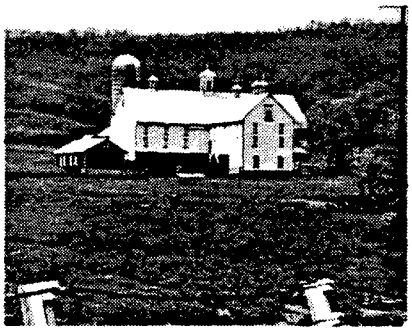
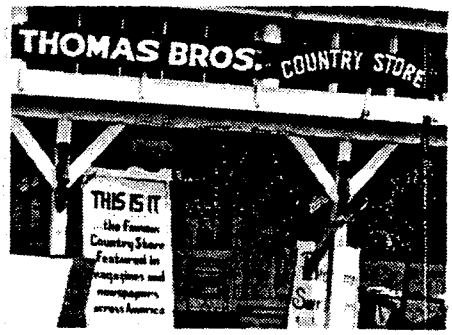
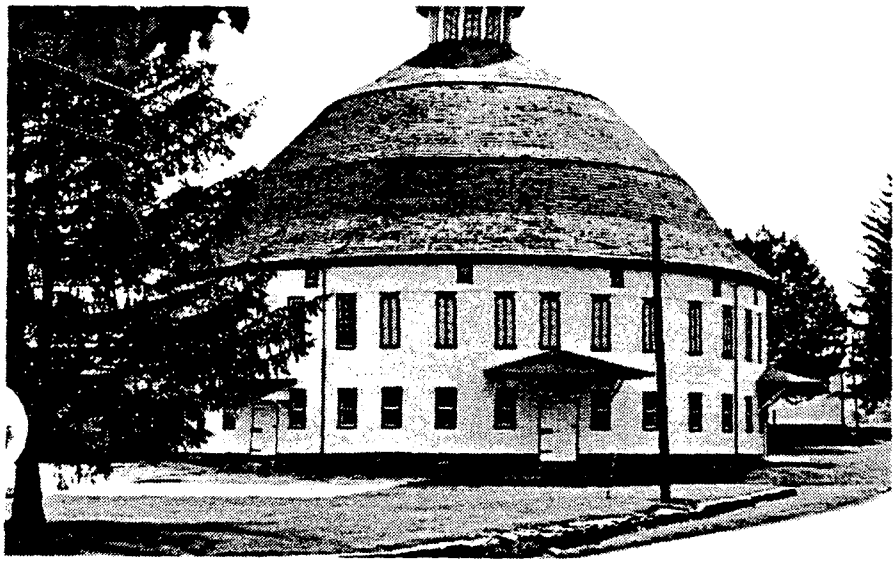
Chapter 2:

Existing Conditions

Adams County Comprehensive Plan







CHAPTER 2: EXISTING CONDITIONS

SECTION 1: INTRODUCTION

The purpose of this chapter is to analyze existing conditions in Adams County. In particular, this chapter seeks to develop a clear understanding of the county's physical, demographic, social, and economic conditions, based on current circumstances and historical development. This analysis is intended to enable the County, local governments, and county residents to identify potential problems, to determine future needs, and to develop necessary policies and strategies to respond more effectively to future growth.

The material in Chapter Two is based on a series of background studies produced during the planning process. The chapter consists of nine sections in addition to this introduction: Existing Land Use; Pattern of Change; Natural Resources; Historic and Landscape Resources; Agricultural Resources; Population, Housing, and Employment; Circulation; Community Facilities; and Infrastructure and Environmental Systems.

The Land Use section provides a description of existing land use patterns and their implications for future development. The Pattern of Change section provides an analysis of recent development activity in the county. The Natural Resources section provides a summary of environmental factors which are capable of affecting the location and intensity of future development. Historic and Landscape Resources documents the cultural environment into which new development will be inserted. Agricultural Resources examines both the characteristics of Adams County farmland and the economy based upon it. The Population, Housing, and Employment section reviews selected socio-economic characteristics of county residents, employers and employees, and housing development. Included are population, housing, and employment projections. The Circulation section assesses existing conditions regarding traffic and circulation, while the Community Facilities section analyzes all public services and facilities serving Adams County. The Infrastructure and Environmental Systems section looks at the provision for water and sewer services, solid waste disposal, and public utilities.

SECTION 2: EXISTING LAND USE

Using information from the 1980 land use survey of the county by the Adams County Office of Planning and Development, recent aerial photography, relevant planning documents, and focused field reconnaissance, a generalized full-color map of current land use in the county has been constructed (Figure 2.2.1). The inventory included major categories of non-urban uses (woodlands, orchards, and open land) as well as the traditional full range of urban land uses.

The purpose of the land use survey is to assess the pattern and intensity of utilization of land in Adams County. Based on this assessment, it is possible to evaluate the compatibility of existing uses, the extent of land consumption, and to predict the direction that future development may be expected to take in light of existing conditions. The survey also makes apparent the remaining amount and location of land available for future development. Finally, through a comparison with the 1969 land use survey, an identification of changes in land use since the first Adams County Comprehensive Plan was completed may be made.

The basic configuration of land uses in Adams County has its roots in the original settlement patterns, with agriculture still the predominant land use activity. Gettysburg, strategically located at the junction of several early routes through the region, became the county center of commercial activity. A steadily evolving road network gradually made most of Adams County accessible, with smaller settlements such as Biglerville and New Oxford developing at significant road crossings. The rugged terrain in the western and northwestern parts of the county served to discourage development there and, despite the creation of a mat-like road grid covering most of the county, access to some mountainous areas remains limited.

The twentieth-century arrival of the automobile and improved roads began to permit non-farm jobholders to locate residences some distance away from employment centers, and after World War II the rural areas began to challenge urban centers as locations of choice for residential development. At the same time, the traditional urban cores began to be rivaled as business and service centers by commercial development at the edges of towns. These trends led to strip residential development along rural roads and strip commercial activity along major highways.

Most areas of Adams County are nonurbanized, consisting of lands under cultivation, open fields, orchards, woodlands, surface water bodies, and wetlands. Agricultural land interspersed with small wooded areas prevails over much of the county. Orchards are widespread in the foothills north of Fairfield and extensive woodlands cover the mountains. Surface waters and wetlands are mainly confined to stream valleys.

Urban land uses are concentrated in the boroughs and along major roads. Residential uses predominate, comprising the major land use in the boroughs and villages as well as along roadways. Within the boroughs a mix of housing types and densities exists, including single-

family detached dwellings, semi-detached (twin) homes, duplexes, rowhouses and some apartment buildings. Boroughs tend to exhibit a mixed-use character at their hubs, with close intermingling of residential, shopping, and employment facilities. Outside the incorporated places, dwelling units are almost exclusively of the single-family detached type, either conventional or mobile home units. Development densities are low in the outlying areas, with the exception of occasional subdivisions and mobile home parks.

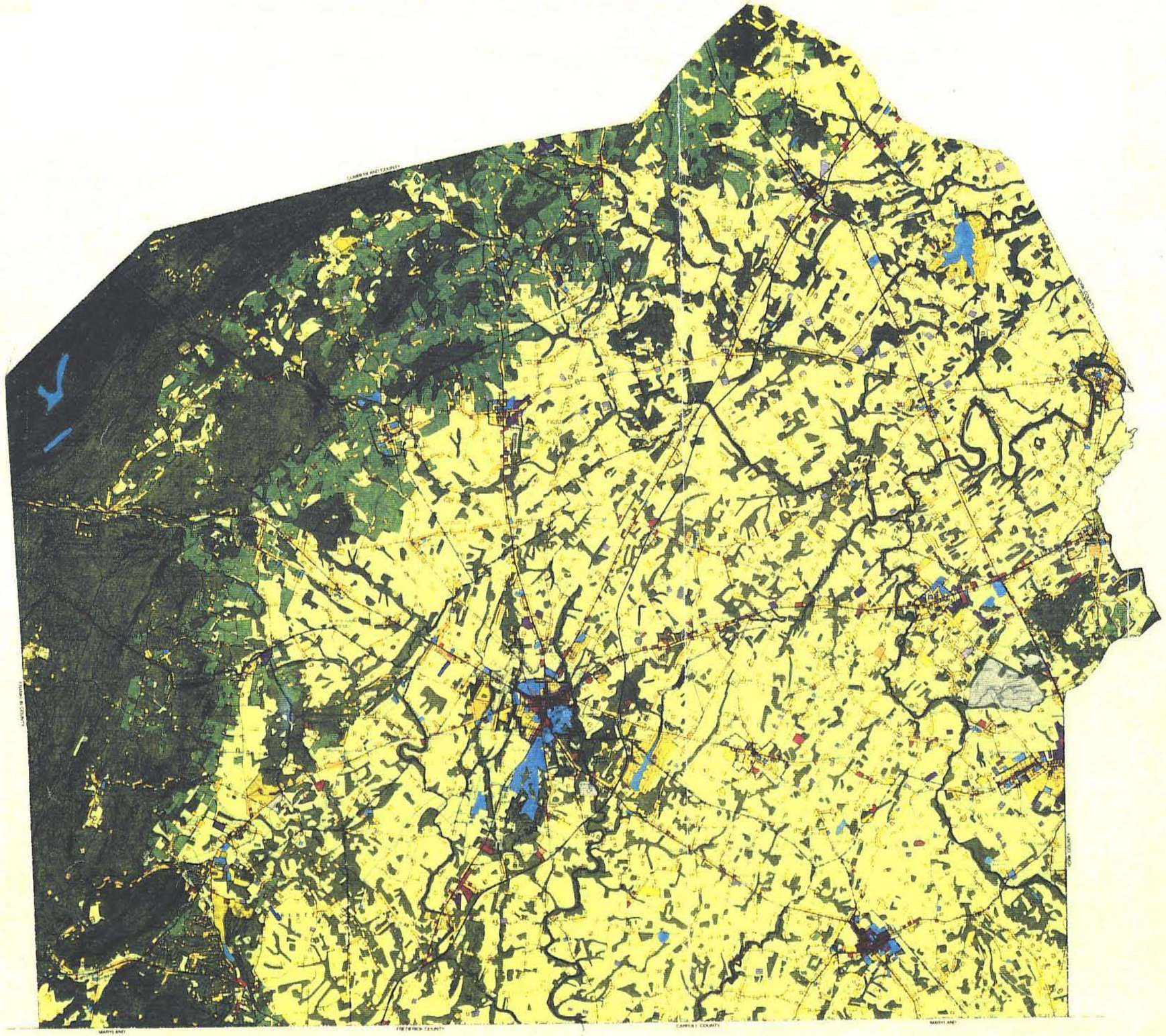
Recently, large-scale (100 units or more) residential developments have emerged on the landscape. These are especially evident in eastern Adams County, bordering McSherrystown and New Oxford.

The second-home ventures of the 1960s and 1970s (Lake Heritage, Lake Meade, and Charnita) have made a significant impact on the landscape of Adams County. Apart from their flooding of stream valleys to create artificial lakes (in the case of Lake Heritage and Lake Meade), these developments have also evolved into relatively dense agglomerations of housing units, now mostly occupied as year-round permanent residences.

Commercial activity predominates at the cores of the major incorporated places, alongside major highways which serve these boroughs, and frequently between built-up areas on US Route 30 and on PA Route 34 north of Gettysburg.

Industrial land uses are generally close to the urban places, but more remote locations are also found. Planned business parks and large industrial districts are rare - except for a small industrial park at Cross Keys and development in Conewago Township's zoned districts, major manufacturing establishments tend to be dispersed. Government and institutional uses exhibit a similar pattern, with a concentration of these uses in Gettysburg. Individual school and church sites are scattered throughout the county.

Expansion of the broiler industry over the last two decades has spawned growth in poultry-related structures on Adams County farmsteads, particularly in the eastern half of the county. Food processing plants are significant uses in and near the orchards area.



EXISTING LAND USE

- Residential
- Mobile Home Parks
- Commercial
- Institutional
- Industrial
- Agricultural – Industrial
- Utilities
- Quarries
- Recreation
- Orchards
- Woods
- Agriculture & Vacant
- Urban Core Mixed Uses
- Airports
- Open Water

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE

1 Square Mile

NORTH

NDA Norman Day Associates

- Orth-Rodgers & Associates
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SECTION 3: PATTERN OF CHANGE

The record of subdivision and land development reviews by the Adams County Office of Planning and Development, along with Census data on housing units, county residential building permit data, and field reconnaissance have provided information on recent development in Adams County.

Since 1980, the Office of Planning and Development has reviewed and the County has recorded plans for subdivisions of five-or-more units totalling 3200 housing units, of which 2800 (87 percent) were single-family detached units (Table 2.3.1). This contrasts with the 1980-1990 residential building permit data (Table 2.3.2), that show permits issued for 5,863 new units over a similar period, of which 4,258 (73 percent) were for single-family detached units.

A discrepancy between these two sets of data concerns the much larger number of building permits issued for new units when compared to total number of housing units reviewed and recorded by the County, and the much higher percentage of single-family detached units reviewed and recorded when compared to the percentage of permits issued for that housing type.

Two phenomena appear to be at work here. The first is the large number of lots approved for subdivision during the late 1960s and through the 1970s but not built upon during those decades. Prominent among the developments with large numbers of approved-but-unbuilt lots by 1980 were Charnita-Carroll Valley (4000-or-so lots), Lake Heritage (about 1000 lots), and Lake Meade (nearly 1500 lots). During the 1980s, the Office of Planning and Development apparently reviewed and the County apparently recorded no significant new residential developments in Carroll Valley (Table 2.3.1), but municipal building permits for over 350 new residential units were issued over the decade and, according to U.S. Census figures, 225 housing units were added to the borough over the period (Table 2.3.3).

Many building permits were issued in the 1980s, then, for lots probably approved for subdivision in the 1960s and 1970s and, overall, fewer units to be created by subdivision and land development were reviewed and recorded in the 1980s than were built during the decade.

A second phenomenon may be the tendency for developers nominally pursuing single-family detached housing, as opposed to other forms of housing, to seek subdivision approval when unit construction is not imminent, or when a specialized form of single-family detached unit, the free-standing mobile home unit, is actually contemplated. Single-family detached housing comprises 87 percent of the total units in recorded subdivision plans of five-or-more units approved during the 1980s, but only 73 percent of all building permits issued for new construction were for single-family detached housing. By way of contrast, single-family attached housing units involve six percent of the total units in recorded subdivision plans of

five-or-more units approved during the decade, and six percent of all building permits issued for new construction (Table 2.3.1 and Table 2.3.2). Perhaps significantly, the total number of building permits issued for mobile home units, when combined with the total number of building permits issued for single-family detached homes, comprise a share of the building permits issued for all new housing units that approximates the 87 percent of total units recorded by the County that were nominally for single-family detached units.

Both the County-recorded (Table 2.3.1) and U.S. Census (Table 2.3.3) data generally support the trends observed in the analysis of population growth in Section 7 of this chapter. Municipalities with the highest number of new housing units recorded by the County, such as Conewago, Cumberland, Oxford, and Reading, were the leading townships in terms of total number of persons added during the decade (Table 2.7.1 and Figure 2.7.2). The highest percent changes in total housing units from 1980 to 1990 were achieved by Oxford, Latimore, Conewago, and Reading Townships, and Carroll Valley Borough (Table 2.3.3), replicating the trends exhibited in percent population change (Table 2.7.2 and Figures 2.7.3 and 2.7.5) over the same period.

The growth-area shift observed in Section 2 of this chapter and in the analysis of population trends (Section 7) from the Gettysburg area in the 1970s to eastern and northeastern areas of the county in the 1980s is supported by municipal housing unit growth rates, which show a decline in housing unit growth rates for Cumberland Township (from 51 percent in the 1970s to 23 percent in the 1980s), Straban Township (38 to 19 percent), Mount Joy Township (54 to 20 percent), and Mount Pleasant Township (104 to 26 percent) from one decade to the next (Table 2.3.3). Total housing units in those four townships combined rose by 1,854 between 1970 and 1980, but by only 1,139 units from 1980 to 1990. In contrast, Conewago and Oxford Townships alone combined for a net gain of 1,033 housing units over the most recent decade (Table 2.3.3 and Figure 2.3.1).

The Development, 1980-1990 map (Figure 2.3.1) shows that while the largest-sized residential developments were occurring in the eastern portions of the county, around Gettysburg, and at Lake Meade and Carroll Valley, the distribution of small-sized developments was widely dispersed, reflecting relatively low land prices, good accessibility, and few land-use constraints across much of the county. The effects of this development are outlined further in Section 5, Historic and Landscape Resources, Section 6, Agricultural Resources, and Section 8, Circulation, in this chapter.

Commercial development in the 1980s was focused on US Route 30 between Gettysburg and US Route 15, and off US Route 15 at Shriver's Corners. Although already established as a commercial strip by 1980, activity on US Route 30 east of Gettysburg became intensified during the decade. This major commercial strip has produced heightened concerns locally with respect to its aesthetic qualities generally, and its role as a gateway to historic Gettysburg in particular.

Industrial development was limited over the period under study, and confined largely to the

county-line area alongside Hanover.

The inventory and mapping of Pending and Proposed Development (Table 2.3.4 and Figure 2.3.2) reveals that trends of the late 1970s and 1980s appear to be continuing. While most of the county is highly-accessible, the central-east and eastern portions have the best accessibility (Figure 2.3.3) and are continuing to attract the larger residential developments. Other factors, such as influences beyond the county borders (see Chapter 1), and questions of water and sewer availability (see Section 10 of this chapter) also continue to affect the pattern of change in Adams County.

Table 2.3.1

Units and Lots in Recorded Subdivision Plans of 5-or-more Lots, by Municipality, 1980-90

	Units					Lots	
Boroughs	**SFD**	**Duplex**	**SFA**	**MF**	**MHP**	**Comm.**	**Ind.**
Abbottstown							
Arendtsville	46						
Bendersville							
Biglerville	8						
Bonneauville	7						
Carroll Valley							
East Berlin							
Fairfield	8						
Gettysburg	31					5	
Littlestown	42	54		44			
McSherrystown	35	36					
New Oxford	5		6	10			
York Springs	5		18	6			
Boroughs Totals	187	90	24	60		5	
Townships							
Berwick	45						
Butler	93				56		
Conewago	579	18	54			5	19
Cumberland	201		20	70	5		
Franklin	89				14		
Freedom	45						
Germany	70						
Hamilton	69						
Hamiltonban	40						
Highland	10						
Huntington	113						
Latimore	146					1	
Liberty	43						
Menallen	103						
Mount Joy	25						
Mount Pleasant	64						
Oxford	328						
Reading	175				19	2	
Straban	85					7	
Tyrone	120						
Union	170						
Townships Totals	2,613	18	74	70	94	15	19
County Totals	2,800	108	98	130	94	20	19

Legend: SFD - Single-Family Detached
SFA - Single-Family Attached
MF - Multi-Family
MHP - Mobile Home Park
Comm- Commercial
Ind. - Industrial

Table 2.3.2

Housing Inventory and Building Permits Issued by Structure Type, 1970-1990

	Housing Unit Inventory				Housing Permits			
	April 1970		April 1980		1980-1985	1986-1990[a]	1980-1990	
	Number	Percent	Number	Percent	Number	Number	Number	Percent
Single family detached houses	14,083+	75.8+	17,770	72.5	1,566	2,692	4,258	72.6
Single family attached houses			925	3.8	67	239	306	5.2
Two family buildings			1,893	7.7	20	36	56	1.0
Three and four family buildings	3,226+	17.4+	938	3.8	91	102	193	3.3
Five or more family buildings			1,219	5.0	69	169	238	4.1
Mobile homes	830+	4.5+	1,750	7.1	349	463	812	13.8
Totals	18,571[b]	100.0	24,495	100.0	2,162	3,701	5,863	100.0

Sources: Adams County Office of Planning and Development, Residential Building Permit Data. U.S. Bureau of the Census, Decennial Censuses of Population.

[a]The 1990 data cover the January-July period only.
[b]This total includes 432 seasonal housing units of unknown structural type. Most seasonal units occur in single family detached structures.

