development objectives and other available plan information to form the basis for the chapter's recommendations on future transportation needs, land use scenarios and implementation strategies. Such information should also be useful in reviewing traffic studies associated with proposed developments. ***Lebanon County already has such requirements and will be incorporating PennDOT Transportation Impact Study (TIS) / Transportation Impact Assessment (TIA) requirements so that both local and State standards are the same and applicants are not forced to do two different traffic studies. Similarly, South Londonderry Township should adopt comprehensive traffic impact study regulations within their Subdivision and Land Development Ordinances.***

A. ROADWAY CLASSIFICATIONS AND DESIGN STANDARDS

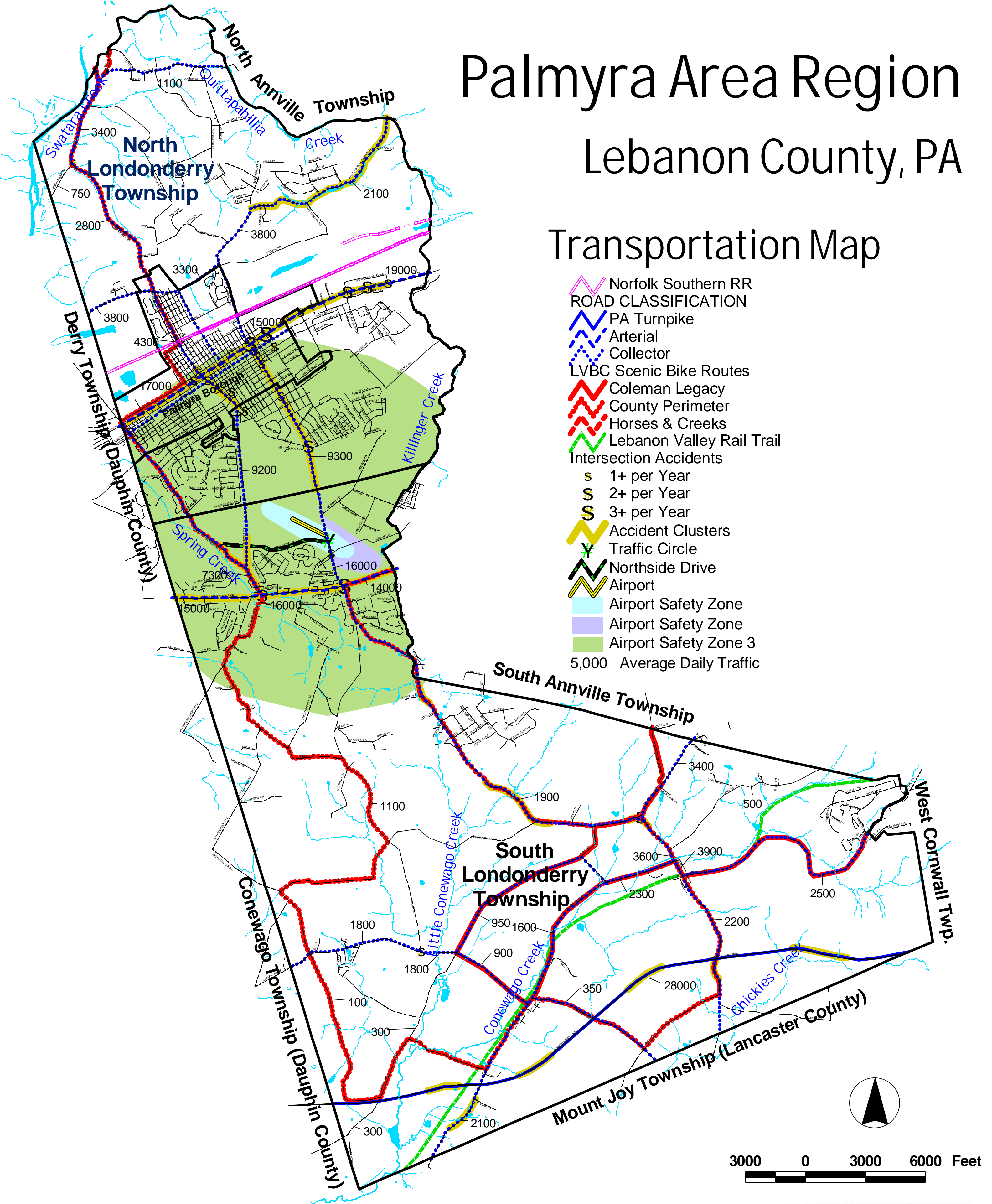
Functional classification of roadways refers to a system by which roads are described in terms of their utility. Theoretically, roads provide two separate functions. First, roads provide for mobility—the ability to go from one place to the next. Second, roads provide a measure of access to adjoining properties. Transportation experts use these two roadway characteristics to determine a road's functional classification.

The diagram on the following page depicts the relationship between roadway mobility and roadway land access for each of the three general road types. Roads that provide for greater mobility provide for reduced land access, and vice versa. This important relationship should always be considered when allocating future land uses along existing or planned roads. These road types can be further subdivided into any number of different categories, depending upon the complexity of the roadway network. However, for the purpose of this study, the Region's roadway network is described as consisting of three classes namely arterial, collector and local roads. The roads within the Region are classified and identified on the ***Transportation Map***.

Palmyra Area Region

Lebanon County, PA

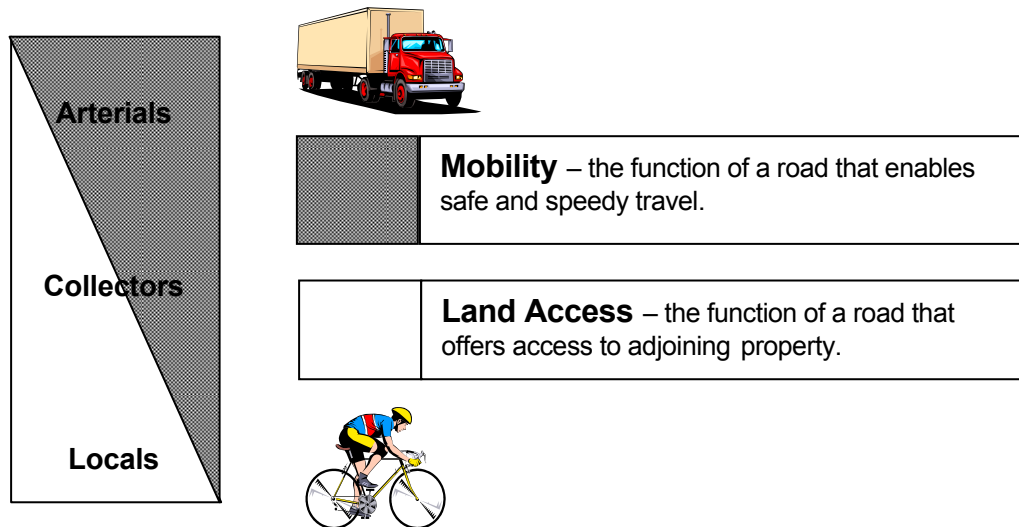
Transportation Map



Much of the information depicted on this map was obtained from the Lebanon County GIS Department.



Relationship of Mobility Versus Land Access in Determining Roadway Functional Classification



ARTERIALS

Arterial roads emphasize greater mobility than land access and individual driveway cuts should occur very rarely except in outlying rural areas. Arterials generally convey between 10,000 and 25,000 average daily trips (ADT) for distances greater than one mile. Arterials often connect urban centers with outlying communities and employment or shopping centers. Consequently, arterials are often primary mass transit routes that connect with “downtown” areas of nearby communities.

The Region’s arterial roads are limited to the US Routes 322 and 422 corridors. These major highways have unlimited access and serve as important commuting routes between Lebanon City to the east and Hershey and Harrisburg to the west. Both arteries follow an east-west alignment. It is noted that the Pennsylvania Turnpike (I-76) also traverses South Londonderry Township; however, because it is a limited access highway with no exits within the Region, it has not been included in this analysis.

The following sets forth design standards associated with arterial roads suitable for the Region:

ARTERIAL ROAD DESIGN STANDARDS						
Source: Guidelines for the Design of Local Roads and Streets, PA Dept. of Transportation, Bureau of Design						
Design Standards	No. of Lanes and Width	Shoulder Widths	Vertical Clearance	Median Width	Parking Lanes*	Design Speed (mph)
Desirable	5 x 12 ft.	10 ft on right; 4 ft on median	16.5 ft.	18 ft.	12 ft each when provided	60
Minimum	2 x 11 ft.	8 ft on right; 4 ft on median		0 ft.	10 ft each when provided	40

*limited to downtown locations

The following table summarizes the characteristics of the Region's arterial roads:

ARTERIAL ROADWAY CHARACTERISTICS						
Road Name	Municipality	Est. ADT (2007)	No. Lanes	Cartway Width	Shoulder Width L/R	MPH
US Route 322	S. Londonderry	15,309	2	24 ft.	0-8/0-8 ft	35-55
US Route 422 segments 10-30	Palmyra	16,944	2	30-40 ft.	0/0 ft.	25-40
US Route 422 segment 40	Palmyra	15,133	2	30-40 ft.	0/0 ft.	25-40
US Route 422 segment 50	Palmyra	19,274	2	30-40 ft.	7'8"/8 ft.	25-40
US Route 422	N. Londonderry	19,274	2	30 ft.	8/8 ft.	55

Based upon a comparison of the minimum arterial road design standards and the existing characteristics of the Region's arterial roads, the only one identified deficiency exists that should be incorporated into the Region's future transportation improvements "wishlist":

NEEDED IMPROVEMENTS TO ARTERIAL ROADS			
Route No.	Municipality	Cartway improvements	Shoulder Improvements
US Route 322	S. Londonderry	NA	Add 8 feet to each shoulder where none is provided.

* Shoulder improvements are not proposed within the Borough due to its urban context with adjoining sidewalks and limited adjoining area.

COLLECTOR ROADS

Collector roads provide for medium length travel distances (generally less than one mile) and convey between 1,500 and 10,000 ADT. Collectors also provide land access to major land uses such as regional shopping centers, large industrial parks, major subdivisions, and community-wide schools and recreation facilities. Collectors primarily serve motorists between local streets and community-wide activity centers or arterial roads. These streets can serve as the main circulation roads within large residential neighborhoods. Trip lengths tend to be shorter in "developed" neighborhoods, like that of a borough, due to the presence of nearby destinations or higher order roads. However, within the rural areas of the Region these roads travel greater distances.

The Region has several important collector routes that "criss-cross" each municipality; the following summarizes those that are most heavily travelled. First PA Route 117 which becomes Forge Road connects several of the Villages in South Londonderry Township with

Palmyra Borough and North Londonderry Township. Both Palmyra Road and Lingle Avenue connect the Village of Campbelltown with Palmyra Borough and North Londonderry Township. Railroad Street within Palmyra Borough extends into North Londonderry Township via Gravel Hill Road. Ridge Road offers east-west connections between Palmyra Borough and North Londonderry Township as well as adjoining municipalities. PA Route 241 connects the Villages of Colebrook and Lawn and extends south towards the Borough of Elizabethtown, in adjoining Lancaster County.

COLLECTOR ROAD DESIGN STANDARDS						
Source: Guidelines for the Design of Local Roads and Streets, PA Dept of Transportation, Bureau of Design						
Design Standards	No. of Lanes and Width	Shoulder Widths	Vertical Clearance	Median Width	Parking Lanes	Design Speed (mph)
Desirable	5 x 12 ft.	10 ft on right; 4 ft on median	14.5 ft.	16 ft.	10 ft each when provided	60
Minimum	2 x 10 ft.	8 ft on right; 4 ft on median		2 ft. when provided	8 ft each when provided	40

The following table summarizes the characteristics of the Region's collector roadways:

COLLECTOR ROADWAY CHARACTERISTICS					
Road Name (#)	Est. ADT (2007-8)	No. Lanes	Cartway Width	Shoulder Width L/R	MPH
Collector Roads within North Londonderry Township					
Bindnagles Rd. (SR4012)	751	2	20 ft.	0/0/ft.	45
Campbelltown Rd. (SR 3019)	3615	2	22 ft.	3/2/ft.	40-45
Forge Rd. (PA Route 117)	9343	2	22-40 ft	0-3/0-3 ft.	40
Gravel Hill Rd. (SR 4011)	2815	2	20 ft.	3-4/3-4 ft.	40-55
Lingle Ave. (SR 3017)	3864	2	24 ft.	0-2/2 ft.	40
Palmyra/Bellegrove Rd (SR 4008)	2090	2	20 ft.	2/2 ft.	45
Ridge Ave/Old Forge Rd (SR 4008)	3801	2	20-22 ft.	2-3/0-3 ft.	35-45
Syner Rd. (SR4010)	1112	2	22 ft.	0-3/0-3 ft.	40
Collector Roads within Palmyra Borough					
Cherry Street	3980	2	34 ft.	curbed	25
Earl Drive	1501	2	34 ft.	curbed	25
Forge Street (PA 117)	9343	2	40 ft.	0/0/ft.	35-40

COLLECTOR ROADWAY CHARACTERISTICS					
Road Name (#)	Est. ADT (2007-8)	No. Lanes	Cartway Width	Shoulder Width L/R	MPH
Grant Street (SR 4009)	3712	2	28-50 ft.	0/0 ft.	35
Lingle Ave. (SR 3017)	4134	2	28 ft.	0-2/0-2 ft.	35
Railroad Street (SR 3009)	9248	2	22 -34 ft.	0-3/0-3 ft.	25
Railroad Street (SR 4011)	4288-5110	2	33-40 ft.	0/0-6 ft.	35-40
Ridge Ave (SR 4008)	3260-3801	2	20-22 ft.	2-3/2-3 ft.	35-40
Collector Roads within South Londonderry Township					
Bachmanville Road (PA 241)	6531	2	18-20 ft.	0-4/0-4 ft.	45
Colebrook Road (PA 341)	1494	2	20 ft.	2-5/2-5 ft.	45
Elizabethtown Road (PA 241)	1108	2	20-22 ft.	0-4/0-5 ft.	35-50
Forge Road, Main St. Lancaster Rd. (PA 117)	4253	2	18-22 ft.	2-4/3-4 ft.	35-45
Lawn Hill Rd, Lawn Rd, Main Street (SR3007)	631	2	16-18 ft.	0/0 ft.	35-45
Lingle Ave. (SR 3017)	3864	2	24 ft.	1/1 ft.	40
Manheim Road (SR 3005)	2213	2	22 ft.	3-4/3-4 ft.	40-55
Mt Wilson Road (PA 241)	3138	2	24-26 ft.	3-4/3-4 ft.	40
Palmyra Road (SR 3019)	5471	2	22 ft.	3/3 ft.	35-45

Based upon a comparison of the minimum collector road design standards and the existing characteristics of the Region's collector roads, the following lists identified deficiencies. It is important to note that the following recommendations relate solely to each roadway's reported design deficiency and does not prioritize, evaluate the feasibility or available right-of-way width, or consider the availability of funding for such improvements.

NEEDED IMPROVEMENTS TO COLLECTOR ROADS		
Route No.	Twp.	Shoulder Improvements
Bindnagles Rd. (SR4012)	North Londonderry Township	Add 8' to each shoulder
Campbelltown Rd. (SR 3019)		Add 5-6' to each shoulder
Forge Rd. (PA Route 117)		Add 5-8' to each shoulder
Gravel Hill Rd. (SR 4011)		Add 4-5' to each shoulder
Lingle Ave. (SR 3017)		Add 6-8' to each shoulder
Palmyra/Bellegrove Rd (SR 4008)		Add 6' to each shoulder
Ridge Ave/Old Forge Rd (SR 4008)		Add 5-6' to each shoulder
Syner Rd. (SR4010)		Add 5-8' to each shoulder
Bachmanville Road (PA 241)	South Londonderry Township	Add 4-8' to each shoulder
Colebrook Road (PA 341)		Add 3-6' to each shoulder
Elizabethtown Road (PA 241)		Add 4-8' to each shoulder
Forge Road, Main St. Lancaster Rd. (PA 117)		Add 4-6' to each shoulder
Lawn Hill Rd, Lawn Rd, Main Street (SR3007)		Add 8' to each shoulder
Lingle Ave. (SR 3017)		Add 7' to each shoulder
Manheim Road (SR 3005)		Add 4-5' to each shoulder
Mt Wilson Road (PA 241)		Add 4-5' to each shoulder
Palmyra Road (SR 3019)		Add 5' to each shoulder

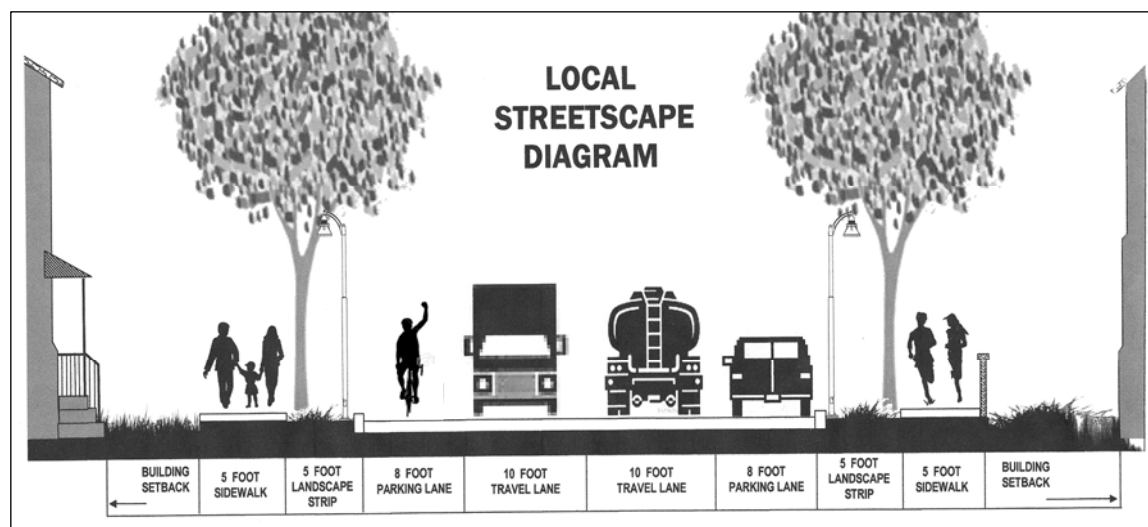
** Shoulder improvements are not proposed within the Boroughs due to their urban context with adjoining sidewalks and limited adjoining area.*

LOCAL ROADS

Local roads are intended to provide immediate access to adjoining land uses. These roads are generally short and narrow, and comprise the bulk of road area within urban areas like the Region. Local roads are intended to only provide for transportation within a particular neighborhood, or to one of the other road types already described.

The following describes the design standards for local streets suitable for the Region:

LOCAL ROAD DESIGN STANDARDS						
Source: Guidelines for the Design of Local Roads and Streets, PA Dept. of Transportation, Bureau of Design						
Design Standards	No. of Lanes and Width	Shoulder Widths	Vertical Clearance	Median Width	Parking Lanes*	Design Speed (mph)
Desirable	2 x 12 ft.	10 ft on right	14.5 ft.	None	10 ft each	30
Minimum	2 x 10 ft.	6 ft on right			8 ft each	20



All of the Region's roads that are not classified as arterials or collectors are considered local roads. ***Local officials should compare existing local road conditions with the above standards and initiate a campaign of local road improvement in those areas experiencing greatest traffic flow and/or accident frequency.***

In addition, developers along local roads should be required to dedicate additional right-of-way and improve local road frontage according to such local standards as part of the land development process. The Region should develop standard road design criteria that can be used to ensure seamless road corridors as one moves from one municipality to the next.

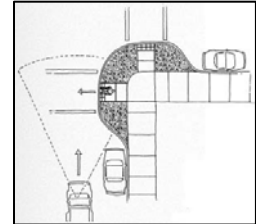
The goals for this Plan suggest a departure from past suburban growth and development patterns. The design of local streets often determines that character of a neighborhood. In the past Townships favored wider curvilinear street patterns that emphasized the use of off-street parking. These features complimented the sprawling suburban pattern of residential development which has dominated the last half of the 20th century.

However, as growing greener initiatives are gaining popularity, these consumptive road design standards are being replaced with more pedestrian-oriented requirements that better fit within compact residential neighborhoods. Grid street patterns with limited use of cul-de-sacs offer ease of direction and provide greater inter-neighborhood connectivity. Narrower cartways with on-street parking and even narrower pedestrian crossings reduce vehicle speeds within neighborhoods thereby balancing pedestrian and vehicle mobility. Sidewalks with landscape strips and shade trees extend throughout the neighborhoods and offer

passive recreation and fitness opportunities and pedestrian connectivity beyond the confines of one subdivision. “Complete Streets” are designed and operated to enable safe access for all users regardless of age or ability; they balance the needs of all modes of transport (i.e. automobiles, bicycles, pedestrians, and mass transit).

Each municipality should begin to target select new neighborhoods for these local streetscape designs when they can compliment a more compact residential development form and/or when new developments are proposed that adjoin existing developments that have sidewalks in place.

The municipalities should also attempt to link key public facilities (schools, parks and playgrounds, shopping areas, etc.) with a collector sidewalk system. This sidewalk system should provide for sidewalk extensions at designated crosswalks with imprinted surfaces that differentiate such crosswalks from the sidewalk and street cartway. Suitable surface treatments include stamped and painted asphalt, stamped concrete and thermoplastic materials. Often these routes also serve as important bike routes and the municipalities should require that important destinations provide for permanently installed bike racks. Decorative street lighting should also be provided along these important pedestrian routes to facilitate nighttime use and safety. Cut-off fixtures should be used to confine lighting impact from spilling onto adjoining residences. Finally, way-finding signs can be used along designated routes to guide pedestrians and cyclists.



In some cases, these sidewalks will follow State-owned roads and the municipalities will need to seek opportunities for public improvement projects. Local Officials should seek to utilize a variety of techniques for this purpose such as developer exactions or donations for deferred road improvements, block grants, growing greener grants, customary transportation grants and even mandatory dedication fees-in-lieu of open space (assuming key sidewalks are identified as part of its linear park system). Cross-country trails and paths can provide the same pedestrian linkages and/or offer key interconnects with established sidewalk networks. Some municipalities are beginning to earmark mandatory dedication fees-in-lieu for target linear park projects.

Last, South Londonderry Township has considerable areas that are to be preserved in their rural condition. The southern half of the Township is largely agricultural and/or wooded in character. The Lebanon County Comprehensive Plan acknowledges this character by recommending that South Londonderry Township focus its growth elsewhere into compact villages and devise strategies for the preservation of farmlands and conservation lands.

Accordingly, the Township’s planned growth within this rural area will be limited and can be easily served by the residual capacity of the Township’s local road system in this vicinity. However, growth occurring outside of the Township generates traffic along the PA Routes 117, 241 and 341 corridors that pass through the Township daily. The driving habits of increasing daily commuters can threaten the rural character of an area. Excessive vehicle speeds, beyond posted speed limits contribute to frequent traffic accidents and threatens slow-moving farm vehicles on the road and those users who engage in recreational

activities upon the road and roadside.

Often society's response to such conditions involves the improvement of heavily-traveled roads by widening travel lanes and shoulders, straightening curves, and leveling the road surface. Accordingly, the carrying capacity of such roads increases along with vehicle speeds. This, in turn, induces community growth as traffic flow through the community is eased. Both of these consequences are contrary to the goals of this plan. Local officials believe that road improvements to increase road capacity would only serve the development occurring in adjoining municipalities and invite unwanted traffic flow through South Londonderry Township. Local officials intend to keep roadway design and posted speeds consistent with the Township's rural context.

They intend to redirect their efforts in a manner that is more consistent with the Township's goal to preserve its rural character. They understand the need to work with County and State programs to improve the Township's arterial and collector road system so that convenient and safe "regional" traffic flow can occur through the Township. However, local officials believe that its local roads have sufficient unused capacity to meet the minimal traffic that would be generated by the Township's projected growth. Therefore, the Township will focus upon local road improvements that:

1. Divert ever-increasing high speed traffic that passes through the Township on a regular basis;
2. Enhance the safety of residents and motorists on the road;
3. Provide for the safe and convenient movement of farm equipment and vehicles;
4. Provide for the safe use of roads and roadsides by residents engaging in recreational activities (cycling, walking, horseback-riding, etc.);
5. Implement traffic calming measures: and,
6. Contribute to the Township's rural character.

As important as road design, is land use access. As discussed earlier in this Chapter, an effective conveyor of traffic cannot provide for unlimited land access. Each driveway or roadway intersection introduces conflicting traffic movements that reduce a road's ability to convey traffic quickly and safely. ***Therefore, new connections to the arterial and collector road system should be minimized to avoid unnecessary driveway and road cuts. Local officials must enforce strict policies that will minimize such connections to ensure efficient traffic flow. This process is a long-term strategy that will take many years and should start now! In addition, the Future Land Use scheme developed for this Plan specifically designed urban land use categories to minimize driveway connections with adjoining highways. Local officials should be mindful of these techniques when adjusting zoning boundaries.***

Zoning and subdivision/land development regulations can limit permitted driveway cuts, require wider lots, and provide for incentives and design flexibility that encourage adjoining properties to share vehicular access among other things (e.g., parking, loading, signage, storm water control, etc.). For access on State roads, local officials should work closely with PENNDOT officials to limit highway access to the minimum required. The Lebanon County Subdivision and Land Development Ordinance also includes access management requirements and locals should consider corresponding standards within local zoning and access management ordinances.

B. TRAFFIC SAFETY

In addition to reducing congestion, traffic safety is another important consideration in the scheduling of roadway improvements. High accident locations result from factors such as inadequate road design, insufficient sight distance, improper relationship between land use and road classification, improper speed limits, limited traffic enforcement and driver frustration/error. This section describes traffic accident statistics within the Region to gain a general understanding of their location and severity. This will help to ensure a proper relationship between land use and access.

The Pennsylvania Department of Transportation, Center for Highway Safety, provided accident data for the period between 2005 and 2007. This three-year period provides the most recent reportable accident data available. A reportable accident is one in which an injury or fatality occurs, or at least one of the vehicles involved requires towing from the scene. The locations of the majority of accidents discussed on the following pages have been plotted on the *Transportation Map*.



Specific accident locations are ranked by frequency for the Region. These specific locations are ranked and reported in two categories. First, accidents that occurred at specific intersections at two or more roads are identified and ranked. Second, accidents that occurred along one road between two roads, or mid-block accidents, are enumerated and ranked. Mid-block accidents also include accidents that occurred along public roads at an intersection with a driveway.

INTERSECTION ACCIDENTS

The following tabulates the number of traffic accidents that occurred at an intersection of two roads by municipality within the Region:

INTERSECTION ACCIDENTS (2005-2007)		
Palmyra Borough	North Londonderry Township	South Londonderry Township
124	74	60

It is common for more densely developed municipalities (e.g. Palmyra Borough) to experience greater numbers of intersection accidents due to the relatively shorter length of road segments (blocks) and the greater number of intersections.

The following table ranks those intersections that recorded at least one traffic accident per year between 2005 and 2007:

INTERSECTION ACCIDENTS (2005-2007)			
Rank	Intersection	Municipality	Total No. of Accidents
1	US Route 422 & PA Route 117	PB	12

INTERSECTION ACCIDENTS (2005-2007)			
Rank	Intersection	Municipality	Total No. of Accidents
2	US Route 422 and Duke Street	PB	9
2	US Route 322 & PA Route 117	SLT	9
3	West Cherry St. & South Lingle Ave.	PB	8
3	US Route 422 & Apple Blossom Lane	NLT	8
3	PA Routes 117 & 241	SLT	8
4	US Route 422 & Spruce Court	NLT	6
4	US Route 322 & Palmyra Road	SLT	6
4	PA 117 & Park Dr. / Leon Ave.	NLT	6
5	East Cherry Street & PA Route 117	PB	5
5	Gravel Hill & Bindnagles Roads	NLT	5
6	PA 117 & Fir Street	NLT	4
6	North Railroad St. & North Ave.	PB	4
6	West Cherry & South Railroad Sts.	PB	4
6	East Maple & Duke Street	PB	4
6	PA 117 & Hinkle Road	SLT	4
7	US Route 422 & Plaza Drive	NLT	3
7	S. Railroad & Elm Street	NLT	3
7	US Route 422 & Wal-Mart Entrance	NLT	3
7	US Route 422 & College Street.	PB	3
7	PA Route 117 & East Oak Street	PB	3
7	East Walnut & South Lincoln Streets	PB	3
7	US Route 422 & South Lingle Ave.	PB	3
7	Lawn & Colebrook Roads	SLT	3
7	Eby & Schoolhouse Roads	SLT	3

The worst traffic accident intersection within the Region is located within Palmyra Borough and at US Route 422 (Main Street) and PA Route 117 (Forge Road). Over 20,000 vehicles cross through this busy signalized intersection each day. Many of the accidents that occur here are the result of risky driver behavior when motorists attempt to beat the stop signal and or swerve around turning vehicles. The drainage at this intersection also creates hazardous standing pools of water and half of those accidents reported wet road surface conditions. Fortunately, a vast majority of the accidents that occur here (80%) involve only property damage with ten percent experiencing both minor and moderate injuries. Interestingly only 25 percent of the accidents occurred during either the AM or PM peak

traffic hours on weekdays, while 42 percent occurred during the weekend.

A similar traffic accident intersection is located at the eastern edge of the Village of Campbelltown where PA Route 117 crosses US Route 322. Again, this busy intersection conveys over 15,000 vehicles per day. This intersection had been notorious for lengthy traffic backups during peak traffic periods due to limited cartway width to accommodate dedicated turning lanes. Also, the angled alignment of PA Route 117 across US Route 322 reduces motorist visibility of oncoming vehicles. These conditions promoted risky driver behavior when motorists attempt to beat the stop signal and or swerve around turning vehicles. However, with the recent addition of dedicated left turn lanes on both sides of PA Route 117, this intersection should have greater capacity to safely convey more traffic in a controlled manner.

Another high accident location is located along US Route 422 at Duke Street within Palmyra Borough. Again arterial road traffic volumes of 15000 vehicles per day pass through this intersection each day. In this instance it would appear that the traffic accidents are largely the result of conflicting traffic movements of motorists who are travelling along the highway and motorists who are attempting to access the commercial land uses adjoining this intersection. The Palmyra Shopping Center and the more recent Sheetz convenience store likely generate considerable vehicle turning movements to and from Duke Street along the highway. These conflicts inherently breed the occasional traffic accident.

It is important to understand that traffic accidents occurring at intersections account for 38 percent of the total reported accidents within the Region. Of the total number of intersection accidents, Palmyra Borough accounts for 48 percent which is typical of a densely populated municipality with a tightly-knit grid street pattern with a higher rate of intersections per length of road segments. Mid-block accidents comprise the majority of accidents and this is typical to rural areas like the Palmyra Area Region that tend to have more road miles per intersection than more urban settings where intersections are more frequent. The following enumerates the frequency of mid-block accidents within the Region.

MID-BLOCK ACCIDENTS

Mid-block accidents are those accidents that occurred along one road between its intersections with two other roads. Mid-block accidents also include accidents that occurred along public roads at an intersection with a driveway.

The following tabulates the number of mid-block traffic accidents that occurred by municipality within the Region:

MID-BLOCK ACCIDENTS (2005-2007)		
Palmyra Borough	North Londonderry Township	South Londonderry Township
99	125	198

In contrast with intersection traffic accidents that are more likely to occur with densely populated municipalities (e.g. Palmyra Borough) mid-block traffic accidents occur with greater frequency in suburban and rural areas where road segment lengths extend for greater distances and the number of intersections is less frequent. Also the alignment and design of roads in outlying rural areas tend to lag behind those of developed areas where

newer road improvements have coincided with land use development.

The following table ranks the mid-block sites that averaged at least three reportable traffic accidents per year:

MID-BLOCK ACCIDENTS (2005 - 2007)					
Rank	Route	Total Accidents Region-wide	Accidents / Municipality		
			N. Londonderry	Palmyra	S. Londonderry
1	US 422	117	48	69	NA
2	I-76	55	NA	NA	55
3	PA 117	47	7	2	38
4	US 322	37	NA	NA	37
5	SR 4008	32	31	1	NA
6	PA 241	16	NA	NA	16
7	N. Forge Rd.	11	9	2	NA

Unsurprisingly, roads with the greatest traffic volumes record the highest number of mid-block accidents. This result is a matter of mathematical probability; however, beyond the sheer math there are other factors in play. For example I-76 has traffic volumes about 1.5 times that occurring on US Route 422 and yet Route 422's accident frequency is more than double than that along I-76. Whereas, the function and design of I-76 is solely to move vehicles, the US Route 422 corridor moves vehicles and provides for considerable land access to adjoining residences and businesses. This unfair comparison illustrates the dramatic impact that conflicting traffic movements can have on accident frequency. Unlimited access arterial and collector roads tend to record the highest relative accident frequency because of these conflicting road functions and the expectations of motorists who travel them.

Local officials should be ever mindful of these conflicts and the safety problems they create. Access management techniques described earlier should be used to coordinate road function with adjoining land use. Local officials should look to combine access drives, signs, and off-street parking and loading for businesses that are proposed along these important arterials and collectors. Parallel service roads can also separate local business traffic movements from higher speed through traffic flow. Similarly, rural residences along busy roads should share joint use driveways and flag-lot configurations to avoid numerous separate driveway cuts.

While the frequency of traffic accidents occurring along an entire road length is helpful in understanding potential traffic safety concerns relating to roadway function, localized road segment data can identify acute roadway design deficiencies and or the need for targeted police enforcement. Traffic accident mapping provided by the Pennsylvania Department of Transportation, Center for Highway Safety identifies the following high-crash clusters; these road segments are part of other intersection and mid block accidents listed in the above tables and these designated road segments are specifically depicted on the Transportation Map.

High Crash Cluster Road Segments	
Municipality	Road Segment
Palmyra & N. Londonderry	US Route 422 east of Duke Street to Wal-Mart Drive
Palmyra & N. Londonderry	South Forge Road (entire length)
N. Londonderry	Palmyra / Bellegrove Road (entire length)
Palmyra Borough	Main Street (entire length)
Palmyra Borough	Railroad Street (south of Arch Street)
South Londonderry	I-76 (various segments)
South Londonderry	US Route 322 (entire length)
South Londonderry	PA Route 117 (various segments)
South Londonderry	PA Route 241 (south of I-76)
South Londonderry	Mount Wilson Road (south of I-76)

The following table lists reportable accident types and severity along with probable contributing factors by municipality in the Region:

ACCIDENT TYPES, SEVERITY & FACTORS (2005 - 2007)				
	Region	N. Londonderry	Palmyra	S. Londonderry
Accident Type				
Non-collision	27	4	4	19
Rear-end	164	53	67	44
Head-on	23	8	4	11
Backing-up	1	0	0	1
Angle	203	49	115	39
Sideswipe	21	1	6	14
Hit fixed object	220	79	23	118
Hit pedestrian	9	4	4	1
Unknown	13	2	0	11
Total Accidents	681	200	223	258
Accident Severity				
Fatal	1	0	1	0
Major injury	19 (20 people)	6 (6 people)	5 (6 people)	8 (8 people)
Moderate injury	68 (82 people)	16 (21 people)	19 (21 people)	33 (40 people)
Minor injury	180 (241 people)	35 (51 people)	77 (99 people)	68 (91 people)
Unknown injury	71	33	25	13
Property damage only	341	110	94	137
Accident Location				
Intersection	258	74	124	60
Mid-block	422	125	99	198

ACCIDENT TYPES, SEVERITY & FACTORS (2005 - 2007)				
	Region	N. Londonderry	Palmyra	S. Londonderry
Probable Driver Factors				
Too Fast	209	71	36	102
Wrong Side	17	0	8	9
Other Factors	100	27	39	34
Distraction	74	20	29	25
Tailgating	7	0	7	0
Improper clearance	74	18	47	9
Improper turn	53	12	25	16
Ran Stop sign – Red light	51	10	32	9
Driver illness	46	8	12	26
Over/under compensation	20	8	0	12
Careless pass/lane change	9	0	0	9
Inexperience	7	7	0	0
Sudden stop	31	13	18	0
Probable Environmental Factors				
Ice / Snow	55	23	8	24
Glare	6	3	1	2
Deer / animal	24	4	2	18
Windy conditions	2	1	1	0
Other weather	47	10	21	16
Other env. factor	20	8	1	11
Roadway factor	15	8	2	5
Obstacle on road	7	0	1	6
Inadequate shoulder	3	0	0	3
Substance on road	2	0	0	2

The Region recorded 681 total reportable traffic accidents between 2005 - 2007. This rate is typical to the Region's varied settings and its road network. South Londonderry Township recorded the highest number of traffic accidents with about 38 percent of the Region's total accidents. North Londonderry Township recorded the fewest accidents with 29 percent of the Regional total. Within the Townships, about 71 percent of all accidents occurred at mid-block locations and within the Borough 56 percent of all accidents occurred at an intersection of two roads.

Throughout the Region, almost one-third of all accidents involved a vehicle colliding with a fixed object. This often results in more rural settings where winding rural roads and excess speeds combine. These collisions are much more frequent within the Townships than within the Borough where only 10 percent are fixed-object collisions. Angled vehicle collisions occur at a rate of about 29 percent across the Region but account for over 51 percent of accidents within Palmyra Borough. Rear-end collisions are the third most frequent accident type and occur at only a slightly higher rate within the Borough as compared within the two Townships.

Half of all traffic accidents occurring within the Region involved property damage only with no injuries reported. Three percent of those accidents reported major injuries, ten percent reported moderate injuries and 26 percent reported minor injuries. These ratios generally held across the Region from one municipality to the next. One fatal traffic accident occurred within the Region within Palmyra Borough when a pedestrian crossed US Route 422 at a mid-block location late at night and was struck by a passing vehicle.

