



COMPREHENSIVE PLAN



**FEBRUARY 1, 2016
ADOPTED
AUGUST 25, 2016**



HanoverEngineering

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EAST ALLEN TOWNSHIP

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CHAPTER 1 INTRODUCTION AND COMMUNITY GOALS AND OBJECTIVES

CHAPTER 1

INTRODUCTION AND COMMUNITY GOALS AND OBJECTIVES

INTRODUCTION

The Comprehensive Plan is the Township's guideline for future decisions of the Board of Supervisors, and is based on the information contained in the Comprehensive Plan of 1982, updated in 2001, and the chapters and appendices of this 2016 Plan Update. This chapter represents the culmination of the community goals and objectives, and reflects existing development, land use, environmental constraints, development potential, transportation facilities, population projections, housing (i.e. "fair share – housing opportunities for all income levels"), community facilities, utilities and other elements.

The overall goals for the East Allen Township Comprehensive Plan are as follows:

- To maintain and improve the quality of life for the residents of East Allen Township.
- To guide physical, economic and social growth in a manner that protects the environment and the quality of life, and at the same time promotes the economic well-being of the community and County.
- To create conditions which promote the general health, safety, morals and welfare of the citizens of East Allen Township.

SCOPE AND LIMITATIONS OF THIS COMPREHENSIVE PLAN UPDATE

This Comprehensive Plan Update has been prepared to allow a review of certain limited areas of Township responsibility. The base Comprehensive Plan of 1982 and its update in 2001 reviewed most areas of Township responsibility and many of the issues reviewed in those Plans have not changed and do not need to be reevaluated. The Goals and Objectives associated with those issues, therefore, do not need to be revised.

Also certain elements of Township and Regional planning are studied by agencies or organizations outside the Township or have been studied by the Township in other documents.

An outline of the scope of this Comprehensive Plan Update and a list of issues not included is provided below:

Scope Of Study Included:

- Citizen Survey
- Statement of Goals and Objectives
- Housing Needs Study
- Public Sewer and Public Water Availability
- Public Works Building Evaluation
- Traffic-Intersection Capacity Analysis
- Land Use Evaluation (for limited portions of the Township)
- Capital Fund Needs
- Capital Fund Sources

Plan Elements Provided By Others Or Previously Provided By The Township:

- Fire Fighting Needs
East Allen Township
Volunteer Fire Department
- Emergency Service Needs
East Allen Township Volunteer
Ambulance Corp.
- Flood Hazard Assessment
County Emergency Management
Agency
- Hospital Needs
Regional Hospitals
- Library Needs
Northampton Area Public Library

- Historic Structure Identification
Governor Wolf Historical Society
Northampton County Historical and Genealogical Society
- Multi-Municipal Planning
- Identification of Environmentally Sensitive Areas
Lehigh Valley Planning Commission
- Identification of Steep Slope Areas
Lehigh Valley Planning Commission
- Park and Recreation Needs
East Allen Township
- Official Map
East Allen Township

Other Plan Elements Not Studied:

- Police Needs
- Solid Waste Management Needs
- Housing Conditions Evaluation

CITIZEN SURVEY

Prior to the identification of Goals and Objectives, the Township distributed a questionnaire to all property addresses and others who normally receive the Township Newsletter. The results of the responses to that survey are attached as Appendix A of this Comprehensive Plan Update.

After reviewing the results of the survey and the Goals and Objectives of the 1982 Comprehensive Plan and its 2001 update, the following list of Goals and Objectives were prepared. These Goals and Objectives will be used to guide decisions of the Township into the future. Where decisions by the Board of Supervisors involve a conflict with a goal or objective or between Comprehensive Goals and Objectives, the Board shall base their decisions on their understanding of the best interest of the Township. The Township Comprehensive Plan is prepared and adopted as a guide and policy, but not as a restriction

or requirement.

ENVIRONMENTAL GOAL

Goal 1: Provide for wise management and adequate protection of the Environment and Natural Resources of the Township.

Objective E-01: Prohibit or strictly limit development on wetlands and/or land subject to flooding.

Objective E-02: Control development activities in wellhead protection areas to better protect public water supplies.

Objective E-03: Control developments along stream edges and wetlands to preserve buffers.

Objective E-04: Control development on steep hillsides to assure reasonable access to development and to minimize the risk of soil erosion.

Objective E-05: Require that all development be constructed in accordance with proper soil protection and water conservation practices to minimize stormwater runoff and to prevent soil erosion.

Objective E-06: Provide regulations to control addition of chemicals to soil, for either agriculture and/or lawn care, in areas immediately adjacent to streams.

Objective E-07: Provide a plan for interconnected woodlands and/or stream corridors for habitat protection and the reasonable uninterrupted movement of habitat from one area to another.

Objective E-08: Encourage property owners to form Agriculture Security Districts to preserve the rights of property owners to continue agricultural practices.

Objective E-09: Encourage private land owners along creeks and in the areas of watershed land to voluntarily offer restrictive covenants or easements on environmentally sensitive portions of their property, so that the natural qualities of the creek and its adjacent floodplain areas, and the natural qualities of the watershed areas can be preserved.

Objective E-10: Prepare an update to the Official Map showing existing natural resources in the Township and identify ways to better protect and preserve significant natural resources.

- Objective E-11: Control development supported by onlot sewage systems in carbonate geology areas to provide protection of ground water resources.
- Objective E-12: Encourage extension of public sewer and public water facilities only to: (1) those areas of the Township that are densely populated and have a demonstrated “Need” for these facilities in order to preserve quality of life and environment and (2) those areas planned for development that may need public sewer and public water.
- Objective E-13: Provide regulations that establish a minimum of three (3) acres for lots utilizing “Drip” or a “Spray Irrigation” technology for onlot sewage disposal.
- Objective E-14: Provide regulations for onlot sewage system maintenance of standard septic and aerobic tank systems, for spray irrigation and for other modern technology systems to better assure proper property owner operation and maintenance of existing onlot sewage disposal facilities

RESIDENTIAL GOALS

- Goal 1: Assure that existing housing is maintained in a safe and habitable condition.**
- Goal 2: Recognize that the limitations on public utilities, road systems, and developable land will restrict additional residential development in the Township.**
- Goal 3: Assure that remaining developable land provides for a reasonable diversity of housing opportunities.**

- Objective R-01: Create incentives for all residential development to meet the highest standards of site design, to protect natural resources and natural features, and to encourage conservation.
- Objective R-02: Provide appropriate locations for all types and densities of residential development to maintain a variety of choices.
- Objective R-03: For greater economy, encourage higher-density development to locate in areas that can be served by extending existing water and sewerage systems and public transportation. Recognize that the limitations on extension of public utilities and availability of roads within the Township limit location of available land for higher density residential development.
- Objective R-04: Provide for property maintenance inspections upon transfer of

property with a requirement that well water testing (if the property is served by well water) and onlot sewage system inspection (if the property is served by onlot sewage facilities) is undertaken to the satisfaction of the Township prior to issuance of moving permit and/or Certificate of Occupancy.

Objective R-05: Provide regulations for onlot sewage system maintenance of standard septic and aerobic tank systems, for spray irrigation and for other modern technology systems to better assure proper property owner operation and maintenance of existing onlot sewage disposal facilities.

PUBLIC SERVICE GOALS

Goal 1: Provide Public Works Buildings and site improvements that meet the needs of the Public Works Department equipment and staff and plan for sufficient area to allow for expansion of these facilities if needed in the future.

Goal 2: Assure that public facilities and utility services are provided in cooperation with surrounding municipal and/or regional facilities and services wherever such facilities and services can be provided more efficiently on an inter-municipal or regional basis.

Goal 3: Recognize that public facility and utility services capacities are limited in nature and assure that future development of the Township does not overburden public facility and utility services while recognizing reasonable planned expansions of those facilities or services.

Objective PS-1: Acquire a site for public work facilities and construct a public works garage.

Objective PS-2: Develop opportunities to work with other municipal Public Works Departments to share equipment and staff when cost effective.

EMPLOYMENT GOALS

Goal 1: Provide adequate areas for development of office, laboratory, manufacturing and light industrial or similar uses for development that would improve employment opportunities and a more sustainable tax base.

Goal 2: Assure that existing businesses are maintained in a safe non-hazardous condition.

Goal 3: Recognize limitations on public facilities and public services and on available developable land, and within those limitations, provide opportunities for a diversity of employment use and activities, such as offices, laboratories, manufacturing and light industry.

Goal 4: Recognize that the limitations on road and highway networks within the Township limit opportunities for warehousing activities and businesses that create a high volume of truck traffic.

Goal 5: Assure that existing and new businesses operate in such a manner so as to protect the environment of the Township.

Objective EMP-01: Establish additional areas for office, laboratory, manufacturing and light industrial development and similar uses.

Objective EMP-02: Provide planning opportunities specifically to encourage office, laboratory and light manufacturing in areas that may be currently designated Commercial to allow nonresidential development with traffic generation that would be less than traffic generation created by commercial activities.

Objective EMP-03: Provide for land uses which are compatible with availability of public utilities.

Objective EMP-04: Undertake annual fire inspections and annual reporting on MSDS sheets, and provide communication of this information to the Police Department, the Fire Companies, and the Emergency Squads which serve the Township. Consider utilization of web page or other similar e-mail information to improve communication.

Objective EMP-05: Encourage use of shared driveways and/or secondary access points to nonresidential development so that traffic interruptions along arterial roads are minimized.

Objective EMP-06: Provide for land uses which are compatible with adjacent proposed land uses.

Objective EMP-07: Provide for property maintenance inspections upon transfer of property with a requirement that well water testing (if the property is served by well water) and onlot sewage system inspection (if the property is served by onlot sewage facilities) is undertaken to the satisfaction of the Township prior to issuance of moving permit and/or Certificate of Occupancy.

COMMERCIAL GOALS

Goal 1: **Assure that existing commercial development is maintained in a safe and environmentally protective condition.**

Goal 2: **Recognize limitations on public facilities and services and the limitations on developable land for commercial uses but provide, within those limitations, areas of small scale commercial development to meet the day to day needs of supplying goods and services for Township residents.**

Objective COM-1: Identify land best suited for day-to-day types of convenience commercial development. Consider flexibility to allow office and health care facilities in commonwealth districts.

Objective COM-2: Designate areas for commercial development with due respect for safe and efficient highway access and for compatibility with neighboring uses. The Township should plan to minimize interruptions of driveways along arterial roads to minimize turning movements.

Objective COM-3: Review non-residential zoning districts for consideration of reducing or eliminating commercial opportunities where lot sizes are generally small and unsuitable for modern commercial facilities with improved driveway access and improved public sewer and public water facilities.

Objective COM-4: Minimize traffic circulation to and from neighborhood commercial convenience centers by designating areas for commercial use in locations which are close to potential users.

Objective COM-5: Provide regulations for annual fire inspections and annual reporting on MSDS sheets, and provide communication of this information to the State Police, the Fire Companies, and the Emergency Squads which serve the Township. Consider utilization of web page or other similar e-mail information to improve communication.

Objective COM-6: Provide for property maintenance inspections upon transfer of property with a requirement that well water testing (if the property is served by well water) and onlot sewage system inspection (if the property is served by onlot sewage facilities) is undertaken to the satisfaction of the Township prior to issuance of moving permit and/or Certificate of Occupancy.

CIRCULATION GOALS

- Goal 1:** Provide intersection and road capacity improvements to provide a reasonable level of service for existing and future traffic.
- Goal 2:** Provide increased levels of road surface maintenance for existing roads that are under Township ownership and continue a program of shoulder upgrading to improve safety conditions along narrow curving roads within the Township. Provide replacements for deteriorated drainage culverts.
- Goal 3:** Within Township budget limitations, provide safety improvements at intersections or sections of Township roads that experience higher than normal traffic accident counts.
- Goal 4:** Recognize that the Township is not well suited for a fully integrated bicycle and/or pedestrian pathway system, but where opportunities exist, provide connecting pathways and bike ways from residential neighborhoods to community parks, regional trails, and/or to shopping and employment opportunities.

Objective CIR-01: Work with the Pennsylvania Department of Transportation, the Lehigh Valley Planning Commission, and the adjacent Townships to support the planning for relocations of:

- (1)Nor-Bath Boulevard and Route 329 south of Bath
- (2)Weaversville Road, SR 3017 at the southwest corner of the Township

Objective CIR-02: Amend the Official Map to show proposed road locations as described in Objective CIR-01 and CIR-08.

Objective CIR-03: Plan for the reconstruction of the bridge over the Monocacy Creek on Jacksonville Road or for an alternate connecting road from Rt 329 to Rt 512, so that the bridge on Jacksonville Road can be removed.

Objective CIR-04: Update and implement an aggressive road maintenance schedule that will slow down the increasing levels of road deterioration.

Objective CIR-05: Plan street/public transportation, and pedestrian/bicycle improvements in close coordination with land use policies and with other public improvements.

Objective CIR-06: Discourage direct vehicular access from arterial and collector highways to individual lots.

- Objective CIR-07: Develop a plan of specific pedestrian and/or bike routes to provide pedestrian and/or bicyclist routes within the Township and to connect those routes to the County Trail that connects Bath to Northampton.
- Objective CIR-08: Keep through traffic out of residential neighborhoods and other concentrated areas of similar land uses.
- Objective CIR-09: Plan for traffic calming devices to minimize the speed of traffic through residential neighborhoods and/or commercial areas with high pedestrian traffic.
- Objective CIR-10: Eliminate and prevent traffic hazards. Continue the current road maintenance program and continue to enforce maintenance of clear sight triangles at intersections to minimize accident potentials.

OVERALL LAND USE GOALS

- Goal 1: Provide additional area for employment land uses and a variety of housing opportunities: (1) in areas of the Township that minimize impacts on the rural nature of the Township, (2) in areas where collector and arterial road capacity exists or can be provided and (3) where the extension of appropriate public utilities is reasonable.
- Goal 2: Assure maintenance of existing residential, non-residential and public facility Land Uses within the Township and assure that the natural resources and open space of the Township are protected for benefit of the environment and future generations.
- Goal 3: Assure reasonable opportunity for agricultural land use so that this Land Use is not incrementally lost over a period of time.
- Goal 4: Recognize that open space, recreation areas, agricultural areas and areas of natural resources protection are Land Uses and areas with such land uses should not, therefore, be deemed to be undeveloped or unused.
- Goal 5: Assure, to the extent it is reasonably possible, protection of surface and groundwater quality throughout the Township with the recognition that groundwater and surface water resources in specific portions of the Township are utilized for public drinking water.
- Objective LU-01: Adopt revised Zoning and Subdivision and Land Development Ordinances to achieve the development patterns recommended in this Comprehensive Plan Update.

- Objective LU-02: Provide necessary Zoning Map and Ordinance provisions ; (1) to achieve the land use goals of the Comprehensive Plan, (2) respect limitations on additional development that are related to the limitations on public sewer and water services, availability of road capacity for vehicular traffic, and (3) for the goal of preserving natural resources. This will mean that the zoning designation of some recommended land use patterns will need to be delayed until the remedy for the removal of the limitation of sewer, water and road capacity is identified, scheduled and funded.
- Objective LU-03: Encourage the continued use, recycling, adaptive use, and preservation of the historic dwellings and structures that exist in East Allen Township.
- Objective LU-04: Recognize the revised flood plain delineation along Monocacy Creek identified by the updated FEMA studies and update all Zoning and Land Use Maps to agree with the revised delineations.

TOWNSHIP BUDGET GOAL

Goal 1: Achieve budget stability and provide for proper infrastructure maintenance and, if needed, additions to public services for public health or safety.

- Objective BUD-01: Prepare and annually update a five-year Capital Improvements Program to schedule Township government expenditures for public works, community facilities and improvements.
- Objective BUD-02: Provide for annual review of Township needs regarding a local or regional police force to help establish adequate capital and operating budgets for police protection requirements.
- Objective BUD-03: Provide for annual review of equipment and manpower needs with the Fire Chief to help establish adequate capital and operating budgets for fire company requirements.
- Objective BUD-04: Provide for annual review of equipment and manpower needs with the Emergency Squad Captain to help establish adequate capital and operating budgets for emergency squad requirements.
- Objective BUD-05: Provide for annual review of the planning activities of the Allen Township, Hanover Township (Northampton County), Bath Borough Authority and the City of Bethlehem to coordinate plans of the Township and plans of those agencies regarding public water and sewer facilities.



CHAPTER 2

HOUSING NEEDS STUDY

CHAPTER 2

HOUSING NEEDS STUDY

In order to prepare and follow guidelines for future land use, as well as goals involving the physical, economic and social environment of the Township, it is crucial to have an understanding of East Allen Township's population as well as its population characteristics. For example, future residential, industrial, commercial, recreational and other developments require different amounts and types of land. Each of these developments is related to the level and type of population it must serve.

The most important Township resource is its people. The population of the Township is growing, but the particular characteristics of the population may be changing also. The character of the population should be evaluated and reflected in the Township's Comprehensive Plan.

This section includes historical data as well as current information. This information will be used in forming and evaluating strategies to implement the Township's goals and objectives, and will be used to more efficiently allocate the resources identified in the Background Studies. Additionally, this information can be used to provide objective support for land use goals, and ensure that policies are rationally related to needs.

POPULATION TRENDS

An essential phase of the planning process is an analysis of population trends, existing characteristics and anticipated future growth. Population composition is the result of socioeconomic trends. Future population changes and characteristics can be expected to follow current trends. To determine the quantitative characteristics of a population, reliance is placed on statistics such as U.S. Census data; while to determine the current and future needs of a community's population, analysis of qualitative characteristics such as age distribution social composition, educational attainment and income is important. A projection of the number, distribution and characteristics of the population is necessary to plan for the orderly provision of public services such as schools, parks, water and sewer facilities and highways, and to plan for the most equitable disposition of future land use patterns.

**TABLE H-1
HISTORIC POPULATION
EAST ALLEN TOWNSHIP**

Year	Total Population	Net Change	Percent Change
1960	1,538	-	-
1970	2,737	1,199	78.0
1980	3,605	868	31.7
1990	4,572	967	26.8
2000	4,903	331	7.2
2010	4,903	0	0
Source: U.S. Census of Population, 1960 through 2010			

As can be seen in Table H-1, East Allen Township's population has increased over the last 50 years – but the percentage rate of increase has been diminishing since the 78 percent population growth experienced between 1960 and 1970. The 2010 U.S. Census of Population tabulated that there was no population increase in East Allen Township in the past decade.

The pattern of population growth reflects the influences of many factors. Large areas, such as Northampton County, maintain growth rates that are less likely to be influenced by changing economic conditions than are smaller areas such as East Allen Township. Table H-2 provides a comparison of recent growth in East Allen Township with that of neighboring municipalities, Northampton County, and the State overall. As can be seen in the table, the Township experienced population growth rates in the last two decades that were lower than all of its neighboring municipalities.

POPULATION CHARACTERISTICS

Increases in the Township's population during recent decades have brought about some important changes in its characteristics. These may indicate not only trends of future growth, but may also point to some specific conditions and requirements for the development of East Allen Township.

AGE CHARACTERISTICS

Age characteristics not only provide indicators of fertility ratios, birth rates and the like, but also help to determine the need for specific types of facilities. For example, population composition affects the need for public school services.

An aging population leads to fewer children, while an increasing proportion of young married couples will contribute to an expanding load on the area's schools. An increasing proportion of elderly may point to the need for special housing facilities (convalescent homes, etc.), special recreation facilities or other such facilities.

Age population distribution within a community is an important factor for estimating economic as well as population growth in the future. The interaction of jobs and population will have a dynamic influence on land use proposals. For example, the departure of the 25-44 age group from a community implies a lack of employment opportunities and a need for planning that would encourage employment opportunities.

Changes in the age composition of the Township's population for 2000 and 2010 are shown in Table H-3.

TABLE H-2
REGIONAL POPULATION GROWTH COMPARISONS
1980 THROUGH 2010

Municipality	Population				Change			
					1980 to 1990	1990 to 2000	2000 to 2010	
	1980	1990	2000	2010	%	%	%	Numerical
PENNSYLVANIA	11,864,751	11,881,643	12,281,054	12,702,379	0.14	3.36	3.4	421,325
NORTHAMPTON COUNTY	225,418	247,105	267,066	297,735	9.6	8.1	11.5	30,669
East Allen Township	3,605	4,572	4,903	4,903	26.8	7.2	0.0	0
Allen Township	2,465	2,626	2,630	4,269	6.5	0.2	62.3	1,639
Hanover Township	6,073	7,176	9,563	10,866	18.2	33.3	13.6	1,303
Lehigh Township	7,985	9,296	9,728	10,526	16.4	4.6	8.2	798
Lower Nazareth Township	3,535	4,483	5,259	5,674	26.8	17.3	7.9	415
Moore Township	7,519	8,418	8,673	9,198	12.0	3.0	6.0	525
Upper Nazareth Township	3,407	3,415	4,426	6,231	0.2	29.7	40.8	1,805
Source: U.S. Department of Commerce, Bureau of Census								

**TABLE H-3
POPULATION CHANGE BY AGE GROUPS
EAST ALLEN TOWNSHIP
2000 TO 2010**

Age Group	2000	Percent of Total	2010	Percent of Total
Under 5	235	4.8	179	3.7
5 to 9	310	6.3	238	4.9
10 to 14	329	6.7	298	6.1
15 to 19	320	6.5	309	6.3
20 to 24	195	4.0	200	4.1
25 to 34	466	9.5	361	7.4
35 to 44	831	16.7	632	12.9
45 to 54	934	19.0	879	17.9
55 to 64	654	13.4	869	17.7
65 to 74	404	8.2	580	11.9
75 & Over	235	4.8	358	7.3
TOTAL	4,903	100.0	4,903	100.0
Source: U.S. Census of Population, 2000 and 2010				

All age groups have undergone some change from 2000 to 2010. As was previously noted, the population total for the Township did not change between 2000 and 2010. However, the age composition of Township residents did change.

In 2000, approximately slightly more than 24 percent of the total Township population was under 20 years of age - in 2010 this segment of population represented only 21 percent of the total. The 20 to 54 age groups represented approximately 49 percent of the population in 2000 - in 2010; persons 20 to 54 comprised only slightly more than 42 percent. The 55 and over age groups increased from slightly more than 26 percent of the Township total in 2000 to nearly 36 percent of the Township total in 2010. The overall aging of the Township's population can be seen in the increase in the median age for the Township. In 2000, the median age of the population was 42.5 years; this had increased to 48.0 years by 2010.

The number of persons 65 years and older increased from 639 to 938 between 2000 and 2010 (46 percent). The increasing number of senior citizens living in the Township points to the need for special consideration in the planning for their future needs. When considering the needs of the elderly, special care should be made (1) to ensure that suitable housing types are available and (2) to ensure that development to serve the elderly is near existing transportation, health and urban services.

POPULATION FORECASTS

A population forecast is an estimate of future population, based on historical trends (including births, deaths and rates of migration) and generally prepared using a mathematical model. Population forecasts (estimates) are used to plan for, among other things, housing, water and sewer expansion, school facility planning, transportation systems, employment needs, and the acquisition of adequate recreational areas and programs.

The Lehigh Valley Planning Commission has periodically prepared population forecasts for the County and each local municipality. The most recently available forecasts through the year 2040 were prepared in January 2013, and are detailed in Table H-4.

TABLE H-4
YEAR 2010-2040 POPULATION FORECASTS
FOR EAST ALLEN TOWNSHIP AND NEIGHBORING MUNICIPALITIES

Municipality	Actual 2010	Forecast 2020	2010 – 2020 # Change	Forecast 2030	2020 – 2030 # Change	Forecast 2040	2030 – 2040 # Change	2010 – 2040 % Change
Northampton County	297,735	329,516	31,781	365,766	36,250	403,979	38,213	36%
East Allen Township	4,903	5,937	1,034	6,381	444	6,861	480	40%
Allen Township	4,269	5,433	1,164	6,821	1,388	8,195	1,374	92%
Hanover Township	10,866	12,125	1,259	13,657	1,532	15,446	1,789	42%
Lehigh Township	10,526	11,544	1,018	12,417	873	13,350	933	27%
Lower Nazareth Township	5,674	7,343	1,669	9,353	2,010	10,995	1,642	94%
Moore Township	9,198	11,471	2,273	13,545	2,074	15,120	1,575	64%
Upper Nazareth Township	6,231	6,843	612	7,598	755	8,485	887	36%

HOUSING

Residential areas are historically the largest users of developed land and serve as the foundation of population growth. The dwelling is the largest single expense for most families, and the dwelling and its surroundings probably have the greatest single influence on the health and welfare of most people.

The availability of affordable, decent housing for all types of family and household units must also be addressed in light of the anticipated future increases in Township population.

The growth in the number of East Allen Township's housing units has not paralleled the lack of an overall population increase during the last decade. Table H-5 shows the number of units, both vacant and occupied, for the years 2000 and 2010. This table reveals that while the total population of the Township remained unchanged in the last 10 years, the total number of housing units in the Township increased by nearly six percent. The percentage of occupied housing units decreased from 97.7 percent in 2000 to 96.3 percent in 2010.

**TABLE H-5
HOUSING TRENDS, 2000 AND 2010
EAST ALLEN TOWNSHIP**

	2000	2010	Number Increase (2000 – 2010)	Percent Increase (2000 – 2010)
Total Housing Units	1,907	2,017	110	5.8
Total Occupied Housing Units	1,864	1,943	79	4.2
Total Vacant Housing Facilities	43	74	31	72.1
Source: U.S. Census of Population and Housing, 2000 and 2010				

During this same time period, the Township experienced decreases in both the average household and family sizes - from 2.61 persons per household in 2000 to 2.53 persons per household in 2010 and from 2.95 persons per family in 2000 to 2.87 persons per family in 2010. In 2010, both the Township's average household and family sizes were less than that of Northampton County overall.

**TABLE H-6
HOUSEHOLD TYPES IN THE TOWNSHIP, COUNTY AND STATE, 2000 AND 2010**

	East Allen Township	Northampton County	Pennsylvania
2000			
Number of Persons per Household	2.61	2.53	2.48
Number of Persons per Family	2.95	3.02	3.04
Percentage of Family Households	78.4 %	70.0 %	67.2 %
Percentage of Non-Family Households	21.6 %	30.0 %	32.8 %
2010			
Number of Persons per Household	2.52	2.53	2.45
Number of Persons per Family	2.87	3.02	3.02
Percentage of Family Households	76.4 %	68.9 %	65.0 %
Percentage of Non-Family Households	23.6 %	31.1 %	35.0 %
Source: U.S. Department of Commerce, Bureau of Census, 2000 and 2010			

HOUSING CHARACTERISTICS

East Allen Township's pattern of residential development is quite similar to other rural areas that are feeling the impact of urbanization/suburbanization. This type of development is characterized by scattered subdivisions and scattered individual homes consisting predominantly of single family dwellings.

**TABLE H-7
RESIDENTIAL UNITS BY STRUCTURE TYPE – 2000 TO 2010
EAST ALLEN TOWNSHIP**

Type of Structure	2000¹		2010²	
	Total Units	%of Total	Total Units	%of Total
One Unit*	1,529	80.2	1,484	80.0
Two or More Units	18	0.9	32	1.7
Mobile home or Other	360	18.9	338	18.3
Total	1,907	100.0	1,844	100.0
* includes attached units				
Source: ¹ U.S. Department of Commerce, Bureau of Census, 2000;				
² 2008 – 2012 American Community Survey – 5 Year Estimates				

Table H-7 reveals only minor changes in the makeup of the Township housing stock since the 2000 Census. It must be noted that questions about certain housing characteristics are no longer asked of all recipients of the Census Questionnaire; only a sample of the total population is asked this information (through the American Community Survey). As a result, the data (such as total units in Table H-7) from the American Community Survey will not necessarily match the 100-percent count data, although the percentage breakdowns should be statistically accurate.

As can be seen from the table, the dominant percentage of single family dwelling types of residential units (including attached and detached units) has remained consistent, while the percentage of multifamily units has increased only slightly. The significant number and percentage of mobile homes has remained constant over the 10-year period.

Table H-8 compares the current mix of housing stock in the Township with that of Northampton County and of Pennsylvania overall. As can be seen in the table, single family detached units are the dominant housing unit types – comprising over 78 percent of the total dwelling unit stock in the Township. This is in contrast to 58.8 percent at the County level and only 56.9 percent at the State level. The Township also has a much larger percentage of mobile homes than that of the County or the State overall. (While the majority of the mobile homes in the Township are located within mobile home parks, the U.S. Census defines mobile homes also to include individual units on individual lots.) Conversely, the numbers of both single family attached and multifamily units located in the Township are very small, when compared to the Countywide and Statewide percentages.

TABLE H-8
2010 STRUCTURAL AND VACANCY CHARACTERISTICS
EAST ALLEN TOWNSHIP

	East Allen Township		Northampton County	Pennsylvania
	Number	(%)	(%)	(%)
Total Housing Units	1,844	100.0	100.0	100.0
1 Unit Detached	1,440	78.1	58.8	56.9
1 Unit Attached	34	1.9	20.5	18.3
2 - 4 Units in Structure	0	0	8.5	9.0
5 - 9 Units in Structure	32	1.7	3.6	3.4
10 or More Units in Structure	0	0	5.9	8.2

Mobile Home/Other	338	18.3	2.6	4.3
% Owner Occupied	92.7		69.0	63.0
% Renter Occupied	3.7		24.3	26.2
% Vacant	3.6		6.7	10.8
Source: 2008 – 2012 American Community Survey – 5 Year Estimates				

The time period in which East Allen Township's housing facilities were constructed is presented in Table H-9. As can be seen from the Table, the housing stock in the Township is younger than that of both the County and the State overall. Of the estimated 1,844 housing units tabulated in the 2008 – 2012 American Community Survey, approximately 30 percent were constructed prior to 1970; more than 29 percent were constructed in the 10-year period between 1980 and 1989; and approximately 22 percent in the last 20-year period.

**TABLE H-9
YEAR STRUCTURE BUILT**

	East Allen Township		Northampton County	Pennsylvania
	Number	(%)	(%)	(%)
Total Units	1,844	100.0	100.0	100.0
2010 or later	0	0.0	0.3	0.2
2000 - 2009	154	8.3	12.4	7.9
1990 - 1999	255	13.8	11.1	9.3
1980 - 1989	536	29.1	10.7	9.8
1970 - 1979	349	18.9	10.8	12.8
1969 or earlier	550	29.7	54.7	60.1
Source: 2008 – 2012 American Community Survey – 5 Year Estimates				

TENURE AND VACANCY

The changes in tenure and vacancy from 2000 to 2010 are shown in Table H-10. During this period, there was a slight trend toward decreased occupancy by owners and more renter occupied dwellings in the Township. There were also significantly more vacant dwelling units identified in 2010.

**TABLE H-10
TENURE AND VACANCY
EAST ALLEN TOWNSHIP**

	2000		2010	
Tenure and Vacancy	Number of Units	Percent of Total	Number of Units	Percent of Total
Owner Occupied	1,749	91.7	1,799	89.2
Renter Occupied	115	6.0	144	7.1
Vacant	43	2.3	74	3.7
Total	1,907	100.0	2,017	100.0
Source: U.S. Census of Population, 2000 and 2010				

HOUSING VALUE

Table H-11 provides information on the value of owner occupied housing units in 2010. As can be seen in the Table, housing values in the Township were greater than the Countywide median value and significantly greater than the Statewide median value. Conversely, median contract rents were only 65 percent of the Countywide value and only 74 percent of the Statewide value. In 2010, the percentage of renter occupied units (3.9 %) was considerably less than both the Countywide and Statewide numbers.

**TABLE H-11
HOUSING INFORMATION, 2010
OCCUPIED HOUSING UNITS**

	East Allen Township	Northampton County	Pennsylvania
2010 Median Value of Owner Occupied Housing Units	\$ 226,300	\$ 218,100	\$ 164,900
2010 Median Contract Rent of Renter Occupied Units	\$ 589	\$ 898	\$ 794
Percentage of Owner Occupied Housing Units	96.1 %	73.9 %	70.1 %
Percentage of Renter Occupied Housing Units	3.9 %	26.1 %	29.9 %
Source: 2008 – 2012 American Community Survey – 5 Year Estimates			

FUTURE HOUSING NEEDS

As the population of East Allen Township increases, additional housing will be needed. The type of housing that may be built depends greatly on the values and desires of the population. While the number of additional dwellings that may be needed can be estimated based on a projection of overall Township population, the types of dwelling units that may be constructed cannot be estimated.

The population of the Township is forecasted to continue to increase into the foreseeable future. The Lehigh Valley Planning Commission's forecast for East Allen Township anticipates that the total population will increase from an actual population of 4,903 in 2010 to a population of 5,937 by the Year 2020 (an increase of 1,034 people) – with subsequent increases to 6,381 in 2030 and 6,861 in 2040. In order to accommodate this increased population, additional housing units will need to be provided. Based on an additional population of 1,034 and a Year 2010 average of 2.52 persons per household, an additional 410 dwelling units may be required by the Year 2020. Based on the forecasted populations, an additional 176 and 190 dwelling units would be required to be constructed by 2030 and 2040, respectively.

**TABLE H-12
ESTIMATED FUTURE DWELLING UNITS NEEDED
2010 – 2040
EAST ALLEN TOWNSHIP**

Year	Forecast Population Increase	Additional Dwelling Units Needed¹	Cumulative Dwelling Units
2010	-	-	2,017
2020	1,034	410	2,427
2030	444	176	2,603
2040	480	190	2,793
¹ Calculation based on 2.52 Persons per Dwelling Unit			

The continued availability of a mix of types of housing units will allow individuals of all age groups, family size and economic level to have opportunities to reside in East Allen Township. The current housing mix includes a relatively high percentage of mobile homes. The overall Township housing mix would be more balanced if additional multifamily dwellings were constructed - but public sewer and water facilities would be needed to accommodate such construction.



CHAPTER 3 PUBLIC SEWER AND WATER AVAILABILITY

CHAPTER 3

PUBLIC SEWER AND WATER AVAILABILITY

PUBLIC SEWER

If Public Sewer Capacity were available and if the Township wanted to plan for Public Sewer availability for existing or future residents and/or businesses, the Township would be required to revise their Official Sewage Facilities Plan (Act 537), either on their own or by approving a Plan Revision (Planning Module) submitted by a Developer.

The current Official Sewage Facilities Plan was approved by the Township on September 20, 1999. This Plan approved public sewer service to the Village of Jacksonville and the Chrisphalt Drive (Route 512 Industrial Park) area. Subsequent developer requests for Plan revisions approved public sewer service for the Greenbriar Mobile Home Park and the Arcadia East Industrial Park on Silver Crest Road.

See attached Sewer and Water Service Area Map, Appendix G.

All other portions of the Township are planned for Individual Privately Owned Onlot Sewage Systems.

If the Township plans for additional Public Sewer Service, they would need to identify the municipal or private legal entity that will own and maintain the Sewage Collection Facilities, such as piping and pump stations.

Since public sewage capacity may be available from several adjacent municipalities, it would be better to address the final decisions of collection system ownership and maintenance to the time when the Official Sewage Facilities Plan is revised.

Certain general principles could, however, be listed in this Comprehensive Plan as a guide to future Sewage Facility Planning. These would include:

1. Privately owned wastewater treatment plants, except for individual or community onlot sewage disposal systems, would not be acceptable.
2. Public sewage treatment, when available and approved by the Township, would be provided at one of the following publicly owned wastewater treatment plants (WWTP):

- Bath Borough Authority
 - Northampton Borough
 - Catasauqua Borough
 - City of Bethlehem
3. In areas served by the Bath Borough Authority WWTP, the publicly owned collection and pumping facilities would be owned and maintained by the Bath Borough Authority.
 4. In areas that are served by any other publicly owned WWTPs, the collection sewer and pump stations would be owned and maintained by one of the following:
 - (a) Homeowners Association
 - (b) The owner of the WWTP (for example, City of Bethlehem)
 - (c) East Allen Township

These options are listed in the order of their preference with “(a)” being the most preferred option.

Bath Borough Authority (to the north)

Available Capacity (615 EDU's)	160,000 gpd
Current Tapping Fee	\$ 4,750 /EDU

Allen Township (to the northwest)

No capacity available unless legal agreements are revised and the Borough of Northampton approves the flow.

Catasauqua (to the southwest)

Capacity may be available based on pending negotiations with Allen Township.	
Current Tapping Fee	\$ 1,560 /EDU

Hanover Township (to the south)

Capacity may be available based upon specific requests subject to available capacity and acceptable inter-municipal agreements.

NOTES:

1. Flows and Capacity are expressed as Annual Average Daily Flows (AADF) in Gallons Per Day (gpd).
2. Expected Flow Requirements for one dwelling unit are 260 Gallons Per Day (gpd).
3. Potential service capacities are listed as Equivalent Dwelling Units (EDUs).

PUBLIC WATER

The City of Bethlehem operates the Public Water Systems in the Township. Most of the customers are served by way of water collected in reservoirs in Carbon County, treated in a treatment plant located in Lehigh Township, and distributed in piping in the southern portion of the Township.

The industrial, commercial and mobile home development south of Bath is serviced by the City of Bethlehem with water supplied by the Bath Borough Authority.

Some isolated residential developments are served by the City of Bethlehem using wells located within the developments. These include:

- East Allen Gardens
- Wilmar Manor
- Country Squire
- Shady Lane

The City of Bethlehem has Public Utility Commission service district rights for the provision of public water in the entire Township. The City has confirmed that their supplies are sufficient to service all reasonably expected development within the Township in areas near the portions of Townships that are already provided with public water from either the Carbon County reservoir source or Bath Borough Authority source.

Please refer to the Sewer and Water Service Area Map, Appendix G.



CHAPTER 4

PUBLIC WORKS BUILDING

CHAPTER 4

PUBLIC WORKS BUILDINGS EVALUATION

Based upon the information provided by the Public Works Department in an equipment list report dated February 28, 2011, it is estimated that the existing Township needs for truck spaces and equivalent storage is outlined below.

Equipment Bay Size	Number
12' x 40'	14
12' x 40'	15

Based upon the inspection of Public Works buildings, attached as Appendix B, it is estimated that the following spaces are currently available, under roof:

Equipment Bay Size	Number
12' x 40'	5 (or 9, including Weaversville Rd Storage Garage)
12' x 20'	6

The Public Works Department is storing more equipment in the existing space than would be projected by the above charts, but this results in overcrowding and inefficiencies resulting from the need to move equipment in and out to gain access to other stored equipment.

The Public Works Director reports that currently nine (9) pieces of equipment are stored outside. The sun, rain and snow all cause equipment damage and increased maintenance costs. Also, typically, two (2) trucks must remain outside. During extreme weather some of these pieces are brought inside, but then they create work and access space limitations.

The following additional storage spaces would be necessary to efficiently house the equipment currently owned by the Township:

Equipment Bay Size	Number
12' x 40'	9
12' x 20'	9

If additional storage is to be constructed for Township equipment, it is recommended that the storage listed above be accommodated, but, additional storage bays also be provided to accommodate future equipment needs.

Public Works employees report to work at the Public Works Building on Driftwood Road. This building is in poor condition and the deficiencies regarding general Code compliance and reasonable work conditions are outlined in the Inspection Report provided in Appendix B.

The employee facilities available consist of two (2) offices, a small locker room and restroom. These facilities are heated, but are sized to accommodate a Public Works crew of approximately three (3) employees.

Currently, there are seven (7) employees on a full-time basis, and during busy snow plowing or park maintenance periods, the total Public Works department includes as many as twelve (12) employees. The Township does not provide any accommodations for Public Works Employees with disabilities, and/or female Public Works Employees.

Currently, several equipment and vehicle maintenance tasks are undertaken in this Public Works Building. These garage work areas are not separated from office use areas with fire rated walls and doors and/or air handling protection that meet current Uniform Building Code Standards.

Based upon the inspections undertaken of Public Works Buildings, the Public Works Building, the Driftwood Road Storage Garage, and the Weaversville Road Storage Garage are past the end of their useful life and their functions should be provided by one (1) or more code compliant Public Works Buildings and/or Code compliant rented storage areas.

Planning for new Public Works Garages and Employee Facilities should be undertaken in several stages, as outlined below:

1. Assessment of Needs – Although this plan update provides a general outline of Needs Assessment, a formal Needs Assessment with measurement of equipment and interviews with “Public Works Managers and Employees,” should be undertaken. A reevaluation of needs for an increased number of pieces of equipment should be included in this assessment.