Table 2.3.3

Housing Totals and Percent Change in Adams County Municipalities, 1970-1990

	Number of Housing Units			Percent Change	
	1970	1980	1990	1970-1980	1980-19[illegible]
Adams County	18,571	24,495	30,141	31.9	23.0
Boroughs					
Abbottstown	182	215	230	18.1	7.0
Arendtsville	216	233	305	7.9	30.9
Bendersville	194	219	221	12.9	0.9
Biglerville	346	432	420	24.9	(-) 2.8
Bonneauville	207	320	447	54.6	39.7
Carroll Valley	-[a]	417	642	-	54.0
East Berlin	383	430	487	12.3	13.3
Fairfield	191	234	226	22.5	(-) 3.4
Gettysburg	2,392	2,633	2,812	10.1	6.8
Littlestown	1,094	1,211	1,265	10.7	4.5
McSherrystown	770	981	1,136	27.4	15.8
New Oxford	473	639	662	35.1	3.6
York Springs	165	200	219	21.2	9.5
Borough Totals	*6,613*	*8,164*	*9,072*	*23.5*	*11.1*
Townships					
Berwick	391	519	668	32.7	28.7
Butler	557	755	918	35.5	21.6
Conewago	969	1,085	1,657	12.0	52.7
Cumberland	1,093	1,652	2,034	51.1	23.1
Franklin	1,111	1,542	1,809	38.8	17.3
Freedom	214	251	276	17.3	10.0
Germany	376	527	681	40.2	29.2
Hamilton	357	546	632	52.9	15.6
Hamiltonban	611	668	756	9.3	13
Highland	210	260	301	23.8	15[illegible]
Huntington	455	538	727	18.2	35.[illegible]
Latimore	350	485	792	38.6	63.3
Liberty	461	267	338	(-) 42.1	26.6
Menallen	693	883	1,195	27.4	35.3
Mount Joy	563	869	1,039	54.4	19.6
Mount Pleasant	566	1,157	1,463	104.4	26.4
Oxford	468	683	1,144	45.9	67.5
Reading	648	1,010	1,495	55.9	48.0
Straban	1,048	1,446	1,727	38.0	19.4
Tyrone	384	525	617	36.7	17.5
Union	433	663	780	53.1	17.6
Township Totals	*11,958*	*16,331*	*21,049*	*36.6*	*28.9*

Source: U.S. Bureau of the Census, Decennial Censuses of Population.

Note: The estimated 1990 housing inventory for the Lake Heritage area is 502 units while the Lake Meade area has approximately 569 units. These areas had about 275 housing units each in 1980.

[a]Carroll Valley was not incorporated in 1970. The Adams County Office of Planning and Development estimates that there were 175 housing units in the area now encompassed by Carroll Valley.

Table 2.3.4

Adams County Pending and Proposed Development by Municipality, January,1991

	Units				Lots	
Boroughs	**SFD**	**SFA**	**MF***	**MHP**	**Comm.**	**Ind.**
Abbottstown	9	20				
Arendtsville	41					
Bendersville				89		
Biglerville						
Bonneauville	160					
Carroll Valley	335				1?	
East Berlin	10					
Fairfield	20					
Gettysburg						
Littlestown	321	161 -	80		10	
McSherrystown	70					
New Oxford	10	23	20			
York Springs	30		19			
Boroughs Totals	1,006	204	119	89	11?	
Townships						
Berwick	38					
Butler						
Conewago	510					
Cumberland	189	232				
Franklin	34	18	94			
Freedom						
Germany						
Hamilton	5			180		
Hamiltonban	20					
Highland						
Huntington	74					
Latimore		53				
Liberty	5					
Menallen	10					
Mount Joy	62	46			7	
Mount Pleasant	65			48		
Oxford	348	59			4	
Reading	119					
Straban	69				10	
Tyrone				238		
Union	379					
Townships Totals	1,927	408	94	466	21	
County Totals	2,933	612	213	555	32?	

Legend: SFD - Single-Family Detached
SFA - Single-Family Attached
MF* - Multi-Family, including nursing home units
MHP - Mobile Home Park
Comm- Commercial
Ind. - Industrial

Figure 2.3.1

DEVELOPMENT 1980–1990

ADAMS COUNTY
Pennsylvania

Comprehensive Plan Update

SCALE

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

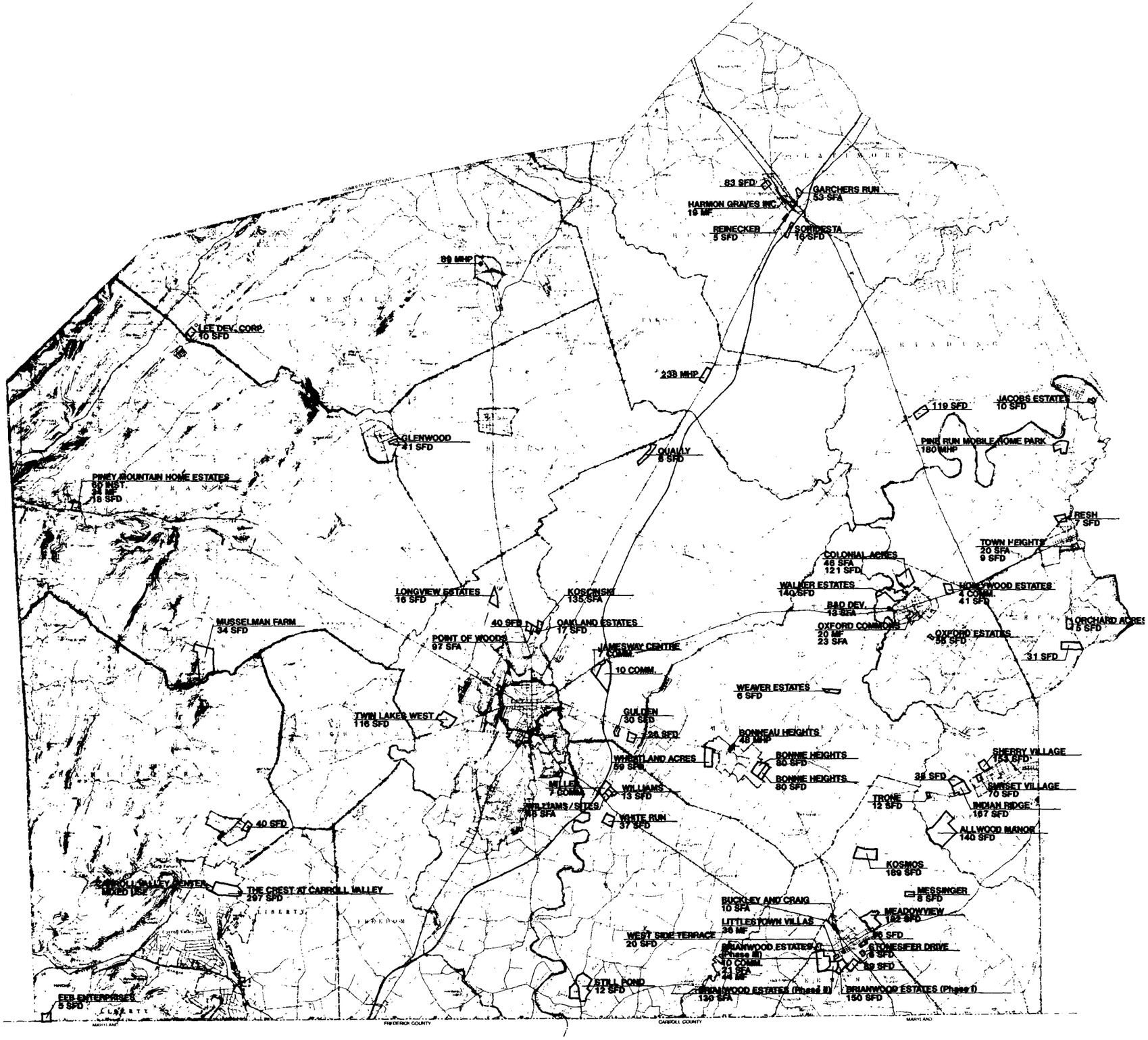
NDA
Norman Day Associates
Planning & Urban Design
1811 Walnut Street 2nd Floor
Philadelphia, PA 19103

- Orth-Rodgers & Associates
- Cougiln, Kearns & Associates
- John Milner Associates
- R.E. Wright Associates

Figure 2.3.2

PENDING & PROPOSED DEVELOPMENT

January 1991*



* Plans approved prior to January 1991 are not indicated on this map.

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

NDA
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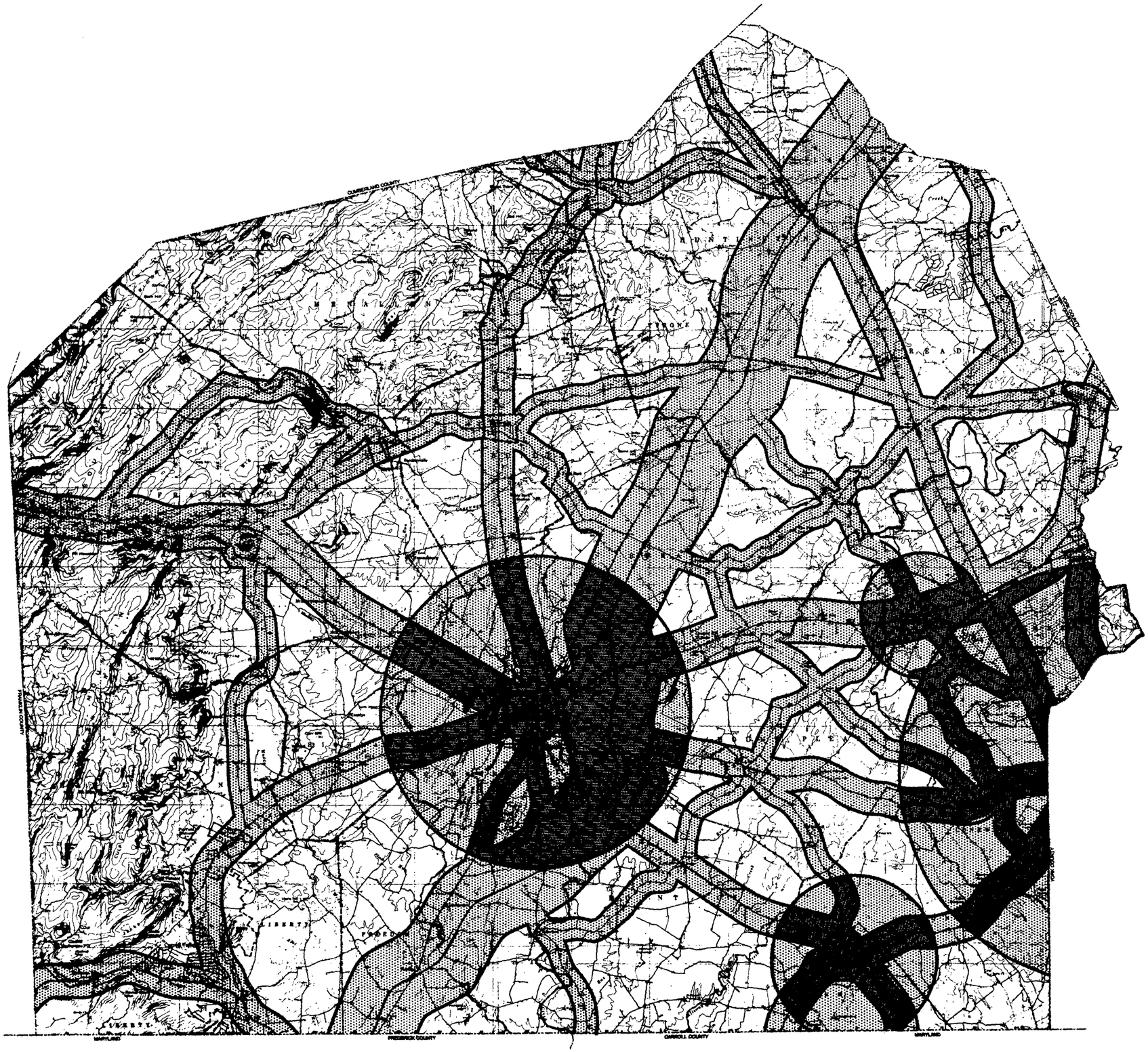
Figure 2.3.3



ACCESSIBILITY

- Close to Urban Core and Major Route
- Close to Urban Core or Major Route
- Less Accessible

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

Norman Day Associates
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- R.E. Wright Associates

SECTION 4: NATURAL RESOURCES

As part of the examination of existing conditions in Adams County, an inventory of various environmental factors was made. These factors are critical components in any consideration of future alternatives for growth and development.

Some of these factors may impose constraints on development, while others may suggest opportunities for development. It is possible for an environmental factor to represent both an opportunity and a constraint.

Inventory maps have been prepared which delineate these resources, including the following:

- Terrain
- Floodplains
- Wetlands
- Woodlands
- Prime Agricultural Land (see Section 6)

These interrelated, interpretive maps permit the identification of areas within the county requiring preservation, areas requiring conservation, and areas available for development.

Areas requiring preservation include streams, floodplains, public parklands and protected areas, and other lands generally undevelopable due to physical characteristics or statutory regulations. Areas in need of conservation would include fragile environmental areas such as wetlands and areas of steep slope or subject to erosion, woodlands, farmlands, historic sites, and scenic features. These represent areas to be protected or conserved due to their environmentally- and economically-sensitive nature and to the importance of these valuable resources to the county.

For areas not requiring special efforts towards preservation or conservation there remain factors which make lands more or less suitable for development, based on the availability of water and sewer service, soil capacity, existing roads, and other relevant factors.

A synthesis of these natural features was made and mapped, reflecting the relative suitability for future development of all undeveloped portions of Adams County.

Terrain (Figure 2.4.1)

Most of the county is rolling lowland underlain by non-resistant shales and sandstones. The western part of the county rises to an elevation of 1,800 to 2,200 feet above sea level in the South Mountain area, or 1,300 to 1,600 feet above the lowlands. The lowlands are a plain dissected by numerous streams. These lowlands form a part of the Piedmont physiographic province referred to as the Gettysburg Plain. On the eastern edge of the county, a part of the Pigeon Hills rise above the lowland to an elevation of 1,021 feet above sea level. Bench mark elevations at Gettysburg are approximately 526 feet above sea level while at Littlestown and McSherrystown, bench mark elevations are 635.0 and 571.0 feet above sea level respectively.

Hydrology (Figure 2.4.2)

Adams County is located in two major watersheds tributary to Chesapeake Bay. The northeastern half of the county drains to the Susquehanna River and the southwestern half drains to the Potomac River. The drainage divide extends from the western tip of Menallen Township generally south and then east across Franklin and southern Butler Township, passing just south of Arendtsville. In Straban Township, the divide turns toward the southeast, crossing Mount Pleasant Township east of Bonneauville and Union Township east of Littlestown.

Conewago Creek, the largest stream in Adams County, drains nearly all of the land area within the Susquehanna River watershed. Two major tributaries are the South Branch of Conewago Creek and Bermudian Creek. Tributaries of the Monocacy River in Maryland drain most of the area within the Potomac River watershed, including Toms Creek, Middle Creek, Marsh Creek, Rock Creek, and several smaller streams.

These drainage patterns are significant in the analysis of stormwater runoff as well as in planning for sanitary and stormwater sewer extensions. Other hydrologic characteristics contribute strongly to delineating areas that are available for development and those that constrain development. Of major concern are flood prone zones adjacent to bodies of water and wetlands.

Development in floodplains is hazardous to life and property, not only on proposed development sites but in existing developed areas downstream which may be subjected to unexpected changes in stream channel location or in flood heights and velocities. The 100-Year Floodplain areas in Adams County have been identified by the Federal Emergency Management Agency (FEMA) under the National Flood Insurance Program. The most extensive floodplains occur in lowland areas, where stream gradients are less and the valleys are wider than in the mountains. Floodplains in the headwaters of the Conewago Creek are relatively narrow, but widen considerably in the course of the creek's meandering across the

county. Along the South Branch of Conewago Creek near McSherrystown, for example, the floodplain is of significant width.

Surface water area in the county is not extensive - the only lakes are the man-made Lake Meade and Lake Heritage - but the total area and widespread pattern of stream courses and their related floodplains are noteworthy. (Another man-made water body in the area is Chambersburg Reservoir in Franklin County.)

Wetlands are among our most valuable resource areas because they control flooding, improve water quality, and support a wide variety of animal and plant species. Wetlands are characterized generally by a high water table, poor drainage, and some degree of surface ponding during the year. The U.S. Fish and Wildlife Service has delineated wetlands in Adams County under the National Wetlands Inventory Project. These wetlands include surface water bodies, most floodplains, and other small areas.

Adams County is dotted with hundreds of farm ponds which, according to the National Wetland Inventory, qualify as wetlands.

Most hydric soils also qualify as wetlands. A hydric soil is one that in its undrained condition is flooded, ponded, or saturated long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation. According to the Adams County Soil Survey, the following soil series have major hydric components: Bowmansville, Croton, Dunning, Guthrie, Lamington, Melvin, Rohrersville, Watchung, Wehadkee, and Worsham. Hydric soils covered 49,457 acres (14.7 percent) of the county when the Soil Survey was published in 1967.

Mineral Resources

Pre-Cambrian metamorphosed basalt and rhyolite of unknown thickness form the center of South Mountain. Flanking them on the west, the basal Cambrian quartzites and sandstones, 2,000 or more feet thick, are responsible for the highest parts of the mountain. Overlying them is an unknown thickness of Tomstown dolomite in the northwest corner and possibly 1,000 feet of Conestoga limestone in the southeast corner. The rest of the county is underlain by Triassic rocks, chiefly red, 23,000 feet thick, consisting of shales, sandstones, conglomerates, fanglomerates, and metamorphosed shale, and intruded by diabase or trap rock.

The Triassic diabase has furnished building stone, crushed stone for concrete, and dressed stone (Gettysburg Granite). It is very abundant and both fine and coarse-grained. Baked shale adjoining the trap rock is used for road material. The triassic brown sandstones have been used extensively for buildings and for a few bridges. Residual clay from the limestone and some of the Triassic shales have been worked for brick and tile, especially the area southeast of New Oxford.

Limestone and dolomite are quarried extensively for flux and lime near Bittinger; the limestones in general are suitable for road material, concrete, and rough building stone. The high-grade lime produced is used for finishing wall plaster and in paper manufacture. Roofing granules are made in the southwest corner of the county from metalbasalt (greenstone).

Brown iron ore occurs at the contact of quartzites and overlying limestone in the northwest and southeast corners of the county and at the foot of the Pigeon Hills. Some of the large deposits of high-grade ore were mined extensively in the previous century. Although some workable deposits of brown iron ore may remain, they are believed to be so sporadic that they have little value at present. Magnetic iron ore occurs between diabase and limy conglomerate near Cashtown and Idaville in beds about two feet thick, and was mined for many years in the middle of the nineteenth century.

Quartz veins are more plentiful in the extreme northwestern part of the county than elsewhere and they have been quarried there for silica used in crockery and tile manufacture. Quartz was formerly quarried one mile north of Cashtown. The large veins near Wenksville, Idaville, and Gardners offer possibilities for production of abrasive material or silica, if the iron content is too high for use in crockery.

Sand and gravel occur in floodplains and on benches along many of the streams, especially those within and issuing from South Mountain. They are dug only for local use. Quartz sand derived from the weathering of Cambrian Quartzite in South Mountain, if in commercial quantity, might deserve attention.

Soils (Figure 2.4.3)

Soils information is a vital component of any natural resource evaluation because soil characteristics indicate the inherent suitability of an area for development, agriculture, or other land uses. The principal source of soils data for Adams County is the Soil Survey of Adams County, Pennsylvania (U.S. Soil Conservation Service, 1967).

Generalized soils mapping is available in the form of soil associations. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soil series.

Eleven soil associations representing 41 soil series occur in Adams County. The Edgemont-Highfield and Highfield-Myersville-Catoctin associations are dominated by ridges and are stony. The Arendtsville-Highfield association is gravelly, while the Penn-Readington-Croton associations are shaly. The Montalto-Mount Lucas-Watchung association is more rolling than the Penn-Lansdale-Abbottstown association and has soils that are less acidic. Moderately deep, gently sloping to moderately steep soils predominate in the Lehigh-Brecknock association.

The major soils in the Conestoga-Wiltshire-Lawrence association are much like the soils in the Athol-Wiltshire-Readington association, but farming is more intensive in the latter group. Finally, the Glenelg-Manor-Glenville association consists of shallow to moderately deep soils on gently sloping to moderately steep slopes.

The potentials and limitations of the various soil series and individual soils within these associations with respect to land development are presented in Section 10 of this chapter.

Woodlands (Figure 2.2.1)

Most of the forested area of Adams County is found in association with South Mountain. The original forest was partly evergreen, white and yellow pine, hemlock and fir, and partly hardwood oak, chestnut, and hickory. Most trees were cut between 1806 and 1890 for charcoal. The land has been burned over many times by forest fires and slowly restocked with new growth, chiefly common jack pine, other softwoods, and some hardwoods.

Since 1902 a large part of South Mountain has been made a State Forest. The Michaux State Forest is being artificially restocked with commercially-valuable trees. Fire guards watch from towers on Big Flat, Piney Mountain, and Staley Knob in Adams County.