The single greatest contributing factor to traffic accidents within the Region was improper vehicle speed accounting for nearly 31 percent of all accidents. Improper vehicle clearance and motorist distraction each accounted for about 11 percent of all accidents. Improper turns, failure to stop at a traffic control device (e.g. stop sign or traffic light) and driver illness each accounted for about seven percent of all traffic accidents.

Environmental factors also contributed to traffic accidents. Ice and snow contributed to 55 accidents most of these within the two Townships. Deer and animals also caused traffic accidents in nearly four percent of the Region's total with $\frac{3}{4}$ of these occurring within South Londonderry Township.

C. REGIONAL TRAFFIC PATTERNS

Analysis of the average daily traffic volumes for the Region's roads provides some insight into the Region's role as a destination and/or thoroughfare.

The Pennsylvania Turnpike conveys approximately 28,000 vehicles per day through the Region; however, since no exit is located within the Region, such vehicles enter this highway outside of the Region. Without an exit (other than the service exit for the Lawn rest stop) the turnpike does not offer any destinations.

As expected, US Routes 322 and 422 carry the heaviest volumes of traffic through the Region in an east-west direction. First, US Route 422 records the highest traffic volume along the eastern edge of the Region of 19,000 which reduces by about 4,000 vehicles per day (ADT) once within the Borough. Of these 4,000 vehicles, some originate within the Borough while others merely divert onto Forge Road. Along the western border of the Region volumes increase to 17,000 along the Dauphin County line again resulting from trips generated within the Borough and/or diverted from Railroad Street and Lingle Avenue. Clearly the Borough's street system is significantly affected not only by this through traffic (15,000 – 17,000 vehicle per day) but by those thousands of vehicles who either enter or depart this corridor within the Borough boundaries.

Along US Route 322, the highest volumes of daily traffic (16,000) are recorded within the center of the Village of Campbelltown which reduces on either end of the Village. This local increase is not only due to those residents who generate traffic but from the collection of traffic which arrives from adjoining collector roads (e.g. Mount Wilson, Forge Road and Palmyra Roads). It would appear that the volumes of traffic along Man Street within Palmyra Borough and Main Street within the Village of Campbelltown are similar.

Collector Road volumes are highest between Palmyra Borough and the Village of Campbelltown. Forge Road carries the most traffic at a volume of 16,000 ADT that suggests it be re-classified as an arterial road. This volume may be lessened once the ongoing Northside Drive road project is completed and traffic re-directs to follow a better course. Local officials should monitor traffic volumes along Forge Road and, if necessary,

lobby the Lebanon County Metropolitan Planning Organization to reclassify Forge Road if volumes persist above 10,000 ADT.

Palmyra Road carries about 7,300 vehicles per day less than half of that of Forge Road. A redistribution of traffic along the new Northside Drive route may affect this volume and local officials should monitor redirected traffic flow.

North Railroad Street, and North Forge Road collect traffic to and from the Borough and disperse it into North Londonderry Township. Ridge and Palmyra/Bellegrave Roads appears to serve several hundred local commuters from within the Region plus several thousand who travel between adjoining North Annville and Derry Townships.

In the rural portions of South Londonderry Township, the Village of Colebrook records the highest volumes of traffic (3,600 – 3,900 ADT) where PA Routes 117 and 241 converge. Slightly less traffic flows through the Village of Mount Wilson (3,400 ADT). It would appear that approximately 4,000 vehicles travel to and from adjoining Lancaster County equally distributed between Elizabethtown and Mount Wilson Roads. Slightly more traffic (2,500 ADT) enters/exits the Region along Mount Gretna Road.

Periodically the local officials should prepare and update a list of key areas and locations that need safety improvements. Consensus should be reached by the Region's officials about the highest priority improvements, so that regional support is apparent when candidate projects are considered by the Lebanon County Metropolitan Planning Organization (LEBCO MPO). This will help to advance specific improvements, or studies of key areas that in turn would yield the greatest likelihood for support at the County and State level agencies who often determine which projects are selected for implementation.

D. PROGRAMMED TRANSPORTATION IMPROVEMENTS

"The Lebanon County Metropolitan Planning Organization (LEBCO MPO) is the local agency responsible for transportation planning and programming. It includes representatives from county and local government (elected officials, planning department, emergency management), local transit, aviation, and trail organizations, business and industry (including agriculture and tourism), as well as state and federal transportation agencies. LEBCO MPO provides the county with a collaborative planning forum to address transportation-related issues from a countywide and regional perspective and to plan for and make decisions on the use of federal transportation funds.

"The Lebanon County MPO is comprised of an MPO Policy Board and an MPO Technical Planning Committee which meet bimonthly at advertised meetings.

"The MPO Policy Board includes voting representatives from Lebanon County government, the City of Lebanon, Lebanon Transit (formerly County of Lebanon Transit), PennDOT's Central Office and District 8-0 office, Lebanon Valley Chamber of Commerce, and two representatives from the County's townships or boroughs. Non-voting, advisory members include representatives from the Federal Highway Administration, the Federal Transit Administration and the Environmental Protection Agency. The role of the Policy Board is to approve all actions of the MPO.

“The MPO Technical Planning Committee includes voting representatives from Lebanon County government, Lebanon County Planning Department, the City of Lebanon, Lebanon Transit, Lebanon Valley Economic Development Corporation, PennDOT’s Central Office and District 8-0 office, one representative from the county’s townships and one from the county’s boroughs, and one representative from the Aviation community. Non-voting, advisory members include representatives from the Federal Highway Administration, the Federal Transit Administration and the Environmental Protection Agency, Lebanon County/City Geographic Information Systems office, the agricultural community, Lebanon Valley Tourist Promotion Agency, Community of Lebanon Association, Lebanon Valley Rails to Trails, Lebanon County Emergency Management Agency and the Lebanon County Human Services Community Action Partnership. The role of the Technical Planning Committee is to provide procedural and technical guidance on the products and processes of the MPO.”¹

One of the principal duties of the LEBCO MPO is the development of an action plan for needed transportation-related improvements for the entire Lebanon County. “The Lebanon County 2011-2035 Long Range Transportation Plan identifies the county’s long-term transportation needs and strategies for improving the transportation network relative to the challenges of community development and growth. In doing so, the Plan fulfills the federal transportation planning requirements for the Lebanon County Metropolitan Planning Organization (LEBCO MPO), thus ensuring the county’s continued eligibility for Federal transportation funding.

“The plan includes short-term (1-4 years), medium-term (5-12 years) and long-term (13-25 years) projects and strategies to advance steady progress toward short, medium and long range system goals. The plan will be updated every four years to adapt to changing conditions and new county, regional and state priorities.”²

The Long Range Transportation Plan identifies \$109,109,873 worth of recommended highway / roadway projects over its 25 –year span which includes programmed projects, new projects and proposed studies. Within the Palmyra Area Region the Plan identifies 8 projects totaling \$17,388,000. The following tabulates these highway / roadway projects:

Lebanon County 2011-2035 Long Range Transportation Plan Recommended Improvements within Palmyra Area Region			
Highway Projects			
Project Description	Status	Estimated Cost	Schedule
Route 422 congested corridor improvement project (Cleona thru Palmyra)	Programmed TIP	\$786,383	2011
Route 422 congested corridor improvement project (Cleona thru Palmyra)	Programmed TIP	\$428,229	2012
Lingle Road betterment project (SLT) improved surface, drainage, and shoulders for bike/ped use.	All phases	\$980,000	1 – 4 years

¹ Lebanon County 2011-2035 Long Range Transportation Plan , pgs2-3.

² Ibid, pg. 1

Lebanon County 2011-2035 Long Range Transportation Plan Recommended Improvements within Palmyra Area Region			
Highway Projects			
Project Description	Status	Estimated Cost	Schedule
Maintenance & operational support computerized traffic signal system (Cleona thru Palmyra)	Plan project construction	\$100,000	2012-2014
Implement Bike-Ped Safety Improvements	All phases	\$400,000	1-4 years
US Route 422 ultimate sinkhole repairs following study (NLT)	All phases	\$2,000,000	5-12 years

The Long Range Transportation Plan identifies \$113,542,151 in bridge-related improvements over its 25-year span. Within the Palmyra Area Region the Plan identifies 9 projects within South Londonderry Township totaling \$1,801,745. The following tabulates these bridge projects:

Lebanon County 2011-2035 Long Range Transportation Plan Recommended Improvements within Palmyra Area Region			
Bridge Projects			
Project Description	Status	Estimated Cost	Schedule
Bridge replacement over Little Conewago Creek in SLT.	Preliminary engineering, environmental impact & final design	\$324,480	1-4 years
PA Route 117 Bridge in SLT	Final design	\$216,320	1-4 years
PA Route 117 Bridge in SLT	Utilities	\$11,249	1-4 years
PA Route 117 Bridge in SLT	R.O.W.	\$28,122	1-4 years
PA Route 117 Bridge in SLT	Construction	\$329,685	2013
PA Route 117 Bridge in SLT	Construction	\$66,916	2014
Colebrook Rd bridge over Little Conewago Creek in SLT	Final design	\$224,973	2013
Lawn Rd bridge over Little Conewago Creek (SLT)	All phases	\$300,000	5-12 years
Lawn Rd bridge over Little Conewago Creek (SLT)	All phases	\$300,000	5-12 years

The Long Range Transportation Plan identifies \$6,492,250 in non-motorized projects over its 25-year span. Within the Palmyra Area Region the Plan identifies 2 projects totaling \$240,000 that may affect South Londonderry Township. The following tabulates this non-motorized project:

Lebanon County 2011-2035 Long Range Transportation Plan Recommended Improvements within Palmyra Area Region			
Non-Motorized Projects			
Project Description	Status	Estimated Cost	Schedule
LVRT resurfacing from Lancaster Co. to Expo Center	Plan project construction	\$200,000	1-4 years
County-wide Program for Bike Rack Installation and/or Purchase of Special Event Bike Racks	Plan project construction	\$40,000	1-4 years

The Long Range Transportation Plan identifies \$850,000 in aviation-related projects over its 25-year span; however, funding for these projects is not included in the Transportation Improvement Program. Within the Palmyra Area Region the Plan identifies 1 project totaling \$50,000 that affect the Reigle Airport in South Londonderry Township. The following tabulates these aviation-related projects:

Lebanon County 2011-2035 Long Range Transportation Plan Recommended Improvements within Palmyra Area Region			
Aviation - Related Projects			
Project Description	Status	Estimated Cost	Schedule
Acquire snow removal equipment	Acquire equipment	\$50,000	1-4 years

The LEBCO MPO LRTP identifies \$21,091,059 in transit-related improvements over the 25-year span of the Long Range Transportation Plan. The Long Range Transportation Plan identifies \$21,091,059 in transit-related projects over its 25-year span. which includes programmed projects, new projects and proposed studies. With the completion of the Lebanon Transit Business Plan in June of 2008, the list of candidate transit projects in the LRTP has increased. While no specific project is assigned to the Palmyra Area Region the following is likely to be partially implemented there.

Lebanon County 2011-2035 Long Range Transportation Plan Recommended Improvements within Palmyra Area Region			
Transit - Related Projects			
Project Description	Status	Estimated Cost	Schedule
Purchase and Install Bus Shelters at Various Locations as per Lebanon Transit Business Plan and current routes.	Programmed construction	\$43,399	2012

In addition, the Lebanon County Long Range Transportation Plan suggests Interstate highway management, rail freight-related, and intelligent transportation systems projects, none of which have specific earmarks for the Palmyra Area Region. Certainly, some of these projects will affect the Region but none are assigned solely to the Region.

Finally it is important to remember that the Long Range Transportation Plan is not a funding program in and of itself. It sets the framework for the MPO to set project priorities and make difficult funding decisions when developing the biennial update of the Transportation Improvement Program.³

Review of the list suggests a thoughtful and reasonable set of proposed transportation system improvements that could be considered as high priorities. ***Officials should periodically review and update a list of priority projects for the Region. A consensus should be reached by the Region's officials about the highest priority improvements, so that regional support is apparent when candidate projects are considered by the Lebanon County Metropolitan Planning Organization (LCMPO).*** This will help to advance specific improvements, or studies of key areas that in turn would yield recommended improvements.

Finally, the Borough in collaboration with Lebanon County Metropolitan Planning Organization (LEBCO MPO) and the Lebanon County Planning Department undertook, and recently completed, a Main Street Corridor and Downtown Revitalization Study to blend the Borough's specific local planning initiatives with target recommendations from PennDOT's Congested Corridor Improvement Program (CCIP) study for the US Route 422 Corridor from Palmyra to Cleona. This study offers additional information, approaches and recommendations that can enhance vehicle, bicycle and pedestrian mobility within the central areas of Palmyra Borough. An excerpt from the Executive Summary of that study which provides a glimpse into its priority outcomes is contained on pages 222-223 in the Future Land Use Chapter. Borough Officials should pursue implementation of the various recommendations of this important plan alongside those contained herein.

Given the deliberate goals to limit new developments within the rural portions of South Londonderry Township to preserve its rural historic character, coupled with the existing agricultural and wooded land use patterns that exist here, local officials should consider sponsoring the following road segments for "scenic byways" designation from PENNDOT.

- Elizabethtown Road (PA Route 241) between the Village of Colebrook and the Dauphin County line; and
- Colebrook Road (PA Route 341) between Elizabethtown Road and the Dauphin County line.

"Pennsylvania Byways are designated by PENNDOT in support of local planning efforts to:

1. Enhance and improve the visual impact of specific routes
2. Maintain the natural resources and intrinsic qualities along specific routes
3. Educate residents and visitors on the history and culture of the Commonwealth
4. Provide enhanced opportunities for funding in related programs such as PENNDOT's Transportation Enhancements Program

"Any governmental entity can nominate a federal, state, or local highway, or portion thereof, to PENNDOT for consideration as a Pennsylvania Byway. If the road is not a state

³ Lebanon County 2009-2034 Long Range Transportation Plan (April 25, 2008), pg. 33

maintained highway, the local government or Federal agency that owns the highway must first designate the route. Concurrence from PENNDOT would designate the route a Pennsylvania Byway.”⁴ More nomination information is available on-line at the website:

www.dot.state.pa.us/PennDOT/bureaus/PlanRes.nsf/infoBPRPABywaysNominatingInfo

Once in place this designation protects the corridor from the erection of billboards and validates other local initiatives and design regulations aimed at preserving the corridor’s scenic beauty.

E. RAILROAD ACCESS

“Norfolk Southern Corporation is one of the nation’s premier transportation companies. Its Norfolk Southern Railway subsidiary operates approximately 21,000 route miles in 22 states and the District of Columbia, serves every major container port in the eastern United States, and provides superior connections to western rail carriers. Norfolk Southern operates the most extensive intermodal network in the East and is North America’s largest rail carrier of metals and automotive products. Norfolk Southern serves every major port on the East Coast between New York City and Jacksonville, Fla., and multiple private terminals; the Gulf ports of Mobile, Ala., New Orleans and St. Bernard, La.; Great Lakes ports; and numerous river ports. Within Pennsylvania, the company operates central yard operation centers in Allentown, Conway, Enola and Harrisburg. Overall, the Company operates 37,427 miles of track, 3,976 locomotives and 94,660 freight cars.”⁵

Within the Region 24 route miles of track cross both North Londonderry Township and Palmyra Borough in a east – west direction between the yards at Harrisburg and Allentown. Locally, 40 trains pass through the Region on a daily basis.

F. PEDESTRIAN & BICYCLE ACCESS

Sidewalks & Pedestrian-Friendly Streets – One of the themes of this Comprehensive Plan is to distinguish between “urban” areas where a full range of public services and utilities are provided, and “rural” areas where the protection of the natural environment is given priority over, and protected from, development. Consequently, areas depicted for growth and development should include schools, churches and parks with convenient access to them. These “urban” areas will also, by function, include higher relative densities.

As discussed earlier in this Chapter (See Local Streets) ***to offset increased congestion, all proposed developments within the identified growth areas should be fitted with sidewalks and curbs that are ADA-compliant.*** This will reduce reliance upon vehicular traffic for short trips and promote neighborly interaction. ***In existing neighborhoods that do not have sidewalks, local officials should seek to retrofit some pedestrian linkage with nearby civic uses, schools, commercial areas and adjoining neighborhoods.*** It may not be necessary to line both sides of every street with sidewalks, but some basic system that enables children to travel throughout the community would be a good gauge.

⁴ <http://www.dot.state.pa.us/PennDOT/bureaus/PlanRes.nsf/infoBPRPABywaysNominatingInfo>

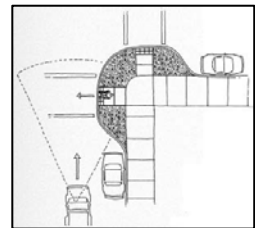
⁵ <http://www.nscorp.com/nscportal/nscorp/Media/Corporate%20Profile/>, Dec. 11, 2009.

Grid street patterns with limited use of cul-de-sacs offer ease of direction and provide greater inter-neighborhood connectivity. Narrower street cartways with on-street parking and even narrower pedestrian crossings reduce vehicle speeds within neighborhoods thereby balancing pedestrian and vehicle mobility. Sidewalks with landscape strips and shade trees extend throughout the neighborhoods and offer passive recreation and fitness opportunities and pedestrian connectivity beyond the confines of one subdivision. “Complete Streets” are designed and operated to enable safe access for all users regardless of age or ability; they balance the needs of all modes of transport (i.e. automobiles, bicycles, pedestrians, and mass transit).

Each municipality should begin to target select new neighborhoods for these local streetscape designs when they can compliment a more compact residential development form and/or when new developments are proposed that adjoin existing developments that have sidewalks in place.



The municipalities should also attempt to link key public facilities (schools, parks and playgrounds, shopping areas, etc.) with a collector sidewalk system. This sidewalk system should provide for sidewalk extensions at designated crosswalks with imprinted surfaces that differentiate such crosswalks from the sidewalk and street cartway. Suitable surface treatments include stamped and painted asphalt, stamped concrete and thermoplastic materials. Often these routes also serve as important bike routes and the municipalities should require that important destinations provide for permanently installed bike racks. The Lebanon Valley Bicycle Coalition (LVBC) recommends that bike racks conform to the Association of Pedestrian and Bicycle Professionals (APBP) guidelines for bike parking or the AASHTO Guide for the Development of Bicycle Facilities.



Decorative street lighting should also be provided along these important pedestrian routes to facilitate nighttime use and safety. Cut-off fixtures should be used to confine lighting impact from spilling onto adjoining residences. Finally, way-finding signs can be used along designated routes to guide pedestrians and cyclists.

In some cases, these sidewalks will follow State-owned roads and the municipalities will need to seek opportunities for public improvement projects. Local Officials should seek to utilize a variety of techniques for this purpose such as developer exactions or donations for deferred road improvements, block grants, growing greener grants, customary transportation grants and even mandatory dedication fees-in-lieu of open space (assuming key sidewalks are identified as part of its linear park system). Cross-country trails and paths can provide the same pedestrian linkages and/or offer key interconnects with established sidewalk networks. Some municipalities are beginning to earmark mandatory dedication fees-in-lieu for target linear park projects. Trails for bicycles should have suitable stable surfaces, lane painting and signage.

Bike Routes –

The Lebanon Valley Bicycle Coalition (LVBC) was organized in 2008 to make Lebanon County a better place to bicycle. They work with elected officials and municipal, county and state governments to make certain that new road projects or redesigns consider the needs of bicyclists. They want cyclists to have the necessary skills to be able to bicycle for their transportation, recreation and health.⁶

One of the LVBC's past projects lists 11 different scenic bicycle routes totaling 376 miles throughout Lebanon County. Of these, the following three scenic bike routes cross portions of the Palmyra Area Region that are depicted upon the Transportation Map; it is important to note that these maps can change throughout the life of this Comprehensive Plan:

1. **The Coleman Legacy Route** - A 33 mile tour that features many of the significant remnants left by the Coleman Family's 18th and 19th economic heritage throughout Lebanon County. Within the Palmyra Area Region the course follows a route of approximately 9 miles in length along Mount Pleasant, South Forge, Epler, Lawn, Elizabethtown, Mount Wilson and Mount Gretna Roads, all through South Londonderry Township. Highlights include historic homes, churches, a summer resort, a traditional Welsh-like Village and the Cornwall Furnace.
2. **The Horses and Creek Route** – A 30 mile tour that passes grain, dairy and horse farms that have been established in response to the siting of the Penn National Race Track and Hollywood Casino. Within the Palmyra Area Region, this course takes a slight detour across the Quittapahilla Creek into North Londonderry Township for approximately ½ mile along Gravel Hill, Syner, Glen and Patton Roads for a glimpse of the nearby historic Bindnagles Church.
3. **The Lebanon County Perimeter** - A 100-102 mile tour that encircles Lebanon County. Within the Palmyra Area Region the trail follows a 24+ mile course that:
 - Enters North Londonderry Township along Gravel Hill Road;
 - Extends south into the Borough and then passes through the western half of Palmyra Borough;
 - Follows Lingle Ave and Palmyra Road into Campbelltown;
 - Exits Campbelltown to the south along several rural roads;
 - Passes through Lawn and over Lawn Hill;
 - Turns north through Colebrook;
 - Follows PA Route 117; and turns west along US Route 322 where it exits the Region.

In addition the Lebanon County Bicycle Transportation Map has been developed by Lebanon Valley Bicycle Coalition, with the technical and financial assistance of Lebanon County Metropolitan Planning Organization and Penn DOT. This Map is available at

<http://www.lebcounty.org/Planning/Pages/MPO.aspx>.

Roads are identified that are most important for bicyclists' travel in the County as well as roads that have scenic, tourism value. Roads and road segments have been identified that have four feet or greater shoulders. The purpose of the Bicycle Transportation Map is to

⁶ <http://www.bikelebanon.org>

enable planners, municipalities, Penn DOT, developers to know which roads should be improved when road segments are scheduled for resurfacing, rehabilitation, reconstruction. An equally important function of the Map is to identify which roads should not become less safe due to changes being made in the roadways. These roads have been prioritized above other state and municipal roads in Lebanon County because they are deemed most important for connectivity.

As discussed above, new streets constructed within the urban areas of the Region should incorporate “Complete Street” designs that balance the needs of all users including bicyclists. The characteristics that make these streets safe for pedestrians have a similar effect on their use by bicyclists. Narrower cartways with pedestrian crossings all tend to lower vehicle speeds and alert motorists of the need to be aware of other users of the streetscape. This should facilitate a safe and convenient system of local roads and sidewalks that will accommodate enjoyable and functional bicycling.



However bicycle enthusiasts often look for more than a short ride through the neighborhood. As evidenced in the above Lebanon County Bicycle Transportation Map and those Proposed Bike Paths as depicted on the South Londonderry Township Official Map, longer commuting, recreational and competitive courses often extend into the countryside. Here lesser traffic exists that offers some security and safety to bicyclists. However, in rural areas roads tend to be narrower with limited or no shoulders.

As presented earlier in this Chapter, many of the Region’s collector roads lack sufficient shoulder width. At the same time these roads have relatively high traffic volumes and speed limits. Furthermore, the sinuous alignments of these rural roads often reduce roadway visibility around sharp turns, over abrupt rises and below quick dips. A motorist travelling 45 miles per hour, or faster, along one of these roads has very little reaction time and distance when overtaking or approaching a slow moving bicycle. One such unfortunate conflict between a cyclist and a motor vehicle can prove deadly to the cyclist who is impacted or the motorist who swerves off of the road to avoid impact with the cyclist and loses control of the motor vehicle.

The LVBC designated bike routes follow these roads for many miles, particularly within South Londonderry Township. ***Local Officials should seek to improve the shoulders, remove noncompliant edge line rumbles and replace hazardous grates along these designated bike routes as a priority, as opportunities arise through programmed road projects or as part of adjoining land use development projects. While lower posted speed limits have helped in some instances, enforcement in rural areas is difficult and motorists tend to disobey what they perceive as unnecessarily low speed limits.***



Cycling awareness signs, road markings and bicycle route signs can be helpful in alerting motorists of likely bicycle traffic. Reducing motorized vehicle travel lanes, where possible, in favor of wider shoulders will help to reduce driving speeds and thereby improve cycling safety. Finally, education of bicyclists will lessen the possibility of crashes and resulting injuries of bicyclists and motorists.

LVBC recommends that the AASHTO Guide for the Development of Bicycle Facilities be used to make key intersections in the Region safer for bicyclists. These include PA Route 117 and US Route 322, Lingle Avenue and US Routes 422, 322 and Palmyra Road, US Route 422 and Forge Road.

LVBC recommends that the Manual on Uniform Traffic Control Devices (MUTCD) and Penn DOT approved Share the Lane road markings (sharrows) be installed and related MUTCD approved signage also be installed at appropriate locations. Penn DOT traffic engineers should undertake a review and make the decisions as to where these road markings and signs could be located.

- As discussed under the Linear Parks Section of Chapter VII (Public Facilities) the **Lebanon Valley Rail Trail** follows a road separated (except for designated crossings) continuous 15 mile course along the abandoned Pennsylvania Railroad right-of-way between 9th Street within the City of Lebanon to the Lancaster/Lebanon County line along South Londonderry Township's western border. Here the trail connects with the Conewago Recreation Trail which continues another five miles into Lancaster County. The **Lebanon Valley Rails-to-Trail, Inc. (LVRT)** acquired the corridor to develop a multiple use trail. Lebanon Valley Rails-to-Trail, Inc. is the non-profit organization formed in 1996 to spearhead this rail-trail's development and management. Future trail extensions are also underway and study. The LVBC recommends that trails for bicycles should have suitable stable surfaces, sufficient widths based on national guidelines, adequate lighting, lane painting and signage. The trails should be maintained throughout the year including snow and ice removal.

G. MASS TRANSIT

Lebanon Transit (LT) operates three divisions: a fixed route bus service, express service and paratransit service.



LT Fixed Route Buses run six days a week, from Monday through Saturday throughout Lebanon County, with additional service into Hershey and the Hershey Medical Center. An additional route to the Park City Mall in Lancaster operates every Saturday. All buses are equipped with wheelchair lifts.

Within the Palmyra Area Region the following fixed bus routes operate:

- Route 8 operates Monday-Friday between 6:00 AM and 4:55 PM. This route originates the terminal in Lebanon City with various stops anchored along US Route 422 to the west of the City. Within the Palmyra Area Region this route stops at key shopping centers, industries and roadside bus stops. This route also serves Hershey Park and the Hershey Outlets.
- Route 8 operates Saturday between 7:30 AM and 3:30 PM. This route originates the terminal in Lebanon City with various stops anchored along US Route 422 to the west of the City. Within the Palmyra Area Region this route stops at key shopping centers, commercial attractions and roadside bus stops. This route also serves Hershey Park and the Hershey Outlets.

- Route 16 operates Monday-Friday between 3:15 PM and 11:35 PM. This route offers express service between Lebanon and Hollywood Casino via Hershey. Within the Palmyra Area Region this route stops at several locations along US Route 422.

Presently LT's fixed bus routes do not extend into South Londonderry Township.

Commute King Express operates two runs one along US Route 422 and the other along Interstate 81. Generally these routes operate between 6:00 AM and 9:00 then again in the afternoon between 3:00 PM and 6:00 PM. Both routes stop at the Palmyra Walmart and square.

LT Paratransit vans provide curb-to-curb service to and from any area within Lebanon County. This shared ride program operates a pre-scheduled (2:00 PM on the prior day) vehicle to pick-up multiple riders at their origins and delivers them to their destinations. This service extends throughout Lebanon County and is principally oriented to senior citizens and those with disabilities. Presently the service operates during weekdays between the hours of 8:00 A.M. and 2:00 P.M. All of our vans have wheelchair lifts.

According to County staff there is an ongoing feasibility study to expand commuter bus service and other improved means of public transit to the Palmyra Area Region; local officials should monitor and offer input this process. During the land development process, accommodations should be made for the location and construction of transit stops at significant development locations, in anticipation that transit service will be provided in the future.

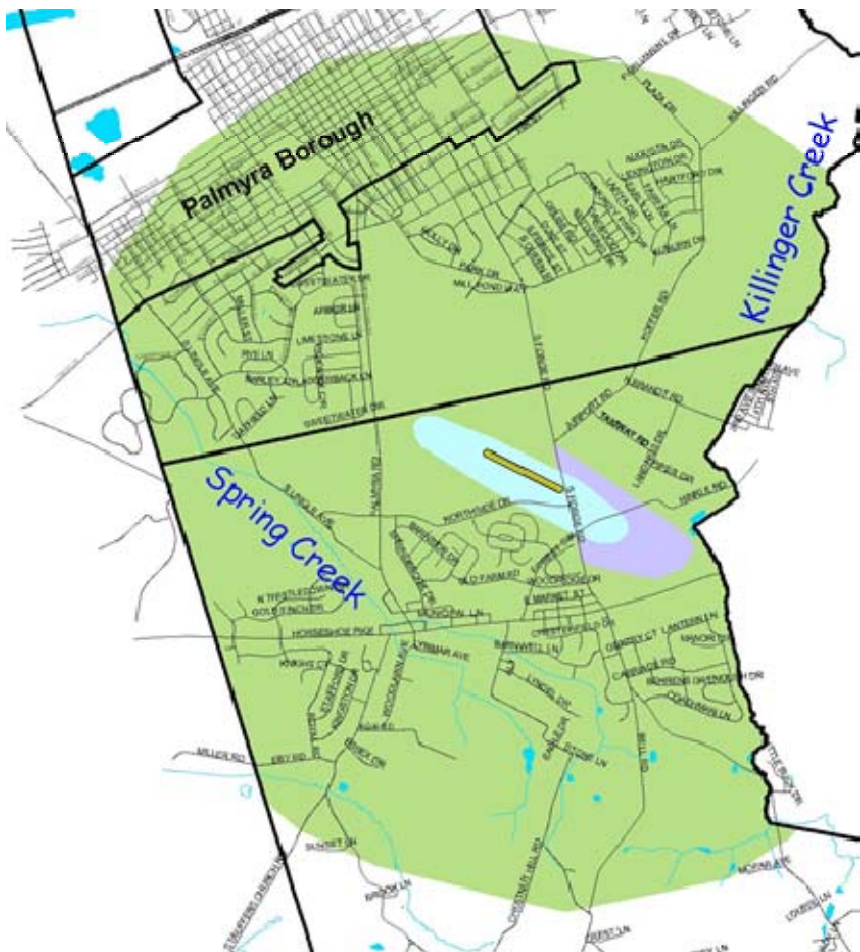
H. AIRPORTS

The Reigle Airport is located on the west side of Forge Road just north of Northside Drive within South Londonderry Township. According to the Commonwealth of Pennsylvania Airport Directory, this facility includes a 40 by 1950-foot asphalt runway. The site is provides for navigational lights and offers fuel, tie-down and hangar rentals, instruction and sales. Facilities include an administration building rest rooms, telephone and nearby taxis and motels. There are no commercial airlines that operate at this facility and this is a visual landing runway with navigational lights and a wind sock.

Section 212 of the South Londonderry Township Zoning Ordinance specifically regulates the height of structures and vegetation so as to protect the Airport Safety Zones for the Reigle Airport. Specifically it separates these into 3 Zones within which special information regarding proposed structure height must be submitted prior to building permit approval.

Article 12 of the Palmyra Borough Code creates and Airport Safety Zone. The accompanying map to this Section appears to depict outdated Airport Safety Zones upon which the regulations are based. The following map and that depicted on the Transportation Map relies upon dimensions used within South Londonderry Township, where the airport is located, (and as verified by the PA Bureau of Aviation) to depict the extent of the three Airport Safety Zones. Borough Officials should update this ordinance to include the most recent mapping of these affected areas. Section 12.05 requires that any use proposed in excess of 150 feet requires certification by a professional registered engineer that the proposed use will not violate the Federal Aviation Regulation No. 77.

North Londonderry Township has no Airport Safety zoning regulations in effect. Because the Reigle Airport's Airport Hazard Areas extend within North Londonderry Township, Township Officials should implement suitable zoning restrictions.



X. Future Land Use

One element important to the comprehensive planning process is the charting of appropriate future land uses and growth areas. This effort embodies all of the background information collected regarding natural features, public facilities and utilities, existing land use, population studies, and traffic patterns. Then, these resources are allocated in a manner that responds to the Region's, as expressed in the Community Planning Goals in Chapter II. ***What results is a future land use map that should be used to adjust zoning boundaries, and help properly locate future municipal investments, so as to maximize their efficiency. This chapter should be used in conjunction with the Future Land Use Map. Also, the Future Land Use Plan can guide and justify decision making regarding all sorts of other municipal activities and functions (e.g. grant applications, utility and infrastructure planning, public improvements and investments, etc.)***



The preparation of the Future Land Use Map was accomplished according to several “ground rules”; an understanding of these “ground rules” will lead to a better understanding of the Plan's recommendations.

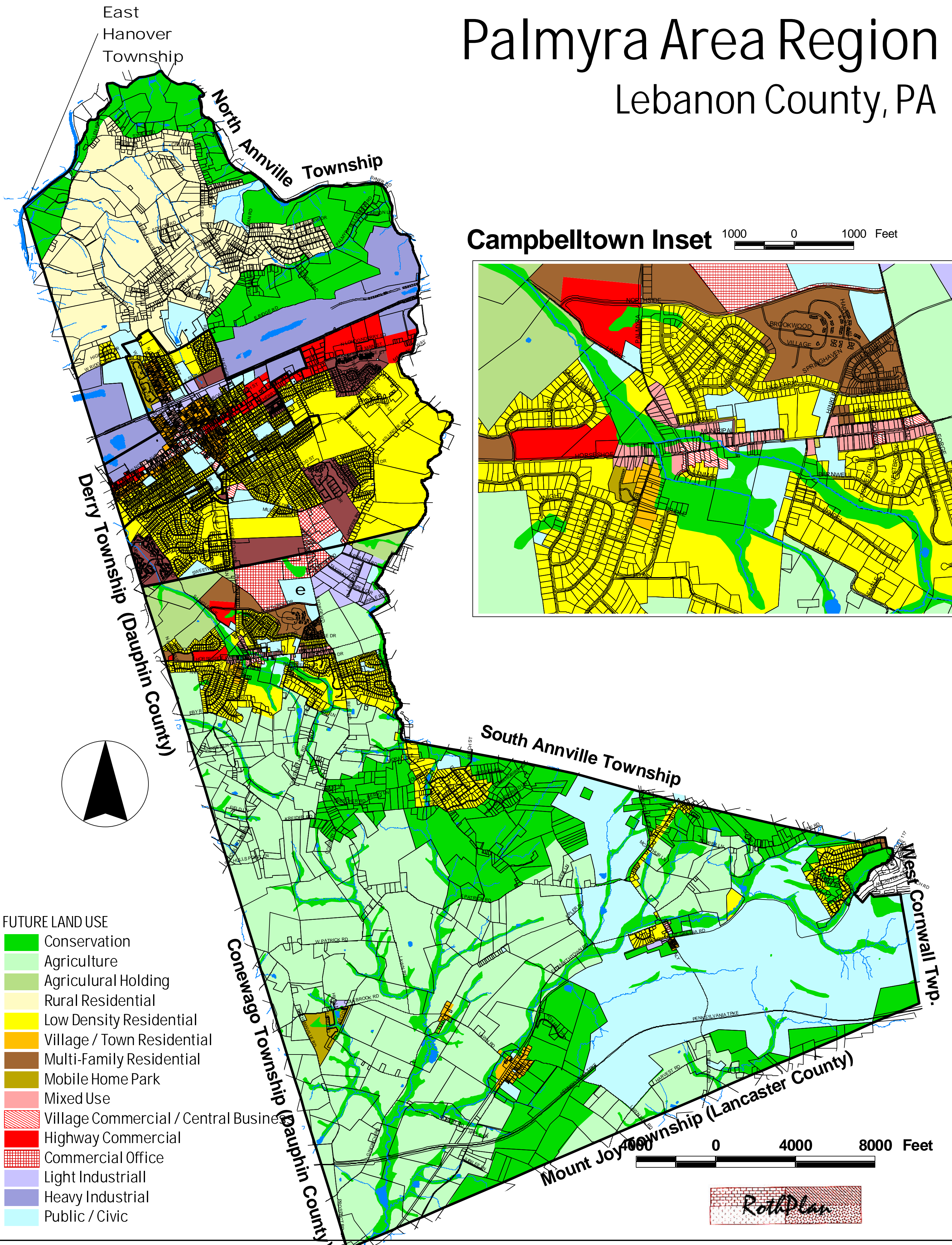
First, this Plan is designed to address future conditions until the year 2020. Accordingly, future growth areas have been generally located and sized to accommodate the growth that is projected during this time frame. This results in a “staged” future land use scheme that (1) reduces the conversion of productive farmlands and sensitive natural features, (2) confines development areas so that public improvements and services can be provided efficiently to a compact area, and (3) predominately focuses infill development around existing settlements. ***The benefits of this approach are significant, but require that the municipalities commit to the Plan's updating on or before the year 2020.***

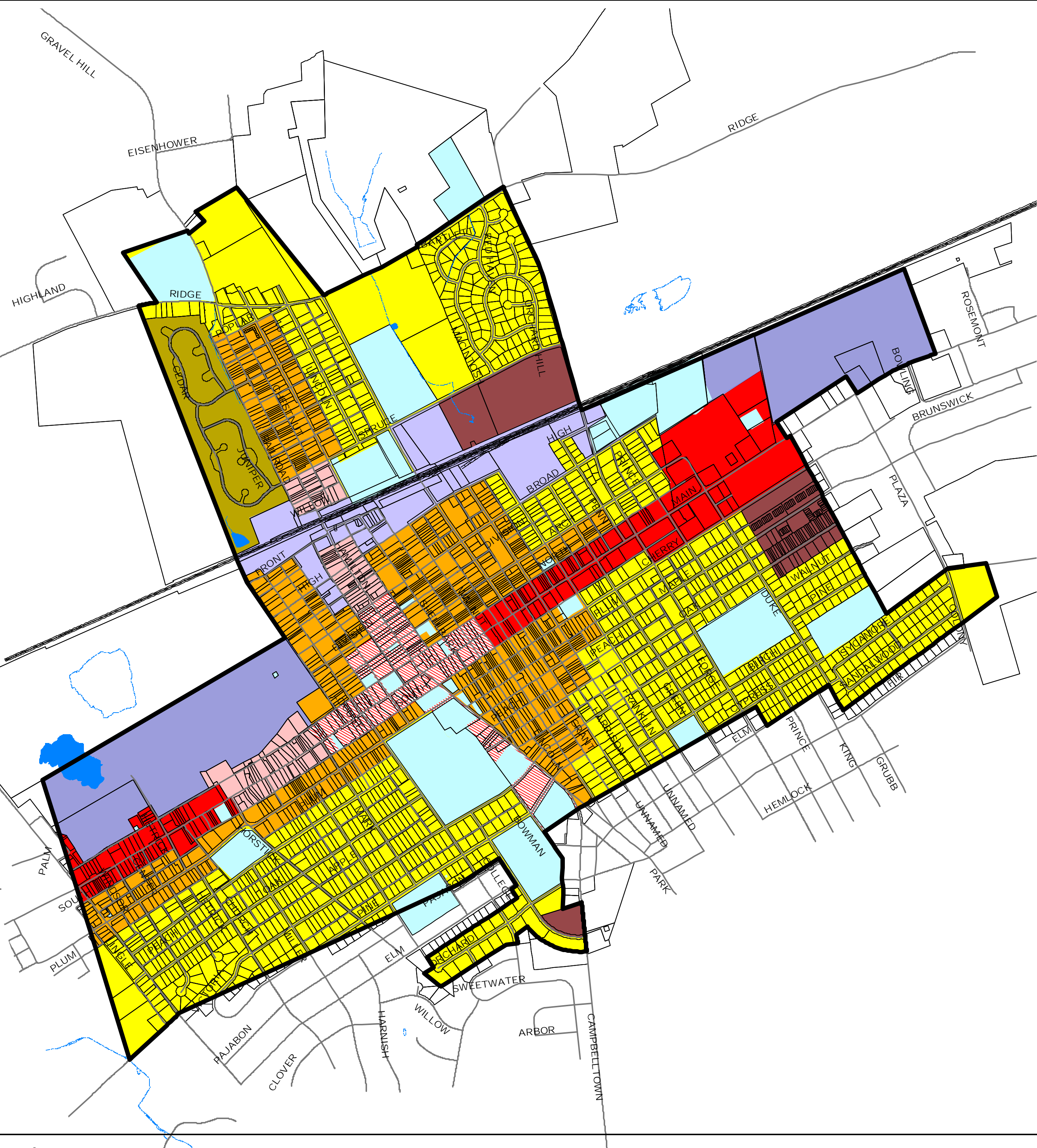
Second, a great deal of emphasis was placed on existing land uses in developed areas. In some limited cases, existing development types were recommended for changes to another land use category to enhance compatibility. In rare instances, existing uses were not reflected to suggest the need for change within that given locale toward which regulatory efforts can strive. Similarly, isolated land uses (particularly scattered businesses) within the rural landscape are not identified. This helps to convey the Plan's overall approach towards targeted growth in designated growth areas and conservation of outlying natural features and farms. Furthermore, this document deals with future land use on a property-by-property basis; however, in rural settings individual home sites upon farms are not reflected as they are considered a part of the farming principal use. Overall, this emphasis on existing land use will keep the Plan practical and should make it more useful to local officials in their evaluation of future land use decisions.