2. Budget and Financing – At each stage of planning, budget estimates should be prepared for Capital Budget Planning. Opportunities for Grants should be monitored on a regular basis.
3. Site Identification – The Township should evaluate alternative sites for the construction of new facilities and/or renting of existing facilities to accommodate a part or all of Public Works Department needs. This evaluation could include utilization of the existing sites and even, on an interim basis, the continued utilization of existing buildings (with improvements) for storage of equipment, but not employee offices, bathrooms, or equipment and vehicle maintenance.

It is noted that a Site Alternative Analysis was conducted in 2008, and could be utilized as a base for revisiting an Evaluation of Site Alternatives.

4. Preliminary Designs – Preliminary designs should be undertaken, once a site has been selected and a budget should be reevaluated. The building layout should be modular in nature and provide space for expansion of employee facilities, maintenance facilities, and storage facilities, as needed in the future.
5. Funding – Funding should be arranged.
6. Final Design – Final design should be undertaken.
7. Construction

A Preliminary Budget for a Public Works Building that would house nine (9) 12' x 40' garage bays, and four (4) 12' x 20' equipment bays with some allowance for employee occupancy and vehicle maintenance, is provided below.

Land Acquisition Costs	
Area	10.0 Acres
Unit Cost	\$ 25,000/Acre
Land Cost	\$ 250,000
Subdivision and Legal Costs	<u>\$ 30,000</u>
Total Land Costs:	\$ 280,000

<u>Building Costs</u>		
Basic Structure		
	220' x 60' =	13,200 sf
One	20' x 14'	Office
One	20' x 14'	Lunch Room
One	Uni-Sex Bathroom	(ADA)
One	20' x 7'	Storage
One	20' x 60'	Mezzanine
Nine	Bays	
Four	Bays	
Base Cost:		\$ 2,200,000

Site Improvements	
Earth Moving, Stormwater Management, Lighting, Paving, Fence Base Cost:	<u>\$ 960,000</u>
Total Base Cost:	\$ 3,160,000
Design, Specification	\$ 300,000
Bidding, Inspection, Administration	\$ 140,000
Contingencies	<u>\$ 400,000</u>
Improvement Cost:	\$ 4,000,000
Building and Site Improvements:	\$ 4,000,000
Total Cost of Land and Building:	\$ 4,280,000

This preliminary budget does not accommodate all the needs identified above, but is a start at a determination of a Project Scope. This Scope and budget is used in the one (1) to five (5) year Capital Budget in Chapter 7.



CHAPTER 5 TRAFFIC CAPACITY

CHAPTER 5

INTERSECTION CAPACITY ANALYSIS

As part of this Comprehensive Plan Update, Hanover Engineering Associates, Inc. undertook traffic counts during late 2014 at various key intersections throughout the Township.

The data and analysis of these capacities studies is included as Appendix D of this Plan.

During the years of 2001 through 2015, there has not been any substantial residential growth in the Township and there has been very little commercial growth except for an addition of warehousing along Silver Crest Road. Traffic generation resulting from new development within the Township, therefore, has been limited to truck traffic and employee traffic entering and leaving the warehousing on Silver Crest Road and utilizing (primarily) the Route 512 Corridor. The Developer for this project provided an accommodation for access to this development by way of signalization and improvements at the intersection of Silver Crest Road and Route 512 and at the intersection of Jacksonville and Route 512.

Traffic volume increases over the last fifteen years have, therefore, primarily resulted from development outside of East Allen Township, traveling through East Allen Township, either north and south or east and west. Employment growth and commercial development in the Bethlehem area has attracted residential traffic from the northwest portions of Northampton County (including Moore Township, Lehigh Township, Allen Township), and southern portions of Carbon County, (including the Lehigh area and Jim Thorpe area).

Commercial development in the Route 248 Corridor northwest of the City of Easton (near its intersection of Route 33) has increased east/west traffic, coming from the communities west of East Allen Township including municipalities on both sides of the Lehigh River.

The resulting through traffic and traffic generated within the Township has created conditions where some intersections within the Township are near their operating capacity. Additional development within the Township could cause some of these intersections to become overloaded. Any plan for additional development within the Township should be undertaken with a plan for the resolution of intersection overload conditions that may result in whole, or in part, from this additional development.

Specifically, it is projected that improvements will be needed to the following intersections:

- Route 512 and Steuben Road
- Route 512 and Locust Road
- Airport Road (Route 987) with Dogwood Road
- Airport Road with Locust Road
- Airport Road with Nor-Bath Boulevard (Route 329)
- Airport Road and West Main Boulevard (Route 248)
- Weaversville Road (SR 3017) and Nor-Bath Boulevard (Route 329) – in Allen Township
- Weaversville Road (SR 3017) and Airport Road (SR 987) – in Hanover Township, Northampton County or Hanover Township, Lehigh County

Also, intersection improvements may be necessary at the intersection of East Bullshead Road and Weaversville Road if substantial traffic increases result from industrial development within Allen Township. Likewise, improvements to the intersection of Walnut Street at both Weaversville Road (SR 3017) and Nor-Bath Boulevard (Route 329) may be necessary as a result of planned industrial development within Allen Township.

Congestion resulting from lane limitations and intersection limitations along Airport Road can be relieved, to some extent, by the introduction of a new parallel collector road located east of the municipal building and extending from Nor-Bath Boulevard (PA 329) to the south in an alignment with Hanover Street (east of Bicentennial Park).

Further improvements in accommodation for east/west traffic along Nor-Bath Boulevard (Route 329-987) can be provided by the relocation of this State road on an alignment that would run east/west along the south edge of the Keystone Cement Company property in an alignment with the intersection of Route 512 and Silver Crest Road. This arterial road relocation would relieve truck traffic turning movements within the Borough of Bath and would relieve east/west traffic on Jacksonville Road adjacent to the Jacksonville Park and the Wolf Academy Historic District. The relocation of this State highway, south of Bath, would also allow the removal of the deteriorating bridge that carries Jacksonville Road over the Monocacy Creek. The Pennsylvania Department of Transportation should consider the relocation of this road.

East/west traffic within the Township will also need to be improved with collector road access, if development is occurring between Airport Road (SR 987) and Route 512, south of Locust Road.

North/south traffic volumes along Weaversville Road (SR 3017) are severely restricted by the series of “S” curves at the south end of East Allen Township and the north end of Hanover Township, Northampton County. These curves, steep slopes, and 2-lane cross section pose safety risks and capacity limitations for existing traffic and these problems will increase if further development along this corridor increases traffic counts on this road.

The Pennsylvania Department of Transportation should consider the relocation or straightening of this road.

In summary, planning for improvements of the identified intersections should be conducted in parallel with additional development so that improvements are implemented prior to, or simultaneous with, additional development. Some of these planning and implementation efforts are the responsibility of the Township and the Developers within the Township and some are the responsibility of Pennsylvania Department of Transportation.

The Official Map of the Township should be amended to show the proposed new collector roads within the Township and arterial road relocations along the State highway corridors.



CHAPTER 6

LAND USE OPTIONS

CHAPTER 6 LAND USE OPTIONS

LAND USE OPTIONS

The purpose of this task is to analyze and discuss existing and future land use and zoning in the following three (3) areas of the Township, hereafter referred to as the Study Area (refer to the Study Area Maps in Appendix F):

- (1) South (and immediately adjacent) and north of Nor-Bath Boulevard – Route 329 (from the Route 512 corridor west to the Township line)
- (2) South of Bath (along the Route 512 corridor east to the Township line)
- (3) North of Bath (along Route 512 and Route 248)

Existing Zoning

The existing East Allen Township Zoning Ordinance includes eleven (11) zoning districts as shown on the current Township Zoning Map (Appendix C). The purpose and a brief description of each of the zoning districts follow below:

Conservation District (C)

The purposes of the Conservation District are (1) to protect and preserve the scenic, recreational and environmental resources of the natural resources in the Township and (2) to provide for the orderly development of the Township. The predominant land uses in the Conservation District are forest land and other open space uses on steep slopes, wet soils, or stream valleys. The regulations for the Conservation District are designed to protect this land from environmental degradation and to channel development to more appropriate areas of the Township. In the Conservation District, single-family detached dwellings are permitted by right – on minimum 3-acre lots

The Conservation District encompasses the floodplains of the Catasauqua and Monocacy Creeks and adjacent areas.

Agricultural District (AG)

The primary purpose of the Agricultural District is to promote the continuation and preservation of agricultural activities in those areas most suitable for such activities. This district also intends to protect and stabilize the Township's viable agricultural economy by eliminating uses that are incompatible with farming, but permitting limited agricultural support businesses. Consequently, residential users are limited and any future inhabitants in this District must be willing to accept the impacts associated with normal farming practices, and related businesses. In the Agricultural District, single-family detached dwellings are permitted by Conditional Use – at a density of one (1) dwelling unit per twenty (20) acres.

Agricultural Districts are located (1) between Route 512 and the Township Line south of Bath; (2) straddling Nor-Bath Boulevard (Route 329) adjacent to the Allen Township line; (3) north and west of Bicentennial Park; and (4) in the southwestern corner of the Township (south of Weaversville Road).



Agricultural/Rural Residential District (A/RR)

The purposes of the Agricultural/Rural Residential District are (1) to maintain and promote agriculture in the Township; (2) to maintain the rural character of the Township; (3) to protect and preserve natural resources in the Township; and (4) to provide for the orderly development of the Township. The predominant land uses in the A/RR District are agriculture, animal husbandry, other open space uses, and single-family detached dwellings. The regulations for the A/RR District are designed to protect and stabilize the essential characteristics of these areas, to minimize conflicting land uses, and to control development which requires highways and public services in excess of those required by these uses. In the Agricultural/Rural Residential District, single-family detached dwellings and mobile homes are permitted by right – on minimum 1-acre lots.



Agricultural/Rural Residential Districts encompass the largest land areas in the two (2) study areas. South of Bath, they are located (1) south of Silver Crest Road and (2) in the southeastern corner of the Township. In the Nor-Bath Boulevard area, they are located (1) between Route 512 and Airport Road – from Jacksonville south to the Township line; (2) from Airport Road west to the Agricultural and Conservation Districts near the Catasauqua Creek; (3) straddling the Northampton County Recreational Trail – west of Weaverville Road; and (4) at the southern Township line south of

Weaverville Road. The bulk of the existing Agricultural/Rural Residential Districts remains in agricultural or low density uses.

The Agricultural/Rural Residential District is also where Age Qualified Residential Communities are permitted (by Conditional Use). Such communities require a minimum tract area of fifty (50) gross acres; allow for a maximum residential density of four (4) dwelling units per acre; and must be served by both public water and public sewer service. The only Age Qualified Residential Community Overlay District established in the Township to date is located west of Route 512, between Steuben Road and Jaendl Boulevard.

Suburban Residential District (SR)

The purposes of the Suburban Residential District are (1) to provide for low-to moderate-density (depending on centralized water and sewer availability) residential areas which are protected from incompatible land uses, so as to maintain these areas as attractive living environments and (2) to promote the orderly development of the Township. Residential uses are the predominant land uses in the district. The regulations for this district are designed to protect the quality of these residential areas. In the Suburban Residential District, single-family detached dwellings and mobile homes are permitted by right – on minimum 1-acre lots (no public water or public sewer service); 25,000 SF minimum lots (public sewer service only); and 15,000 SF minimum lots (both public water and public sewer service). Single-family detached cluster developments are also permitted by right, on a minimum site size of twenty (20) acres, and where provided by both centralized water and centralized sewer service.



The two (2) Suburban Residential Districts, in the Study Area, are located (1) at the southern boundary of the Township – encompassing East Allen Manor, Hanover Estates, Country Place and Pleasant Estates; and (2) in the Weaversville area along the western Township boundary.

Planned Residential District (PR)

The purpose of the Planned Residential District is to provide for a variety of housing types and densities in residential areas which are protected from incompatible land uses and are near the commercial uses and community facilities, so as to maintain these areas as attractive living environments and to promote the orderly development of the Township. In the Planned Residential District, single-family detached dwellings, two family dwellings and mobile homes are permitted by right – on minimum 1-acre lots (no public water or public sewer service); 25,000 SF minimum lots (public sewer service only); and 11,000 SF minimum lots (both public water and public sewer service). Single-family detached cluster developments are also permitted by right, on a minimum site size of twenty (20) acres, and where provided by both centralized water and centralized sewer service. Planned residential developments are also permitted by right, on a minimum site size of twenty (20) acres, subject to detailed design requirements and the

provision of both public/centralized water service and public/centralized sewer service. Townhouse, garden apartments and low rise apartments are permitted by Special Exception – but again subject to the provision of both public/centralized water service and public/centralized sewer service.

There are no Planned Residential Districts located in either of the two (2) the study areas.

Office Commercial District (OC)

The purpose of the Office Commercial District is to provide a location dedicated to office and related uses in a campus-like setting which is designed to minimize the impact of the uses on adjacent properties. Minimum lot areas in the Office Commercial District are 1-acre lot (no public water or public sewer service); 25,000 SF (public sewer service only); and 20,000 SF (both public water and public sewer service).

The two (2) Office Commercial Districts in the study area are located (1) south of Nor-Bath Boulevard – in the area of the Township Building; and (2) between Airport Road and Snowdrift Road in the southern portion of the Township.

Planned Commercial District (PC-1)

The purpose of the Planned Commercial District is to provide for larger commercial and business uses that typically generate higher traffic volumes and, as such, are suited to larger parcels of land with controlled access to arterial roads, such as Airport Road and Nor-Bath Boulevard. The minimum lot area in the Planned Commercial District is eight (8) acres.

Planned Commercial Districts in the study areas are located (1) along Route 512, between Steuben Road and Jaiendl Boulevard in the southeastern portion of the Township and (2) in the Frank's Corner area of the Township – between Nor-Bath Boulevard and the Northampton County Recreational Trail.



Limited Planned Commercial District (PC-2)

The purpose of the Limited Planned Commercial District is to provide for a variety of commercial and business uses that are limited in size and in terms of traffic generation. They are generally suited to the smaller parcels of land that exist in this district. The minimum lot size in the Limited Planned Commercial District is one (1) acre.

Limited Planned Commercial Districts are located (1) in the Route 512 corridor south of Bath; (2) straddling Route 512 between Locust and Steuben Roads; (3) east of Airport Road – south of the Northampton County Recreational Trail; and (4) at the Airport Road/Hanoverville Road intersection adjacent to the southern Township boundary.

Light Industrial/Business Park District (LI/BP)

The purpose of this district is to provide areas which are suitable for light industrial, heavy commercial, and office uses, so as to prevent conflicts between these uses and other land uses. Minimum lot areas in the Light Industrial/Business Park District range from two (2) to ten (10) acres, depending on the availability of centralized/public water and sewer service.

Light Industrial/Business Park Districts are located (1) south of Bath - between the railroad and Silver Crest Road; (2) southwest of the Nor-Bath Boulevard/Airport Road intersection; and (3) southwest of the Colony Drive/Airport Road intersection.

General Industrial District (GI)

The purpose of the General Industrial District is to provide areas which are suitable for industrial and heavy commercial uses, so as to prevent conflicts between these uses and other land uses. The minimum lot size in the General Industrial District is two (2) acres.

The only General Industrial District in the Township is located adjacent to the railroad, east of Route 512 and the Monocacy Creek.

Extractive Industrial District (EI)

The purpose of the Extractive Industrial District is to provide areas which are suitable for extractive industrial, general industrial and heavy commercial uses, so as to prevent conflicts between these uses and other land uses. Mineral extraction is permitted by Special Exception in the District; sanitary landfills are permitted by Conditional Use. The minimum lot size in the Extractive Industrial District is two (2) acres.

The portion of the Extractive Industrial District in the study area is located south of Bath and east of Nor-Bath Boulevard. Virtually the entire district is encompassed by the Keystone Cement facilities.

Provisions for Residential Development

As was noted in the Housing Needs Study, the Lehigh Valley Planning Commission's forecast for East Allen Township anticipates that the total population of the Township will increase from an actual population of 4,903 in 2010 to a population of 5,937 by the Year 2020 (an increase of 1,034 people) – with subsequent increases to 6,381 in 2030 and 6,861 in 2040. In order to accommodate this increased population, additional housing units will need to be provided. Based on an additional population of 1,034 and a Year 2010 average of 2.52 persons per household, an additional 410 dwelling units may be required by the Year 2020. Based on the forecasted populations, an additional 176 and 190 dwelling units would be required to be constructed by 2030 and 2040, respectively.

While the number of additional dwellings that may be needed can be estimated based on a projection of overall Township population, the types of dwelling units that may be constructed cannot be estimated. Zoning provisions that allow for a mix of types of housing units will allow individuals of all age groups, family size and economic level to have opportunities to reside in East Allen Township. Based upon the housing availability in the Township, as outlined in Table H-8, the number of single family attached dwellings and multifamily units is very small when compared to Countywide and Statewide averages. The overall Township housing mix would be more balanced if additional single family attached and multifamily dwellings were constructed.

There is an adequate amount of land currently zoned in the Township to accommodate the forecasted requirement for additional housing units. The construction of single-family detached dwellings is permitted by right in the Conservation, Agricultural, Agricultural/Rural Residential, Suburban Residential and Planned Residential Districts - with or without the provision of public/centralized water and sewer service.

The existing East Allen Township Zoning Ordinance also currently provides for higher density single-family detached dwellings, as well as multifamily units. Single-family detached cluster developments are permitted by right in the Suburban Residential and Planned Residential Districts. Planned residential developments are also permitted by right in the Planned Residential District. Townhouse, garden apartments and low rise apartments are permitted by Special Exception in the Planned Residential District. In addition, Age Qualified Residential Communities are permitted by Conditional Use in the Agricultural/Rural Residential District. Unfortunately, all of the types of higher density residential uses listed above require that they be served by both public/centralized sewer service and public/centralized water service. (Many of the commercial, industrial and/or institutional uses listed in the Zoning Ordinance also require both public/centralized sewer service and public/centralized water service.)

Limitations Related to Physical and Environmental Characteristics

Several major constraints to development can be derived from the analysis of the Township's physical and environmental characteristics. Constraint categories include the following:

- **Floodplains** – as identified by the Federal Emergency Management Agency (FEMA). Areas that are prone to flooding should not be developed for residential, commercial or industrial purposes. These areas adjacent to water bodies which are covered by flood water during times of flooding

play the important role of carrying flood waters during periods of flooding. If development occurs within these areas subject to flooding, a danger to persons and property can result. Increased flood damage downstream may occur because the flood waters have been constricted and not allowed to flow where they normally would, thus increasing flood velocity. The floodplains in the Study Area are associated with the Catasauqua and Monocacy Creeks.

- **Hydric soils or soils with possible hydric inclusions** - Hydric soils or soils with possible hydric inclusions are indicators of potential wetlands – which have strict State/Federal protections against development. As defined by DEP, EPA and the US Army Corps of Engineers, wetlands are those areas which are inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas that possess three essential characteristics: (1) hydrophytic vegetation, (2) hydric soils and (3) wetland hydrology. Virtually all of the soil series located in the Study Area are identified as soils with the potential of having inclusions of hydric soil.
- **Prime agricultural soils** - In an effort to protect the Country's best farmland, the USDA Soil Conservation Service in cooperation with other interested agencies at the national, state and local levels of government has developed an inventory of prime farmland soils. Prime Farmland, as defined by the NRCS, is the land that is best suited for producing food, feed, forage, fiber and oilseed crops. It has 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 Farmland produces the highest yields with minimal inputs of energy and economic resources, and farming it results in the least damage to the environment. According to the NRCS, qualities which characterize prime agricultural soils include high permeability to water and air, few or no rocks, optimum levels of acidity and alkalinity, 0 to 8 percent slopes and the absence of flooding during the growing season. These soils may now be utilized for crops, pasture, woodland, or land covers other than urban land or water areas. All of the Prime Farmland soils designated by the USDA are Class I or II soils. In addition to those soils listed as Prime Farmland by the USDA, other soils qualify as Prime

Agricultural Land (Classes I, II and III) under the PA Municipalities Planning Code. Virtually the entire Study Area is identified as having Prime Farmland soils.

- **Suitability for on-site sewage disposal** - The main limiting features of the soils for drainage fields for on-site sewage disposal are restricted permeability, steepness of slope, shallowness over bedrock, and the presence of a seasonal high water table. In addition, where soils are underlain by cavernous limestone, the underground water can be contaminated by seepage through crevices in the rocks or through solution channels. Of the three dominant soil series in the Study Area, the Clarksburg soils have severe limitations due to slow permeability, while the Duffield and Washington soils have slight limitations – but also have the potential for groundwater contamination due to the limestone geology.
- **Karst geology** – Development in limestone bedrock areas must consider additional engineering and groundwater contamination-related impacts. Limestone formations are characterized by weak resistance to erosive forces. This characteristic has several distinct implications for land use planning. The presence of solution channels usually suggests abundant supply of groundwater but at the same time may pose hazards due to the formation of large solution channels and caverns, which in turn make create sinkhole problems. The soils associated with limestone formations are usually very suitable for agriculture due to the years of erosion of the relatively soft limestone – permitting a smoothing and leveling action. Virtually the entire Study Area is identified by the Lehigh Valley Planning Commission's mapping as having karst features (predominantly surface depressions).
- **Slopes 15 percent or greater** - The limitations on the use of the land increase greatly with an increase in slope. Steep slopes, those which are 15 percent or greater, are generally considered as having severe limitations to conventional development and agricultural applications. There are very few areas of steep slope located within the Study Area.

Limitations Related to Sewer, Water and Stormwater Management Infrastructure

Only a few areas of East Allen Township are currently approved for public sewers under the Township's Act 537 Sewage Facilities Plan. These areas include the Village of Jacksonville, the Chrisphalt Drive (Route 512 Industrial Park) area, the Greenbriar Mobile Home Park and the Arcadia East Industrial Park on Silver Crest Road. According to the existing Act 537 Sewage Facilities Plan, "all other portions of the Township are planned for Individual Privately Owned On-lot Sewage Systems."

The Sewer and Water Service Area Map (May 2014) (Appendix G) identifies existing water and sewer service areas (both public and private), as well as (1) some "possible future public sewer service areas" and (2) a "possible future public water service area (City of Bethlehem)".

In response to inquiries to applicable agencies or municipalities regarding the availability of sewer service, four (4) municipal systems appear capable of providing some level of service to the Township. These include the following:

- Bath Borough Authority (to the north) - Available Capacity (615 EDU's).
- Allen Township (to the northwest) - No capacity available unless legal agreements are revised and the Borough of Northampton approves the flow.
- Catasauqua (to the southwest) - Capacity may be available based on pending negotiations with Allen Township.
- Hanover Township (to the south) - Capacity may be available based upon specific requests subject to available capacity and acceptable inter-municipal agreements.

If Public Sewer Capacity were available and if the Township wanted to plan for Public Sewer availability for existing or future residents and/or businesses, the Township would be required to revise their Official Sewage Facilities Plan (Act 537), either on their own or by approving a Plan Revision (Planning Module) submitted by a developer.

In the two (2) study areas, municipal public water service is currently provided to (1) the Route 512 Industrial Park area; (2) the Greenbriar Mobile Home Park; (3) the Arcadia East Industrial Park on Silver Crest Road; (4) the Weaversville area; (5) Victoria Gardens; (6) Valley View Estates; and (7) the developed area in the southwestern portion of the Township. All of both study areas are located within the "possible future public

water service area (City of Bethlehem)" shown on the Sewer and Water Service Area Map (Appendix G).

Without the expansion of the existing public/centralized sewer service areas in the Township and the expansion of public water service, the development of higher density residential uses, as well as many commercial, industrial and/or institutional uses listed in the Zoning Ordinance, will not be possible.

Stormwater runoff from the developed and undeveloped land in East Allen Township is typically conveyed by natural swales, cross road culverts, small streams and creeks. The majority of the Township is not served by an engineered storm water conveyance system. Some developers have provided storm water management and conveyance facilities for service to their development and in limited locations the Township has provided some storm water management and conveyance improvements. Specifically identified areas of inadequate storm water conveyance facilities, include, but are not limited to the following: Shawnee Drive, Munsee Lane, Mohawk Drive, Dogwood Lane, Flooding has also occurred across Airport Road and Route 512. Prior to the build out of lands that are within the natural watershed of these inadequate facilities, it is recommended that the appropriate conveyance facilities be provided.

It is also noted that some of the land within the Study Area contains natural low areas or closed depressions. These areas do not naturally allow storm water to drain away from the property. The development of land containing these closed depressions is constrained by the need to identify safe and environmentally sound methods of storm water management to provide drainage and flood protection of the development would be proposed.

The Stormwater Management regulations for the Township currently require infiltration of stormwater equal to the Recharge Volume (or 0.25" of rainfall over the impervious area), to help maintain stream base flows. To mitigate downstream stormwater runoff downstream facility overloading and minimize stormwater runoff damage and flooding the Township should consider requiring infiltration of the Water Quality Volume (roughly the increase in runoff expected from the developed site during the 2-year-frequency storm, or approximately 3"). This method of calculation is recommended by the Lehigh Valley Planning Commission's Model (Little Lehigh Creek Watershed) Stormwater Management Ordinance. The Township may also adopt provisions that require an even higher threshold of onlot infiltration (for example, a larger, less frequent design storm) and/or require proof of adequacy of downstream conveyance even when release requirements are met. The Township should also update the Stormwater Management regulations to address recent directives by the Environmental Protection Agency.

Limitations Related to Transportation Infrastructure

Another constraint to the Township's ability to accommodate additional growth is the adequacy/capacity of the Township's transportation system. Previous studies have indicated the need for improvements to the road infrastructure in the Township by:

- (1) Improvements to existing intersections (including but by no means limited to): Nor-Bath Boulevard (Rt. 329) and Airport Road (Rt. 987); Locust Road and Route 512; Locust Road and Airport Road (Rt.987); Colony Drive and Weaversville Road; Steuben Road and Route 512; Silver Crest Road and Township Line Road and
- (2) Increases in the capacity of the existing road segments (including but by no means limited to) Nor-Bath Boulevard (Rt. 329); Route 512; Airport Road (Rt. 987); Locust Road; Weaversville Road; Township Line Road.

East West traffic in and thru the Township is restricted by the adequacy of collector roads. The structural capacity of the Jacksonville Road Bridge over the Monocacy Creek severely limits the weights of vehicles that can use the Jacksonville Road. Large trucks and even many emergency response vehicles and township road maintenance vehicles are prohibited from using this bridge. Jacksonville Road serves as a direct route between Route 512 and Nor-Bath Boulevard (Rt. 329); and providing capacity for direct connection between these two arterial roads is important. Locust Road could help to alleviate this condition but that road is inadequate in width, structural stability and intersection capacity for any substantial increase in traffic. If the Township is unable to fund the replacement of the Jacksonville Road Bridge, Locust Road will need to be substantially upgraded to provide for the traffic volumes that use Jacksonville Road and for the trucks that cannot use Jacksonville Road. Additional, if development occurs in the south portion of the Township west of Rt. 512 and adjacent to Hanover Township a new east west collector should be provided to allow development traffic to travel west toward Airport Road (Rt. 987) without needing to enter Rt. 512. Also this new collector will be needed to allow direct access from the center of the Township and emergency services to the planned commercial area east of Rt. 512 at Steuben Road. The intersection of Steuben Road and Rt. 512 should be the location of this new collector road to minimize the number of interrupting intersections along Rt. 512. Development of the commercial property and residential property in the area should be directed to Steuben Road and the new collector and avoid direct connections to Rt. 512.

North South traffic in and through the Township is restricted by the adequacy of the collector and arterial road intersections. Congestion and delays are experienced at peak hours at the intersections of Weaversville Road and Nor-Bath Blvd. (Rt. 329) (in Allen Township), Airport Road (Rt. 987) and Nor-Bath Blvd (Rt. 329) and at Airport Road (Rt. 987) and West Main Blvd. (Rt. 248). North south road capacity is also limited by the inadequate width and structural capacity of Township Line Road. Some of the limitations of capacity on these north south roads could be relieved by the construction of a new north south collector road that would connect Nor-Bath Blvd. (Rt. 329) to Hanover Street near Bicentennial Park. As development occurs in this area this new collector road should be provided. This new road would serve the development by allowing traffic to enter and leave this area without having to enter either Weaversville Road or Airport Road. It will also allow improved emergency response from the Fire Station and the Emergency Squad Station to the current majority of Township residents.

The proposed new east-west collector and north-south collector are shown as planned roads on the 2009 East Allen Township Official Map.

The southwestern portion of the Township is impacted by (1) noise from and (2) the Airport Hazard Zones of the Lehigh Valley International Airport. (Refer to the attached "Noise Exposure Map" Appendix E.)

Limitations Related to Police, Fire, and Emergency Response

Currently, fire and emergency crews must go out onto Nor-Bath Boulevard and face congestion and delays when they try to get to the more populated areas of the Township or the Township parks. This impact could be mitigated to some extent by the construction of a new north/south road (crossing the Nor Bath Rail Trail) and connecting Nor-Bath Boulevard to Hanover Street.

Additionally, the restrictions of the Jacksonville Road Bridge require the Public Works Department and emergency personnel to take an indirect route (with trucks and equipment which exceed the weight limit of the bridge) to some portions of the Township, including the development along the northern portion of Rt 512 and the commercial and industrial development along Chrisphalt Drive and Silver Crest Road.



Changes in Future Land Use - Areas for Discussion

Seventeen areas have been delineated to initiate the discussion of future development options for the Study Area. The boundaries of the areas for discussion were set by both natural features (such as floodplains), and manmade features (such as roads, railroads/trails, zoning boundaries, existing development). The areas for discussion were each assessed relative to the physical/environmental and manmade factors described above. Three levels of impact were assessed: Low, Moderate and High (see table below). Absent any discussion regarding the preservation of prime farmland soils in the study area, the location of such soils in a particular area of discussion was considered to have a Low impact. As karst geology underlies the entirety of the Study Area, it will have a moderate impact on those areas where more intensive development is proposed, as well as in those areas where development may be proposed utilizing on-lot sewage disposal.

IMPACTS ON INDIVIDUAL LAND USE DISCUSSION AREAS

Area #	Natural and Environmental Features	Manmade Features	Land Use Compatibility	Public Sewer	Public Water	Stormwater Conveyance Systems	Highway Capacity	Highway Access Points	Police, Fire, Emergency Response
1	L	H	M	M	M	M	H	H	M
2	L	L	L	L	L	L	L	L	L
3	L	L	M	M	M	L	M	H	H
4	L	L	M	M	M	L	M	H	H
5	M	L	L	H	H	H	M	H	M
6	L	L	L	H	H	H	M	H	M
7	M	L	M	H	H	L	M	H	L
8	M	L	M	H	L	M	M	H	L
9	M	M	M	M	M	H	M	H	H
10	M	L	M	M	M	H	M	H	M
11	M	L	M	M	M	H	M	H	M
12	M	L	M	M	M	H	M	H	M
13	M	L	L	L	L	H	H	H	H
14	M	L	L	L	L	H	H	H	H
15	L	H	M	H	L	M	L	H	M
16	H	L	M	M	M	H	L	H	M
17	H	L	M	M	M	H	L	H	H

L = Low Consideration; M = Moderate Consideration; H = High Consideration

Note: The level of impact can be a result of features or conditions inside the Township or in areas adjacent to the “Discussion Area” in adjoining municipalities.

The seventeen areas for discussion are delineated on the Areas for Discussion Map, and are described below:

1. Existing Agricultural District located in the southwestern corner of the Township (south of Weaversville Road) – n/f Lehigh-Northampton Airport Authority and Jaindl properties. Adjacent to the development area surrounding the Airport and within the Horizontal Airport Hazard Zone. Due to its proximity to the Airport (with its associated noise, etc.) this area is probably only suitable for (1) continued agricultural use or (2) nonresidential development with lower height structures and uses that are not employee/visitor intensive. Both public water and public sewer service are within reasonable proximity to the area. Improvements to Weaverville Road (Rt 3017) and other roads in neighboring municipalities would be required to support development in this area. Highway capacity constrictions should be mitigated for best use of this area and specifically Weaversville Road should be straightened and relocated and the intersection capacity at Weaversville Road and Nor-Bath Blvd (Rt 329) should be improved. Appendix F shows three alternatives for the realignment to the south. Portions of this area are limited in "Land Use" to Agricultural Use by Deed Restrictions placed by the State.
2. Existing East Allen Estates and Delaware Trace developments (currently zoned A/RR) – It is suggested that the land use designation of this area be changed to Suburban Residential. This area is nearly fully developed already.
3. Existing PC-2 zoned area southwest of Airport Road/Hanoverville Road intersection – n/f Airport Road Partners LP property, which extends into Hanover Township. It is recommended that this area remain PC-2. It is noted that a Sketch Plan was recently submitted for retail fronting on the intersection and townhouse development to the east. Both public water and public sewer service are within close proximity to the area. Any development of this site should require careful consideration of the access points to Airport and Hanoverville Roads. It should also be noted that existing Suburban Residential zoning and development borders the site to the south and east in Hanover Township.

4. Existing A/RR zoned property northeast of Airport Road/Hanoverville Road intersection – n/f Northampton County property. This is a prime location for development, provided that the intersection and adjacent road infrastructure is adequate. Future use could be nonresidential (like the other three quadrants of the intersection) or residential (like the existing development to the north, east and southeast). Both public water and public sewer service are within close proximity to the area. Access to the site is limited to Hanoverville Roads. Note: the area is deed restricted by the previous landowners to be held by the County of Northampton “to the extent practicable, as open space and used for public education and recreation as a County park” (spelled “part” in the deed dated March 12, 2009).
5. Existing A/RR zoned area to the east of the County property discussed in #4 - extending north to the northern boundary of the Victoria Square development; east to the existing PC-2 District and Route 512; and south to the Township line. This area encompasses the existing Valley View Estates and Victoria Square Developments as well as the proposed Age Qualified Residential Community. The Township’s Official Map identifies a future collector road running through a portion of this area – from Locust Road south and east to the Route 512/Steuben Road intersection. The area is also traversed by the Northampton County Recreational Trail and is impacted by several tributaries to Monocacy Creek. Consideration should be given to designating this area to Suburban Residential - assuming the extension of public sewer and water service into the area. *[Consideration also should be given to allowing Age Qualified Residential Communities in the Suburban Residential District (and possibly the Planned Residential District) instead of the Agricultural/Rural Residential District. This would better control where future Age Qualified Residential Communities could be proposed in the Township.]* Prior to build out of this area traffic capacity improvements will be needed along Locust Road and at the intersections of Locust Road and Airport Road and Locust Road and Rt 512.
6. Existing PC-1 zoned area southeast of the Route 512/Steuben Road intersection – n/f Amore properties. Neither public water nor public sewer service are within close proximity to the area. This area is also impacted by several tributaries to Monocacy Creek. Until improvements are made to the capacity of the existing road network, consideration should be given to limiting future development to less traffic-intensive commercial uses.

7. Existing PC-1 zoned area on the north side of Nor-Bath Boulevard, east of Wil-Mar Manor – n/f property of Seiple. The Township's Official Map identifies a future collector road intersecting with Nor-Bath Boulevard across from this area, then extending south to connect to Hanover Street. As public sewer service is unlikely to be extended to this area in the foreseeable future; and until improvements are made to the capacity of the existing road network, consideration should be given to designating the area for less traffic-intensive and employee-intensive commercial uses.
8. This area encompasses the Airport Road/Nor-Bath Boulevard intersection and surrounding areas that are currently zoned PC-1, PC-2 and LI/BP. It was previously indicated that the Borough of Bath has sewage treatment capacity available, and that public sewers currently extend to the Jacksonville area. The future extension of public sewers west to the Airport Road/Nor-Bath Boulevard intersection and surrounding areas would support the continued development of this area. It should be noted, however, that improvements to the capacity of the existing road network will be required to fully develop this area in accordance with the existing zoning designations. Several drainageways are also located in this area.
9. This area is located east of Route 512 and south of Silver Crest Road, and encompasses the n/f Hunsicker and adjacent properties. The area is currently zoned Agricultural/Rural Residential, but is located adjacent to an existing Light Industrial/Business Park District. This area is impacted by noise and smoke stack discharges from the Keystone Cement Company operations. Public water and sewer service from Bath currently extend south to Silver Crest Road. The southward extension of the Light Industrial/Business Park District land use into the western portion of this Discussion Area #9 was considered and recommended by the Township Planning Commission, but such land use would require improvements to the existing transportation network. Light Industrial/Business for this Discussion Area #9, in addition to the areas already planned for nonresidential development along Route 512 south of Bath, will add further burden to the traffic volumes already experienced on Route 512 south of Bath and in and through the Borough. This Discussion Area is already developed with some residential lots fronting on Silver Crest Road and Township Line Road. The watercourses in both the western and eastern sections of Discussion Area #9 will need to be protected and preserved and downstream stormwater conveyance improvements may be needed prior to the construction of additional impervious cover. Based on

these limitations it is recommended that Discussion Area #9 remain planned for low density residential use. Further it is recommended that any residential development of this area be planned so that the new dwellings are buffered from the noise and air pollution impacts of traffic along Route 512 and Silver Crest Road and that no access driveways or roads are planned to exit onto Route 512, (an Arterial Road).

10. This area is located generally southwest of the intersection of Airport and Dogwood Roads, and generally encompasses the n/f Naylor and adjacent properties. The area is currently zoned Agricultural/Rural Residential, but is located adjacent to (and immediately north of) an Office Commercial (OC) District. Due to the noise associated with Airport Road, this area was considered for nonresidential uses, but since it is already partially developed with single families homes and since it is separated from Airport Road by a grass strip and Snowdrift Road, it is recommended that this area remain ARR. Natural watercourses will need to be protected and preserved and downstream stormwater conveyance improvements will be needed prior to the construction of additional impervious cover.
11. This area is located east of Airport Road, north of the Victoria Square Development, and south of an existing PC-2 zoned area, and generally encompasses the n/f Naylor and portions of Jaindl and DMS Airport Golf LP properties. Several drainageways are located in this area. The area is currently zoned Agricultural/Rural Residential. This area is impacted by the noise generated by traffic on Airport Road and is therefore not well suited for residential uses. This area would best be developed in nonresidential uses. To minimize driveway entrance conflicts on Airport Road, any future development should be accessed thru reverse frontage via Locust Road and the intersection of Locust Road and Airport Road should be improved. Natural watercourses will need to be protected and preserved and downstream stormwater conveyance improvements will be needed prior to the construction of additional impervious cover.
12. This area is located west of Airport Road, north of Area 10, and south of an existing Light Industrial/Business Park District, and generally encompasses portions of the n/f Naylor and Jaindl properties. Several drainageways are also located in this area. The area is currently zoned Agricultural/Rural Residential. As was proposed for Area 11, this area would best be developed in nonresidential uses. To minimize driveway

entrance conflicts on Airport Road, any future development should be accessed thru reverse frontage via Dogwood Road and the intersection of Dogwood Road and Airport Road should be improved. Natural watercourses will need to be protected and preserved and downstream stormwater conveyance improvements will be needed prior to the construction of additional impervious cover.

13. This large area is bordered by Nor-Bath Boulevard to the north; the Airport Road Commercial Park (Light Industrial/Business Park District) to the east; the Northampton Recreational Trail to the south; and existing Agricultural and Conservation Districts to the west. The area is currently zoned Agricultural/Rural Residential and encompasses the Blue Ridge Estates Development, as well as the n/f Spengler and Sunny Slope Farms properties. This area is poorly situated for anything but (1) continued agricultural use or (2) single-family detached residential uses on large lots. The area does not have good accessible frontage onto NorBath Blvd (due to topography and speed). The area also has no reasonable expectation of being served by public sewer service. Natural watercourses will need to be protected and preserved and downstream stormwater conveyance improvements will be needed prior to the construction of additional impervious cover. When this parcel is developed a north south collector road should be provided. (see 14 below).
14. This large area is bordered by the Northampton Recreational Trail to the north; Areas 10 and 12 to the east; the East Allen Estates and Delaware Terrace Developments to the south; and Bicentennial Park to the west. The area is currently zoned Agricultural/Rural Residential and encompasses portions of the n/f Sunny Slope Farms, Jaindl and Naylor properties. As is the case with Area 13, this area is poorly situated for anything but (1) continued agricultural use or (2) single-family detached residential uses on large lots (one acre or more). Existing road access to the area is limited to Dogwood Road and Hanover Street. The area also has no reasonable expectation of being served by public sewer service. Natural watercourses will need to be protected and preserved and downstream stormwater conveyance improvements will be needed prior to the construction of additional impervious cover.