Small areas of woodlands are found along the numerous streams and on farms in the lower elevations. The wooded hills in this part of the county have a growth of hardwood, chiefly oaks, interspersed with maple, birch, and dogwoods. Cedar and locust are grown for posts for farm fences.

Wildlife and Plants

Adams County has very few, if any, bear, but deer are abundant in the South Mountain. At times the deer constitute a nuisance to farms bordering the State Forest and to other protected areas, such as the National Military Park. Deer-related traffic accidents are common in the county. Other game include rabbits, squirrels, wild turkey, ruffed grouse, and woodcock. The State Game Commission has introduced the ring-necked pheasant.

The Fish Commission reports native fish in Adams County as bass, brook trout, catfish, sunfish, suckers, shiners, pike, perch, and eels. The principal streams - Little and Big Conewago Creek, Little and Big Marsh Creek, Toms Creek and Bermudian Creek - have been stocked by the Fish Commission with black bass, sunfish, catfish, pike, perch, and brook trout. Fishing is reported to be good both in the mountains and in the lowlands.

According to the United States Department of the Interior, Fish and Wildlife Service, except for occasional transient species, no federally-listed or -proposed threatened or endangered species are known to exist in the county. Several animal and plant species on state

threatened or endangered lists have been observed in the county at dates varying from the 1920s through 1990. More recent sightings have been mapped in an extremely general way by the Pennsylvania Natural Diversity Inventory (Figure 2.4.4).

Composite Constraints

The preceding natural resource information was combined and synthesized to illustrate the relative level of development constraints affecting various areas of Adams County (Figure 2.4.5). These features, including:

- Floodplains;
- Wetlands;
- Mountainous & Hilly Terrain;
- Woodlands;
- Prime Farmland (see Section 6 and Figure 2.6.1); and
- Orchards (see Section 6 and Figure 2.6.1);

represent environmentally-sensitive natural and scenic resources as well as potential constraints for future development.

Floodplains and wetlands are generally precluded from development due to the flood risk and the substantial and still-evolving regulatory framework that controls the degree and type of disturbance permitted in these areas. Floodplains and wetlands qualify as being Very Severe constraints for development.

Steeply-sloped areas pose Severe constraints for most development, while woodlands, prime farmland, and orchards represent Moderate constraints for development. The balance of the county has only Slight development limitations.

The composite pattern illustrates the prominent but controlled form of floodplains through most of the county, the dominance of the South Mountain terrain on the western and northwestern parts of the county, and the dense combinations of the series of features constituting moderate constraints for development in the foothill and orchard areas abutting the mountains. The rest of the county exhibits a very rough mosaic of moderately-constrained areas and areas with only slight constraints. This rather blotchy pattern reflects to a large degree the similar mottled effect of county lands designated as Prime Farmland by the United States Department of Agriculture (see also Figure 2.6.1).

Suitability for Development

Other features influencing relative suitability of land for development have been combined with the Composite Constraints information. Areas may be further constrained for

development on account of poor soil suitability for on-site septic tank systems (see Figure 2.10.3), or the presence of such man-made factors as historic resources (see Figure 2.5.4) or property designations under the Pennsylvania Agricultural Security Law (see Figure 2.6.3). Areas may be considered more suitable for development in consideration of their relative advantages in accessibility (see Figure 2.3.3), and locational proximity to central sewage treatment facilities and central water service systems (see Figure 2.10.2 and Figure 2.10.3).

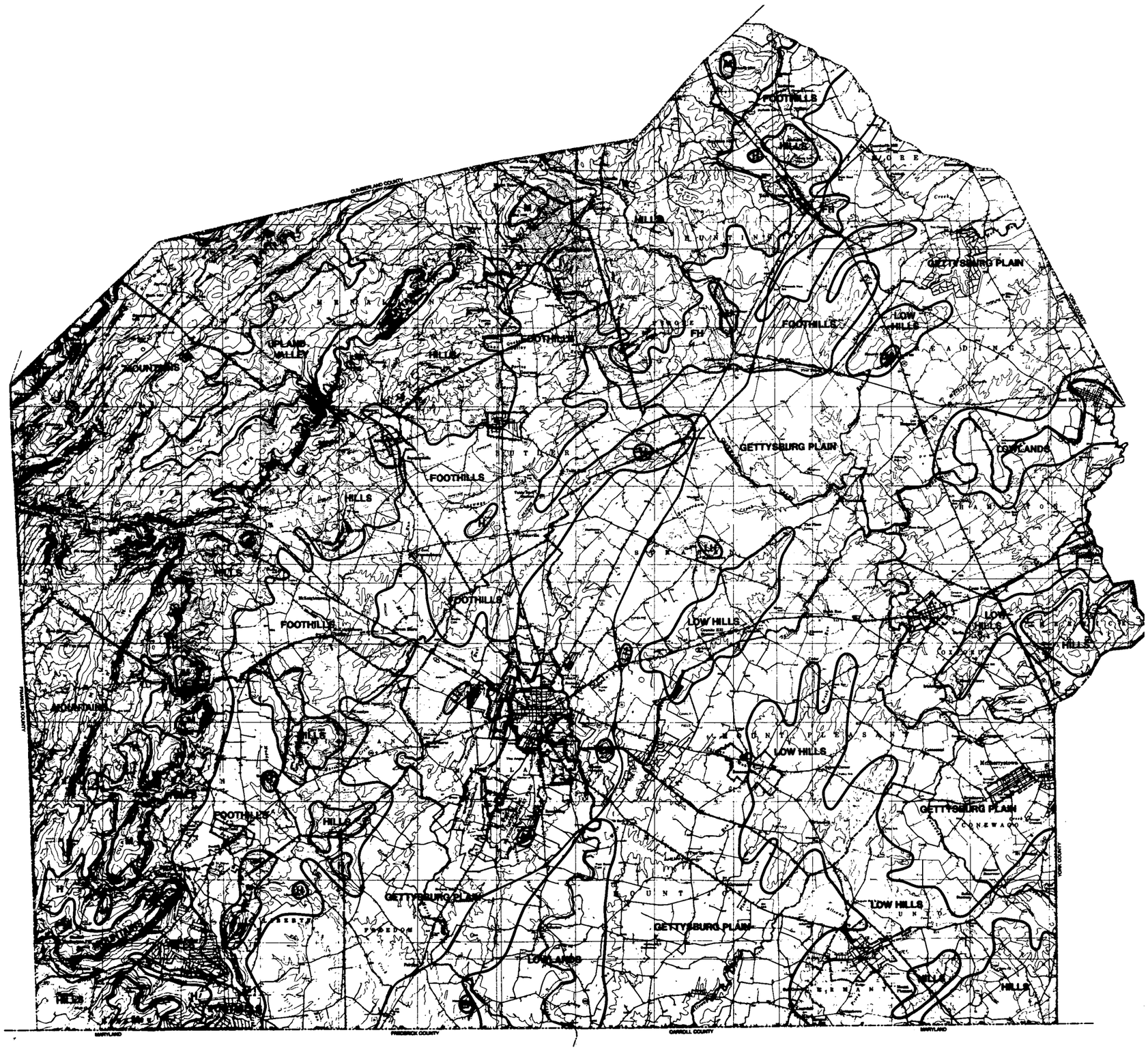
These additional factors have been synthesized with the Composite Constraints designations to yield a Suitability for Development map for Adams County (Figure 2.4.6), indicating areas with Good suitability for development, Fair suitability, Limited suitability, and Very Limited suitability. Areas already developed or under public ownership are excluded from consideration.

Areas with good and fair suitability are extensive, comprising 200 square miles or more of Adams County's 526 square miles. A broad band of well-suited territory extends southeastward from Gettysburg to the county line and northeasterly towards East Berlin. A second band of well-suited land begins just southwest of Gettysburg and extends in a northeasterly direction through the center of the county. The western and northwestern third of the county is less well-suited for development.

As of 1990, about 40 square miles of Adams County was developed; thus the availability of some 200 square miles of Good and Fair lands for development constitutes a more-than-generous allocation for future growth. Although the Suitability for Development analysis has identified areas less suited for development (and therefore potentially in need of protection from development) and areas better suited in a general way, the analysis cannot be relied upon exclusively to dictate where the expected amount of growth should occur. Other variables and other issues need to be considered to be able to set a more precise framework for future development.

Figure 2.4.1

TERRAIN



ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

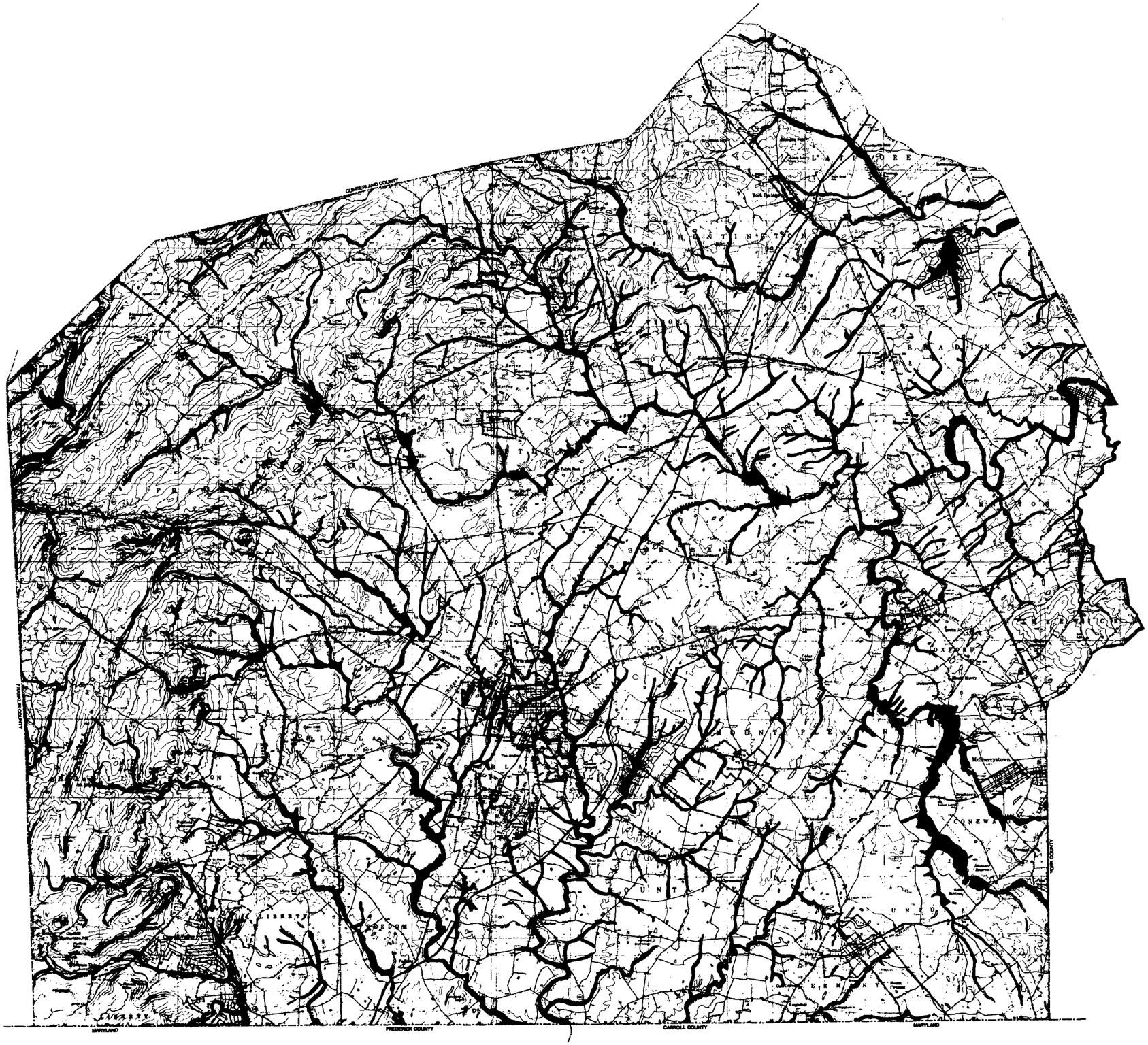
1 Square Mile

NORTH

Norman Day Associates
Planning & Urban Design
1811 Walnut Street 2nd Floor
Philadelphia, PA 19103

- Orth-Rodgers & Associates
- Coughlin Keane Associates
- John Milner Associates
- R.E. Wright Associates

Figure 2.4.2



HYDROLOGY

Floodplains

Wetlands

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE

4000 2000 0 4000 8000 12000 Feet

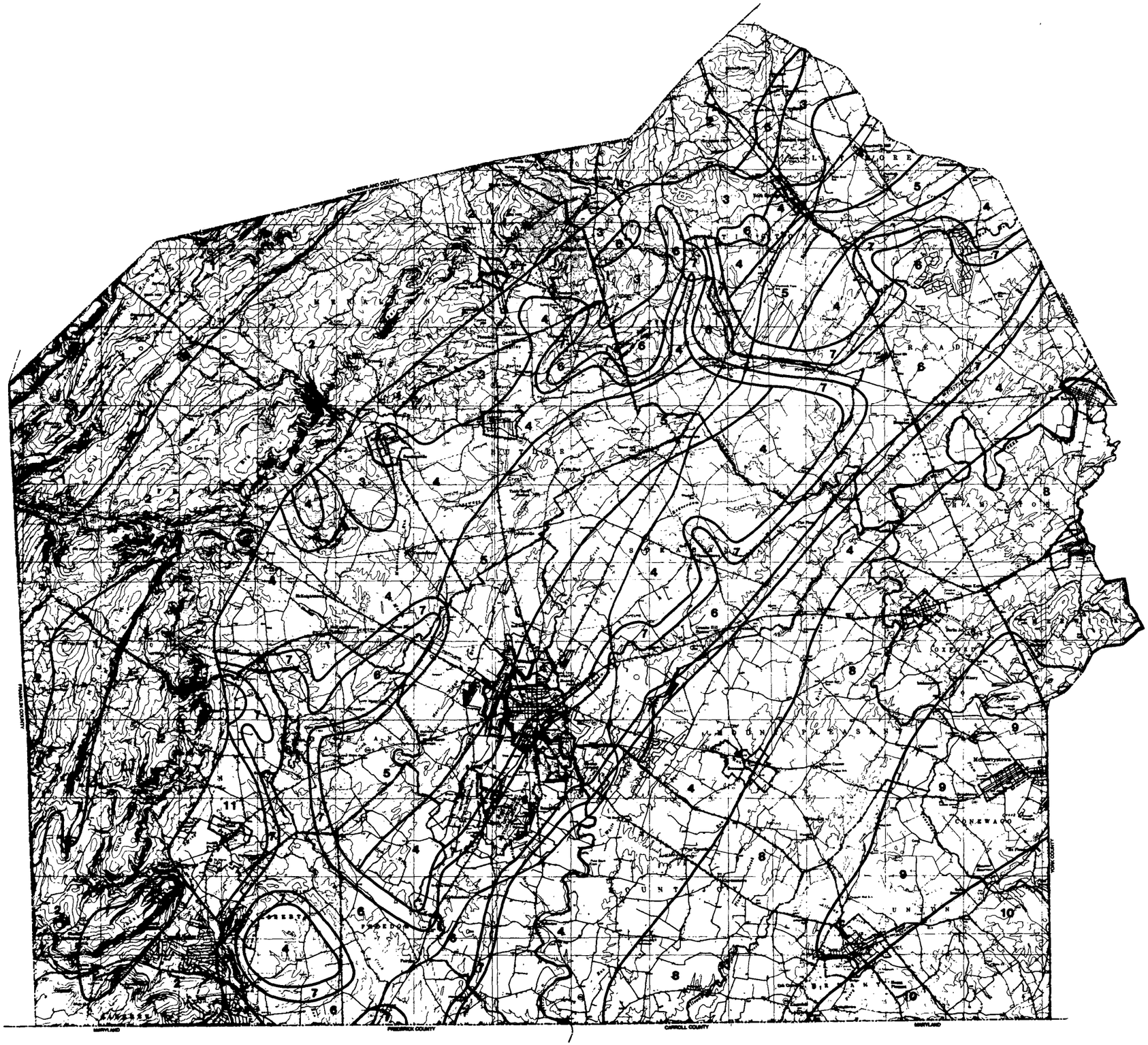
1 Square Mile

NORTH

NDA
Norman Day Associates
Planning & Urban Design
1611 Walnut Street 2nd Floor
Philadelphia, PA 19103

- Orth-Rodgers & Associates
- Coughlin Kanna Associates
- John Milner Associates
- R.E. Wright Associates

Figure 2.4.3



SOIL ASSOCIATIONS

1. Edgemont-Highfield association: Steep, well-drained stony soils on ridges
2. Highfield-Myersville-Catoctin association: Hilly, well-drained, channery and stony soils on ridges
3. Arendtsville-Highfield association: Dominantly rolling, well-drained gravelly soils that have slopes ranging from gentle to steep
4. Penn-Readington-Croton association: Gently sloping to moderately sloping, shallow to moderately deep shaly soils
5. Klinesville-Penn-Abbottstown-Croton association: Gently sloping to moderately sloping, mostly shallow shaly soils that are well drained to poorly drained
6. Montalto-Mount Lucas-Watchung association: Rolling to gently sloping, medium acid soils
7. Lehigh-Brecknock association: Gently sloping to moderately steep, moderately deep soils
8. Penn-Lansdale-Abbottstown association: Gently sloping to moderately sloping, strongly acid soils that are mostly well drained or somewhat droughty
9. Conestoga-Wiltshire-Lawrence association: Mostly deep gently sloping, medium acid and slightly acid soils
10. Glenelg-Manor-Glenville association: Shallow to moderately deep, mostly well-drained soils on gently sloping to moderately steep slopes
11. Athol-Wiltshire-Readington association: Deep, gently sloping, medium acid and slightly acid soils that are intensively farmed

ADAMS COUNTY

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Comprehensive Plan Update

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4000 2000 0 4000 8000 12000 Feet

1 Square Mile

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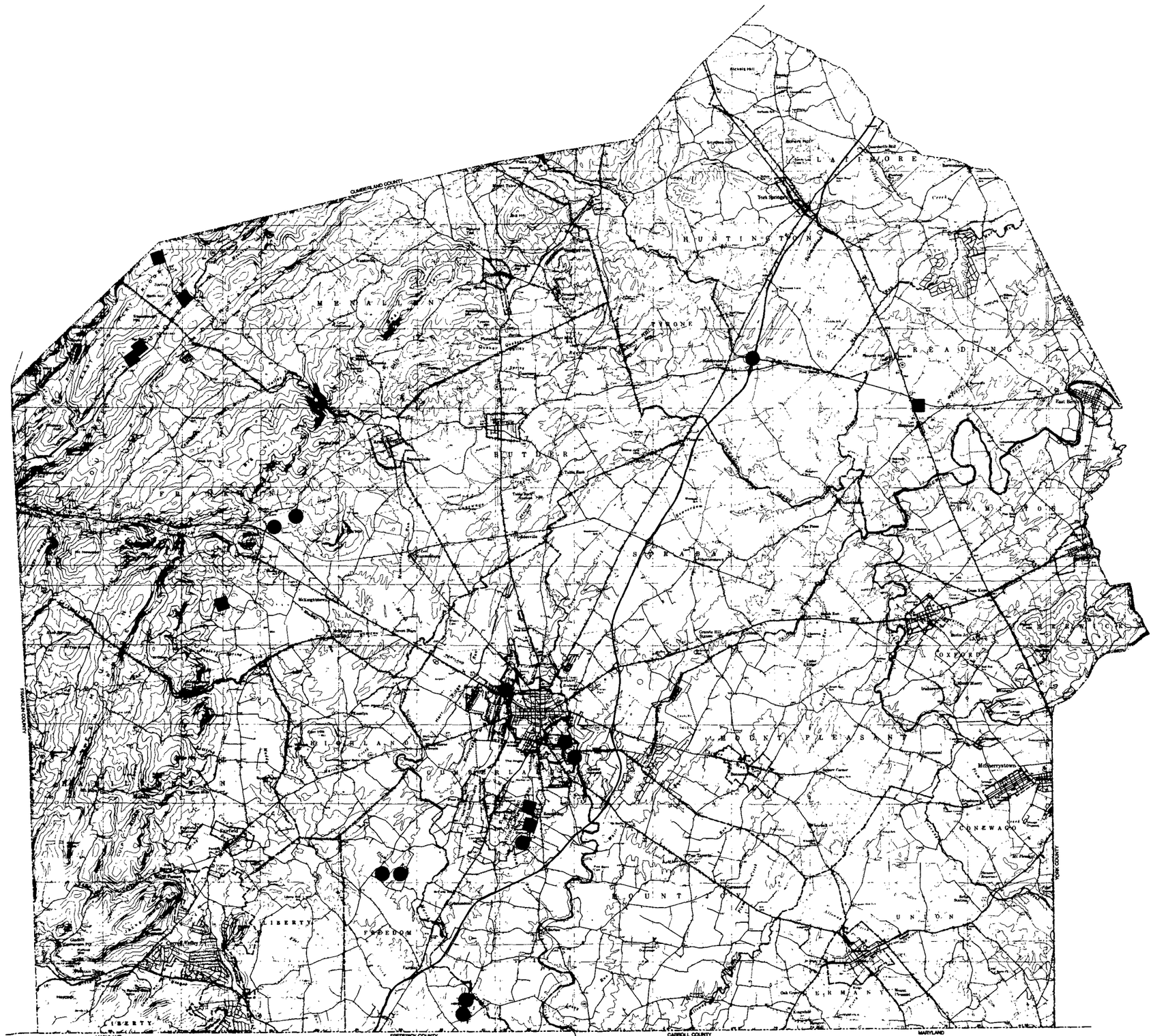
- Orth-Rodgers & Associates
- Cloughlin Keane Associates
- John Milner Associates
- R.E. Wright Associates