Third, based upon goals to concentrate development where public utilities are provided, much of the designated future growth is located within North Londonderry Township. Existing public sewage capacity limitations within South Londonderry Township prevent large planned growth areas beyond those “pipeline development projects” that have already reserved sewage treatment capacity within the Township's various treatment plants. Within

Palmyra Area Region

Lebanon County, PA





PALMYRA FUTURE LAND USE

- Low Density Residential
- Town Residential
- Multi-Family Residential
- Mobile Home Park
- Mixed Use
- Central Business
- Highway Commercial
- Light Industrial
- Heavy Industrial
- Public / Civic



Palmyra Borough some undeveloped land still exists which is planned for development; however, these areas are small when compared against those planned uses within adjoining North Londonderry Township.

Fourth, this Plan distinguishes between “town and village” areas in which planned growth will be served by public utilities and services and the “country” where rural landscapes prevail. Within South Londonderry Township agricultural preservation and the conservation of natural features is the priority with limited growth potential. Within the northern half of North Londonderry Township the Plan promotes a rural independent lifestyle with low density neighborhoods.

Fifth, another important goal that strongly influences the future land use pattern relates to local business promotion. Local officials hope to promote local business ownership and operation, offer locally-based employment and generate local tax revenues. Therefore, the Plan proposes continued revitalization of the Main Street corridor within Palmyra Borough and the Village of Campbelltown that are specifically configured and located to promote such uses that are “home-grown” and won’t threaten the local economies. Other outlying commercial and industrial nodes have been placed at logical locations that are sized to accommodate larger and more intensive uses that would disrupt neighborhoods within Palmyra Borough and the Village of Campbelltown.

Last, this Chapter establishes a cornerstone of this Plan and will directly implement one of the goals articulated at the outset of this planning process by local officials as follows:

“Structure the Plan and its policies to enable a regional allocation of various land uses through the future development of one regional or individual zoning ordinance(s).”

The regional allocation of land use is a recent advancement available within Pennsylvania. The Municipalities Planning Code (MPC) has two applicable sections that enable this technique:

1. Section 811-A. of the MPC specifically authorizes a regional allocation of land use when a regional plan is adopted and implemented through a joint zoning ordinance of the participating municipalities. It states:

“Area of Jurisdiction for Challenges. *In any challenge to the validity of the joint municipal zoning ordinance, the court shall consider the validity of the ordinance as it applies to the entire area of its jurisdiction as enacted and shall not limit its consideration to any single constituent municipality.”*

2. Section 916.1.(h) of the MPC specifically authorizes a regional allocation of land use when a regional plan is adopted and individual zoning ordinances generally implement the Plan. It states:

“Where municipalities have adopted a multi-municipal comprehensive plan pursuant to Article XI but have not adopted a joint municipal ordinance pursuant to Article VIII-A and all municipalities participating in the multi-municipal comprehensive plan have adopted and are administering zoning ordinances generally consistent with the provisions of the multi-municipal comprehensive plan, and a challenge is brought to the validity of a zoning ordinance of a participating municipality involving a proposed use, then the zoning hearing board or governing body, as the case may be, shall consider

the availability of uses under zoning ordinances within the municipalities participating in the multi-municipal comprehensive plan within a reasonable geographic area and shall not limit its consideration to the application of the zoning ordinance on the municipality whose zoning ordinance is being challenged.”

These sections authorize this Plan’s use of a regional allocation of land use to be implemented either through a joint zoning ordinance for all of the municipalities or through individual zoning ordinances that are administered in a manner generally consistent with this Plan. This Chapter presents recommended land use categories that are meant to specifically guide subsequent zoning policies. These categories correspond to those depicted on the Future Land Use Map.

Finally, this Comprehensive Plan will only be effective if it is implemented. While there are numerous recommendations made throughout the Plan that do not require new regulations, land use protection will ultimately demand revised zoning and subdivision and land development ordinances. Palmyra Area Region should quickly and firmly align its development policies and practices to reflect the recommendations within this Plan in accordance with Section 303.(d) of the Municipalities Planning Code.

A. CONSERVATION

The Palmyra Area Region has a landscape with vast areas of environmental sensitivity and public ownership. PA State Gamelands No. 145 contains approximately 2816 acres of typically wooded land that is available for hunting, fishing, hiking and other passive pursuits. In addition various campgrounds and sportsmen’s clubs are located and best accommodated within outlying wooded settings. Conservation Zones also depict areas characterized by protected floodplains and wetlands and other resources that should be spared disturbance from intensive developments (e.g. steep slopes, hydric soils, riparian buffers and concentrations of mature woodlands) All of these features offer scenic beauty, natural habitats and passive recreation opportunities that are foremost in the minds of many local officials and residents and form the basis for the assignment of the Conservation Zone.

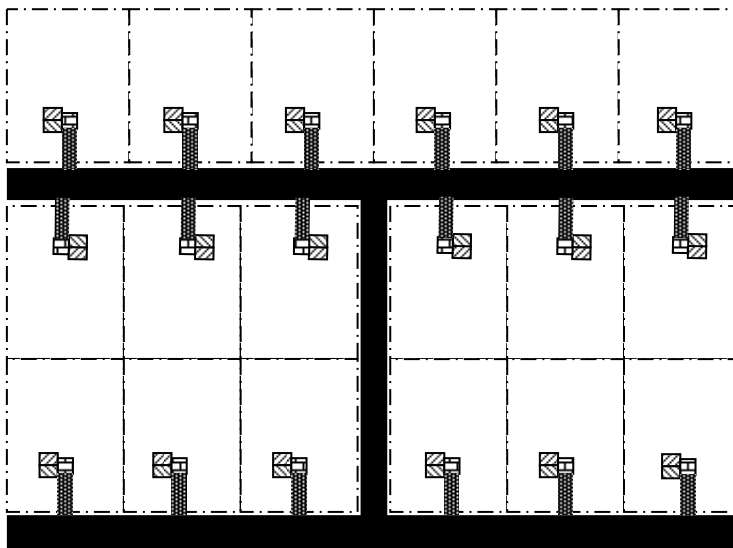
Both Townships within Region share in these critical areas. Current case law suggests the limitation of residential development within these areas at 1 dwelling unit per each 3 acres. This precedent is based upon a case in which a municipality sought to impose a minimum lot size greater than 3 acres which was successfully challenged. The Court decided that requiring such a large lot size was exclusionary because it elevated the cost of building lots to a point where many would-be residents could not afford them.

On the other hand recent amendments to the Municipalities Planning Code emphasize the need for local governments to strengthen their protection of natural features. By applying a ratio form of zoning density (like that in agricultural zoning) where a lot is permitted based upon a prescribed number of acres, the number of new units allowed can be kept low to protect the overall setting while at the same time keeping the cost of lot ownership reasonable. This approach has the added benefit of reducing the impacts to the natural areas by confining disturbance and clustering development in a smaller area. This enables the “critical mass” of woodlands and habitats to remain intact while not depriving prospective landowners of “reasonable use” of their land. ***For this reason it is recommended that the Region apply this rural cluster approach in its new***

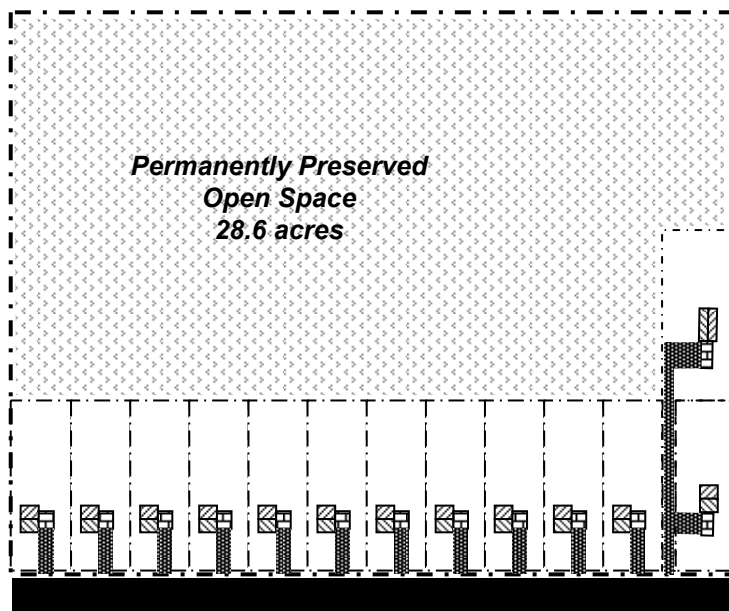
Conservation Zone. This Zone should enable the development of detached homes at a rate of one per each 3 to 5 acres.

COMPARISON OF STANDARD 2-ACRE MINIMUM LOT AREA ZONE vs.

RURAL CLUSTER DEVELOPMENT WITH DENSITY OF 1 LOT / 3 ACRES & 1 ACRE MINIMUM LOT SIZE



Max. Density - 1 lot per	2 ac.
Min. Lot Size (ac.)	2
Min. Lot Width (ft.)	200
Min. Front Setback (ft.)	50
Total Lots (Acres)	18 (36.6)
Total Street ROW (ac.)	3.4
Street Coverage (ac.)	2.03
Building Coverage (ac.)	.82
Driveway Coverage (ac.)	.41
Total Coverage (ac.)	3.26
Total Open Space (ac.)	0



Proposed Zone	C
Max. Density - 1 lot per	3 ac.
Min. Lot Size (ac.)	1
Min. Lot Width (ft.)	150
Min. Front Setback (ft.)	50
Total Lots (Acres)	13 (13.4)
Total Street ROW (ac.)	0
Street Coverage (ac.)	0
Building Coverage (ac.)	.60
Driveway Coverage (ac.)	.43
Total Coverage (ac.)	1.03
Total Open Space (ac.)	28.6

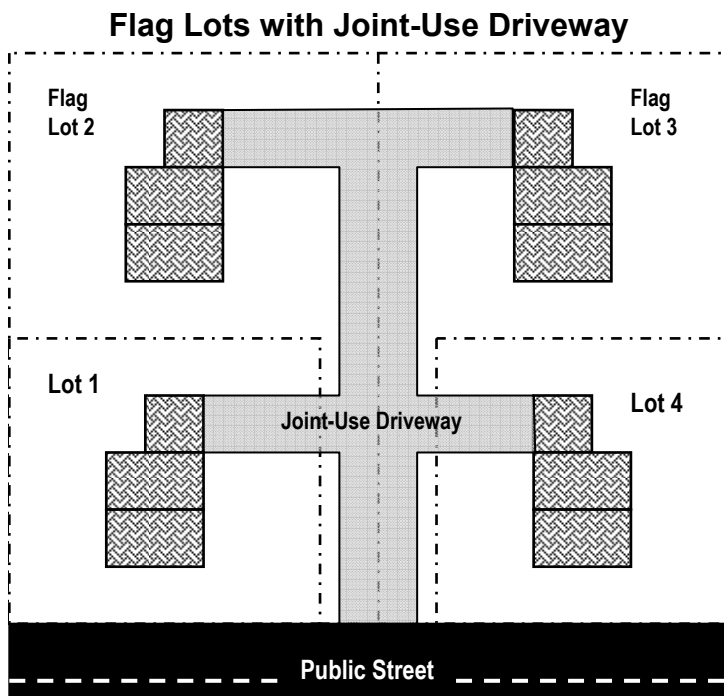
As can be seen in the above comparison, the use of a rural cluster approach offers the ability to accommodate a rural level of development and still reduce impact and permanently preserve large contiguous areas of open space.

ASSUMPTIONS

- 41 acre site
- 1000 square foot driveways (50 by 20 feet)
- 2000 square foot building footprints
- 60-foot street ROW with 36-foot cartway

For this approach to work optimally, it is important that several other features be integrated within the Conservation Zone. **First, a certain amount of design flexibility should be "built-into" this Zone. While lot sizes should be at least one acre in size to**

accommodate on-lot sewers with primary and back-up disposal fields, lot width, and setback requirements should be kept small so that homes can be situated amid the rugged terrain without the need for variances. In addition, the use of flag lots and shared driveways can help to tuck small clusters of homes amid the “nooks and crannies” of a natural landscape thereby enabling the preservation of vast and/or inter-connected areas elsewhere on the same parcel.



While the Conservation Zone offers a general perspective on the presence of conditions with a given locale, the specific location and extent of these features will require more detailed refinement and analysis during preliminary plan review of the subdivision process. **Consequently, applicable subdivision and land development regulations should require the preparation of an environmental impact report as a prerequisite to subdivision of new lots.** Such requirements can be contained within municipal environmental protection zoning regulations. This report should require an applicant to identify important natural features on the site and keep proposed development activities away or manage impacts within acceptable levels.

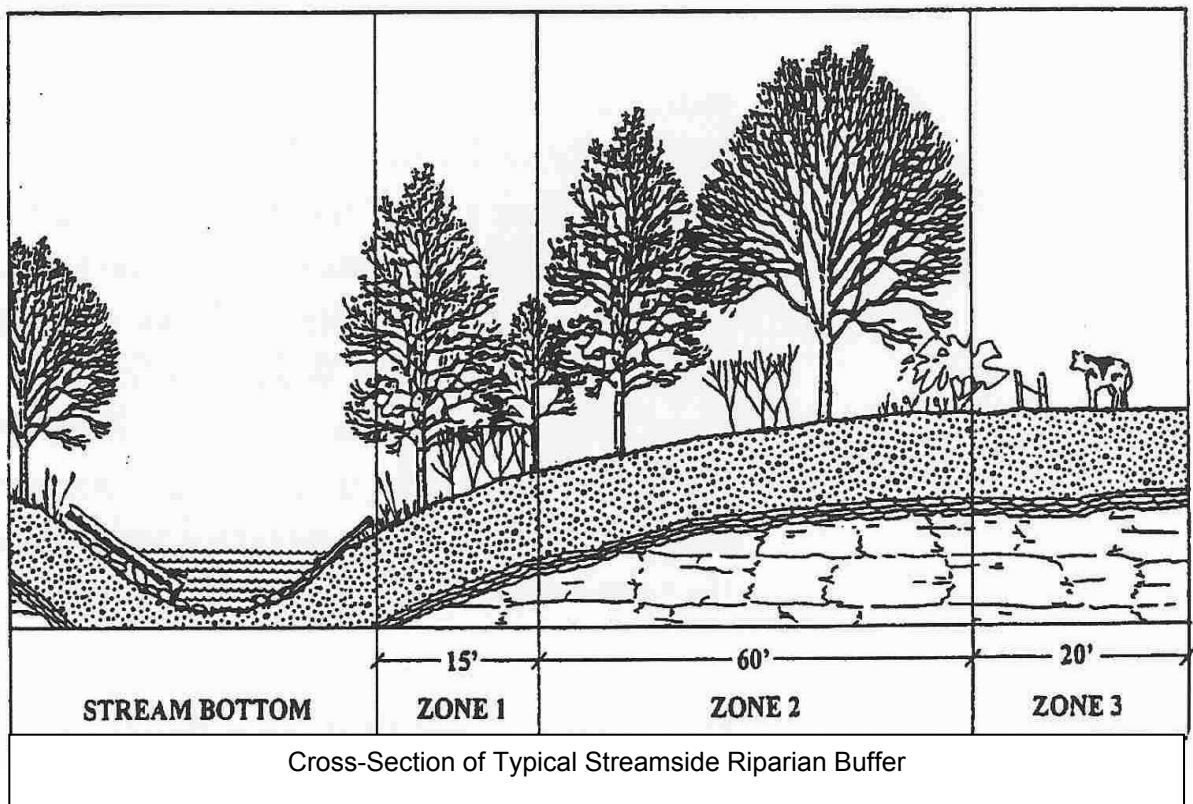
Prospective developers should be required to demonstrate that their proposed use engaged a proper site planning process to identify, protect and maintain important natural features during and after site construction. This will require considerable work on the part of an applicant and the municipality but will ensure that proposed developments are designed to respect the Region’s valuable natural features.

Since this Zone contains the largest areas of woodland, specific requirements should be imposed upon forestry and logging operations in accordance with recent changes to the Municipalities Planning Code. Such regulations should ensure that a suitable timber harvesting plan complies with required conservation laws and practices. A recent amendment to the MPC requires that forestry uses be permitted by right within every zone of every municipality within the Commonwealth. Since forestry uses typically occur within conservation settings this discussion is presented here; however, **each municipality must permit forestry uses in each of its zones.** At about the same time the MPC was amended to require forestry uses, the Pennsylvania State Township Association of Supervisors (PSATS), Pennsylvania State University (PSU) and PA Department of Conservation and Natural Resources (PA DCNR) prepared a model ordinance to help regulate and monitor forestry operations. **An updated and revised copy of this model ordinance that has been reviewed by various County Conservation Districts is contained on page 193 which should be applied throughout the Region.**

As described above the Conservation Zone depicted on the Future Land Use Map, includes

FEMA Floodplains, alluvial soils, US Department of Interior Wetlands and riparian buffers. While protection of floodplains and wetlands are widely accepted land use management techniques, recent awareness of diminishing surface water quality suggests the need for more protection for surface water. Because some of the Townships' streams have been identified as "Impaired Waters" (see pages 29-30 of this Plan) each Township should initiate a program to improve surface water quality.

Studies conducted by the U.S. Forest Service demonstrate that 60-to-95-foot wide riparian buffers offer real advantages in the removal of harmful nutrients and sediment from storm water before it enters the stream. These same riparian buffers can increase the food supply and create interconnected natural systems of movement for local wildlife. Riparian buffers are areas adjoining streams where naturally successive vegetation is provided and protected. More information about this subject can be found on pages 111-114, and a model ordinance is contained on page 194 of this Chapter.



SECTION 1 FORESTRY USES MODEL ORDINANCE

- A. FORESTRY PERMITTED IN ALL DISTRICTS** - In accordance with State law, forestry (as defined herein) uses are permitted, by right, in every Zone, subject to the following standards:
- B. TIMBER HARVESTING PLAN REQUIREMENTS** - Every landowner on whose land timber harvesting is to occur shall obtain a zoning permit, as required by this Ordinance. In applying for said permit, the applicant shall prepare and submit a written timber harvesting plan in the form specified below. No timber harvesting shall occur until a zoning permit has been issued. The provisions of the permit shall be followed throughout the operation. The timber harvesting plan shall be available at the harvest site at all times during the operation, and shall be provided to the Zoning Officer upon request. The landowner and the operator shall be jointly and severally responsible for complying with the terms of the timber harvesting plan and the zoning permit. All timber harvesting operations will be conducted only in accordance with this ordinance and the approved timber harvesting plan.
- A forest regeneration plan that identifies the principle species of trees intended to be logged and their respective method or methods of forest regeneration, including each species respective forest regeneration schedule (i.e. in terms of years.) As soon as practical and consistent with sound forest management practices, after the conclusion of the timber harvesting operation, the applicant(s)/owner(s) shall cause to be implemented the forest regeneration schedule of the timber harvesting plan.
 - Site Plan** - Each timber harvesting plan shall include a scaled drawing containing the following information:
 - Site location and boundaries, including both the boundaries of the property on which the timber harvest will take place, and the boundaries of the proposed harvest area within that property;
 - Significant topographic features related to potential environmental problems and all of the natural and cultural features required within this Article 5 of this Ordinance;
 - Location of all earth disturbance activities, such as roads, landings and water control measures and structures;
 - Location of all crossings of waters of the Commonwealth; and,
 - The general location of the proposed operation to municipal and State highways, including any accesses to those highways.
 - Compliance With State Law** - The timber harvesting plan shall address and comply with the requirements of all applicable State regulations, including, but not limited to, the following:
 - Erosion and sedimentation control regulations contained in Title 25 Pennsylvania Code, Chapter 102, promulgated pursuant to The Clean Streams Law (35 P.S. §691.1. et seq.); and,
 - Stream crossing and wetlands protection regulations contained in Title 25 Pennsylvania Code, Chapter 105, promulgated pursuant to the Dam Safety and Encroachments Act (32 P.S. §693.1 et seq.).
 - Relationship of State Laws, Regulations and Permits to the Timber Harvesting Plan** - Any permits required by State laws and regulations shall be attached to and become part of the timber harvesting plan. An erosion and sedimentation pollution control plan that satisfies the requirements of Title 25 Pennsylvania Code, Chapter 102, shall also satisfy the requirements for the timber harvesting plan and associated maps specified in Sections 1.B.1. and 1.B.2., provided that all information required by these sections is included or attached.
 - Required Marking of Trees** - Before any permitted timber harvesting operation begins, all trees that are at least six (6) inches in diameter as measured four and one-half feet (4.5') above grade to be felled in connection therewith shall be clearly marked on the trunk and the stump so that the same may be easily identified both before and after a tree has been felled. No tree shall be felled which has not been designated for removal on the approved timber harvesting plan.
- C. REQUIRED NOTIFICATIONS**
- The holder of a permit to conduct a timber harvesting operation shall notify the Township in writing at least forty-eight (48) hours before any cutting of trees is to begin including, but not limited to, those in connection with the construction of roads or trails. Such notification shall also indicate an estimated completion date.
 - The holder of a permit to conduct a timber harvesting operation shall notify the Township in writing within forty-eight (48) hours of the completion date of the timber harvesting operation.
- D. REQUIRED FOREST PRACTICES**
- The following requirements shall apply to all timber harvesting operations:
 - Timber harvesting shall be accomplished with those professionally-accepted silvicultural practices that are most appropriate to the particular timber stand as indicated in the approved timber harvest plan.
 - No treetops or slash shall be left within the fifty (50) feet of any public street, private roadway providing access to any adjoining residential property or Residential Zone, adjoining property or designated trail; or within ten (10) feet of any natural or artificial swale or drainage ditch. All tree tops and slash shall be lopped to a maximum height of four (4) feet above the ground.
 - Felling or skidding on or across property of others is prohibited without the express written consent of the owners of such property. No treetops or slash shall be left on or across the boundary of any property adjoining the operation without the consent of the owner thereof.
 - Littering is prohibited and litter resulting from a timber harvesting operation shall be removed from the site on a daily basis.
 - All cutting, removing, skidding and transporting of trees shall be planned and performed in such a manner as to minimize the disturbance of or damage to other trees and vegetation and the land itself, unless authorized in the approved timber harvesting plan.
 - Roads and trails shall be constructed, maintained and abandoned in such manner as to prevent soil erosion and permanent damage to soil and waterways.
 - Roads and trails shall be only wide enough to accommodate the type equipment used and grades shall be kept as low as possible.
 - Where possible, stream crossings shall be avoided, but where deemed to be necessary, crossings shall be made at a right angle across suitable culverts or bridges.
 - Skidding across live or intermittent streams is prohibited except over bridges or culverts.
 - Unless superseded by the Erosion and sedimentation control regulations contained in Title 25 Pennsylvania Code, Chapter 102, promulgated pursuant to The Clean Streams Law (35 P.S. §691.1. et seq.), "No Timber Harvesting Buffer Zones" are established in accordance with the following table. Except for the construction and use of roads and trails described in the approved timber harvesting plan, no trees shall be cut, removed, skidded or transported in a No Timber harvesting Buffer Zone.
- | No Timber Harvesting Buffer Zones | |
|---|--------------------------|
| Use | Required Minimum Setback |
| Adjoining street | 50 feet |
| Adjoining property | 50 feet |
| Streams or other watercourse | 25 feet |
| Designated Trails | 25 feet |
| Springs, vernal ponds, seeps, Natural or artificial swale or drainage ditches | 25 feet |
- Everything practicable shall be done to prevent damage or injury to young growth and trees not designated for cutting unless authorized within the approved timber harvesting plan.
 - All limbs and stubs shall be removed from felled trees prior to skidding.
 - All trees bent or held down by felled trees shall be released promptly.
 - No trees shall be left lodged in the process of felling with as little damage as possible to the remaining trees.
 - Felling or skidding on or across any public street is prohibited without the express written consent of the municipality in the case of municipality streets or the Pennsylvania Department of Transportation in the case of State highways.
 - The stumps of all felled trees shall be permitted to remain for soil for stabilization provided that they extend no more than two feet (2') above grade.
 - During the periods of abnormal forest fire danger, as determined by the Fire Chiefs, the municipality shall have the right to order a suspension of timber harvesting operations until the danger subsides.
 - Upon completion of a timber harvesting operation, all roads shall be graded to eliminate any wheel ruts, and access to such roads from any public street by motor vehicles of any kind shall be effectively blocked.
- E. RESPONSIBILITY FOR ROAD MAINTENANCE AND REPAIR: ROAD BONDING** - Pursuant to Title 75 of the Pennsylvania Consolidated Statutes, Chapter 49; and Title 67 Pennsylvania Code, Chapter 189, the landowner and the operator shall be responsible for repairing any damage to municipal roads caused by traffic associated with the timber harvesting operation, to the extent the damage is in excess of that caused by normal traffic, and shall be required to furnish a bond to guarantee the repair of such potential damages, as determined by the governing body with advice from the Township Engineer.
- F. MUNICIPALITY'S RIGHT TO INSPECT**
- The municipality may, by its own personnel or outside agent, go upon the site of any proposed timber harvesting operation after an application to conduct such operation has been filed for the purpose of reviewing the plans for the proposed operation and thereafter recommending or opposing the proposed operation or recommending or requiring changes or modifications thereto.

SECTION 1 RIPARIAN BUFFERS MODEL ORDINANCE

- A. PURPOSE** - The requirements of this Section help to create and/or restore wooded buffers along important watercourses and surface water bodies upon the municipality's landscape. Specific measures will promote beneficial vegetation to reduce harmful erosion, absorb nutrients, reduce surface water pollution, offer year-round nourishment and habitat for animal wildlife both within and adjoining the water feature, reduce surface water temperature, offer interconnected linear paths for habitat migration and close-to-home passive open spaces amid the developing landscape.
- B. APPLICABILITY** - Any application for subdivision and/or land development application for property adjoining a watercourse or portion thereof, that is typically inundated throughout the year (under non-drought conditions) shall provide a riparian buffer in accordance with the following standards or, in the alternative, as approved by the Lebanon County Conservation District (LCCD) with input from the Township. (It is noted that landowners are encouraged to review the manual entitled "A Guide for Establishing and Maintaining Riparian Forest Buffers" published by the Chesapeake Bay Program.
- C. RIPARIAN BUFFER DELINEATION**
- The applicant shall clearly depict upon a Natural and Cultural Features Map the proposed riparian buffer as approved by the Lebanon County Conservation District (LCCD) along with written verification from the LCCD of their review and approval of the proposed riparian buffer design.
 - As an alternative the applicant shall clearly depict upon the Natural and Cultural Features Map the proposed riparian buffer comprised of the following three separate Zones:
 - Zone 1:** The landward area located between the streambank edge under typical flow conditions, or the high water level for pond or lake shorelines and fifteen feet (15'), as measured directly perpendicular from the streambank/shoreline edge.
 - Zone 2:** The area beginning at the inland edge of the above-described Zone 1 and the largest combined width of all of the following:
 - fifty feet (50'), as measured directly perpendicular from the streambank/shoreline edge;
 - the 100-year floodplain;
 - any adjoining identified wetlands; and/or,
 - any adjoining area characterized by slopes exceeding twenty-five percent (25%).
 - Zone 3:** The area beginning at the inland edge of the above-described Zone 2 and extending at least ten feet (10') inland therefrom. Where a pasture is proposed just beyond the above-described Zone 2, no Zone 3 is required.
- D. RIPARIAN BUFFER PLANTINGS** - Each of the respective Zones of the riparian buffer shall include vegetation that already exists or will be planted using native species and maintained (except for invasive or noxious species as defined herein) by the applicant that satisfies the following design objectives. The applicant shall submit expert evidence that the existing and/or proposed vegetation satisfies such objectives that shall include a graphic depiction of proposed plantings and a schedule of vegetative species:
- Zone 1:** This Zone must include large maturing canopy trees and a ground cover of native seasonal grasses. New tree plantings should be selected, arranged and managed to accelerate canopy growth, and offer native species habitat and food supply. New grass plantings shall be selected and managed to filter out pollutants and offer habitat. All vegetation selected for this Zone must thrive in wet conditions;
 - Zone 2:** This Zone must include large maturing canopy trees generally three rows deep with a natural undercover. New tree plantings shall be selected that are rapid growing to intercept passing nutrients. Such trees shall be arranged and managed to accelerate canopy growth, and offer native species habitat and food supply. Successive understory plants shall be allowed to "evolve" with the canopy of this Zone; and,
 - Zone 3:** This Zone shall be planted with warm season grasses that are allowed to mature naturally without mowing. The tall grasses shall be managed to produce uniform overland stormwater flows that do not "channel" into Zone 2. New grass plantings shall be selected and managed to enable controlled grazing or haying so long as the grasses are not reduced to a point such that they no longer effectively disperse the surface flow.
- E. RIPARIAN BUFFER MAINTENANCE**
- Riparian buffers must be generally undisturbed. Mature trees and long grasses absorb more nutrients than do manicured plants. Similarly, the more extensive root systems retain passing sediments. These characteristics reduce pollution and yield abundant food and habitat for wildlife. The temptation to "over-maintain" the streamside must be overcome.
 - Where riparian buffers are to be located upon common property, the applicant must include a working plan that ensures perpetual maintenance of such buffer zones as specified in this Section 1.E.
 - Where riparian buffers are to be located upon private property, the applicant must include a legally-binding instrument (e.g. easement, covenant, deed restriction, etc.) in a form acceptable to the Township Solicitor which shall designate the municipality as the grantee and ensures perpetual maintenance of such buffer zones as specified in this Section 1.E. Then all affected landowners shall be required to abide by such legal instrument.
 - The following lists required maintenance activities for each zone:
 - Zone 1:** This Zone compels little maintenance. As trees mature, die and decay, it is important that such natural debris be allowed to decompose within the stream. This will provide important food and habitat for beneficial microorganisms, fish and amphibious animals. However, any debris that may cause a rise in the floodplain due to obstruction or displacement shall be removed promptly. Streamside grasses shall be allowed to seasonally flourish and recede. Streamside cleanup of junk and man-made debris is permitted.
 - Zone 2:** This zone requires the most attention, but not for some time after initial planting. Here, the objective is to develop a stable and broad canopy of tree cover. The trees within Zone 2 are fast-growing and therefore consume many nutrients. The regular pruning and trimming of these trees will increase their nutrient consumption, and growth rate and decrease the time to establishment as a closed canopy buffer, but should not jeopardize the important overhead canopy of shade. The natural understory shall be undisturbed, except for periodic litter cleanup; and,
 - Zone 3:** This Zone also requires little maintenance. Long summer grasses shall be allowed to flourish and recede with the seasons. Grazing and haying are permitted so long as the residual grass length is sufficient to disperse overland stormwater flows into Zone 2 and avoid channelization.
- F. RIPARIAN BUFFER USE**
- Permitted uses** - No use shall be permitted that interferes with the natural maturation of the above described buffer plantings, except as follows:
 - Corridor crossings for farm vehicles and livestock and livestock watering facilities, all of which are accompanied by written evidence of approval of a water obstruction permit by the LCCD.
 - Corridor crossings for roads and railroads provided that such crossings are accomplished upon the least possible land area and disruption of the adjoining riparian buffer is minimized.
 - Public sewer lines, public water lines and public utility transmission lines, provided such lines are installed in such a manner that is most compatible with the installation and ongoing maintenance of the required buffer plantings as described in Section 1.D. of this Ordinance.
 - Passive recreation uses that prevent the harmful compaction of soil, tree root damage and avoid the channelization (natural or man-made) of surface water flow. Pedestrian paths can weave through Zone 2, but shall be provided with raised walkways. Impervious surface lot coverage is expressly prohibited.
 - Application of pesticides and herbicides that are specifically approved for the treatment and/or removal of invasive and/or noxious species within close proximity of watercourses, provided such pesticides and herbicides are used in strict accord with label instruction. Any materials applied as part of a County and/or State approved pest control program (e.g. West Nile Virus and etc.)
 - Prohibited uses** - The following uses and activities are expressly prohibited within a riparian buffer. This listing of prohibited uses and activities shall not be interpreted to permit other activities not listed, unless they are permitted by Sections 1.F.1. of this Ordinance:
 - Except as permitted in the above Section 1.F.1., any use that interferes with the natural maturation of the buffer plantings required in Section 1.D. of this Ordinance.
 - Except as permitted in the above Section 1.F.1., any use that interferes with the maintenance of the buffer plantings required in Section 1.E. of this Ordinance.
 - Storage and/or disposal of any toxic, hazardous or noxious materials and substances.
 - Except as permitted in the above Section 1.F.1.E., the application of fertilizers, pesticides, herbicides and/or other chemicals in excess of that permitted on an approved conservation and/or nutrient management plan as approved by the ACCD and/or local office of the USDA Pennsylvania Natural resources and Conservation Service.
 - Areas devoted to the on-site absorption of sewage effluent and/or agricultural fertilizers including but not limited to manure.

B. AGRICULTURE

Throughout history, agriculture, which includes forestry, has played a primary role within Pennsylvania, Lebanon County and the Region; today, this is still true as evidenced in Chapter V (Existing Land Use). As the Soils and Geology Map contained within Chapter III (Natural & Cultural Features) of this Plan reveals, a generous amount of prime agricultural soils extend throughout the Townships, particularly in South Londonderry Township.



These fertile areas have a characteristically flat to gently rolling landform. These areas contain the highest concentrations of farms that are part of the designated Townships' Agricultural Security Areas (ASA). Although some parcelization and development has occurred here in the past, a suitable critical mass of this landscape is still devoted to agricultural operations within South Londonderry Township. These resources are being put to good use by the Township's farmers who have largely embraced the need to preserve their farms as evidenced by their voluntary participation in the Township's ASA.

In planning for agricultural land, the South Londonderry Township should adopt a philosophy and policy not to consider agricultural land as "undeveloped farmland awaiting another use." Rather it should be viewed as "developed land" that is being used to produce a valuable product. Farming is a land-intensive, manufacturing process that converts raw materials into a product, comparable to other industrial operations, with occasional accompanying impacts of noise, odor and dust. Therefore, this plan advocates a position that this agricultural area not be considered as a holding zone, but as an area having a positive purpose of utilizing the Township's natural and non-renewable resources for the benefit of the entire community and beyond.