Discussion Areas 13 and 14 should be planned together, so both are served by a new north-south thru road (crossing the Nor Bath Rail Trail); as identified on the Township's Official Map, and so they both can have

public water and fire and emergency protection. The existing road network results in a need for the fire and emergency crews to use Nor-Bath Blvd and face congestion and delays when they try to get to the populated and/or nonresidential development areas of the Township or the Township Park. This same condition results in the need for the Public Works plowing and salting trucks to face congestion and delays in poor weather conditions and emergency situations when they try to reach concentrated residential and non residential development along Colony Drive.

15. This small area is located at the southern border of the Township and consists of developed properties that are adjacent to Airport Road. Driveways of some of these properties exit onto Airport Road. Some properties are residential and some are nonresidential. The residential character of this area is adversely impacted by the noise and traffic along Airport Road. The area should be allowed to remain residential as long as the owners want to remain residential but allow conversion of residential uses to offices. The current PC2 zoning designation should be changed to "Office-Commercial" (OC).

Similar situations of this nature occur at southern end of the Township (1) along Weaversville Road and (2) along Route 512. In those cases, however, properties are zoned ARR. In those cases all the properties that front on the Arterial Road are residential and have not been converted to non residential uses. These properties are currently Zoned as ARR and the Township plans to keep this designation to protect the residential nature of the properties. It is recognized, however, that the residential use is adversely impacted by the noise and air pollution associated with Arterial Road traffic and that (at some time in the future) individual owners may want to convert their property to a non residential use. If that time comes the Township should study each request individually, either by way of considering a Conditional Use amendment to the Zoning Ordinance or by becoming a party to a Zoning Appeal. Issues that need to be considered would include, but not be limited to: (a) safe access to the Arterial Road by planning for a combined driveway and reverse frontage development and, (b) adequacy of parking and room for turn vehicles around so that backing out onto the highway is not needed.

16. Discussion Areas 16 and 17 were not originally part of the Township that was to be studied in this Comprehensive Plan Update. However, as the Planning Commission reviewed the residential needs of the Township and considered changes in planned land use in the south part of the Township

they realized that the areas planned for higher density, cluster and multifamily residential land uses in Discussion Area 16 and 17 should be evaluated.

Discussion Areas 16 and 17 are located in the northern portion of the Township in a hilly area adjacent to the Borough of Bath. (refer to Appendix F-4). Currently these areas are used for agricultural crop production. These areas are designated as Planned Residential (PR) zones, which means that they can be developed with a wide variety of housing types, including single-family detached, single-family detached cluster, two-family, garden apartments and low rise apartments at a density of approximately four (4) dwellings per acre. The more dense uses would require service by public sewer and public water. These areas have been planned for higher density residential uses because the prior Comprehensive Plans had recognized their proximity to the public water and sewer systems owned and operated by the Borough of Bath Authority and recognized that the soil type and slope of land were less suitable for agricultural uses than other lands within the Township. These planning parameters have not changed.

The properties in these areas are restricted in their potential for heavy development as a result of several factors:

Steep Slopes - These areas have natural slopes that exceed seven (7) percent and therefore development would require significant earth moving activities and expense.

Storm water - Steep slopes and lack of designed and/ or designated stormwater conveyance systems, (for some of the area's watersheds) will result in a high level of stormwater control onsite or the improvement to downstream conveyance systems.

Highway Capacity and Access Points - These areas have direct or indirect access to Rt 512 or West Main Blvd (Rt 248) and the development of these lands would not significantly change existing traffic volumes. Access, however, to these arterial roads may be difficult because of the traffic speed and slope of the highways. Left hand turns on to and off of the arterial roads would be a particular problem that must be addressed if development is planned.

After review of Discussion Area 16, it is recommended that that the Township continue plan this area for PR uses. It is recommended that the provisions of the Zoning Ordinance regarding development of sloped land be reviewed for needed revisions.

17. The land uses and limitations of this area are reviewed in the paragraph above. Although the size and shape of the major parcels in Discussion Area 17 are different than the parcels in Discussion Area 16, the same overall limitations and planning principles apply. The adjacent land use for the parcel west of Rt 512 is a “Mini-Storage” commercial property but that adjacent use would not negatively impact residential uses in Discussion Area 17, east of Route 512. However, west of Route 512, the Discussion Area 17 is impacted by the Mini-Storage Area, to the south, and the steep slopes and creek area, to the west.

In conclusion, it is recommended that the Township continue to plan this area for PR uses. east of Route 512, but revise the zoning of the land to the west of Route 512 to become Office-Commercial and Conservation. The dividing line between these two zones would run north-south along the ridgeline west of Route 512. It is also recommended that the provisions of the Zoning Ordinance regarding development of steeply sloped land be reviewed for needed revisions.



CHAPTER 7

CAPITAL FUNDS NEEDS

CHAPTER 7 CAPITAL FUNDS NEEDS

CAPITAL FUNDS NEEDS

During the period of time from 2001 through 2015, the Township has utilized portions of their tax revenue, grant opportunities, and low interest loan opportunities to fund many capital improvements and capital facilities. Unfortunately, there are not many grant opportunities to fund the capital needs of the Township, but where possible, with grants through the Department of Conservation and Natural Resources, the County bond issues, local (casino) gaming grants, and required developer recreation fees, some parkland acquisitions and park improvements have been completed. In addition, the Township has helped to fund fire company equipment purchases and a Public Works salt storage shed.

Many other needed capital projects have been postponed because of lack of adequate funding.

Evaluations of the need for capital projects has been provided by various prior studies; including, but not limited to:

Study Title			Date Prepared	
1.	Road Maintenance Study		February	2005
2.	Flood Mitigation Studies – Mohawk Drive		January	2011
3.	Jacksonville Park – Rehabilitation Plan		September	2014
4.	Public Works Building Evaluations		September	2014
5.	Annual Bridge Inspection – Jacksonville Road Bridge		Annual Inspection	2014
6.	Municipal Complete Site Selection Study		October	2008

A summary of the Estimated Capital Costs for projects that should be implemented in the next five (5) years is provided below:

**EAST ALLEN TOWNSHIP
CAPITAL PROJECT**

PROJECT	YEAR					
	1	2	3	4	5	TOTALS
ROADS	200,000	200,000	1,000,000	200,000	200,000	1,800,000
JACKSONVILLE PARK	70,000	692,000	0	0	0	762,000
MUNICIPAL GARAGE	30,000	250,000	4,000,000	0	0	4,280,000
MOHAWK DRIVE STORM SEWER	150,000	1,500,000	1,500,000	0	0	3,150,000
SNYDER'S CHURCH ROAD STORM SEWER	400,000	0	0	0	0	400,000
TOTAL						10,392,000

- NOTES:
1. COSTS ARE SHOWN IN DOLLARS.
 2. ESTIMATES ARE BASED ON COSTS AS OF SEPTEMBER 1, 2014.
 3. NO ENGINEERING DESIGNS HAVE BEEN AUTHORIZED ON ANY PROJECTS; THEREFORE, THE ESTIMATED COSTS IN THIS TABLE ARE GENERALIZED BUDGETS AND BASED UPON PROJECTS OF SIMILAR SCOPE AND SIZE EXPERIENCED BY OTHER MUNICIPALITIES.
 4. ACTUAL COSTS COULD VARY SUBSTANTIALLY FROM THESE ESTIMATES, AND ARE DEPENDENT ON THE PROJECT SCOPE AND SIZE FINALLY SELECTED.
 5. ESTIMATES DO NOT INCLUDE THE NORMAL ANNUAL LIQUID FUEL ROAD PROGRAM COST OR TRUCKS OR EQUIPMENT PURCHASES THAT ARE NEEDED ON A REGULAR BASIS.

In addition to these capital needs over the next five years it is recognized that additional major funding after that five-year period will be needed for bridge replacement with the Jacksonville Road bridge over the Monocacy Creek and intersection improvements as identified in Chapter 5 of this Plan.

These cost estimates do not include the normal operation and maintenance cost, normal cost of replacing equipment, and the normal annual road program, including utilization of all liquid fuel funds available.



CHAPTER 8

CAPITAL FUND SOURCES

CHAPTER 8

CAPITAL FUND SOURCES

CAPITAL FUND SOURCES

Townships of the second class, typically have limited sources of funding for capital needs. The primary source of funding would be by way of real estate and earned income tax revenue. Capital projects can be funded by reserving a portion of the annual tax revenue in a capital reserve account and/or by borrowing funds to complete a project and paying off or returning that loan with a portion of the normal annual tax revenue.

Other opportunities for capital project funding include Federal, State, or local grants and Developer required impact fees. The general list of grant and Developer impact fees are listed below:

Federal

- Community Development Block Grants for Low and Moderate Income Neighborhoods
- Community Facility Grants Provided under the Rural Development Division of the United States Department of Agriculture

State

- Department of Conservation and Natural Resource Grants
- Commonwealth Financing Authority Grants and Loans
- Pennsylvania Infrastructure Investment Authority (PENNVEST)

County

- Economic Development Grants
- Open Space Preservation Grants
- Park and Recreation Grants
- Re-allocation of Casino Grant Funds

Regional-Multi-Municipality

- Distribution of Gaming (Casino) Funds

Developer Impact Fees

- Recreation Impact Fees
- Traffic Impact Fees

The Township monitors each one of these opportunities and should continue to reevaluate each of these opportunities on a yearly basis since program requirements and availability of funds changes frequently.

The best way to be prepared for grant opportunities is to undertake initial need evaluations and feasibility studies with public support and responses. Grant agencies will look more favorably on funding needs that are clearly identified and funding projects that have been well thought out and have public support. The initial needs evaluation, study of alternatives, and development of the feasibility study will provide background and proof to a grant agency that the need for the capital improvement is legitimate and that the Scope of Work proposed is achievable without negative impact to the environment and/or other community development goals and objectives.

The evaluation of grant sources and opportunities for the capital projects identified in this Comprehensive Plan Update is beyond the requested Scope of Work.

It is noted, however, that the Township has already applied for grant funding for the renovation improvements needed for the Jacksonville Park and has already set aside some capital reserve funds for the Snyder's Church Road Storm Sewer System.

An evaluation of road reconstruction needs and an evaluation of Public Works buildings and a needs analysis for those buildings has also been undertaken.

If Bond funding were the only source of funds for Capital Works projects, it is estimated that one (1) mil of Real Estate Tax could provide two million, three hundred dollars (\$2,300,000). This estimate is based on a Bond issue structured for twenty (20) years at an Interest Rate of 3.5% and based upon an estimate of one hundred and sixty-three thousand dollars (\$163,000) annual revenue from one (1) mil of Real Estate Tax.

If the Township secured a 30 year bond at 3.5% the Township could provide approximately three million dollars (\$3,000,000) toward their Capital Fund needs.



APPENDIX A CITIZENS QUESTIONNAIRE AND RESPONSE SUMMARY

TOTAL SURVEY'S - 173

GENERAL BACKGROUND

1. What are the age(s) of individuals in your household (check all that apply)

7	<u>Infant to 4 years</u>	28	<u>18 to 24 years</u>
13	<u>5 to 10 years</u>	36	<u>25 to 44 years</u>
8	<u>11 to 13 years</u>	97	<u>45 to 64 years</u>
17	<u>14 to 17 years</u>	65	<u>65 years +</u>

2. What are the 3 most important qualities of life that drew you to the Township? (1 being most important)

	<u>1</u>	<u>2</u>	<u>3</u>
Reasonable cost of housing	61	21	8
Economic opportunity/employment	7	3	3
Family ties	32	7	10
Location convenient to work/shopping	73	21	17
Natural areas (wildlife, etc.)	52	18	16
Agricultural areas	35	10	16
Recreational opportunities	11	5	12
School facilities	9	8	6
Sense of community	14	4	5

3. What are the 3 most important qualities of life that cause you to stay in the Township?

	<u>1</u>	<u>2</u>	<u>3</u>
Reasonable cost of housing	54	10	10
Economic opportunity/employment	4	3	4
Family Ties	41	13	7
Location convenient to work/shopping	83	16	18
Natural areas (wildlife, etc.)	60	19	11
Agricultural areas	41	9	13
Recreational opportunities	13	4	10
School facilities	7	1	3
Sense of community	19	6	5

4. Are you in favor of using Public Funds, including Township taxes, to preserve one or more of the following - keeping in mind that the ultimate decision of which land might be preserved lies with the land owner?

	YES	NO
Agricultural Lands/Farms	126	35
Historical Resources/Structures	121	38
Woodlands	137	24
Natural Areas (streams, wetlands, etc.)	141	22
Open Space	130	28

INFRASTRUCTURE

1. As you travel through the Township, are you aware that some of the roads are State-owned Roads and some are Township Roads?

YES 161
NO 12

2. Are there roads which you believe are especially in need of repair, if so would you please state which road(s)?

SEE SURVEY COMMENTS (separate sheet)

3. Are you aware that the Township owns a Bridge?

YES 86
NO 86

ADDITIONAL SURVEY COMMENTS

GENERAL BACKGROUND

Question #2. What are the 3 most important qualities of life that drew you to the Township? (1 being most important)

- Born in house lived in
- Natural beauty of area
- General small town/Rural feeling
- Low real estate taxes
- Like house & area
- Quietness/Dark
- It was years ago. The area has changed since that time
- State Police coverage/Township taxes "were" cheap
- Good township services/Great combination of open space & residential
- Open land! Lower density of housing & No Warehouses!
- Family in are

Question #3. What are the 3 most important qualities of life that cause you to stay in the Township?

- Loss of work in February 2014, we enjoy wildlife & scenic areas
- Too lazy to move
- Natural beauty of area
- General good feeling when we're here – Home.
- Proximity to Nor-Bath Trail
- Low taxes
- Liked house & area
- Been there so long who wants to move now
- All of these are important! Please do not let what's happening in Allen with Fed Ex happen here!
- Family
- Individual housing

Question #4. What kind of community services should be added or improved in the Township, recognizing that additional services may require one of the following: (1) additional tax revenue, (2) an event charge or (3) a membership charge?

- A pool!

- It makes no sense having multiple trash trucks 5 days a week
- No
- Municipal leaf pick-up (coordinate with Allen and Moore Township)
- None
- None necessary – Present services are adequate
- Maintaining plantings/Trimming of cul-de-sacs in Victoria Sq.
- No! I like the option of finding the best price at a private company
- Maybe, I do not like having a Northampton zip code, but being charged an “out of borough” resident fee to use their community center
- Municipal recycling center (for drop off)
- No Tax Increase
- Leaf pick up
- Central sewage system
- None, Lower taxes
- Services adequate at this time from our perspective
- Local police coverage
- I like my choice of trash collection, I only pay for one can
- Fee nothing needs to be added
- Municipal trash collection without township making profit on additional trash fee
- Swimming pool and organize youth camping area at Bicentennial Park
- Swimming pool and fitness center
- Don’t waste money, nothing more is needed!
- Fitness/Community Center
- Fall leaf collection
- Would only like services that are event or membership financed
- No complaints as it is
- Leaf pick up
- None please, we are adjacent to these at close by facilities!
- Continue your excellent road maintenance and parks
- Nothing that increases cost/taxes
- Plow snow to the curb in winter not 3 feet from the curb
- Walking – Parks
- Senior center would be extremely welcomed
- Nothing that raises taxes
- None that require additional taxes
- None – Keep our farmland-protect the snow geese, yearly migration behind Victoria Sq.
- Central recycling center like Illick’s Mill Road, Bethlehem

FUTURE DEVELOPMENT

Question #1. As landowners sell their land and more homes may be built in the Township, what types of residential development would you like to see in East Allen Township, besides what already exists, which are Single Family Homes and Mobile Home Parks.

- Mobile homes lot free or put a cap on it so you can live
- Would like to preserve character of predominantly low density residential
- Am for no development. Keep rural. Do something about junk cars & equipment on residential properties.
- Preferably no new development
- Can't have most of the above without central sewage systems
- Prefer limited development as it would take away our precious open land & increase traffic if we allow too much
- Keep it to a minimum, stop sprawl
- Please keep the "McMansions" out and preserve AG/Natural Areas
- No town houses. Don't turn this into Macungie
- Keep it farms
- Be aggressive to decrease water issues and not contribute to the run off and high water in our area
- Our home values are low – Please don't make them lower

Question #2. As more businesses may look to locate here, what types of commercial development would you prefer to have in the Township? (OTHER)

- Small independent businesses. No fast food etc.
- None! Or as little as possible! Especially Airport property.
- None! We are adjacent to the above. Let's keep our township residential, please!
- None

Question #3. As more industries may look to locate here, what types of industry would you prefer to have in the Township?

- Plenty of unoccupied buildings at present – Not much need for more
- No more warehousing – Truck traffic stinks now
- Too much truck traffic
- Road cannot handle high volume traffic
- No warehousing/Lehigh Valley has enough
- Never industry
- Farming continue
- Buy farmland

Question #4. Are you in favor of using Public Funds, including Township taxes, to preserve one or more of the following – keeping in mind that the ultimate decision of which land might be preserved lies with the land owner?

- Not in favor of public funds to purchase/reserve land
- With caveats – too much here for one question
- Parks, walking trails and bike paths
- Absolutely
- If it costs me more money, No

INFRASTRUCTURE

Question 2. Are there roads which you believe are especially in need of repair, if so would you please state which road(s)?

- No but have concerns about the number of sink holes on Colony Drive in past few years
- Beth – Bath Pike
- Snyders Church Road, deep ditches (which are very dangerous) particularly in winter. Airport Road (Potholes), lots of pot holes all over due to a harsh winter
- Route 512
- Valley View Road north of Old Carriage Road
- Airport Road south of Dogwood Road
- Monocacy Drive
- Route 512
- In our development; Montauk, Mahopac, Chenango, Tioga, Halbea – Airport Road, Route 512 south of Bath
- Douglas Lane road has small stones that should be swept up, the road is heading up
- Silver Crest Road
- Pany Drive, When I purchased my home the township plowed & maintained I pay the same taxes as everyone else
- Airport Road
- All the state roads, especially Airport Rd.
- I travel many roads daily, mostly no in N.J. – I think that in comparison our township roads are in pretty good shape. Hats off to those responsible.
- Airport Road bridge near Hanoverville Rd.
- Airport Road/ Route 329- Route 248

- North Halbea
- Walnut Street @ Weaversville Road/Airport Road/Route 512 between School Road and the township line
- Sickel Road needs consistent maintenance, thank you for the maintenance that has been done, much appreciated
- Airport Road from Route 329 north top of hill
- Airport Road
- Airport Road north of Route 329
- Airport Road
- Airport Road north
- Airport Road (sections)
- Airport Road – North of airport
- Airport Road
- Snyders Church Road
- Yes, Beth Bath Pike needs repair due to high truck traffic, a ban on the use of brake retarders on trucks through the Township where houses are located along the road and speed enforcement along Beth Bath Pike is long overdue.
- Sickel Road
- Airport Road – from Snyders Church Rd. to Schoenersville Rd./Vegetation trimmed along Airport Rd. especially at Snyders Church Rd. Difficult to see oncoming traffic at this intersection
- Country Place II Development
- Mohawk Dr. between Colony Dr. and Apache Ln. – Was scheduled to be resurfaced but did not happen. The remainder of Mohawk Dr. was resurfaced.
- Airport Rd. – Route 248 to Schoenersville Rd./Route 512 – Hanoverville Rd. to Bath
- Route 512 both North & South between Unangst and Jacksonville Rd.
- Airport Road – the bump before Lucky Strokes, at the bridge
- Airport Road/Route 329 to Route 248
- Airport Road between 22 & 248 – most recent work seems to have been substandard
- Hanover Street
- Halbea, Tioga & Chenango/Airport Road north of Nor-Bath Blvd.
- Monocacy Dr. has not been repaired in 40 years. East Allen Manor roads to be inspected
- Colony Drive/Weaversville Rd.
- Silver Crest Rd./Township Line Rd.
- N. Halbea/Weaversville Rd. intersection is bad (caving in with very poor drainage) N. Halbea is also cracked & crumbling very bad
- Intersection of Apache Lane & Colony Dr.
- I don't know if there is a solution, but the right side of the road on Walnut St. when entering from Weaversville Rd. is very jarring. The problem was resolved at the entrance from Rt. 329. Hope there is a solution here.
- Airport Rd., Rt. 329, back roads in Bath Borough
- Airport Road

- Airport Rd./Main Street
- Weaversville Rd. between Walnut St. & Rt 329 (Flooding)
- Airport Rd., Rt 329, Rt 512
- Airport Rd., Rt 329, Rt 512
- Airport Rd. south of Rt 329 over the bridge down to Hanoverville Rd.
- Corner of Apache/Colony
- Although much improved, still concerned about the water problem which sometimes creates a river on Shawnee Drive
- Too many patches on roads – many should be resurfaced – Ex. Oswego Dr. – Colony Dr. in dire need of resurfacing
- Airport Rd./Jacksonville Rd. between Airport Rd & Rt 512
- Airport Rd!!!
- Sickle Rd – Hilltop Rd
- Airport Rd.
- Airport Rd.



APPENDIX B PUBLIC WORKS BUILDING INSPECTION REPORT

PUBLIC WORKS BUILDINGS INSPECTION REPORT

**EAST ALLEN TOWNSHIP
NORTHAMPTON COUNTY, PENNSYLVANIA**

SEPTEMBER 15, 2014

Prepared by:

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Hanover Project EA14-16

Introduction

As part of an Update to the Comprehensive Plan of East Allen Township, the Township is preparing a Capital Budget for the next five (5) years. As part of the Capital Budget, the Township needed to identify the existing and future needs for their building capacity and use. The Township owns several buildings and recognizes that these buildings need to be periodically inspected and evaluated for their maintenance and adequacy for the purposes used. The Municipal Office building was converted from a school use to an office use, with the design and direction of a Registered Architect, and is maintained regularly. In recent years it had been evaluated for security. The number of office employees and the number of citizens that attend public meetings has not changed significantly since the building was converted to an office use, so the Township did not authorize a reevaluation or inspection of this building for the purposes of this Capital Budget.

The Township Public Works Department has increased in number of employees and number of equipment pieces over the last 15 years and, therefore, the Township did authorize the evaluation and inspection of the buildings used by the Public Works Department. This report includes the results of that inspection.

July 8, 2014: Edwin A. Fluck of Hanover Engineering Associates, Inc. and Dave Bednar of Bednar Construction had a meeting with Gary Mathesz at the Allen Township Public Works building, 7347 Driftwood Road, Northampton, PA. Hanover was asked to inspect the condition of existing Public Works buildings at the locations listed below. Mr. Fluck evaluated the general condition of each building and for state of code compliance while Mr. Bednar inspected the general condition of the electrical components of each building.

PUBLIC WORKS BUILDING



7347 Driftwood Road – Front Building (Public Works)

The existing building is approximately 84'-0" long x 42'-0" wide. The exterior walls are constructed of 8" cement block.

The roof is supported by wood 2" x 6" purlins that are supported by five (5) steel rigid frame rafters. The purlins have R-19 insulation between them. The purlin insulation has a paper vapor barrier toward the interior, without fireproofing, which must be protected from flames or sparks. Roof is covered with asphalt shingles which appear to be in good condition. Access to the building is on the east and west ends of the building. The east end has two (2) 3'-0" wide personnel doors and one 14'-0" wide x 12'-0" high insulated fiberglass overhead door. The west end has one (1) 3'-0" wide personnel door and one (1) 14'-0" wide x 12'-0" high insulated fiberglass overhead door. All exterior personnel doors open outwards; however, they do not have panic hardware. There are no illuminated exit signs and no Braille signs at the doors. There is no emergency lighting inside or outside the building.

The building is heated with an oil fired warm air furnace that was installed and inspected in May 2014. This system is in good operating condition.

Inside the building are two (2) offices with block walls at the southeast corner of the building with storage above. At the northwest corner there is a small locker room, parts room and restroom also with storage above. These enclosures are constructed of wood framing. The restroom is 4'-7" wide x 7'-9½" long and is not ADA accessible. The locker room is also not ADA accessible. The existing floor is concrete with three (3) floor drains that drain to a holding tank located at the exterior, northwest corner of the building. The concrete floor is in fair condition.

Structural deficiencies of the building are as follows:

- Third column from the west end on north wall is heavily rusted at base for approximately 18 inches with 70% or more section loss. This deteriorated steelwork should be reinforced with additional steel plate or structural sections.
- Cement block on south wall has grout missing, cracks at grout lines and a block that has a crack through block.
- Windows are steel frame but only single pane windows with associated heat loss.
- Concrete slab at west end of building, exterior section, expansion joint deteriorated between building and slab, slab dropped about 1½”.
- Access to storage areas above offices and locker/parts/restroom is by folding ladder. Handrail is not per International Building Code.
- The floor joists above the locker/parts/restroom area are 2” x 4” and undersized for code compliance. Therefore, they should not be used for storage.
- The building does not have an adequately designed ventilation system for servicing of vehicles.

Electrical deficiencies of the building are as follows (See Exhibit):

- The building lacks emergency lighting.
- The existing emergency lighting in the office does not operate.
- Type NM-B (Romex) wiring needs to be protected or replaced due to potential damage.
- The circuit feeding the compressor needs to be protected or replaced.
- An electrical disconnect for the compressor is required.
- Protection is needed for the compressor grounding wiring.
- Ground rod for the compressor could not be located.
- Covers for several junction boxes were missing.
- An electrical receptacle behind the oil tank needs to be removed.
- The Parts Room, Bathroom, and Locker Room need to be rewired with type MC wire and metal boxes.
- The PVC conduit for pump area for salt solution needs to be replaced with rigid conduit due to the potential for damage at the existing location.
- Some of the light fixtures need to be rewired with the correct wire. Cord and plugs are not acceptable.

DRIFTWOOD ROAD STORAGE GARAGE



7347 Driftwood Road – Rear Building (former Salt Shed)

The existing building is a wood pole building approximately 64'-0" long x 40'-0" wide with metal siding and metal roof.

The building has no insulation and no heat. The east wall of building has two (2) 14'-0" wide x +/-12'-0" high, noninsulated fiberglass overhead doors. The south elevation has a 3'-0" wide personnel door that opens out with no ADA hardware. This door is a wood door clad in metal. The exterior of the door has heavy rust and the interior side of the door has rust holes and is no longer fastened to the bottom of door. There is a second 3'-0" personnel door on the west side. However, that door has been closed off from the inside and also has rust holes through the door.

The existing siding on all sides of building has rust and holes, the worst state of corrosion on the north and west sides. There is a 2'-0" x 3'-0" rust hole in the east side of the building.

The existing floor is concrete with wide cracks near the overhead doors, with holes and cracks along south and west walls. The existing concrete floor is in poor condition.

There are no illuminated exit signs, no Braille signs at doors and no emergency lighting inside or outside the building. Inside the building there is a 12" thick x 5'-0" high concrete knee wall on half of the west wall, all of the north wall, and half of the east wall. At the northwest corner, near the roof is a wooden gusset plate that has minor damage.

This building does not have a restroom.

Structural deficiencies of the building are as follows:

- Several pedestrian doors are heavily rusted with holes from corrosion.
- The existing metal siding on several sides has holes from corrosion.
- The existing concrete floor is in poor condition.
- The building does not have an adequately designed ventilation system for servicing of vehicles.

Electrical deficiencies of the building are as follows (See Exhibit):

- The grounding wire for the electrical panel needs to be protected.
- The pole building has no emergency lighting system.
- The building lacks any site lighting.
- Several wires need to be secured.

NOR-BATH BOULEVARD SALT STORAGE BUILDING



5360 Nor Bath Boulevard (new Salt Shed)

The existing building has 12" thick concrete walls on all sides with a 14'-9" wide x +/-26'-0" high opening (no door). Above the concrete walls are premanufactured wood trusses that have wall space going into a gable with monitor.

The siding appears to be vinyl and the roof is covered with asphalt shingles. The entire building looks in very good condition; however, there are two (2) slight dents in the aluminum trim above the main opening.

There are no restrooms at this facility.

There was no emergency lighting for this building.

There is one (1) exterior light above the vehicle opening.

There is minimal flood lighting internal to this building to assist the vehicular operators.

Structural deficiencies of the building are as follows:

- None

Electrical deficiencies of the building are as follows (See Exhibit):

- Grounding wires need to be protected.

WEAVERSVILLE ROAD PARK STORAGE GARAGE



6701 Weaversville Road – Park Storage Garage

The existing building is approximately 46'-0" long x 37'-0" wide. The exterior siding and roof is metal.

The building's exterior was painted and the paint is heavily deteriorated. Because of the age, this paint may contain lead and should be tested. The northwest wall has four (4) wooden overhead garage doors approximately 10' high by 10'-2" wide. The doors have broken windows and are missing panels. The southeast wall has two (2) wood noninsulated doors (10'-2" wide x 10'-0" high) and one (1) 21'-0" wide x 10'-0" high non-insulated fiberglass overhead door. The southwest wall has two (2) single pane windows and a 44" wide steel personnel door that opens out, but does not have ADA hardware. Also located on the exterior of the southwest area is a horizontal propane storage tank. The northeast wall has one (1) wood and glass door that is no longer used and three (3) single pane windows.

There is an old truck scale located along the northeast wall.

The interior ceiling height is 12'-3 3/8" high. The ceiling is metal. There is an access door to the attic area above the ceiling. However, we are not able to access this area through the access door due to the lack of a stair.

The building does have propane heat located at west corner of ceiling.

The interior of building has metal siding on walls and ceiling. The floor is concrete with two (2) floor drains (unknown where they drain to). There are no illuminated exit signs at the door, no Braille signs and no emergency lighting.

There is no restroom in this building.

Structural deficiencies of the building are as follows:

- Vehicular door windows and wood panels are missing. Door replacement should be considered.
- Exterior coating on metal roof is failing.
- Exterior coating on metal wall siding, metal doors, and wood doors are in poor condition. Paint may contain lead.
- This building does not have a ventilation system for the servicing of vehicles.

Electrical deficiencies of the building are as follows (See Exhibit):

- The building lacks emergency lighting.
- The building lacks proper grounding for service.
- The building lacks exterior sight lighting.
- Several junction boxes are missing covers.
- Several light fixtures need to be rewired.

Bicentennial Park East - Storage Building



Bicentennial Park East (Parks Department Storage Building)

The existing building is approximately 42'-0" long x 24'-0" wide with a ceiling height of 7'-10". The exterior walls are 8" cement block with wood truss roof and asphalt shingles.

The roof shingles are in very good condition.

The Parks Department is only using the north end of the building with the south end being used as a concession stand. The north wall has an 8'-0" wide x 7'-0" high insulated overhead door. There is a small ceiling mounted gas heater in the northeast corner of the building.

There is no restroom in this building. The nearest restroom is about 500 feet away in the park.

Structural deficiencies of the building are as follows:

- The building is in good condition.
- The Parts Storage Area of the building is not ventilated.

Electrical deficiencies of the building are as follows (See Exhibit):

- The compressor needs a disconnect switch.
- The building lacks emergency lighting.
- The building lacks a light in the main foyer area between the garage and concessions.

Summary and Conclusions:

The inspections provided for this report were general in nature and did not include the removal of any wall coverings and did not include a detailed inspection of every building element. The report, summary, and conclusions are provided to a reasonable degree of engineering accuracy, as limited by the scope of work approved and the budget authorized.

7347 Driftwood Road – Public Works Building:

Building is in poor condition and following items need to be addressed:

- Structural column is rusted at base plate and needs to be repaired.
- Building uses are not separated with adequate fire rated materials.
- Block wall on south side has minor cracks.
- Storage area above locker/parts/restroom is not structurally adequate for storage.
- Doors are not ADA (panic) compliant.
- There is no emergency lighting at interior and exterior.
- Restroom size and fixtures are not ADA compliant.
- There are no shower facilities.
- Access steps are not provided to the mezzanine storage areas.
- There is no Braille signage.
- Insulation at ceiling needs to have fire proof cover over paper vapor barrier.
- Expansion joint at west slab needs to be replaced or caulked.
- A ventilation system for vehicles is required.
- See Electrical Exhibit

7347 Driftwood Road Storage Garage

Structurally, the building is in fair condition. Aesthetically, the building is in very poor condition. The following items need to be addressed:

- All siding needs to be replaced or repaired.
- Several pedestrian doors need to be replaced.
- Concrete floor needs to be repaired or replaced.
- South exterior door needs to be replaced with ADA (panic) hardware.
- There is no emergency lighting.
- There is no Braille signage.
- See Electrical Exhibit

5360 Nor Bath Boulevard Salt Storage Building:

- Building in very good condition.
- There is no emergency lighting inside or outside the building.
- There is no exterior lighting.
- See Electrical Exhibit

6701 Weaversville Road – Park Storage Garage:

Building structurally is in poor condition. Aesthetically, the building is in very poor condition. The following items need to be addressed:

- All lead paint needs to be addressed.
- All metal sheeting on exterior walls and roof need to be repainted or replaced.
- All wood vehicular doors need to be replaced.
- Building does not have a restroom.
- Southwest personnel door needs to be replaced with ADA (panic) hardware.
- There is no emergency lighting.
- See Electrical Exhibit

Bicentennial Park East- Storage Building:

- Building is in good condition.
- Building does not have a restroom.
- See Electrical Exhibit

Please Note: Restrooms are normally required at or within 500 feet of a building occupied by employees.

Exhibits- -Property Electrical Report dated August 12, 2014

Bednar Construction, LLC

Remodeler – Builder – Electrical Contractor

4429 Wagner Drive Bethlehem PA 18020 484.357.8287
dbednar@bednarconstruction.com

Invoice 7.27.2014

Hanover Engineering Associates
252 Brodhead Road, Suite 100
Bethlehem, PA 18017

Description of Services:

- Accompanied Ed Fluck, draftsman, to (5) East Allen Township buildings/properties
- Provided notes and report in regards to the electrical systems of each property
- Provided pictures of the electrical systems on a thumb drive

Charges: \$55 per hour; total 6 hours

TOTAL DUE: \$330.00

*Please make checks payable to Bednar Construction, LLC
All payments are due within 14 days of the date on invoice.
Thanks for your business!*

Bednar Construction, LLC

Remodeler – Builder – Electrical Contractor

4429 Wagner Drive Bethlehem PA 18020 484.357.8287
PA HIC 093594 Licensed and Fully Insured COB R-76

Bednar Construction, LLC

Remodeler – Builder – Electrical Contractor

4429 Wagner Drive Bethlehem PA 18020 484.357.8287
dbednar@bednarconstruction.com

Property Electrical Report

East Allen Township
c/o Hanover Engineering Associates
252 Brodhead Road, Suite 100
Bethlehem, PA 18017

Building 1

7347 Driftwood Road

- Newer 200A service, Cutler Hammer circuit breaker and panel
- 20kw standby generator with auto transfer switch
- Building lacks emergency lighting system including but not limited to lighted exit signage, battery backup heads at all doors, etc.
- Existing emergency lights in office do not operate. Systems should be tested quarterly
- Type NM-B (Romex) wire needs to be protected or replaced from panel to branch circuits in several areas. This type of wire can be damaged in the environment
- Circuit feeding compressor needs to be protected or replaced.
- Disconnect required for compressor
- Protection is needed for (2) #4THHN ground wires
- Ground rod for generator could not be located
- Several junction boxes are missing cover plates
- Exposed splices above office area
- Receptacle conduit runs of right and left side of building need to be fastened
- Remove receptacle behind oil tank
- Parts room, bathroom and locker room need to be rewired with type MC wire and metal boxes. Romex and plastic boxes to be removed
- Light fixtures in parts room, bathroom and locker room need to be rewired with the correct wire. Cord and plug is not acceptable
- Replace PVC conduit with rigid conduit for pump area for salt solution. PVC on ground level is not permitted as it can be damaged

Building 2

7347 Driftwood Road (rear)

- Newer 100A sub panel from main building

- #6 THHN ground wire for panel needs to be protected
- Pole building lacks an emergency lighting system
- Building lacks site lighting outside doors
- Several wires need to be secured

Building 3

5360 Nor Bath Boulevard – new salt storage

- It is unclear if light fixtures and wiring system is corrosion resistant due to the environment.
- Has newer 200A service with a weather tight panel on outside of building
- Ground wires need to be protected

Building 4

6701 Weaversville Road – garage

- Building has old 100A service from pole approx. 100 yards away from building
- Receptacle above panel has exposed wiring
- Several junction boxes are missing covers
- Building lacks exterior sight lighting
- Building lacks emergency light system
- Conduit bodies are missing covers
- Several light fixtures need to be rewired; they are wired now with a cord and plug
- Building lacks proper grounding for service

Building 5

Bicentennial Park – garage/concession building

- Building has (2) new 200A circuit breaker panels
- Compressor needs disconnect
- Building lacks emergency lighting
- Building lacks light in main foyer area between garage and concessions

Bednar Construction, LLC
Remodeler – Builder – Electrical Contractor
4429 Wagner Drive Bethlehem PA 18020 484.357.8287
PA HIC 093594 Licensed and Fully Insured COB R-76



APPENDIX C EXISTING ZONING MAP

ZONING DISTRICTS

- AG - AGRICULTURAL DISTRICT
- A/RR - AGRICULTURAL / RURAL RESIDENTIAL DISTRICT
- C - CONSERVATION DISTRICT
- EI - EXTRACTIVE INDUSTRIAL DISTRICT
- OC - OFFICE COMMERCIAL DISTRICT
- GI - GENERAL INDUSTRIAL DISTRICT
- LI/BP - LIGHT INDUSTRIAL / BUSINESS PARK DISTRICT
- PC - 1 - PLANNED COMMERCIAL DISTRICT
- PC - 2 - PLANNED COMMERCIAL DISTRICT
- PR - PLANNED RESIDENTIAL DISTRICT
- SR - SUBURBAN RESIDENTIAL DISTRICT

FUNCTIONAL ROAD CLASSIFICATIONS

ARTERIAL

AIRPORT ROAD (SR 987 / 3023)
BETH-BATH PIKE (SR 512)
NOR-BATH BLVD. (SR 329)
WEAVERSVILLE ROAD (SR 3017)
WEST MAIN BLVD. (SR 218)

COLLECTOR

CHRISPALT DRIVE
COLONY DRIVE
HANOVERVILLE ROAD
JACKSONVILLE ROAD
LOCUST ROAD
OLD CARRIAGE ROAD
SEEMSVILLE ROAD
SILVERCREST ROAD
SNOWDRIFT ROAD
TOWNSHIP LINE ROAD

GREENBRIAR VILLAGE

- 1. GREENBRIAR DR. S.
- 2. BENTWOOD CIRCLE
- 3. CLEARFIELD COURT
- 4. GREENTREE COURT
- 5. ELDER COURT
- 6. FAWN MEADOW COURT
- 7. GOLDENROD COURT
- 8. GOLDENROD CIRCLE
- 9. BAYBERRY COURT
- 10. QUAIL COURT
- 11. JUNIPER COURT
- 12. JUNIPER CIRCLE
- 13. BOXWOOD COURT
- 14. MAGNOLIA COURT
- 15. WILDBRIAR COURT
- 16. ACORN COURT
- 17. OAKWOOD COURT
- 18. PINE CONE COURT
- 19. SILVER WIND COURT
- 20. SPRING MEADOW COURT
- 21. WOODSBLUFF COURT
- 22. BRIARWOOD COURT
- 23. GREENBRIAR BLVD.

VICTORIA SQUARE

- 1. COPENHAGEN SQUARE T 789
- 2. BIRMINGHAM SQUARE T 800
- 3. DUSSELDORF SQUARE T 798
- 4. LIMERICK SQUARE T 797
- 5. VENICE SQUARE T 795
- 6. HELSINKI SQUARE T 794
- 7. VALENCIA SQUARE T 792
- 8. SALINCA SQUARE T 791
- 9. ROTTERDAM SQUARE T 790
- 10. VERSAILLES SQUARE T 799
- 11. DEBRECCEN SQUARE T 796

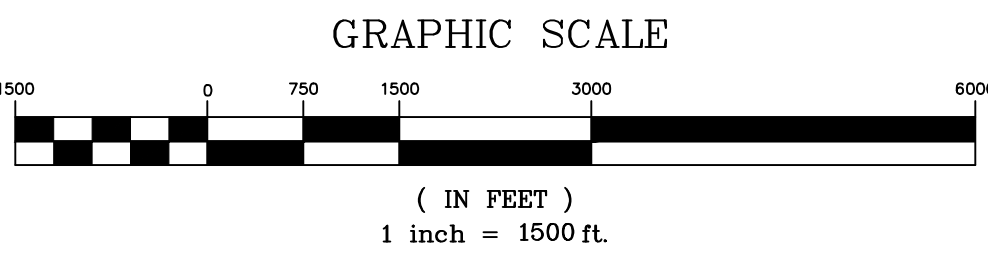
MAP KEY:

- PONDS / WETLANDS
- MAJOR STREAMS
- MINOR STREAMS

Comprehensive Plan 2015- Appendix C
March 27, 2015-EA14-16

ZONING MAP

EAST ALLEN TOWNSHIP
NORTHAMPTON COUNTY
PENNSYLVANIA
JUNE 16, 2005



PREPARED BY: HANOVER ENGINEERING ASSOCIATES, INC.