Figure 2.4.4

PNDI SPECIES OF CONCERN AREAS

Animal of Concern (Vertebrate or Invertebrate)

Plant of Concern



PNDI – Pennsylvania Natural Diversity Inventory

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

NDA
Norman Day Associates
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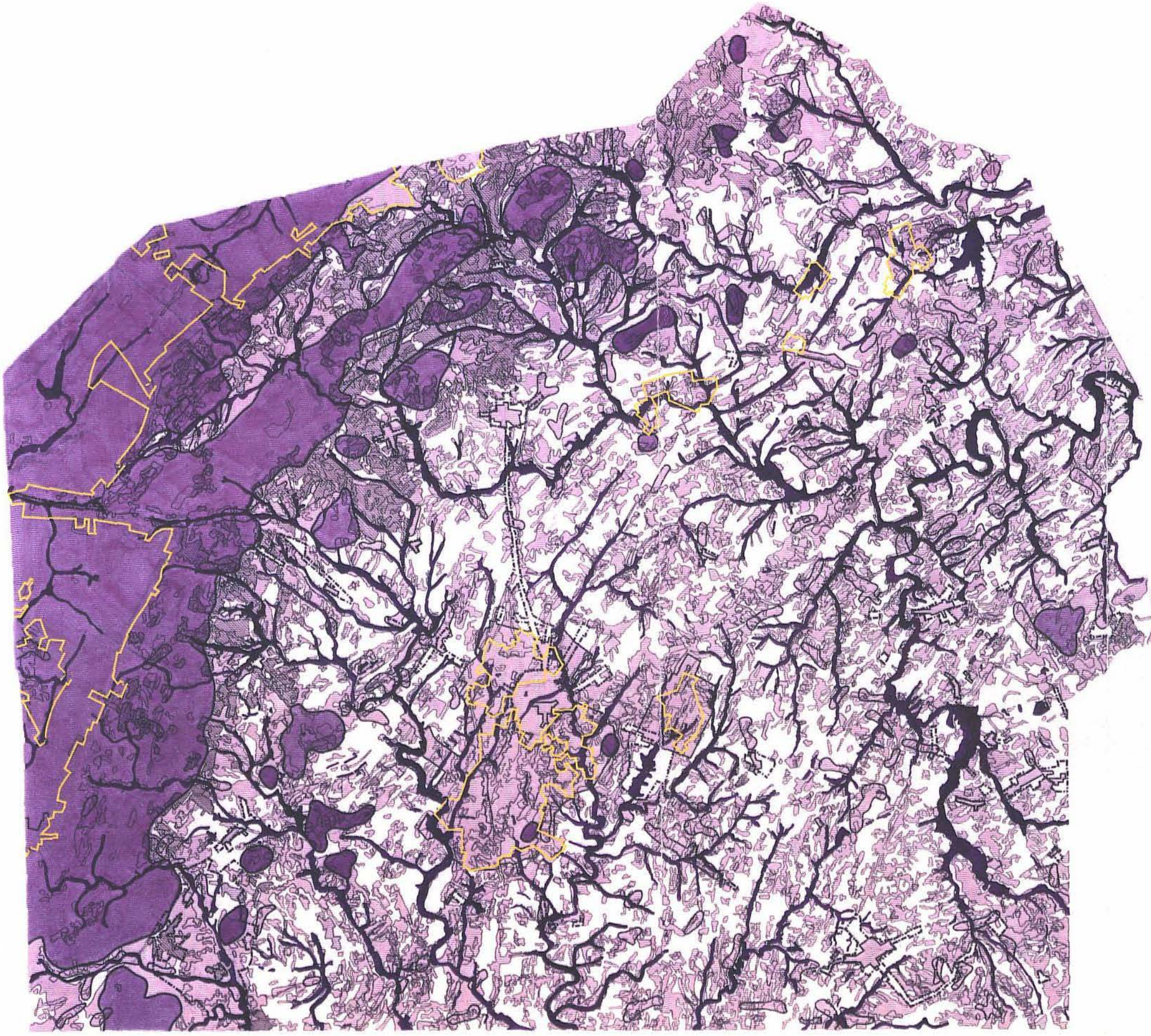
- Orth-Rodgers & Associates
- Cowgill, Keene & Associates
- John Milner Associates
- R.E. Wright Associates



COMPOSITE CONSTRAINTS

- Very Severe
- Severe
- Moderate
- Slight
- Federal, State Parks/ Facilities

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

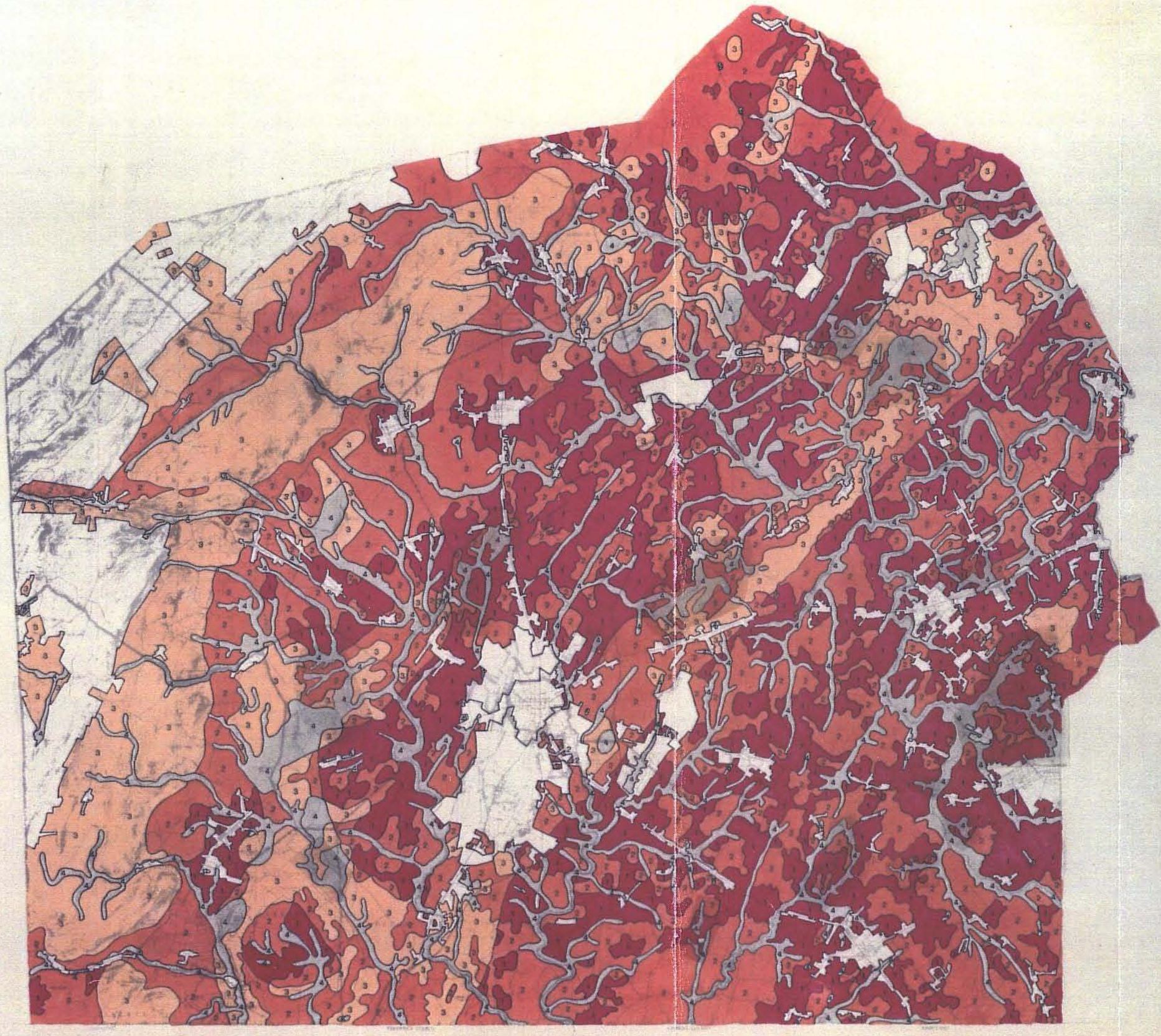
SCALE

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

NDA
Norman Day Associates
- Orth-Rodgers & Associates
- Cougan, Kleine & Associates
- John Minnit Associates
- R.E. Wright Associates



SUITABILITY FOR DEVELOPMENT

- 1 Good
- 2 Fair
- 3 Limited
- 4 Very Limited
- Existing Development & Public Ownership

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE

4000 2000 0 40000 80000 120000 Feet

1 Square Mile

NORTH

NDA
Norman Day Associates

- Orth-Rodgers & Associates
- Coughlin, Keene & Associates
- John Minier Associates
- R.E. Wright Associates

SECTION 5: HISTORIC AND LANDSCAPE RESOURCES

I. Landscape Character and Scenic Resources

Adams County has a rich, pastoral landscape, much of which remains unspoiled by urban, suburban, or industrial development. While the characteristics of this landscape vary between geographic areas within the county, creating an interesting variety, there is no large portion that can be described as "unscenic." Only small concentrations of unsympathetic development currently impinge upon it. Figure 2.5.1, Landscape Character and Scenic Resources, shows the various geographic areas of which the Adams County landscape is comprised. The purpose of this section is to paint a broad-brush picture of these different areas and to identify some of the elements which make them distinctive.

A most basic difference among these geographic areas is their underlying geology. The various geologic formations and their weathering over time have created the landforms and drainage patterns with which we are familiar today. The landforms, the drainage patterns, the soils developed from the geologic formations, and the other natural resources characteristic of each geographic area have played a large part in shaping the settlement and use of the land by man. Land use, in turn, has given shape to the rural Adams County landscape by establishing its spatial patterns, divisions, and degrees of accessibility, as well as by influencing the vegetative growth, which is constantly changing. In seeking to preserve the pastoral landscape of Adams County, it will be important to identify fully those elements that contribute to the landscape's character, and to create policies and processes that preserve and reinforce those elements as the county continues to grow and develop.

The Gettysburg Plain

The broadest characteristic landscape area in Adams County is known as the Gettysburg Plain. Underlaid by a geology of relatively soft Triassic sandstones and shales and infused with intrusions of hard diabase, it is a low landscape of rolling hills. The Gettysburg Plain is drained by four major creeks, all of which have their headwaters in Adams County, creating an upland vegetative environment with numerous small creeks, springs, and small patches of wetlands. The courses of the smaller creeks and streams tend to follow the grain of the rock. While it is a topography of rolling hills, the areas of diabase create small, distinctive hillocks, or round tops, as well as distinctive ridges. Many of the rolling hills in the central portion of the county present dramatic views toward South Mountain to the west.

In the nineteenth century, the Gettysburg Plain was a landscape of reasonably prosperous farms. It remains evenly divided, with a network of major and minor roads enclosing irregular areas of approximately one-half to one and one-half square miles. Small historic villages dot the landscape at intervals of approximately four to six miles. Gettysburg, with its distinctive radiating network of primary roads, is situated at the center of the Plain in the

south-central portion of the county.

The Gettysburg Plain is a landscape of open country, though not so open now as it was in the nineteenth century. Historic photos show a characteristic nineteenth-century agricultural landscape with relatively few trees and a patchwork of planted fields. Today, the fields are larger and there are far fewer of them. Crops are planted in alternating contour strips rather than in rectangular patterns. Large areas of the countryside are no longer devoted to crops, but appear to be pasturelands. Most notable and visually scenic of these is the Lower Marsh Creek area.

Throughout the Gettysburg Plain, woodlands have developed on the round tops, along low ridgelines, and along creeks. Hedgerows, with shrub, understory, and canopy vegetation, have developed along roadways, property lines, and between fields, giving a characteristic spatial framework to the otherwise open, rolling landscape. Many former farm fields have ceased to be used for agriculture and have developed into old fields and young woodlands.

Other contributing features of the Plain include the Gettysburg National Military Park, Eisenhower National Historic Site, and the state gamelands. The Park, to be discussed elsewhere in this report, is of great importance to the county. Its legislated mission is to preserve the mid-nineteenth century landscape which is central to the character of the Gettysburg Plain.

US Route 15 slices through the landscape and, in Adams County, is a beautiful, rural drive. It should be kept in mind that the landscape as seen from this highway is often a visitor's first impression of Adams County. In part because of the importance of tourism to the county's economy, visitor approaches require special planning consideration. Concern about development along US Route 15 has led to the creation of County-based interchange zoning, and while is it recognized that development will take place along portions of county roadways, it is important to the future of the county that this development be carried out in a manner that is sympathetic to the scenic character of the landscape.

South Mountain and the Buchanan Valley

South Mountain is the northern extension of the Blue Ridge Mountains into Pennsylvania. Rising approximately twelve hundred feet above the Gettysburg Plain along the western border of the county, South Mountain comprises somewhat less than one fourth of the land area of the county (including the Buchanan Valley). South Mountain is comprised of a series of tightly squeezed northeast/southwest trending ridges and knobs of Cambrian quartzite and Pre-Cambrian rock, often with flat tops and cut by deep, lateral valley corridors or gaps.

The South Mountain area has been an important source of natural resources. In pre-historic times (i.e., before European settlement) the Snaggy Ridge area was a major regional source

of rhyolite, a hard, workable stone highly valued for tools and points. During the late eighteenth and early nineteenth centuries, the mountains were a source of iron ore, creating a number of interesting stories and historically significant sites, but little of commercial significance. In the nineteenth century, the mountains were also important for their supply of trees for lumber. Numerous sawmills lined the creeks between the ridges. Ridgetops were criss-crossed with lumber roads and were well cut-over, with large areas of shrub growth in various states of successional development and with heavy erosion of the valley walls. Today, though portions of the mountains continue to be harvested, most of South Mountain is protected as state forest.

South Mountain has always been a barrier to western movement. The two primary valley corridors, or gaps, are the Cashtown Gap (formerly Black's Gap), which is traversed by Route 30, and Nicholson's Gap, traversed by Route 16 at the southwest corner of the county. These gaps create powerful landscapes with steep valley walls and notable scenic qualities. Smaller gaps to the north give access to the Buchanan Valley from the Fruitbelt. The most dramatic of these is the Narrows, north of Arendtsville, where the Conewago Creek penetrates into the Gettysburg Plain from the valley.

Other distinctive landscapes in the South Mountain area include the stream valley communities extending westward into the mountains from Virginia Mills and Iron Springs. Small in scale, these narrow corridors are lined with interesting and well-kept residences, creating a strong and hospitable community character. A number of historic resources are found here. In several areas of the mountains, small communities, unrelated to the stream valleys, have developed, creating open pockets in an otherwise heavily wooded domain.

The Buchanan Valley is a broad area of steeply rolling hills between opposing ridges. Two miles wide and twelve miles long in Adams County, the valley is comprised of mixed farm fields, orchards, and woodlands with occasional vistas at hilltops. Because of its orchards, the Buchanan Valley is also considered a significant part of the Fruitbelt. Scattered residences dot the hillsides of the Valley, but there are only two or three small community groupings. The entire valley, however, is a scenic entity and gives a strong sense of rural community.

The Fruitbelt

The Fruitbelt is Adams County's most unified and homogeneous landscape. It is located in an area of increasingly steep foothills of pebbly sandstone marking the transition between the Gettysburg Plain and the high ridges along the southeast side of the South Mountain. The Fruitbelt's steeply rolling carpet of carefully-organized fruit trees has a strong visual appeal and, aside from being economically important and vibrant agriculturally, is a significant scenic and tourist attraction for the county.

The heart of the Fruitbelt is the Arendtsville/Biglersville/Bendersville area, known locally

as the Northern Fruitbelt. It extends northward along the foothills to the border of the county above York Springs. The Southern Fruitbelt is centered around Orrtanna and extends south on the lower mountain slopes on the western fringe of the Fairfield Valley. As mentioned previously, the Buchanan Valley also has orchards and is considered a part of the Fruitbelt. Smaller areas of orchards are located in central valleys of the county mountain landscape.

Several interesting historic villages occur within the Fruitbelt, which differ in character from other villages in the Gettysburg Plain. Perhaps most representative and best-kept is Arendtsville Borough. Its modest, attractive residences, with their small yards amidst a background of green orchards, present an idyllic vision of an American agricultural community.

The Fairfield Valley

The Fairfield Valley is an area bordered on the west by South Mountain and on the east by a series of wooded hills comprised of diabase and dividing the valley from the Gettysburg Plain. The northern portion of the valley is underlaid by limestone, making it agriculturally rich. This portion is an area of original settlement in Adams County and was historically known as Carroll's Delight.

A mile-and-a-half-wide and two-miles long, and ringed with steep, wooded slopes, the valley has the appearance of a singular, distinct entity. The valley floor is open and relatively flat, with neat and well-kept farms. The openness is due largely to the character and productivity of the limestone soils. As in a typical nineteenth-century landscape, and in contrast with much of the Gettysburg Plain, there are few hedgerows, woodlots, and wooded stream corridors to fragment the landscape. (In limestone geology, rainwater is easily absorbed into the ground and flows through underground channels, resulting in fewer surface streams than other geologic types.) There are also fewer pastures, abandoned fields, old fields, and woodlands. All areas have been generally made as productive as possible, resulting in fewer shade-casting trees and the distinctive open landscape.

The Littlestown/McSherrystown Valley

At the southeast corner of Adams County, the Littlestown/McSherrystown "valley" is an area of relatively flat topography underlaid by limestone and bordered on the northwest and southeast by low ridges of quartzite. This, also, was an area of early settlement in the county and was known historically as Digg's Choice. Like the limestone Fairfield Valley, the Littlestown/McSherrystown Valley is distinctive in character. Though agriculturally rich, it is known primarily for its horse farms, with broad, flat, gently sloping pastures defined by a framework of well-maintained wooden fences. It is a prosperous area with few visual intrusions. Because there are fewer crops grown, there are more hedgerows and woodlands

than in the Fairfield Valley, and thus this southeastern area has a significantly different scenic character.

The limestone-associated areas north of McSherrystown are heavily quarried. Pigeon Hill, which forms a distinctive, wooded ridge as viewed from Route 30 and Route 94, is a part of a quartzite formation.

II. Historic Resources

Adams County is rich in existing historic resources. Over the past two-and-one-half centuries, since its initial European settlement in the 1730s, Adams County has experienced change as a gradual development and evolution of existing institutions, economic conditions, and way of life. As a consequence, the historic character of the county's landscape has remained strong. From the standpoint of historical significance, Adams County is predominantly a nineteenth-century agricultural landscape. By far, the predominant historic resource type is the nineteenth-century farmstead. Other historic resource types - mills, schoolhouses, churches, blacksmith shops, etc. - tend to be related to the peak development of the late-nineteenth-century farm economy in the region.

In general, the historic integrity of these resources and this landscape remains strong. The physical condition of individual resources, however, varies widely. While some historic residential and farm-related buildings, for instance, are well-maintained, a number have been unsympathetically renovated at the expense of their historic integrity. Many other historically-significant farmsteads within the county are rundown, but retain their historic integrity. Historic buildings which have been in continuous use, such as churches, have generally been well-maintained and tend to be in the best overall condition. Building types that are no longer an active part of county life, such as the blacksmith shops, early schools, and mills, have either changed use or have faced neglect and have tended to disappear.

In general, historic resources in Adams County are under-appreciated and taken for granted by the population and by local government. While a few outstanding historic resources are well-recognized and featured within the county, there is little recognition of the significance of the large number of "ordinary" historic resources to the social and economic history of the county and, most important, to the character of the landscape.