This agricultural area should be protected by zoning regulations that prevent interference by incompatible uses which weaken the ability to conduct normal farming practices. The PA Right-to-Farm Act should warn potential new residents that they must be willing to accept impacts from normal farming operations that might be unpleasant to unsuspecting newcomers. Permitted residential densities should be kept very low with small maximum permitted lot sizes. Many municipalities employ a fixed ratio that allows one new dwelling unit for each 20, 25 and even 50 acres of farmland. Such new dwellings can only occupy one to two acres each unless they consume non-productive areas. In this manner, local farming is preserved and unsuspecting future residents are spared the sometimes intensive impacts associated with agricultural operations.

Traditionally, farming has involved the growing of crops for either sale off of the farm or for consumption by animals on the farm with the subsequent marketing of either meat or milk. Thus, the viability of the farming operation was very much tied to the productivity of the land. Recent years have seen the advent of concentrated animal feeding operations (CAFOs).

These involve the concentration of large numbers of cows, hogs or poultry on a single tract of land with the feed being bought off-site. Because the food these animals eat is often not grown on the tract of land where they are housed, very high animal concentrations can be achieved. These highly concentrated operations often create acute odor impacts on neighboring residents. These odors can arise from the animals themselves, but more often from their waste products, both at the site where produced and where they are land-applied.



Agricultural zoning ordinances enacted by a municipality should be consistent with, but cannot be more restrictive than PA Act 38 of 2005 Agriculture Communities and Rural Environment (ACRE), or any legislation superseding PA Act 38 of 2005. ***Within South Londonderry Township, these uses should be accommodated by right because of the accompanying low permitted residential densities. However, applicants should be required to demonstrate an understanding of their manure management operations and compliance with applicable nutrient management regulations. Within North Londonderry Township these uses, if permitted, should require special attention because of the relatively greater residential densities permitted on adjoining farms.***

Past absent or lenient zoning policies have enabled the development of numerous rural homes are stripped-out along the roads within the agricultural landscape. ***Nonetheless these homes exist and future zoning regulations should specifically permit them as permitted uses within this area.*** In so doing the homes avoid the classification as nonconforming uses. This will enable residents to make logical adjustments to these lots/homes without the need to gain approval from a local zoning hearing board for variances or expansions to nonconforming uses. ***However, future residential lots within the Agricultural area should require careful design and layout so that such residences minimize common property lines with active farming operations.*** The use of rural clusters where several homes share unified vehicular access and minimize borders with adjoining farms improve compatibility and can require the perpetual preservation of adjoining farmland or open space.

Next, uses within this area will rely upon on-lot sewage disposal systems (OLDSs). On-lot disposal systems, if constructed and maintained properly, can provide a reliable and efficient means of wastewater treatment in rural and suburban areas where population density is low. However, where such systems are improperly installed or not maintained, contamination of on-site water supplies can result.

Therefore, it is recommended that the Townships continue to implement their OLDS management programs. Such program requires the routine maintenance of systems to include the “pumping-out” of subsurface septic tanks on a regular cycle. The extension of public sewers across the countryside is an expensive proposition which usually falls to local government when malfunctioning systems occur and then injects pressure to rezone and develop amid the rural landscape. An OLDs management program is preventive maintenance that avoids costly public investments that only serve a few residents. This should be an important component of any updates and / or new Act 537 Plans, as they occur.

Along the same lines, zoning regulations should require new lots to provide a primary disposal site and another replacement disposal site to be approved by the Township SEO. Furthermore, the Township Zoning Ordinance should also require that any permit issued for a new use that would rely upon a new OLDS, specifically depict and protect the alternate disposal site from disturbance.



Farm stands and accessory businesses are valuable features in an agricultural setting. Image Source – Chester County Plan. Comm.

Flexible design standards should be used to enable efficient lotting of new homes amid prime farmlands and natural features. Many municipalities provide for the use of flag lots in rural areas for this purpose. In addition, limited use of joint use driveways can prevent the inefficient and unattractive strip housing pattern along the Township's rural roads. **However, the use of flag lots and joint use driveways should be tied to a proposed development that seeks to avoid disruption of important natural features and productive farmlands.**

As an alternative to freestanding lots with separate on-lot utilities, the Township could also permit the use of conservation design subdivisions that employ low-tech community based utility systems. Here greater density can accommodate the few homes on less acreage and avoid disruption of adjoining farming operations. This will require greater administrative effort and more advanced zoning techniques, but this option is useful in blending farming with rural neighborhoods. It is important to note; however, that local officials should always be mindful that the primary purpose of this land use category is to accommodate active farming and the more homes that are placed within the midst of agriculture, the more opportunity for conflicts will increase. Conservation design neighborhoods should incorporate design standards that locate and use the "required" open

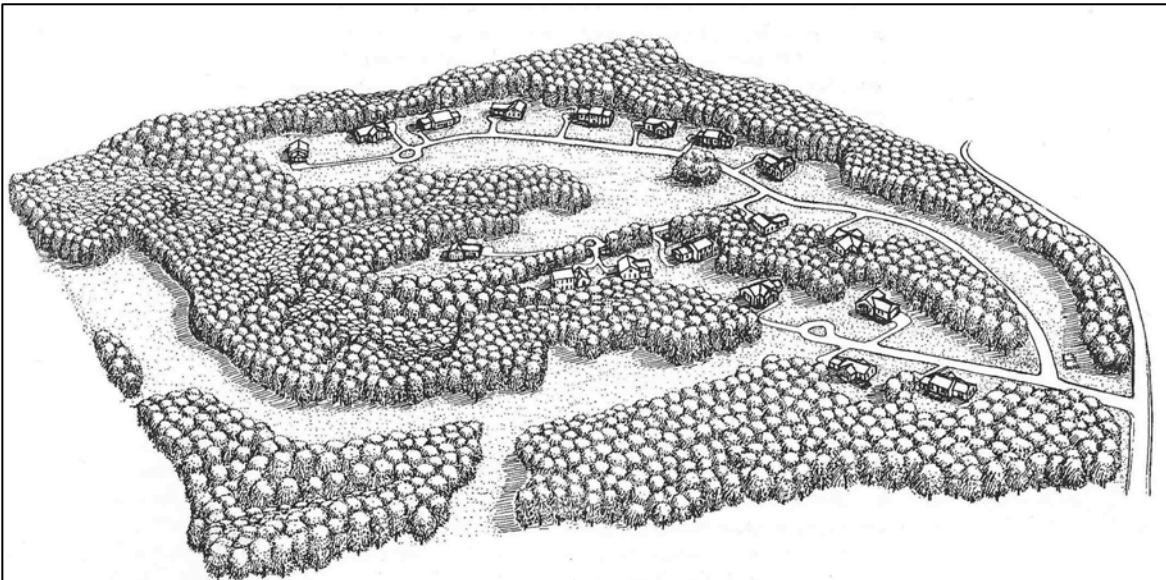


Image Source: Growing Greener, Natural Lands Trust, Inc., PA Dept. of Conservation & Natural Resources, Pennsylvania State University Cooperative Extension Service, April, 1997. Cover.

space to buffer the homes from impacts associated with normal farming practices.

Next, the use of accessory businesses should be permitted within the Agricultural Zone to offer close-to-home employment and promote local rural-based tourism. Home occupations should be confined to uses that can be adequately conducted from within the dwelling unit itself with limited non-resident employees; these uses can be permitted by right.

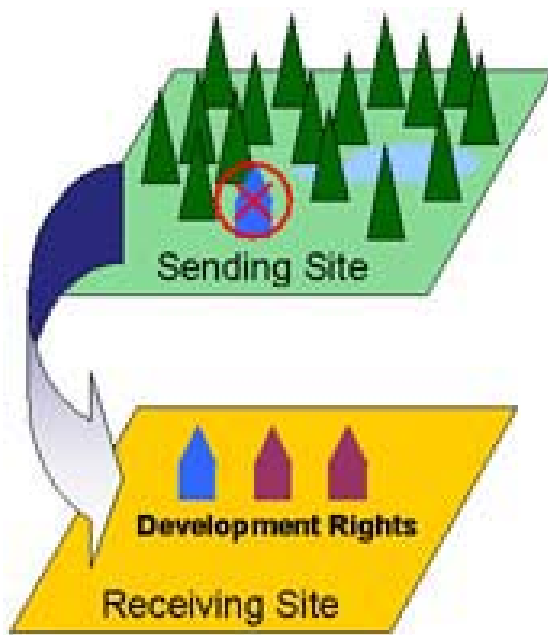
Rural occupations expand on the home occupation concept and enable other more intensive uses that can make efficient use of rural outbuildings and outdoor storage. Here impacts of noise, light, traffic, dust, hours, screening and odor should be scrutinized prior to approval to ensure that adjoining properties are not adversely affected. Farm occupations (e.g. accessory businesses, auxiliary enterprises, etc.) should be encouraged to financially assist active farming operations and can be conducted in barns. Here local residents from the site and its neighborhood can engage in non-farm activities provided the impacts are contained upon the site and the operator continues to farm. In all cases (home, rural and farm occupations) the applicant should demonstrate safe means of waste disposal that does not threaten the environment.

Beyond the “accessory occupations” described above that are associated with another principal use, some rural communities also permit freestanding farm-related businesses as principal uses. These are usually tied to offering some service or goods used by local farmers with up-set size limitations so that proper local scale is achieved. Farm equipment dealers, seed and fertilizer distributors, blacksmiths and mechanical shops, dry goods stores are examples of suitable farm-related businesses. Land owners expanding their businesses as their principal source of revenue, may be subject to Clean and Green penalties because the business changes the land use from agriculture to commercial.

Although an effective agricultural zoning ordinance can help preserve farmlands in the short run, certain legal principles on accommodating growth can threaten their long-term integrity. Therefore, ***South Londonderry Township should support efforts of the County’s Agricultural Land Preservation Board and those enrolled in the Township’s Agricultural Security Area programs.*** Certainly easement funds are limited and all prime lands cannot be purchased immediately. Therefore, local officials should commit to the preservation of farmlands through zoning until easements can be purchased through this program.

Also, in the future it may be beneficial to consider the implementation a transfer of development rights (TDR) program to financially compensate farmers in lieu of residential development; although this may lead to increased development potential in localized areas of the Township where the development rights would be used to increase development density.

One of the nation’s most pressing environmental and economic dilemmas involves the preservation of natural areas and farmlands that often results in a perceived financial loss of affected property owners. Across the country, many farmers and large landowners consider their property as their total sum of wealth and “retirement fund.” They expect the opportunity to sell their properties for development purposes at the end of their career or pass along this wealth to the next generation of their family. This causes resistance to the adoption of stricter land use controls needed to preserve farmlands and natural areas by severely restricting future residential development. To overcome this problem, the



legislature amended the MPC to specifically authorize the use transferable development rights (TDR).

The use of TDR enables farmers/landowners to sell the development rights of their properties to developers or other parties, yet retain the ability to farm or otherwise make use of their properties for non-development purposes. In turn, developers apply the TDR acquired from the farm elsewhere; hence, the “transfer of development rights.”

TDR is a program that presents no risk to the farmer/landowner. Essentially, the municipality assigns a number of “development rights” which are generally tied to the sizes of farms/lands (e.g., one TDR per five acres of land) within the area to be preserved. This area is called the “sending

area” as TDR’s are “sent” from it. Within the Township, the sending areas could be the Agricultural Zone.

Next, the municipality identifies an area or areas within which developers can use their acquired TDR’s to increase the intensity of permitted development. This area is called the “receiving area,” as TDR’s are “received” into it. Within the Township, the receiving areas could be the residential, commercial and/or industrial zones.

Again, it is important to state that a TDR program costs the original farmer/landowner



Image Source - www.nj.gov/dca/osg/resources/tdr/index.shtml

nothing. He/she simply is given TDR’s that he/she can keep and/or sell. Any sale prices of individual TDR’s are determined between the farmer/landowner and the buyer, and given the land values within the Region these could reach thousands of dollars per TDR. Once a farmer/landowner sells all of his/her TDR’s, no additional residential development can occur on the farm.

TDR provides a means of financially compensating landowners within agricultural/conservation settings who are willing to preserve their properties. TDR also enables these landowners to share in the wealth created by growth and development within the municipality, at no risk. ***To implement the TDR program the Township will need to conduct a detailed analysis of both the sending and receiving areas, as well as develop the ordinance and methods to administer this program; these efforts will require considerable expense, time and commitment but will yield the potential for many acres of permanently preserved open space at no cost to the Township.***

Most municipalities with TDR programs use their residential zones as receiving areas. ***To make effective use of these zones the Township should ensure that the base permitted density has “room” so that there are real incentives for the acquisition of TDRs. Then the Township can offer density bonuses for the use of TDRs exceeding the original density subject to compliance with all applicable design standards.*** It is important that the Township not deprive the residential landowner reasonable use of his/her property absent the use of TDRs; however, it is equally important that the Township keep base densities sufficiently low to encourage TDR usage. It is also vital that the Region provide sufficient acreage for potential residential development to satisfy its legal fair-share of growth and development. ***Final permitted densities with the application of TDRs should also be consistent with affected infrastructure capacities and prevailing neighborhood densities so that compatibility is assured.***

While most municipalities rely upon their residential development to drive their TDR programs, some have begun to identify receiving areas for nonresidential developments. Because the land values of commercial and industrial sites are generally significantly higher than residential development sites, there is greater potential for the purchase of TDRs when applied to commercial/industrial development sites. Within these Zones, regulations should limit permitted lot coverage at some base level (say fifty-percent) beyond which additional coverage can be obtained via the acquisition and assignment of TDR's from the sending area. Then for each TDR applied, the lot coverage can be increased by a prescribed size (say 2000 square feet) up to the maximum permitted lot coverage of say 70 percent. Again, the Township must not deprive the nonresidential landowner reasonable use of his/her property absent the use of TDRs, but the base lot coverages should be set low enough to offer real incentives for TDR usage. It is also vital that the Region provide sufficient acreage for potential commercial/industrial development to satisfy its legal fair-share of growth and development. ***Finally, permitted coverages with the TDRs should be consistent with affected infrastructure capacities and reflect community development objectives for these areas.***

Usually TDRs are purchased by developers from farmers/landowners, but nothing prevents others from purchasing development rights. In one instance, a municipality contemplated conducting an annual reverse-auction for the purchase of development rights. This auction would provide a convenient mechanism at which developers and others could join with farmers to transact TDR transfers. ***Local and county government agencies can also acquire development rights for their ultimate retirement and/or their resale to developers at a profit. This creates an opportunity for conservation-oriented groups to preserve resources and generate funds for a revolving program of purchase and resale of TDRs. The Township, too could act as a middle-man in this process. Then, the developers could access one centralized bank from which to acquire needed development rights.*** This is but one example of the creativity that can be applied in the

development process to preserve natural resources yet enable managed growth and development.

Despite all of its benefits, it is not recommended that South Londonderry Township implement a TDR program at this time because of its public sewage capacity constraints. However, should abundant capacity be accompanied by accelerated development pressure, the Township could “tap” that process as a means of permanently preserving productive or threatened farms.

Agricultural areas have historically caused surface water degradation due to erosion and the application of nutrients and fertilizers. The Agriculture Communities and Rural Environmental (ACRE) Initiative, PA Act 38 of 2005, provides the regulatory framework for nutrient management and non-point source pollution abatement. ***Local officials should work with the Lebanon County Conservation District and employ a variety of techniques that encourage farmers to install riparian buffers along the creek and its tributaries.***

Local officials should also consider a riparian buffer ordinance in those areas where water quality is, or could be, significantly degraded by agricultural operations and urban development. Then compliance should be required whenever a zoning permit is needed. Tax assessment officials should be required to reduce assessed values of agricultural lands within riparian buffers.

Farmers should also be educated about the various state and federal conservation programs and income tax deductions that are made available to property owners who place conservation easements upon their properties for riparian buffers. Local watershed groups, local officials, and County, State and Federal agencies should partner with landowners to improve surface water quality using best management practices.



Photo of creek with and without a riparian buffer through farmland.
Image source: York County Planning Commission.

A sample riparian buffer ordinance is presented on page 194 of this Chapter and additional discussion can be found on pages 111 - 114 of this Plan.

C. AGRICULTURAL HOLDING

One of the Region's stated goals is to:

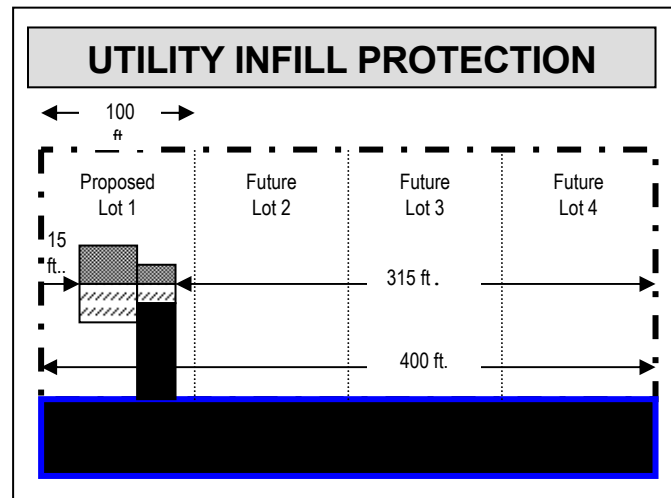
“Coordinate proposed growth areas with projected population so as to properly size growth areas and relieve development pressures in outlying rural areas,”

Consequently, this Plan quantifiably projects growth and then reserves areas to meet that growth. In turn, the Plan accordingly identifies areas that are not now needed to accommodate projected growth; this Agricultural Holding category represents such areas.

Instead, these areas should be viewed as staged-growth opportunities for times beyond the year 2020. The extent of these areas is largely premised upon substantial masses of active farming and an inability to provide public sewer service at this time within South Londonderry Township. While these areas will eventually be developed, the urgency for their development is less than in other areas where public sewer service is currently available or has been reserved.

These areas should allow continued farming, but should prohibit the placement of large and intensive operations (e.g., concentrated animal feeding operations, commercial mushroom operations, commercial produce operations, etc.). Developments within these areas should be discouraged at this time; however, not prohibited. Permitted developments should be strictly single-family detached residential in character with low densities that can be served by on-lot systems. Zoning regulations should require an inordinately wide lot, including one very large side yard setback, so that future infill potential would be provided when the area is slated for eventual development. Capped sewer lines should also be installed.

Utility infill design as depicted on the adjoining diagram creates wide and shallow lots upon which homes are located to one side. This preserves the ability to further subdivide these lots when public utilities are provided in the planned future. ***The following lists recommended design standards for single-family detached dwellings within this zone.***



Minimum Lot Area	Minimum Lot Width	Maximum Lot Coverage	Minimum Yard Setbacks				Maximum Permitted Height
			Front	One Side	Both Sides	Rear	
43,560 sq. ft.	400 ft.	10%	40 ft.	320 ft.	330 ft.	40 ft.	35 ft.

Finally it should be emphasized that any development occurring within these areas at this time may, in fact, provide an impediment to the development of the property for its future highest and best use which could include high density residential or even economic development uses.

D. RURAL RESIDENTIAL

Local Officials from North Londonderry Township intend to provide a location for rural residential neighborhoods which lack public utilities. Like in the adjoining Conservation Zone, lot sizes should be at least one acre in size to accommodate on-lot sewers with primary and back-up disposal fields. However, these areas lack substantial natural features that would generally limit building placement so generous setbacks can be applied to create a rural residential character that keeps neighbor impacts at a low level.

However, local officials have also expressed a willingness to consider alternative forms

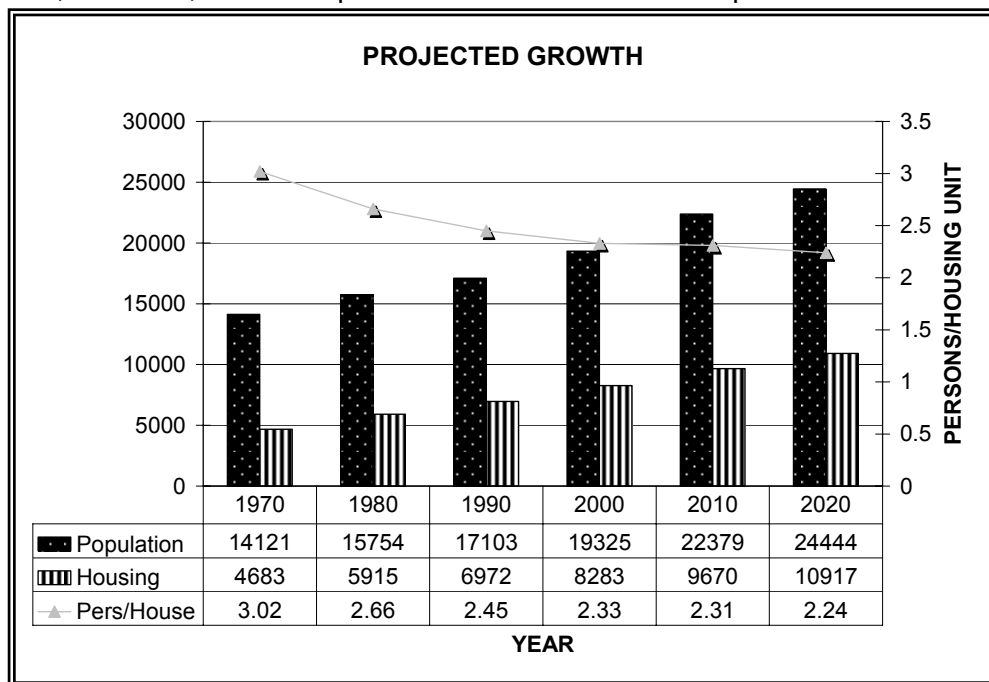
of development to suburban subdivisions. Conservation design developments and rural clusters as described earlier under the Conservation and Agriculture Zone could be readily applied here with similar results. The use of flag lots and joint-use driveways can also offer flexible designs that minimize impacts and limit driveway cuts along rural roads.

E. RESIDENTIAL (LDR, VR, TR, HDR, MHP)

As described in Chapter VIII (Existing Land Use) of this Plan, the Township contains a variety of residential forms. Rural housing lies in outlying areas on large lots with on-lot utilities in agricultural and conservation areas. Most of these are scattered along the Townships' roads. These rural areas are not part of this discussion but are covered by their respective previous land use categories (Conservation, Agriculture, Agricultural Holding and Rural Residential.)

Instead this Section describes the planned neighborhoods that are largely concentrated in and around Palmyra Borough and the Villages within South Londonderry Township. These neighborhoods are to receive the vast majority of the Region's planned residential growth and are, or will be, fitted with public utilities as well as other public services.

Chapter IV (Demographics) of this Plan analyzed population and housing trends within the Township. The following graphs past and projected growth across the entire Region. The net projected population and housing growth is summarized below:



PROJECTED NET CHANGES PER DECADE	
Year	2010 to 2020
Population	2065
Housing	1247
Persons/Unit	-0.10

In order to avoid claims of exclusionary zoning practices and to reflect contemporary housing styles, Chapter 4 (Demographics) recommended that the Region specifically plan to rely less upon single-family detached units in the future. In addition national housing trends suggest greater reliance on more dense/multi-family units and compact detached units. For these reasons it is recommended that the Region allocate future land use to meet the target growth in the following residential categories:

TARGET PROJECTED NEW HOUSING UNITS BY STRUCTURAL TYPE					
Year	Total Units	Target single-family detached	Target attached and duplex	Total multi-family	Mobile Homes
2010-2020	+1247	+541 = (55%)	+ 407 = (30%)	+ 304 = (15%)	+113 =(6%)*
* The figures for mobile homes are included within the projections for single family detached dwelling units in accordance with prevailing PA case law.					

As presented in Chapter V (Existing Land Use) of this Plan, the Region has considerable residential development that has been approved that has not yet been constructed and occupied. The following tabulates such residential “Pipeline Developments” whose locations are depicted on the Existing Land Use Map contained in Chapter V. These units will certainly contribute to the supply of new dwelling units to meet the Region’s projected residential development:

PIPELINE DEVELOPMENT PROJECTS		
Development Name	Map No.	Uses Yet To Be Built
Palmyra Borough		
Macintosh Circle	R13	68 townhouses
Spruce Village	R14	48 multi-family units
North Londonderry Township		
Arbor Green (Lewis)	R1	108 single family detached dwelling units
London Croft (Bucher)	R2	120 single family detached dwelling units
omitted	R3	omitted
South Londonderry Township		
Thistledown	R4	7 single family detached dwelling units
Northside Crossing	M1	33 duplexes, 142 townhouses, 76 multi-family
Springbrook Farms	R5	35 single family detached dwelling units
Village @ Springbrook Farms	R6	160 townhouses
Carriage Park	R7	104 single family detached dwelling units
Stone Knoll	R8	63 single family detached dwelling units
Forest Ridge	R9	3 single family detached dwelling units
Estates @ Forest Ridge	R10	27 single family detached dwelling units
Timberbridge	R11	4 single family detached dwelling units
Fox Hill Estates	R12	8 single family detached dwelling units

The following table lists the various Residential Zones depicted on the Future Land Use Plan (in addition to the “Pipeline Development” properties) along with measurements of land area and potential developments based upon permitted densities:

PLANNED RESIDENTIAL GROWTH				
Land Use Category	Planned Acreage	Area (75%) devoted to development features ¹	Base Density Units/Acre	Total Potential Planned Units
LDR	640	480	3.6	1728
VR / TR	Only minor infilling	NA	6	NA
MFR	150	113	6	678
MHP	48.0	36	6	216
Region	838	629	3-6	2622
¹ These figures reduce the area for development to reflect: <ul style="list-style-type: none"> the considerable areas of significant development constraint that exist throughout the Township; the features within developments that cannot be devoted to actual residential use (e.g. roads, utility easements, parks and etc.); and, the "Right-to-Travel" doctrine which requires that municipalities provide for some choice in personal mobility and residency. 				

Next by combining the pipeline development units with those that are potential based upon planned future land uses results in the following:

COMBINED PIPELINE AND PLANNED DWELLING UNITS	
Pipeline Development Dwelling Units	1006 units
Planned Land Use Dwelling Units	2622 units
Total Potential Dwelling Units	3628

As can be seen the total number of potential housing units (3628) represents more than 291 percent of the projected residential growth (1247 units) within the Region between years 2010 and 2020. Therefore, local officials can resist claims that the Plan does not provide for a fair-share of residential growth throughout the Region. In fact the pipeline development within the Region nearly fulfills the projected growth. Nonetheless, municipalities are obligated to continually offer the potential to grow and this Plan clearly fulfills and exceeds this obligation by a large margin. This calculation does not even include the considerable residential development potential that will be accommodated within the Conservation, Agriculture, Agricultural Holding and Rural Residential Zones plus the limited infill residential development potential within the Village and Town Residential Zones and the Mixed Use Zone.

Furthermore by assigning potential dwelling unit types based upon the prevailing design standards for each respective pipeline development and Residential Zone the following table predicts that availability of land to be used for various housing unit types along with a comparison of the target projections derived to ensure a proper diversity of housing types as follows:

COMPARISON OF POTENTIAL RESIDENTIAL DWELLINGS WITH "TARGET" RESIDENTIAL PROJECTIONS				
Pipeline Developments Name	Single family detached	Duplex and attached	Multi-family	Mobile homes
Macintosh Circle		68		
Spruce Village			48	
Arbor Green (Lewis)	108			
London Croft (Bucher)	120			
Thistledown	7			
Northside Crossing		175	76	
Springbrook Farms	35			
Village @ Springbrook Farms		160		
Carriage Park	104			
Stone Knoll	63			
Forest Ridge	3			
Estates @ Forest Ridge	27			
Timberbridge	4			
Fox Hill Estates	8			
Proposed Zones				
Suburban Residential	1728			
Village Residential				
Multi-Family Res.			678	
Mobile Home Park				216
Total Potential Units	2207	403	802	216+
Target Units Projected	516	393	297	110
% Provided vs. Target	427%	103%	270%	196%

As the table reveals, the development potential for each of the various housing types is exceeded; therefore ***local officials can act confidently that they have met their burdens to offer sufficient areas for residential development according to projected growth and provide for a suitable variety of housing unit types and densities.***

Next specific recommendations and strategies will be presented for each of the planned residential zones along with typical and/or suggested design standards.

Low Density Residential (LDR) - Within the Region, most of the residential development that has occurred over the last few decades has taken the form of suburban housing. This Plan acknowledges this existing pattern and provides for continued expansion of these neighborhoods. Aside from the existing pipeline development projects accommodated within South Londonderry Township and about 42 acres of planned growth area within Palmyra Borough all of the planned low density residential growth areas are located within North Londonderry Township generally southeast of the Borough. In total 743 acres could accommodate 1788 new homes at a base density of 3.6 units per acre. In addition the pipeline developments are expected to add another 674 detached dwelling units. The overall development potential in these

areas is more than 4.7 times that needed to accommodate the projected growth.

Each municipality might also consider reducing the base density to 2.5 or 3 units per acre to incentivize the use of Traditional Neighborhood Design (TND) which will be discussed later in this Section.

The locations of these planned neighborhoods follow the extensive network of utility lines. Therefore, new developments should be required to make use of both public sewer and public water. The following presents suitable minimum design standards that reflect the minor variations within each municipality:

SUITABLE DESIGN STANDARDS FOR THE LDR ZONE								
Municipality	Lot Area	Lot Width at Building Setback Line	Maximum Lot Coverage	Minimum Yard Setbacks				Maximum Permitted Height
				Front	One Side	Both Sides	Rear	
N. Londonderry	12,000 sq. ft.	70 ft.	35%	40 ft.	15 ft.	30 ft.	35 ft.	35 ft.
Palmyra	12,000 sq. ft.	80 ft.	35%	35 ft.	10 ft.	20 ft.	35 ft.	35 ft.
S. Londonderry	12,000 sq. ft.	80 ft.	35%	40 ft.	10 ft.	20 ft.	35 ft.	35 ft.

Planning for residential growth involves more than merely assigning acres for development. Municipalities have a responsibility to provide for a wide range of housing types and costs. Development of the LDR Zone exclusively for suburban-style single-family detached dwellings would continue the Townships' sprawling development pattern that would consume valuable natural features and productive farmlands at an unnecessarily high rate.

Instead one of the goals for this Plan emphasizes the need to cluster compact forms of residential development at higher densities with a wide range of "urban amenities" as follows:

"Provide for alternative forms of residential development designs as an option to suburban style neighborhoods."

Therefore it is recommended that the LDR Zone include an optional set of "overlay" standards. These standards should adopt a "Traditional Neighborhood Design" (TND) philosophy that departs from the base suburban style.

TNDs feature designs and characteristics that resemble communities more like central Palmyra Borough, than sprawling suburbs. A mixture of housing unit types balances the community with diversity and interest. These communities are sweeping the nation as society recognizes the consumptive and dissociative aspects of suburban sprawl. Recent amendments to the Municipalities Planning Code specifically enable and encourage this new approach.

In return, neighborhoods that feature a better integration of important natural and cultural features, more common open space, better pedestrian access and mobility, more diverse housing styles, and a setting that invites neighborliness and interaction.

However, developers are often reluctant to undertake traditional neighborhood designs when they require special zoning reviews as conditional uses or special exceptions. They also resist strict prescribed design requirements that offer little flexibility. ***For this approach to succeed, it is important that the local officials invite the use of traditional neighborhood designs through a variety of short-term and ongoing actions.***

First, as part of the development of new zoning policies local officials should participate in a joint workshop to develop a set of traditional neighborhood design regulations that meet their needs. This work should be undertaken with representatives from the staff along with each municipality's development review advisors (engineers, attorneys and consultants). Suitable regulations should:

1. Require a "proper site planning process" and review early in the development review process that effectively incorporates and protects important natural and cultural features, and then provides an opportunity for the developers and the community to reach some agreement on the design priorities for the site;
2. Ensure a diversity of housing types, sizes, and costs, with particular emphasis on scattered-site, affordable housing opportunities at higher densities than that permitted under the base density of the respective Zone (e.g. 4 to 6 units per acre);
3. Provide for interconnected and rectilinear narrow street and intersection designs with-on street and rear yard off-street parking, and abundant well-lit sidewalks to promote pedestrian mobility and safety;
4. Require the provision and efficient use of local infrastructure and services;
6. Reflect the historic and traditional building styles of the region;
7. Reserve and feature civic uses and open spaces as community focal points;
8. Invite regular and frequent social interaction among its inhabitants through reduced building setbacks and the use of front porches;
9. Blend all of these above-described features in a way that promotes community identification and a "sense-of-belonging" for the residents; and,
10. Provide for a set of requirements that achieves the preceding designs, yet allows enough flexibility for developer ingenuity and creativity, and applies a development review process that is streamlined and can be effectively managed by local officials and staff.

Once a draft ordinance is prepared, a series of local official training sessions to familiarize and seek feedback from would-be users of the ordinance should be conducted:

1. The first work session should be held for local staff, engineers, planning commissioners, and elected officials. Here, local officials need to be educated about the benefits of TND and trained on how they would administer the ordinance. Local officials should be shown with actual or hypothetical examples of how the ordinance is applied. Feedback during this process should be used to fine-tune the

ordinance;

2. After local officials have had the chance to understand and refine the TND ordinance, another work session should invite review and comment from local developers. Local officials should emphasize their intent to “get serious” about TND as the preferred development form, and plainly explain that a higher standard of design is expected from all developers. Then, local officials should invite constructive review of the TND ordinance, to enable practical use by the developers. This will likely take several weeks as the developers study the ordinance and its consequences. Suggestions to streamline the review process should be incorporated, unless local officials fear a lack of control over the process and its outcome. Revisions to the design standards should be made when local officials are convinced that a better standard results; and,
3. Finally, a similar public education and awareness session should be held to explain the ordinance and its impact on respective neighborhoods. Local officials should promote the benefits of TND to citizens and homeowners groups. They should also candidly explain their intent to approve TND developments within the various neighborhoods, along with their higher densities. In this manner, local officials can forewarn would-be NIMBY opponents of the municipality’s commitment to this form of development, and invite constructive neighbor involvement during the review process. This display will also assure prospective developers that local officials would not allow NIMBY opponents to prevent approval of an otherwise preferred TND.

Once these meetings have been held and the Ordinance is adopted, the real work begins. Local staff and officials need to be ever-vigilant in their desire to promote TND within the community. Initial developer resistance is likely, and unless local officials turn-away substandard plans, their TND efforts will have been in vain. Developers who miss the mark should have their plans denied firmly and quickly. Conversely, developers who attempt TND designs should be welcomed and assisted in their development review process and approval. Over time, this will “send the right message” to developers and citizens alike.

Village Residential (VR) & Town Residential (TR) – Historically much of the Region’s housing diversity had been anchored within the older neighborhoods of Palmyra Borough and the Villages of South Londonderry Township. Within these areas, the traditional residential pattern of development must be reflected to continue with infill growth.

Detached dwellings, side-by-side duplexes and conversion apartments are common. Most of these neighborhoods feature long and narrow lots with tightly-knit houses built close to the sidewalks and on-street and/or alley parking. There exists some diversity in density and lot dimensions from one municipality to the next throughout the Region; however, the grid street/block pattern



Typical streetscape along North Chestnut St. within Palmyra with tightly-knit duplexes, sidewalks and on-street parking.

generally creates uniform lot depths within each respective neighborhood. Some rear yard garages upon narrow alleys also exist.



Duplexes in Colebrook

The Future Land Use Map depicts only limited infill development potential within Palmyra Borough and the Villages of Campbelltown, Colebrook, Lawn and Upper Lawn. A few of the key community planning goals identified for this Plan emphasize the need to encourage the reinforce the value of existing older neighborhoods within Palmyra Borough and the villages of South Londonderry Township. To encourage similar infill developments it is recommended that regulations for such developments be simple and practical. The following presents

observed design standards within these areas that will afford efficient infill development that is consistent with adjoining uses:

SUITABLE DESIGN STANDARDS FOR THE VR / TR ZONES								
Dwelling Unit Type	Lot Area	Lot Width at Building Setback Line	Maximum Lot Coverage	Minimum Yard Setbacks				Maximum Permitted Height
				Front*	One Side	Both Sides	Rear**	
PALMYRA BOROUGH								
Detached	7,200 sq. ft.	40 ft.	40%	25 ft.	5 ft.	10 ft.	35 ft.	35 ft.
Duplex	3,800 sq. ft.	20 ft.	50%	18 ft.	2 ft.	NA	35 ft.	35 ft.
CAMPBELLTOWN VILLAGE – SOUTH LONDONDERRY TOWNSHIP								
Detached	4800 sq. ft.	40 ft.	40%	5 ft.	5 ft.	10 ft.	35 ft.	35 ft.
Duplex	3,500 sq. ft.	20 ft.	50%	5 ft.	2 ft.	NA	35 ft.	35 ft.
2FD	10,000 sq. ft.	35 ft.	35%	5 ft.	2 ft.	4 ft.	35 ft.	35 ft.
COLEBROOK VILLAGE – SOUTH LONDONDERRY TOWNSHIP								
Detached	10,000 sq. ft.	70 ft.	40%	15 ft.	15 ft.	30 ft.	35 ft.	35 ft.
Duplex	5,250 sq. ft.	35 ft.	45%	15 ft.	15 ft.	NA ft.	35 ft.	35 ft.
LAWN VILLAGE – SOUTH LONDONDERRY TOWNSHIP								
Detached	9,000 sq. ft.	45 ft.	40%	15 ft.	10 ft.	20 ft.	35 ft.	35 ft.
UPPER LAWN VILLAGE – SOUTH LONDONDERRY TOWNSHIP								
Detached	20,000 sq. ft.	125 ft.	35%	10 ft.	10 ft.	20 ft.	35 ft.	35 ft.
* Should be subject to adjustment based upon the prevailing setbacks of adjoining uses.								
** Rear yard garages should be setback no less than 5 feet from adjoining alleys.								