MAP UPDATED AND NEW SUBDIVISION STREETS ADDED:
MARCH 13, 2009

ATTEST:
SECRETARY

EAST ALLEN TOWNSHIP
CHAIRMAN, BOARD OF SUPERVISORS

MAP AMENDMENTS				
NO.	ORDINANCE	ADOPTED	NO.	ORDINANCE
1	ORDINANCE 2005-08	3-23-2005	7	ORDINANCE 2010-03
2	ORDINANCE 2008-06	5-14-2008	8	ORDINANCE 2010-03
3	ORDINANCE 2008-13	10-25-2008	9	ORDINANCE 2014-02
4	ORDINANCE 2009-01	2-11-2009	10	ORDINANCE 2014-03
5	ORDINANCE 2009-05	8-27-2009		
6	ORDINANCE 2009-06	8-27-2009		



APPENDIX D INTERSECTION CAPACITY ANALYSIS

COMPREHENSIVE PLAN UPDATE

INTERSECTION CAPACITY ANALYSIS

FOR

EAST ALLEN TOWNSHIP

LOCATED IN

EAST ALLEN TOWNSHIP
NORTHAMPTON COUNTY

Prepared by:

Hanover
Engineering Associates Inc

252 Brodhead Road, Suite 100
Bethlehem, PA 18017-8944
610.691.5644 • Fax 610.691.6968

FEBRUARY 2015

Hanover Project EA14-16

NARRATIVE

As part of the Comprehensive Plan Update in East Allen Township, Hanover Engineering Associates, Inc. investigated six (6) key intersections within East Allen Township, Northampton County. The purpose of this is to determine any existing deficiencies and identify future areas of concern for future development in the surrounding areas at the following intersections:

- Airport Road (SR 3023) and SR 0329/SR 0987;
- Airport Road and Locust Road;
- SR 0512 and Locust Road;
- Weaversville Road and Walnut Street;
- Walnut Street and SR 0329;
- Airport Road and SR 0248.

Hanover Engineering collected traffic volumes using Manual Traffic Recorders to obtain turning movement counts during the Weekday A.M. and Weekday P.M. peak hours at each of the study area intersections. Manual traffic counts can be found in **Appendix A**. The study area intersections were analyzed on the following dates:

- Tuesday, September 23, 2014
- Wednesday, September 24, 2014;
- Thursday, September 25, 2014;
- Thursday, October 2, 2014;
- Wednesday, October 22, 2014;
- Thursday, October 23, 2014.

CAPACITY ANALYSIS

Levels of Service

Levels of Service is defined in terms of average control delay per vehicle, which is a measure of lost travel time, fuel consumption and driver frustration. Highway capacity analysis uses Level of Service (LOS) to qualitatively relate capacity to operational conditions. Highway Capacity Manual (HCM) LOS is delay-based and ranges from “A” to “F”, with “A” being the best operating condition and “F” being the worst. Generally, LOS “C” is desirable, but in built-up or suburban areas with substantial traffic congestion or flows, LOS “D” or “E” is considered acceptable. LOS for intersections is measured by control delay per vehicle. **Table 1** on the following page shows the relationship between LOS and delay for signalized and unsignalized intersections.

TABLE 1
LEVEL OF SERVICE CRITERIA

LOS	Control Delay Per Vehicle (seconds/vehicle)		Description
	Signalized	Unsignalized	
A	≤ 10.0	≤ 10.0	Very low delay, good progression; most vehicles do not stop at intersection;
B	10.1 to 20.0	10.1 to 15.0	Generally good signal progression and/or short cycle length;
C	20.1 to 35.0	15.1 to 25.0	Fair progression and/or longer cycle length; significant number of vehicles stop at intersection.
D	35.1 to 55.0	25.1 to 35.0	Congestion becomes noticeable; individual cycle failures; longer delays from unfavorable progression, long cycle length, or high volume/capacity ratios; most vehicles stop at intersection.
E	55.1 to 80.0	35.1 to 50.0	<u>Considered limit of acceptable delay</u> , indicative of poor progression, long cycle length, high volume/capacity ratio; frequent individual cycle failures.
F	> 80.0	> 50.0	Unacceptable delay, frequently an indication of over saturation

Capacity Analysis Methodology

Capacity analyses were performed for each of the analyzed peak hours at the study area intersections. A level-of-service analysis of the study area intersections was conducted in accordance with the methodology presented in the 2010 *Highway Capacity Manual* (HCM), utilizing the Highway Capacity Software (HCS 2010), a McTrans software package, based on current traffic demand characteristics and intersection geometry. Capacity analyses summary reports are attached in **Appendix B**. Additionally, intersection sketches are provided in **Appendix C**.

Table 2 on the following page depicts the existing Levels of Service (LOS) for the each of the intersection approaches. Levels of Service (LOS) shown in **bold** represents approaches and movements where current demand meets or exceeds available capacity.

TABLE 2
LEVEL OF SERVICE
2014 EXISTING CONDITIONS

Intersection	Movement	2014 Weekday AM	2014 Weekday PM
Airport Road and SR 0329/SR 0987	EB L	C	C
	EB T/R	C	D
	WB L	D	F (167.8)
	WB T/R	D	C
	NB L	C	C
	NB T/R	D	C
	SB L	D	C
	SB T/R	C	E (72.4)
Airport Road and Locust Road	ILOS	C	E (55.0)
	WB L/R	E (42.5)	D
SR 0512 and Locust Road	SB L	A	A
	EB L/R	C	C
Weaversville Road and Walnut Street	NB L	A	A
	EB L	A	A
Walnut Street and SR 0329	SB L/R	C	C
	WB L	A	A
Airport Road and SR 0248	NB L/R	B	C
	EB L/T/R	A	A
	WB L/T/R	B	A
	NB L/T/R	E (47.2)	F (188.1)
	SB L/T/R	C	B

As shown in **Table 2** above, there are several intersection approaches and movements where current traffic demand exceeds available capacity. For the intersection of Airport Road and SR 0329/SR 0987 there are two (2) approaches and the overall Intersection Level of Service (ILOS) with deficient Levels of Service. Based upon the existing traffic count data, the westbound approach of the signalized intersection meets PennDOT warrants for an exclusive left-turn signal phase in both peak hours analyzed. Incorporating this into the current signal system would have the benefit of added capacity for this movement, and potentially reduce the average delay for the overall intersection.

Due to the length of the Appendices referenced in this chapter, they have not been included in the compiled Comprehensive Plan; the Appendices are available for review at the Township Building in the complete Comprehensive Plan Update Intersection Capacity Analysis Report dated February 2015.

APPENDICES

East Allen Township
Comprehensive Plan Update

APPENDIX A

Manual Traffic Count Reports

Hanover Engineering Assoc, Inc.

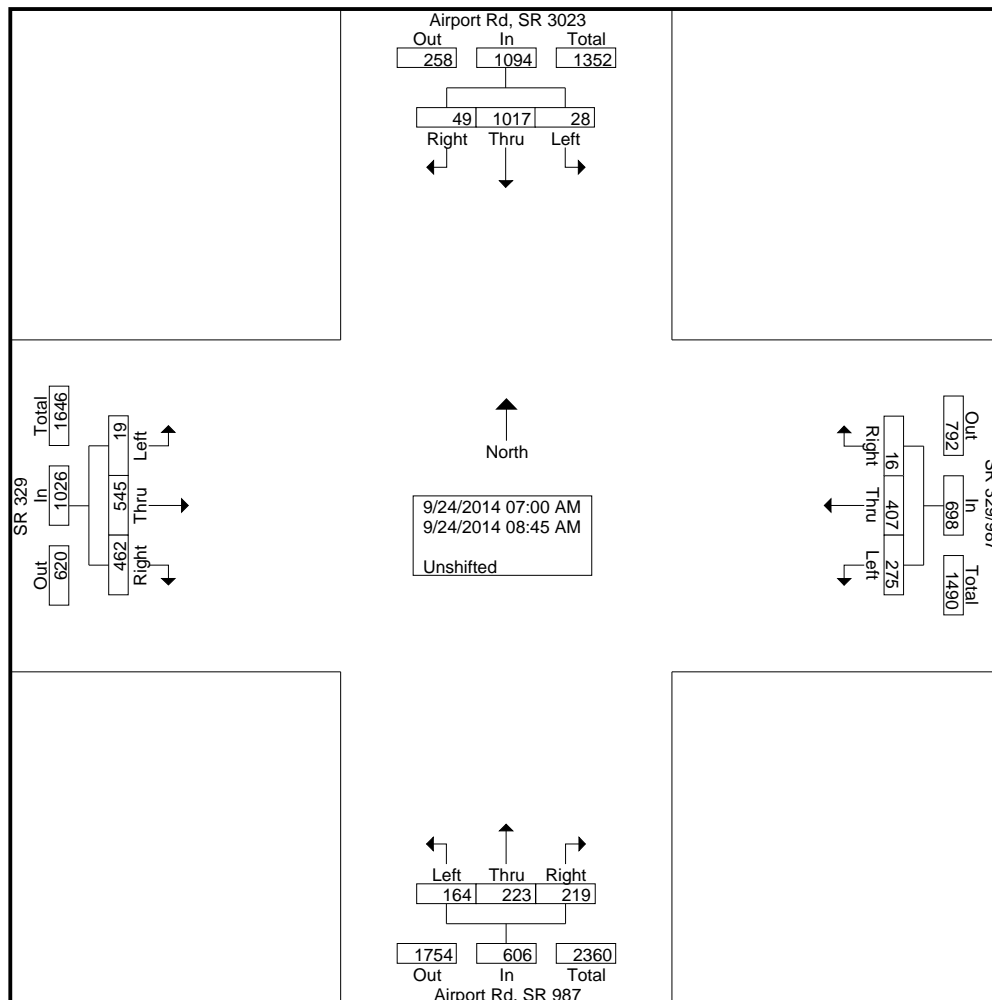
252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Engineering
Weather: Clear
Counter:
Comments:

File Name : Ea14-16Airport329AM
Site Code : EA14-16
Start Date : 9/24/2014
Page No : 1

Groups Printed- Unshifted

	Airport Rd, SR 3023 Southbound					SR 329/987 Westbound					Airport Rd, SR 987 Northbound					SR 329 Eastbound					Exclu. Total	Inclu. Total	Int. Total
Start Time	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total			
07:00 AM	4	3	124	8	135	2	38	54	6	98	4	13	16	14	43	5	1	71	52	124	15	400	415
07:15 AM	1	4	154	6	164	3	33	44	1	78	2	15	25	21	61	10	3	62	72	137	16	440	456
07:30 AM	0	6	168	3	177	6	30	55	0	85	7	14	33	29	76	11	2	74	69	145	24	483	507
07:45 AM	0	2	150	8	160	5	29	67	2	98	10	30	33	43	106	8	4	92	69	165	23	529	552
Total	5	15	596	25	636	16	130	220	9	359	23	72	107	107	286	34	10	299	262	571	78	1852	1930
08:00 AM	0	3	118	7	128	8	39	53	2	94	7	29	34	23	86	9	2	56	49	107	24	415	439
08:15 AM	4	5	114	6	125	4	27	46	0	73	13	16	30	26	72	4	5	64	53	122	25	392	417
08:30 AM	2	5	97	4	106	1	43	51	0	94	7	24	32	31	87	10	1	76	52	129	20	416	436
08:45 AM	4	0	92	7	99	11	36	37	5	78	6	23	20	32	75	7	1	50	46	97	28	349	377
Total	10	13	421	24	458	24	145	187	7	339	33	92	116	112	320	30	9	246	200	455	97	1572	1669
Grand Total	15	28	1017	49	1094	40	275	407	16	698	56	164	223	219	606	64	19	545	462	1026	175	3424	3599
Apprch %		2.6	93	4.5			39.4	58.3	2.3			27.1	36.8	36.1			1.9	53.1	45				
Total %		0.8	29.7	1.4	32		8	11.9	0.5	20.4		4.8	6.5	6.4	17.7		0.6	15.9	13.5	30	4.9	95.1	



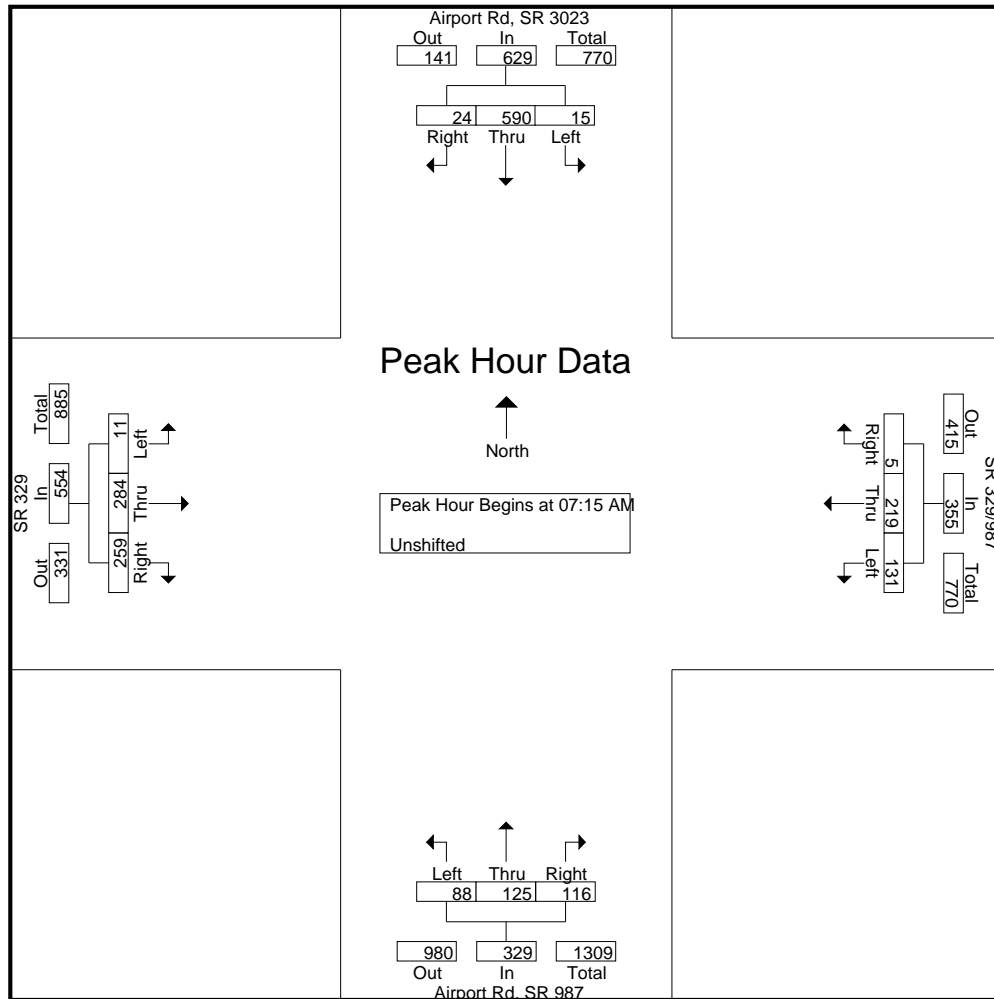
Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Engineering
Weather: Clear
Counter:
Comments:

File Name : Ea14-16Airport329AM
Site Code : EA14-16
Start Date : 9/24/2014
Page No : 2

	Airport Rd, SR 3023 Southbound				SR 329/987 Westbound				Airport Rd, SR 987 Northbound				SR 329 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	4	154	6	164	33	44	1	78	15	25	21	61	3	62	72	137	440
07:30 AM	6	168	3	177	30	55	0	85	14	33	29	76	2	74	69	145	483
07:45 AM	2	150	8	160	29	67	2	98	30	33	43	106	4	92	69	165	529
08:00 AM	3	118	7	128	39	53	2	94	29	34	23	86	2	56	49	107	415
Total Volume	15	590	24	629	131	219	5	355	88	125	116	329	11	284	259	554	1867
% App. Total	2.4	93.8	3.8		36.9	61.7	1.4		26.7	38	35.3		2	51.3	46.8		
PHF	.625	.878	.750	.888	.840	.817	.625	.906	.733	.919	.674	.776	.688	.772	.899	.839	.882



Hanover Engineering Assoc, Inc.

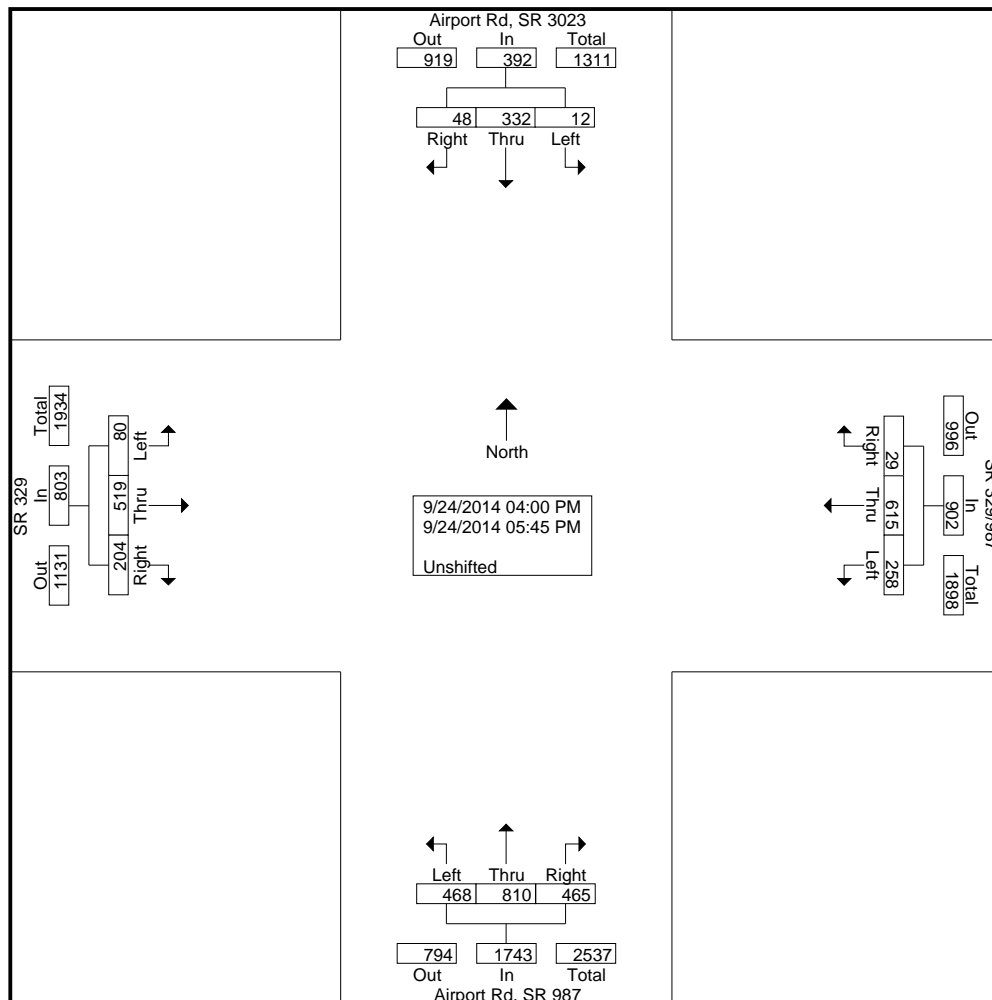
252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Engineering
Weather: Clear
Counter:
Comments:

File Name : Ea14-16Airport329PM
Site Code : EA14-16
Start Date : 9/24/2014
Page No : 1

Groups Printed- Unshifted

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Start Time	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	2	31	4	37	3	32	64	3	99	3	49	87	39	175	2	8	60	26	94	8	405	413
04:15 PM	3	3	43	7	53	7	23	72	2	97	4	52	98	58	208	2	7	73	20	100	16	458	474
04:30 PM	0	0	46	7	53	3	33	73	3	109	3	53	108	70	231	6	4	57	26	87	12	480	492
04:45 PM	3	2	48	4	54	2	41	86	5	132	1	72	126	60	258	2	12	56	22	90	8	534	542
Total	6	7	168	22	197	15	129	295	13	437	11	226	419	227	872	12	31	246	94	371	44	1877	1921
05:00 PM	0	1	34	6	41	2	29	91	6	126	6	77	110	58	245	3	11	68	29	108	11	520	531
05:15 PM	2	0	57	7	64	3	34	99	3	136	2	65	110	70	245	4	12	64	34	110	11	555	566
05:30 PM	1	2	36	5	43	1	34	74	4	112	0	51	99	63	213	1	17	78	27	122	3	490	493
05:45 PM	1	2	37	8	47	2	32	56	3	91	2	49	72	47	168	0	9	63	20	92	5	398	403
Total	4	5	164	26	195	8	129	320	16	465	10	242	391	238	871	8	49	273	110	432	30	1963	1993
Grand Total	10	12	332	48	392	23	258	615	29	902	21	468	810	465	1743	20	80	519	204	803	74	3840	3914
Apprch %		3.1	84.7	12.2			28.6	68.2	3.2			26.9	46.5	26.7			10	64.6	25.4				
Total %		0.3	8.6	1.2	10.2		6.7	16	0.8	23.5		12.2	21.1	12.1	45.4		2.1	13.5	5.3	20.9	1.9	98.1	



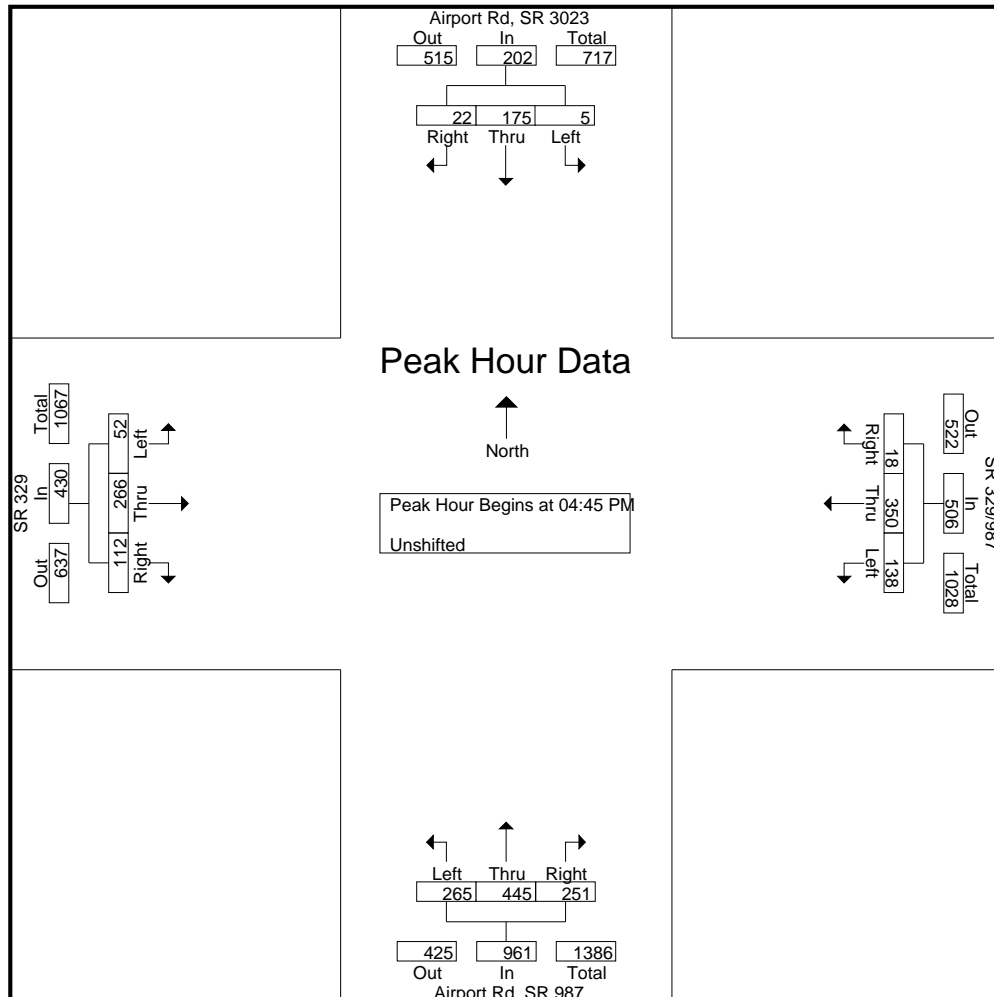
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	Airport Rd, SR 3023 Southbound				SR 329/987 Westbound				Airport Rd, SR 987 Northbound				SR 329 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	48	4	54	41	86	5	132	72	126	60	258	12	56	22	90	534
05:00 PM	1	34	6	41	29	91	6	126	77	110	58	245	11	68	29	108	520
05:15 PM	0	57	7	64	34	99	3	136	65	110	70	245	12	64	34	110	555
05:30 PM	2	36	5	43	34	74	4	112	51	99	63	213	17	78	27	122	490
Total Volume	5	175	22	202	138	350	18	506	265	445	251	961	52	266	112	430	2099
% App. Total	2.5	86.6	10.9		27.3	69.2	3.6		27.6	46.3	26.1		12.1	61.9	26		
PHF	.625	.768	.786	.789	.841	.884	.750	.930	.860	.883	.896	.931	.765	.853	.824	.881	.945



Hanover Engineering Assoc, Inc.

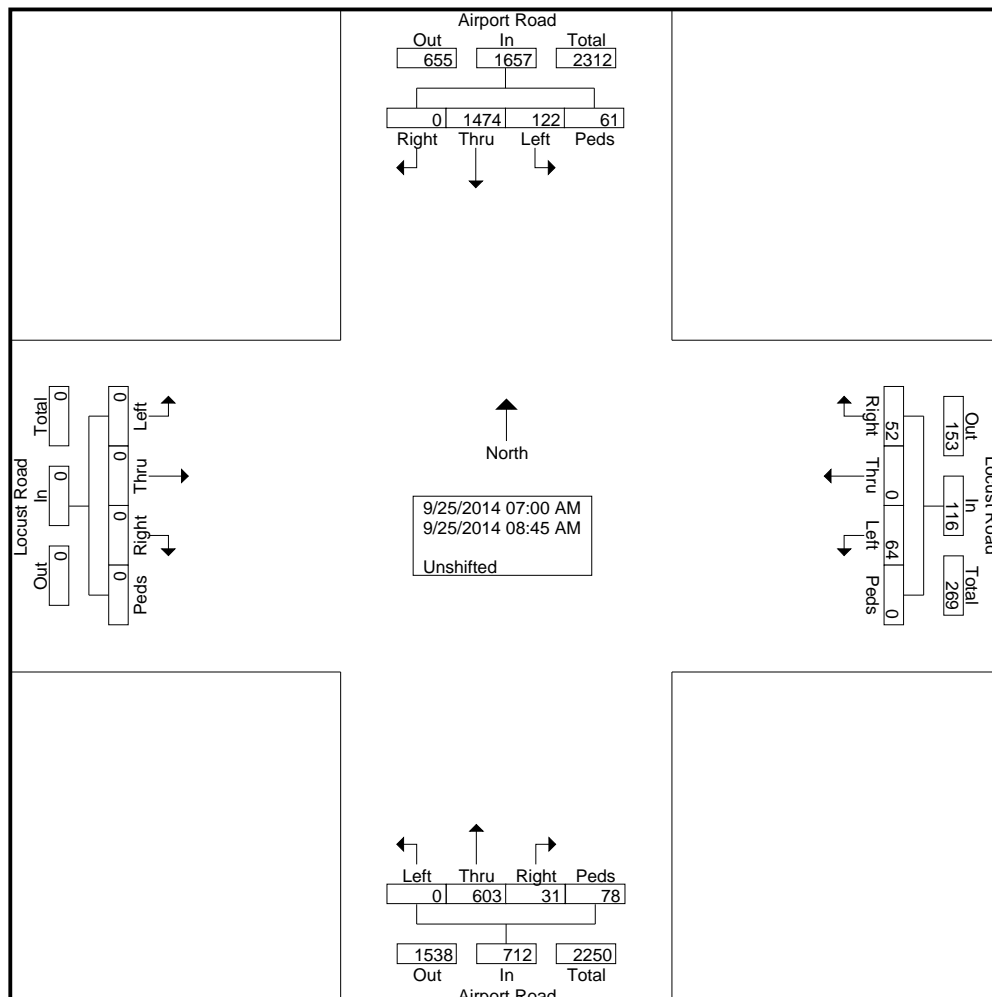
252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By:
Weather:
Counter:
Comments:

File Name : Ea14-16AirportLocustAM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 1

Groups Printed- Unshifted

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Start Time	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	16	175	0	196	0	5	0	6	11	3	0	53	3	59	0	0	0	0	0	266
07:15 AM	5	20	210	0	235	0	10	0	5	15	10	0	58	6	74	0	0	0	0	0	324
07:30 AM	7	15	235	0	257	0	17	0	8	25	10	0	89	3	102	0	0	0	0	0	384
07:45 AM	6	22	210	0	238	0	5	0	13	18	10	0	94	6	110	0	0	0	0	0	366
Total	23	73	830	0	926	0	37	0	32	69	33	0	294	18	345	0	0	0	0	0	1340
08:00 AM	14	13	176	0	203	0	9	0	5	14	10	0	78	5	93	0	0	0	0	0	310
08:15 AM	9	11	160	0	180	0	3	0	5	8	8	0	81	5	94	0	0	0	0	0	282
08:30 AM	6	10	157	0	173	0	9	0	6	15	17	0	80	3	100	0	0	0	0	0	288
08:45 AM	9	15	151	0	175	0	6	0	4	10	10	0	70	0	80	0	0	0	0	0	265
Total	38	49	644	0	731	0	27	0	20	47	45	0	309	13	367	0	0	0	0	0	1145
Grand Total	61	122	1474	0	1657	0	64	0	52	116	78	0	603	31	712	0	0	0	0	0	2485
Apprch %	3.7	7.4	89	0		0	55.2	0	44.8		11	0	84.7	4.4		0	0	0	0		
Total %	2.5	4.9	59.3	0	66.7	0	2.6	0	2.1	4.7	3.1	0	24.3	1.2	28.7	0	0	0	0	0	



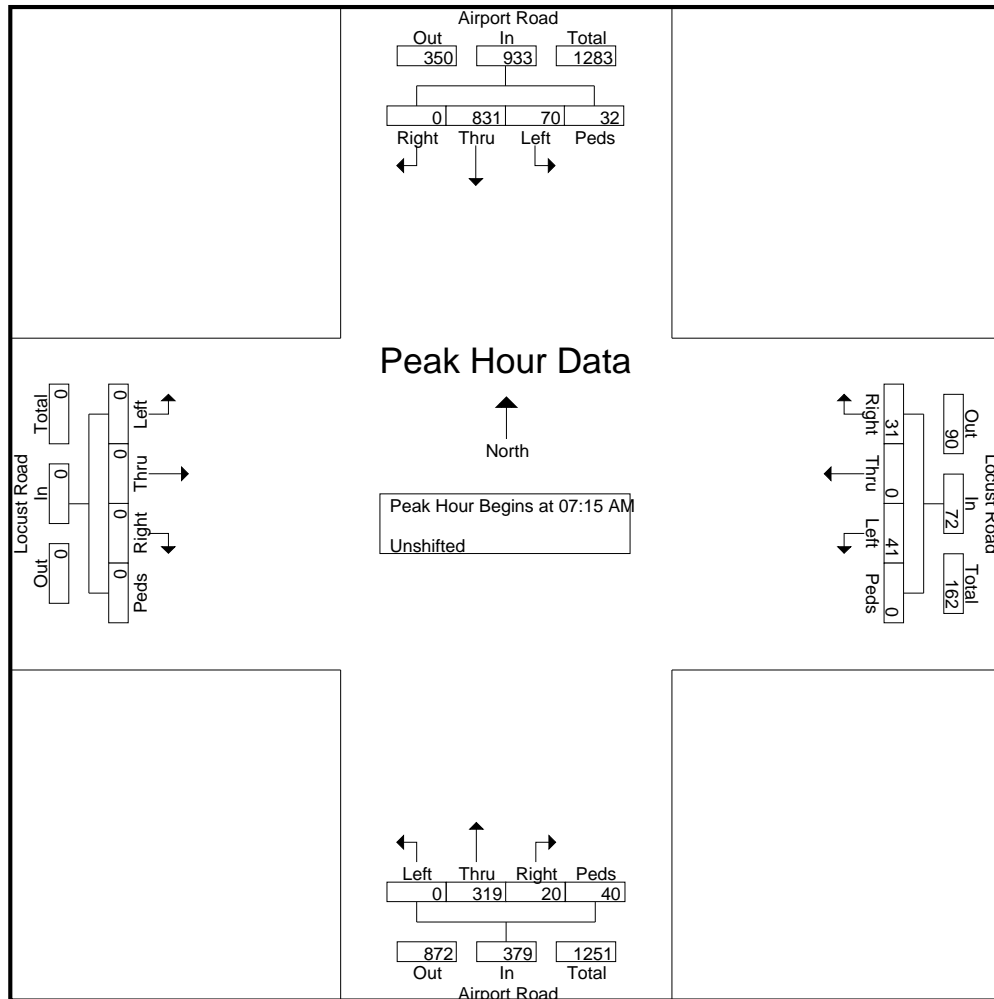
Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By:
Weather:
Counter:
Comments:

File Name : Ea14-16AirportLocustAM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 2

	Airport Road Southbound					Locust Road Westbound					Airport Road Northbound					Locust Road Eastbound					
Start Time	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	20	210	0	235	0	10	0	5	15	10	0	58	6	74	0	0	0	0	0	324
07:30 AM	7	15	235	0	257	0	17	0	8	25	10	0	89	3	102	0	0	0	0	0	384
07:45 AM	6	22	210	0	238	0	5	0	13	18	10	0	94	6	110	0	0	0	0	0	366
08:00 AM	14	13	176	0	203	0	9	0	5	14	10	0	78	5	93	0	0	0	0	0	310
Total Volume	32	70	831	0	933	0	41	0	31	72	40	0	319	20	379	0	0	0	0	0	1384
% App. Total	3.4	7.5	89.1	0		0	56.9	0	43.1		10.6	0	84.2	5.3		0	0	0	0		
PHF	.571	.795	.884	.000	.908	.000	.603	.000	.596	.720	1.00	.000	.848	.833	.861	.000	.000	.000	.000	.000	.901



Hanover Engineering Assoc, Inc.

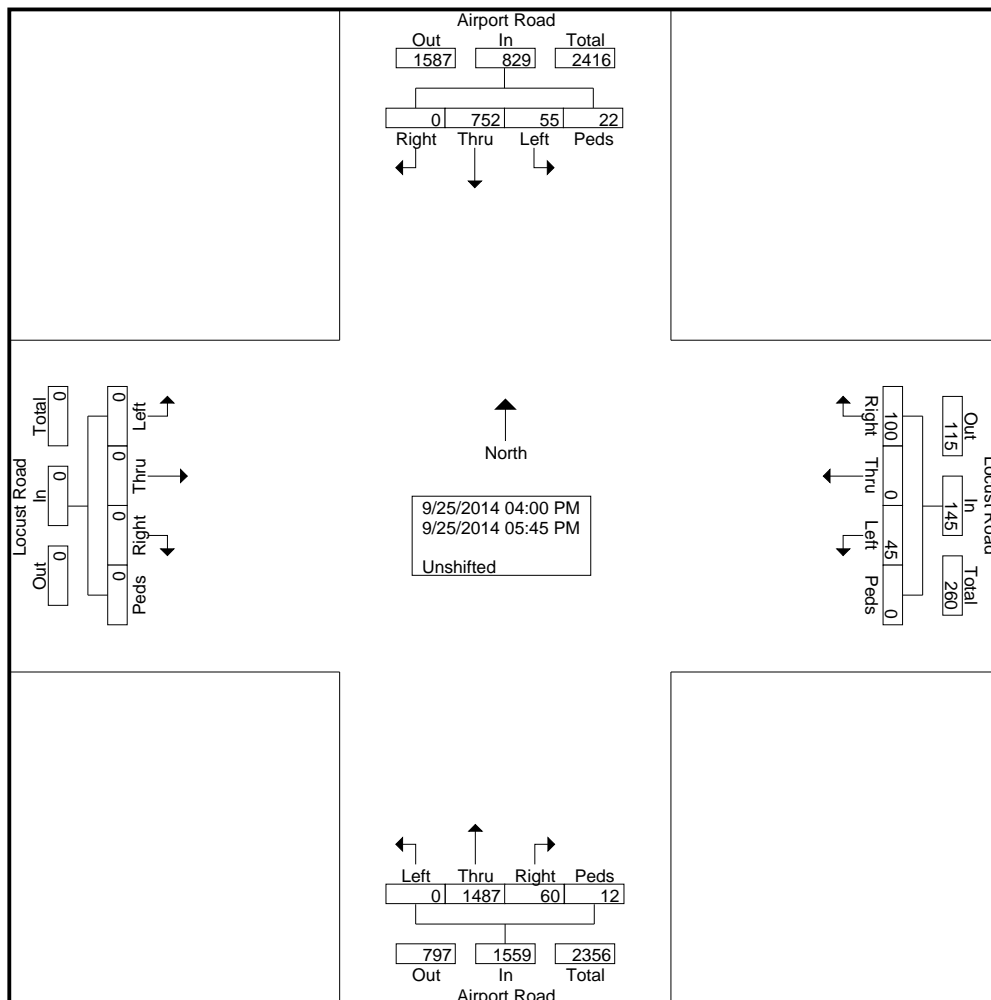
252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By:
Weather:
Counter:
Comments:

File Name : Ea14-16AirportLocustPM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 1

Groups Printed- Unshifted

	Airport Road Southbound					Locust Road Westbound					Airport Road Northbound					Locust Road Eastbound					
Start Time	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Int. Total
04:00 PM	2	11	90	0	103	0	6	0	17	23	3	0	165	9	177	0	0	0	0	0	303
04:15 PM	3	8	105	0	116	0	8	0	11	19	3	0	165	7	175	0	0	0	0	0	310
04:30 PM	4	6	100	0	110	0	5	0	13	18	3	0	175	8	186	0	0	0	0	0	314
04:45 PM	2	5	87	0	94	0	3	0	9	12	1	0	215	6	222	0	0	0	0	0	328
Total	11	30	382	0	423	0	22	0	50	72	10	0	720	30	760	0	0	0	0	0	1255
05:00 PM	3	6	85	0	94	0	5	0	13	18	0	0	208	7	215	0	0	0	0	0	327
05:15 PM	3	8	105	0	116	0	7	0	15	22	1	0	217	5	223	0	0	0	0	0	361
05:30 PM	1	8	98	0	107	0	5	0	12	17	1	0	188	6	195	0	0	0	0	0	319
05:45 PM	4	3	82	0	89	0	6	0	10	16	0	0	154	12	166	0	0	0	0	0	271
Total	11	25	370	0	406	0	23	0	50	73	2	0	767	30	799	0	0	0	0	0	1278
Grand Total	22	55	752	0	829	0	45	0	100	145	12	0	1487	60	1559	0	0	0	0	0	2533
Apprch %	2.7	6.6	90.7	0		0	31	0	69		0.8	0	95.4	3.8		0	0	0	0		
Total %	0.9	2.2	29.7	0	32.7	0	1.8	0	3.9	5.7	0.5	0	58.7	2.4	61.5	0	0	0	0	0	



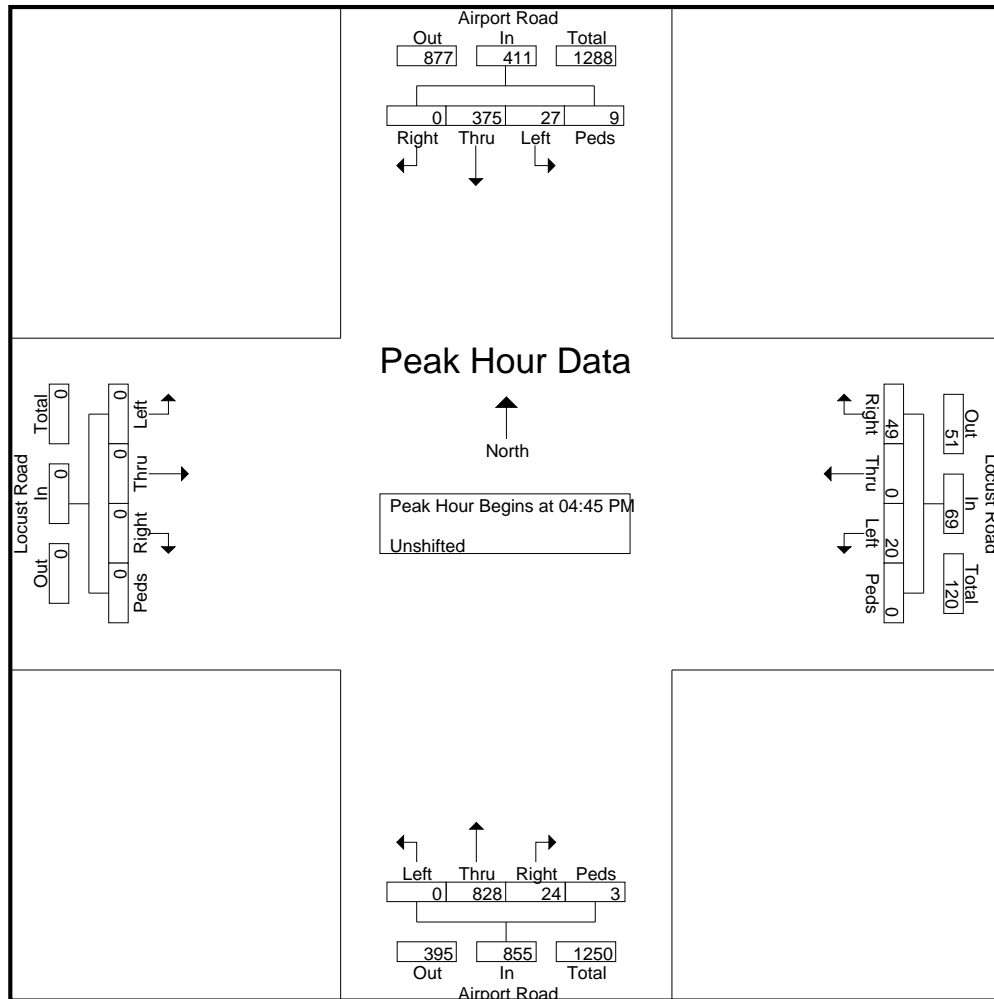
Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By:
Weather:
Counter:
Comments:

File Name : Ea14-16AirportLocustPM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 2

	Airport Road Southbound					Locust Road Westbound					Airport Road Northbound					Locust Road Eastbound					
Start Time	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	2	5	87	0	94	0	3	0	9	12	1	0	215	6	222	0	0	0	0	0	328
05:00 PM	3	6	85	0	94	0	5	0	13	18	0	0	208	7	215	0	0	0	0	0	327
05:15 PM	3	8	105	0	116	0	7	0	15	22	1	0	217	5	223	0	0	0	0	0	361
05:30 PM	1	8	98	0	107	0	5	0	12	17	1	0	188	6	195	0	0	0	0	0	319
Total Volume	9	27	375	0	411	0	20	0	49	69	3	0	828	24	855	0	0	0	0	0	1335
% App. Total	2.2	6.6	91.2	0		0	29	0	71		0.4	0	96.8	2.8		0	0	0	0		
PHF	.750	.844	.893	.000	.886	.000	.714	.000	.817	.784	.750	.000	.954	.857	.959	.000	.000	.000	.000	.000	.925



Hanover Engineering Assoc, Inc.