The present challenge is to increase awareness of the importance of these "ordinary" historic resources within the county and to develop the policies and procedures to ensure their protection. As the county continues to develop, the landscape's strong historic character can be recognized as a framework to be preserved, reinforced, and enhanced, so that the qualities and resources which give Adams County its personality are not lost.

Sources of Information

The most immediately-valuable source of information related to the recognition and preservation of historic resources in Adams County is the Historic Sites Survey undertaken between 1978 and 1980. The Historic Sites Survey was sponsored by the Office of Historic Preservation in the Pennsylvania Historical and Museum Commission through Historic Gettysburg-Adams County, Inc., and was conducted by Preservation Associates, Inc. of Sharpesburg, Maryland. Organized on a township-by-township basis, the survey identified 3,659 potential historic resources. Each resource was numbered and mapped on United States Geological Survey (USGS) quadrant sheets. Figure 2.5.4 shows the locations of potential resources identified by the Historic Sites Survey. Basic information on each resource was compiled on survey "cards," including a photograph, the owner's name, the tax lot number, and limited information on building type, materials, estimated date, and alterations to the resource.

The Historic Sites Survey was purely a cursory, visual identification of existing resources. It included no historical research. Because of its broad scope, it generated interesting general information on types, numbers, and locations of resources. The survey's most important value, however, is as base information for the further inventory, review, analysis, and classification of resources for preservation efforts at the local, municipal level. Historic Sites Survey cards and maps are on file both at the Pennsylvania Historical and Museum Commission and at Historic Gettysburg-Adams County. Analysis of the resources by building type, date, construction material, location, and other criteria is available through the Historical and Museum Commission.

The National Park Service, the Pennsylvania Historical and Museum Commission, and the Borough of Gettysburg have recently completed a project in which information on 150 buildings previously surveyed in the borough was entered into the new standardized National Register computer program. This program is designed for use with personal computer systems and will enable individuals to quickly and easily obtain and process a wide variety of information related to the buildings included. The project is a model program that is expected to be in use nationwide in coming years - data on surveyed buildings in Gettysburg will then be accessible to researchers across the country. As it becomes more widely available, this program should be utilized for future county surveys.

The major source for historical information in Adams County is the Adams County Historical Society, which has been active for over one hundred years. During this period the Historical Society has compiled an impressive amount of high-quality primary historical information and has conducted valuable research on a variety of subjects. Under the auspices of the Historical Society, a history of Adams County has recently been authored by Professor Robert Bloom. This history gives a professional assessment of the county's general historical development and includes bibliographical references for further information. The history is a much needed improvement over the previous county history published in 1886, and will be a valuable general source for many years.

The Historical Society is also in possession of a number of historical maps, ranging from the 1792 Reading Howell map to the 1872 Atlas of Adams County. The maps identify important roads in use in the county at the time of their publication and note the names of towns and villages. Most of the maps also identify the location of important mills, churches, and schools. Perhaps the most significant map is the 1858 Map of Adams County. This map, copies of which are available from the Historical Society, is the earliest to show the extensive network of roads existing in the county. It shows that, with only minor modifications, the county's road network has changed little from the mid-nineteenth century to the present time. The 1858 map also identifies the location of grist mills, sawmills, blacksmith shops, schools, churches, and residences, along with the names of owners. The importance of the mills and blacksmith shops in particular can be inferred both by their presence on the map and by their number. Detailed insets of village plans show the locations and shapes of buildings then existing. The 1858 map is the first accurate, detailed map of the county, and when compared with the 1872 Atlas (which is even more detailed), modern USGS quads, and the Historic Sites Survey, insights into the historical development of the county may be gained. Some general information on the historical development of Adams County, including early roads, grants, political boundaries, and villages, is shown in Figures 2.5.2 and 2.5.3.

Aside from the maps and other publications available through the Adams County Historical Society, the Society's most important service is as a repository for primary historical data. The Society's present collection is impressive, and the acquisition of additional materials is continuing. The collection includes tax records, census information, estate papers, early surveys, deeds, road petitions, newspapers, and photographs, among other materials. The Society is a primary resource for genealogical information in the region. The collection is vital to detailed research regarding historic resources in Adams County.

One research project of immense interest being undertaken by the Historical Society is the study of the original surveys of properties within the Manor of Maske, the Penn family's preserve of approximately sixty-eight square miles within Adams County. The original surveys have been plotted and pieced together to create a map of the area. Individual properties have been researched. The survey maps have been overlaid upon current aerial photographs, showing that lot lines, hedgerows, and woodlots existing today closely follow the lines established in the mid-eighteenth century. This research is further evidence that the historic framework within Adams County, in this case with regard to property lines and landscape features, has maintained its integrity over the past two and one-half centuries.

There are numerous other subjects that await the research of interested volunteers willing to devote time to the Historical Society's efforts. There is ample material to support such research. This work is important to historic preservation activities because it establishes the scholarship necessary to support preservation strategies and provides the documentation necessary for official designation, such as to the National Register of Historic Places.

The National Register

Currently, Adams County has only twenty-four listings on the National Register of Historic Places. Three of these listings, however, are for historic districts. The largest and most comprehensive district is the Gettysburg Battlefield National Historic District. It includes contributing structures within the Borough of Gettysburg, the Gettysburg National Military Park, and adjacent areas. Originally established to protect Civil-War-related resources, the scope of the district was expanded in the mid-1980s to recognize "Gettysburg's significance as a county seat representative of the architectural and cultural heritage of south central Pennsylvania." The expansion is an example of an increased professional and legal recognition of the significance of the overall historic fabric existing within the county.

Though Gettysburg is important as the center and most historically-developed area of the county, other portions of the county are equally significant. The other existing historic districts in Adams County listed in the National Register are Hunterstown and East Berlin. The nomination for East Berlin, completed in 1985, notes that "the district has only a few scattered non-contributing elements, nine out of a total of 186 properties." As a drive through other historic villages in the county or a look at the Historic Sites Survey demonstrates, other villages are also well-qualified as candidates for listing on the National Register.

Individual listings on the National Register include four residences, four churches, six bridges, two inns, one quarry, and three institutional or public buildings. While the listings are of high quality and are well-deserved, in a county with at least 3,659 potential resources identified, and with the strong integrity of the resources throughout the county, there are many other historic buildings which could also be listed on the National Register. Of particular note is the absence of thematic listings to the National Register in Adams County. Evidently, the sole thematic listing is for historic bridges. There are many historical, cultural, and architectural themes upon which nominations could be based. These could include prehistoric sites (Snaggy Ridge, etc.), early settlement sites (Manor of Maske, Carroll's Delight, Digg's Choice, etc.), ethnic cultural settlement sites, agricultural sites (mills, Fruitbelt, rural landscapes), industrial and industrial archeological sites (iron ore, tobacco and cigar-making, carriage making, canning, brick kilns, etc.), transportation (early roads, toll roads, Lincoln Highway, inns, railroad and railroad junction settlements, etc.), nineteenth-century farmhouse types, barn types, log houses, schoolhouses, blacksmith shops, etc.

The types of thematic listings that might be pursued would depend largely upon which individuals and entities conduct studies and what kind of financial resources become available. One suggestion is to enlist the assistance of the National Park Service staff and concentrate initially upon significant, unprotected Civil War sites, such as hospital sites, the engagements at Huntersville and Fairfield, significant roadways, and camping sites/staging areas.

The primary benefit of listing on the National Register is official recognition of the significance of a historic site. Listing and eligibility for listing protects a site from the effects of any activity involving federal and, often, state funds to the extent that a professional study of the impact must be undertaken. Such studies often lead to modifications to the "activity" that lessen its effects upon significant resources and their contexts. When significant resources are to be lost by activities involving federal funds, the resources must often be fully documented prior to being lost. Resources which are eligible for listing on the National Register also receive a measure of protection from the Pennsylvania Historical and Museum Commission when state permits, such as permits for sewers and septic systems, are involved. Listing in and of itself, however, does not automatically protect a historic resource or infringe upon any private rights regarding that resource. Protection may occur only when federal funds or state permits are involved, and even then actual listing on the National Register is secondary because all eligible resources receive such protections.

Period of Significance

The historic agricultural landscape of Adams County reached a peak of development in the late nineteenth century. The patterns of that landscape are still clearly evident today. As noted previously, the county's basic framework of rural lot lines and property division was well-established by the late 1700s. The network of county roads existing today was developed between approximately 1740 and 1830, and the pattern of historic villages in Adams County emerged during roughly the same period. While some of these villages continued to grow and develop well into the twentieth century, the county's rural population did not grow, but remained constant after 1860.

The built environment of the rural landscape - the farm residences, barns, outbuildings, mills, churches, and schools - was also well established by 1860. Eighty to ninety percent of the historic resources in the county's agricultural landscape date from the nineteenth century. A comparison of the 1858 map of the county with the 1872 Atlas, for instance, does not show a significant increase in the number of building sites. As farming methods changed, however, and agricultural productivity increased, earlier farm buildings proved inadequate and were expanded, improved, or replaced.

By the 1890s, changes in the agricultural practices of the nation had begun to overtake the county's ability to adapt and compete. Improvements in transportation established national markets for farm produce and created competition between distant farming regions. The character of farming changed as agricultural specialization increased, such as in dairy or poultry products. In Adams County, these changes brought the rise of fruit farming - an important element of the county's economy today. But they also resulted in the decline of general farming and in the decline of the county's local agricultural interdependence.

A significant indicator of this decline was the disappearance of local mills. In 1800, there were approximately eighty mills listed on tax records. The county map of 1858 shows

approximately ninety mills, over forty of which were grist mills. The Atlas of 1872 and census figures yield similar numbers. But by 1920, only six county flour and grist mills were listed in the Pennsylvania Industrial Directory.

By the late nineteenth century, the built environment and the patterns of development of the rural landscape of Adams County were fully-evolved and were representative of a particular way of life. Since that time, the way of life has changed, but the patterns of the rural landscape and the built environment remain largely intact. It is possible, therefore, to consider the late nineteenth century as a peak period of significance for the rural landscape of Adams County. Future change and development should recognize, preserve, and build upon the patterns and character of this period of significance.

Types of Resources

Residences and Farm Buildings: The largest historic resource type in the county is that of residential structures, and most of these residential structures are associated with farms and farm buildings. The Historic Sites Survey conducted between 1978 and 1980 includes a report giving numerical breakdowns of the resources by township. As an example of the importance of residential and farm-related buildings in the county, the Survey records that in Straban Township, of the 219 sites inventoried, 206 included residences and 107 included barns. Similarly, in Mount Joy Township, of 235 sites inventoried, 193 included residences and 108 included barns. In Menallen Township, of 191 sites inventoried, 123 included residences and 82 included barns. In Freedom Township, of 73 sites inventoried, 65 included residences and 41 included barns. The even distribution of these historic resources on farms all across the county is evident in Figure 2.5.4.

As has been previously noted, the Historic Sites Survey was a cursory inventory, and only the exterior appearance of the existing buildings was reviewed. From this review, however, the overwhelmingly nineteenth- century character of the historic resources in Adams County is confirmed. Of the total number of residences inventoried, only 3% were estimated to date from the settlement period prior to 1800. In contrast, 37% were estimated to date from between 1800 and 1860, and 45% were estimated to date from between 1860 and 1900. Only 14% of the residences inventoried were believed to date from later than 1900.

Considering, as has been noted, that the county's settlement pattern was well-developed by the late eighteenth century, there is a noticeable lack of eighteenth-century structures still existing. It is probable that many residences that appear to be of later date incorporate the remnants of earlier dwellings. The eighteenth-century residences and barns were not adequate to meet the needs of the nineteenth-century farms. Aside from being incorporated into newer structures, older buildings could have been used as ancillary outbuildings, or could have been dismantled. It was common for early frame barns to be dismantled and the framing members reused in new barns. The fate of eighteenth-century buildings in Adams County is an interesting subject for further investigation.

Many early buildings appear to have been of log construction. The Historic Sites Survey notes that as much as 18% of the residences inventoried are believed to be constructed of logs. This compares to 12% of the residences inventoried being of stone construction, 26% of brick construction, and 44% of wood frame construction.

The condition of historic residences and farm buildings in the county varies widely. A number of these resources are in good condition, particularly those constructed of stone or brick, as well as those associated with prosperous modern farms. Some historic residences have been restored. There are a large number, however, that are not appreciated for their historic character and many of these are suffering from neglect.

Despite their condition, even the neglected resources have retained their historic integrity. Loss of integrity seems more frequently due to ambitious but unsympathetic alterations than to poor condition. Consequently, in Adams County there is presently a rich stock of historic residences and farm-related resources awaiting rediscovery.

Historic Villages: Adams County's historic villages are among the most important resources cited by respondents to the Office of Planning and Development's recent newspaper survey. Eight of the historic villages were founded between 1762 and 1800. The remaining villages were founded by the 1830s. Growth and development in the villages has been related to the importance of the roads on which they are situated as well as to the nature of the economic activity in their vicinity.

While the population in the farmlands of Adams County remained relatively constant after 1860, total population in villages increased threefold between 1860 and 1920. Much of this growth occurred in Gettysburg, which, aside from being the county seat, is also the center of the county's transportation network. Other villages that continued to grow, though to a lesser extent, include Littlestown, McSherrystown, Abbottsville, New Oxford, and Arendtsville.

The historic character and period of significance of individual villages varies according to the factors influencing their development. Hunterstown, as a historic district, is an example of a small village with a very specific period of significance due to early development and limited growth. Gettysburg, on the other hand, as stated in its historic district nomination, has a broad period of significance, encompassing the county's entire history and including many nineteenth- and twentieth-century historic resources unique to the region. Most of Adam County's historic villages lie between these two extremes with regard to the specific nature and period of their significance.

The historic villages in Adams County have, by and large, retained their historic character. Boroughs such as East Berlin and Fairfield have recognized and enhanced their historic character through the efforts of property owners. Villages such as Cashtown and New Chester have been bypassed by the major transportation routes and, though a significant

local recognition of their historic character is not clearly evident, their character and integrity remain intact.

A significant problem that occurs in many of the historic villages centers around the volume and speed of through traffic. The small scale and quiet ambience of villages such as Heidlersburg and Hampton is often shattered by the traffic, making the primary street less supportive for pedestrian life. Hampton has a large center square that has become little more than a generous roadway and parking lot. Boroughs such as Littlestown and McSherrystown experience similar problems - here, however, the traffic is not simply speeding through, but is attracted by the commercial establishments lining the streets. In both instances, there appears to be little local interest in recognizing and drawing out the strong historic character of the town's fabric. The streetscapes may be dominated by unsympathetic commercial renovations, utility lines, and the needs of the automobile, to the detriment of those of the pedestrian.

The problems with traffic in Abbottstown and New Oxford are similar but perhaps more comprehensible due to their location along US Route 30, the county's major east/west transportation link. In Gettysburg, the problem with through traffic on US Route 30 is well-known and continues to be a major planning problem.

A negative feature of most of the historic villages in Adams County is the lack of canopy trees along the streets. While historically the nineteenth-century agricultural landscape is known for its openness and lack of trees (note the Amish landscape in Lancaster County today), historic photographs show that many of the historic villages were filled with canopy trees. As the twentieth century has developed, the situation has reversed. With the decline of agriculture, there are far more woods, hedgerows, and trees in the rural landscape. At the same time, as the villages have grown, with the need for parking, utilities and signage, trees have tended to disappear from village streets.

Trees soften the urban fabric and create outdoor spaces, giving an added sense of proportion to adjacent buildings. Neither Abbottstown nor New Oxford are particularly historically "restored" boroughs, and they both experience the US Route 30 traffic problem. The streetscape of New Oxford, however, is far more sympathetic to human sensibilities because of its canopy trees. Photographs showing Gettysburg in the late nineteenth century as compared to the late twentieth century are striking in this regard.

Churches, Schools, Mills, Inns, and Other Resources: While the predominant historic resource types in Adams county are residential and farm-related structures, there are other potential historic resources which have played an important role in community life, many of which have survived to the present. Chief among these are churches, schools, mills, and inns.

Adams County has a strong history of religious life dating back to its earliest settlement period. A brief review and summary of the churches and congregations of Adams County

was prepared in 1981 by Dr. Charles Gladfelter and is available through the Adams County Historical Society. The Historic Sites Survey lists thirty-eight churches in Adams County that it considers historic resources. Four of these have been listed on the National Register of Historic Places.

Of all of the historic resources in the county, the churches, as a group, tend to be in the best overall condition. This is due largely to the fact that, for the most part, they have been continuously occupied with the use for which they were intended. Most of the churches have been sources of pride in their communities and have been well-maintained. Congregations that have outgrown their buildings have abandoned their churches or have needed to make extensive alterations. When such alterations are necessary, it is important for congregations to recognize the historic significance of their buildings and to retain the building's historic integrity.

Historic school buildings, on the other hand, have experienced the opposite extreme. Seventy-eight school buildings were inventoried on the Historic Sites Survey. Approximately ninety schoolhouses are indicated on the 1858 map of Adams County. With the rise of the modern school systems in the twentieth century, the early schoolhouses were abandoned. As is evident from the survey, many of these structures have found adaptive reuses, principally as residences, though some have been converted to churches and commercial uses. Some early schoolhouses have been lost.

As has been noted previously, mills played an essential role in the agricultural economy in the eighteenth and nineteenth centuries. Grist mills were concentrated along the watercourses of the central and eastern portions of the county, while sawmills predominated in the western, South Mountain area. Many of the county's early roads were petitioned by farmers to provide access to mills and by millers to open markets. The map of 1858 records the locations of forty-nine sawmills and forty-one grist mills; a total of ninety mills. The Historic Sites Survey inventoried a total of twenty-three mills still existing today.

While many grist mills have been lost, some have been converted to residential and commercial uses. Sawmills tended to be structurally less substantial and, as a result, more short-lived than grist mills. Interestingly, however, while the use of grist mills in the agricultural economy faded away, some sawmills have survived to the present in their historic locations, and are still in use. Examples are the two sawmills at the western end of "the Narrows," north of Arendtsville.

Inns and taverns were an important feature of county life in the eighteenth and early nineteenth centuries. While there appears not to have been any comprehensive study of the inns of Adams County, it is clear that a number of former inns have survived to the present. Two inns (and one residence earlier used as an inn) have individual listings on the National Register. Another is listed on the Pennsylvania Inventory of Historic Places. Inns have been associated with most of the historic villages in Adams County. In addition to being included in potential historic districts, inns and taverns could become a thematic subject for

listing on a county-wide basis.

Aside from inns and taverns, resorts and hotels have played an interesting role in the history of Adams County. Some of these resorts were related to mineral springs of purported medicinal benefit. Others were related to battlefield tourism. Apparently, none of the large structures associated with these establishments has survived. Recognition should be given, however, to their sites and to the contribution hotels and resorts made to county life.

Other significant historic resources in Adams County include bridges, cemeteries, railroad stations and settlements, kilns, quarries, forges, and roadside commercial structures, among others. The stone bridges and viaducts of the "Tapeworm Railroad" in Hamiltonban Township are an example of unique structures that warrant protection. Of the eighteen bridges that were inventoried on the Historic Sites Survey, six have been listed on the National Register. Thirty-one cemeteries were inventoried by the survey. While limited in number and often overlooked, these resources record important historical information regarding the county's development and are sometimes associated with unique and colorful endeavors.

Roads: The development of roads has been integral to the history of Adams County. The road network existing today is essentially that which evolved in the late eighteenth and early nineteenth centuries. Roads are therefore among the oldest, longest used, and influential historic resources in the county.

The oldest major roads were established by the petition of local residents to the colonial, and later the state, government of Pennsylvania. Copies of many of these petitions, along with the bearings and distances of the surveyed roads, have been collected by the Adams County Historical Society. Most of the early roads were established between the 1740s and 1800. Members of the Historical Society have plotted the bearings and distances for early roads and found, when superimposed over modern roadmaps, that the courses closely follow those of roads today.

An example of the historical development of an early road is that of the road connecting Deardorf's Mill, in the county's northeast corner, to Hanover. The road was originally surveyed in 1769 and then resurveyed in 1770 due to complaints regarding portions of its course. Much of the road follows the path of today's Route 94. When superimposed over a modern road map, however, it can be seen that the early road is more variable in its course than Route 94. Much of this variation is in response to natural features, particularly to the avoidance of watercourses, both to minimize the number of stream crossings (there were no bridges) and to maximize the length of travel over the dry, level ground of ridgelines. At major natural features, such as the ford at the Conewago Creek, there are sudden jogs.