To accommodate logical change in these neighborhoods, zoning policies must align with the preceding design standards. This will enable residents to undertake projects that are consistent and compatible with nearby uses, without the need for variance and/or special exception applications and hearings. This will ease municipal workload and increase public acceptance of municipal practices and policies.

Accordingly, these standards represent common denominators that are at a higher density with smaller setbacks imposed than those found on some of the properties within these neighborhoods. **Hence, zoning regulations should include language that specifically varies required setbacks (particularly in front yards) to reflect those found on the same block.** This will ensure compatibility on a block-by-block basis. **Building height is generally between 2 and 3 stories; this too should be reflected in design standards.**

Another issue that is commonly problematic within densely-developed neighborhoods relates to accessory uses. Accessory uses are structures or activities that are incidental to the primary use of a property. For example, a residential accessory structure could include a detached garage, swimming pool or satellite dish antenna. Similarly, a residential accessory activity could be a yard sale, the storage of a boat or trailer, or the repair of personal automobiles.

The impacts of accessory uses are more easily absorbed in rural or suburban areas where lot-to-lot separation is greater. Within the Borough and Villages, however, such separation is impossible and neighbors are more easily affected by another's activities and actions. **It is recommended that applicable residential accessory land use regulations be incorporated within these Zones; however, not to the point that they violate recently adopted amendments to the Municipalities Planning Code which authorizes widespread use of "home-based businesses."**

These VR and TR Zones' central locations cause them to be linked with the Commercial and Mixed Use Zones. Consequently, these neighborhoods already include other nonresidential uses that contribute to small-town character. **These uses should be specifically accommodated. Civic uses, churches, schools, parks and playgrounds and limited day care facilities should all be permitted as they provide important services within these established neighborhoods. Signage associated with these other use should reflect a residential and pedestrian orientation.**

Existing neighborhoods within the VR and TR Zones have conversion apartments interspersed with detached dwellings. **Conversion apartments provide opportunities for scattered site affordable housing that can be used as starter units for young families or empty-nest units for the elderly. These housing opportunities should be incorporated; the following presents "typical" criteria imposed upon these uses:**

Section	Conversion Apartments
1.	Within the (VR & TR) Zones, an existing single family detached dwelling with at least _____ square feet of habitable floor area that existed on the effective date of this ordinance may be converted into one (1) additional dwelling unit, subject to the following criteria:
2.	The applicant shall furnish evidence that an approved system of water supply and sewage disposal will be utilized;
3.	No modifications to the exterior of the building (except fire escapes) that would alter its residential character shall be permitted;
4.	Each dwelling unit/use shall have at least 400 square feet of habitable floor area and a direct means of escape to ground level; and,
5.	The applicant must provide for one (1) off-street parking space assigned to the proposed unit.

Multi-Family Residential (MFR) – Palmyra Area Region is planned to experience considerable growth of higher-density forms of housing. In the year 2000, the US Census

reported that the Region contained 3009 dwelling units that were not detached dwellings or 41.5 percent of the Township's total housing stock. In order to reflect national housing trends, to reduce suburban sprawl and to offer a variety of housing unit types and densities, the MFR Zone with its pipeline development projects has the potential to accommodate an additional 773 duplex, attached and multi-family units by the year 2020. The MFR Zone accommodates the Macintosh Circle, Northside Crossing, Spruce Village and Village at Springbrook Farms pipeline development projects with some 527 additional dwelling units. In addition the Plan provides for 54.7 acres which could accommodate 246 new units.



Quad courts in "The Village"

Areas planned in this category largely acknowledge existing and/or pipeline land uses. The new MFR Zones is confined to one area just south of the Lebanon Valley Brethren Home along Community Park Drive. It should also be noted that the types of housing units permitted within the Village Residential, Town Residential, Mixed Use, Village Commercial, Central Business Zones and the TND option under the Low Density Residential Zone all provide for the opportunity for multi-family housing unit types.

All areas are planned for public utility service and should be fitted with sidewalks and access to other nearby public facilities (eg. parks, churches, schools, post offices, etc.). The table on the following page presents recommended high-density residential design standards that should be applied to the MFR Zone.



Palm View Nursing Home



Shoe Factory Apartments

Another consideration with high-density housing relates to off-street parking. Generally, units with assigned off-street parking spaces yield higher values and likelihood for owner occupancy as opposed to rental occupancy. Consequently, municipalities have begun to offer design incentives for parking arrangements that foster these preferred arrangements. ***Local officials should carefully explore a range of parking schemes and shared driveways for the various housing unit types and determine if one or more schemes best fit the local demands and community development objectives.***



Townhouses along Pin Oak Circle

Like in the VR Zone, ***it is recommended that applicable residential accessory land use regulations be incorporated within the MFR Zone; however, not to the point***



The Lebanon Valley Brethren Home offers a complete medical residential retirement community

that they violate recently adopted amendments to the Municipalities Planning Code which authorizes widespread use of “home-based businesses.”

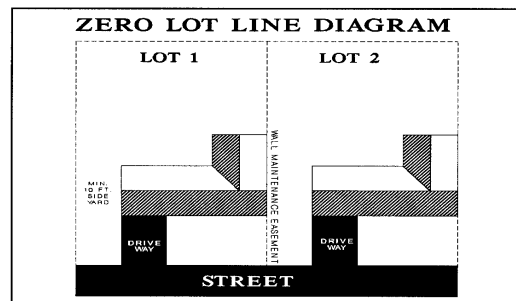
Like in the LDR Zone, the Township should encourage the use of TND within the MFR Zone. Base densities permitted within the MFR Zone should be limited so that density bonuses can be provided when the preferred TND option is applied.

Finally, this category should also regulate other specialized high-density residences such as assisted living, nursing, rest or retirement homes and campuses, and boarding houses. These uses often involve specific needs that compel special attention and review, either by special exception or conditional use.

SUGGESTED BASE DESIGN STANDARDS FOR THE MFR ZONE									
Use	Minimum Lot Area (sq ft.)	Maximum Permitted Height	Minimum Lot Width @ Setback/(Frontage)	Maximum Lot Coverage	Minimum Required Yards				
					Front	One Side	Both Sides	Rear	
Detached Dwelling	10,000	35 ft.	100 ft. (80 ft.)	35%	25 ft.	10 ft. ¹	20 ft.	15 ft.	
Duplexes	3,500 per unit	35 ft.	35 ft. per unit (25 ft. per unit)	60%	25 ft.	10 ft.	N/A	15 ft.	
Townhouses ²	2,400 per unit	35 ft.	24 ft. per unit (18 ft.) per unit	70%	25 ft.	15 ft.	(End Units)	20 ft.	
Multiple-Family ³	1- 2 acres	35 ft.	200 ft. (200 ft.)	60%	35 ft.	30 ft.	60 ft.	35 ft.	

¹Within the MFR Zone, single-family detached dwellings may employ a zero-lot-line design when the following conditions have been satisfied:

- Minimum lot width shall be forty-five feet (45') and thirty-five feet (35') at the building setback and the lot frontage, respectively.
- One side wall of the structure may be located no less than one inch (1") from one of the side lot lines when adjoining another zero-lot-line dwelling lot. The opposite side yard shall be at least ten feet (10') wide.
- A perpetual six foot (6') wall-maintenance easement shall be provided on the lot adjacent to the zero-lot line, which shall be kept clear of structures and vegetation. This easement shall be shown on the plat and incorporated into each deed transferring title to the property. The wall shall be maintained in its original color and treatment, unless otherwise agreed to in writing by the two affected lot owners.
- Roof overhangs may penetrate the easement on the adjacent lot a maximum of twenty-four inches (24"), but the roof shall be so designed that water runoff from the dwelling place on the lot line is limited to the easement area.
- The wall of a dwelling located along the zero-lot-line shall have no openings (e.g., windows, doors, air conditioning units, vents, etc.), unless such openings are located at least eight feet (8') above grade, and have translucent panels.



²No townhouse building shall contain more than eight (8) units. For each townhouse building containing more than four (4) units, no more than sixty percent (60%) of such units shall have the same front yard setback; the minimum variation of setback shall be two feet (2'). In addition, no more than two (2) contiguous units shall have identical roof lines that generally parallel the ground along the same horizontal plane. All townhouse buildings shall be set back a minimum of fifteen feet (15') from any interior access drives, or parking facilities contained on commonly-held lands. All townhouse buildings shall be set back at least thirty feet (30') from any perimeter boundary of the development site. In those instances where several townhouse buildings are located on the same lot, the following footnote 3 shall apply.

³In those instances where several multiple-family dwelling buildings and/or townhouse buildings are located on the same lot, the following separation distances will be provided between each building:

- Front to front, rear to rear, or front to rear, parallel buildings shall have at least fifty feet (50') between faces of the building. If the front or rear faces are obliquely aligned, the above distances may be decreased by as much as ten

- feet (10') at one end if increased by similar or greater distance at the other end.
- b. A minimum yard space of thirty feet (30') is required between end walls of buildings. If the buildings are at right angles to each other, the distance between the corners of the end walls of the building may be reduced to a minimum of twenty feet (20').
 - c. A minimum yard space of thirty feet (30') is required between end walls and front or rear faces of buildings.
 - d. All multiple-family dwelling buildings shall be set back a minimum of fifteen feet (15') from any interior access drives or parking facilities contained on commonly-held lands.

Mobile Home Park – (MHP)

In the year 2000 the US Census determined that the Palmyra Area Region had some 421 mobile homes which accounts for about 5.1 percent of the total number of dwelling units about 0.8 percent lower than the Countywide average.



Future mobile home park development will be limited to an expansion of the existing Oliver's Mobile Home Park located within South Londonderry Township. This location was selected because of residual sewage treatment capacity within the existing park. It is important to understand that this discussion only applies to mobile home parks as freestanding mobile homes are protected under Federal law as single-family detached dwellings and can be placed anywhere "stick-built" homes can be.

Mobile home parks have unique settings that do not mesh with regulations imposed upon their surroundings. Therefore, occupants of these parks must often apply to the Zoning Hearing Board to undertake minor expansions and adaptations of their homes. This imposes unnecessary bureaucracy and costs upon low-to-moderate income residents who can least afford the hearing and legal representation expenses. To overcome this problem it is recommended that a Mobile Home Park Zone be applied to existing parks. This will enhance the compatibility within the other adjoining zones by eliminating mobile home parks as a potential use within these unsuspecting neighborhoods. The following presents suggested design standards for mobile home parks as observed during the field inspection of the Existing Land Use Inventory (Chapter V):

SUGGESTED DESIGN CHARACTERISTICS OF MOBILE HOME PARKS						
Min. Lot Area Per Unit	Min. Lot Width	Front Setback	Side Setback	Rear Setback	Parking Location	Other Setbacks
4500 sq. ft.	45 ft.	25 ft.	10 ft.	10 ft.	Front pads 2 cars wide	Sheds setback 10 ft.

F. MIXED USE (MU)

Palmyra Area Region's location along several older commuter routes has caused its settlement pattern to change over time. What were once acceptable locations for residential development are now less desirable due to increased traffic and its attendant impacts. Both US Routes 322 and 422 are important historic highways that link the Palmyra Area Region to nearby cities and beyond. Palmyra Borough has served as the central business district for this Region. But just beyond its commercial core are homes that line this road. In addition the Village of Campbelltown has an evolving mixed pattern of residential, civic and limited commercial uses.

As society has grown and become more mobile, demand for even more commercial services has increased along these highways. However, the tightly knit neighborhoods that have developed here leave little room for commercial expansion, except within the existing homes along the highway. With even more growth and mobility came traffic congestion and the impacts of traffic streams along the highways. All of these factors combined to promote the conversion of the older homes into other uses, besides detached dwellings.

Over time, some of these former homes have been converted into small retail, business and office uses, and/or conversion apartment units. In addition, some smaller sites that were once vacant, have now been occupied by small commercial buildings. This conversion has occurred because of the traffic that provides a captive market for small businesses.



Proposed MU Zone along Main St. in Palmyra

Recognizing these factors, the Plan recommends a Mixed Use Zone along these corridors. Specifically Palmyra Borough has two mixed Use Zones straddling its Central Business District along US Route 422 and the Village of Campbelltown includes another Mixed Use Zone along both US Route 322 and Palmyra Road.

Because many properties continue to be used as residences within these areas, it is crucial that compatibility be of utmost concern and that existing single-family residence clusters be preserved. To enhance compatibility within this Zone, it is recommended that the MU Zone permit residences by right under the same terms as the Town Residential (TR) Zone within Palmyra Borough and the Village Residential (VR) Zone within the Village of Campbelltown.



Proposed MU Zone along Main St. in Campbelltown

However, these areas should also allow permit the adaptation of existing buildings for non-residential use. Specifically, limited businesses, services, offices and conversion apartments should be permitted by special exception or conditional use. Uses should be limited in size and scale and should be tied with the ready pedestrian access afforded by adjoining sidewalks, which should be provided if not already in

place. Any proposed access drives serving these uses should be limited to one or two lanes only so as not to conflict with safe pedestrian travel.

Nonresidential land uses should be subject to specifically established and strictly applied design standards for lot coverage, landscaping/screening, signage, outdoor storage and pedestrian access. Also, ***this Zone should provide a deliberate disincentive for the razing of existing buildings*** to accommodate more contemporary commercial building styles (eg. 1-story block buildings with flat roofs) that would be incongruous with the prevailing residential development pattern. ***Signage associated with these other use should reflect a residential and pedestrian orientation.***

On the other hand, setbacks, parking, loading and driveway access conditions should be subject to site plan review, in the hopes that several adjoining properties can become integrated. Such integration will help to reduce traffic congestion, while allowing for reasonable land use along these corridors.

The adaptation of mixed-use neighborhoods does not occur rapidly or without controversy. Nonetheless, if the Region is committed to preserving its small-town qualities, this Zone can provide for limited and practical adaptive reuse of its residential housing stock that acknowledges the impacts of the adjoining roads without succumbing to wholesale strip commercial development. This effort will also improve traffic flow along this route by reducing conflicting traffic movements.

Finally, depending upon the commitment to preserve these corridors' historic character, the municipalities could target these areas for a local historical district to preserve significant historical resources. This would require the creation of a Historical Architecture Review Board (HARB) and would be subject to the rules described in Commonwealth of Pennsylvania Act 167 (1961), as amended. This program could help to significantly protect the "small-town" charm exhibited in the older structures.

G. COMMERCIAL (VC, CBD, HC & CO)

Within the Palmyra Area Region there are four distinct patterns of planned commerce.

The first, **Village Commercial Zone**, aims to localize convenience goods and services in the three key locations. First, the intersections of US Route 322 with PA Route 117 and Palmyra Road within the Village of Campbelltown have evolved into important commercial nodes within South Londonderry Township. Second another small node of Village Commercial is planned within the Village of Colebrook to serve the rural areas of South Londonderry Township. The third Village Commercial Zone is planned on the south side of Orchard Drive between Palmyra Road and Park Drive in North Londonderry Township.

The **Central Business District** within Palmyra Borough is intended to provide a vibrant downtown destination featuring a variety of shops, restaurants, offices and civic uses. This Zone generally straddles Main and Railroad Streets in the older central portions of the Borough.

The **Highway Commercial Zone**, provides for freestanding strips of large-scale commerce that exist along the Region's traffic arteries. The largest Highway

Commercial Zone is located on the east end of Palmyra Borough extending into North Londonderry Township. A second smaller Highway Commercial Zone is planned on the west end of Palmyra Borough. A third Highway Commercial Zone is planned just to the west of the Village of Campbelltown and a fourth straddles Northside Drive, both within South Londonderry Township.

A new **Commercial Office Zone** is planned crossing the North and South Londonderry Township boundaries on either side of South Forge Road between Leon Avenue and Airport Road and extending south to include the Reigle Airport.

The following details recommendations for each of these separate Zones:

Village Commercial Zone (VC) - Within the Village of Campbelltown are the important intersections of US Route 322 with PA Route 117 and Palmyra Road. These intersections are important nodes of local commerce to residents within South Londonderry Township and other passing commuters. The uses in these areas have generally already abandoned their residential use and historic pattern of development in favor of a more utilitarian commercial design.

Within the Village of Colebrook exists another small but important node of commerce that serves the inhabitants of rural portions of South Londonderry Township.



Intersection of US Route 322 & Palmyra Road, anchors Campbelltown's largest VC Zone.

This location also has the benefit of adjoining the Lebanon Valley Rail Trail.

The third Village Commercial Zone is located on the south side of Orchard Drive between Palmyra Road and Park Drive in North Londonderry Township. This location affords an ideal location for convenience goods and services aimed at meeting the needs of commuters who travel Palmyra Road on a daily basis as well as residents from adjoining neighborhoods.

For the most part these areas are built-out; however, they include under-utilized parcels and residential properties that could be adapted for commercial use. Also given the ever-changing nature of commercial development, it is conceivable that some of these areas may be redeveloped into small scale shopping centers or larger freestanding convenience stores.

The proposed configuration of these Zones reflects the extent of existing uses and adds several other lots that share similar characteristics. Should these areas become saturated with new businesses that are contributing to the convenience of the local

residents, expansion is conceivable. ***However, local officials should be mindful of the desired scale of this Zone and not invite uses that are better sited within the Highway Commercial Zone.***

Uses permitted here should reflect a local orientation and integrate within the setting without great adverse impact. Uses should remain small and emphasize providing local daily needs to nearby rural residents. Convenience stores, restaurants and taverns, bed and breakfasts, offices, automobile filling stations with minor repair, card, book, magazine, newspaper, music, and video shops, barber and beauty salons, photographic, art and dance studios, tailors, laundromats and dry cleaning drop-off stations, flower shops, jewelry, watch and small appliance sales and various civic uses like churches, cemeteries and post offices are all appropriate.

Overall retail size per store should be limited so as not to exceed its local orientation, nor provide an incentive for the demolition of existing historic buildings in favor of more modern commercial building styles. The development of multi-shop arcades should be encouraged particularly within the adaptive reuse of existing historic buildings. Demolition of historic buildings should be discouraged. All commercial signs should also be limited to reflect their local orientation yet offer ready identification along these busy roads.

Existing site designs, and parking vary. ***Nonetheless, local officials can begin to tighten regulations in these areas and rely upon nonconforming use regulations that tend to, over time, “weed-out” incompatible uses and replace them with businesses that can coexist better within these small villages. Similarly, zoning design standards should promote shared use of access drives, and off-street parking and loading spaces. Outdoor storage should be prohibited in most cases and, if allowed, effectively screened from adjoining roads and residences.***

Uses should be connected to nearby residential neighborhoods by adjoining sidewalks, which should be provided if not already in place. Any proposed access drives serving these uses should be limited to one or two lanes only so as not to conflict with safe pedestrian travel.

Central Business District (CBD) – Palmyra Borough has a cohesive and identifiable central commercial core that is valued by the Region’s local officials and residents. While the Borough has much to be proud of in its downtown, local officials continually hope for a better future with more activity and reinvestment. This Zone will assemble a strategy to enable “downtown” to continue to thrive as a center of retail, service, civic and leisure activities. For the most part this area is built-out. However, the boundaries of this CBD include under-utilized parcels and residential properties that can be adapted for commercial use. ***To manage this area and enhance its successes the Borough should undertake a variety of actions and programs, many of which will require patient diligence:***

First, and foremost, the most successful downtown communities recognize that a visually pleasing and inviting streetscape design is crucial to acquiring and retaining market demand and



patron loyalty. Façade architecture plays a vital role in assembling a streetscape that features a “sense-of-place” that is discernable from other similar towns. Typically the design features of a successful central business district transcend the regulatory limitations imposed upon municipal zoning and land development ordinances.



Converted porch spoils historic facade

Therefore the Borough must commit to a more effective approach to manage streetscape design than in the past. Many towns root their design standards under a campaign of historic preservation and associated architectural review boards. Others rely upon the acquisition of façade easements through municipal or private initiatives (e.g. local business associates or chambers, Main and Elm Street programs, downtown investment districts, etc.). It is noted that the Borough is currently undertaking a Main Street Corridor Study that is to explore “ways to improve traffic flow, economic development, pedestrian/cycling safety and aesthetics.”¹ ***Borough Officials should use this focused study to identify and implement the optimal approach to regulate façade design.***

In any event, the Borough can implement specific zoning regulations that are designed to reflect the Borough’s downtown revitalization goals under Sections 603.(a) and 604.(1) of the PA Municipalities Planning Code. These sections authorize the use of zoning regulations that “give consideration to the character of the community... and the special nature of particular parts of the municipality,” and “which preserve scenic and historic values.” These sections of the PA enabling legislation have been interpreted to give communities wider latitude in regulating some of the more aesthetic features of their respective zones. The following list specific strategies to optimize Zoning regulations for the CBD:

The Borough should be selective in the uses allowed in downtown areas to be pedestrian-friendly and at a proper scale. This will allow for confident reinvestment as business owners will be assured of a pleasant and intimate setting that is free of more intensive and objectionable uses.

The zone should promote uses that are oriented toward pedestrian customers. This does not suggest that customers will suddenly stop visiting the area via automobile, but that “potential” uses should be ones that can serve pedestrians equally well. Such uses would have the added benefit of not requiring the frequent delivery of merchandise via large tractor-trailers, in an area lacking adequate off-street loading space. Examples of suitable uses include:

card, book, magazine, newspaper, music, and video shops; specialty and prepared food stores; bakeries; delicatessens; wine shops; clothing boutiques; barber and beauty salons, sporting goods and musical instrument shops; drug, tobacco, hardware, and 5 and 10 cent stores; restaurants, taverns, ice cream parlors, and outdoor cafes; bed and breakfasts; photographic, art and dance studios; offices; photocopy and office supplies; computer and software sales; arcades and movie theaters; tailors; laundromats and dry cleaning drop-off stations; flower shops; jewelry, watch and small appliance sales and repair; corner grocery stores, including outdoor display, etc. In addition, various civic uses like churches, cemeteries and post offices are also appropriate.

¹ http://www.pennlive.com/midstate/index.ssf/2009/07/palmyra_downtown_study_set_to.html

In addition, some communities permit residences on upper floors for those persons who can benefit from proximity to nearby goods and services and/or cannot afford their own residence. **However, it is recommended that the upper level apartments be permitted only as accessory to the principal commercial uses of street level floor space so that property owners don't convert their entire buildings into apartments.** In this manner commercial potential is sustained and residential parking demands would largely occur in the evening after businesses have closed.

Overall retail size per store should be limited, so as not to exceed its pedestrian orientation, nor provide an incentive for the demolition of existing historic buildings in favor of more modern commercial building styles. The development of multi-shop arcades should be encouraged, but only through the adaptive reuse of existing buildings or within new buildings that reflect the downtown's historic vernacular architecture.

Demolition should be discouraged, and **all structural alterations should be scrutinized by a local façade design review agency or Historic**



Signs geared towards passing motorists



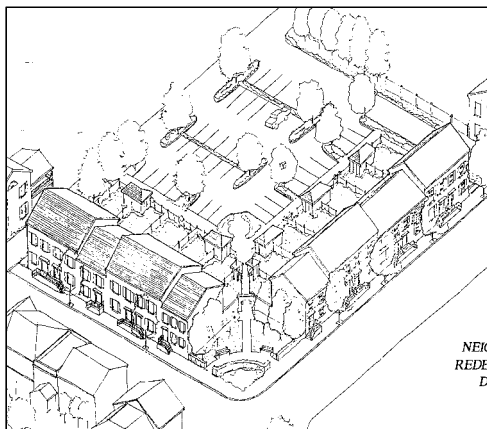
Windowless storefront along Main Street misses opportunity to contribute to the central business streetscape.

Architectural Review Board (HARB). The façade design review agency or HARB should also apply suitable standards for other streetscape amenities, such as signs, canopies, benches, light poles, and so forth.

Unlike pictured on the left, buildings must be orientated towards the street-side sidewalk rather than a rear or side yard parking lot. Building entrances, display windows and canopies should face and accent the Main

Street streetscape.

All commercial signs should be limited to reflect their pedestrian orientation. Signs should be attached flat wall or wall projecting signs with external lighting sources that compliment the architecture of the streetscape.

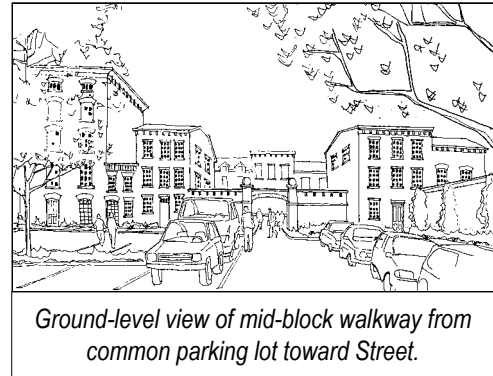


Common rear yard parking lots

Zoning requirements should also prohibit the placement of off-street parking and/or loading within the front yard, in favor of sidewalk "build-to" lines with outdoor cafes and daily outdoor display bins. Other outdoor storage areas should be prohibited to enhance site-to-site compatibility. Unenclosed vending machines should be prohibited on the sidewalk.

Common rear yard parking lots with connecting walkways reflect the most contemporary commercial designs enhancing the vitality of the streetscape. The adjoining drawings illustrate this

innovative concept. ***To efficiently use this space, several adjoining rear yards would need to be assembled and developed together.*** The Zoning Ordinance should allow for, and even encourage, such an arrangement by waiving parking setbacks and enabling shared vehicular access drives. Then, landscape screening should be applied along the alley to protect adjoining residential properties located on the other side of the alley and/or street.



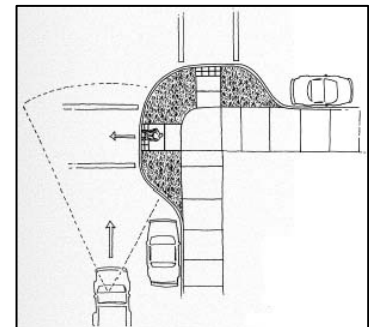
Pedestrian access from the parking lots to the downtown streetscape should be provided by at least one mid-block landscaped walkway. Such walkways should be well lighted for safe nighttime passage and security. They should also reflect the desirable amenities of the downtown streetscape (landscaping, benches, historic full cut-off light fixtures, archways, modest directional signage, waste receptacles, etc.).

Within this Zone, the Borough should substantially relax off-street parking requirements for suitable uses, due to their pedestrian access to adjoining residential neighborhoods and the proximity of on-street and public parking lots. The Main Street Corridor Study should also explore the feasibility of creating a one or more municipal parking lots that adjoin this Zone by charging fees-in-lieu of off-street parking to fund such parking lots.



The CBD's streetscapes are functional and attractive at some locations but not so at others. Some beautification would promote a cohesive and coordinated sense-of-place.

The Township should consider streetscape beautification projects that would provide for uniform and ADA-compliant sidewalk designs, street and directional signs, historic lighting fixtures, standard benches, bicycle racks, tree grates and trash receptacles. Such projects should consider the addition of pedestrian sidewalk extensions at intersections with textured crosswalks and uniformly placed shade trees. The staff should constantly monitor grant monies that would be available for such projects.



The Home Town Streets and Safe Routes to School Program (HTS/SR2S) is a Federal reimbursement program established with the intent of improving downtown and commercial center streetscapes and providing physical improvements that promote safe walking and biking passages to our schools. Typical improvements provided by this program include sidewalk improvements, street lighting, crosswalks, bicycle amenities, signage, curb extensions and some traffic calming projects among others. Additional information about the program can be found at the following website:

Beyond zoning regulations, local officials also need to advertise their willingness to work with local entrepreneurs to achieve the right type of development. Too often, would-be proprietors are afraid of the development review process and the local opposition that can emerge. Local officials should emphasize their willingness to cooperate and work through any specific difficulties that jeopardize reinvestment. This is not to say that they should approve every request, but the local business community should feel as though they have an ally in the review process when the right type of use is proposed. This will require an ongoing demonstration of this commitment. Over time, local entrepreneurs will come to trust the Borough officials and feel free to exercise their creativity and entrepreneurial spirit through reinvestment to the benefit of the community and Region.

Borough Council should challenge and energize the Palmyra Area Business Association to aggressively market downtown Palmyra for both local and wider markets. This group should be vigilant in their advocacy for these areas at all times, and keep the local officials' and public's attention squarely on its needs over time. This should be accomplished as a short-term activity that will lead to an ongoing process of improvement. ***Borough Council could also seek to implement a program of institutionalized temporary local, School District and County tax relief for new entrepreneurs who decide to reinvest downtown.*** This will require commitments from these respective agencies and help new businesses survive their first difficult years.

Palmyra Borough, unlike many other Boroughs, has an important job base due to the presence of local industries. ***It is recommended that local businesses provide goods and services that target these employees who work here on a daily basis.*** Convenience goods and services and lunch-time menus can create new customers, and intercept others who may look for similar services along the highways that converge within the Borough. This would help to capture the existing employee market that is available on a daily basis. ***Also regularly scheduled special events (e.g. closed-street fairs, brown-bag concerts, first-Fridays, open-air markets and etc.) can enliven downtown as an activity center and distinctive destination.***

Many commuters also pass through the CBD each day. ***It is recommended that local businesses provide goods and services that target these daily commuters.*** Convenience goods and services and breakfast and supper-time menus can create new customers, and intercept others who may look for similar services on their way to and from work or school. ***Also, regularly scheduled weeknight business hours (eg. Wednesday nights) or special events (Friday night bazaars or concerts) can add to the excitement.***

Finally, the Borough in collaboration with Lebanon County Metropolitan Planning Organization (LEBCO MPO) and the Lebanon County Planning Department undertook, and recently completed, a Main Street Corridor and Downtown Revitalization Study to blend the Borough's specific local planning initiatives with target recommendations from PennDOT's Congested Corridor Improvement Program (CCIP) study for the US Route 422 Corridor from Palmyra to Cleona. This study offers additional information, approaches and recommendations that can supplement the above-described strategies. The following is an excerpt from the Executive Summary of that study which provides a glimpse into the priority outcomes of this important planning effort.

Top Priorities

Main Street (Route 422) Storm Drain Improvements - Stormwater management improvements need to be an integral part of any improvements to the Main Street (Route 422) Corridor. Implementation of these improvements can be completed as a standalone project(s) or can be included as a part of the recommended Streetscape Improvement projects along Main Street.

Main Street (Route 422) Streetscape Improvements within the downtown core and adjacent sections - Streetscape improvements within the downtown core area will provide the most impact to both the Smart Transportation and Main Street goals and objectives that were used as guidance through the development of the Main Street Corridor Study. Improvements would include intersection improvements to the Main Street/Railroad Street intersection and upgraded pedestrian facilities.

Parking Coordination in downtown core - Parking strategies discussed for the downtown core provide an opportunity to make the downtown area more accessible and provide an additional stimulus for the revitalization of the downtown core.

Cherry Street Bicycle Facilities - The inclusion of pavement marking along Cherry Street would provide a minimal impact project with exponential benefits. On-street bicycle facilities help to promote a secondary mode of transportation to the passenger vehicles. Cherry Street provides an ideal continuation of the on-street facilities that already exist in Hershey. In addition, the inclusion of bicycles through a formal bicycle lane would provide a means of traffic calming along Cherry Street.

Cherry Street Pedestrian Improvements at Middle School - Improvements to this area were also identified on the recently completed "Safe Routes to School Infrastructure Plan" for the Palmyra Middle School. The "Safe Routes" element provides an additional funding source that would be available for this project which would provide increased safety at one of the busiest intersections with regards to pedestrian activities.

Secondary Priorities & Other Improvements

Remaining Main Street (Route 422) Streetscape Improvements - Continuation of the streetscape improvements both east and west of the downtown core will provide continuity along Main Street and upgrade the pedestrian facilities, creating a more walkable community.

Western Gateway - The Borough has available land for the inclusion of a gateway treatment at the western limits of the Borough. The available land, in combination with the current improvements at the intersection of 422 and Lingle Avenue provide for a unique opportunity to incorporate a gateway welcoming visitors to Palmyra.

Cherry Street Boulevard - The Borough has an opportunity to create a roadway section along Cherry Street that addresses a key concern of slowing the vehicular traffic down and creating a safer environment for this residential area. These larger scale improvements could also include measures for improving the drainage along Cherry Street. This would need to be investigated in coordination with the larger scale drainage/stormwater initiatives throughout the Borough.

North Avenue Improvements - With the increase in traffic along Main Street, passenger cars are often looking for an alternative means for getting around the downtown area. While it is not recommended that the Borough seek out an opportunity to divert traffic around the downtown area, the North Avenue area is currently being used as such and could be improved to provide a more comfortable ride and allow for a more convenient access to the recent development north of Main Street.

Eastern Gateway - A gateway along the eastern limits of the Borough would serve a similar purpose as that at Lingle Avenue. However, the lack of available space/right-of-way creates an additional obstacle for the implementation of this gateway. The Borough should be cognizant of opportunities of available right-of-way at this end of town and implement these improvements as

space and funds are available.

Highway Commercial (HC) - Like many other areas within Central Pennsylvania, Palmyra Area Region has a considerable amount of highway commercial development combining freestanding uses with large coordinated shopping centers. The largest of these originates on the eastern side of Palmyra Borough and extends along both side of US Route 422 into North Londonderry Township to its eastern boundary. A smaller concentration of uses is located on the western side of Palmyra Borough, generally straddling US Route 422. Another strip is located just west of the Village of Campbelltown along the north side of US Route 322. The newest node of Highway Commercial Zoning straddles Northside Drive within South Londonderry Township.

Many of the properties within this Zone are already developed; however, some additional development potential exists on these sites. Furthermore, it was noted during the field inspection conducted as part of the existing land use inventory that the Londonderry Square Shopping Centers had considerable storefront vacancy. Consequently, this Plan deliberately avoids the identification of additional large-scale sites with the hope that future market demand can be targeted towards re-use of the existing shopping centers as opposed to the creation of new ones. It was also observed that the Palmyra Shopping Center was undergoing a substantial facelift; this is exactly the response that is envisioned for other areas within this category to enhance their customer appeal.



Londonderry Square Shopping Center has considerable storefront vacancy which can be reclaimed to meet future demand.

The commercialization of the US Route 422 corridor has occurred for many decades. In turn many of the freestanding businesses were developed at times before contemporary commercial site design standards were in place. As the existing Land Use Chapter (V) notes:

Most uses are designed as freestanding lots with separate signs and driveways. Curbs with defined points of access are infrequent as are landscaped strips and internal parking lot landscaping. Off-street loading spaces are not apparent and screening of outdoor storage areas is rare. Newer uses tend to have better designs, particularly to the west of Campbelltown, but these are the exceptions within any given locale. It is noted that some streetscape improvements made near the intersection of Forge Road and Main Street within Palmyra Borough have incorporated better design.

One universal challenge shared by municipalities with older strip commercial development is their redevelopment with better design standards and coordinated access. As the Transportation Chapter (IX) discussed, uncontrolled



Strip commercial uses lack coordinated vehicular access which cause congestion and traffic accidents

vehicular access along major arterial highways causes conflicting traffic movements and congestion. It is no surprise that these stretches of highway have been identified as locations with the highest traffic accident frequency within the Region.

Local Officials should commit to a campaign of improvement in these areas. Change will not be quick or automatic. Zoning requirements should set a contemporary design standard which will make many of the uses dimensional nonconformities. Then site improvements should coincide with uses change or redevelopments. This will require patient diligence unless public monies can be applied and corridor improvement projects implemented. Some of the newer design standards should include the following:

Lot coverage requirements should be applied to manage overall development intensity and offer sufficient room for natural stormwater management facilities, landscape strips and interior landscaping. Lot coverage calculations should give credit to buildings that employ green-roof techniques and bonuses to buildings that obtain LEED certification.

Zoning regulations should be adjusted to require and/or strongly encourage shared development features. This can be done by limiting access drive locations, waiving setbacks for shared features, providing lot coverage bonuses and other design incentives for shared features. Next local officials must be vigilant in communicating to prospective developers the Township's desire for these coordinated designs as existing businesses seek to change and new ones emerge. These changes should help to improve the function and appearance of adjoining roads including those that act as gateways to the individual municipalities and the Region.



Some uses have suitable sidewalks & landscape strips (as seen in foreground) while most others do not (in background.)

Beyond these shared features, other contemporary design features should also be used. First, the use of front yard landscape strips should be required along the road. ***These strips will help to define road/site travel lanes and soften the appearance of the roadside and offer shade for pedestrians.*** A minimum 10-foot wide landscape strip should be required, along with ornamental shade trees and sidewalks. As reliance on mass transit increases and suburban neighborhoods reach out from the Borough it will also become important for highway commercial uses to be linked with adequate sidewalks.