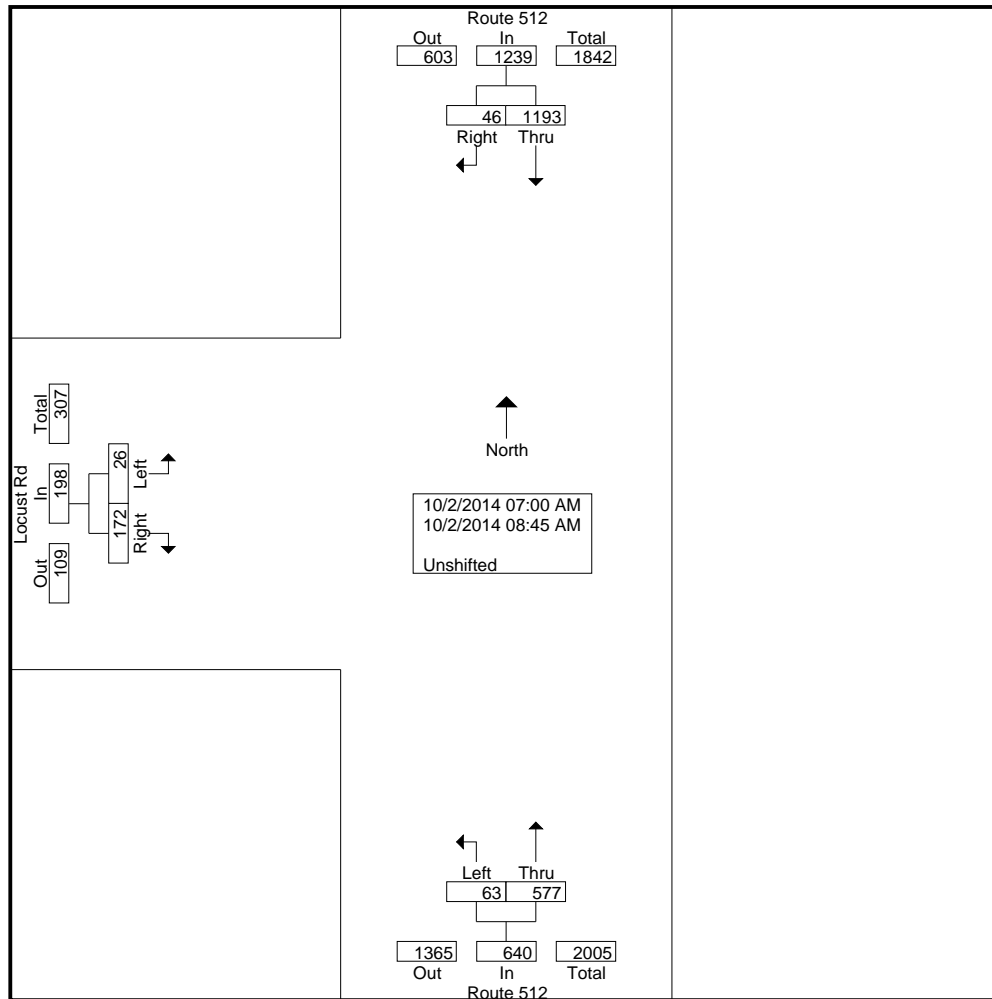
252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: PAH
Weather: Clear
Counter: 1833
Comments:

File Name : Ea14-16Locust512AM
Site Code : Ea14-16
Start Date : 10/2/2014
Page No : 1

Groups Printed- Unshifted

	Route 512 Southbound				Route 512 Northbound				Locust Rd Eastbound						
Start Time	Trks	Thru	Right	App. Total	Trks	Left	Thru	App. Total	Trks	Left	Right	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	12	155	2	157	14	4	54	58	0	2	19	21	26	236	262
07:15 AM	16	166	4	170	9	5	59	64	0	2	35	37	25	271	296
07:30 AM	10	151	10	161	22	11	97	108	0	0	34	34	32	303	335
07:45 AM	20	176	7	183	11	12	80	92	0	2	19	21	31	296	327
Total	58	648	23	671	56	32	290	322	0	6	107	113	114	1106	1220
08:00 AM	12	142	6	148	19	11	73	84	0	10	13	23	31	255	286
08:15 AM	15	118	3	121	12	8	65	73	1	1	13	14	28	208	236
08:30 AM	24	132	8	140	9	7	67	74	2	5	19	24	35	238	273
08:45 AM	14	153	6	159	19	5	82	87	0	4	20	24	33	270	303
Total	65	545	23	568	59	31	287	318	3	20	65	85	127	971	1098
Grand Total	123	1193	46	1239	115	63	577	640	3	26	172	198	241	2077	2318
Apprch %		96.3	3.7			9.8	90.2			13.1	86.9				
Total %		57.4	2.2	59.7		3	27.8	30.8		1.3	8.3	9.5	10.4	89.6	



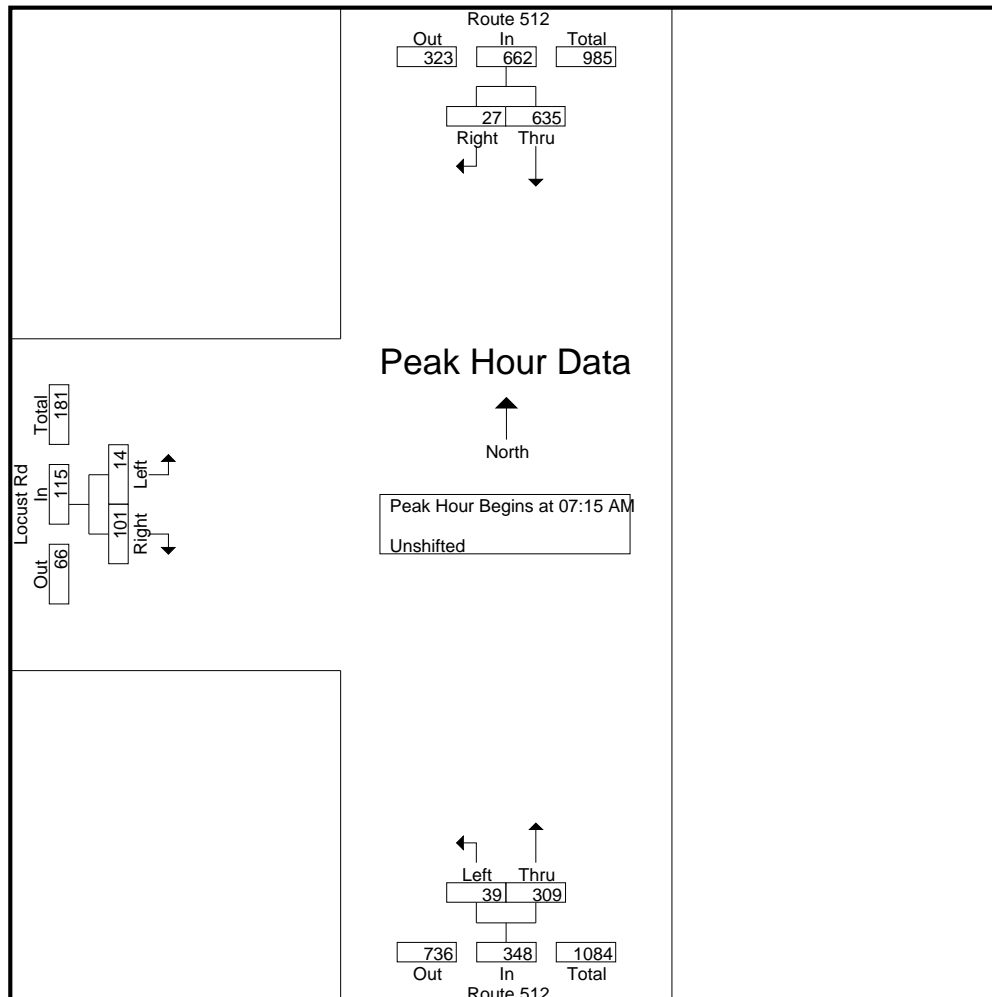
Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: PAH
Weather: Clear
Counter: 1833
Comments:

File Name : Ea14-16Locust512AM
Site Code : Ea14-16
Start Date : 10/2/2014
Page No : 2

	Route 512 Southbound			Route 512 Northbound			Locust Rd Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	166	4	170	5	59	64	2	35	37	271
07:30 AM	151	10	161	11	97	108	0	34	34	303
07:45 AM	176	7	183	12	80	92	2	19	21	296
08:00 AM	142	6	148	11	73	84	10	13	23	255
Total Volume	635	27	662	39	309	348	14	101	115	1125
% App. Total	95.9	4.1		11.2	88.8		12.2	87.8		
PHF	.902	.675	.904	.813	.796	.806	.350	.721	.777	.928



Hanover Engineering Assoc, Inc.

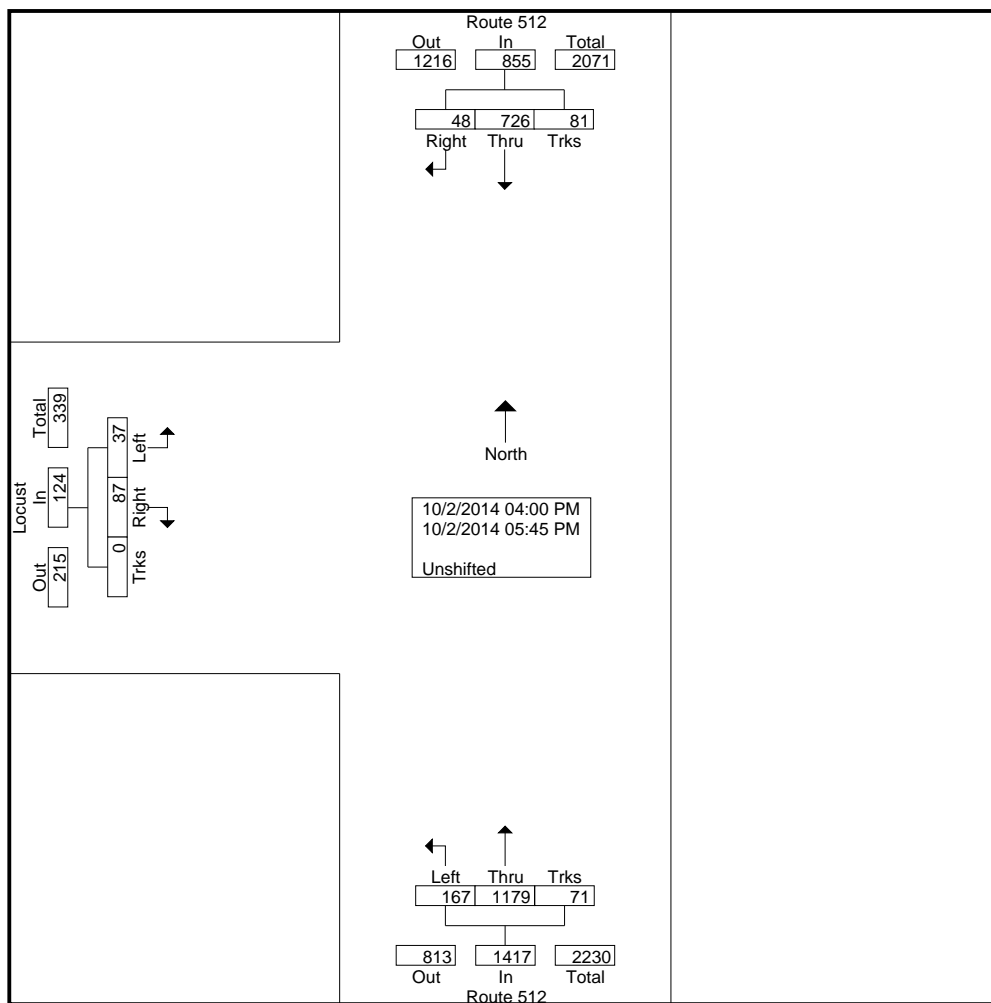
252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By:
Weather:
Counter:
Comments:

File Name : Ea14-16Locust512PM
Site Code : 00000000
Start Date : 10/2/2014
Page No : 1

Groups Printed- Unshifted

Start Time	Route 512 Southbound				Route 512 Northbound				Locust Eastbound				Int. Total
	Trks	Thru	Right	App. Total	Trks	Left	Thru	App. Total	Trks	Left	Right	App. Total	
04:00 PM	15	90	5	110	11	22	140	173	0	5	10	15	298
04:15 PM	19	96	6	121	12	28	148	188	0	3	7	10	319
04:30 PM	7	91	5	103	13	19	169	201	0	6	12	18	322
04:45 PM	13	85	5	103	4	15	143	162	0	5	13	18	283
Total	54	362	21	437	40	84	600	724	0	19	42	61	1222
05:00 PM	5	78	7	90	5	22	149	176	0	3	11	14	280
05:15 PM	6	89	5	100	7	23	184	214	0	4	9	13	327
05:30 PM	10	95	10	115	8	24	121	153	0	5	12	17	285
05:45 PM	6	102	5	113	11	14	125	150	0	6	13	19	282
Total	27	364	27	418	31	83	579	693	0	18	45	63	1174
Grand Total	81	726	48	855	71	167	1179	1417	0	37	87	124	2396
Apprch %	9.5	84.9	5.6		5	11.8	83.2		0	29.8	70.2		
Total %	3.4	30.3	2	35.7	3	7	49.2	59.1	0	1.5	3.6	5.2	



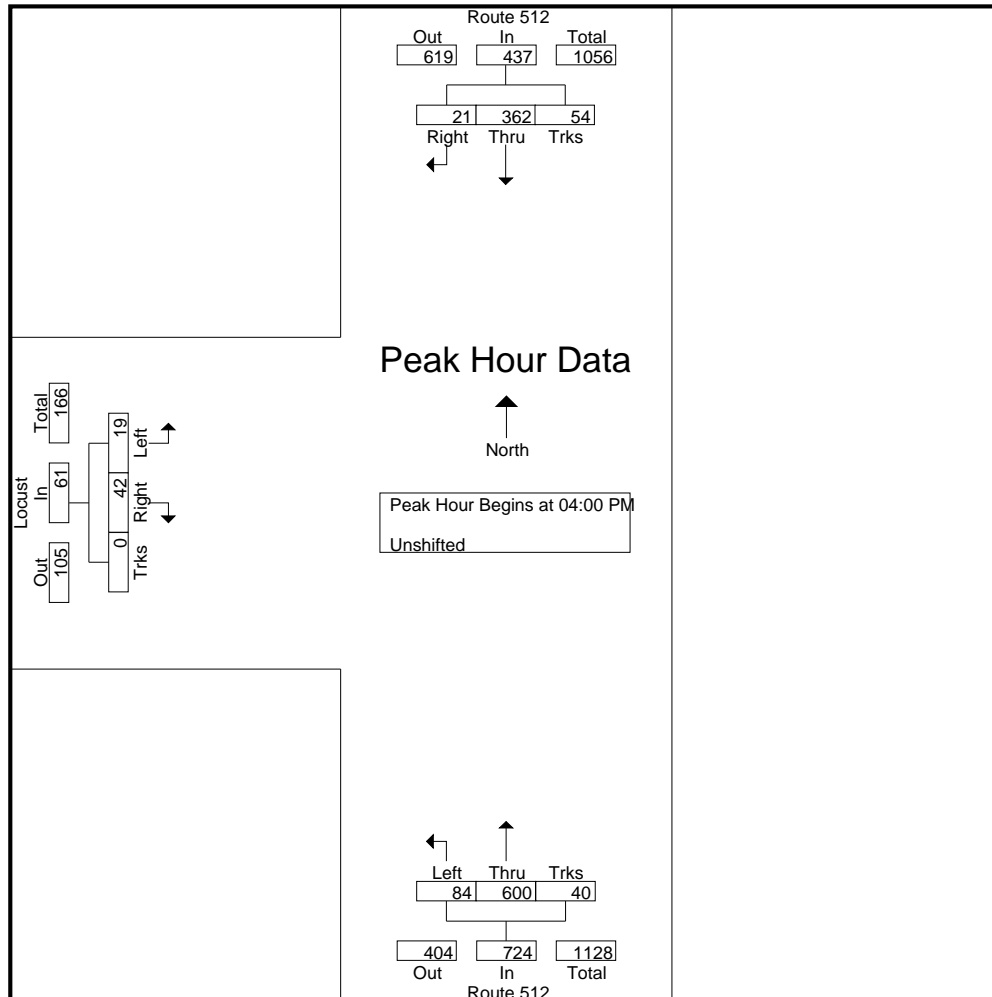
Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By:
Weather:
Counter:
Comments:

File Name : Ea14-16Locust512PM
Site Code : 00000000
Start Date : 10/2/2014
Page No : 2

	Route 512 Southbound				Route 512 Northbound				Locust Eastbound				
Start Time	Trks	Thru	Right	App. Total	Trks	Left	Thru	App. Total	Trks	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	15	90	5	110	11	22	140	173	0	5	10	15	298
04:15 PM	19	96	6	121	12	28	148	188	0	3	7	10	319
04:30 PM	7	91	5	103	13	19	169	201	0	6	12	18	322
04:45 PM	13	85	5	103	4	15	143	162	0	5	13	18	283
Total Volume	54	362	21	437	40	84	600	724	0	19	42	61	1222
% App. Total	12.4	82.8	4.8		5.5	11.6	82.9		0	31.1	68.9		
PHF	.711	.943	.875	.903	.769	.750	.888	.900	.000	.792	.808	.847	.949



Hanover Engineering Assoc, Inc.

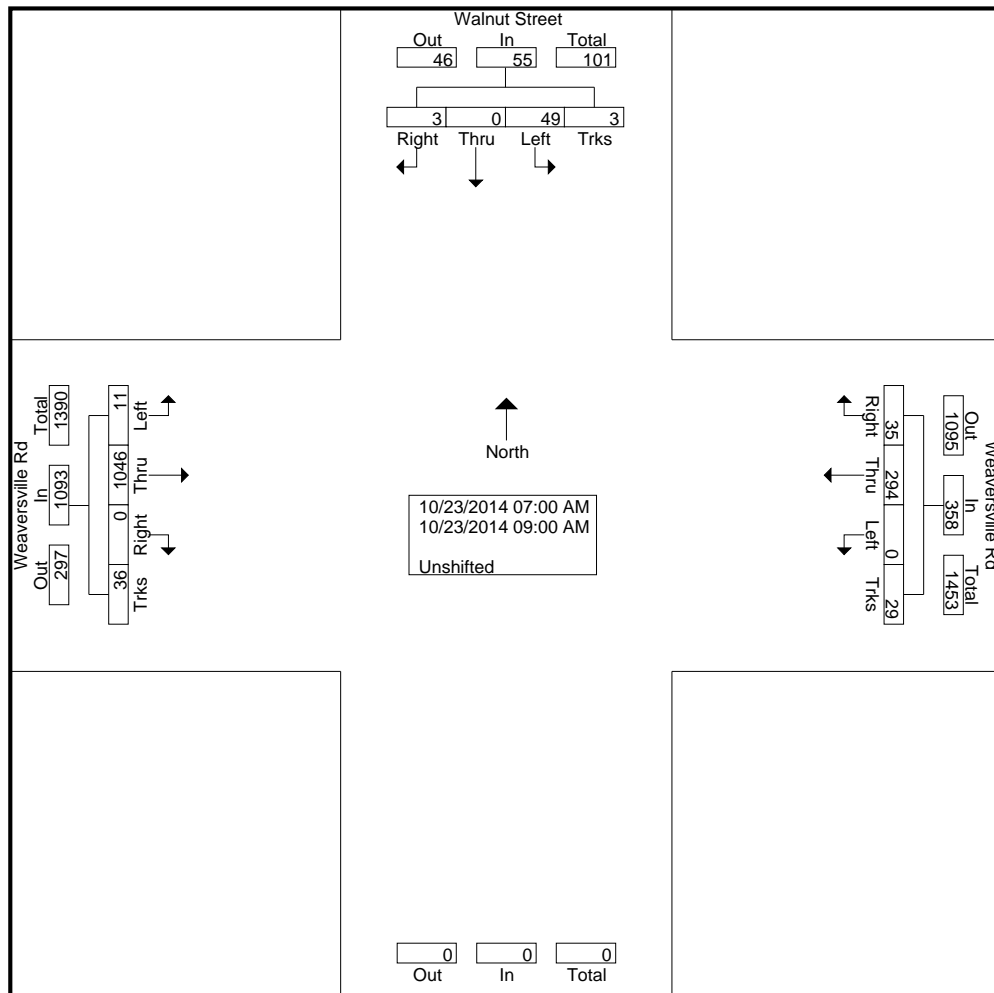
252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By:
Weather:
Counter:
Comments:

File Name : ea14-16weaversvillewalnutam
Site Code : 00000000
Start Date : 10/23/2014
Page No : 1

Groups Printed- Unshifted

	Walnut Street Southbound					Weaversville Rd Westbound					Weaversville Rd Eastbound					
Start Time	Trks	Left	Thru	Right	App. Total	Trks	Left	Thru	Right	App. Total	Trks	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	7	0	0	7	2	0	37	7	46	3	3	141	0	147	200
07:15 AM	0	8	0	0	8	1	0	37	5	43	3	2	180	0	185	236
07:30 AM	0	8	0	0	8	4	0	42	10	56	5	2	179	0	186	250
07:45 AM	0	6	0	1	7	7	0	50	6	63	4	0	131	0	135	205
Total	0	29	0	1	30	14	0	166	28	208	15	7	631	0	653	891
08:00 AM	1	2	0	0	3	4	0	32	2	38	7	0	117	0	124	165
08:15 AM	1	8	0	1	10	7	0	39	1	47	9	2	106	0	117	174
08:30 AM	1	8	0	1	10	1	0	27	3	31	3	2	106	0	111	152
08:45 AM	0	2	0	0	2	3	0	30	1	34	2	0	86	0	88	124
Total	3	20	0	2	25	15	0	128	7	150	21	4	415	0	440	615
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	3	49	0	3	55	29	0	294	35	358	36	11	1046	0	1093	1506
Apprch %	5.5	89.1	0	5.5		8.1	0	82.1	9.8		3.3	1	95.7	0		
Total %	0.2	3.3	0	0.2	3.7	1.9	0	19.5	2.3	23.8	2.4	0.7	69.5	0	72.6	



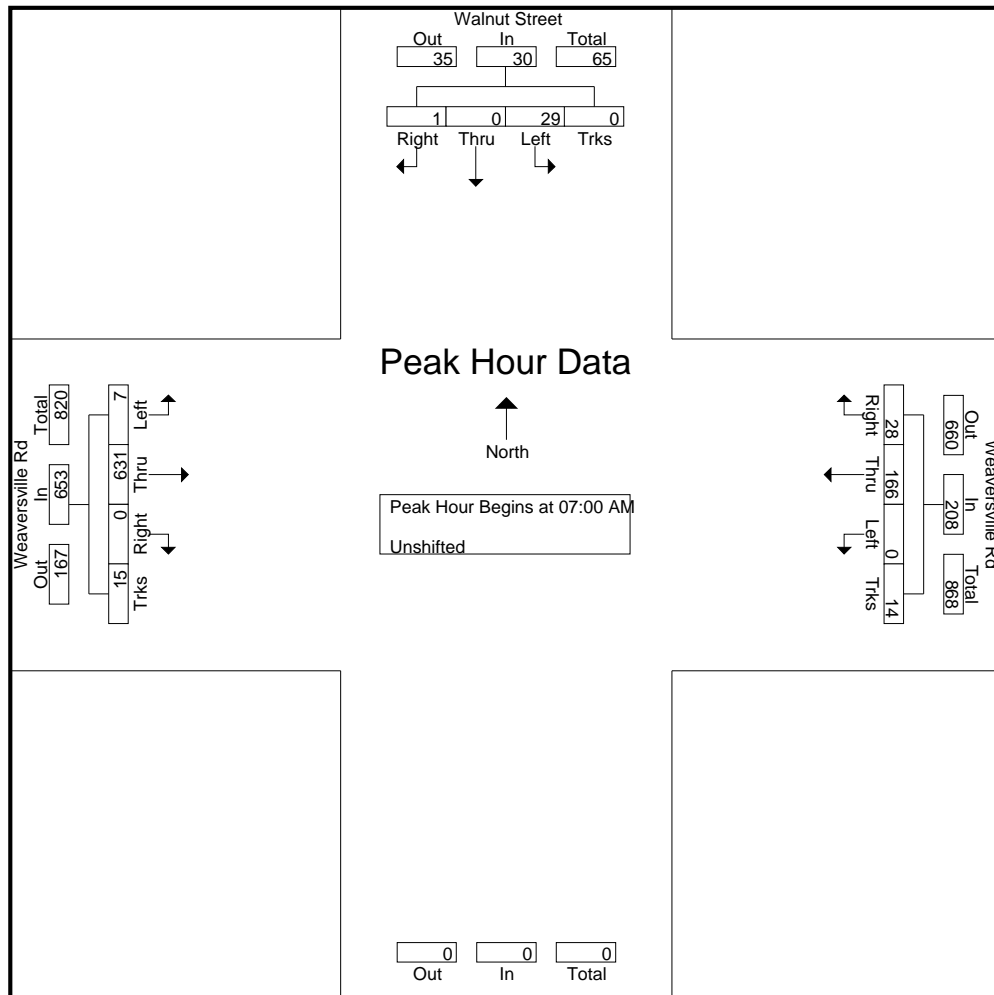
Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By:
Weather:
Counter:
Comments:

File Name : ea14-16weaversvillewalnutam
Site Code : 00000000
Start Date : 10/23/2014
Page No : 2

	Walnut Street Southbound					Weaversville Rd Westbound					Weaversville Rd Eastbound					
Start Time	Trks	Left	Thru	Right	App. Total	Trks	Left	Thru	Right	App. Total	Trks	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:00 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	0	7	0	0	7	2	0	37	7	46	3	3	141	0	147	200
07:15 AM	0	8	0	0	8	1	0	37	5	43	3	2	180	0	185	236
07:30 AM	0	8	0	0	8	4	0	42	10	56	5	2	179	0	186	250
07:45 AM	0	6	0	1	7	7	0	50	6	63	4	0	131	0	135	205
Total Volume	0	29	0	1	30	14	0	166	28	208	15	7	631	0	653	891
% App. Total	0	96.7	0	3.3		6.7	0	79.8	13.5		2.3	1.1	96.6	0		
PHF	.000	.906	.000	.250	.938	.500	.000	.830	.700	.825	.750	.583	.876	.000	.878	.891



Hanover Engineering Assoc, Inc.

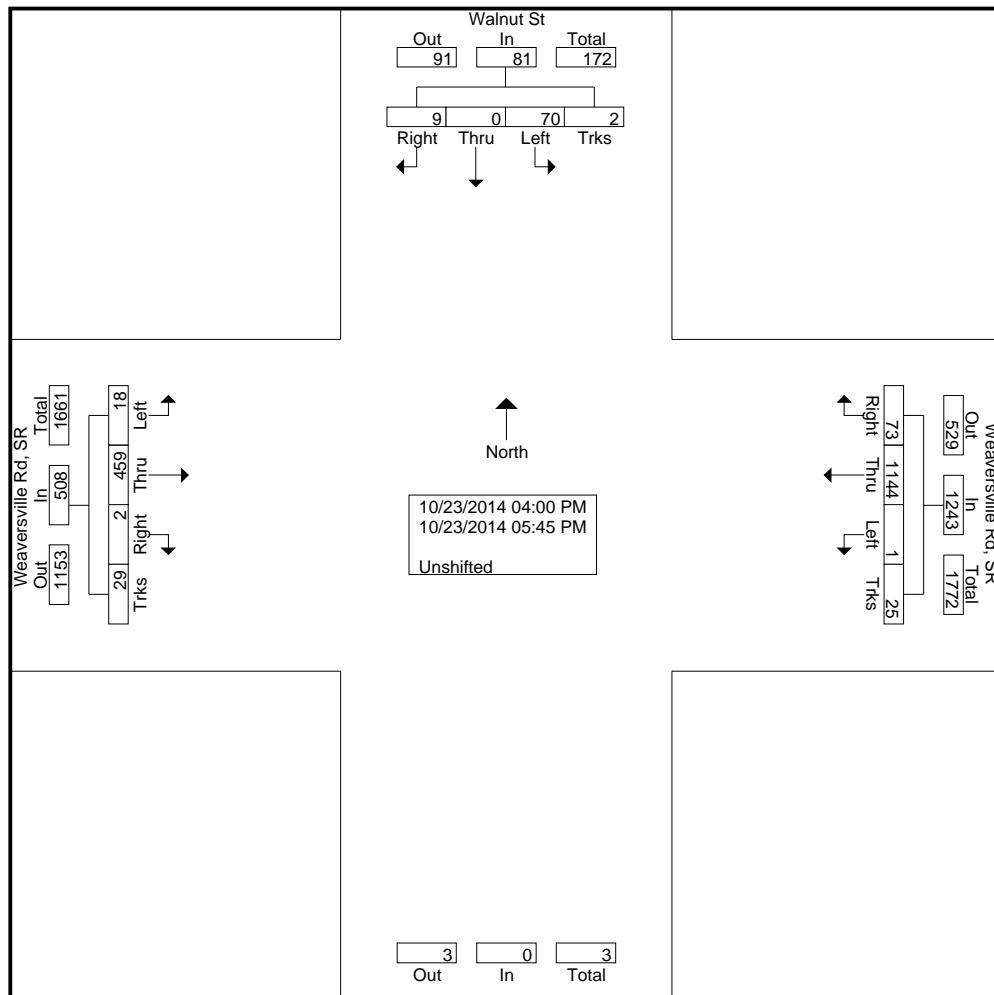
252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Engineering
Weather: Clear
Counter: 2166
Comments:

File Name : Ea14-16WeaversvilleWalnutPM
Site Code : EA14-16
Start Date : 10/23/2014
Page No : 1

Groups Printed- Unshifted

	Walnut St Southbound					Weaversville Rd, SR Westbound					Weaversville Rd, SR Eastbound					
Start Time	Trks	Left	Thru	Right	App. Total	Trks	Left	Thru	Right	App. Total	Trks	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	6	0	0	7	6	0	122	10	138	4	1	55	0	60	205
04:15 PM	0	7	0	2	9	4	1	129	6	140	8	3	59	0	70	219
04:30 PM	0	6	0	0	6	6	0	136	7	149	1	4	53	1	59	214
04:45 PM	1	13	0	1	15	6	0	173	14	193	6	3	57	0	66	274
Total	2	32	0	3	37	22	1	560	37	620	19	11	224	1	255	912
05:00 PM	0	4	0	1	5	2	0	171	11	184	3	3	66	0	72	261
05:15 PM	0	16	0	2	18	1	0	167	9	177	1	0	57	0	58	253
05:30 PM	0	8	0	2	10	0	0	140	8	148	6	1	68	1	76	234
05:45 PM	0	10	0	1	11	0	0	106	8	114	0	3	44	0	47	172
Total	0	38	0	6	44	3	0	584	36	623	10	7	235	1	253	920
Grand Total	2	70	0	9	81	25	1	1144	73	1243	29	18	459	2	508	1832
Apprch %	2.5	86.4	0	11.1		2	0.1	92	5.9		5.7	3.5	90.4	0.4		
Total %	0.1	3.8	0	0.5	4.4	1.4	0.1	62.4	4	67.8	1.6	1	25.1	0.1	27.7	



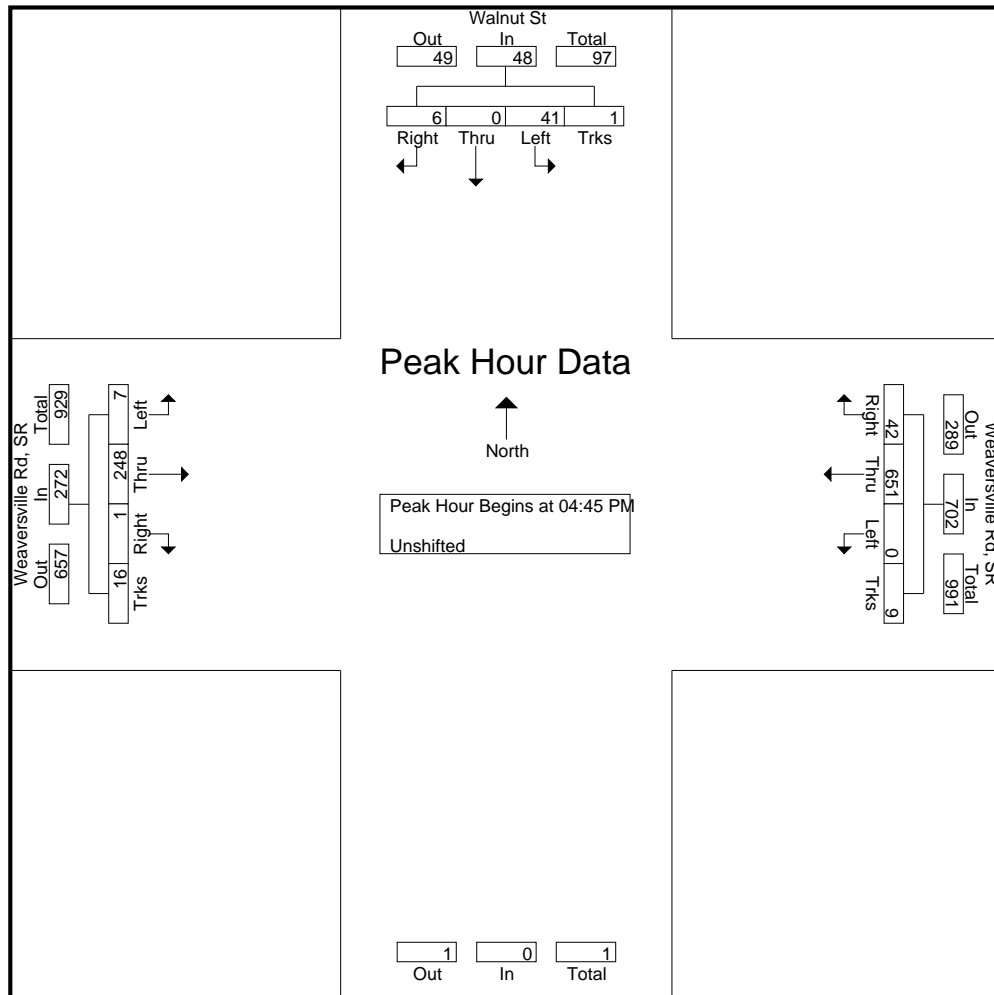
Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Engineering
Weather: Clear
Counter: 2166
Comments:

File Name : Ea14-16WeaversvilleWalnutPM
Site Code : EA14-16
Start Date : 10/23/2014
Page No : 2

	Walnut St Southbound					Weaversville Rd, SR Westbound					Weaversville Rd, SR Eastbound					
Start Time	Trks	Left	Thru	Right	App. Total	Trks	Left	Thru	Right	App. Total	Trks	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	1	13	0	1	15	6	0	173	14	193	6	3	57	0	66	274
05:00 PM	0	4	0	1	5	2	0	171	11	184	3	3	66	0	72	261
05:15 PM	0	16	0	2	18	1	0	167	9	177	1	0	57	0	58	253
05:30 PM	0	8	0	2	10	0	0	140	8	148	6	1	68	1	76	234
Total Volume	1	41	0	6	48	9	0	651	42	702	16	7	248	1	272	1022
% App. Total	2.1	85.4	0	12.5		1.3	0	92.7	6		5.9	2.6	91.2	0.4		
PHF	.250	.641	.000	.750	.667	.375	.000	.941	.750	.909	.667	.583	.912	.250	.895	.932



Hanover Engineering Assoc, Inc.