In the early nineteenth century, turnpikes were established by private companies under charter from the state. A number of turnpikes were established along major routes in

Adams County. Among these was a turnpike between Hanover and Carlisle, which became the modern Route 94. Much of the course of this turnpike follows that of the old Deardorf's Mill Road. However, unlike the earlier road, the course is straightened and improved, with less regard for dry soils and stream crossings. The new turnpike bypassed Deardorf's Mill and was run through York Springs. Portions of the bypassed section of the old Deardorf's Mill Road still exist today as township roads. In 1807, a stretch of this old road became the boundary between Latimore and Huntingdon Townships. Other portions of the bypassed road have disappeared from use.

Another example of a historically-important road in Adams County is the Black's Gap Road. Surveyed in 1747, it is the earliest major east-west route across the county. The road's early course remains largely intact today, but it too has been bypassed by other, more widely-utilized routes. A portion of the Black's Gap Road has been improved as modern Route 394. Much of the old Black's Gap Road, however, stretching between Hilltown, Mummasburg, Hunterstown, and the intersection with US Route 30 west of New Oxford, exists today as a series of township roads.

The Lincoln Highway was the first transcontinental highway in the United States. It was established about 1915 and followed much of the present course of US Route 30. Though the road itself had existed well before it was designated as part of the Lincoln Highway, this designation has given it a unique historical significance. The Lincoln Highway is closely tied to the early history of the automobile in the United States. Today, the portion of the highway through McKnightstown and Cashtown, and which winds westward up through the gap, is largely unchanged in character from that in the early twentieth century. Like other historic roadways in Adams County, these examples deserve recognition and protection, not only to preserve the roads themselves, but to preserve the historic farms, residences, and villages along their courses in the landscape context in which they were originally established.

The Battle of Gettysburg

The significance of the Battle of Gettysburg to Adams County cannot be underestimated. The Battle of Gettysburg is probably the best-known military engagement in American history. For over a hundred years, it has focused national and world attention on Adams County and has given the word Gettysburg a recognition that is rarely matched. Even in the wake of the battle, the reunions, the monuments, the tourism, the trolley, the tower, etc., have been the subject of continuous historical study and public debate.

Because the historical focus in Adams County has so often been concentrated upon the battle, an effort has been made here to stress other elements and resources which contribute to the county's heritage. In a sense, the battlefield and the adjacent Eisenhower National Historic Site are already well-protected, and increased attention needs to be given to these other resources. As mentioned previously, however, the mid- to late-nineteenth century can

be considered the peak "period of significance" of the Adams County rural landscape. The legislated mission of the Gettysburg National Military Park is the preservation of the nineteenth-century landscape in which the battle took place. Thus, in focusing attention upon the recognition and preservation of the rural landscape character and of the many historic resources within the rural landscape, it is also possible to reinforce and preserve the county's most significant resource, the Gettysburg battlefield. Likewise, the preservation of the battlefield has led to a recognition of the importance of protecting the rural landscape. The two go hand-in-hand.

It should also be recognized that the battle actually occurred over a much larger area than that included within the park. The Historic Resources, 1990 map (Figure 2.5.4), shows roads and the general area of encampments that are significant to the battle. Also significant are the locations of the engagements at Hunterstown and Fairfield. Recognition and further research into battle-related activities on a county-wide basis will increase the public awareness for preservation of the rural landscape and its historic resources. A program to make tourists aware of battle-related resources outside of the park and to promote the county-wide significance of the conflict could be of overall economic benefit.

Gettysburg National Military Park and the Eisenhower National Historic Site are fundamentally historic resources, not recreational facilities. A number of pressures have been placed upon the parks due to their proximity to the Borough of Gettysburg, including use of park roads for through traffic, and use of parking areas by local bikers, joggers, and sunbathers.

The National Park Service completed a Boundary Study for the Gettysburg National Military Park in 1988, and significant federal legislation was passed by Congress in 1990, enlarging the park in response to the recommendations included in the study. The Park is currently engaged in the process of determining the procedures by which the additional lands authorized by Congress will be acquired or otherwise protected. The legislation also authorizes the Park Service to encourage conservation within the Gettysburg Battlefield Historic District, to provide grants and technical assistance within the Historic District to programs and activities that will ensure development and use of natural and cultural resources in a manner that is consistent with the conservation and maintenance of the District's historic character, and to provide technical assistance and reimbursements for planning costs to local and county governments within the Historic District to complement the values and objectives of the park. The federal government may also accept donations of conservation easements on land located within the Historic District. This legislation could be of great importance in helping to promote a cooperative effort among the Park Service, local governments, and landowners. Chapter 3 includes recommendations based upon opportunities created by this legislation.

Archeological Resources

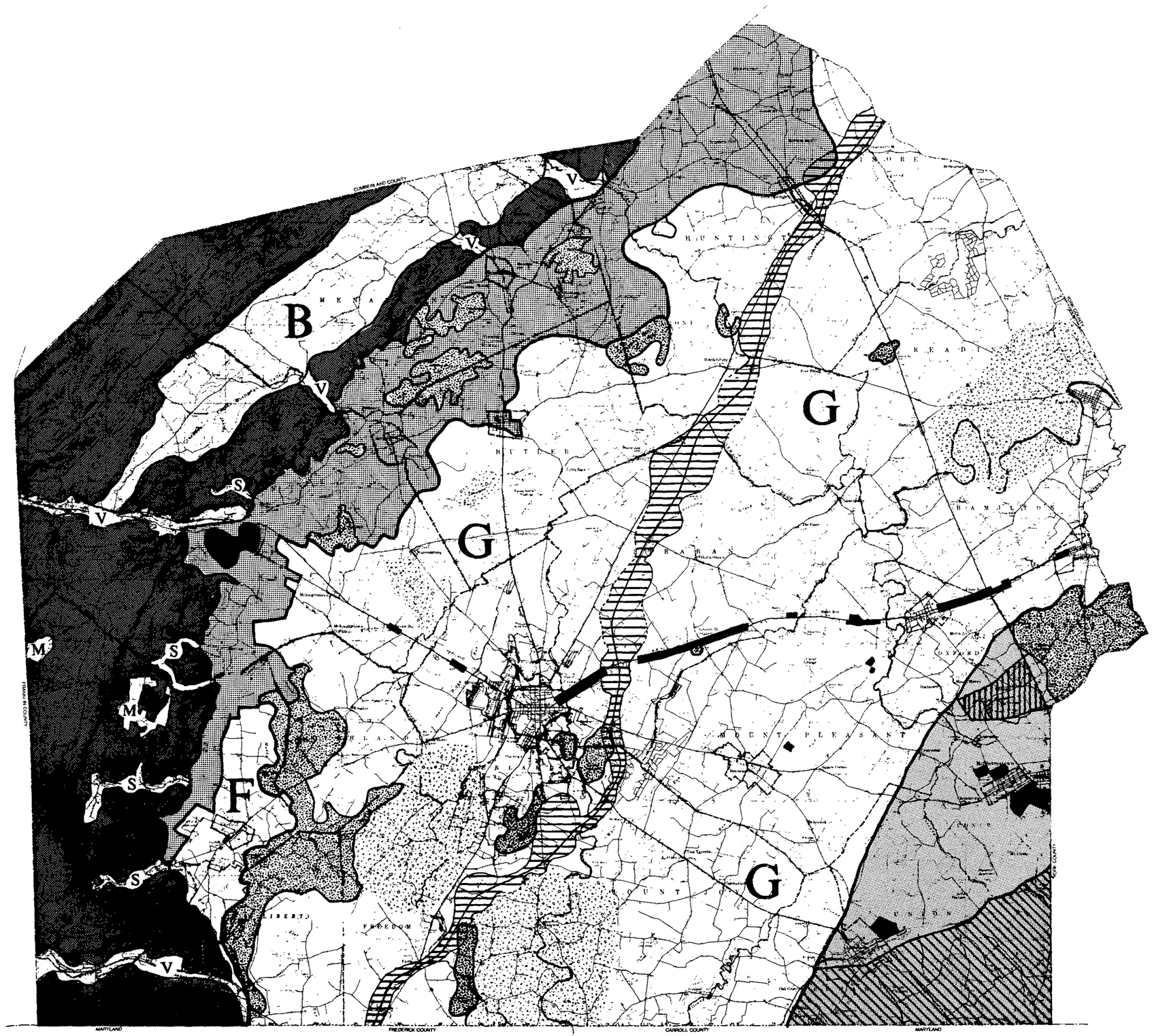
Archeology, and specifically prehistoric archeology, has been largely underrated and overlooked in discussions of the historic resources of Adams County, except by a small number of local enthusiasts. A listing of archeological sites is kept in the site survey files at the Pennsylvania Historical and Museum Commission, where listings for Adams County began in 1976. At present, one hundred and eighty-five sites are listed. Only two of these listed sites are historic (the Getty Tavern and the Owings Mass House). The remainder are prehistoric. Through the early 1980s almost all of the listed sites were reported by amateur collectors, including approximately 75% of the total listed sites. Since the mid-1980s, the number of sites reported by collectors has dramatically (and inexplicably) decreased. Most sites listed since the mid-1980s were professional investigations and reports required by state and federal law for activities involving federal funds or state permits.

Site reports by collectors include a form with the name of the collector, the location of the site, and a brief statement on the artifacts found at that location. Sites are also indicated on USGS quad sheets. Though the information usually provided in the reports of collectors is scant, it provides important data to state archaeologists when reviewing the potential impact of state- and federal-related activities on potential archeological resources.

The most significant prehistoric archeological site in Adams County is Snaggy Ridge in the South Mountain area. Snaggy Ridge was an important regional source of rhyolite for points. Investigations have identified quarry pits, work areas, and rock shelters. C. E. Schildknecht has studied the Strohmeier-Olinger Collection of artifacts collected by Albert Strohmeier at the airport site northwest of Gettysburg and reported that 97.3% of the points were of rhyolite.

In general, most archeological sites in the Gettysburg Plain are located along stream corridors. Approximately forty sites have been identified along the Conewago Creek. Twelve sites are listed along the South Conewago, ten along Plum Creek, eight along Marsh Creek, and six along Opposum Creek. Preservation of stream corridors and areas of hydric soils as open space could help in the protection of potential archeological sites.

Figure 2.5.1



LANDSCAPE CHARACTER AND SCENIC RESOURCES

- G — Gettysburg Plain
- South Mountain
  - V — Valley Corridor / Gap
  - S — Stream Valley Community
  - M — Mountain Community
- B — Buchanan Valley
- Fruitbelt
- F — Fairfield Valley
- Littlestown/McSherrystown Valley
  - Associated Uplands
  - Quarries
- Prime Scenic Agricultural Landscape
- Steep Wooded Hills and Roundtops
- Interstate Route 15 Associated Landscape
- Development Which Detracts From Adjacent Landscapes

ADAMS COUNTY
Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

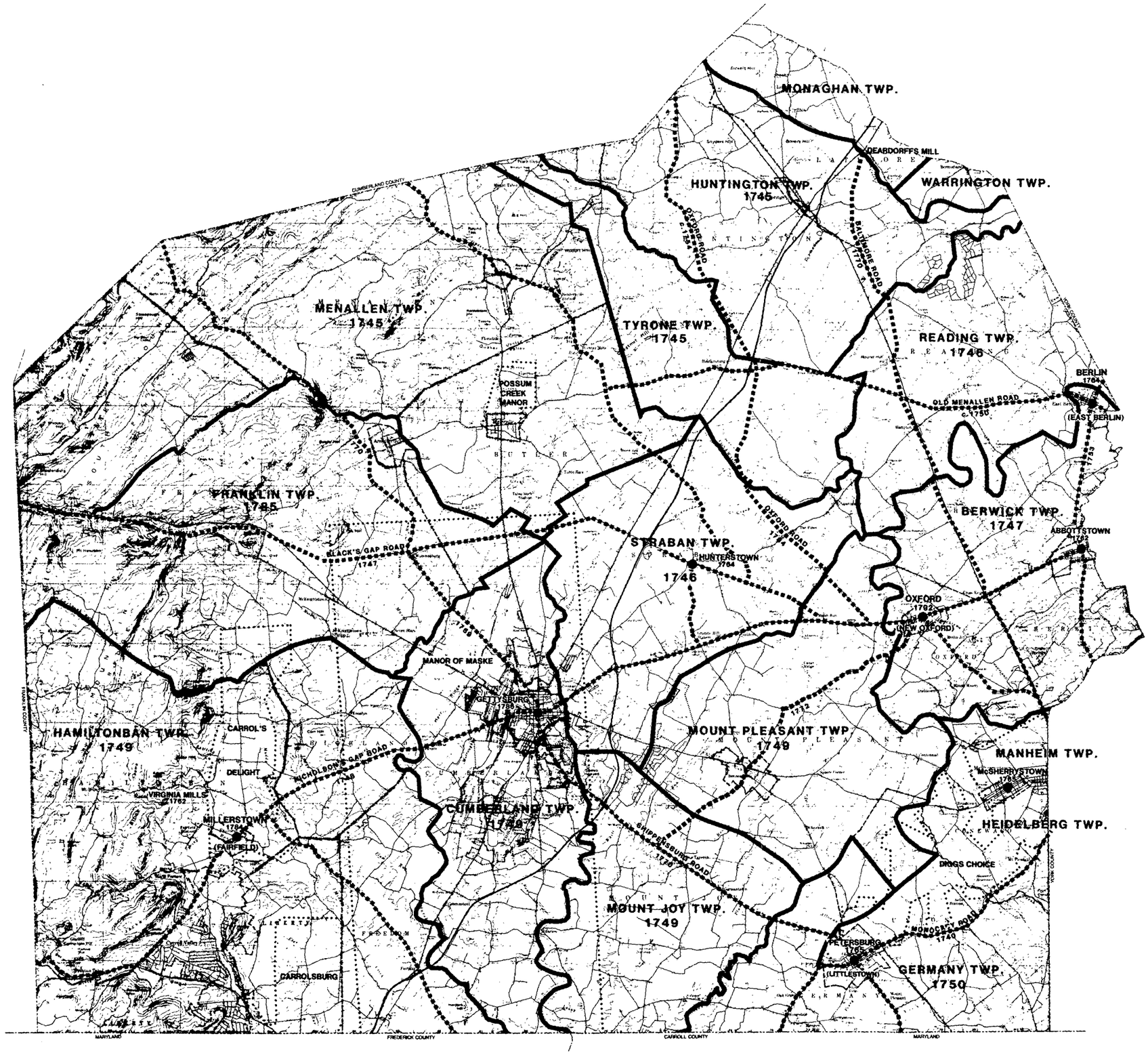
1 Square Mile

NORTH

NDA
Norman Day Associates
Planning & Urban Design
1611 Walnut Street 2nd Floor
Philadelphia, PA 19103

- Orth-Rodgers & Associates
- Coughlin, Kearne & Associates
- John Millner Associates
- R.E. Wright Associates

Figure 2.5.2



HISTORICAL DEVELOPMENT 1800

- Primary Historic Roads
- Historic Villages (Contemporary names in parentheses)
- Township Boundaries
- Early Grants and Manors

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

NDA
Norman Day Associates
Planning & Urban Design
1611 Walnut Street 2nd Floor
Philadelphia, PA 19103

- Orth-Rodgers & Associates
- Cougnin, Keene & Associates
- John Milner Associates
- R.E. Wright Associates

Figure 2.5.3

HISTORICAL DEVELOPMENT 1860

- Turnpikes
- Railroads (Proposed and Completed)
- Historic Villages (Contemporary names in parentheses)
- Roads used by Confederate Troops, June 26 & 27, 1863
- Roads used by Confederate Troops June 30–July 2, 1863
- Roads used by Union Troops June 30–July 2, 1863

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

NDA Norman Day Associates

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- Coughlin, Kokins & Associates
- John Milner Associates
- R.E. Wright Associates

Figure 2.5.4

HISTORIC RESOURCES 1990

- Sites identified by Historic Sites Survey
- Historic Villages
- Gettysburg Battlefield Historic District
- Gettysburg National Military Park & Eisenhower National Historic Site
- Roads traveled by Union and Confederate Armies, June 26 – July 7, 1863
- Union and Confederate Encampments

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

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SECTION 6: AGRICULTURAL RESOURCES

I. Trends

The Comprehensive Plan is concerned with both farmland and farming. The land resource base must remain available if agriculture is to continue to be a major activity in the county. But if agriculture does not continue to be an economically viable activity, it will prove impossible to keep land available for it. This inventory, therefore, covers both farmland and the farming industry.

Adams County is an important agricultural county in the center of an important agricultural region. Fifty six percent of all the land in Adams County is in farms, according to the 1987 U. S. Census of Agriculture (Table 2.6.1). This percentage is higher than the average (50.9 percent) for all six counties surrounding it. Adams's percent in farms is exceeded only by that of Carroll County, Maryland, which has 58 percent of its land in farms. For comparison, Adams's percentage is also exceeded by Lancaster County, the state's leading agricultural county, which has 66 percent of its land in farms.

During the five years 1982 to 1987, farmland in Adams County declined by 9,600 acres or by 4.9 percent. This decline is a matter for concern. It was slightly greater than the average for all surrounding counties (a loss of 4.0 percent). Adams's rate of decline was not as great as was experienced by York, Cumberland, and Washington counties, but it was significantly higher than that experienced by Frederick County. Lancaster County, a county under much greater pressure for urban development than Adams but with a very strong agricultural land protection program, had a lower loss rate (a decline of 3.2 percent) than Adams or any of the six counties surrounding it.

When viewed over a longer time period, the loss of farmland in Adams County is more impressive (Table 2.6.2). Between 1954 and 1987, the total area in farms declined by 60,000 acres, or 94 square miles. In 1954, farmland constituted 74.2 percent of the county; by 1987, it constituted only 56.1 percent. In 1987, however, Adams County still had 187,000 acres in farms, or about 292 square miles. For Pennsylvania as a whole, the rates of decline were significantly greater than for Adams County.

Losses in Adams County farmland were recorded in each census, except for the 1982 census. (Apparent gains in 1978 were due in part to a change in definition of a farm).

Cropland declined more slowly than did all land in farms. Total cropland constituted 76 percent of all land in farms in 1987, as compared to only 69 percent in 1964 (the earliest year for which data on total cropland are available). Table 2.6.3 details trends in cropland, pastureland, and woodland in Adams County. Between 1982 and 1987, the percentage of farmland in cropland (excluding cropland used for pasture) increased and the percentages in pastureland and woodland decreased.

II. The Land Resource

Soil Quality

Adams County is particularly well endowed with good farmland - the most basic resource on which farming depends. The Important Farmlands map for Adams County, prepared by the United States Department of Agriculture Soil Conservation Service (USDASCS), shows that nearly all of the county has land good enough to be classified in one of the four categories of important farmland. Data on prime farmland are also available based on the Agricultural Capability Classification of soils. Both systems for classifying the quality of soils for agriculture were developed by the Soil Conservation Service.

The Prime and Unique Farmland map (Figure 2.6.1) has been extracted from the USDASCS Important Farmlands map. Important Farmlands includes four categories:

	Acres	% of County	Relative Value
Prime Farmland	97,330	29.2	80
Unique Farmland Other Than Prime Farmland	15,100	4.5	n.a.
Additional Farmland of Statewide Importance	125,230	37.5	59
Additional Farmland of Local Importance	48,860	14.7	33
Total	286,520	86.0	

Prime Farmland is defined as land best suited for producing food, feed, forage, fiber, and oilseed crops, and also available for these uses. (The land could be cropland, pastureland, rangeland, forest land, or other land but not built-up land or water). It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed, including water management, according to modern farming methods.

The 42 soil types (officially, "mapping units") that are classified as Prime Farmland in Adams County consist primarily of soils of Agricultural Capability Classes I and

II. In addition, five mapping units are rated Capability Class III.

Unique Farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. In Adams County it consists primarily of land in orchards.

Additional Land of Statewide Importance is land, in addition to prime and unique farmland, that is of statewide importance for agricultural production. Pennsylvania has defined this category as consisting of soil mapping units in Capability Classes II and III that do not qualify as prime or unique farmland.

Additional Farmland of Local Importance is defined by Adams County as land of Capability Classes IIIw and IVw. Much of this land has a high water table (as indicated by the "w") and is used for pasture or for corn, wheat, or hay.

The relative values given in the table above are unweighted averages of the ratings assigned by the Adams County Farmland Preservation Board to the soil mapping units in each Important Farmlands classification.

The Prime and Unique Farmlands map (Figure 2.6.1) shows that prime farmland is widely dispersed throughout much of the county. Commonly it occurs in relatively small areas separated from other areas of prime farmland or farmland of statewide or local importance. The major concentrations, however, are in the central plain and in the western foothills next to unique farmland. There, both prime and unique farmland are used for orchards.

The second system for classifying soil quality for agriculture, the Agricultural Capability rating system, has eight categories:

Class I. Soils that have few limitations restricting their use.

Class II. Soils that have some limitations, reducing the choice of plants or requiring moderate conservation practices.

Class III. Soils that have severe limitations that reduce choice of plants or require special conservation practices, or both.