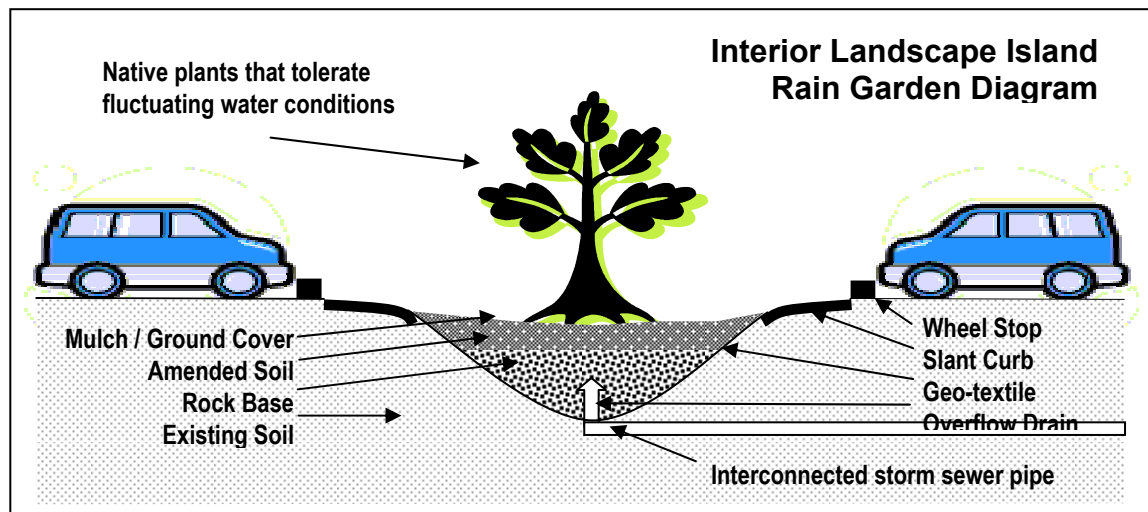
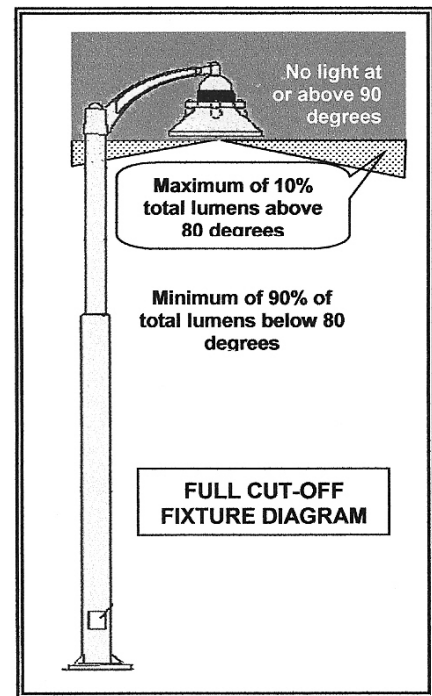
Off-street loading spaces and outdoor storage areas (exclusive of outdoor sales) should be screened from the roads and adjoining properties.

Sign standards should reflect the vehicle-oriented customers of the area, but should produce signs that are informative without being loud and obtrusive. It is important that signs be large enough so that motorists can easily read them at prevailing speed limits. The number of signs should be limited so that they do not compete for driver's attention, and the use of coordinated signage is encouraged. ***Dynamic message display signs should be carefully regulated so as not to permit any device that distracts motorists.***

On-site lighting of buildings and surrounding areas should employ hooded or screened fixtures that confine glare to the site, and security lighting should be directed toward the building, rather than the area around it. ***Security lighting levels should be established to enable the detection of suspicious movement, rather than the recognition of definitive detail. Public address systems used in external areas should be designed to keep audible impact at ambient levels.***

Most sites would benefit from increased landscape materials to define travel lanes, reduce thermal pollution and soften the appearance of expansive parking lots. ***Zoning regulations should strengthen landscaping strip and internal landscape island requirements.***

One more recent approach to interior landscaping is the rain gardens. These small and scattered landscape islands act as stormwater management collection basins that promote stormwater regeneration at various locations across the site. They essentially serve multiple functions of landscaping and stormwater management at the same time. During periods of excessive stormwater runoff, these rain gardens have overflow drains that interconnect with the overall stormwater management system. The previous diagram illustrates some of the elements of a rain garden landscape island:



Because the Region must accommodate every conceivable land use, this HC Zone should provide for a wide range of commercial uses and activities beyond those permitted within the more vulnerable VC and CBD Zones. ***Specific zoning regulations should be developed to respond to those uses that pose specific concern (e.g. adult uses, fast-food restaurants, nightclubs, casinos and etc.) and then engage a deliberate and careful special exception or conditional use zoning review process.***

Furthermore, general zoning regulations applied to all uses should seek to confine impacts to respective development sites. Regulations governing off-street parking lots, off-street loading spaces, access drives, signs, noise, lighting, outdoor storage, waste

storage and operations and performance should all be kept to community standards and then vigorously applied.

Finally, it is noted that a number of scattered highway-oriented businesses exist throughout the Region. The absence of these uses within the planned Highway Commercial area reflects a vision of the future for the Region where such uses are confined to areas served by public utilities and services. Some of these scattered businesses could be permitted within their respective areas (e.g. Agriculture) as they would be logical uses within those contexts. For example, a country inn or bed & breakfast is an appropriate use within the Agricultural Zone. Similarly, a nursery and garden center can also be justified within an Agricultural Zone. Conversely, many of these uses are not consistent with rural settings unless they are limited in scale as accessory occupations (home, rural and farm occupations). In such cases these uses should be regulated as nonconforming uses.



Commercial Office (CO) - One of the stated goals of this Plan is to:

“Provide for a high-quality campus office/employment park between both Townships that promotes multi-story design but complies with applicable airport safety zone requirements.”

This Zone responds directly to this goal. The proposed Commercial Office Zone crosses the North and South Londonderry Township boundaries on either side of South Forge Road between Leon Avenue and Airport Road and extends south to include the Reigle Airport. This location acknowledges the existence of the Lebanon Valley Medical Plaza and the potential for additional medical and/or personal care uses that would be of benefit to the adjoining Lebanon Valley Brethren Home. This Zone also benefits from proximity to the Flightpath Industrial Park immediately to the south and east. It is noted that the areas within South Londonderry Township have no public sewage capacity designated to serve this area. Therefore, it will be necessary to limit permitted lot coverage until such time as public sewers can serve this area.

This Zone is meant to reserve locations for high quality economic development. Suitable uses include individual corporate headquarters, coordinated office complexes, hospitals and related uses, medical, dental, optical and counseling clinics, convention centers with related lodging, laboratories for medical, scientific or industrial research, technical schools, colleges and university campuses, and related accessory uses. This Zone should exclude disruptive manufacturing and warehouse uses. A very limited amount of retail land use may be permitted as a convenience commercial facility for employees.

Zoning requirements for this use should include strict design standards to create a campus like environment and protect each property owner's considerable investment. Minimum lot sizes should be in the two-to-three acre range; however, smaller business establishments can be accommodated by multiple use buildings and parcels. ***Streetscapes should integrate all modes of transport (vehicles, bicycles, pedestrians and mass transit) that link with adjoining uses and neighborhoods.***

Lot coverage requirements should be applied to manage overall development

intensity and offer sufficient room for natural stormwater management facilities, generous landscape strips and interior landscaping. Lot coverage calculations should give credit to buildings that employ green-roof techniques and bonuses to buildings that obtain LEED certification or employ high quality architecture.

Zoning regulations should require and/or strongly encourage shared development features (e.g. access drives, parking lots, loading areas, signs, stormwater management.) Off-street loading spaces should be screened from the roads and adjoining properties.

Beyond these shared features, other contemporary design features should also be used. First, the use of front yard landscape strips will help to define road/site travel lanes and soften the appearance of the roadside and offer shade for pedestrians.

A coordinated set of sign standards should promote large freestanding gateway signs at key entry locations; then, accommodate smaller individual use signs at respective building entrances. Directional signs should also be accommodated but limited in number and size to be informational only. Dynamic message display signs should be prohibited unless carefully regulated.

On-site lighting of buildings and surrounding areas should employ hooded or screened fixtures that confine glare to the site, and security lighting should be directed toward the building, rather than the area around it. ***Security lighting levels should be established to enable the detection of suspicious movement, rather than the recognition of definitive detail. Public address systems used in external areas should be designed to keep audible impact at ambient levels.***

Outdoor storage and operations should be prohibited in this Zone. Significant amounts of landscape and common design themes are elements of this land use. ***The Township should encourage the applicants to self-impose architectural, aesthetic covenants and deed restrictions so as to further protect the high quality image of this area. Lot coverage bonuses can also incentivize high quality architectural standards.***

Furthermore, general zoning regulations applied to all uses should seek to confine impacts to respective development sites. Regulations governing off-street parking lots, off-street loading spaces, access drives, signs, noise, lighting, outdoor storage, waste storage and operations and performance should all be kept to community standards and then vigorously applied.

Another recent trend in both commercial and industrial land use relates to required building height. So many of today's standard commercial developers produce single-story big box stores with massive at-grade parking lots. This practice is the result of an ability to secure land at relatively low cost and the community's legal mandate to keep a ready supply of such developable commercial zoning. ***Some municipalities have grown tired of this consumptive practice and now require large-scale developers to build multi-story buildings and garages.*** This Zone is a logical candidate for such an approach. What once might have take 15 or 20 acres to construct can now be accomplished upon half or even less than that. By imposing mandatory multi-story design, the Townships can require commercial lands be used efficiently. Some municipalities use 60,000 square feet (size of local grocery store) as the threshold above which mandatory multi-story design is required.

Still others have multiple thresholds where increasing sizes require greater use of multi-story design.

However, it is important to note that the proximity of this Zone to the Reigle Airport compels attention to overall structural height so that new uses do not create airport safety hazards by violating applicable State laws. Proposed structures located closest to the airport property will require careful site planning and design to comply with the more restrictive height regulations. Uses proposed away from the airport property should have no problem utilizing multi-story design and still not extend into protected air space. The illustration of the following page demonstrates the efficiencies gained through the use of multi-story design and its reduced consumption of land area.

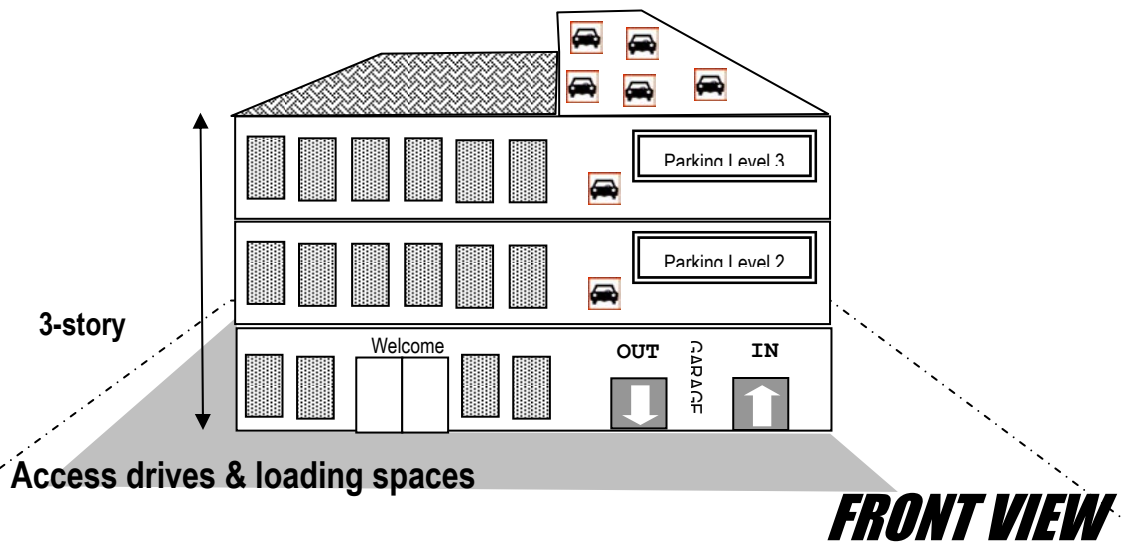
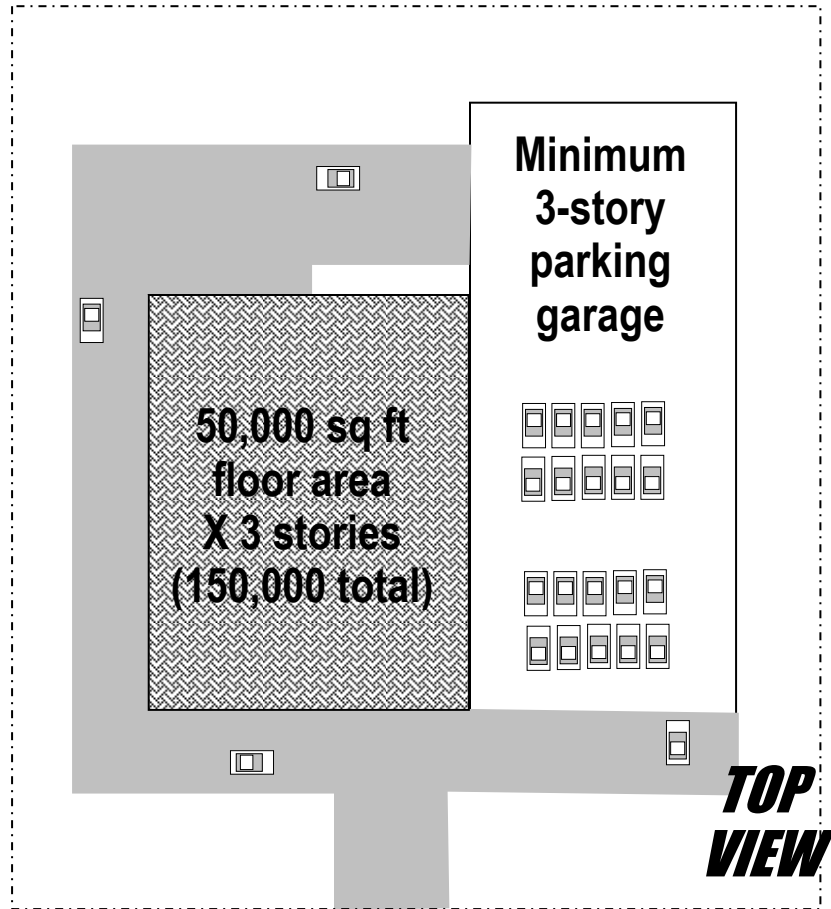
MAXI-MART (150,000+ square feet)



COMMENT:

This size use requires a 3-story building and parking garage thereby reducing:

- lot area (14 to 8 ac)
- lot coverage (75 to 65%) even with increased setbacks.



H. INDUSTRIAL ZONES (LI & HI)

Within the Palmyra Area Region there are two distinct forms of industry depicted on the Future Land Use Map. The **Light Industrial Zone** is located encompasses various industrial site located within central portions of Palmyra Borough generally straddling the Norfolk Southern Railroad line; although a few other properties are located away from the railroad. The Light Industrial Zone also includes two areas within the South Londonderry Township namely the Flightpath Industrial Park and the Acorn Design site which is located within the Village of Campbelltown.

The larger **Heavy Industrial Zone** includes several larger areas located on the edges of Palmyra Borough and extending into adjoining areas of North Londonderry Township. These areas are primarily devoted to large warehouses and quarrying and related materials processing.

Light Industrial Zone (LI) - As described in the Existing Land Use Chapter:

“Like most old towns, Palmyra Borough once had thriving industry that was an “engine” for the local economy. Remnants of this past are located along the railroad line that bisects the Borough and along North Avenue on the west side of town. Within central areas of the Borough many of the former important industries have been lost; however, several sites remain.”

These existing uses continue to contribute important employment opportunities as well as tax base within the Region. In addition the “newer” Flightpath Industrial Park located within South Londonderry Township provides similar benefits along with specialized private recreation and fitness facilities.

The Light Industrial Zone is meant to accommodate these uses and provide for their expansion and adaptation. Substantial potential exists for in-fill developments and more effective use of underutilized buildings and properties. For the most part the existing uses exhibit “tidy” sites with little or no outdoor storage of goods and materials; this is particularly important within Palmyra Borough where industries directly adjoin “in-town” neighborhoods.

Within this Zone, uses permitted should be selected from a list that can co-exist with little off-site impact. Small scale and light industries should be accommodated to promote “start-up” business opportunities.

As discussed in Chapter V, existing industries usually lack contemporary site design, including screening and buffering. ***Local officials should strive to retrofit some of these amenities as uses expand, change or improve. This process will be slow and will require patient persistence; however, now is the time to start!***

New uses proposed amid these older industrial enclaves should be held to a higher standard of site design and suitable zoning regulations should be adopted. This will undoubtedly make many features of the existing industries nonconforming; however, the nonconforming use provisions of zoning ordinances are intended to effect desired change over time. Furthermore, if new uses are proposed, they should be encouraged to cooperate with their neighboring uses (where practical) in the sharing of vehicular access, parking and loading, signage and storm water management.

Local officials should seize every opportunity to upgrade these older industrial sites when confronted with some prospective change.

Regulations should also limit the number of driveway cuts and freestanding signs, and either prohibit or effectively screen outdoor storage. Design standards should encourage functional, yet attractive, sites when viewed from adjoining properties and roads. This involves required landscaping, screening and buffering of off-street loading and parking spaces, and dumpster storage standards.

Lot coverage requirements should be applied to manage overall development intensity and offer sufficient room for natural stormwater management facilities, landscape strips and interior landscaping.

Additionally, prospective industries should be required to demonstrate compliance with all applicable Federal and State operations standards. Furthermore, general zoning regulations applied to all uses should seek to confine impacts to respective development sites. Regulations governing off-street parking lots, off-street loading spaces, access drives, signs, noise, lighting, outdoor storage, waste storage and operations and performance should all be kept to community standards and then vigorously applied.

Heavy Industrial Zone (HI) – The Palmyra Area Region is fortunate to possess significant amounts of large scale industry which provide economic benefits to the municipalities and their residents. The Heavy Industrial Zone acknowledges these larger and more intensive areas of industry that are generally located at the edges of Palmyra Borough and extend substantially into North Londonderry Township.

Like in the Light Industrial Zone, this Zone should also accommodate small scale and light industrial uses by right to promote start-up business opportunities. However, this Zone must also accommodate a wider range of uses and sizes. The massive size of these Zones afford the opportunity to permit uses with greater impact which can be absorbed within required buffers. Specific buffer and screening requirements should be integrated within this Zone so as to ensure compatibility with adjoining properties and neighborhoods. Fortunately some of the newer uses within this Zone already incorporate effective buffering and screening as depicted in the adjoining photograph.



Vegetative berm effectively screens warehouses from adjoining neighborhoods

Often, local officials exercise greater scrutiny in the approval of large and heavy industrial uses. One such approach requires the approval of a conditional use. ***By requiring a conditional use review local officials realize the following benefits:***

1. require the developer to fully explain the nature of the proposed use;
2. give local citizens the opportunity to express support or concern over the use;
3. application of specific criteria aimed at minimizing adverse impact to the community and

adjoining properties;

4. provide the municipality time to engage professional review assistance of the use and its expected impacts; and,
5. allow local officials to attach reasonable conditions of approval to mitigate any negative effects of the use.

For these reasons it is recommended that both Palmyra Borough and North Londonderry Township consider the conditional use review process when considering the following industries:

- Billboards;
- Heavy equipment sales, service and repair, such as excavation machinery, farm equipment, commercial trucks, buses, mobile homes, trailers, and other similar machinery;
- Truck or motor freight terminals;
- Warehousing and wholesale trade establishments;
- Adult-related uses;
- Junkyards;
- Quarries and mines;
- Sawmills;
- Septage and spent mushroom compost processing;
- Slaughtering, processing, rendering, and packaging operations;
- Solid waste disposal, and processing facilities; and,
- Any other industrial activity that presents adverse impact to surrounding areas.

As reported in Chapter V (Existing Land Use) the Pennsy Supply Quarry encompasses vast areas of this Zone within North Londonderry Township. This massive deep pit operation affords valuable needed building materials locally and offers products that support a variety of industries within the Region and beyond.



The quarry pits and processing operations are located on the north side of the Norfolk Southern Railroad line which effectively separates this use from other commercial and industrial areas to the south. On the north, the quarry operator owns considerable acreage which again effectively separates the quarry from the rural residential areas to the north.

Although no new areas are planned within North Londonderry Township, the Township must regulate ongoing operations and their subsequent reclamation. Because of their intensive operations, and potentially detrimental impacts, quarry and mining operations are usually highly controversial. ***Again the conditional use review process affords a***

suitable level of scrutiny when confronted with the potential of such uses.

All quarrying should be required to at all times demonstrate compliance with the Pennsylvania Noncoal Surface Mining Conservation and Reclamation Act (as may be amended). As part of compliance with this State Act, quarry owners are required to propose a reclamation land use once quarrying operations cease. Local officials should carefully scrutinize such reclamation uses to determine their suitability with long-range comprehensive planning for that locale.

As stated above, this plan only recommends the existing quarry location. It is noted that the quarry has been seeking expansion in adjoining North Annville Township. Should this use require expansion within North Londonderry Township, or a new use be proposed, local officials can scrutinize potential locations via the conditional use hearing process.

Like in the Light Industrial Zone, prospective industries should be required to demonstrate compliance with all applicable Federal and State operations standards. Lot coverage requirements should be applied to manage overall development intensity and offer sufficient room for natural stormwater management facilities, landscape strips and interior landscaping. Furthermore, general zoning regulations applied to all uses should seek to confine impacts to respective development sites. Regulations governing off-street parking lots, off-street loading spaces, access drives, signs, noise, lighting, outdoor storage, waste storage and operations and performance should all be kept to community standards and then vigorously applied.

I. PUBLIC

The Public/Civic plan designation identifies land uses which serve some public or civic function. Specifically, it includes municipal lands, buildings and parks, school sites, churches, and cemeteries. The Public category is intended to acknowledge such existing land uses, and provide a recognizable point of reference to someone viewing the Future Land Use Map.

The Public category is not intended to be implemented by a single zone. Rather, public and civic uses are generally to be permitted in the underlying Zone.

Most often, municipalities allow these uses as permitted uses in a variety of zones. However, some limitations on these uses can be helpful in protecting neighborhoods from nonresidential impacts. ***Local officials may wish to require the obtainment of a special exception for some of these uses so as to prevent negative impact on nearby homeowners.***

Furthermore, school sites should be placed amid planned future neighborhoods so as to promote students walking to school and to avail convenient use of the schools' recreation facilities. These considerations could be applied as special exception or conditional use criteria attached to school uses.

J. SCHEDULE OF LAND USES

The following presents a schedule of land uses allocated across the Region which should be used to develop suitable zoning regulations and an implementation agreement in accordance with the goals of this plan and Section 916.1.(h) of the MPC:

Schedule of Regional Allocation of Land Uses by Proposed Zone and Type of Use

ZONE – P-Permitted / A-Accessory / S-Special Exception / C-Conditional Use	C	A	AH	RR	LDR	VR	TR	MFR	MHP	MU	VC	CBD	HC	CO	LI	HI
MUNICIPALITY – A-All / P-Palmyra / N-N. Londonderry / S-S. Londonderry	N,S	S	S	N	A	S	P	A	P,S	P,S	N,S	P	A	N,S	P,S	P,N
Adaptive reuse of agricultural buildings	S	S	S													
Adult uses																S2
Agriculture and horticulture	P	P	P	P	P			P1,2	P				P	P	P	P
Airports and heliports														S 1		
Alternate energy production facilities	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Amusement arcades											S/C	S	S			
Amusement, theme and/or zoo parks,													C 2			
Animal hospitals and veterinary offices													P	P	P	P
Auction houses, excluding automobile auctions													S		S	S
Automobile and/or animal racing facility with or without related wagering													C 2			
Automobile auctions and/or storage yards													S 2			S 2
Automobile filling stations											S/C	S	S			
Banks and similar financial institutions										P	P	P	P	P	P	P
Barber, beauty, tanning and health salons										P	P	P	P			
Bed and breakfasts	S	S	S							C	P	P	P			
Beekeeping,	A	A	A	A												
Billboards																S 2
Boarding houses						S	S	S		C	S/C	S				
Bookbinding, printing, and publishing operations														P	P	P
Campgrounds	S	S														
Car washes											S/C		S		S	S
Casinos, off-track betting parlors and/or slot machine parlors													C 2			
Caterers, delicatessens, bakeries, ice cream shops, & confectioners										C	P	P	P			
Cemeteries, including pet cemeteries	P	P	P	P	P	P	P	P		P						
Churches and related uses		P	P	P	P	P	P	P		P	P	P	P	P		
Co-located communication antennas upon existing structures	P	P	P													
Commercial day care facilities										C	P	P	P	P	P	P
Commercial greenhouses													P		P	P
Commercial produce operations		S														
Commercial recreation uses											S/C	S	S		S	S
Concentrated animal feeding operations (CAFOs)/Concentrated animal op's (CAOs)		P														
Conservation design developments	P	P														
Convenience stores											S/C	S	P			
Convention and/or conference centers													S	S	S	S
Dance, music, art, fashion and photographic studios and galleries										C	P	P	P	P	P	
Domestic composts	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Domestic pets	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Drive-thru and/or fast-food restaurants											S/C	S	S			
Dry cleaners, laundries and laundromats											S/C	S	S			
Duplex dwellings						P	P	P		P	P	P				

ZONE – P-Permitted / A-Accessory / S-Special Exception / C-Conditional Use	C	A	AH	RR	LDR	VR	TR	MFR	MHP	MU	VC	CBD	HC	CO	LI	HI
MUNICIPALITY – A-All / P-Palmyra / N-N. Londonderry / S-S. Londonderry	N,S	S	S	N	A	S	P	A	P,S	P,S	N,S	P	A	N,S	P,S	P,N
ECHO housing	A	A	A	A	A											
Facilities devoted to entertainment and cultural activities										C	P	P	P	P		
Family day-care facilities	A	A	A	A	A	A	A	A		A	A	A				
Farm occupations	A	A	A	A												
Farmers and/or flea markets													S		S	S
Fences and walls	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Fish hatcheries and/or fish farms	P	P	P													
Forestry uses	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Freestanding communication antennas, towers and equipment	S	S														S
Funeral homes										C	P	P	P			
Garage, yard and moving sales	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Garages & sheds for personal vehicles/property	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Gardening and raising of house plants	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Golf courses and driving ranges		S	S	S	S1,2			S1,2								
Health, fitness, social, fraternal and other private clubs										C	S/C	S	S	S	S	S
Heavy equipment leasing, rental, sales, service, repair and warehousing															S1	S
Heavy industrial uses																S
Helicopter pad, private														S	S1	S2
Historic structure conversions	S	S	S	S	S	S	S	S		C	S/C	S	S			
Home improvement and building supply stores													S		S	S
Home occupations	A	A	A	A	A	A	A	A	A	A	A	A	A	A1		
Hospitals and related uses														S		
Hotels, motels and similar lodging facilities											P	P	P	P		
Junkyards																S
Keeping of carriage & buggy horses	A	A	A	A												
Kennels		S														
Laboratories for medical, scientific, or industrial research and development														P	P	P
Machine, tool and die, and metal fabrication shops															P	P
Man-made lakes, dams and impoundments	A	A	A	A	A			A	A	A			A	A	A	A
Manufacturing, packaging, storage and/or wholesaling...															P	P
Manufactured home park									P1,3							
Manure storage facilities	A	A	A	A	A			A1,2					A	A	A	A
Mass transit and/or taxicab terminals													S		S3	S
Medical, dental, vision and counseling clinics and offices										C	P	P	P	P	P	P
Medical residential campus								S						S		
Methadone treatment facility																S
Mining, quarrying and related processing operations																S2
Mini-warehouses													S		S	S
Multiple-family dwellings								P			P					
Municipal & governmental uses	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Nightclubs													S			
No-impact home-based business	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

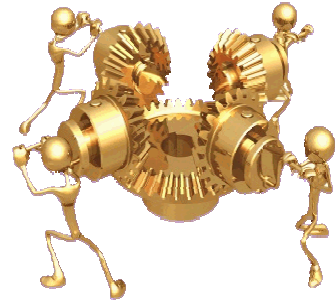
ZONE – P-Permitted / A-Accessory / S-Special Exception / C-Conditional Use	C	A	AH	RR	LDR	VR	TR	MFR	MHP	MU	VC	CBD	HC	CO	LI	HI
MUNICIPALITY – A-All / P-Palmyra / N-N. Londonderry / S-S. Londonderry	N,S	S	S	N	A	S	P	A	P,S	P,S	N,S	P	A	N,S	P,S	P,N
Noncommercial keeping of livestock	A	A	A	A1												
Nursing, rest or retirement homes					S	S	S	S		C				S		
Offices										C	P	P	P	P	P	P
Ornamental ponds and wading pools	A	A	A	A	A			A		A						
Outdoor furnaces	A	A														
Outdoor residential athletic courts	A	A	A	A	A			A								
Outdoor shooting ranges	S	S														
Out patient health services										C	P	P	P	P	P	P
Parking and/or storage of recreation vehicles and personal cargo trailers	A	A	A	A	A											
Parks and playgrounds	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Passenger motor & recreational vehicle sales, service and repair facilities											S/C		S		S	S
Personal services										C	P	P	P	P	P	P
Play structures	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Power generation facilities															C	C
Principal waste handling, recycling, processing, transfer and disposal facilities																C
Processing, packaging, bottling, storage and/or wholesaling of food products															P	P
Public and private schools			P		P			P		C						
Public, private, and commercial schools.											P	P	P	P	P	
Public utilities structures.	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Recycling facilities for electronics, paper, plastic, glass and metal products															S	S
Residential swimming pools	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Repair shops for products permitted to be manufactured in this Zone															P	P
Restaurants and taverns											P	P	P	P	P	P
Restaurants, excluding fast-food drive-thru facilities										C						
Retail sales, rental or repair of goods										C	P	P	P			
Riding stables	S	S	S													
Roadside stands for the seasonal sale of agricultural products	A	A	A	A												
Routine repair and servicing of personal motor vehicles	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Rural occupations	A	A	A	A												
Sales, storage and/or wholesaling of the following															P	P
Satellite dish antennas	A	A	A	A	A	A	A	A	A	A	P	P	P	P	P	P
Sawmills																S
Septage and compost processing		S													S1	S2
Shopping centers											S/C	S	S			
Shops, offices and showrooms for contractors													P		P	P
Signs	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Sign makers															P	P
Single family detached dwellings	P	P	P		P	P	P	P	P	P	P	P	P			
Slaughtering, processing, rendering, & packaging of food products & their by-products																S 2
Small engine repair shops															P	P
Traditional neighborhood design developments					P1			P1								
Townhouse dwellings								P		P	P					

ZONE – P-Permitted / A-Accessory / S-Special Exception / C-Conditional Use	C	A	AH	RR	LDR	VR	TR	MFR	MHP	MU	VC	CBD	HC	CO	LI	HI
MUNICIPALITY – A-All / P-Palmyra / N-N. Londonderry / S-S. Londonderry	N,S	S	S	N	A	S	P	A	P,S	P,S	N,S	P	A	N,S	P,S	P,N
Truck or motor freight terminals																S 2
Truck stops													S1,2			S2
Two-family conversions						P	P	P		P			P			
Upper floor apartment											P	P	P			
Veterinary offices										C	P	P	P	P	P	P
Vocational, technical and mechanical trade schools														P	P	P
Warehousing and wholesale trade establishments															S	S
Welding shops															P	P
Wind farms	C	C														
1-SLT only / 2-NLT only / 3-PB only																

XI. Implementation

A. LEGAL REQUIREMENTS

The development of this Plan has been an ambitious and educational process. Goals have been deliberately set high and many specific recommendations have been made. But this is just the beginning. The Plan outlines a grand strategy, but action and dogged determination will be necessary if the Plan's goals are to be achieved. This final Chapter will provide a list of tasks that must be undertaken to optimally determine the Region's future, but before actual assignments are listed, it is important to understand how each municipality within the Region is to interact in this regional undertaking.



Recent amendments to the Municipalities Planning Code (MPC) address this issue directly. Article 11 of the MPC is entitled Joint Municipal Planning Commissions but it provides much more than this subject. Article 11 enables regional planning and specifies its objectives. It defines municipal versus County roles in the regional planning process. And finally, it provides for inter-municipal implementation agreements. Section 1104 states:

- (a) *In order to implement multi-municipal comprehensive plans, under section 1103 counties and municipalities shall have authority to enter into intergovernmental cooperative agreements.*
- (b) *Cooperative implementation agreements between a county and one or more municipalities shall:*
 - (1) *Establish the process that the participating municipalities will use to achieve general consistency between the county or multi-municipal comprehensive plan and zoning ordinances, subdivision and land development and capital improvement plans within participating municipalities, including adoption of conforming ordinances by participating municipalities within two years and a mechanism for resolving disputes over the interpretation of the multi-municipal comprehensive plan and the consistency of implementing plans and ordinances.*
 - (2) *Establish a process for review and approval of developments of regional significance and impact that are proposed within any participating municipality. Subdivision and land development approval powers under this act shall only be exercised by the municipality in which the property where the approval is sought. Under no circumstances shall a subdivision or land development applicant be required to undergo more than one approval process.*
 - (3) *Establish the role and responsibilities of participating municipalities with respect to implementation of the plan, including the provision of public infrastructure services within participating municipalities as described in subsection (d), the provision of affordable housing, and purchase of real property, including rights-of-way and easements.*
 - (4) *Require a yearly report by participating municipalities to the county planning agency and by the county planning agency to the participating municipalities concerning activities carried out pursuant to the agreement during the previous year. Such reports shall include summaries of public infrastructure needs in growth areas and progress toward meeting those needs through capital improvement plans and implementing actions, and reports on*

development applications and dispositions for residential, commercial, and industrial development in each participating municipality for the purpose of evaluating the extent of provision for all categories of use and housing for all income levels within the region of the plan.

(5) Describe any other duties and responsibilities as may be agreed upon by the parties.

- (c) Cooperative implementation agreements may designate growth areas, future growth areas and rural resource areas within the plan. The agreement shall also provide a process for amending the multi-municipal comprehensive plan and redefining the designated growth area, future growth area and rural resource area within the plan.
- (d) The county may facilitate convening representatives of municipalities, municipal authorities, special districts, public utilities, whether public or private, or other agencies that provide or declare an interest in providing a public infrastructure service in a public infrastructure service area or a portion of a public infrastructure service area within a growth area, as established in a county or multi-municipal comprehensive plan, for the purpose of negotiating agreements for the provision of such services. The county may provide or contract with others to provide technical assistance, mediation or dispute resolution services in order to assist the parties in negotiating such agreements¹.

Based upon the preceding language, the Region has the ability to develop an implementation agreement to operationalize the Plan. Such implementation agreement should be developed with the assistance of local officials, Lebanon County Planning Department staff, solicitors and planning consultant(s). It should be detailed enough to convey the expectations of each municipality yet simple enough to be understood and not discourage involvement. It should establish review thresholds for changes to the Plan and subsequent zoning policies that ensure a proper regional allocation of land use but do not impose unnecessary reviews that could overburden local administration.

B. SCHEDULE OF SPECIFIC RECOMMENDATIONS

In developing an implementation agreement as enabled by the MPC and recommended above, **the following specific action tasks have been identified with bold italicized print throughout this Plan.** The task along with its responsible parties, suggested time frame and a reference where further discussion can be found within the plan are provided in the following schedule. These tasks should form the basis of the inter-municipal agreement and can be used as an agenda of action by local officials over the life of the Plan. Short term items are meant for action as soon as local resources would permit (1-2 years); long-term items are beyond immediate attention and may require prerequisite actions or events; and, ongoing items suggest a continuous timeline for action and attention.

It should be noted that this schedule lists various groups and agencies as responsible parties in fulfilling specific actions who were not part of this planning process. These “other” parties may share in the responsibility to achieve the recommended action and without their assistance would lessen the chance for success within the Region. This Plan is not suggesting that it defines their agenda but is indicating their important role in fulfilling the recommended strategy.