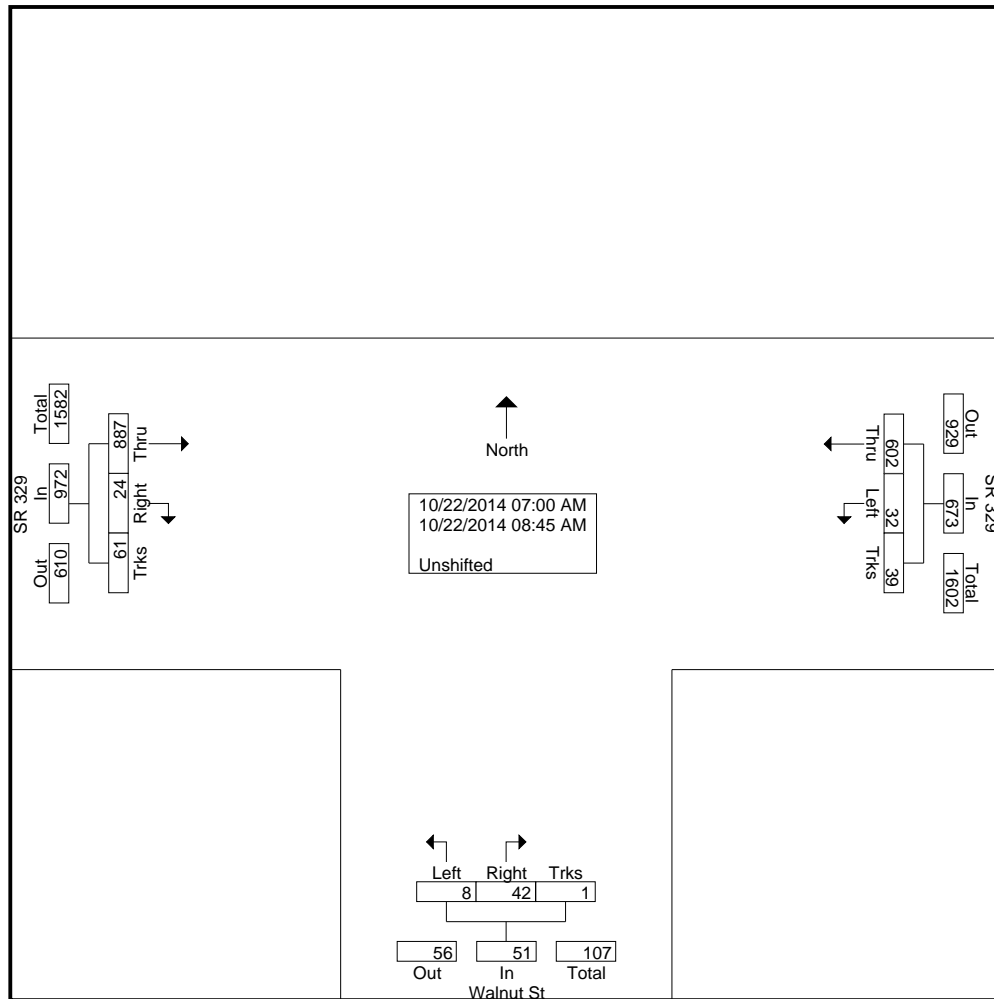
252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Eng - PAH
Weather: Rainy/Overcast
Counter:2166
Comments:

File Name : Ea14-16Walnut329AM
Site Code : EA14-16
Start Date : 10/22/2014
Page No : 1

Groups Printed- Unshifted

Start Time	SR 329 Westbound				Walnut St Northbound				SR 329 Eastbound				Int. Total
	Trks	Left	Thru	App. Total	Trks	Left	Right	App. Total	Trks	Thru	Right	App. Total	
07:00 AM	9	3	76	88	0	0	9	9	2	113	9	124	221
07:15 AM	5	8	77	90	0	0	6	6	8	136	2	146	242
07:30 AM	2	6	58	66	0	1	11	12	8	151	1	160	238
07:45 AM	4	3	110	117	0	0	4	4	8	97	6	111	232
Total	20	20	321	361	0	1	30	31	26	497	18	541	933
08:00 AM	3	3	83	89	0	2	5	7	7	98	2	107	203
08:15 AM	6	2	75	83	0	1	2	3	9	104	2	115	201
08:30 AM	6	4	73	83	1	3	2	6	10	105	1	116	205
08:45 AM	4	3	50	57	0	1	3	4	9	83	1	93	154
Total	19	12	281	312	1	7	12	20	35	390	6	431	763
Grand Total	39	32	602	673	1	8	42	51	61	887	24	972	1696
Apprch %	5.8	4.8	89.5		2	15.7	82.4		6.3	91.3	2.5		
Total %	2.3	1.9	35.5	39.7	0.1	0.5	2.5	3	3.6	52.3	1.4	57.3	



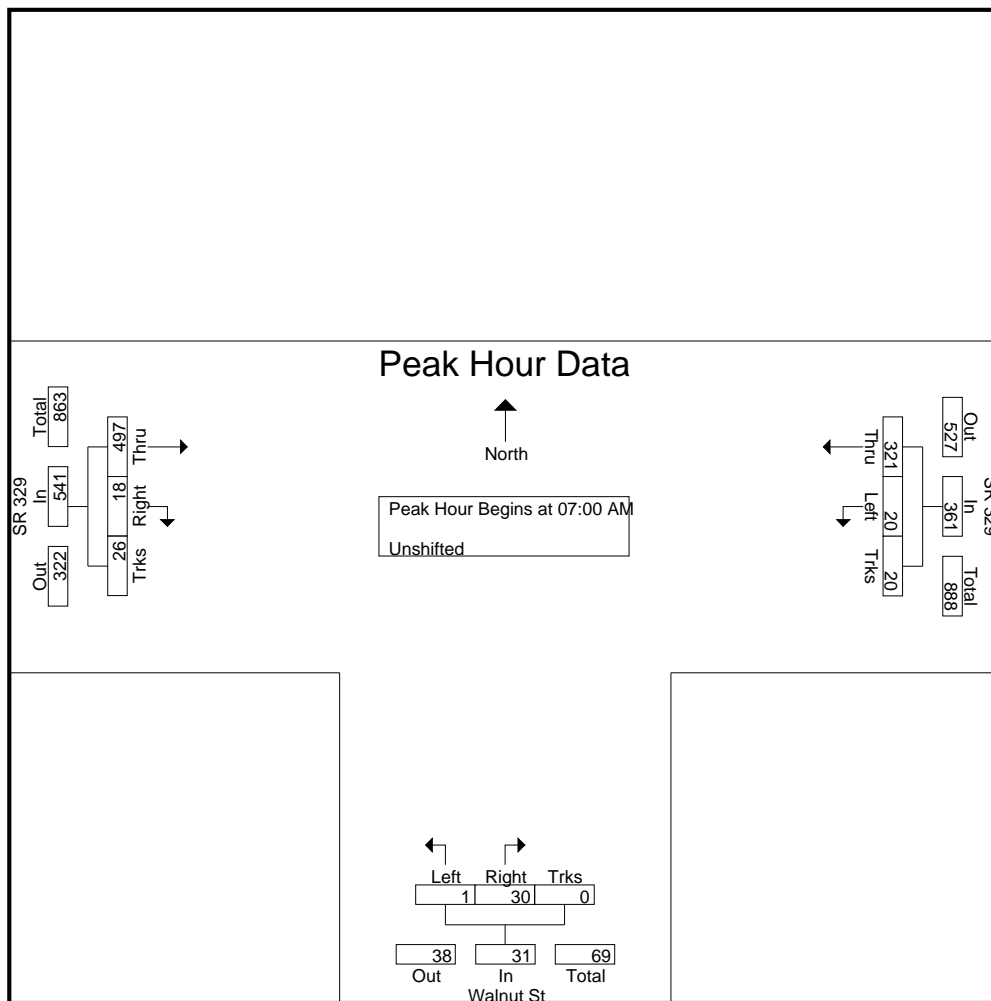
Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Eng - PAH
Weather: Rainy/Overcast
Counter:2166
Comments:

File Name : Ea14-16Walnut329AM
Site Code : EA14-16
Start Date : 10/22/2014
Page No : 2

	SR 329 Westbound				Walnut St Northbound				SR 329 Eastbound				
Start Time	Trks	Left	Thru	App. Total	Trks	Left	Right	App. Total	Trks	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	9	3	76	88	0	0	9	9	2	113	9	124	221
07:15 AM	5	8	77	90	0	0	6	6	8	136	2	146	242
07:30 AM	2	6	58	66	0	1	11	12	8	151	1	160	238
07:45 AM	4	3	110	117	0	0	4	4	8	97	6	111	232
Total Volume	20	20	321	361	0	1	30	31	26	497	18	541	933
% App. Total	5.5	5.5	88.9		0	3.2	96.8		4.8	91.9	3.3		
PHF	.556	.625	.730	.771	.000	.250	.682	.646	.813	.823	.500	.845	.964



Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: MJK
Weather: Overcast
Counter: 2166
Comments:

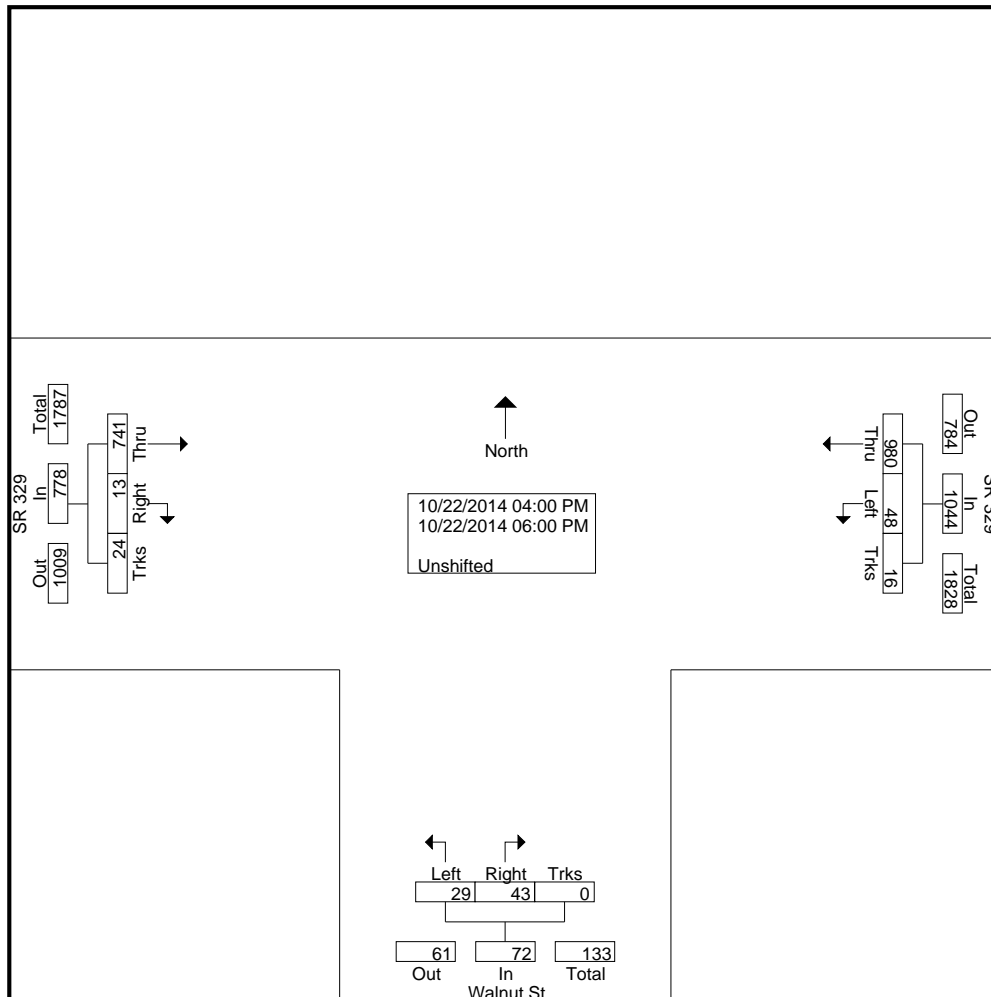
File Name : Ea14-16Walnut329PM
Site Code : Ea14-16
Start Date : 10/22/2014
Page No : 1

Groups Printed- Unshifted

Start Time	SR 329 Westbound				Walnut St Northbound				SR 329 Eastbound				Int. Total
	Trks	Left	Thru	App. Total	Trks	Left	Right	App. Total	Trks	Thru	Right	App. Total	
04:00 PM	2	6	117	125	0	3	7	10	5	85	0	90	225
04:15 PM	3	8	101	112	0	2	6	8	7	97	1	105	225
04:30 PM	2	7	129	138	0	4	4	8	2	90	2	94	240
04:45 PM	2	8	143	153	0	4	2	6	3	73	4	80	239
Total	9	29	490	528	0	13	19	32	17	345	7	369	929
05:00 PM	2	3	137	142	0	6	6	12	3	89	0	92	246
05:15 PM	1	3	155	159	0	3	8	11	2	120	3	125	295
05:30 PM	3	5	101	109	0	4	4	8	2	100	3	105	222
05:45 PM	1	8	97	106	0	3	6	9	0	87	0	87	202
Total	7	19	490	516	0	16	24	40	7	396	6	409	965

*** BREAK ***

Grand Total	16	48	980	1044	0	29	43	72	24	741	13	778	1894
Apprch %	1.5	4.6	93.9		0	40.3	59.7		3.1	95.2	1.7		
Total %	0.8	2.5	51.7		0	1.5	2.3	3.8	1.3	39.1	0.7	41.1	



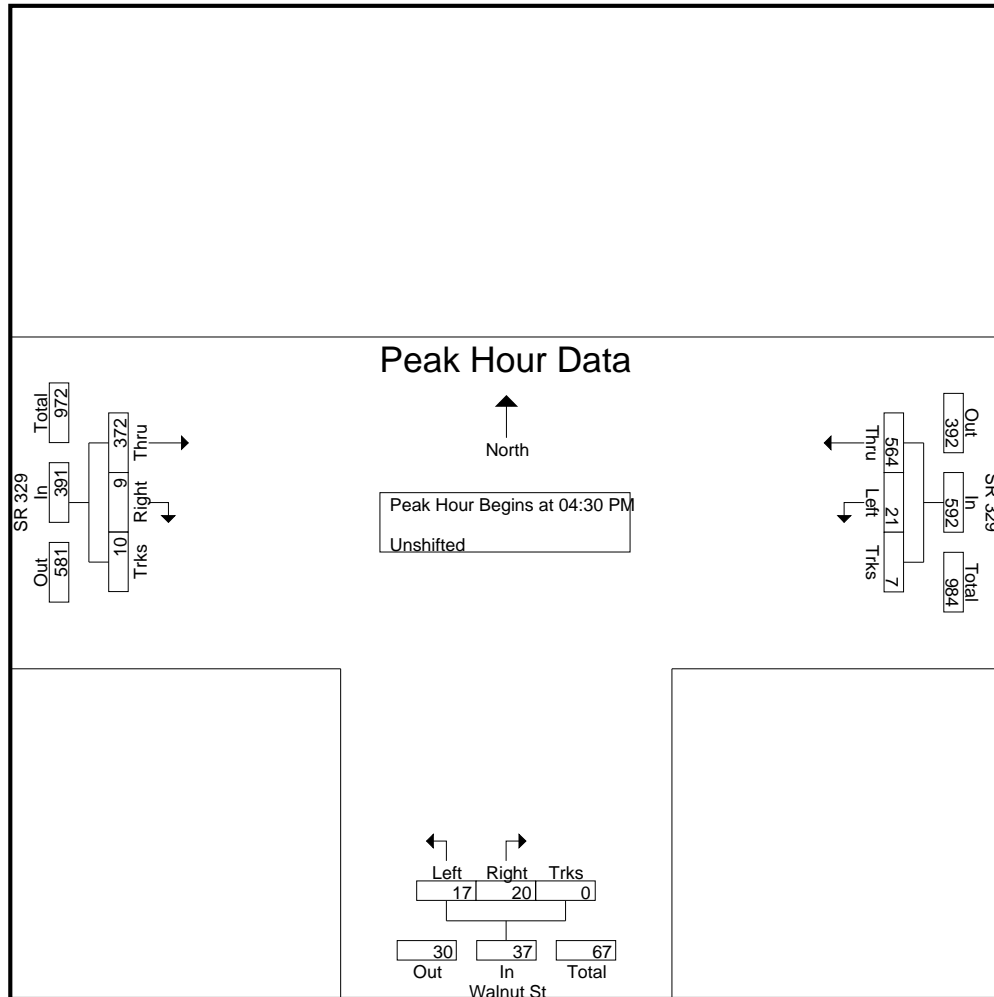
Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: MJK
Weather: Overcast
Counter: 2166
Comments:

File Name : Ea14-16Walnut329PM
Site Code : Ea14-16
Start Date : 10/22/2014
Page No : 2

	SR 329 Westbound				Walnut St Northbound				SR 329 Eastbound				
Start Time	Trks	Left	Thru	App. Total	Trks	Left	Right	App. Total	Trks	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:00 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	2	7	129	138	0	4	4	8	2	90	2	94	240
04:45 PM	2	8	143	153	0	4	2	6	3	73	4	80	239
05:00 PM	2	3	137	142	0	6	6	12	3	89	0	92	246
05:15 PM	1	3	155	159	0	3	8	11	2	120	3	125	295
Total Volume	7	21	564	592	0	17	20	37	10	372	9	391	1020
% App. Total	1.2	3.5	95.3		0	45.9	54.1		2.6	95.1	2.3		
PHF	.875	.656	.910	.931	.000	.708	.625	.771	.833	.775	.563	.782	.864



Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Engineering

Weather:

Counter:

Comments:

File Name : ea14-16airport248am

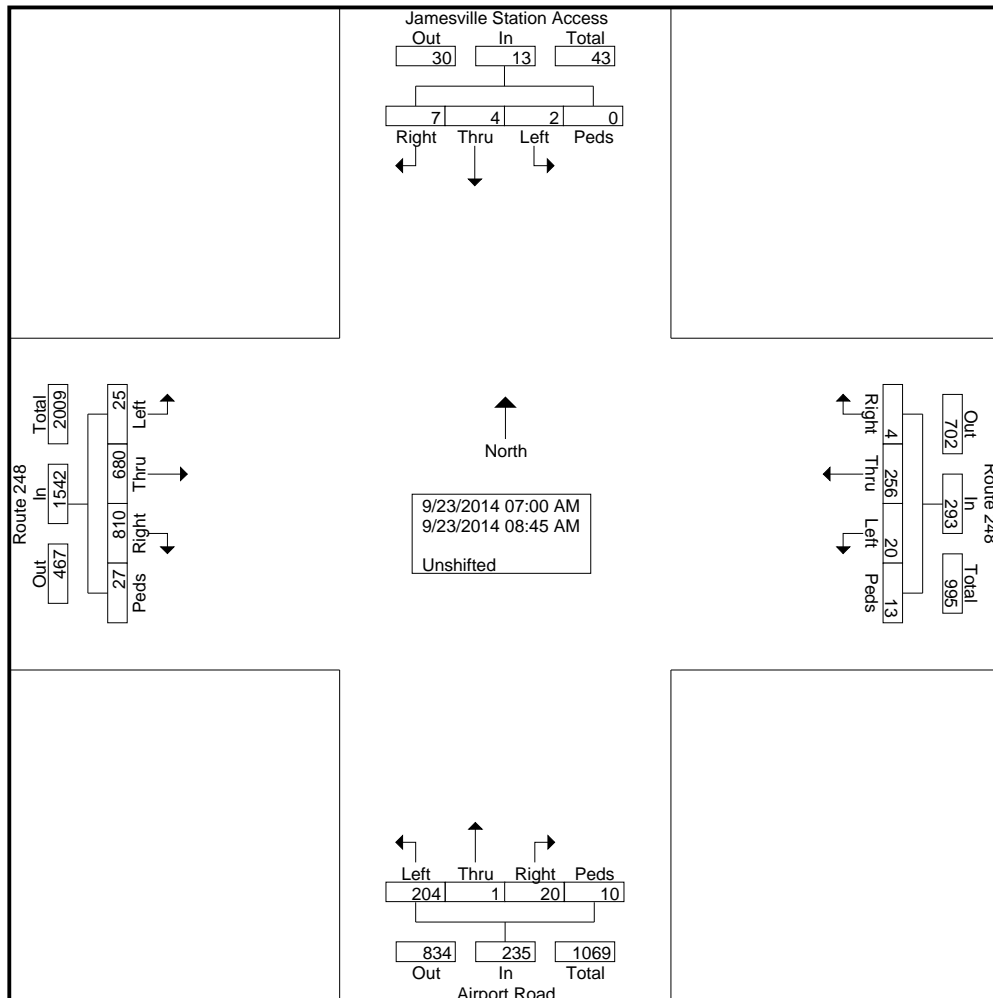
Site Code : 00000000

Start Date : 9/23/2014

Page No : 1

Groups Printed- Unshifted

	Jamesville Station Access Southbound					Route 248 Westbound					Airport Road Northbound					Route 248 Eastbound					
Start Time	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	1	0	0	1	3	2	15	0	20	1	8	0	3	12	7	4	83	98	192	225
07:15 AM	0	0	1	0	1	0	2	26	1	29	2	33	0	3	38	3	4	104	137	248	316
07:30 AM	0	0	0	0	0	0	1	35	1	37	3	21	0	3	27	2	4	96	132	234	298
07:45 AM	0	0	2	1	3	2	3	43	0	48	2	36	0	2	40	1	4	95	118	218	309
Total	0	1	3	1	5	5	8	119	2	134	8	98	0	11	117	13	16	378	485	892	1148
08:00 AM	0	0	0	2	2	3	1	37	1	42	1	36	1	1	39	4	1	98	101	204	287
08:15 AM	0	1	0	4	5	4	1	39	1	45	0	24	0	3	27	1	2	84	88	175	252
08:30 AM	0	0	1	0	1	1	8	24	0	33	1	22	0	2	25	5	6	66	74	151	210
08:45 AM	0	0	0	0	0	0	2	37	0	39	0	24	0	3	27	4	0	54	62	120	186
Total	0	1	1	6	8	8	12	137	2	159	2	106	1	9	118	14	9	302	325	650	935
Grand Total	0	2	4	7	13	13	20	256	4	293	10	204	1	20	235	27	25	680	810	1542	2083
Apprch %	0	15.4	30.8	53.8		4.4	6.8	87.4	1.4		4.3	86.8	0.4	8.5		1.8	1.6	44.1	52.5		
Total %	0	0.1	0.2	0.3	0.6	0.6	1	12.3	0.2	14.1	0.5	9.8	0	1	11.3	1.3	1.2	32.6	38.9	74	



Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Engineering

Weather:

Counter:

Comments:

File Name : ea14-16airport248am

Site Code : 00000000

Start Date : 9/23/2014

Page No : 2

	Jamesville Station Access Southbound					Route 248 Westbound					Airport Road Northbound					Route 248 Eastbound					
Start Time	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	1	0	1	0	2	26	1	29	2	33	0	3	38	3	4	104	137	248	316
07:30 AM	0	0	0	0	0	0	1	35	1	37	3	21	0	3	27	2	4	96	132	234	298
07:45 AM	0	0	2	1	3	2	3	43	0	48	2	36	0	2	40	1	4	95	118	218	309
08:00 AM	0	0	0	2	2	3	1	37	1	42	1	36	1	1	39	4	1	98	101	204	287
Total Volume	0	0	3	3	6	5	7	141	3	156	8	126	1	9	144	10	13	393	488	904	1210
% App. Total	0	0	50	50		3.2	4.5	90.4	1.9		5.6	87.5	0.7	6.2		1.1	1.4	43.5	54		
PHF	.000	.000	.375	.375	.500	.417	.583	.820	.750	.813	.667	.875	.250	.750	.900	.625	.813	.945	.891	.911	.957

Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Engineering

Weather:

Counter:

Comments:

File Name : Ea14-16Airport248PM

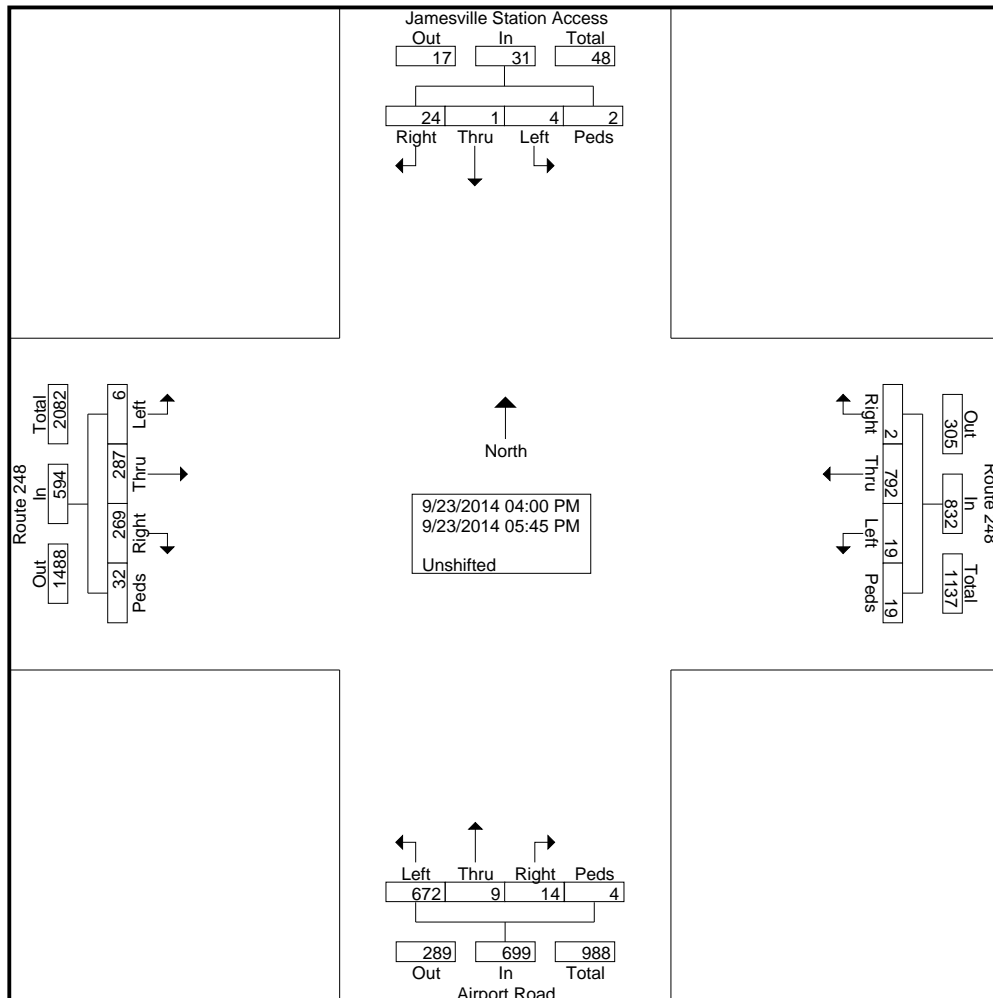
Site Code : 00000000

Start Date : 9/23/2014

Page No : 1

Groups Printed- Unshifted

	Jamesville Station Access Southbound					Route 248 Westbound					Airport Road Northbound					Route 248 Eastbound					
Start Time	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	3	4	4	4	86	0	94	2	85	0	2	89	6	0	35	34	75	262
04:15 PM	0	0	1	4	5	4	1	87	1	93	1	91	2	3	97	6	1	37	28	72	267
04:30 PM	0	0	0	6	6	2	1	114	0	117	1	63	1	3	68	5	2	47	35	89	280
04:45 PM	0	1	0	4	5	1	5	88	0	94	0	98	0	3	101	0	0	23	38	61	261
Total	0	2	1	17	20	11	11	375	1	398	4	337	3	11	355	17	3	142	135	297	1070
05:00 PM	0	0	0	1	1	1	3	109	0	113	0	83	1	0	84	5	1	36	27	69	267
05:15 PM	2	2	0	2	6	1	1	118	0	120	0	85	0	2	87	2	0	44	40	86	299
05:30 PM	0	0	0	0	0	3	4	114	0	121	0	80	1	1	82	3	2	42	39	86	289
05:45 PM	0	0	0	4	4	3	0	76	1	80	0	87	4	0	91	5	0	23	28	56	231
Total	2	2	0	7	11	8	8	417	1	434	0	335	6	3	344	15	3	145	134	297	1086
Grand Total	2	4	1	24	31	19	19	792	2	832	4	672	9	14	699	32	6	287	269	594	2156
Apprch %	6.5	12.9	3.2	77.4		2.3	2.3	95.2	0.2		0.6	96.1	1.3	2		5.4	1	48.3	45.3		
Total %	0.1	0.2	0	1.1	1.4	0.9	0.9	36.7	0.1	38.6	0.2	31.2	0.4	0.6	32.4	1.5	0.3	13.3	12.5	27.6	



Hanover Engineering Assoc, Inc.

252 Brodhead Rd, Suite 100
Bethlehem, PA 18017

Counted By: Hanover Engineering

Weather:

Counter:

Comments:

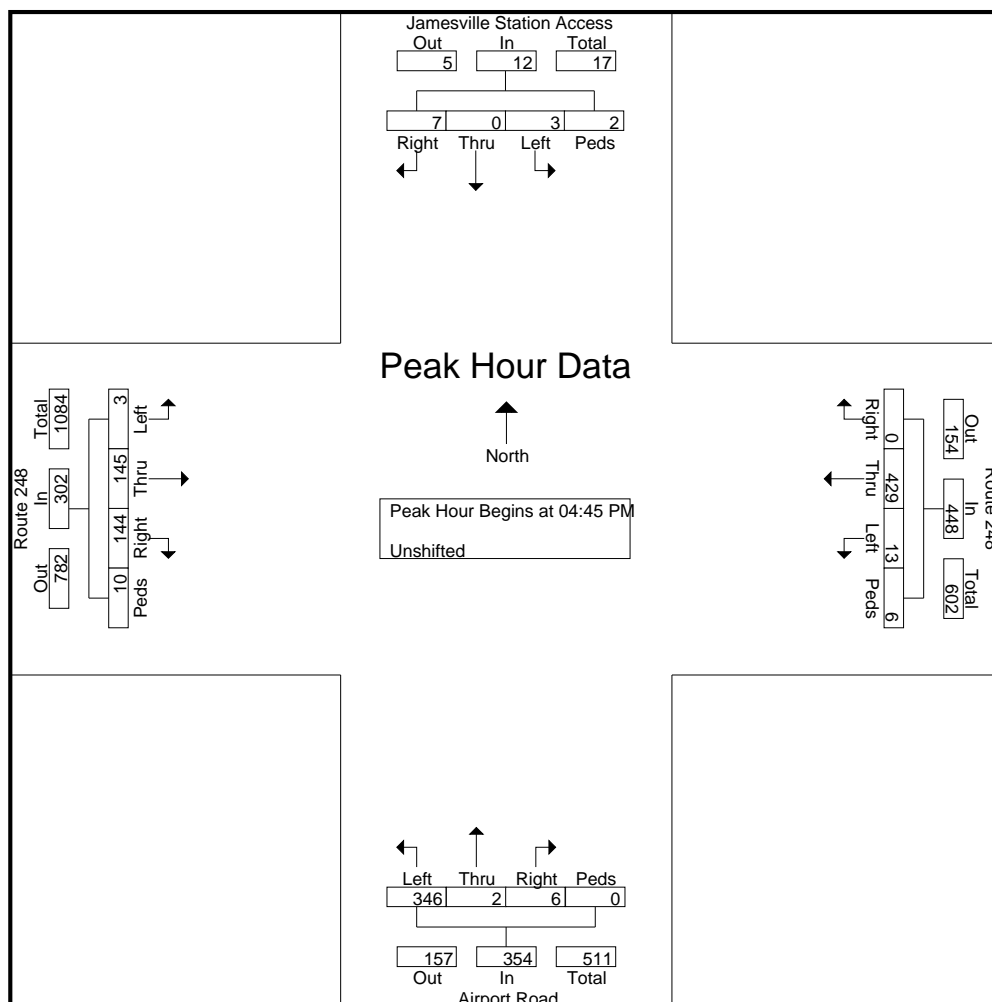
File Name : Ea14-16Airport248PM

Site Code : 00000000

Start Date : 9/23/2014

Page No : 2

	Jamesville Station Access Southbound					Route 248 Westbound					Airport Road Northbound					Route 248 Eastbound					
Start Time	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Peds	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	1	0	4	5	1	5	88	0	94	0	98	0	3	101	0	0	23	38	61	261
05:00 PM	0	0	0	1	1	1	3	109	0	113	0	83	1	0	84	5	1	36	27	69	267
05:15 PM	2	2	0	2	6	1	1	118	0	120	0	85	0	2	87	2	0	44	40	86	299
05:30 PM	0	0	0	0	0	3	4	114	0	121	0	80	1	1	82	3	2	42	39	86	289
Total Volume	2	3	0	7	12	6	13	429	0	448	0	346	2	6	354	10	3	145	144	302	1116
% App. Total	16.7	25	0	58.3		1.3	2.9	95.8	0		0	97.7	0.6	1.7		3.3	1	48	47.7		
PHF	.250	.375	.000	.438	.500	.500	.650	.909	.000	.926	.000	.883	.500	.500	.876	.500	.375	.824	.900	.878	.933



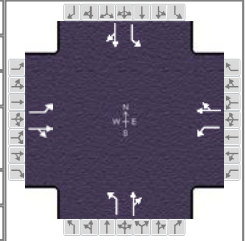
APPENDIX B

Capacity Analysis Summary Reports

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Hanover Engineering Associates, Inc.			Duration, h	0.25
Analyst	TMK	Analysis Date	Jan 27, 2015	Area Type	Other
Jurisdiction	East Allen Township	Time Period	Weekday AM Peak Hour	PHF	0.88
Intersection	Airport Road (SR 3023) & S	Analysis Year	2014	Analysis Period	1 > 7:00
File Name	XAM.xus				
Project Description	Existing Conditions				

The diagram illustrates a four-way intersection. Traffic flow is indicated by arrows: Northbound (top), Southbound (bottom), Eastbound (right), and Westbound (left). A north arrow is located in the center of the intersection. A scale bar is positioned at the bottom of the diagram.



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	11	284	259	131	219	5	88	125	116	15	590	24

Signal Information											
Cycle, s	125.7	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	1.1	46.0	6.7	44.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	5.0	5.0	5.0	0.0	0.0	
				Red	2.0	2.0	2.0	2.0	0.0	0.0	

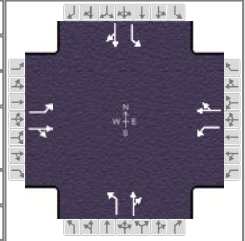
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2	3	8		4
Case Number	1.0	4.0		6.3	1.0	4.0		6.3
Phase Duration, s	8.1	61.1		53.0	13.7	64.7		51.0
Change Period, (Y+R _c), s	7.0	7.0		7.0	7.0	7.0		7.0
Max Allow Headway (MAH), s	2.9	3.2		3.2	2.9	6.0		6.0
Queue Clearance Time (g _s), s	2.6	43.5		48.0	6.8	15.6		45.4
Green Extension Time (g _e), s	0.0	2.3		0.0	0.1	11.7		0.0
Phase Call Probability	0.35	1.00		1.00	0.97	1.00		1.00
Max Out Probability	0.00	0.00		1.00	0.00	0.04		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	13	617		149	255		100	274		17	698	
Adjusted Saturation Flow Rate (s), veh/h/ln	1674	1684		772	1838		1634	1642		1123	2011	
Queue Service Time (g _s), s	0.6	41.5		12.6	12.8		4.8	13.6		1.3	43.4	
Cycle Queue Clearance Time (g _c), s	0.6	41.5		46.0	12.8		4.8	13.6		1.3	43.4	
Green Ratio (g/C)	0.39	0.43		0.37	0.37		0.42	0.46		0.35	0.35	
Capacity (c), veh/h	350	724		135	673		147	753		450	704	
Volume-to-Capacity Ratio (X)	0.036	0.852		1.105	0.378		0.681	0.364		0.038	0.991	
Available Capacity (c _a), veh/h	603	884		135	673		320	836		450	704	
Back of Queue (Q), veh/ln (50th percentile)	0.2	16.7		8.2	5.4		1.8	5.0		0.3	26.6	
Queue Storage Ratio (RQ) (50th percentile)	0.08	0.00		1.79	0.00		0.48	0.00		0.11	0.00	
Uniform Delay (d ₁), s/veh	24.4	32.2		59.2	29.3		31.0	22.1		27.0	40.7	
Incremental Delay (d ₂), s/veh	0.0	5.9		108.6	0.1		2.1	0.6		0.1	31.7	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	24.4	38.1		167.8	29.5		33.1	22.7		27.0	72.4	
Level of Service (LOS)	C	D		F	C		C	C		C	E	
Approach Delay, s/veh / LOS	37.8		D	80.5		F	25.5		C	71.3		E
Intersection Delay, s/veh / LOS	55.0						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.5	A	1.2	A	1.1	A	1.7	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Hanover Engineering Associates, Inc.			Duration, h	0.25
Analyst	TMK	Analysis Date	Jan 27, 2015	Area Type	Other
Jurisdiction	East Allen Township	Time Period	Weekday AM Peak Hour	PHF	0.88
Intersection	Airport Road (SR 3023) & S	Analysis Year	2014	Analysis Period	1 > 7:00
File Name	XPM.xus				
Project Description	Existing Conditions				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	52	266	112	138	350	18	265	445	251	5	175	22

Signal Information											
Cycle, s	111.4	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	3.9	31.8	15.2	32.5	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	5.0	5.0	5.0	0.0	0.0	
				Red	2.0	2.0	2.0	2.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2	3	8		4
Case Number	1.0	4.0		6.3	1.0	4.0		6.3
Phase Duration, s	10.9	49.7		38.8	22.2	61.7		39.5
Change Period, (Y+R _c), s	7.0	7.0		7.0	7.0	7.0		7.0
Max Allow Headway (MAH), s	2.9	3.1		3.1	2.9	6.0		6.0
Queue Clearance Time (g _s), s	4.6	23.2		29.9	14.9	46.9		25.7
Green Extension Time (g _e), s	0.0	2.0		1.9	0.3	6.3		6.8
Phase Call Probability	0.84	1.00		1.00	1.00	1.00		1.00
Max Out Probability	0.00	0.00		0.02	0.14	0.70		0.65

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	59	430		157	418		301	791		6	224	
Adjusted Saturation Flow Rate (s), veh/h/ln	1756	1821		954	1901		1747	1791		676	1928	
Queue Service Time (g _s), s	2.6	21.2		17.7	22.5		12.9	44.9		0.9	10.4	
Cycle Queue Clearance Time (g _c), s	2.6	21.2		27.9	22.5		12.9	44.9		23.7	10.4	
Green Ratio (g/C)	0.34	0.38		0.29	0.29		0.45	0.49		0.29	0.29	
Capacity (c), veh/h	207	698		250	543		528	880		124	563	
Volume-to-Capacity Ratio (X)	0.285	0.615		0.628	0.770		0.570	0.899		0.046	0.397	
Available Capacity (c _a), veh/h	413	1012		362	767		604	931		156	657	
Back of Queue (Q), veh/ln (50th percentile)	1.0	8.5		4.0	10.0		4.8	19.6		0.2	4.8	
Queue Storage Ratio (RQ) (50th percentile)	0.35	0.00		0.85	0.00		1.22	0.00		0.05	0.00	
Uniform Delay (d ₁), s/veh	28.1	27.8		43.4	36.5		21.6	25.9		46.9	31.6	
Incremental Delay (d ₂), s/veh	0.3	0.3		1.0	1.8		0.4	12.1		0.3	1.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	28.4	28.1		44.3	38.3		22.0	37.9		47.2	32.6	
Level of Service (LOS)	C	C		D	D		C	D		D	C	
Approach Delay, s/veh / LOS	28.1	C		39.9	D		33.5	C		32.9	C	
Intersection Delay, s/veh / LOS	33.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.3	A	1.4	A	2.3	B	0.9	A

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	TMK
Agency/Co.	Hanover Engineering Assoc, Inc
Date Performed	1/27/2015
Analysis Time Period	Weekday AM Peak Hour

Site Information

Intersection	Airport Road & Locust Road
Jurisdiction	East Allen Township
Analysis Year	2014 Existing Conditions

Project Description EA14-16

East/West Street: Locust Road

North/South Street: Airport Road

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		319	20	70	831	
Peak-Hour Factor, PHF	1.00	0.86	0.86	0.91	0.91	1.00
Hourly Flow Rate, HFR (veh/h)	0	370	23	76	913	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				41		31
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.72	1.00	0.72
Hourly Flow Rate, HFR (veh/h)	0	0	0	56	0	43
Percent Heavy Vehicles	0	0	0	3	0	3
Percent Grade (%)	0			1		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		76		99				
C (m) (veh/h)		1160		191				
v/c		0.07		0.52				
95% queue length		0.21		2.63				
Control Delay (s/veh)		8.3		42.5				
LOS		A		E				
Approach Delay (s/veh)	--	--	42.5					
Approach LOS	--	--	E					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	TMK
Agency/Co.	Hanover Engineering Assoc, Inc
Date Performed	1/27/2015
Analysis Time Period	Weekday PM Peak Hour

Site Information

Intersection	Airport Road & Locust Road
Jurisdiction	East Allen Township
Analysis Year	2014 Existing Conditions