Class IV. Soils that have very severe limitations that restrict the choice of plants, require very careful management or both.

Class V. Soils that have little or no erosion hazard but have other limitations, impractical to remove, that limit their use to pasture, woodland, or wildlife food and cover. (No class V soils have been mapped in Adams County).

Class VI. Soils that have severe limitations that make them generally unsuited to

cultivation and limit their use largely to grazing, woodland, or wildlife.

Class VII. Soils that have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.

Class VIII. Soils and land forms that preclude their use for commercial plant production and restrict their use to recreation, wildlife, water supply, or aesthetic purposes.

Table 2.6.4 shows, for each municipality, the Capability Classification for land in parcels that both are 10 acres or more and have 10 percent or more of their area measured as open land (that is, not built on or in forest). The data are from the Adams County Land Valuation Study conducted by 21st Century Appraisals, Inc. The parcels described in Table 2.6.4 constitute a reasonable approximation of land in farms, because in the eastern United States land stays open only if it is maintained. With few exceptions, farming is the only use for which parcels of 10 acres or more are kept open. Open land may be either tillable or untillable, and correspondingly, tends to be either in cropland or in pasture.

Table 2.6.4 follows a widely used definition of prime soils: that they consist of all soils in Capability Classes I- III. Forty percent of the county as a whole consists of prime land. Over 50 percent of the land in many townships is in prime land. These townships cover most of the eastern part of the county - including the areas under the most pressure for development. The township-wide percentages under-represent the extent of prime land in the western part of the county, because in a number of western townships, such as Franklin Township, extensive mountainous areas with poor soils counter balance significant areas of highly fertile land.

Parcel Size

In order to be valuable for farming, land must not only be of good quality but must also be in large parcels. Smaller parcels generally indicate separate ownerships, higher per-acre prices, and the existence of non-farm uses in the farming area. Table 2.6.5 provides data on the size distribution of open land parcels in Adams County by municipality. The parcels analyzed are the same as in Table 2.6.4, that is, parcels 10 acres or more in size and at least 10 percent open.

Table 2.6.5 also indicates the percent of area in the "open land" parcels that is actually open, that is, land that is either tillable or non-tillable and not wooded or in use as a homesite. For the county as a whole, 79 percent of the "open land" was actually open; for boroughs it was 84 percent, for townships, 76 percent.

Table 2.6.5 shows that 54 percent of the county's open land is in tracts of 100 or more acres; 74 percent is in tracts of 60 or more acres. In a number of townships, about 60 percent of

the open land is in tracts of 100 acres or larger. Thus a very large proportion of the county's open land is in tracts of sizes most suitable for agricultural use and, unless it is subdivided, of relatively little value for other final uses. The dominance of large tract sizes is a resource valuable for the continuation of farming.

III. The Farming Industry

Farm Size

Table 2.6.6 presents data on farm size (as opposed to parcel size). It shows that 65 percent of the farmland in the county was in farms that are over 220 acres each and 88 percent was in farms that were over 100 acres each. The average size of farm in Adams County was 169 acres. Of all surrounding counties, only Franklin had a larger average farm size (177 acres). Like Table 2.6.5, Table 2.6.6 indicates that farming in Adams County is conducted in relatively large units.

Types of Farming

Figure 2.6.2 provides a general picture of the dominant types of farms in various parts of the county. It is based on information supplied by the County Agricultural Extension Agent and other knowledgeable people. Dairy farms are found in most parts of the county. Poultry tends to be in the area of Straban, Tyrone, and Reading. Livestock farms, too, are somewhat dispersed. Horse farms are primarily in Conewago and Mt. Pleasant. Orchards are generally in a belt just to the east of the mountains.

Table 2.6.7 presents data on the types of farms in Adams County as reported by the U. S. Census of Agriculture. The well known orchard farms are a major land use, accounting for 21,000 acres. The area in orchards is exceeded, however, by the areas reported to be in hay, alfalfa, etc. and in corn for grain or seed.

Characteristics of Farm Operators

Table 2.6.8 summarizes some characteristics of farm operators that are significant for the continuation of farming. The table refers to farms that had sales of over $10,000. The percent of farm operators for whom farming is their principal occupation has generally risen since 1974. As of 1987, 79 percent reported that farming was their principal occupation - considerably higher than the 65 percent reported by all surrounding counties as a whole (Table 2.6.9).

For Adams County, the number of days worked off the farm has declined since 1974, again indicating that farming has been providing a greater proportion of the income of farm operators. A smaller percentage of Adams County farm operators spend any time working off the farm than the average for surrounding counties. But 22 percent work more than 200 days off the farm, as compared to 17 percent for surrounding counties as a whole.

The age of farm operators shows a more complex pattern. The trend has been to a larger proportion of young farmers, which augurs well for the continuation of agriculture. At the same time, however, the percent of farmers at retirement age has increased, at least between 1982 and 1987. This indicates that an unusual number of farms may come on the market in the next few years, adding to an uncertain outlook for the continuation of farming.

Adams County does not compare well concerning the age of its farm operators (Table 2.6.9). Although the percentage of farm operators 44 years old or younger had increased to 32 percent by 1987, the average for all surrounding counties was 39 percent. Only York County had a smaller percentage of farm operators 44 years old or younger. While in Adams County 32 percent of operators are in the young group, in Cumberland and Washington counties, 44 percent are, and in Franklin 48 percent are.

Adams County also has a larger percentage of farm operators at retirement age than any of the nearby counties. On average, 14 percent of farm operators in surrounding counties are in the 65 years old group, as compared to 19 percent in Adams. In Lancaster County only 6 percent are in the retirement age category. If retiring farmers are replaced by young farmers in Adams County, the prospects for continuation of the farming economy will improve. Alternatively, as farmers retire, farms may close and be sold to non-farm buyers, weakening the ability of remaining farms to continue efficiently and economically.

Economic Structure

Four-fifths of all farms in Adams County are owned by families or individuals (Table 2.6.10). This percentage has been declining since 1978, but is still far ahead of the next largest category - partnerships, which accounts for 11 percent of all farms. Corporations account for 4 percent, and nearly all these corporations are family-held.

Families or individuals own 81 percent of all farms, but only 69 percent of farm acreage. Partnerships and corporations account for larger proportions of acreage than of farms, but still, far less acreage than is accounted for by farms owned by families and individuals.

The magnitude of the agricultural sector in Adams County is indicated in Table 2.6.11, which provides data on the value of agricultural products sold. In 1987, sales of agricultural products totaled $105,153,000. The trend had been keeping pace with inflation between 1974 and 1982, but lagged inflation between 1982 and 1987.

Table 2.6.12 indicates that, in 1987, farms with sales of $10,000 or more made up only 53 percent of all farms in the county, but accounted for 83 percent of the acreage in farms and for 98 percent of total sales of agricultural products. These large farms accounted for a larger percentage of farms and of farm acreage in 1987 than in 1982. They are the backbone of commercial agriculture in the county. But the smaller farms also are important for the continuation of agriculture. They help secure the land base and prevent the intrusion of non-farm uses, which might lead to severe conflicts with commercial farmers.

Agricultural Infrastructure

For farming to continue as an economic enterprise, good soil, large parcels of land, large farm units, and young farm operators are all necessary. But in addition, the farming area must be large enough to support the necessary agricultural infrastructure - the providers of farm supplies and services necessary to run the farm and market the farm products. Table 2.6.13 indicates that the agricultural infrastructure of Adams County is extensive. Major concentrations of establishments serving the agricultural sector are in Gettysburg and Biglersville, with lesser concentrations in York Springs and New Oxford. In addition, many agricultural services are available in adjoining counties.

IV. Farmland Protection Programs

Four important techniques are now being used to protect farmland in the county: differential assessment, Agricultural Security Areas, agricultural zoning, and purchase of agricultural conservation easements.

Differential Assessment

First, many owners of qualified farmland have been granted differential assessment for property tax purposes, under Pa. Act 319, the "Clean and Green Act". This program has been activated in the county during the past couple of years. Most farmers are expected to participate within the next year or two. Under differential assessment, farmland is assessed at its value for farm production as opposed to its value for development. The resulting lower assessment and tax bill reduce a farmer's annual costs and make it more feasible for him to continue farming economically. It does not prevent the owner from developing his land, but if the land is developed, tax savings over the previous seven years and interest on those savings must be paid.

Agricultural Security Areas

Second, many farmland owners have enrolled their land in Agricultural Security Areas. The Agricultural Security Areas law prevents municipalities from enacting ordinances that restrict normal farming practices or structures in Agricultural Security Areas. It also requires state agencies with programs that might negatively affect farmers to conduct their programs in a manner that will encourage the continuance of viable agriculture in the Areas. It requires the approval of the Agricultural Lands Condemnation Approval Board of the Commonwealth before the Commonwealth or local governments use the power of eminent domain to acquire land in an Area. Finally, the law requires that state or locally funded development projects in a Security Area be reviewed by the state Agricultural Preserve Board and the Local Agricultural Advisory Committee (in Adams County the Adams County Farmland Protection Bureau). Inclusion of an area is voluntary and does not prevent the landowner from developing his land.

As of December 1991, 17 townships in Adams County had established 22 Agricultural Security Areas. They contained 699 parcels and covered 62,200 acres (Table 2.6.14).

Agricultural Zoning

Third, two townships have enacted agricultural zoning that strictly limits the development of farmland. Agricultural zoning provides relatively permanent protection of farmland from development, but like any zoning, it can be changed.

Tyrone Township's agricultural zoning district, adopted in 1979, covers 12,500 acres. Latimore Township's agricultural zoning district, adopted in 1987 covers 11,700 acres.

Agricultural zoning is common in neighboring York and Lancaster counties. In York County, 17 municipalities have agricultural zoning ordinances in effect. They cover 159,000 acres. In Lancaster County, 35 municipalities have agricultural zoning ordinances, covering a total of 268,000 acres.

Agricultural Conservation Easements

Fourth, Adams County is participating fully in the Pennsylvania Purchase of Agricultural Conservation Easements (PACE) program. Easements provide protection of farmland that is essentially permanent. They can be reviewed after 25 years, however, and, if both the state and the county boards find that the land under easement is no longer viable agricultural land, the development rights can be sold to the current owner. In order to be eligible for the PACE program, farmland must be located in an Agricultural Security Area.

Adams County has established an Agricultural Land Preservation Board (the Adams County

Farmland Protection Bureau) and appropriated $450,000 to match state payments for easements to prevent development on farmland. As of December 1991, acquisition of easements on 10 farms, totaling 1,505 acres, had been approved by both county and state agricultural preservation boards.

The degree of protection increases as one goes from Agricultural Security Areas, to agricultural zoning, and to land under easement. The extent of areas under these techniques as of December 1991 is shown in Figure 2.6.3.

IV. Summary

This inventory indicates that the land base for agriculture in Adams County is extensive, of good soil quality, and in large parcel sizes and farm sizes. The agricultural infrastructure is extensive. Agricultural enterprise in the county, however, suffers from a relative lack of young farmers and more than average numbers of farmers at retiring age.

Trends in the loss of farmland, though serious, are not extreme as compared with other counties.

Recently, the County has initiated three programs to protect agricultural land: differential assessment, Agricultural Security Areas, and the purchase of agricultural conservation easements. Two townships, Tyrone and Latimore, have adopted strong agricultural zoning ordinances.

Table 2.6.1

Land in Farms in Adams and Nearby Counties, 1982 and 1987

	1982		1987			Change 1982–1987		Percent Change 1982–1987	
	No. of Farms	No. of Acres	No. of Farms	No. of Acres	% of Co.	No. of Farms	No. of Acres	No. of Farms	No. of Acres
Adams	1,199	196,644	1,104	187,035	56.1	-95	-9609	-7.9%	-4.9%
Pennsylvania:									
York	2,303	299,879	2,041	278,239	48.0	-262	-21640	-11.4%	-7.2%
Cumberland	1,174	163,186	1,100	153,746	43.9	-74	-9440	-6.3%	-5.8%
Franklin	1,508	249,400	1,441	254,428	51.4	-67	5028	-4.4%	2.0%
Total Adj. Pa. Cos.	4,985	712,465	4,582	686,413	48.2	-403	-26052	-8.1%	-3.7%
Maryland:									
Washington	962	145983	906	137529	47.2	-56	-8454	-5.8%	-5.8%
Frederick	1,463	244,031	1,439	236,350	55.7	-24	-7681	-1.6%	-3.1%
Carroll	1,316	175,507	1,238	166,745	57.6	-78	-8762	-5.9%	-5.0%
Total Adj. Md. Cos.	3,741	565,521	3,583	540,624	54.9	-158	-24897	-4.2%	-4.4%
Total Adj. Counties	8,726	1,277,986	8,165	1,227,037	50.9	-561	-50949	-6.4%	-4.0%
Lancaster	4,991	417,296	4,775	403,964	66.3	-216	-13332	-4.3%	-3.2%

LAND IN FARMS consists primarily of agricultural land used for crops, pasture, or grazing. It also includes minor areas of woodland and wasteland that are part of the farm operator's total operations, but it does not include large acreages of woodland or wetland.

Source: U. S. Census of Agriculture, 1987.

Table 2.6.2

Area in Farms and in Cropland: Pennsylvania and Adams County, 1954–1987+

A. LAND IN FARMS

	Total		Change since Previous Census		Change as Percent of Previous Census	
	Penna.	Adams Co.	Penna.	Adams Co.	Penna.	Adams Co.
1954	13,162,093	247,303				
1959	11,861,727	236,931	(1,300,366)	(10,372)	(10)	(4)
1964	10,803,983	220,805	(1,057,744)	(16,126)	(9)	(7)
1969	8,900,767	203,575	(1,903,216)	(17,230)	(18)	(8)
1974	8,186,378	191,232	(714,389)	(12,343)	(8)	(6)
1978 *	8,543,661	191,909	357,283	677	4	0
1982	8,297,713	196,644	(245,948)	4,735	(3)	2
1987	7,866,289	187,035	(431,424)	(9,609)	(5)	(5)

B. TOTAL CROPLAND

	Total		Change since Previous Census		Change as Percent of Previous Census	
	Penna.	Adams Co.	Penna.	Adams Co.	Penna.	Adams Co.
1954	7,250,246	n.a.				
1959	6,595,256	n.a.				
1964	6,042,837	151,943	(552,419)			
1969	5,597,790	145,582	(445,047)	(6,361)	(7)	(4)
1974	5,283,094	135,361	(314,696)	(10,221)	(6)	(7)
1978 •	5,687,734	140,921	404,640	5,560	8	4
1982	5,545,787	149,996	(141,947)	9,075	(2)	6
1987	5,398,072	142,275	(147,715)	(7,721)	(3)	(5)

C. HARVESTED CROPLAND

	Total		Change since Previous Census		Change as Percent of Previous Census	
	Penna.	Adams Co.	Penna.	Adams Co.	Penna.	Adams Co.
1954	5,433,491	138,541				
1959	4,853,664	125,030	(579,827)	(13,511)	(11)	(10)
1964	4,534,073	116,805	(319,591)	(8,225)	(7)	(7)
1969	3,687,091	100,504	(846,982)	(16,301)	(19)	(14)
1974	3,885,384	108,137	198,293	7,633	5	8
1978 •	4,263,952	114,397	378,568	6,260	10	6
1982	4,363,789	125,218	99,837	10,821	2	9
1987	4,080,153	115,748	(283,636)	(9,470)	(6)	(8)

+ Notes to this Table occur under Table 2.6.3

Table 2.6.3

Land Use, Land in Farms, Adams County, 1974–1987

	A. ACRES				B. PERCENT			
	1974	1978	1982	1987	1974	1978	1982	1987
Land in Farms	191,232	191,909	196,644	187,035	100.0%	100.0%	100.0%	100.0%
Total Cropland	135,361	140,921	149,996	142,575	70.8%	73.4%	76.3%	76.2%
Cropland not Pastured	116,178	124,107	132,733	129,958	60.8%	64.7%	67.5%	69.5%
Pastureland	n.a.	32,386	33,221	27,252	n.a.	16.9%	16.9%	14.6%
Cropland Pastured	19,183	16,814	17,263	12,617	10.0%	8.8%	8.8%	6.7%
Woodland Pastured	n.a.	3,592	3,895	3,228	n.a.	1.9%	2.0%	1.7%
Other Pastureland	n.a.	11,980	12,063	11,407	n.a.	6.2%	6.1%	6.1%
Woodland not Pastured	n.a.	25,590	20,114	21,348	n.a.	13.3%	10.2%	11.4%
House lots, roads, ponds, wasteland, etc	n.a.	9,826	10,576	8,477	n.a.	5.1%	5.4%	4.5%

Source: U. S. Census of Agriculture, 1987 (Table 5) and 1978 (Table 1).

Notes from Table 2.6.2

LAND IN FARMS consists primarily of agricultural land used for crops, pasture, or grazing. It also includes minor areas of woodland and wasteland that are part of the farm operator's total operations, but it does not include large acreages of woodland or wetland.

TOTAL CROPLAND consists of all harvested cropland plus any cropland used for pasture or grazing, cover crops, cultivated summer fallow, etc. It also includes idle cropland, and cropland on which crops failed.

*Data from the 1978 Census are not strictly comparable with data from earlier Censuses, because the 1978 Census had improved coverage of small farms. The Bureau of the Census estimates that in the Middle Atlantic, the 1974 Census missed 39.6 percent of farms with sales of less than $2,500.

Source: U.S. Census of Agriculture, 1959, 1969, 1978, and 1987

Table 2.6.4a

Open Land by Agricultural Capability Classification
(parcels of 10 acres or more with 10 percent or more open land)

A. ACRES

	All Classes	Class I	Class II	Class III	Sum I-III	Class IV	Class V	Class VI	Other	Total Land Area (acres)
COUNTY TOTAL	180,512	809	65,295	67,239	133,344	31,468	9,941	2,217	3,542	335,900
BOROUGHS										
Abbottstown	33	0	15	10	24	9	0	0	0	335
Arendtsville	228	6	118	72	196	29	3	0	0	461
Bendersville	113	0	46	30	76	32	5	0	0	297
Biglersville	42	1	3	24	28	14	0	0	0	403
Bonneauville	193	0	50	109	159	30	4	0	0	621
Carroll Valley	317	10	115	145	270	20	22	5	0	3,488
East Berlin	80	0	50	15	65	13	2	0	0	431
Fairfield	330	0	112	162	274	41	0	15	0	373
Gettysburg	52	0	0	52	52	0	0	0	0	1,024
Littlestown	315	3	133	73	209	77	12	3	15	906
McSherrystown	11	0	9	2	11	0	0	0	0	327
New Oxford	35	0	6	24	30	3	2	0	0	380
York Springs	25	0	0	25	25	0	0	0	0	128
Boroughs Total	1,773	20	656	742	1,418	268	50	22	15	9,174
TOWNSHIPS										
Berwick	2,104	0	713	789	1,502	423	122	57	0	5,184
Butler	11,200	79	3,300	4,485	7,864	2,642	547	109	38	15,104
Conewago	4,098	0	2,783	1,024	3,806	230	45	0	16	6,784
Cumberland	11,330	54	2,605	5,612	8,271	2,045	584	128	302	21,760
Franklin	13,186	30	4,717	4,806	9,553	2,432	805	261	135	44,687
Freedom	5,691	47	1,738	2,394	4,180	800	276	74	361	9,088
Germany	4,855	20	2,098	1,337	3,456	980	277	51	91	6,912
Hamilton	6,590	53	3,119	2,140	5,312	1,011	182	86	0	8,960
Hamiltonban	5,819	9	2,257	2,471	4,737	507	356	95	125	25,574
Highland	4,329	3	881	1,784	2,668	1,108	359	48	146	7,616
Huntington	11,003	11	2,740	4,161	6,912	2,694	1,197	140	60	16,000
Latimore	8,538	32	3,030	2,468	5,530	2,119	657	127	105	13,975
Liberty	4,853	12	948	2,335	3,295	1,027	327	76	129	10,080
Menallen	9,904	5	3,862	3,212	7,079	1,513	1,056	247	10	27,520
Mount Joy	12,242	115	5,293	4,061	9,469	1,927	591	220	34	16,422
Mount Pleasant	15,007	24	6,471	5,458	11,953	2,627	314	97	17	20,130
Oxford	2,881	8	1,426	811	2,246	563	36	36	0	6,400
Reading	12,138	102	4,765	3,860	8,726	1,359	819	161	1,073	17,338
Straban	15,778	65	4,126	7,389	11,579	2,884	686	62	567	21,976
Tyrone	9,264	42	3,069	3,905	7,016	1,755	400	90	2	13,824
Union	7,769	79	4,698	1,995	6,772	554	254	31	158	11,392
Townships Total	178,580	789	64,639	66,497	131,926	31,200	9,891	2,195	3,369	326,726