¹ <http://www.inventpa.com/docs/MPCode.txt> (1/23/03)

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
1. It is important for all persons involved and/or interested in the future of the Palmyra Area Region to read and understand this Plan. Local decision-makers should keep the Plan handy when evaluating future development proposals, service adjustments or public investments.	Local staff, & officials from each municipality	ongoing	3
2. Local decision-makers should utilize the Plan when evaluating future development proposals, service adjustments or public investments.	Local staff, & officials from each municipality	ongoing	3
Recommendations related to the protection of natural & cultural features. (Chapter III)			
3. All home or rural occupations should demonstrate the means by which materials and wastes will be properly handled and disposed of.	All municipalities	ongoing	18
4. Homeowners should protect their on site domestic wells.	NLT & SLT	ongoing	19
5. Prime farm soils and soils of Statewide importance should be protected from conversion to other uses through appropriate planning and zoning.	SLT	Short term	25
6. Both Palmyra Borough and North Londonderry Township should request that the Lebanon County Subdivision and Land Development Ordinance be amended to incorporate suitable environmental impact requirements to ensure that localized soils limitations (and others) are either adequately protected and/or managed prior to approval of development plans.	PB &NLT	Short term	26-27
7. South Londonderry Township should amend its Subdivision and Land Development Ordinance to incorporate suitable environmental impact requirements to ensure that localized soils limitations (and others) are either adequately protected and/or managed prior to approval of development plans.	SLT	Short term	26-27
8. Local Officials should be aware that surface water pollution exists and that suitable stormwater management and erosion control practices should be applied accordingly.	All municipalities	ongoing	30
9. Future planning should avoid development in areas with wetlands and hydric soils.	All municipalities	ongoing	30-32
10. The Borough could adopt environmental requirements or incorporate zoning incentives for the protection of alluvial soils that have historically flooded.	PB	Short term	33
11. Both Townships should consider strengthening their regulatory floodplain to identify floodplains as including the 100, and 500 year floods, alluvial soils and historical known high water levels.	NLT & SLT	Short term	33-34
12. The Townships should keep abreast of any future regulatory changes that may be forthcoming from FEMA to stay eligible for federal flood insurance protection.	NLT & SLT	ongoing	34
13. Local officials should play an active yet supporting role in the County's development of watershed based stormwater management plans to ensure that the specific concerns regarding the unique problems	All municipalities	Short term	34-37

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
associated with the Region's sinkhole problems receive due attention with effective outcomes. Then, once the respective Plans are completed, each municipality should adopt suitable stormwater management regulations and commit to other needed improvements that will implement the Plans' findings			
14. Underground investigations should be undertaken prior to urban development in "karst" formations. Then corresponding construction, stabilization and drainage methods should be carefully applied in response to local conditions as warranted. (The Lebanon County Subdivision and Land Development Ordinance requires geotechnical investigation prior to any development within karst geology.)	All municipalities	ongoing	36-37
15. A requirement for an Environmental Impact Assessment (EIA) prior to any subdivision land development approval should be applied to areas within designated natural habitats. The Townships might also want to establish mandatory clustering in these areas so that these important resources can be protected amid rural-density developments. Transferrable development rights could also be used to financially compensate landowners who are willing to accept permanent conservation easements on these sites.	NLT & SLT	ongoing	37-42
16. Each municipality must adopt sound forestry management regulations that can protect the sensitivity of wooded areas and adjoining neighbors from the deleterious impacts of uncontrolled logging uses and operations.	NLT & SLT	Short term	43
17. Both Townships should consider adopting reforestation and tree preservation requirements to protect a majority of existing trees in proposed subdivisions or land developments, except those whose removal is necessary for the proposed structures and required improvements.	NLT & SLT	Short term	43
18. Township officials should monitor the PA Highlands designation process to ensure that any recommendations align with local objectives for the protection and conservation of the Township's sensitive and valuable natural features. Then once local highlands have been assessed, the Region should package land conservation partnership projects and submit these to the PA DCNR for consideration by the Governor and the Federal government.	SLT	Long term	44-46
19. The Region should solicit interest in the creation of a local or regional conservancy devoted to the updating of historic site inventories and then advocating an appropriate preservation strategy.	All municipalities	Long term	46-52 & 61
Recommendations related to demographics. (Chapter IV)			
20. Special outreach opportunities and programs should be targeted to assist persons with incomes under the poverty level.	PB & NLT	ongoing	59
21. Future land use policies should pay particular attention to ensuring higher-density housing types, which tend to be more affordable.	All municipalities	Short-term	61 & 62

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
Recommendations related to the delivery of public facilities. (Chapter VII)			
22. Closely monitor growth within the Region so as to proactively plan for facility expansion well in advance of actual demand for space.	School District & Municipalities	Short-term & ongoing	95-96
23. Improve the process of residential development review and allocate manpower and resources so as to properly respond to such applications and provide meaningful feedback to the municipalities.	School District & Municipalities	Short-term & ongoing	96
24. Revise subdivision and land development application requirements so that adequate and timely notification to the School District is assured.	All municipalities	Short-term & ongoing	96
25. Continue to support the Palmyra Area Recreation and Parks Commission (PARPC).	All municipalities& School District	Short-term & ongoing	96-97
26. Development of at least one of the two community parks in North Londonderry Township with revenues collected by the Township and/or the PARPC.	NLT & PARPC	Short-term	105-106
27. Develop the 16 acre Campbelltown Community Park.	SLT & PARPC	Short-term	106
28. Local officials from Palmyra Borough should remain aware of opportunities to extend neighborhood parks in the western edges of Palmyra Borough.	PB & PARPC	ongoing	109
29. Local officials from South Londonderry Township should remain aware of opportunities to extend neighborhood parks in Country Squire and Country Squire Estates neighborhoods.	SLT & PARPC	ongoing	109
30. Local officials should seek ways to protect and incorporate the Lebanon Valley Rail Trail and the Horseshoe Trail within the Region's overall park and open space system and programs. Development plans proposed along these trails should protect the overland alignments by reflecting the trail use and designing developments that respect their integrity. Density bonuses through zoning and cluster developments can be used to incentivize this process.	SLT	ongoing	109-111
31. Local officials should also mount a campaign to implement streamside restoration and riparian buffer planting projects.	NLT & SLT	Short term & ongoing	111-113
32. Local officials should educate landowners and developers of the importance of riparian buffers, and the intention to provide for them. Newsletter articles should be used occasionally to introduce these concepts, and then to feature successful implementation examples as they occur.	NLT & SLT	Short term & ongoing	111-113

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
33. The Palmyra Area Recreation Commission should make application to the Pennsylvania Department of Conservation and Natural Resources, Pennsylvania Recreational Trails Program Grants, to undertake a feasibility study to link key linear parks throughout the Region.. Results from this study should then be subsequently integrated into this Regional Comprehensive Plan, the Regional Comprehensive Recreation and Open Space Plan and any municipal Official Maps.	All municipalities & PARPC	Long term	115
34. Adopt its own mandatory dedication standards within the Subdivision and Land Development Ordinance.	SLT	Short term	115-119
35. Seek to acquire fees-in-lieu of parkland dedication. Use revenues/parklands acquired across the Region with PARPC oversight. Such fees can then be used to improve the underdeveloped community parks within both Townships.	All municipalities & PARPC	ongoing	115-119
36. Update mandatory dedication standards to allow for parkland/ revenues to keep pace with changing demographics and land values.	All municipalities, LCPD & PARPC	Long-term	115-119
37. Participate in a regional police consolidation feasibility study conducted by the PA DCED's Governor's Center for Local Government Services.	All municipalities	Short-term	123-124
38. Create a new Emergency Services Alliance to: <ul style="list-style-type: none"> • evaluate policies that affect availability of local volunteers; • formalize a program to deliver specialized training to ensure a wide and uniform coverage of specialized skills and expertise throughout the Region; • cultivate awareness among the newly-arrived residents of the need for their financial and manpower support to sustain volunteer firefighting and ambulance services; • mount an educational and media campaign for financial support; • begin to explore the partial and gradual use of other funding mechanisms; • apply to the PA DCED for preparation of technical review, under Shared Municipal Service Program; • continue to pursue opportunities for regional volunteer fire service consolidation on the west side of Lebanon County. 	All municipalities & fire & ambulance companies	ongoing	126-131
39. Adopt minimum driveway design standards that facilitate adequate emergency access and provide detailed geographic information system (GIS) mapping to each emergency service provider.	All municipalities	Short term	131
40. Install dry hydrants in rural areas of the Region.	Local fire companies, NLT & SLT	Long-term	131-132

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
41. Adjust zoning, SLDO and other regulations to ensure adequate emergency access and integrate local fire companies in the development review process for those wishing to deviate from such regulations. It is noted that the Lebanon County Subdivision and Land Development Ordinance requires adequate emergency access and requires review by local emergency service providers during plan review.	Local fire companies and local officials.	Long-term	131
42. Develop zoning regulations that compel the reporting of materials and waste handling practices as part of any zoning permit or use and occupancy permit. Then copies of this information should be provided to the local fire companies to aid in their emergency preparedness and response.	All municipalities.	Short term and ongoing	132
Recommendations related to public utilities. (Chapter VIII)			
43. Cooperate with the PA American Water Company to ensure that adequate public water capacity and service areas are coordinated with planned future growth areas.	All municipalities	ongoing	139-141
44. Complete construction and operate the new wastewater treatment plant to serve all of the existing and future users within both North Londonderry Township and Palmyra Borough.	NLT & PB	Short term & ongoing	143
45. Continue its efforts to identify and remediate sources of inflow within its collection system.	PB	Ongoing	145
46. Avoid the unnecessary extension of its planned sewer service areas beyond those properties already served and those properties that have already reserved such capacities.	SLT	Short term	148
47. Continue to administer on-lot sewer disposal system maintenance ordinances.	SLT & NLT	ongoing	144 & 149-150
48. Consider expanding their on-lot maintenance program beyond the targeted areas to all on-lot systems of the entire Township.	SLT	Short term	149
49. Carefully scrutinize future use of on-lot and/or community sewer systems regarding potential effects on groundwater quality.	SLT & NLT	ongoing	149-150
50. Require a minimum lot size of one acre for future uses that rely upon on-lot sewage disposal techniques.	SLT & NLT	Short term	149-150
51. Require each lot specifically test for, and reserve, an on-site location for a second drain field as part of its sewage permit compliance. Such alternate drain field should then be protected from all grading and construction activities, in the event it is activated due to malfunction of the initial system.	SLT & NLT	Ongoing	149-150
52. Continue to work with the Greater Lebanon Refuse Authority in the disposal of solid waste.	All municipalities	ongoing	150-153
53. Continue to offer recycling collection programs.	All municipalities	ongoing	154
54. Support pending legislation (House Bill 1768) that would financially support local recycling programs.	All municipalities	Short term	155

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
55. Make use of PA One-Call system with respect to use and developments proposed along the Region's overhead and underground utility rights-of-way.	Residents and developers.	Ongoing	155
Recommendations related to transportation. (Chapter IX)			
56. Both Palmyra Borough and North Londonderry Township should those comprehensive traffic impact study regulations contained within the Lebanon County Subdivision and Land Development Ordinance.	PB &NLT	Short term	160
57. South Londonderry Township should amend its Subdivision and Land Development Ordinance to incorporate comprehensive traffic impact study regulations.	SLT	Short term	160
58. Upgrade arterial roads to minimum recommended standards.	SLT	Long-term	161-162
59. Upgrade collector roads to minimum recommended standards.	NLT & SLT	Long-term	163-165
60. Compare existing local road conditions with recommended standards and initiate a campaign of local road improvement in those areas experiencing greatest traffic flow and/or accident frequency.	All municipalities	Ongoing	166
61. Adopt uniform road design criteria across the Region.	All municipalities	Short-term	166
62. Target select new neighborhoods for local streetscape designs that compliment a more compact residential development form and/or when new developments are proposed that adjoin existing developments that have sidewalks in place.	All municipalities	Ongoing	168
63. Link key public facilities (schools, parks and playgrounds, shopping areas, etc.) with a collector sidewalk system that: <ul style="list-style-type: none"> • provides for sidewalk extensions at designated crosswalks with imprinted surfaces; • requires that important destinations provide for permanently installed bike racks; • provides decorative street lighting with cut-off fixtures that confines lighting impact; and , • uses way-finding signs along designated routes to guide pedestrians and cyclists. 	All municipalities	Ongoing	168, 179-180
64. Utilize a variety of techniques to acquire sidewalk improvements such as developer exactions or donations for deferred road improvements, block grants, growing greener grants, customary transportation grants and even mandatory dedication fees-in-lieu of open space (assuming key sidewalks are identified as part of its linear park system).	All municipalities	Ongoing	167, 179-180
65. Reduce and discourage the number of driveway cuts along the Region's arterial and collector roads.	All municipalities	Ongoing	168 & 172

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
66. Encourage the use of combined access drives, signs, and off-street parking and loading for businesses that are proposed along arterial and collector roads.	All municipalities	Ongoing	168 & 172
67. Periodically prepare and update a list of key areas and locations that need safety improvements.	All municipalities	Ongoing	180
68. Reach consensus about the highest priority transportation improvements, so that regional support is apparent when candidate projects are considered by the Lebanon County Metropolitan Planning Organization (LCMPO).	All municipalities	Ongoing	180
69. Cooperate with various agencies in the completion of the many transportation projects programmed within the Region.	All municipalities	Ongoing	176-179
70. Sponsoring designated road segments for “scenic byways” designation from PENNDOT.	SLT	Long term	180
71. Improve the safety for cyclists throughout the Region by: <ul style="list-style-type: none"> Improving the shoulders as a priority, as opportunities arise through programmed road projects, or as part of adjoining land use development projects; Lowering posted speed limits; Installing cycling awareness signs and bike racks; Adding bike land road markings; and / or, Educating motorists and cyclists about safe driving/cycling practices. 	All municipalities	Ongoing	181-185
72. Local officials should monitor and offer input into the ongoing feasibility study to expand commuter bus service and other improved means of public transit to the Palmyra Area Region.	All municipalities	Ongoing	185
73. During the land development process, accommodations should be made for the location and construction of transit stops at significant development locations, in anticipation that transit service will be provided in the future.	All municipalities	Ongoing	185
74. Local Officials should monitor the PA Dept. of Aviation’s program of local compliance with FAR 77 regulations and apply for grant monies to update these regulations based upon the latest information and requirements.	All municipalities	Short term	186
Recommendations related to future land use. (Chapter X)			
75. Adjust zoning boundaries and other techniques that are generally consistent with the recommendations contained within Chapter X.	All municipalities and/or LCPD	Short-term	188
76. Commit to updating the Comprehensive Plan by the year 2020.	All municipalities	Long-term	188

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
<p>77. <u>Adopt a new Conservation Zone that:</u></p> <ul style="list-style-type: none"> • Makes use of rural cluster design techniques with design flexibility; • Has sufficient size to accommodate two OLD sewage systems; • Employs narrow setbacks to facilitate environmental building siting; • Permits the use of flag lots and joint-use driveways; • Requires submission of an environmental assessment prior to subdivision of new lots; and, • Incorporates effective forestry management requirements. 	NLT & SLT	Short term	190-195
<p>78. <u>Adopt a new Agricultural Zone that:</u></p> <ul style="list-style-type: none"> • Makes use of a fixed ratio density provision that preserve valuable farmland and farming operations; • Incorporates protection to normal farming practices associated with the PA Right-to-Farm law; • Accommodates concentrated animal feeding operations; • Acknowledges existing settlement patterns but scrutinizes new developments to minimize common lot lines with active farming; • Permits rural cluster and/or conservation design techniques with community based utilities; • Has sufficient size to accommodate two OLD sewage systems; • Permits the use of flag lots and joint-use driveways; • Accommodates accessory uses and farm-related businesses to supplement farming incomes; and, • Incorporates effective riparian buffer requirements. 	SLT	Short term	196-202
<p>79. <u>Adopt a new Agricultural Holding Zone that:</u></p> <ul style="list-style-type: none"> • Reserves area for future development of greater intensity; • Provides for a rural density of development at this time; • Makes use of utility infill design; • Requires the installation of capped utility lines; and, • Provides a disincentive for immediate use that may impede future development potential. 	SLT	Short term	202-203
<p>80. <u>Adopt a new Rural Residential Zone that:</u></p> <ul style="list-style-type: none"> • Provides for a rural density of development lacking public utilities; • Has sufficient size to accommodate two OLD sewage systems; • Employs narrow setbacks to facilitate environmental building siting; and, • Permits the use of flag lots and joint-use driveways. 	NLT	Short term	203-204

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
<p>81. <u>Adopt a new Low Density Residential Zone that:</u></p> <ul style="list-style-type: none"> • Acknowledges the prevailing design standards within the various respective neighborhoods; • Requires the use of public utilities; • Provides for an optional set of design standards that accommodates a traditional neighborhood design; and, • Is prepared with input from local experts and developers. 	All municipalities	Short term	207-210
<p>82. <u>Adopt a new Village Residential Zone that:</u></p> <ul style="list-style-type: none"> • Acknowledges the prevailing design standards within the various respective neighborhoods; • Accommodates single family detached, two-family and duplex dwellings; • Requires the use of public utilities; • Incorporates specific accessory use regulations that protect adjoining properties from adverse impact; and, • Accommodates civic uses and conversion apartments. 	SLT	Short term	210-212
<p>83. <u>Adopt a new Town Residential Zone that:</u></p> <ul style="list-style-type: none"> • Acknowledges the prevailing design standards within the various respective neighborhoods; • Accommodates single family detached, two-family and duplex dwellings; • Requires the use of public utilities; • Incorporates specific accessory use regulations that protect adjoining properties from adverse impact; and, • Accommodates civic uses and conversion apartments. 	PB	Short term	210-212
<p>84. <u>Adopt a new Multi-Family Residential Zone that:</u></p> <ul style="list-style-type: none"> • Acknowledges the prevailing design standards within the various respective neighborhoods; • Accommodates a wide range of dwelling unit types at greater density; • Requires the use of public utilities; • Requires the use of sidewalks; • Provides for an optional set of design standards that accommodates a traditional neighborhood design; • Incorporates specific accessory use regulations that protect adjoining properties from adverse impact; and, • Accommodates specialized high-density residential uses such as assisted living, nursing, rest or retirement homes. and campuses, and boarding houses. 	All municipalities	Short term	212-215
<p>85. <u>Adopt a new Mobile Home Park Zone that:</u></p> <ul style="list-style-type: none"> • Acknowledges the prevailing design standards within the various respective neighborhoods; • Accommodates mobile homes at a suitable density; 	PB & SLT	Short term	215

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
<ul style="list-style-type: none"> Requires the use of public utilities; Requires the use of sidewalks; and, Incorporates specific accessory use regulations that protect adjoining properties from adverse impact. 			
<p>86. <u>Adopt a new Mixed Use Zone that:</u></p> <ul style="list-style-type: none"> Acknowledges the presence of dwellings within the various respective neighborhoods; Acknowledges the prevailing residential design standards within the various respective neighborhoods; Provides for the adaptive reuse of existing buildings for limited commercial and civic uses; Carefully scrutinizes commercial adaptations of buildings; Provides for a disincentive for the razing of existing buildings; Provides incentives for shared use of access drives, parking lots, loading spaces, signs and etc.; Requires the use of public utilities; Requires the use of sidewalks; and, Incorporates specific accessory use regulations that protect adjoining properties from adverse impact. 	PB & SLT	Short term	215-217
<p>87. <u>Adopt a new Village Commercial Zone that:</u></p> <ul style="list-style-type: none"> Acknowledges the presence of non-residential uses at small nodes amid areas of residential use; Limits permitted uses to those that are compatible with adjoining residential neighborhoods; Offers convenient locations for the daily needs of residents and local commuters; Limits overall retail size to provides for a disincentive for the razing of historic buildings; Adopts contemporary site designs that can weed-out nonconforming use designs over time. Provides incentives for shared use of access drives, parking lots, loading spaces, signs and etc.; Requires the use of public utilities; and, Requires the use of sidewalks. 	NLT & SLT	Short term	218-219
<p>88. <u>Adopt a new Central Business District Zone that:</u></p> <ul style="list-style-type: none"> Acknowledges the presence of Palmyra Borough's downtown; Protects and enhances the central business streetscape and building facades; Limits permitted uses to those that are compatible with the existing buildings and pedestrian orientation; Permits the use of upper stories for offices and apartments when the first floor is devoted to a principal use; Limits overall retail size to provides for a disincentive for the razing of historic buildings; Requires a proper orientation of the site with the adjoining sidewalk and streetscape; 	PB	Short term	219-224

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
<ul style="list-style-type: none"> • Permits the assemblage of rear yard parking lots among adjoining lots; • Incentivizes the use of green-roof techniques, obtain LEED certification or employ high quality architecture; • Relaxes off-street parking standards in favor of pedestrian patronage; • Promotes improvements to the sidewalks and streetscape; and, • Attracts uses and special events to aggressively market “downtown” merchants. 			
<p>89. <u>Adopt a new Highway Commercial Zone that:</u></p> <ul style="list-style-type: none"> • Acknowledges the larger freestanding highway commercial uses and coordinated shopping centers; • Provides incentives for shared use of access drives, parking lots, loading spaces, signs and etc.; • Promotes a committed campaign of site improvements with contemporary designs that are functional and attractive; • Enhances the use of landscape strips, interior landscaping and rain gardens; • Incentivizes the use of green-roof techniques, obtain LEED certification or employ high quality architecture; • Regulates suitable signs that are legible and attractive; • Regulates lighting to confine impact onto the site; • Accommodates a wide range of commercial uses with close scrutiny of those that pose specific impacts; and, • Promotes the reuse of under-utilized sites to accommodate new commercial potential. 	All municipalities	Short term	225-228
<p>90. <u>Adopt a new Commercial Office Zone that:</u></p> <ul style="list-style-type: none"> • Reserves locations for high quality economic development; • Offers development potential for additional medical and/or personal care uses that would be of benefit to the adjoining Lebanon Valley Brethren Home; • Permits a very limited amount of retail land use may be permitted as a convenience commercial facility for employees; • Includes strict design standards to create a campus like environment; • Feature streetscapes that integrate all modes of transport (vehicles, bicycles, pedestrians and mass transit) that link with adjoining uses and neighborhoods. • Incentivizes the use of green-roof techniques, obtain LEED certification or employ high quality architecture; • Employs coordinated sign standards that permit a large freestanding gateway signs at key entry 	NLT & SLT	Short term	228-231

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
<p>locations; then, accommodate smaller individual use signs at respective building entrances;</p> <ul style="list-style-type: none"> • Provides incentives for shared use of access drives, parking lots, loading spaces, signs and etc.; • Confines lighting impact onto the site; and, • Considers the mandatory use of multi-story design. 			
<p>91. <u>Adopt a new Light Industrial Zone that:</u></p> <ul style="list-style-type: none"> • Acknowledges the existing light industrial uses that are located within central portions of Palmyra Borough generally straddling the Norfolk Southern Railroad; • Acknowledges the existing light industrial uses that are located within the Flightpath Industrial Park located within South Londonderry Township that are accompanied by specialized private recreation and fitness facilities; • Contributes important employment opportunities as well as tax base within the Region. . • Provides for in-fill developments and more effective use of underutilized buildings and properties; • Accommodates small scale and light industries to promote “start-up” business opportunities; • Incentivizes the use of green-roof techniques, obtain LEED certification or employ high quality architecture; • Initiates a patient campaign to retrofit existing industries that abut residential areas with sight-tight fences and/or landscape screens to enhance compatibility; • Adopts contemporary design standards that which, over time, will lead to better function and appearance; • Provides incentives for shared use of access drives, parking lots, loading spaces, signs and etc.; • Requires industries to demonstrate compliance with all applicable Federal and State operations standards. 	PB & SLT	Short term	232-233
<p>92. <u>Adopt a new Heavy Industrial Zone that:</u></p> <ul style="list-style-type: none"> • Acknowledges the existing large-scale and heavy industrial uses that are generally located at the edges of Palmyra Borough and extend substantially into North Londonderry Township; • Acknowledges the existing quarry and related processing uses that should be required to demonstrate compliance with the Pennsylvania Noncoal Surface Mining Conservation and Reclamation Act at all times; • Contributes important employment opportunities as well as tax base within the Region. • Accommodates small scale & light industrial uses by right to promote start-up business opportunities; • Accommodates a wider range of industrial uses and sizes; • Integrates specific buffer and screening requirements that rely upon the large size of this Zone to ensure compatibility with adjoining properties; • Incorporates a conditional use review process to scrutinize the approval of large and heavy industrial 	PB & NLT	Short term	233-235

Recommended task:	Responsible Parties	Time- frame	Plan reference (pages)
uses; <ul style="list-style-type: none"> • Adopts contemporary design standards; • Provides incentives for shared use of access drives, parking lots, loading spaces, signs and etc.; • Requires industries to demonstrate compliance with all applicable Federal and State operations standards. 			
Recommendations related to implementation. (Chapter XI)			
93. Considers development of a suitable Implementation Agreement that establishes review thresholds for changes to the Plan and subsequent zoning policies to ensure a proper regional allocation of land use but does not impose unnecessary reviews that could overburden local administration.	All municipalities	Short term	241

The preceding table plots an ambitious list of recommended activities. These tasks are vital if the Region is to optimally manage its growth and development and to plan and implement its “vision” for the future. The completion of many of these tasks should result in an improved quality of life within the Region. Municipal officials are responsible to monitor and evaluate the implementation strategy aimed at achieving the locally-expressed objectives and resultant recommendations set forth in this Plan.

Cooperation among all administrative bodies and levels of government is an essential component to a streamlined and successful implementation strategy. The continued use of public participation is also a very important duty of municipal officials. If, for some reason, the recommendations of this Plan do not appear to address the, then-current conditions, municipal officials should not hesitate to amend portions of this Plan or any other policy to rectify those deficiencies.

This Plan holds a wealth of information that can be easily accessed and understood. Its implementation will help residents, businesses and visitors know the Plan is vital, and that the future of the Region is deliberate, and the result of considerable analysis and public scrutiny.

XII. Attitudinal Survey Results

One of the most important elements of this Comprehensive Plan is the gathering and analysis of public opinion regarding existing and future community planning values and needs. In order to gauge and evaluate public opinion, an attitudinal survey was developed and pre-tested among the Regional Planning Committee. Then in May 2009, the survey was distributed to a municipally-selected random sample of 1500 of the Region's households (500 per Municipality).



Following a three-week turnaround period, 518 completed surveys were returned, resulting in a 34.5% response rate. Typically, sociologic and marketing surveys attempt to achieve a 20% to 30% response rate; therefore, the response rate for this survey meets those general standards. The following tabulates the response rate for each of the Region's Municipalities:

Attitudinal Survey Response Rate By Municipality		
Area	Number of Responses	Percentage Returned
Palmyra Borough	146	29%
North Londonderry Township	202	40%
South Londonderry Township	170	34%
Regionwide	518	34.5%

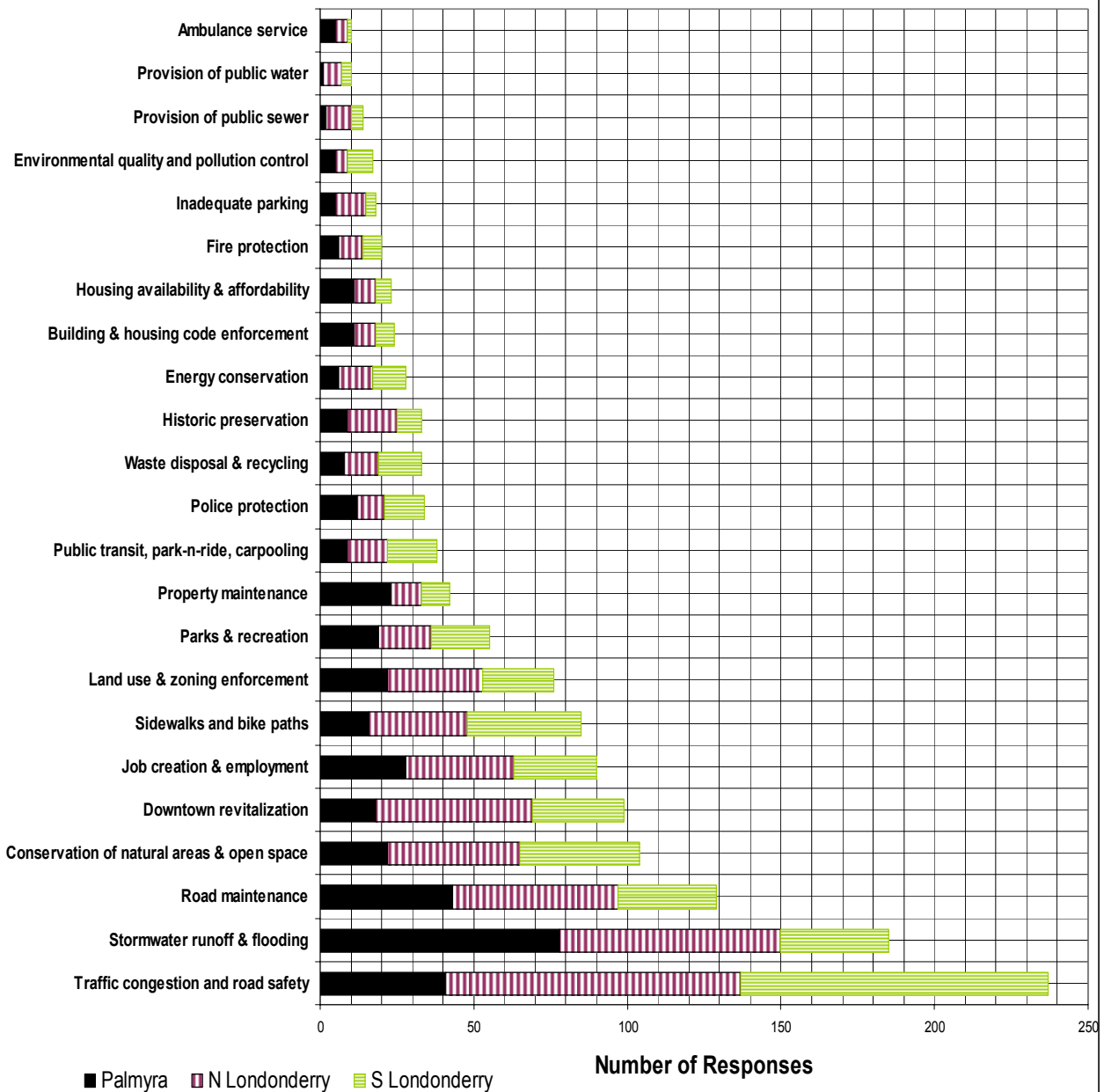
This chapter will present the results of these surveys and findings for each question. Specific tallies for each municipality and the survey instruments are provided in the Appendix A of this Plan. Lists of volunteer respondents who would be willing to assist the Region have been provided to each municipality but are not presented within this Plan.

Question 1 of this survey asked respondents to identify three general categories of community planning and issues that they believed deserved greater attention within the Region. The table on the following page ranks the responses within the Region.

By far the single greatest priority expressed by the public is the need for greater attention to traffic congestion and road safety. This is usually the most popular response within any area of Central Pennsylvania. It is interesting to note that residents within Palmyra Borough did not select this topic as their first priority; however, this was the most popular response in both Townships with very similar response rates. Across the Region, 237 respondents selected this issue which is half of those who answered this question.

The second greatest response concerns stormwater runoff and flooding. 185 respondents or 39 percent of respondents selected this as a topic deserving more attention. Within Palmyra Borough half of those responding selected this topic which was their greatest priority. North Londonderry Township residents selected this as their second priority by about 35% of their respondents. South Londonderry Township residents selected this as their fourth priority by about 21% of their respondents.

ISSUES DESERVING MORE ATTENTION



The third highest priority was the need for better road maintenance. 129 respondents or 27 percent of respondents selected this as a topic deserving more attention. Within Palmyra Borough 29% of those responding selected this topic which was their second priority. North Londonderry Township residents selected this as their third priority by about 27% of their respondents. South

Londonderry Township residents selected this as their fifth priority by about 19% of their respondents.

The conservation of natural areas and open spaces is the Region's fourth highest priority with about 22% support by all respondents. South Londonderry Township residents, in particular, supported this topic which recorded their second highest response rate. Within Palmyra Borough this issue ranked sixth and within North Londonderry Township it was fifth in number of responses.

The fifth Regional priority was greater attention towards downtown revitalization. Ironically this topic scored relatively low on the minds of Borough residents with only 12% support. However, North Londonderry Township residents expressed a keen interest in this subject with more than double the Borough residents' interest or about 25%. South Londonderry Township also expresses real interest in this subject with about 18% support.

The following tabulates the top five priorities of each municipality as expressed by responses to Question 1:

Top 5 Issues Deserving More Attention Within the Palmyra Area Region by Municipality		
<u>Palmyra Borough</u> 1. Stormwater runoff & flooding 2. Road maintenance 3. Traffic congestion & road safety 4. Job creation & employment 5. Property maintenance	<u>North Londonderry Township</u> 1. Traffic congestion & road safety 2. Stormwater runoff & flooding 3. Road maintenance 4. Downtown revitalization 5. Conservation of natural features & open space	<u>South Londonderry Township</u> 1. Traffic congestion & road safety 2. Conservation of natural features & open space 3. Sidewalks & bike paths 4. Stormwater runoff & flooding 5. Road maintenance

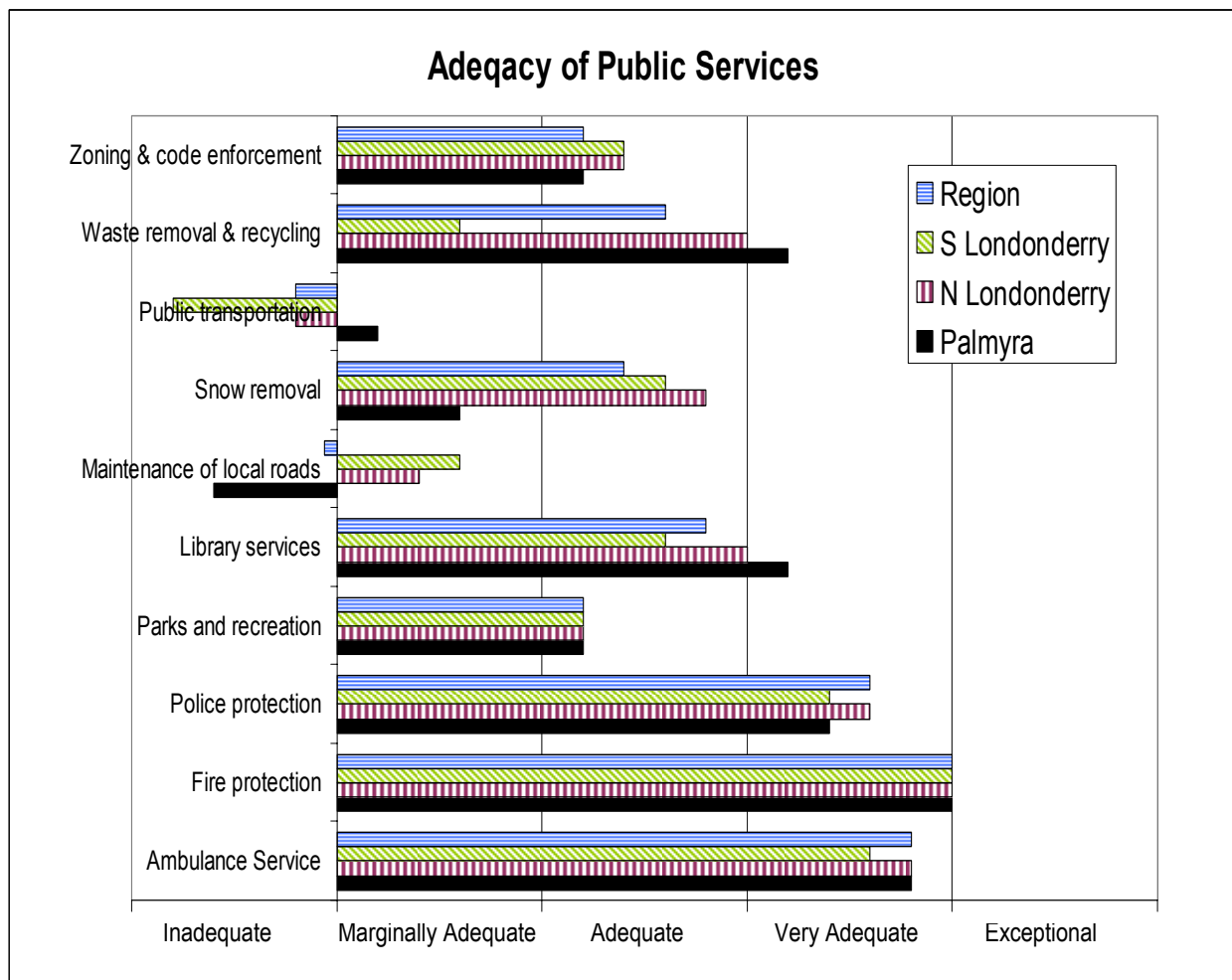
Respondents who listed "other" issues are tallied in Appendix 1 at the end of this Chapter. Some of the more popular responses were to conduct large item waste collection once or a few times per year, consolidate all three municipalities into one body of government, attract more restaurants, reduce property taxes, provide for new or expanded post office, and many more.

Question 2 of the survey asked respondents to evaluate the adequacy of various public services in meeting the needs of the Region using scores of very adequate, adequate and not adequate. To effectively analyze the results of these responses each category was assigned the following numeric value:

(Very Adequate / +2) —> (Adequate / +1) —> (Not Adequate / -2)

By assigning these numeric values, responses can be quantifiably compared to determine where service adjustments would be most appreciated. By using a positive to negative range of values we can meaningfully assess the respective levels of service for each topic. The following graphs the score for each topic with both the Regional and municipal results:

The following reveals the following findings:

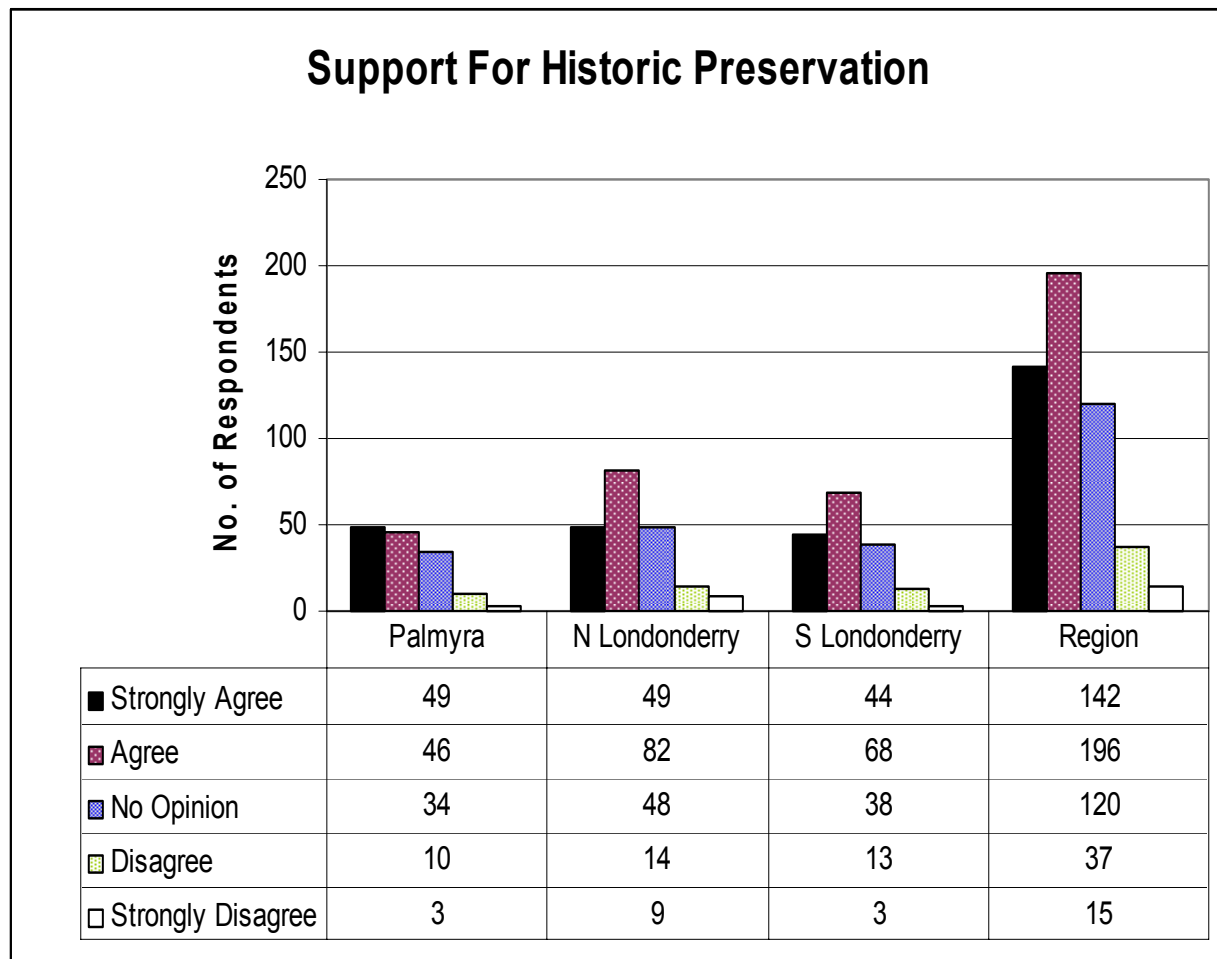


1. The Region enjoys very adequate emergency services of police fire and ambulance with no drop-off in any of the municipalities.
2. Parks and recreation are uniformly adequate across the Region.
3. Library services also appear to be nothing to worry about with better service offered in and around the Borough.
4. The maintenance of local roads presents the most dissatisfaction of residents within Palmyra Borough and is marginally adequate within the Townships.
5. Snow removal is considered adequate within the Townships but less so within the Borough.
6. Public transportation is generally inadequate within the Region; however, the residents of the Borough consider it to be marginally adequate.
7. Waste removal and recycling efforts are well appreciated within Palmyra Borough and North Londonderry Township but only marginally appreciated within South Londonderry Township.
8. Zoning and code enforcement are relatively uniformly adequate across the Region.