Project Description EA14-16

East/West Street: Locust Road

North/South Street: Airport Road

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		828	24	27	375	
Peak-Hour Factor, PHF	1.00	0.96	0.96	0.89	0.89	1.00
Hourly Flow Rate, HFR (veh/h)	0	862	25	30	421	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				20		49
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.78	1.00	0.78
Hourly Flow Rate, HFR (veh/h)	0	0	0	25	0	62
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			1		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		30		87				
C (m) (veh/h)		763		249				
v/c		0.04		0.35				
95% queue length		0.12		1.50				
Control Delay (s/veh)		9.9		27.0				
LOS		A		D				
Approach Delay (s/veh)	--	--	27.0					
Approach LOS	--	--	D					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	TMK
Agency/Co.	Hanover Engineering Assoc, Inc
Date Performed	1/27/2015
Analysis Time Period	Weekday AM Peak Hour

Site Information

Intersection	Route 512 & Locust Road
Jurisdiction	East Allen Township
Analysis Year	2014 Existing Conditions

Project Description EA14-16

East/West Street: Locust Road

North/South Street: Route 512

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	39	309			635	27
Peak-Hour Factor, PHF	0.81	0.81	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	48	381	0	0	705	30
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	14		101			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	15	0	112	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)	-3			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	48						127	
C (m) (veh/h)	870						410	
v/c	0.06						0.31	
95% queue length	0.17						1.30	
Control Delay (s/veh)	9.4						17.7	
LOS	A						C	
Approach Delay (s/veh)	--	--				17.7		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	TMK
Agency/Co.	Hanover Engineering Assoc, Inc
Date Performed	1/27/2015
Analysis Time Period	Weekday PM Peak Hour

Site Information

Intersection	Route 512 & Locust Road
Jurisdiction	East Allen Township
Analysis Year	2014 Existing Conditions

Project Description EA14-16

East/West Street: Locust Road

North/South Street: Route 512

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	84	600			362	21
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	93	666	0	0	402	23
Percent Heavy Vehicles	6	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	19		42			
Peak-Hour Factor, PHF	0.85	1.00	0.85	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	22	0	49	0	0	0
Percent Heavy Vehicles	12	0	12	0	0	0
Percent Grade (%)	-3			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	93						71	
C (m) (veh/h)	1113						383	
v/c	0.08						0.19	
95% queue length	0.27						0.67	
Control Delay (s/veh)	8.5						16.5	
LOS	A						C	
Approach Delay (s/veh)	--	--				16.5		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	TMK
Agency/Co.	Hanover Engineering Assoc, Inc
Date Performed	1/27/2015
Analysis Time Period	Weekday AM Peak Hour

Site Information

Intersection	Weaversville Rd & Walnut St
Jurisdiction	East Allen Township
Analysis Year	2014 Existing Conditions

Project Description EA14-16

East/West Street: Weaversville Road

North/South Street: Walnut Street

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	631			166	28
Peak-Hour Factor, PHF	0.88	0.88	1.00	1.00	0.83	0.83
Hourly Flow Rate, HFR (veh/h)	7	717	0	0	200	33
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				29		1
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.94	1.00	0.94
Hourly Flow Rate, HFR (veh/h)	0	0	0	30	0	1
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	7						31	
C (m) (veh/h)	1335						296	
v/c	0.01						0.10	
95% queue length	0.02						0.35	
Control Delay (s/veh)	7.7						18.6	
LOS	A						C	
Approach Delay (s/veh)	--	--				18.6		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	TMK
Agency/Co.	Hanover Engineering Assoc, Inc
Date Performed	1/27/2015
Analysis Time Period	Weekday PM Peak Hour

Site Information

Intersection	Weaversville Rd & Walnut St
Jurisdiction	East Allen Township
Analysis Year	2014 Existing Conditions

Project Description EA14-16

East/West Street: Weaversville Road

North/South Street: Walnut Street

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	248			651	42
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.91	0.91
Hourly Flow Rate, HFR (veh/h)	7	275	0	0	715	46
Percent Heavy Vehicles	6	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				41		6
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.67	1.00	0.67
Hourly Flow Rate, HFR (veh/h)	0	0	0	61	0	8
Percent Heavy Vehicles	0	0	0	2	0	2
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	7						69	
C (m) (veh/h)	833						270	
v/c	0.01						0.26	
95% queue length	0.03						0.99	
Control Delay (s/veh)	9.4						22.8	
LOS	A						C	
Approach Delay (s/veh)	--	--				22.8		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	TMK
Agency/Co.	Hanover Engineering Assoc, Inc
Date Performed	1/27/2015
Analysis Time Period	Weekday AM Peak Hour

Site Information

Intersection	SR 329 & Walnut Street
Jurisdiction	East Allen Township
Analysis Year	2014 Existing Conditions

Project Description EA14-16

East/West Street: SR 329

North/South Street: Walnut Street

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		497	18	20	321	
Peak-Hour Factor, PHF	1.00	0.85	0.85	0.77	0.77	1.00
Hourly Flow Rate, HFR (veh/h)	0	584	21	25	416	0
Percent Heavy Vehicles	0	--	--	6	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	1		30			
Peak-Hour Factor, PHF	0.65	1.00	0.65	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	1	0	46	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		25		47				
C (m) (veh/h)		954		497				
v/c		0.03		0.09				
95% queue length		0.08		0.31				
Control Delay (s/veh)		8.9		13.0				
LOS		A		B				
Approach Delay (s/veh)	--	--	13.0					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	TMK
Agency/Co.	Hanover Engineering Assoc, Inc
Date Performed	1/27/2015
Analysis Time Period	Weekday PM Peak Hour

Site Information

Intersection	SR 329 & Walnut Street
Jurisdiction	East Allen Township
Analysis Year	2014 Existing Conditions

Project Description EA14-16

East/West Street: SR 329

North/South Street: Walnut Street

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		372	9	21	564	
Peak-Hour Factor, PHF	1.00	0.78	0.78	0.93	0.93	1.00
Hourly Flow Rate, HFR (veh/h)	0	476	11	22	606	0
Percent Heavy Vehicles	0	--	--	1	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	17		20			
Peak-Hour Factor, PHF	0.77	1.00	0.77	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	22	0	25	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		22		47				
C (m) (veh/h)		1081		332				
v/c		0.02		0.14				
95% queue length		0.06		0.49				
Control Delay (s/veh)		8.4		17.6				
LOS		A		C				
Approach Delay (s/veh)	--	--	17.6					
Approach LOS	--	--	C					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	TMK
Agency/Co.	Hanover Engineering Assoc, Inc
Date Performed	1/27/2015
Analysis Time Period	Weekday AM Peak Hour

Site Information

Intersection	Route 248 & Airport Road
Jurisdiction	East Allen Township
Analysis Year	2014 Existing Conditions

Project Description EA14-16

East/West Street: Route 248

North/South Street: Airport Rd/Jamesville Station

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	13	393	486	7	141	3
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.81	0.81	0.81
Hourly Flow Rate, HFR (veh/h)	14	431	534	8	174	3
Percent Heavy Vehicles	1	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	126	1	9	0	3	3
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.50	0.50	0.50
Hourly Flow Rate, HFR (veh/h)	140	1	10	0	6	6
Percent Heavy Vehicles	6	6	6	0	0	0
Percent Grade (%)	1			-1		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	14	8		151			12	
C (m) (veh/h)	1405	710		228			322	
v/c	0.01	0.01		0.66			0.04	
95% queue length	0.03	0.03		4.12			0.12	
Control Delay (s/veh)	7.6	10.1		47.2			16.6	
LOS	A	B		E			C	
Approach Delay (s/veh)	--	--	47.2			16.6		
Approach LOS	--	--	E			C		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	TMK
Agency/Co.	Hanover Engineering Assoc, Inc
Date Performed	1/27/2015
Analysis Time Period	Weekday PM Peak Hour

Site Information

Intersection	Route 248 & Airport Road
Jurisdiction	East Allen Township
Analysis Year	2014 Existing Conditions

Project Description EA14-16

East/West Street: Route 248

North/South Street: Airport Rd/Jamesville Station

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	3	145	144	13	429	0
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.93	0.93	0.93
Hourly Flow Rate, HFR (veh/h)	3	164	163	13	461	0
Percent Heavy Vehicles	3	--	--	1	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	346	2	6	3	0	7
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.50	0.50	0.50
Hourly Flow Rate, HFR (veh/h)	393	2	6	6	0	14
Percent Heavy Vehicles	0	0	0	17	17	17
Percent Grade (%)	1			-1		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	3	13		401			20	
C (m) (veh/h)	1095	1238		310			464	
v/c	0.00	0.01		1.29			0.04	
95% queue length	0.01	0.03		19.20			0.13	
Control Delay (s/veh)	8.3	7.9		188.1			13.1	
LOS	A	A		F			B	
Approach Delay (s/veh)	--	--	188.1			13.1		
Approach LOS	--	--	F			B		

APPENDIX C

Intersection Sketches

PHASING, TIMING and COLOR SEQUENCE CHART

	PHASE 2+5				PHASE 2+6				PHASE 4+7				PHASE 4+8				EMERGENCY FLASHING OPERATION
SIGNALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	G	Y	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	Y
2	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	Y
3-4	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	Y
5	R	R	R	R	R	R	R	G	Y	R	R	G	G	Y	R	R	Y
6	R	R	R	R	R	R	R	G	Y	R	R	G	G	Y	R	R	Y
7-8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y
9-10	H	H	H	M	FH	H	H	H	H	H	H	H	H	H	H	H	OFF
11-12	H	H	H	M	FH	H	H	H	H	H	H	H	H	H	H	H	OFF
13-14	H	H	H	M	FH	H	H	H	H	H	H	M	FH	H	H	H	OFF
15-16	H	H	H	M	FH	H	H	H	H	H	H	M	FH	H	H	H	OFF
FIXED		5	2		5	2		5	2		5	2		5	2		
MIN GREEN	3			7				3			7						
ADDED INIT				3													
MAX INIT				30													
PASSAGE	2			5				2			5						
TTR				10													
TBR				30													
MIN GAP				2.5													
MAX 1	13			39				13			37						
MAX 2	9			35							30						
MAX 3	10			38				13			31						
PEDESTRIAN				11	16	mR					11	16	N.L.				
MEMORY				N.L.				N.L.			N.L.						

- NOTES:
- ① - Y/G IF FOLLOWED BY PHASE 2+6
 - ② G IF FOLLOWED BY PHASE 2+6
 - ③ G IF FOLLOWED BY PHASE 2+6
 - ④ G IF FOLLOWED BY PHASE 2+5
 - ⑤ - Y/G IF FOLLOWED BY PHASE 4+8
 - ⑥ G IF FOLLOWED BY PHASE 4+8
 - ⑦ G IF FOLLOWED BY PHASE 4+8
 - ⑧ G IF FOLLOWED BY PHASE 4+7
 - ⑨ UPON PEDESTRIAN ACTUATION ONLY
 - ⑩ TO FOLLOW PHASE 4+8 ONLY
 - ⑪ TO FOLLOW PHASE 2+6 ONLY

MATCH LINE SHT 2 OF 4 STA. 2+40

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	NORTHAMPTON	SR 0329		
EAST ALLEN TOWNSHIP				
PERMIT NO. 48-204-01		SHEET 2 OF 3		
DATE ISSUED: 06-24-53		DATE REVISED:		

GENERAL NOTES

INSTALLATION, OPERATION, AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.

ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND ARE TO BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED. EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS WHICH WILL BE MAINTAINED BY THE DEPARTMENT.

INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS WILL HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY ARE NOT TO BE LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS ARE NOT TO BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNAL HEADS MEASURED AT RIGHT ANGLES TO THE APPROACH IS TO BE 8 FEET.

IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE WILL ALSO OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF THE LATEST AMENDMENT TO ACT 121, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, DATED OCTOBER 9, 2008.

PAVEMENT MARKINGS WILL BE PLACED IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING TC-8600 SERIES STANDARDS.

MAINTENANCE AND PROTECTION FOR THE INSTALLATION AND MAINTENANCE OF THIS SIGNAL TO BE IN ACCORDANCE WITH PUB. 213, WORK ZONE TRAFFIC CONTROL GUIDELINES.

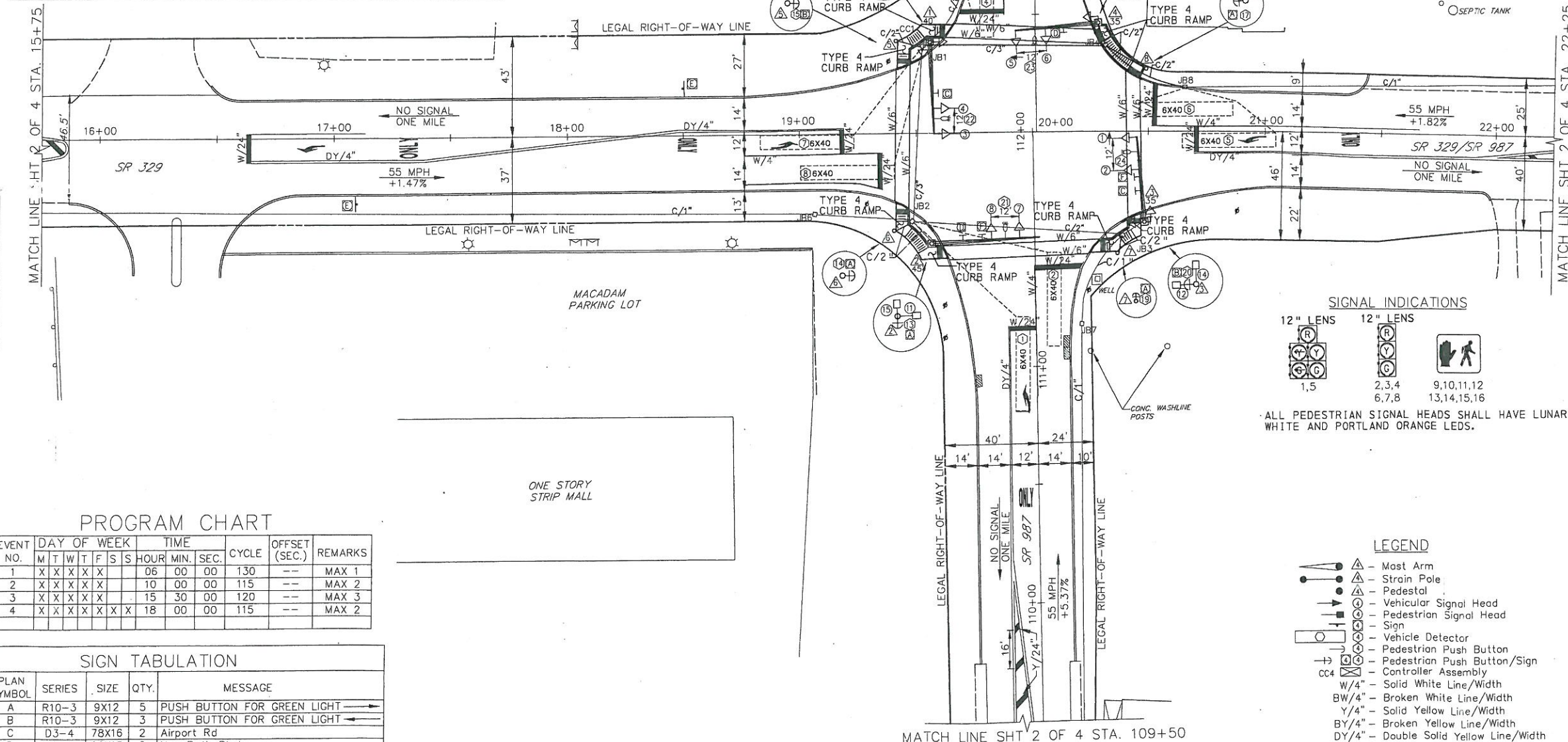
COUNTY: NORTHAMPTON
MUNICIPALITY: EAST ALLEN TOWNSHIP
INTERSECTION: SR 0987 / SR 0329 AND SR 3023 (FRANKS CORNER)

REVIEWED: MUNICIPAL OFFICIAL DATE

REVIEWED: DIST. TRAFFIC SIGNALS DIV. DATE

RECOMMENDED: DISTRICT TRAFFIC ENGINEER DATE

SCALE: 25' 0' 25' 50'



SIGNAL INDICATIONS

12" LENS	12" LENS	
1,5	2,3,4 6,7,8	9,10,11,12 13,14,15,16

ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE LUNAR WHITE AND PORTLAND ORANGE LEDS.

LEGEND

- ▲ - Mast Arm
- ▲ - Strain Pole
- - Pedestal
- - Vehicular Signal Head
- - Pedestrian Signal Head
- - Sign
- - Vehicle Detector
- - Pedestrian Push Button
- - Pedestrian Push Button/Sign
- CC4 - Controller Assembly
- W/4" - Solid White Line/Width
- BW/4" - Broken White Line/Width
- Y/4" - Solid Yellow Line/Width
- BY/4" - Broken Yellow Line/Width
- DY/4" - Double Solid Yellow Line/Width
- JB1 - Junction Box
- ⊖ - Emergency Preemption Device

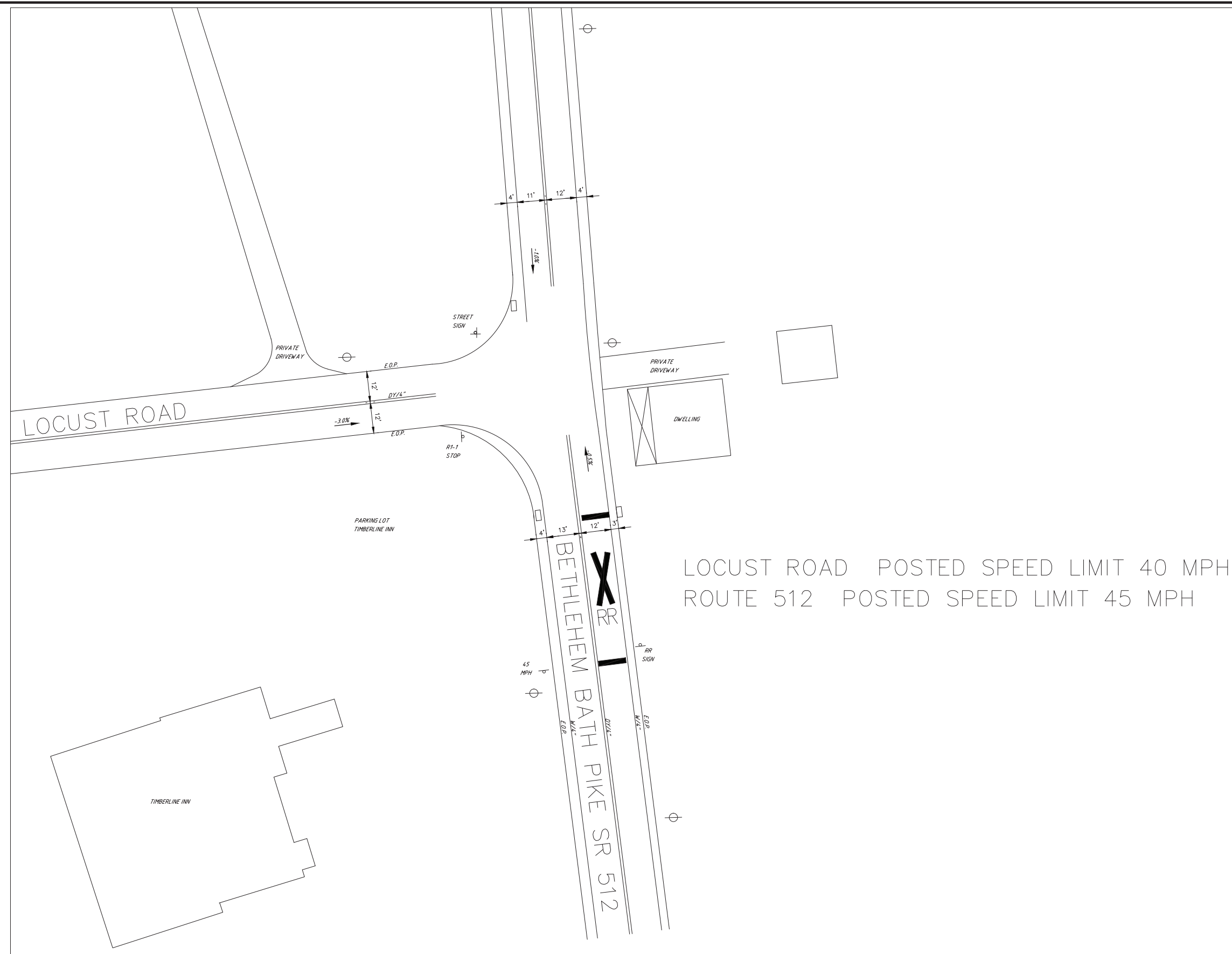
PROGRAM CHART

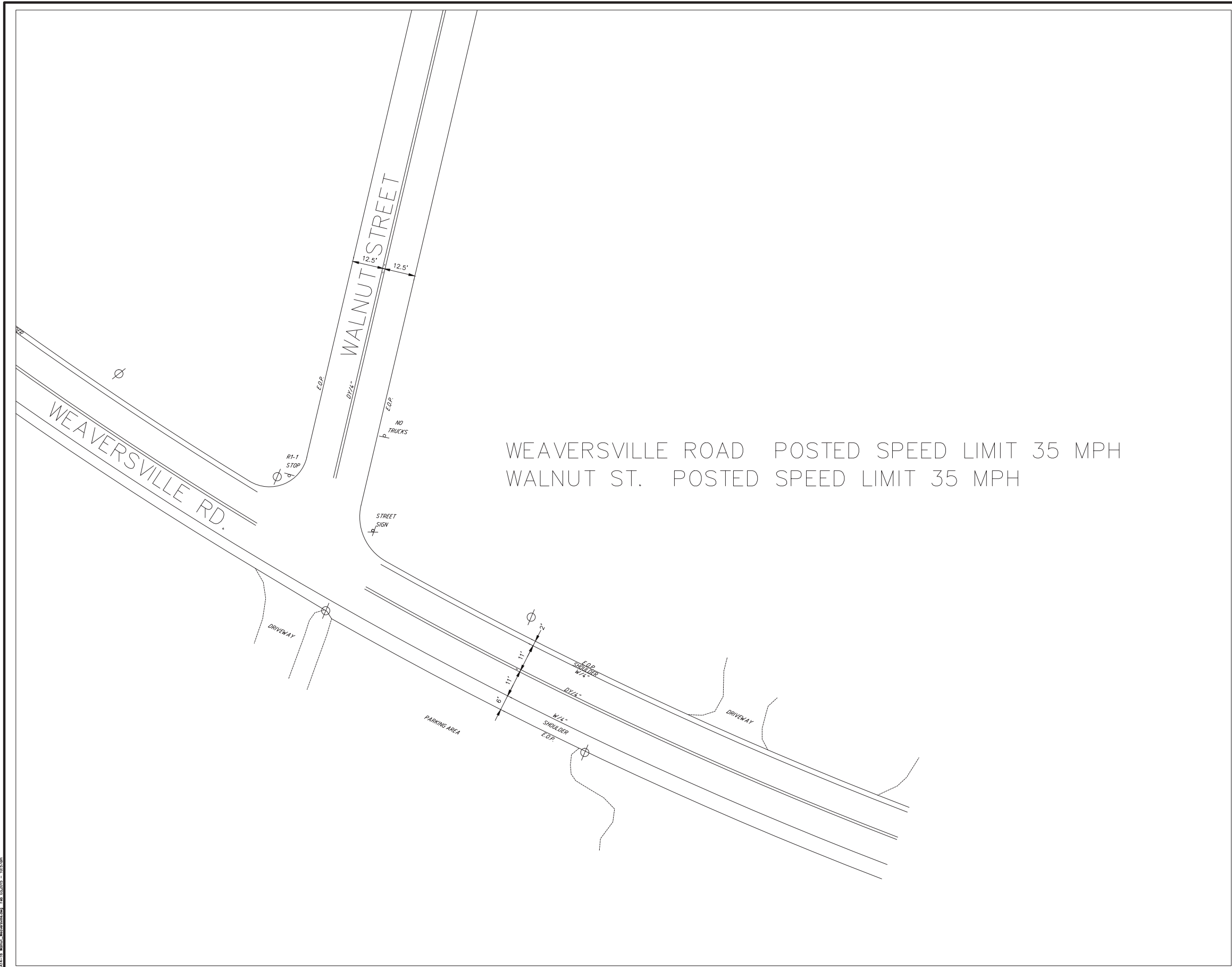
EVENT NO.	DAY OF WEEK	TIME	CYCLE	OFFSET (SEC.)	REMARKS
1	X X X X X	06:00:00	130	---	MAX 1
2	X X X X X	10:00:00	115	---	MAX 2
3	X X X X X	15:30:00	120	---	MAX 3
4	X X X X X	18:00:00	115	---	MAX 2

SIGN TABULATION

PLAN SYMBOL	SERIES	SIZE	QTY.	MESSAGE
A	R10-3	9X12	5	PUSH BUTTON FOR GREEN LIGHT
B	R10-3	9X12	3	PUSH BUTTON FOR GREEN LIGHT
C	D3-4	78X16	2	Airport Rd
D	D3-4	96X16	2	Nor-Bath Blvd
E	R3-7L	30X30	5	LEFT LANE MUST TURN LEFT
F	R10-11	30X36	2	NO TURN ON RED







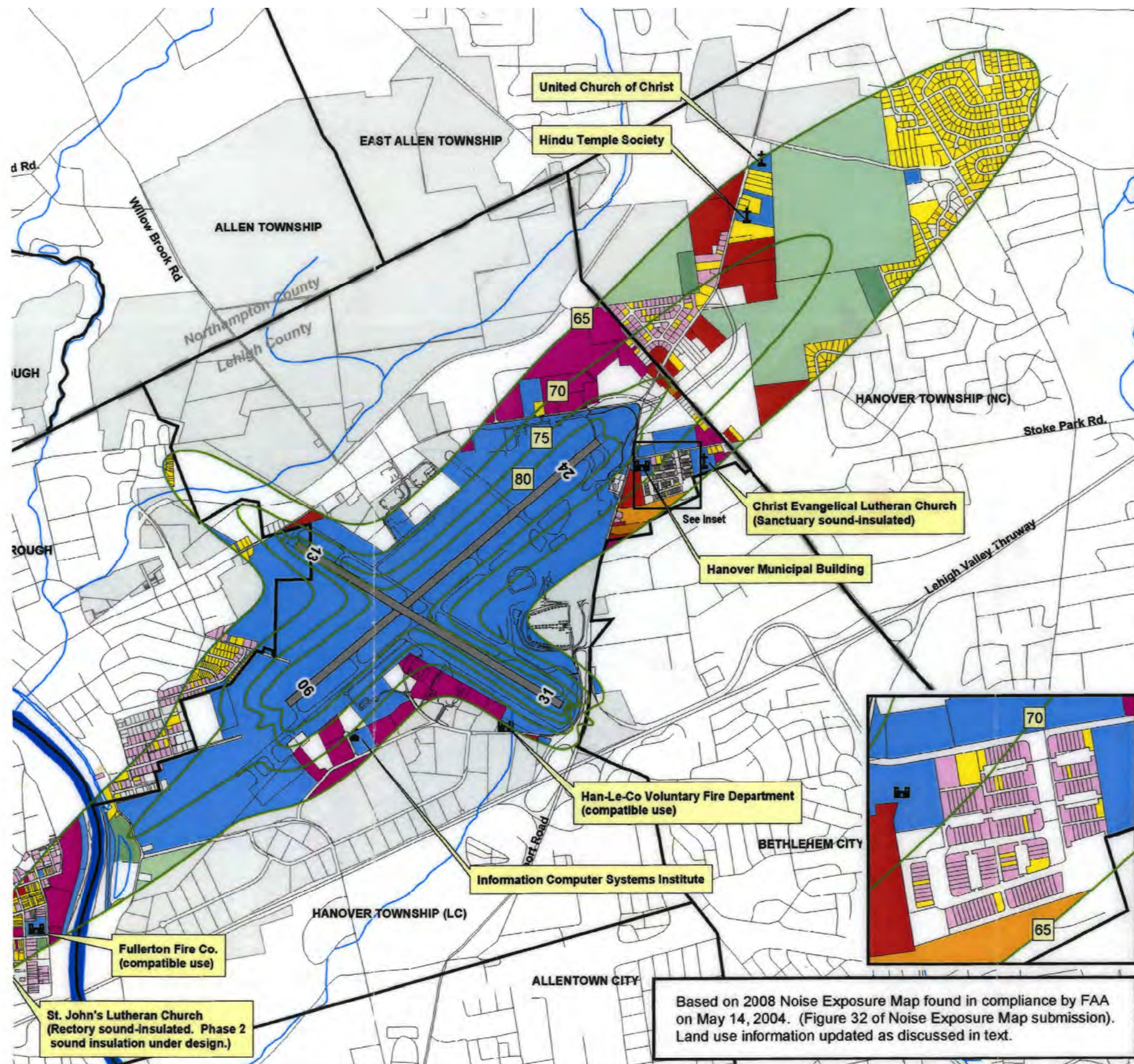
AIRPORT ROAD POSTED SPEED LIMIT 45 MPH





APPENDIX E NOISE EXPOSURE MAP

X:\Projects\Municipal\East Allen Township\EA14-16\MDX\APPENDIX E.mxd



DATA SOURCE:
MAP AND DATA WAS PREPARED FOR THE FAR PART 150 UPDATE STUDY FOR
LEHIGH VALLEY INTERNATIONAL AIRPORT. THESE ARE 2008
FORECAST CONDITIONS.

DATA WAS PREPARED FOR LEHIGH-NORTHAMPTON AIRPORT AUTHORITY.

DATA WAS PREPARED BY HARRIS MILLER MILLER & HANSON INC AND
DMJM AVIATION.

Legend

- Municipalities
- Existing runways
- Airport property (including full interest and avigation easements)
- Rivers and streams
- Streets
- DNL Contours
- Public use (noncompatible, except as noted)
 - Church
 - Daycare
 - Municipal
 - School
- Land use
 - Residential not sound-insulated (noncompatible use)
 - Mobile home (noncompatible)
 - Commercial
 - Industrial
 - Public use
 - Agricultural
 - Recreational
 - Mixed
 - Vacant
 - Sound-insulated residential (compatible)

1,000 0 1,000 2,000 3,000
Feet

APPENDIX E NOISE EXPOSURE MAP

LAND USE STUDY PLAN

EAST ALLEN TOWNSHIP
NORTHAMPTON COUNTY
PENNSYLVANIA

DRAWN BY: JRP	PROJECT NO. EA14-16
CHECKED BY: JBB	
DATE: 3 - 27 - 15	SHEET NO. 1 OF 1
SCALE: 1" = 2000'	

Hanover
Engineering Associates Inc

252 Brodhead Road, Suite 100
Bethlehem PA 18017-8944
610.691.5644 Fax 610.691.6968

Based on 2008 Noise Exposure Map found in compliance by FAA
on May 14, 2004. (Figure 32 of Noise Exposure Map submission).
Land use information updated as discussed in text.



APPENDIX F PROPOSED LAND USE PLAN

- GREENBRIAR VILLAGE**
- 1. GREENBRIAR DR. S.
 - 2. BENTWOOD CIRCLE
 - 3. CLEARFIELD COURT
 - 4. GREENTREE COURT
 - 5. ELDER COURT
 - 6. FAWN MEADOW COURT
 - 7. GOLDENROD COURT
 - 8. GOLDENWOOD CIRCLE
 - 9. BAYBERRY COURT
 - 10. QUAIL COURT
 - 11. JUNIPER COURT
 - 12. JUNIPER CIRCLE
 - 13. BOWWOOD COURT
 - 14. MAGNOLIA COURT
 - 15. WILDBRIAR COURT
 - 16. ACORN COURT
 - 17. OAKWOOD COURT
 - 18. PINE CONE COURT
 - 19. SILVER WIND COURT
 - 20. SPRING MEADOW COURT
 - 21. WOODSLEIFT COURT
 - 22. BIRCHWOOD COURT
 - 23. GREENBRIAR BLVD.

- VICTORIA SQUARE**
- 1. COPENHAGEN SQUARE T 788
 - 2. BIRMINGHAM SQUARE T 800
 - 3. DUSSELDORF SQUARE T 798
 - 4. LIMERICK SQUARE T 797
 - 5. VENICE SQUARE T 795
 - 6. HELSING SQUARE T 784
 - 7. VALENCIA SQUARE T 782
 - 8. SALINIA SQUARE T 791
 - 9. ROTTERDAM SQUARE T 780
 - 10. VERSALES SQUARE T 799
 - 11. DESREGEN SQUARE T 796

ZONING DISTRICTS

- AG - AGRICULTURAL DISTRICT
- A/RR - AGRICULTURAL / RURAL RESIDENTIAL DISTRICT
- C - CONSERVATION DISTRICT
- EI - EXTRACTIVE INDUSTRIAL DISTRICT
- OC - OFFICE COMMERCIAL DISTRICT
- GI - GENERAL INDUSTRIAL DISTRICT
- LI/BP - LIGHT INDUSTRIAL / BUSINESS PARK DISTRICT
- PC - 1 - PLANNED COMMERCIAL DISTRICT
- PC - 2 - PLANNED COMMERCIAL DISTRICT
- PR - PLANNED RESIDENTIAL DISTRICT
- SR - SUBURBAN RESIDENTIAL DISTRICT

MAP KEY:

- PONDS / WETLANDS
- MAJOR STREAMS
- MINOR STREAMS
- PROPOSED COLLECTOR ROAD
- DISCUSSION AREA

AGE QUALIFIED
RESIDENTIAL COMMUNITY
OVERLAY DISTRICT
(WITHIN A/RR ZONE)

FUNCTIONAL ROAD CLASSIFICATIONS

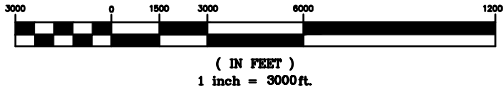
ARTERIAL

- AIRPORT ROAD (SR 987 / 9029)
- BETH-BATH PIKE (SR 512)
- NOR-BATH BLVD. (SR 229)
- WEAVERSVILLE ROAD (SR 3017)
- WEST MAIN BLVD. (SR 248)

COLLECTOR

- CHRISPALT DRIVE
- COLONY DRIVE
- HANOVERVILLE ROAD
- JACKSONVILLE ROAD
- LOCUST ROAD
- OLD CARRIAGE ROAD
- SEEMSVILLE ROAD
- SILVERCREST ROAD
- SNOWDRIET ROAD
- TOWNSHIP LINE ROAD

GRAPHIC SCALE

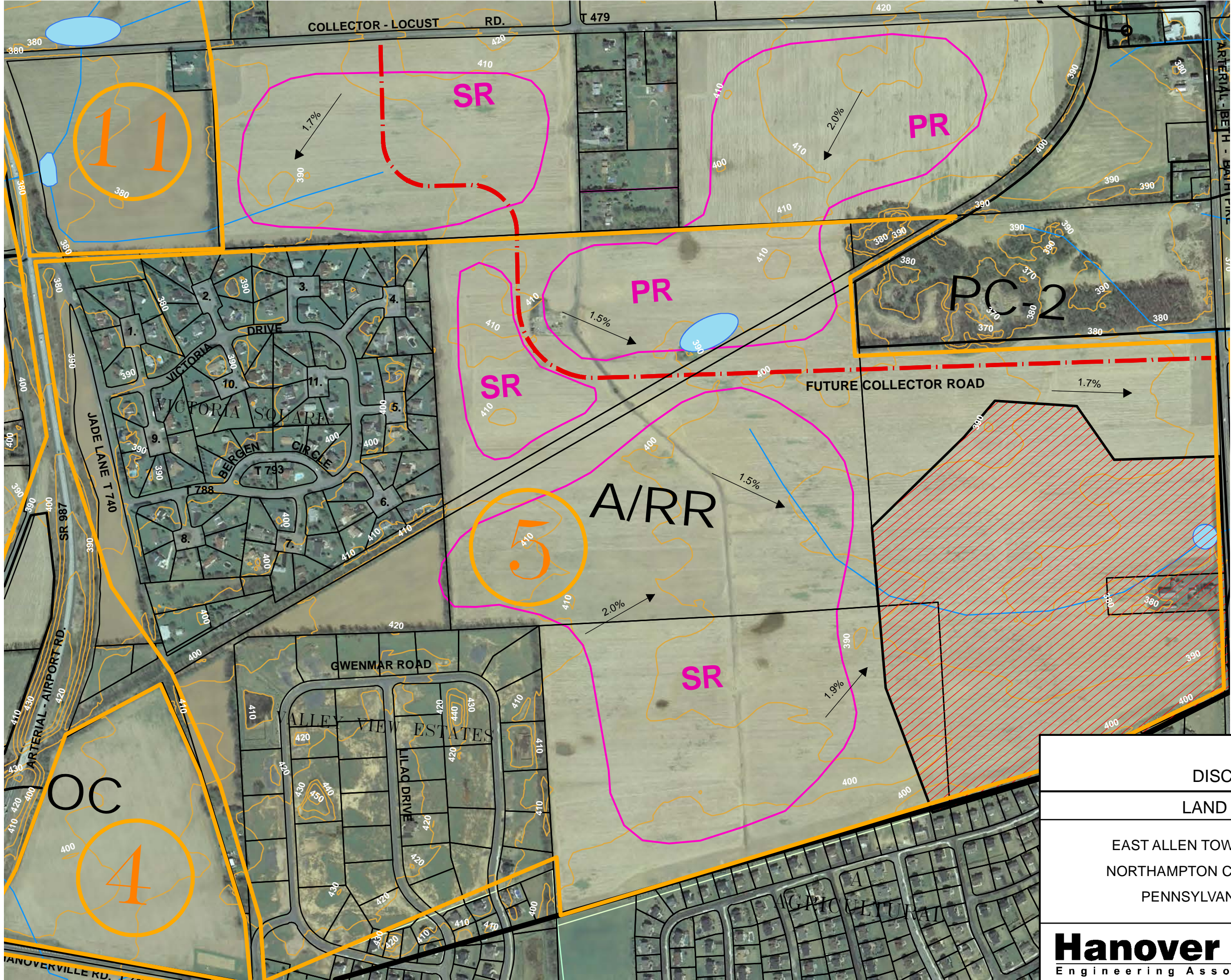


PREPARED BY: HANOVER ENGINEERING ASSOCIATES, INC.

APPENDIX F

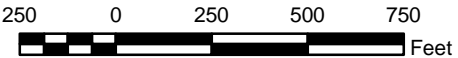
LAND USE STUDY PLAN

EAST ALLEN TOWNSHIP NORTHAMPTON COUNTY PENNSYLVANIA	DRAWN BY: JRP	PROJECT NO. EA14-16
	CHECKED BY: JBB	
	DATE: 3-27-15	SHEET NO. 1 OF 4
	SCALE: 1" = 3,000'	
Hanover Engineering Associates Inc		
252 Brodhead Road, Suite 100 Bethlehem, PA 18017-8944 610.691.5644 Fax 610.691.6968		



- ZONING DISTRICTS**
- AG - AGRICULTURAL DISTRICT
 - A/RR - AGRICULTURAL/RURAL RESIDENTIAL DISTRICT
 - C - CONSERVATION DISTRICT
 - EI - EXTRACTIVE INDUSTRIAL DISTRICT
 - OC - OFFICE COMMERCIAL DISTRICT
 - GI - GENERAL INDUSTRIAL DISTRICT
 - LI/BP - LIGHT INDUSTRIAL/BUSINESS PARK DISTRICT
 - PC-1 - PLANNED COMMERCIAL DISTRICT
 - PC-2 - PLANNED COMMERCIAL DISTRICT
 - PR - PLANNED RESIDENTIAL DISTRICT
 - SR - SUBURBAN RESIDENTIAL DISTRICT

- MAP KEY:**
- PONDS/WETLANDS
 - MAJOR STREAMS
 - MINOR STREAMS
 - PROPOSED COLLECTOR ROAD
 - DISCUSSION AREA
 - AGE QUALIFIED RESIDENTIAL COMMUNITY OVERLAY DISTRICT (WITHIN A/RR ZONE)



APPENDIX F
DISCUSSION AREA #5

LAND USE STUDY PLAN

EAST ALLEN TOWNSHIP
NORTHAMPTON COUNTY
PENNSYLVANIA

DRAWN BY:
JRP
CHECKED BY:
JBB

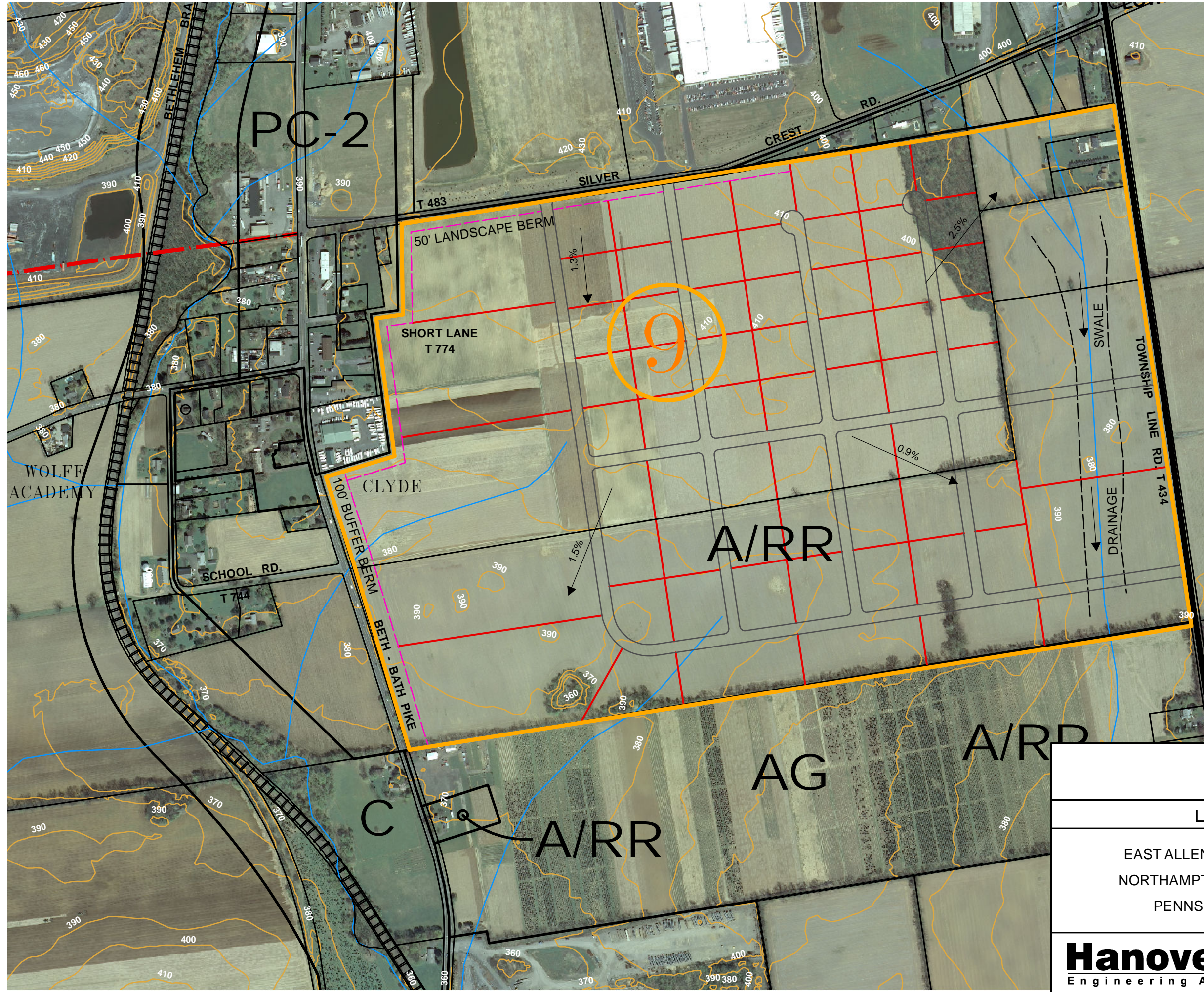
DATE:
3 - 27 - 15
SCALE:
1" = 500'

PROJECT NO.
EA14-16

SHEET NO.
2 OF 4

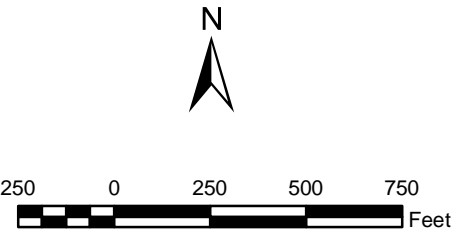
Hanover
Engineering Associates Inc

252 Brodhead Road, Suite 100
Bethlehem PA 18017-8944
610.691.5644 Fax 610.691.6968



- ZONING DISTRICTS**
- AG - AGRICULTURAL DISTRICT
 - A/RR - AGRICULTURAL/RURAL RESIDENTIAL DISTRICT
 - C - CONSERVATION DISTRICT
 - EI - EXTRACTIVE INDUSTRIAL DISTRICT
 - OC - OFFICE COMMERCIAL DISTRICT
 - GI - GENERAL INDUSTRIAL DISTRICT
 - LI/BP - LIGHT INDUSTRIAL/BUSINESS PARK DISTRICT
 - PC-1 - PLANNED COMMERCIAL DISTRICT
 - PC-2 - PLANNED COMMERCIAL DISTRICT
 - PR - PLANNED RESIDENTIAL DISTRICT
 - SR - SUBURBAN RESIDENTIAL DISTRICT

- MAP KEY:**
- PONDS/WETLANDS
 - MAJOR STREAMS
 - MINOR STREAMS
 - PROPOSED COLLECTOR ROAD
 - DISCUSSION AREA
 - AGE QUALIFIED RESIDENTIAL COMMUNITY OVERLAY DISTRICT (WITHIN A/RR ZONE)



REV: 1 - 20 - 16

APPENDIX F
DISCUSSION AREA #9

LAND USE STUDY PLAN

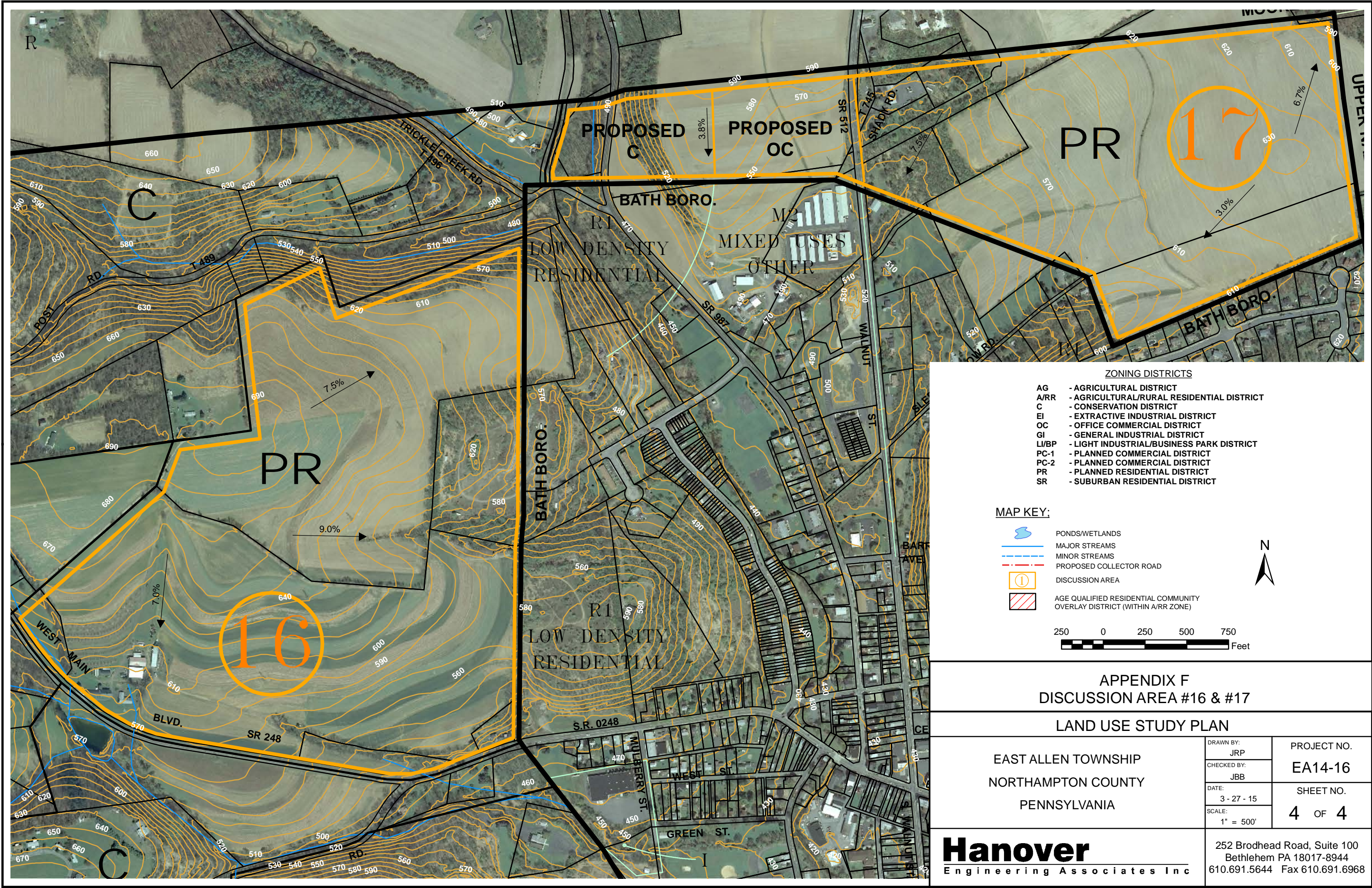
EAST ALLEN TOWNSHIP
NORTHAMPTON COUNTY
PENNSYLVANIA

DRAWN BY: MJA	PROJECT NO. EA14-16
CHECKED BY: JBB	
DATE: 3 - 27 - 15	SHEET NO. 3 OF 4
SCALE: 1" = 500'	

Hanover
Engineering Associates Inc

252 Brodhead Road, Suite 100
Bethlehem PA 18017-8944
610.691.5644 Fax 610.691.6968

X:\Projects\Municipal\East Allen Township\EA14-16\MXD\APPENDIX-F4.mxd





APPENDIX G SEWER AND WATER SERVICE AREA MAP

FUNCTIONAL ROAD CLASSIFICATIONS

ARTERIAL

AIRPORT ROAD
BETH-BATH PIKE (SR 512)
NOB-BATH BLVD. (SR 329)
WEAVERSVILLE ROAD
WEST MAIN BLVD. (SR 248)

COLLECTOR

CHRISPALT DRIVE
COLONY DRIVE
HANOVERVILLE ROAD
JACKSONVILLE ROAD
LOCUST ROAD
OLD CARRIAGE ROAD
SEEMSVILLE ROAD
SILVERCREST ROAD
SNOWDRIFT ROAD
TOWNSHIP LINE ROAD

WATER SERVICE ONLY (PRIVATE)

WATER SERVICE ONLY (MUNICIPAL-COB)

SEWER SERVICE ONLY (MUNICIPAL)

WATER AND SEWER SERVICE (MUNICIPAL)

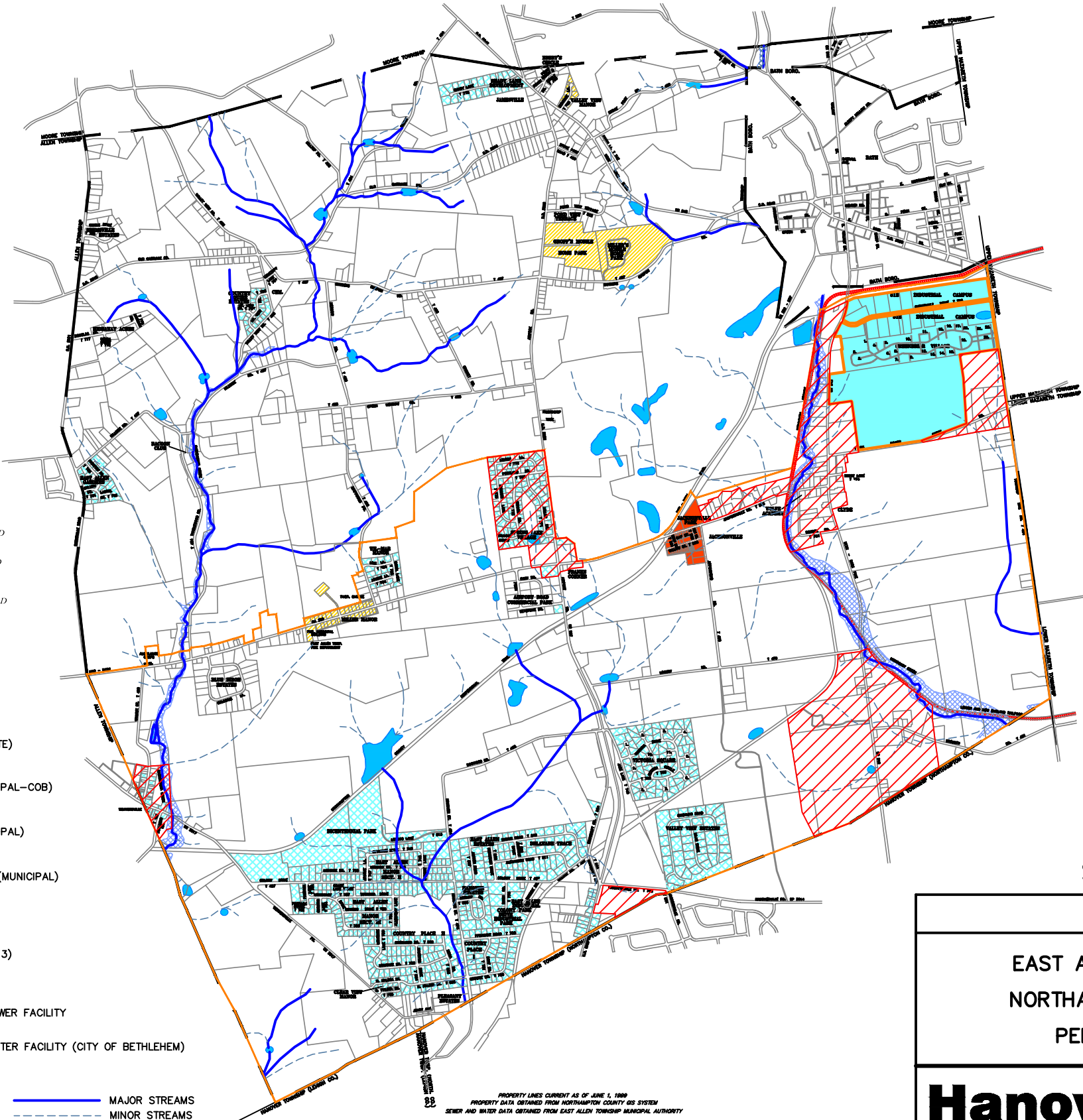
FEMA FLOODPLAIN (PRE-2013)

POSSIBLE FUTURE PUBLIC SEWER FACILITY

POSSIBLE FUTURE PUBLIC WATER FACILITY (CITY OF BETHLEHEM)

PONDS / WETLANDS

MAJOR STREAMS
MINOR STREAMS



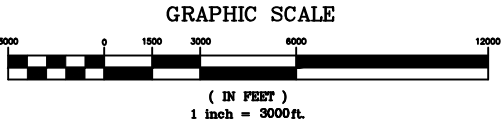
PROPERTY LINES CURRENT AS OF JUNE 1, 1999
PROPERTY DATA OBTAINED FROM NORTHAMPTON COUNTY GIS SYSTEM
SEWER AND WATER DATA OBTAINED FROM EAST ALLEN TOWNSHIP MUNICIPAL AUTHORITY

GREENBRIAR VILLAGE

1. GREENBRIAR DR. S.
2. BENTWOOD CIRCLE
3. CLEARFIELD COURT
4. GREENTREE COURT
5. ELDER COURT
6. FAIR MEADOW COURT
7. GOLDENROD CIRCLE
8. BAYBERRY COURT
9. QUAIL COURT
10. JUNIPER COURT
11. JUNIPER CIRCLE
12. BOXWOOD COURT
13. MAGNOLIA COURT
14. WILDBRIAR COURT
15. ACORN COURT
16. OAKWOOD COURT
17. PINE CONE COURT
18. SILVER WIND COURT
19. SPRING MEADOW COURT
20. WOODSBUFF COURT
21. BRIARWOOD COURT
22. GREENBRIAR BLVD.

VICTORIA SQUARE

1. COPENHAGEN SQUARE T 789
2. BIRMINGHAM SQUARE T 800
3. DUSSELDORF SQUARE T 798
4. LIMERICK SQUARE T 797
5. VENICE SQUARE T 795
6. HELSINKI SQUARE T 794
7. VALINCA SQUARE T 792
8. SALINCA SQUARE T 791
9. ROTTERDAM SQUARE T 790
10. VERSAILLES SQUARE T 799
11. DEBRECEN SQUARE T 786



APPENDIX G
SEWER AND WATER AREA
LAND USE STUDY PLAN

EAST ALLEN TOWNSHIP NORTHAMPTON COUNTY PENNSYLVANIA		DRAWN BY: JRP	PROJECT NO. EA14-16
		CHECKED BY: JBB	SHEET NO. 1 OF 1
		DATE: 3-27-15	
		SCALE: 1" = 3,000'	
Hanover Engineering Associates Inc		252 Brodhead Road, Suite 100 Bethlehem, PA 18017-8944 610.691.5644 Fax 610.691.6968	



APPENDIX H RESOLUTION OF ADOPTION

**EAST ALLEN TOWNSHIP
5344 Nor-Bath Boulevard
Northampton, PA 18067**

RESOLUTION 2016-10

**A RESOLUTION OF EAST ALLEN TOWNSHIP, NORTHAMPTON COUNTY,
PENNSYLVANIA, AMENDING THE EAST ALLEN TOWNSHIP
COMPREHENSIVE PLAN DATED AUGUST 25, 2016**

WHEREAS, East Allen Township utilizes a comprehensive plan to guide the future development of land within the municipality; and,

WHEREAS, Article III of the Pennsylvania Municipalities Planning Code provides that the Township shall provide for and adopt, and may modify, a comprehensive plan setting forth policies that govern the future physical development of the municipality, which shall be reviewed at least every 10 years; and,

WHEREAS, on December 20, 2001, East Allen Township adopted a Comprehensive Plan entitled "Comprehensive Plan for East Allen Township; and,

WHEREAS, the Township, through its Planning Commission and Board of Supervisors, has prepared an Amendment to the Comprehensive Plan for the Township of East Allen; and

WHEREAS, the 2016 East Allen Township Comprehensive Plan Amendment was sent to the Lehigh Valley Planning Commission, Lehigh Northampton Airport Authority, Borough of Bath, Hanover Township, Northampton County, Hanover Township, Lehigh County, Lower Nazareth Township, Moore Township, Upper Nazareth Township, Allen Township, Borough of Northampton and the Northampton School District on February 11, 2016 for review and comment; and,

WHEREAS, the 2016 East Allen Township Comprehensive Plan Amendment was considered by the East Allen Township Planning Commission at a public meeting, pursuant to public notice, on April 27, 2015 for review and comment; and,

WHEREAS, the 2016 East Allen Township Comprehensive Plan Amendment has been made available during the public review period in the East Allen Township Municipal Building and the East Allen Township website; and,

WHEREAS, East Allen Township received no substantial changes from the Lehigh Valley Planning Commission, the contiguous municipalities, the Northampton School District, or the general public within the required review period of the 2016 East Allen Township Comprehensive Plan Amendment; and,

WHEREAS, notice of a public hearing by the East Allen Township Board of Supervisors was advertised in The Press Group Newspapers on April 27, 2016; and,

WHEREAS, the East Allen Township Board of Supervisors held a public hearing, pursuant to public notice, on the 2016 East Allen Township Comprehensive Plan

Amendment on May 26, 2016; and,

WHEREAS, the comments received at the May 26, 2016 public hearing were duly noted; and

WHEREAS, after consideration of the comments received, the East Allen Township Board of Supervisors has determined that the 2016 East Allen Township Comprehensive Plan Amendment, as originally set forth in the attached Exhibit A, should not be substantially revised in whole or in part; and,

WHEREAS, the East Allen Township Board of Supervisors has found the 2016 East Allen Township Comprehensive Plan Amendment to be beneficial to the health, safety, and welfare of the citizens of East Allen Township; and,

WHEREAS, the East Allen Township Board of Supervisors intends to adopt the 2016 East Allen Township Comprehensive Plan, which adoption must be by Resolution carried by no less than a majority of all members of the Board of Supervisors.

THEREFORE, IT IS HEREBY RESOLVED by the Board of Supervisors of East Allen Township, Northampton County, Pennsylvania:

Section 1. The East Allen Township Board of Supervisors, by this resolution, adopts the 2016 East Allen Township Comprehensive Plan Amendment in its entirety, as attached hereto as Exhibit A, pursuant to Article III of the Pennsylvania Municipalities Planning Code.


Section 2. The East Allen Township Board of Supervisors, by this resolution, also adopts all supplemental and additional information collected in order to prepare the Comprehensive Plan, including the following:

Citizens Questionnaire and Response Summary
Public Works Building Inspection Report
Intersection Capacity Analysis
Noise Exposure Map
Projected Land Use Plan
Sewer and Water Service Area Map

Section 3. The East Allen Township Comprehensive Plan, updated and adopted December 20, 2001, is hereby amended to the extent that it is inconsistent herewith.

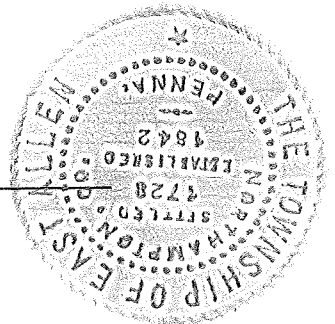
This Resolution is hereby finally approved and adopted by the Board of Supervisors of East Allen Township this 25th day of August, 2016.

ATTEST:


Secretary

EAST ALLEN TOWNSHIP


ROGER UNANGST
Chairperson
Board of Supervisors



EAST ALLEN TOWNSHIP

5344 Nor-Bath Boulevard
Northampton, PA 18067-9063
Phone: 610-262-7961 Fax: 610-262-8788
www.eatwp.org

**EAST ALLEN TOWNSHIP PLANNING COMMISSION
PASSED ON TO
EAST ALLEN TOWNSHIP BOARD OF SUPERVISORS**

RE: DRAFT Comprehensive Plan – Dated 4/17/15

The Planning Commission made the following recommendation at their April 27, 2015 meeting:

MOTION made by J. Ladonis to recommend favorable approval to the Board of Supervisors of the Draft Comprehensive Plan dated April 17, 2015 as presented with enhanced language on traffic safety. Seconded by D. Miller. VOTE: J. Ladonis, yes; N. Daniel, yes; D. Miller, yes and D. Heiney, yes. ALL IN FAVOR. MOTION CARRIED.

**EAST ALLEN TOWNSHIP
Board of Supervisors
Monthly Business Meeting
May 26, 2016**

****NOTE** The Board of Supervisors meeting scheduled for May 11, 2016 was cancelled and the hearing was postponed until the May 26, 2016 Board of Supervisors Meeting.**

CALL TO ORDER –

The recorded meeting was called to order at 7:30 PM by Chairperson, R. Unangst who led the pledge of allegiance.

ROLL CALL

Present were: Chairperson, R. Unangst; Vice Chairperson, C. Colitas; Supervisor, M. Schwartz; Supervisor, M. Kemp; Supervisor, P. Moser; Township Manager, D. Seiple; Township Solicitor, J. Piperato; Township Engineer Representative, J. Milot; Public Works Coordinator, G. Mathesz; Public Works Leader, T. Gehringer and Secretary/Treasurer, R. Wedde.

HEARING – 7:30 PM - Comprehensive Plan

J. Birdsall from Hanover Engineering gave an explanation on the update of the Comprehensive Plan. He stated the scope of the Plan was to concentrate on the southern part of the Township which has experienced more changes since 2001. The Board directed a citizen survey be done which was reviewed by the Planning Commission. The Planning Commission also studied options for goals for the Township for the future. They undertook studies of individual important elements of the Plan including population, traffic, land use constraints, the capital budget, and options for land use. The Planning Commission made a recommendation to the Board and then the Board authorized the Plan which was dated February 1, 2016. It was then distributed to various public agencies that are required to have a chance to review the Plan including adjoining municipalities, the school district, the airport and LVPC. During the hearing there will be some information on the responses received. One of the highlights of the Plan being addressed is public sewer availability. It is very limited but it seems like there's a little more available from Bath and possibly a little more available from Hanover through the City of Bethlehem. The greater volumes or quantities would most likely be available through Bath. Traffic was also studied due to many intersections being overloaded or nearly overloaded along the main corridors of the Township. The Plan also addressed the limitations on development that the Township has with regard to some of our storm sewer issues where storm water is actually flowing through residential neighborhoods. This would create additional problems if development occurs. As the Planning Commission got deeper into various options for land use changes they looked at development corridors most likely to warrant consideration for development. These would be along the main north/south arteries, Weaversville Road, Airport Road and Route 512. They studied the Capital Budget and between road construction and upgrade work, storm water work, park improvements and garage improvements that are needed there was a Capital Budget estimate of \$10.4 million. The Land Use changes that are being recommended are: some options for development along the west side of Weaversville Road on the land near the Fed-Ex; along both sides of Airport Road (there is a corridor that would not be ideal for residential because the traffic on the lower part of Airport Road is so heavy so it would be more natural for non-residential); along Route 512 south of Locust and along the west side of 512 (because of proximity to public water and public sewer but also because of the traffic patterns along 512 to try and concentrate development on that part of the Township and provide a good east/west collector that would basically be reconstruction of Locust Road).

The hearing was officially opened at 7:40 PM for the adoption of the update/amendment to the East Allen Township Comprehensive Plan. J. Piperato marked into evidence a number of documents. Listed below:

Exhibit #1 Public Notice for Hearing

Exhibit #2 contains various subparts

2A Notice dated February 11, 2016 to John J. Finnigan Jr., Township Manager Hanover Township Northampton County

2B Notice dated February 11, 2016 to Charles Everett Jr., Executive Director LVIA

2C Notice dated February 11, 2016 to Timm A. Tenges, Township Manager Lower Nazareth Township

2D Notice dated February 11, 2016 to Becky A. Bradley, Executive Director LVPC

2E Notice dated February 11, 2016 to Joseph Kovalchik, Superintendent Northampton Area School District.

2F Notice dated February 11, 2016 to David Tashner, Sr., Chairman of the Board of Supervisors Moore Township

2G Notice dated February 11, 2016 to Ilene Eckhart, Township Manager Allen Township

2H Notice dated February 11, 2016 to Bradford T. Flynn, Borough Manager Borough of Bath

2I Notice dated February 11, 2016 to E.J. Mentry, Township Manager Upper Nazareth Township

2J Notice dated February 11, 2016 to Sandra Pudliner, Township Manager Hanover Township Lehigh County

Exhibit #3 April 1, 2016 response from LVPC signed by Eric McAfee

Exhibit #4 March 8, 2016 response from Allen Township Board of Supervisors

Exhibit #5 April 14, 2016 response from Lehigh Valley Airport Authority signed by Charles Everett Jr.
Exhibit #6 March 10, 2016 response from Hanover Township Northampton County Planning Commission signed by Kenneth T. Vale
Exhibit #7 April 27, 2015 recommendation from the East Allen Township Planning Commission

At this time J. Piperato asked for comments from the public concerning the Comprehensive Plan. Bruce Anderson from the Piddcock Company and Adam Jaindl from the Jaindl Land Company were sworn in and testified. They had a comment about the southern part of the Township and whether consideration could be given to grant a slight variation in the Plan. They reviewed the Plan and found that south of Locust Road the proposed residential developments going from A/RR to SR and PR makes a lot of sense given the proximity of the residential developments in East Allen and Hanover Township to continue those zoning districts further north in East Allen. When you cross Locust Road we note that the east and west sides the districts are non-residential. Generally PC2 and an area of commercial on the east side. We hope that the Township would consider amending the Comprehensive Plan or the zoning to allow the consideration of LI/BP district north of Locust Road. That will allow for a very clear definition for Locust Road which would need to be improved in and of itself and the connections to Airport Road and Route 512 with an east/west collector road. This would provide a clear definition of the boundary of residential and non-residential. We are requesting an extension of the PC district south of the mini golf to Locust so that the frontage of Airport Road be PC2 and consideration for LI/BP all the way up to the commercial and PC2 districts that are already existing along the frontage of 512. That would make a compact logical que of non-residential zoning. The road and water/sewer improvements make a lot of sense in their minds for the Township's development plan. This is not in the current Comprehensive Plan. Hearing Mr. Birdsall's summary of how traffic flow is directed to the major arteries north/south arteries and the need to provide an east/west collector road is inherent in this plan. The Toll Brothers project that is in process has the start of that collector road at its intersection opposite Steuben Road near the Amore's farm stand. They hope the Township will consider that in their deliberations.

R. Unangst stated that at whatever point in the future you might be interested in changing that zoning, zoning could be change at that point providing the Board thinks it's a good idea.

J. Birdsall then stated that the agency comments have been looked over and although we believe there are some reasonable comments in there we would not recommend a change a substantial change to the Plan based on any of those comments. The conclusion J. Birdsall reached after reviewing the agency comments you would be clear to approve the Plan as is without any changes.

D. Seiple stated that Allen Township has not updated their Comprehensive Plan in a long time but has made changes to it through amendments. She asked J. Birdsall if East Allen wanted to make changes to the Plan what would be the process. J. Birdsall stated he is not familiar with Allen Township's Plan but what the Board could do is adopt the Plan this evening and if there were any changes the Board might want to make in the future, the Board could start that process for the limited extent of that particular issue. The process would then go to the Planning Commission for consideration and developing language and would go through the public hearing public agency comment again. The official hearing on the Comprehensive Plan was closed at 7:55 PM.

Motion was made by M. Schwartz to adopt the update to Comprehensive Plan for East Allen Township prepared by Hanover Engineering Associates, Inc. last revised February 1, 2016. Seconded by C. Colitas. VOTE: P. Moser, yes; M. Kemp, yes; M. Schwartz, yes; C. Colitas, yes and R. Unangst, yes. ALL IN FAVOR. MOTION CARRIED.

PUBLIC COMMENT

There was no public comment.

MINUTES FOR APPROVAL

MOTION made by M. Schwartz to approve the April 28, 2016 Board of Supervisors Minutes. Seconded by P. Moser. VOTE: P. Moser, yes; M. Kemp, yes; M. Schwartz, yes; C. Colitas, yes and R. Unangst, yes. ALL IN FAVOR. MOTION CARRIED.

ENGINEER REPORT

J. Milot stated that a copy of the monthly Engineer's Report was distributed to the Board. St. Luke's Office Medical Building has not requested a final inspection. He would like to contact them to let them know that they will need to request an extension.

With regard to Truck Road Prohibition which we have been coordinating with Allen Township J. Milot stated that the Board had authorized G. Mathesz and himself to discuss if there was a need for additional roadways. When they reviewed it some of the roadways are already covered by our current ordinance. North and South Halbea were looked at and possibly do a study in the future but he feels it is not necessary at this time. There have been multiple requests from neighboring Townships for Steuben Road. J. Milot said in his opinion this warrants being looked at. R. Unangst would like North & South Halbea looked at along with contacting Hanover Township for their section of Hanover Street.

MOTION made by M. Schwartz to include Steuben Road, North and South Halbea Streets in the study and to contact Hanover Township about Hanover Street. Seconded by M. Kemp. VOTE: P. Moser, yes; M. Kemp, yes; M. Schwartz, yes; C. Colitas, yes and R. Unangst, yes. ALL IN FAVOR. MOTION CARRIED.

J. Milot stated there is interest along 512 to have connections and sewer service for the properties that are currently having problems or anticipate having problems like the Jacksonville site also along the McCarthy Tire site and the Phillips Outlet which has now put in applications for extending public sewer. The Planning Commission based upon seeing this has thought that it might be prudent for the Township to take a look at the whole area in general and see who else might be of that need. In an effort not to hold up those who have made proper application and have been diligent in submitting their module information he was hopeful the Board could possibly authorize and pass a resolution for the Route 512 Associates application which includes the McCarthy Tire site that has the new dog grooming site as well as the other building on there. They have already been through and if you recall is a part of the future service area indicated when the Arcadia Land Development went through they didn't actually finalize their sewage module planning for the westerly side of 512. It was anticipated by the Bath Borough agreement to be part of the service area. J. Milot stated what we are looking to do is finalize and update our sewer service area and our planning module to reflect that additional area for those two sites. He is asking for the Board to authorize and pass the resolution for plan revision for that development and then moving forward we will be able to coordinate and see if the Board would like to proceed with looking at that entire area. R. Wedde stated the resolution J. Milot is referring to is Resolution 2016-04. R. Unangst stated there are business and property owners along both sides of 512 asking for sewer and he would like to know that happens to residents in that area who do not want to connect to sewer. It was stated that they do not have to connect. This resolution only allows the McCarthy Tire site to connect it does state others are not obligated to connect.

MOTION made by M. Schwartz to adopt Resolution 2016-04 Route 512 Associates, LLC Act 537 Plan Revision. Seconded by C. Colitas. VOTE: P. Moser, yes; M. Kemp, yes; M. Schwartz, yes; C. Colitas, yes and R. Unangst, yes. ALL IN FAVOR. MOTION CARRIED.

J. Milot stated they were successful in obtaining grant money for Frank's Corner intersection. The intersection was included in the traffic impact study for the development that is occurring along 329 in Allen Township. D. Seiple, G. Mathesz and J. Milot met with the traffic consultant for new development in Allen Township and PennDOT concerning that. J. Milot would like the Township's permission to reach out to the developer to work a joint effort to the improvement of Frank's Corner intersection and look at the left turn lane heading west on 329 and a right turn lane heading east on 329. This would help getting traffic through there in the morning. R. Unangst suggested that Allen Township send trucks out Savage Rd to Willowbrook Road. A discussion ensued. Consensus of the Board was to continue meeting with PennDOT and the developer about the 329 & Airport Road intersection.

SOLICITOR REPORT

Amendment to Ag Area – Schwartz/Kemp – Resolution #2016-01

MOTION made R. Unangst by to adopt Resolution 2016-01 to amend the Agricultural Security Area to include 49.83 acres, Tax Parcel K4-24-7M, owned by Madelyn Kemp and Donald Schwartz. Seconded by P. Moser. VOTE: P. Moser, yes; M. Kemp, abstain – co-owner of the property; M. Schwartz, abstain – father is co-owner of the property; C. Colitas, yes and R. Unangst, yes. THREE IN FAVOR. TWO ABSTAINED. MOTION CARRIED.

MANAGER REPORT

Written Policies – Discussion @ PSATS Conference

D. Seiple stated she attended PSATS Conference in April and sat in on a couple seminars and they mentioned in a number of them to have written policies. A number of them have been done in the past. D. Seiple stated she would like to get back to that. Some can be done as resolutions and if it's really strong it's an ordinance. They would be numbered just the way resolutions are. A discussion ensued regarding the differences between a policy, resolution and ordinance.

Complaint Form/Policy

A copy of the Bath Borough's Complaint Form/Policy was distributed to the Board.

Turf Conversion to Pollinator – Invite to "Pilot" Project – May 17th – 10 AM

Two employees (who have an applicator's license) attended the presentation. This is a three year process to get the look trying to achieve. Allen Township is going to try this.

Resolution #2016-03 Proper Destruction of Specific Records in Accordance with the Municipal Records Schedule

MOTION made by M. Kemp to adopt Resolution #2016-03 Proper Destruction of Specific Records in Accordance with the Municipal Records Schedule. Seconded by M. Schwartz. VOTE: P. Moser, yes; M. Kemp, yes; M. Schwartz, yes; C. Colitas, yes and R. Unangst, yes. ALL IN FAVOR. MOTION CARRIED.

Northampton County Comprehensive Annual Financial Report for 2015 – Will be available in electronic PDF on 6/30/16 – ltr dated 5/13/16

A letter dated May 13, 2016 was received from Northampton County stating that the Northampton County Comprehensive Annual Financial Report for 2015 will be available in electronic PDF on June 30, 2016.

Northampton Regional EMS – 2015 Report

A copy of the Northampton Regional EMS 2015 Report is on file in the Township Office.

Lehigh Valley Hazard Mitigation Plan Update – ltr dated 5/26/16

This needs to be done every five years and is due to be updated in 2017. A letter needs to be sent if the Township would like to participate in the update. The consensus of the Board is that the Township would like to participate. MOTION made by M. Schwartz to send the appropriate letter to the Director of Emergency Management, Northampton County for East Allen Township to participate in the update. Seconded by M. Kemp. VOTE: P. Moser, yes; M. Kemp, yes; M. Schwartz, yes; C. Colitas, yes and R. Unangst, yes. ALL IN FAVOR. MOTION CARRIED.

NCATO Mtg – 5/24/16 @ 2:30 PM

The NCATO meeting was held on May 24, 2016. D. Seiple and R. Wedde were unable to attend.

TREASURER

Real Estate Refund Requests – E. Bushner

Frank Kostecky, Tax Collector, submitted a request for a Real Estate Tax Refund for Edward & Dorothy Bushner. MOTION made by M. Schwartz to approve the Real Estate Tax Refund Request for Edward & Dorothy Bushner in the amount of \$236.94. Seconded by M. Kemp. VOTE: P. Moser, yes; M. Kemp, yes; C. Colitas, yes; M. Schwartz, yes and R. Unangst, yes. ALL IN FAVOR. MOTION CARRIED.

Monthly Financial Report

Payment of Bills

R. Wedde stated the Total Receipts for May were \$717,956.48 and the Total Expenditures for May were \$111,984.22. MOTION made by M. Schwartz to accept the Treasurer's Report and pay the bills in the amount of \$111,984.22. Seconded by P. Moser. VOTE: P. Moser, yes; M. Kemp, yes; C. Colitas, yes; M. Schwartz, yes and R. Unangst, yes. ALL IN FAVOR. MOTION CARRIED.

Attended LVCPC Mtg on 5/17/16 – Presentation on Prevailing Wage

R. Wedde attended the LVCPC meeting on May 17, 2016. There was a presentation from PA Dept. of L & I on Prevailing Wage. The prevailing wage applies to projects \$25,000.00 or more.

PARKS & RECREATION

Report

A copy of the report was distributed to the Board.

Next meeting in October.

D. Seiple stated that the counselors will be coming to the June 8th meeting for recommendation to hire.

PUBLIC WORKS

Report – May

A copy of the report was distributed to the Board.

EATVFD/ EMA / EATVAC

Fire Report

A copy of the report was distributed to the Board.

Ambulance Report

A copy of the report was distributed to the Board.

M. Morrow gave an update on the new building. The Board would like to sit down with the Ambulance Corp and be more informed with what is going on. The Ambulance Corp will come to a future Workshop meeting to have a discussion with the Board. This will be placed on the July Workshop agenda.

PLANNING COMMISSION

Minutes – 4/7/16

A copy of the April 7, 2016 Planning Commission minutes was distributed to the Board.

ZONING

A copy of the Service Request Report, UCC Report and Monthly Permit Report were distributed to the Board.

FRCA

Agenda – 5/17/16

A copy was distributed to the Board.

Minutes – 3/15/16

A copy was distributed to the Board.

Operations Report

A copy was distributed to the Board.

Financials & Tracking Reports

A copy of the Financial and Tracking Reports were distributed to the Board.

R. Unangst stated that at the FRCA meeting it was stated that they have proof our residents are passing around their permits to be used by other people. R. Unangst also stated that there is a lot of junk showing up in the brush. A discussion ensued.

NAZCOG

Next Mtg. – 5/24/16 @ 7 PM

The meeting was on Joint Comprehensive Plan. R. Unangst did not attend.

GENERAL BUSINESS

Hotline

P. Moser would like a complaint line. The phone system in the Township Office is at capacity for phone lines and extensions. R. Unangst stated he thinks all five supervisors' home telephone numbers should be listed on the Township website. Anyone who has a complaint can contact a supervisor. Discussion ensued.

P. Moser asked on the UCC report why CodeMaster does not list how many times Codemaster fails an inspection. R. Wedde stated that the report gives the monthly activity. If you want to see how or why they fail you would have to view the permit file. M. Schwartz asked to see if CodeMaster could add a column to their report to show how many times an inspection fails. It was decided CodeMaster should be asked to come to a Workshop meeting to explain how their system works.

PUBLIC COMMENT

Matt Morrow thanked the Parks Department for the care of the Eagle Scout Project area.

ADJOURNMENT

MOTION made by M. Schwartz to adjourn the meeting at 9:27 PM. Seconded by M. Kemp. ALL IN FAVOR. MOTION CARRIED.

Respectfully Submitted,
Lori Venegas
Rose Wedde
Recording Secretaries