With this data, local officials can steer resources and efforts to effect those public service adjustments where they will be most valued. Respondents who listed other issues are tallied in

Appendix 1 at the end of this Chapter. Some of their most popular responses include the need for improved traffic control, noise control, traffic enforcement, restaurants, post office, bulk waste collection, connecting sidewalks, municipal cooperation and more.

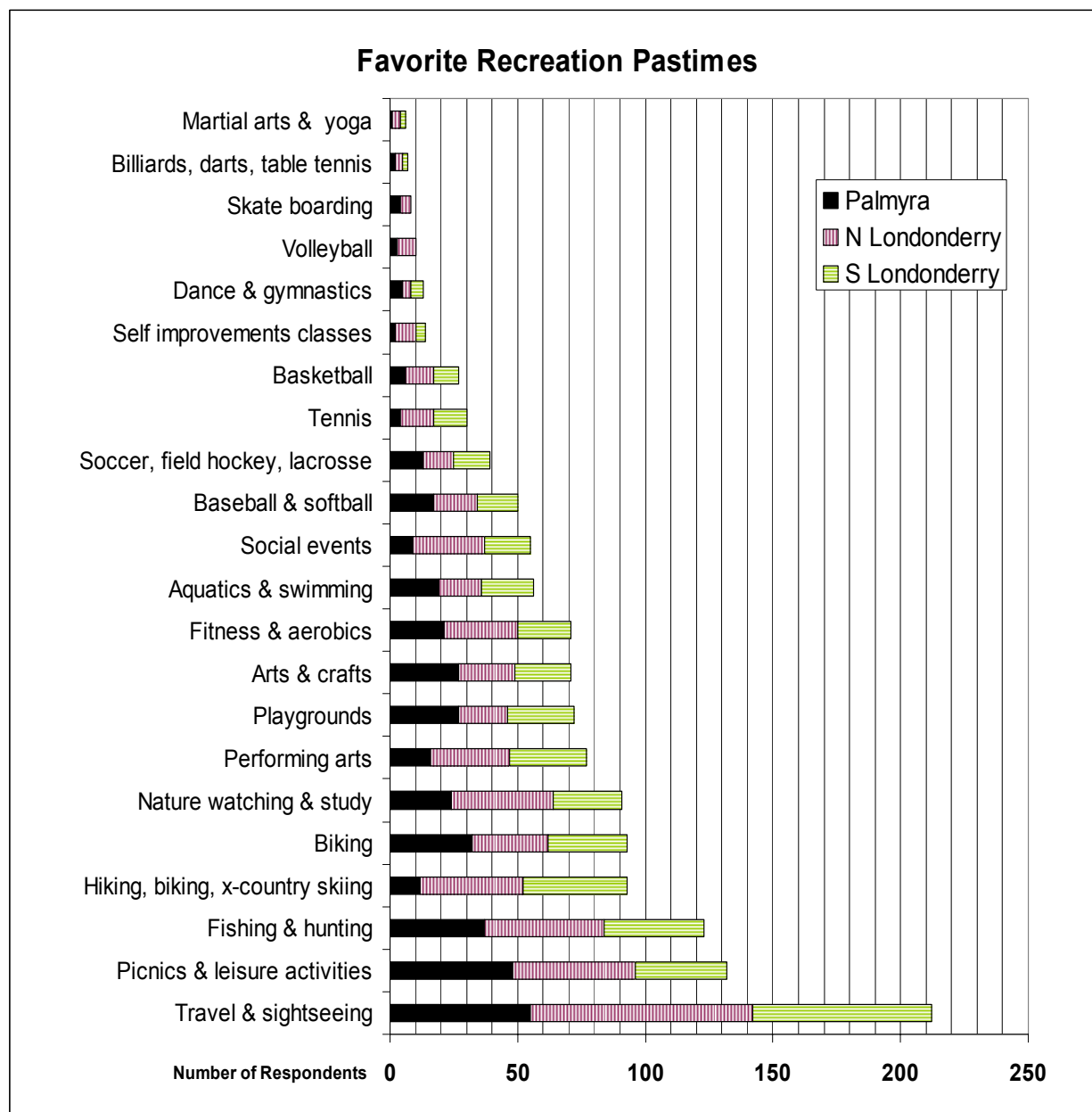
Question 3 of the survey asked respondents how strongly they feel about the preservation of historic site. The following depicts the results for both the Regional and each municipality:



Results from across the Region suggest general support for historic preservation. The most enthusiasm occurs within Palmyra Borough where those who strongly agree with preservation recorded the highest value. However, support is widespread and each municipality's supporters greatly outnumber those who oppose it. In Palmyra there are 8 times the numbers of supporters versus those who oppose. North Londonderry has nearly 6 times the numbers of supporters versus those who oppose. South Londonderry has 7 times the numbers of supporters versus those who oppose. Local Officials can act confidently that this is a valid pursuit that will be well received by the Region's residents.

Question 4 of the survey asked respondents to identify three of their household's favorite recreation pastimes. The following graph ranks the responses within the Region. It seems apparent that respondents to this question were adults who listed their favorite pastimes before those of their children. For these reasons, the municipalities should not rely upon these results when considering the full range of park and recreation facilities and programs that it intends to provide and offer. A separate survey should probably be used to supplement these results for youth pastimes.

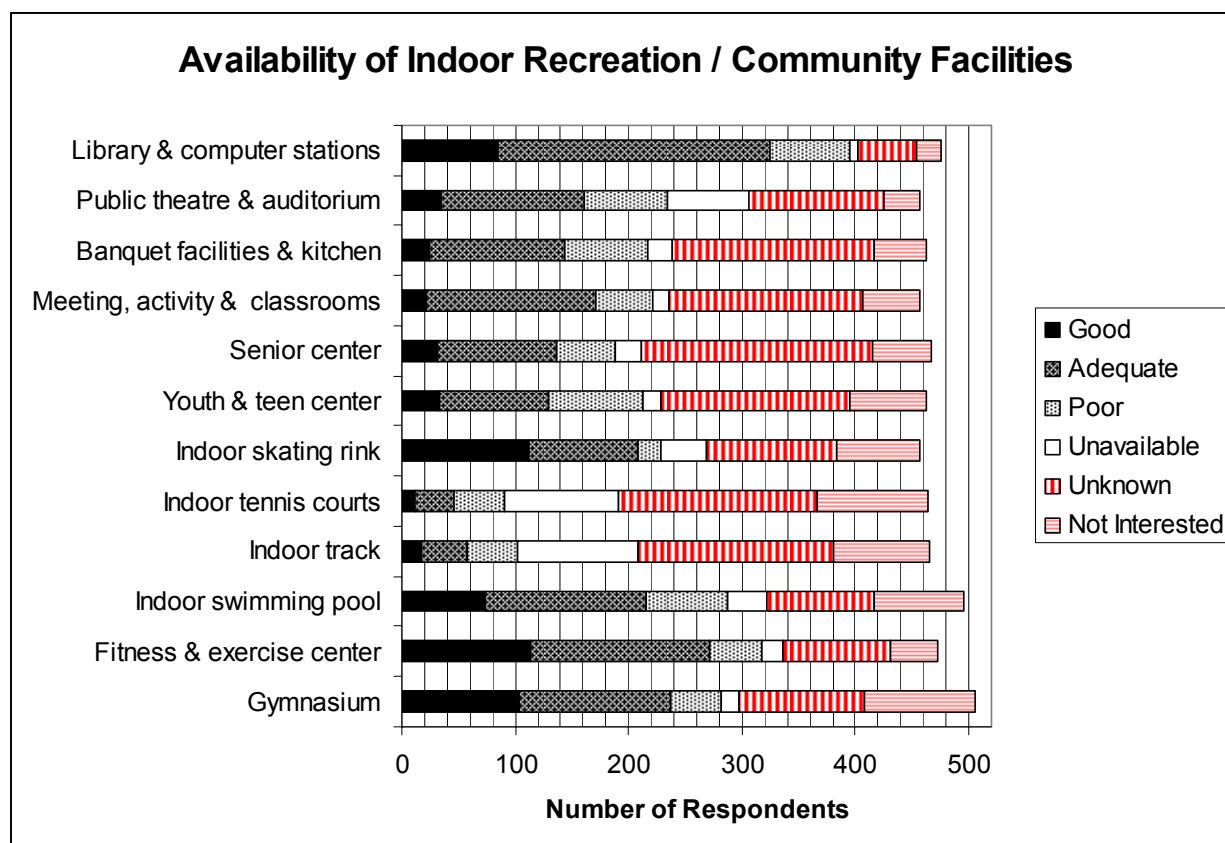
In any event the data is not meaningless as it offers insight into adult recreation preferences. The following presents findings associated with this question's results:



1. It seems that residents of the Region love to travel and sightsee. Local recreation programmers could sponsor trips to meet this demand.
2. The second highest preference is for picnicking and leisure activities. Local parks should provide for designated picnic pavilions and open areas for these pursuits.
3. Fishing and hunting are enjoyed by many of the Region's inhabitants and within each municipality. The Region should look to ensure that improved areas (e.g. rod and gun clubs) as well as open areas with preserved nature for public access are made available.
4. Hiking, biking and cross country skiing and separate biking both scored very high. In fact if both intervals were combined, these pursuits would have ranked second within the Region. The Region should look to connect linear hiking and biking trails amid the developing landscape and then offer connections to more regional features provided at the County and even State level.
5. Along with hunting and fishing, nature watching and study ranked among the Region's highest pastimes. Again natural areas of conservation are important to sustain wildlife habitats. Conservation design development policies can also deliver nature to the doorstep of residential neighborhoods.
6. Performing arts, playgrounds, arts & crafts, fitness & aerobics and aquatics & swimming round out the top ten identified recreation pastimes.

Additional "other" pastimes are listed in Appendix 1 contained at the end of this Chapter.

Question 5 of the survey asked respondents to rate the availability of indoor recreation and community facilities within the Region. The following depicts the results for the entire Region:

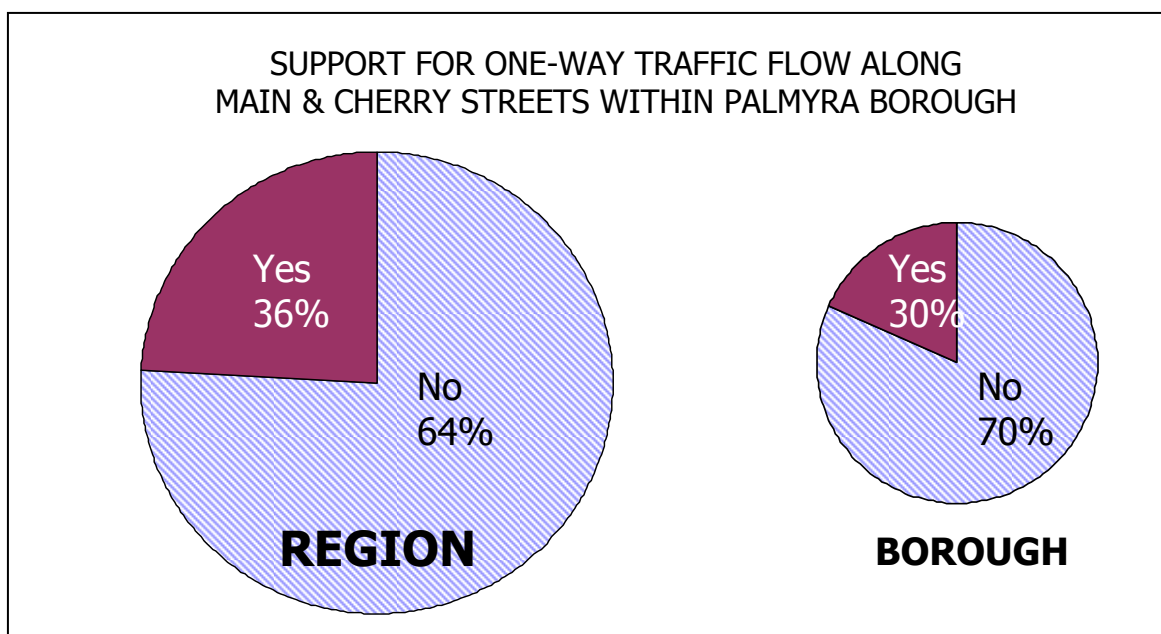


The preceding graph reveals the following ranked findings:

1. The library and computer stations are most readily available, known, demanded and in adequate condition. 81 percent of those who are aware of these facilities rank them as adequate or better. About 9 out of 10 respondents are aware of these facilities and only 1 in 20 have no interest in this use;
2. The fitness and exercise center ranks second among all categories of availability and condition. 81 percent of those who are aware of these facilities rank them as adequate or better.
3. The gymnasium ranks third among all categories of availability and condition. 80 percent of those who are aware of these facilities rank them as adequate or better.
4. The indoor swimming pool ranks fourth in availability and condition. 67 percent of those who are aware of these facilities rank them as adequate or better.
5. The indoor skating rink ranks fifth in availability and condition. 77 percent of those who are aware of these facilities rank them as adequate or better.
6. Indoor tennis courts and an indoor track seem to be most lacking of the indoor facilities that were the subject of this question.
7. There appears to be a lack of knowledge about the senior center in half of all of those who have an interest in such facilities.
8. The youth and teen center suffers the highest level of poor availability among those who acknowledge its existence.

Additional “other” indoor uses and related comments listed in Appendix 1 contained at the end of this Chapter.

Question 6 posed the possibility of making Main Street and Cherry Street within the Borough one-way streets for traffic in either direction. Residents were asked to answer “Yes” or “No” if they would support such a proposal. If not, they were asked list reasons.



Nearly two thirds of the respondents across the Region are opposed to the one-way traffic flow proposal for Main and Cherry Streets in Palmyra Borough. Support is even less within the Borough itself where only 30 percent would favor such a change. If local officials hope to implement this project it is clear that there should be a series of public meeting at which detailed explanations of the project should be presented and debated along with the potential benefits. Otherwise, the public seems squarely against this proposal.

Nearly all of those opposed to this project listed specific reasons against it. A complete listing of these reasons is tallied in the Appendix of this Chapter.

Question 7 asked respondents to list their name, address and telephone number if they had some talent that they were willing to volunteer to assist in the Township's services. These lists have been provided to each municipality but are **not** presented within this Chapter.

Appendix

The following lists "fill-in" responses to the respective questions by municipality:

Question 1 - Please check (✓) three of the following topics that you feel deserve more attention within the Palmyra Area Region:

Palmyra Borough

- property taxes are going too high
- Combine North Londonderry, South Londonderry Police Dept's into one
- Illegal drugs & all alcohol use
- Provision for Natural Gas!
- Check sewers more frequently
- Speed limit enforcement
- Stop Developing

North Londonderry Township

- Planting of trees - over the last 10-20 years, for example, trees have disappeared on Cherry St with no replanting. Just 30-35 years ago, it was lined with big, beautiful maple trees.
- Noise ordinance enforcement - there is a loud banging every night starting at 4 am at the train tracks around Grant St. How is this legal?
- Consolidation of all local services
- Ordinance enforcement
- Rockledge Association issues
- Borough snow plowing
- pick up large items once a year. Put white lines at Forge & Main intersection (North & South one or two lanes)
- taxes for worthless doo gooder projects
- Be more choosy as to what businesses come into the area (ex. Tattoo business makes the Main St look less attractive. Awful sign! Also, Enkay building needs redone)
- Bulk removal
- Sinkholes
- Post office
- more places for teens/families to play

attract more restaurants (not fast food)

South Londonderry Township

bigger library
leaf & tree trimmings pick up
Support of local business by residents
stop raising school taxes
restaurants
New post office or more help
consolidate NL, PAL, SL into one, follow school system
reduction in RE taxes
property taxes (high)
kids education

Question 2 - What, in your opinion, is the adequacy of the following services in meeting the Palmyra Area Region's needs?

Palmyra Borough

Not adequate - Natural and open spaces
Noise control
Storm runoff

North Londonderry Township

Not adequate - Noise Ordinance
Not adequate - ordinance enforcement
Rockledge Association issues
Would like contract extended to include large items, sofas, etc, and waste, paint, etc, with current providers
bulk pick up for North Londonderry twp
Not adequate - no speed control on East Fir St
Cooperation of municipalities
Not Adequate - Post office
speeding & not stopping at stop signs
sewer & water
Palmyra needs a much improved & expanded grocery store, i.e. larger Weis, or Giant chain or Wegmans
growth control

South Londonderry Township

lack of ability to walk or bike from SL to B because of lack of space on road & traffic congestion
more dining restaurants
traffic issues
speed enforcement (Rt 117)
lights at Rt 322 & 117 (need a turn arrow to enter 322) always backed up
traffic control
traffic congestion - need an arrow at 322 & 117
grass clipping, leave drop-off branches etc.
Need to consolidate overlapping townships - Waste!
property taxes - fixed income
sidewalks - need more!

land use

Not Adequate - communications, phone/tv/internet/fire/police/ambulance communications

Question 4 - Please check (✓) three of your household's favorite recreation pastimes. Please check (✓) only three!

Palmyra Borough

Kayaking
Walking
Ice Hockey
Golf
safe walks in Borough
Car racing
Walking
Golf
Camping
TV, Bowling
Football

North Londonderry Township

Water
Car Shows
Golf
Walking
Roller skating
Walking
Gardening & Antiques
Gardening
Entertainment
Golf
Golf
Golf
Camping
Walking
Golf
Car Shows
Walking
Ice skating
TV
Gardening
Golf
downhill skiing

South Londonderry Township

golf
walking biking path
golf
ATV's
church
walking paths
reading
horseback riding
camping
Golf
Golf
trail riding
wii pizza & a movie
Auto racing & driving instructor
bowling
kayaking/canoeing
walking/running connect to MHS track in
Hershey
dog park
Golf
church
Golf
reading
job training
Golf
gardening
swing dancing
shop work; home care; yard work
golf & bowling
horseback riding, ie more open space

Question 5 - Please rate the availability of indoor recreation and community facilities within the Palmyra Area Region.

Palmyra Borough

municipal could use updating
Restaurants
Empty end of Londonderry Sq old Festival Foods
Skateboarding - ban from all sidewalks in borough
Library Management - Why Boro citizens pay library tax, N & S don't & have more N/S users than Boro
- need member fee & no Boro tax

Get YMCA for seniors swimming
Good school sports & activities

North Londonderry Township

Unavailable - adult education
Provide inside play area during winter months, water play area at pool
Gardening area
Poor - Palmyra is behind the times
Poor - Restaurants
Poor - Restaurants
We already paid huge monies for schools that sit "Empty" 50% of the year
Poor - Post office
indoor track other than LVC
Dog park

South Londonderry Township

craft shop
dog park
swing dancing needed!

Question 6 - One proposal to relieve traffic congestion and improve the availability of on-street parking along Main Street within Palmyra Borough is to make Main Street a one-way street heading west and to make adjoining Cherry Street one-way heading east. Would you support such a proposal?

Regionwide responses

1. because of the school!!! How many children will be hit!!!
2. moving east bound traffic to a primarily residential street, with a public school on it seems to me to be absolutely ridiculous.
3. I spoke w/ 17 other friends of Palmyra and everyone told me "No Way"
4. This would make severe traffic congestion at Lingle Ave, school area and at Forge St
5. thinking of people living on Cherry - would make a lot more traffic for them
6. too much traffic in residential area
7. It would create congestion at both ends
8. need more information
9. when the school lets out congestion in that area would be worse than it is now. Also, how many more traffic lights would be needed?
10. it would definitely make things worse. I use both streets on a regular basis
11. Intersection of Lingle & Cherry is already an ignored mess of traffic! Our Middle School is on Cherry St, no more traffic with kids
12. too much traffic in school zone
13. I think there would be a problem with people speeding.
14. we are not a city
15. increased traffic speed, most areas are looking @ 2 way streets for traffic calming
16. Lebanon is set up this way and it is crazy
17. I like driving both way on 'good ole' hometown mainstreet

18. The problem with the sink on Cherry St, The light at Railroad St & Main St left hand turn signal
19. I don't know enough about it
20. I feel it will just create other problems and not help with the congestion
21. Have children people already drive to fast down Cherry!!
22. It would be a pain just like Cumberland St in Lebanon or streets in Hbg. What would you do with signs on Cherry?
23. I don't think the traffic is that bad and there are other places available to park. You don't need to use the street.
24. Cherry St does not have capacity!
25. I don't see the advantage
26. What a mess that would be
27. Middle School on Cherry
28. In reality, it already exists
29. Too much traffic now! Need a traffic light at Cherry/Railroad - Too noisy - too congested
30. Will create more problems - What effect on businesses on Main St?
31. Limit business accessibility on Main St, Limit Middle School accessibility on Cherry St, Limit Palm Lutheran accessibility on Cherry St
32. It will cause more congestion at the ends of the one-way streets. Plus Cherry St doesn't go the whole way through Palmyra
33. Seems to upsetting for traffic
34. but, Cherry St needs extension from Duke to Apple Blossom Ln
35. You would have congestion at Cherry & Railroad St
36. Doesn't fix the congestion problem, it probably makes it worse
37. Wait till Lingle is fixed. What about end of Cherry at Bowling Alley?
38. Because I use Cherry St both ways
39. Inconvenience & not time efficient
40. It be worse
41. Cherry St is a residential area with many children
42. Public safety, Middle School is on Cherry
43. Bias against North residents
44. There is a need to monitor speed on both Maple & Cherry Sts, one way may make it worse!
45. Increased traffic at Middle School. Congestion there is already a problem at intersections.
46. Would put additional traffic on Cherry daily and would cause issues during an accident on one of these streets
47. not everything that works on paper is good done in reality - Life is stressed enough right now
48. Would need to see plans to better answer question
49. it would be a hassle for many people
50. Harmful to downtown businesses
51. Don't feel it would make a difference
52. Because of curve on W Cherry, who needs more problems in residential Cherry St
53. Our house would not be accessible
54. I feel the main street of towns which is a major highway must run both ways
55. Cherry Street seems to slowly be revitalized by home owners. Making it a Main St will ruin this effort w/extra noise, traffic & pollution.
56. Too many incidents of sinkholes
57. It will drive residence from Cherry St and the business will decrease from Main
58. Every side street will be jammed
59. May increase large truck traffic
60. I don't believe Cherry St could handle the truck traffic
61. Inconvenient to downtown shopping
62. It would create other traffic problems

63. No parking at all on Main Street!
64. It will KILL local business
65. Maple is better suited
66. Live on Cherry St
67. too many busy business need two way traffic to get in/out of location; t flow to Cherry St not efficient b/c it is very suburban
68. Too much traffic on residential Cherry St
69. It would cause traffic problems at the Jr High during the school year. Why would you want all that traffic around our kids?
70. This would increase noise for Cherry St residents and likely reduce property values.
71. Believe it would make traffic congestion worse.
72. Call me after 3:30 pm 838-9755 [Robert Keller, 758 Cherry St, Palmyra]
73. Would require more traffic signals
74. Cherry St is a race track already, if you make it one way you'll have 2 lanes for racing;[enclosed note]
75. I live here - Business on Main St would decline
76. Would rather keep the Big-Rigs on 422
77. Let's try more traffic lights
78. Speed of traffic would increase and cause safety issues for children & pets/biking on street or walking also no as safe.
79. Cherry is residential too much traffic
80. Unnecessary expense to taxpayers
81. Cherry St is a side street why make those residents suffer. Plus one way streets are a hassel!
82. Downtown business would suffer!
83. Cherry St is already used as an alternate route. Believe this idea would cause more problems
84. Just leads to more & more one-way streets. Just look at Lebanon's traffic problems.
85. Does not seem necessary
86. School on Cherry St (congestion)
87. School on Cherry & feel many use it already. There is also lowland flooding & sink hole on Cherry
88. Don't think it will solve problem
89. [no comments]
90. [no comments]
91. Unfortunately this will not matter to majority of Palmyra citizens, of which 99% do not live on Cherry St.
92. would be to much congestion on Cherry and because of the Middle School
93. A Main Street should run both ways!
94. Cherry St is residential St - Main would lose business
95. the one way pair will create a large volume of left turns; wherever you terminate the pair east bound will also increase traffic speeds
96. Increased traffic on residential Cherry St
97. Increasing traffic on Cherry St would be dangerous to Middle School students
98. Cherry St is residential housing
99. Quality of life for Cherry St residences would be negatively impacted
100. Not necessary - Just eliminate the parking
101. Access to banks, post office, schools, businesses would be adversely impacted.
102. Because perpendicular streets cannot easily turn onto the road needed to get where they need to be - could result in back tracking
103. Intersection of Cherry & Railroad already is a source of many vehicle accidents
104. [No, but no comments filled in]
105. Too much traffic on Cherry St for residents
106. local traffic can use it to avoid 422 traffic

107. [No, but no comments filled in]
108. too much traffic on Cherry, plus a backlog of traffic trying to get back on 422
109. Cherry is not suited for truck traffic
110. Because it would make an unsafe condition for the Middle School
111. takes away hometown feeling & too much traffic would go on residential areas
112. It doesn't work in Lebanon - more red light slows traffic and allowing commercial truck to unload blocking traffic
113. [No, but no comments filled in]
114. Middle school & Interfaith Manor
115. Not practical
116. the navigation of one-way streets are confusing
117. Don't like Lebanon's approach
118. Causes more confusion
119. leave it as it is - traffic would congest the area at the Middle School
120. won't solve the problem unless it is carried through Hershey & East of Lebanon
121. DO NOT DO THIS! Too much confusion & circling around to get to areas on Main St
122. Heavy traffic at Middle School & highrise apartment area?
123. [No, but no comments filled in]
124. Result in too much traffic thru school zone
125. Fix the Main Street (Railroad & Main, Forge & Main, mill road & repave), leave Cherry St as the way it is now
126. If you want to preserve the historic nature of Palmyra, why in the world would you want to change this ?????
127. only make traffic worse
128. would disrupt traffic flow
129. It is not a very well thought out proposal considering the heavy congestion it would place on a residential street
130. One-way west could work, but one-way east on Cherry St would be a financial nightmare.
131. That's how Lebanon is & it's a pain the the "you know what"
132. Cherry St is a residential area
133. Kids are already in danger; school crossing poor & crossing Forge at Cherry & Maple to hard to cross
134. local people already use Cherry St. Roads not designed to handle traffic. Noise would be unbearable.
135. no place to go East on Cherry St
136. Never, ever make those streets one way, it's a dumb idea & dangerous!
137. would inevitably cause a lot of chaos in town for a long time
138. makes it harder to get around
139. [No, but no comments filled in]
140. One way streets are a pain
141. It would ruin the life of those living on Cherry Street and endanger students at Middle School
142. The sink hole problem on Cherry St could cause problems
143. Sounds very inconvenient. Post office needs to be moved!
144. Congestion at ends of Cherry St
145. Adverse affect on property owners
146. Now sure - question implies that parking would increase but just one lane would go west as an example.
147. I think it would be worse
148. it takes away 50% of the traffic for Main Street merchants
149. [No, but no comments filled in]
150. both are adequate for 2 way traffic

151. leave it the way it is this will not solve the problem
152. Hosteters clothing store need that traffic and the great John Alger need land to farm
153. No point in making faster thru Palmyra only to stop in Annville
154. This is a disadvantage to the shop owners downtown. That makes a mess like Lebanon.
155. main street is very congested, especially on weekends (Sundays)
156. cause to install traffic signal light at Cherry St & ?
157. not ready yet for this option, but may be needed as population and traffic grows in borough
158. don't believe it would alleviate problems. Might just cause more.
159. Cherry Street is residential and should not have so much traffic
160. Because it would change the feel of downtown, plus the homeowners on Cherry St would suffer
161. not without traffic signals on Cherry
162. Downtown traffic is not that bad
163. traffic improvement is a must
164. this is a residential area
165. too much traffic in the area of the Middle School. I fear for the safety of Middle School students
166. Confusing
167. Because that's our shortcut
168. a bigger inconvenience than the traffic
169. it will turn into racetracks
170. too much traffic @ middle school
171. Middle School on Cherry Street, Residential area on Cherry St, To relieve congestion we simply need to stop building
172. That would destroy downtown look, how it looks in Lebanon
173. Cherry Street needs improvement, too many dips & sinkholes
174. unanswered questions (how far down traffic would be rerouted)
175. other improvements can be made
176. poor idea
177. don't like one way streets
178. I think the sheer volme of traffic that would be on Cherry St would not be a great idea.
179. too confusing
180. You have 2 dstreets instead of one with heavy traffic
181. The children that come early to Middle School for breakfast on Cherry will have no safety or crossing guards.
182. Enjoy Cherry as a shortcut now
183. depends on design, make a parking lot
184. too much of Cherry St would need changed to accommodate traffic flow
185. jam at Lingle Ave and awful increase of traffic on Cherry
186. [no, with no comments]
187. Business on main is almost 0; Every home on Main has a alley access to enable them to park in the rear of their home
188. traffic congestion at Cherry & Railroad St
189. Dumb idea! You are thinking too much!
190. leave well enough alone - you're asking for more problems
191. It's OK the way it is! No problem! I think there definitely will be much mass confusion & conjection if used Cherry St as a one way.
192. kids & housing on Cherry St
193. Yes, strongly
194. location of Middle School
195. School & residential area on Cherry St
196. conjection on Lingle Ave & Forge Rd

197. Umpact businesses on 422 & increase traffic in residential/school area
198. does not work in Lebanon, why would it here?
199. how many area lights on Cherry St
200. it would separate the community into North & South
201. sink holes & traffic in an area of many homes & school
202. will congest all side streets that residents live on creating the need for more traffic lights & costing more money
203. it never works, check out the history of Pottsville PA when they tried this, only to drop it years (and a lot of money) later
204. [no, with no comments]
205. speeding! (or change limit to 25 mph on Cherry St)
206. I do not feel it would help and Cherry does not go all the way through
207. use Cherry as a shortcut
208. not fair to those living on those streets. Would also cost a lot for traffic lights etc on Cherry St
209. Main street should be for the heaviest traffic
210. The entire 422 needs to be looked at not just our small stretch, would be inconvenience
211. not necessary
212. PMS is along Cherry St, danger to students
213. Too expensive - too much benefit to business owners
214. Cherry St is residential - speed limits would have to be lower; properties could have to risk condemnation to widen existing road
215. [no, with no comments]
216. it would make things worse for the few miles taking everyone off Main than back on. Eliminate parking on Main.
217. It loses the town atmosphere and feels more like a city, also, homes on Cherry St would be exposed to more traffic
218. create bottlenecks both ends of M St
219. would require several more traffic signals, e.g. Cherry & RR, Cherry & Forge, at difficult to justify additional expense
220. prefer main st 2 way
221. I am concerned about the car & foot traffic around the Middle School
222. it is fine just the way it is
223. would affect the people living on this street
224. it would make more traffic problems
225. too much traffic in front of the Middle School and a traffic light would be need @ Cherry & RR (postoffice)
226. not sure, need more data. How would parking on Cherry be effected
227. increased traffic on Cherry = unsafe
228. bottleneck congestion created at post office & Duke St, decrease availability to downtown stores
229. [no, with no comments]
230. not good for residential Cherry St or for Main St businesses - would not help traffic congestion
231. yes if added traffic lights on Cherry
232. more difficult to get places & Cherry is residential
233. Cherry St is almost 100% residential where Main St is not. Concern for safety of kids
234. Cost: need at least 2 traffic signals & improve access. Probably need to complete road thru park.
235. Cherry St only goes so far down to the East end and also the West end!
236. additional costs for red lights turn lanes est
237. as long as it will work correctly
238. unfair to residents on Cherry
239. too difficult to get to desired businesses on Main St
240. Tie up traffic even worse than it already is. Have previous experience in a major metro area.

241. Cherry St houses would become stores
242. I believe it would only slow already slow traffic during rush periods
243. [no, with no comments]
244. [no, with no comments]
245. no easy way to get to Cherry would be congestion & inadequate turn lanes and streets from 422 to Cherry, also impact to bus on Main
246. too much of a change for locals
247. [no, with no comments]
248. just don't think it's a good idea
249. school zone
250. how would it make it better? At some point go from two to one lane.
251. not aware of problem w/on street parking. It's dangerous now pulling into Cherry from side streets.
252. Cherry is a residential st
253. traffic will still go 2 lanes to 1 at Hershey and East of Palmyra
254. too confusing
255. I really am not affected by this very much. I am not sure of the pro/cons involved.
256. people hate one way streets. Lebanon has far too many of them!
257. makes traffic flow much worse. Confusing, frustrating
258. [no, with no comments]
259. such a disruption to those who live on Cherry
260. already enough traffic trying to get out on Cherry St to RR St
261. [no, with no comments]
262. community parking lots should address this need
263. not fair to residents on Cherry. Too much traffic for a residential neighborhood
264. What is the attraction on Main St?
265. Cherry Street residents would get too much traffic
266. puts much more traffic on Cherry and makes it a little harder to get to a place on Main
267. to many kids on Cherry st, speeds area already too fast and not enough on the police force to inforce the traffic.
268. Main Street is 422 - confusion
269. Cherry St is "too residential" for trucks & similar traffic
270. Cherry St is used by locals to bypass congestion. How many more red lights would we need? I think it wood make it worse
271. make travel more difficult
272. [no, with no comments]
273. [no, with no comments]
274. runs along the Middle School and many private homes
275. do not feel it would alleviate any problems - make it more difficult to patronize Main St businesses - would need more traffic lights
276. only if streetscape can be revised to vitalize the area
277. danger to residents on Cherry St
278. interfere w/Middle School/ concern for safety of students/busing etc
279. too much traffic with Middle School
280. not as convenient
281. would lead traffic past Middle School
282. Cherry is a nice residential street; citizens that live there deserve to keep it so
283. don't see the need for this inconvenience
284. yes, but more off street parking needs to be provided
285. not fair to the people on Cherry St & inconvenience to get to businesses on Main St
286. too much traffic on residence areas

287. because I use Cherry St to avoid lights
288. the same amt of traffic will not change this
289. would it add lights?
290. would prefer to eliminate on-street parking on Main in both Palmyra & Campbelltown
291. sink hole on Cherry & Green sts
292. speed on one way would increase
293. [no, with no comments]
294. indifferent
295. traffic is bad enough - parking on side street if necessary
296. restrict parking to one side!
297. not necessary
298. traffic will eventually have to re-enter 422; traffic flow causing congestion
299. lebanon city has this approach & I think it makes traveling through the city confusing & makes it more difficult to patronize downtown
300. you would need to add traffic lights at RR & Forge to make traffic flow better, also parking on Cherry would be the same problem as Main.
301. Lebanon has this traffic pattern. It would put a lot of traffic on Cherry St., Plus I like driving down Main Street either way. Positively against.
302. it would create too much traffic on Cherry
303. too much traffic on Cherry
304. give priority to Cherry St residents opinion
305. would cause a lot of driving around to get where you want to go
306. increase congestion
307. to use business more problem
308. concerns - Cherry St - School and road improvements needed on Cherry Street with stop signs
309. I don't like the thought of changing the traffic pattern on Main St. I don't understand how it will help
310. I have not experienced difficulty parking in the Main St area. I am afraid that it would be more difficult to get to places
311. Cherry St would become more dangerous than it already is
312. home & business owners will suffer
313. driving in towns with one way streets drives me crazy - most are not set up as one way to begin with & traffic patterns are confusing
314. not a big enough city to make necessary
315. [no, with no comments]
316. it is working now - let it as is
317. solve by parking garages & traffic signal coordination
318. needs more thought! Don't want to turn into another road problem as SL with connector rd
319. Cherry is residential
320. too much traffic on Cherry St which is residential
321. Suggest you add parking lots and/or focus on widening roads and intersections
322. [no, with no comments]
323. Am not sure, but this often creates a suboptimal environment (aka Lebanon). Do like Annville did, might want to lower parking on 422
324. no understanding of where or how the turn off from two way to onw way would take place

Question 7 - Local municipalities can greatly enhance their services with the help of volunteers. If any of your family members are willing to volunteer their talents, please list their name and telephone number along with their area of interest. The results of this question were provided to local staff for recruitment purposes.