Table 2.6.4b

Open Land by Agricultural Capability Classification
(parcels of 10 acres or more with 10 percent or more open land)

B. PERCENT OF ALL LAND IN EACH MUNICIPALITY

	All Classes	Class I	Class II	Class III	Sum I-III	Class IV	Class V	Class VI	Other
COUNTY TOTAL	53.7%	0.2%	19.4%	20.0%	39.7%	9.4%	3.0%	0.7%	1.1%
BOROUGHS									
Abbottstown	9.9%	0.0%	4.4%	2.9%	7.3%	2.6%	0.0%	0.0%	0.0%
Arendtsville	49.5%	1.2%	25.6%	15.7%	42.5%	6.3%	0.7%	0.0%	0.0%
Bendersville	38.0%	0.0%	15.5%	10.0%	25.5%	10.9%	1.6%	0.0%	0.0%
Biglersville	10.4%	0.3%	0.8%	5.9%	6.9%	3.5%	0.0%	0.0%	0.0%
Bonneauville	31.0%	0.0%	8.1%	17.5%	25.5%	4.8%	0.6%	0.0%	0.0%
Carroll Valley	9.1%	0.3%	3.3%	4.2%	7.7%	0.6%	0.6%	0.1%	0.0%
East Berlin	18.6%	0.0%	11.5%	3.6%	15.1%	3.1%	0.4%	0.0%	0.0%
Fairfield	88.6%	0.0%	30.0%	43.5%	73.5%	11.1%	0.0%	4.0%	0.0%
Gettysburg	5.0%	0.0%	0.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
Littlestown	34.8%	0.4%	14.6%	8.1%	23.1%	8.5%	1.4%	0.3%	1.6%
McSherrystown	3.2%	0.0%	2.6%	0.6%	3.2%	0.0%	0.0%	0.0%	0.0%
New Oxford	9.2%	0.0%	1.6%	6.3%	7.9%	0.8%	0.5%	0.0%	0.0%
York Springs	19.7%	0.0%	0.0%	19.7%	19.7%	0.0%	0.0%	0.0%	0.0%
Boroughs Total	19.3%	0.2%	7.2%	8.1%	15.5%	2.9%	0.5%	0.2%	0.2%
TOWNSHIPS									
Berwick	40.6%	0.0%	13.7%	15.2%	29.0%	8.2%	2.4%	1.1%	0.0%
Butler	74.2%	0.5%	21.8%	29.7%	52.1%	17.5%	3.6%	0.7%	0.3%
Conewago	60.4%	0.0%	41.0%	15.1%	56.1%	3.4%	0.7%	0.0%	0.2%
Cumberland	52.1%	0.2%	12.0%	25.8%	38.0%	9.4%	2.7%	0.6%	1.4%
Franklin	29.5%	0.1%	10.6%	10.8%	21.4%	5.4%	1.8%	0.6%	0.3%
Freedom	62.6%	0.5%	19.1%	26.3%	46.0%	8.8%	3.0%	0.8%	4.0%
Germany	70.2%	0.3%	30.4%	19.4%	50.0%	14.2%	4.0%	0.7%	1.3%
Hamilton	73.6%	0.6%	34.8%	23.9%	59.3%	11.3%	2.0%	1.0%	0.0%
Hamiltonban	22.8%	0.0%	8.8%	9.7%	18.5%	2.0%	1.4%	0.4%	0.5%
Highland	56.8%	0.0%	11.6%	23.4%	35.0%	14.5%	4.7%	0.6%	1.9%
Huntington	68.8%	0.1%	17.1%	26.0%	43.2%	16.8%	7.5%	0.9%	0.4%
Latimore	61.1%	0.2%	21.7%	17.7%	39.6%	15.2%	4.7%	0.9%	0.8%
Liberty	48.1%	0.1%	9.4%	23.2%	32.7%	10.2%	3.2%	0.8%	1.3%
Menallen	36.0%	0.0%	14.0%	11.7%	25.7%	5.5%	3.8%	0.9%	0.0%
Mount Joy	74.5%	0.7%	32.2%	24.7%	57.7%	11.7%	3.6%	1.3%	0.2%
Mount Pleasant	74.6%	0.1%	32.1%	27.1%	59.4%	13.0%	1.6%	0.5%	0.1%
Oxford	45.0%	0.1%	22.3%	12.7%	35.1%	8.8%	0.6%	0.6%	0.0%
Reading	70.0%	0.6%	27.5%	22.3%	50.3%	7.8%	4.7%	0.9%	6.2%
Straban	71.8%	0.3%	18.8%	33.6%	52.7%	13.1%	3.1%	0.3%	2.6%
Tyrone	67.0%	0.3%	22.2%	28.2%	50.8%	12.7%	2.9%	0.6%	0.0%
Union	68.2%	0.7%	41.2%	17.5%	59.4%	4.9%	2.2%	0.3%	1.4%
Townships Total	54.7%	0.2%	19.8%	20.4%	40.4%	9.5%	3.0%	0.7%	1.0%

Source: Analysis by 21st Century Appraisals, Inc. for CKA.

Table 2.6.5a

Size Distribution of Parcels Over 10 Acres with 10 Percent or More Open Land

A. ACRES

	All Size Classes	10 - 19.99 acres	20 - 29.99 acres	30 - 59.99 acres	60 - 99.99 acres	100 - 149.99 acres	150 - 249.99 acres	250 - 349.99 acres	350 acres and over	Percent Actually Open
COUNTY TOTAL	231,426	17,266	11,443	32,341	46,004	57,580	42,305	10,846	13,641	79.0%
BOROUGHS										
Abbottstown	43	43								76.1%
Arendtsville	345	42	26	195	82					97.1%
Bendersville	153	36				117				73.9%
Biglerville	44	18	26							95.5%
Bonneauville	290		79	42	69	100				66.4%
Carroll Valley	458	102	44		63	249				69.2%
East Berlin	85	12		73						94.3%
Fairfield	354	30			65	259				93.4%
Gettysburg	149		46	102						100.0%
Littlestown	327		28		72	228				96.3%
McSherrystown	23		23							45.8%
New Oxford	38	18	20							92.3%
York Springs	25		25							100.0%
Boroughs Total	2,333	301	318	412	351	952	0	0	0	84.7%
TOWNSHIPS										
Berwick	2,630	579	285	429	290	370	385	293		82.0%
Butler	13,788	1,015	831	2,184	2,939	3,457	2,096	867	399	81.2%
Conewago	4,588	147	177	300	747	1,519	676	546	476	90.6%
Cumberland	14,392	1,331	696	1,568	2,786	3,343	2,782	573	1,313	82.3%
Franklin	19,512	1,233	932	1,967	2,704	3,653	4,416	1,450	3,156	68.2%
Freedom	7,561	796	451	1,047	707	1,690	1,700	619	552	75.3%
Germany	5,408	760	334	1,141	1,231	937	1,004			89.8%
Hamilton	7,455	481	421	1,128	2,386	1,979	1,060			88.4%
Hamiltonban	9,216	510	362	847	1,058	2,464	2,455	927	595	63.6%
Highland	6,282	443	387	482	1,335	1,617	1,657		361	68.9%
Huntington	14,161	866	755	2,171	3,211	3,310	1,859	581	1,408	80.0%
Latimore	11,313	965	669	1,880	2,193	3,401	1,916	288		77.6%
Liberty	7,129	496	344	1,257	1,260	1,106	1,376	523	767	68.1%
Menallen	16,417	773	879	2,465	3,192	2,483	3,858	1,354	1,413	63.2%
Mount Joy	14,306	1,429	790	2,590	3,928	3,483	2,087			85.6%
Mount Pleasant	16,927	1,012	1,078	2,669	4,845	3,681	2,168	269	1,206	88.9%
Oxford	3,316	406	233	407	1,244	513	513			87.2%
Reading	14,400	928	375	1,771	2,598	5,872	2,604	252		84.3%
Straban	18,951	1,549	580	2,724	2,848	5,117	4,730	1,404		84.0%
Tyrone	12,053	662	260	1,458	2,503	3,318	1,736	553	1,563	78.6%
Union	9,287	584	288	1,442	1,651	3,316	1,227	347	432	0.0%
Townships Total	229,093	16,965	11,125	31,929	45,654	56,628	42,305	10,846	13,641	75.5%

Table 2.6.5b

Size Distribution of Parcels Over 10 Acres with 10 Percent or More Open Land

B. PERCENT OF ALL OPEN LAND (read across)

	All Size Classes	10 - 19.99 acres	20 - 29.99 acres	30 - 59.99 acres	60 - 99.99 acres	100 - 149.99 acres	150 - 249.99 acres	250 - 349.99 acres	350 acres and over
COUNTY TOTAL	100.0%	7.5%	4.9%	14.0%	19.9%	24.9%	18.3%	4.7%	5.9%
BOROUGHS									
Abbottstown	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Arendtsville	100.0%	12.2%	7.6%	56.5%	23.7%	0.0%	0.0%	0.0%	0.0%
Bendersville	100.0%	23.7%	0.0%	0.0%	0.0%	76.3%	0.0%	0.0%	0.0%
Biglersville	100.0%	40.9%	59.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bonneauville	100.0%	0.0%	27.2%	14.6%	23.7%	34.5%	0.0%	0.0%	0.0%
Carroll Valley	100.0%	22.2%	9.6%	0.0%	13.8%	54.4%	0.0%	0.0%	0.0%
East Berlin	100.0%	14.3%	0.0%	85.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Fairfield	100.0%	8.4%	0.0%	0.0%	18.5%	73.2%	0.0%	0.0%	0.0%
Gettysburg	100.0%	0.0%	31.2%	68.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Littlestown	100.0%	0.0%	8.6%	0.0%	21.8%	69.6%	0.0%	0.0%	0.0%
McSherrystown	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New Oxford	100.0%	47.1%	52.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
York Springs	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Boroughs Total	100.0%	12.9%	13.6%	17.7%	15.0%	40.8%	0.0%	0.0%	0.0%
TOWNSHIPS									
Berwick	100.0%	22.0%	10.8%	16.3%	11.0%	14.1%	14.6%	11.1%	0.0%
Butler	100.0%	7.4%	6.0%	15.8%	21.3%	25.1%	15.2%	6.3%	2.9%
Conewago	100.0%	3.2%	3.8%	6.5%	16.3%	33.1%	14.7%	11.9%	10.4%
Cumberland	100.0%	9.2%	4.8%	10.9%	19.4%	23.2%	19.3%	4.0%	9.1%
Franklin	100.0%	6.3%	4.8%	10.1%	13.9%	18.7%	22.6%	7.4%	16.2%
Freedom	100.0%	10.5%	6.0%	13.8%	9.3%	22.4%	22.5%	8.2%	7.3%
Germany	100.0%	14.0%	6.2%	21.1%	22.8%	17.3%	18.6%	0.0%	0.0%
Hamilton	100.0%	6.5%	5.7%	15.1%	32.0%	26.5%	14.2%	0.0%	0.0%
Hamiltonban	100.0%	5.5%	3.9%	9.2%	11.5%	26.7%	26.6%	10.1%	6.5%
Highland	100.0%	7.0%	6.2%	7.7%	21.2%	25.7%	26.4%	0.0%	5.8%
Huntington	100.0%	6.1%	5.3%	15.3%	22.7%	23.4%	13.1%	4.1%	9.9%
Latimore	100.0%	8.5%	5.9%	16.6%	19.4%	30.1%	16.9%	2.5%	0.0%
Liberty	100.0%	7.0%	4.8%	17.6%	17.7%	15.5%	19.3%	7.3%	10.8%
Menallen	100.0%	4.7%	5.4%	15.0%	19.4%	15.1%	23.5%	8.2%	8.6%
Mount Joy	100.0%	10.0%	5.5%	18.1%	27.5%	24.3%	14.6%	0.0%	0.0%
Mount Pleasant	100.0%	6.0%	6.4%	15.8%	28.6%	21.7%	12.8%	1.6%	7.1%
Oxford	100.0%	12.2%	7.0%	12.3%	37.5%	15.5%	15.5%	0.0%	0.0%
Reading	100.0%	6.4%	2.6%	12.3%	18.0%	40.8%	18.1%	1.8%	0.0%
Straban	100.0%	8.2%	3.1%	14.4%	15.0%	27.0%	25.0%	7.4%	0.0%
Tyrone	100.0%	5.5%	2.2%	12.1%	20.8%	27.5%	14.4%	4.6%	13.0%
Union	100.0%	6.3%	3.1%	15.5%	17.8%	35.7%	13.2%	3.7%	4.7%
Townships Total	100.0%	7.4%	4.9%	13.9%	19.9%	24.7%	18.5%	4.7%	6.0%

Table 2.6.5c

Size Distribution of Parcels Over 10 Acres with 10 Percent or More Open Land

C. CUMULATIVE PERCENT OF ALL OPEN LAND (read across from right to left)

	10 - 19.99 acres	20 - 29.99 acres	30 - 59.99 acres	60 - 99.99 acres	100 - 149.99 acres	150 - 249.99 acres	250 - 349.99 acres	350 acres and over
COUNTY TOTAL	100.0%	92.5%	87.6%	73.6%	53.7%	28.9%	10.6%	5.9%
BOROUGHS								
Abbottstown	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Arendtsville	100.0%	87.8%	80.2%	23.7%	0.0%	0.0%	0.0%	0.0%
Bendersville	100.0%	76.3%	76.3%	76.3%	76.3%	0.0%	0.0%	0.0%
Biglersville	100.0%	59.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bonneauville	100.0%	100.0%	72.8%	58.3%	34.5%	0.0%	0.0%	0.0%
Carroll Valley	100.0%	77.8%	68.2%	68.2%	54.4%	0.0%	0.0%	0.0%
East Berlin	100.0%	85.7%	85.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Fairfield	100.0%	91.6%	91.6%	91.6%	73.2%	0.0%	0.0%	0.0%
Gettysburg	100.0%	100.0%	68.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Littlestown	100.0%	100.0%	91.4%	91.4%	69.6%	0.0%	0.0%	0.0%
McSherrystown	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New Oxford	100.0%	52.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
York Springs	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Boroughs Total	100.0%	87.1%	73.5%	55.8%	40.8%	0.0%	0.0%	0.0%
TOWNSHIPS								
Berwick	100.0%	78.0%	67.1%	50.8%	39.8%	25.8%	11.1%	0.0%
Butler	100.0%	92.6%	86.6%	70.8%	49.5%	24.4%	9.2%	2.9%
Conewago	100.0%	96.8%	92.9%	86.4%	70.1%	37.0%	22.3%	10.4%
Cumberland	100.0%	90.8%	85.9%	75.0%	55.7%	32.4%	13.1%	9.1%
Franklin	100.0%	93.7%	88.9%	78.8%	65.0%	46.2%	23.6%	16.2%
Freedom	100.0%	89.5%	83.5%	69.7%	60.3%	38.0%	15.5%	7.3%
Germany	100.0%	86.0%	79.8%	58.7%	35.9%	18.6%	0.0%	0.0%
Hamilton	100.0%	93.5%	87.9%	72.8%	40.8%	14.2%	0.0%	0.0%
Hamiltonban	100.0%	94.5%	90.5%	81.3%	69.9%	43.1%	16.5%	6.5%
Highland	100.0%	93.0%	86.8%	79.1%	57.9%	32.1%	5.8%	5.8%
Huntington	100.0%	93.9%	88.6%	73.2%	50.5%	27.2%	14.0%	9.9%
Latimore	100.0%	91.5%	85.6%	68.9%	49.5%	19.5%	2.5%	0.0%
Liberty	100.0%	93.0%	88.2%	70.6%	52.9%	37.4%	18.1%	10.8%
Menallen	100.0%	95.3%	89.9%	74.9%	55.5%	40.4%	16.9%	8.6%
Mount Joy	100.0%	90.0%	84.5%	66.4%	38.9%	14.6%	0.0%	0.0%
Mount Pleasant	100.0%	94.0%	87.7%	71.9%	43.3%	21.5%	8.7%	7.1%
Oxford	100.0%	87.8%	80.7%	68.5%	30.9%	15.5%	0.0%	0.0%
Reading	100.0%	93.6%	91.0%	78.7%	60.6%	19.8%	1.8%	0.0%
Straban	100.0%	91.8%	88.8%	74.4%	59.4%	32.4%	7.4%	0.0%
Tyrone	100.0%	94.5%	92.3%	80.3%	59.5%	32.0%	17.6%	13.0%
Union	100.0%	93.7%	90.6%	75.1%	57.3%	21.6%	8.4%	4.7%
Townships Total	100.0%	92.6%	87.7%	73.8%	53.9%	29.2%	10.7%	6.0%

Source: 21st Century Appraisals and CKA.

Table 2.6.6

Size Distribution of Farms, Adams County, PA, 1982 and 1987

	A. ACRES					B. NUMBER OF FARMS				
				Cumulative Acreage					Cumulative Number	
	1982	1987	Change '82-'87	Acres 1987	Percent 1987	1982	1987	Change '82-'87	Number 1987	Percent 1987
1 - 9 A.	257	309	52	187,035	100.0%	68	72	4	1,104	100.0%
10 - 49 A.	8,792	7,956	(836)	186,726	99.8%	334	290	(44)	1,032	93.5%
50 - 69 A.	6,411	5,248	(1,163)	178,770	95.6%	110	90	(20)	742	67.2%
70 - 99 A.	9,514	9,525	11	173,522	92.8%	115	115	0	652	59.1%
100 - 139 A.	18,221	15,059	(3,162)	163,997	87.7%	158	129	(29)	537	48.6%
140 - 179 A.	14,906	15,534	628	148,938	79.6%	95	98	3	408	37.0%
180 - 219 A.	14,055	12,204	(1,851)	133,404	71.3%	71	62	(9)	310	28.1%
220 - 259 A.	9,304	11,744	2,440	121,200	64.8%	39	49	10	248	22.5%
260 - 499 A.	48,155	46,886	(1,269)	109,456	58.5%	139	129	(10)	199	18.0%
500 - 999 A.	33,658	37,004	3,346	62,570	33.5%	50	55	5	70	6.3%
1,000 -1,999 A.	21,662	14,695	(6,967)	25,566	13.7%	17	11	(6)	15	1.4%
2,000 A.or more	11,709	10,871	(838)	10,871	5.8%	3	4	1	4	0.4%
Total	196,644	187,035	(9,609)			1,100	1,104	4		
Av. Size of Farm	164	169	5							

Note: Based on land in farms. For definitions, see previous tables.

Source: U.S. Census of Agriculture 1987, Table 5.

Table 2.6.7

Types of Farms, Adams County, 1982 and 1987

A. AREAS IN CROPS

	1982		1987		Change 1982-1987		Percent Change 1982-1987	
	No.Farms	No. Acres	No.Farms	No. Acres	No.Farms	No. Acres	No.Farms	No. Acres
All Harvested Cropland	1,065	125,218	993	115,748	(72)	(9,470)	-6.8%	-7.6%
Specific Crops:								
Hay, alfalfa, etc.	766	34,684	703	38,067	(63)	3,383	-8.2%	9.8%
Corn for Grain or Seed	708	38,065	588	26,866	(120)	(11,199)	-16.9%	-29.4%
Orchards	200	21,435	215	21,218	15	(217)	7.5%	-1.0%
Apples	187	15,625	202	15,598	15	(27)	8.0%	-0.2%
Peaches	123	3,248	122	3,052	(1)	(196)	-0.8%	-6.0%
Tart Cherries	70	1,472	66	1,438	(4)	(34)	-5.7%	-2.3%
Wheat for Grain	487	12,192	444	10,681	(43)	(1,511)	-8.8%	-12.4%
Corn for Silage or Green Chop	229	8,809	199	8,476	(30)	(333)	-13.1%	-3.8%
Oats for Grain	237	2,732	178	2,182	(59)	(550)	-24.9%	-20.1%

B. INVENTORIES OF ANIMALS

	1982		1987		Change 1982-1987		Percent Change 1982-1987	
	No.Farms	No.Animals	No.Farms	No.Animals	No.Farms	No.Animals	No.Farms	No.Animals
Cattle and Calves	689	33,360	553	28,402	(136)	(4,958)	-19.7%	-14.9%
Milk Cows	183	8,856	133	7,935	(50)	(921)	-27.3%	-10.4%
Beef Cows	313	4,918	258	4,144	(55)	(774)	-17.6%	-15.7%
Sheep and Lambs	71	3,199	64	2,871	(7)	(328)	-9.9%	-10.3%
Horses	167	1,712	149	1,937	(18)	225	-10.8%	13.1%

Source: U.S.Census of Agriculture, 1987, Tables 11, 15 and 28.

Table 2.6.8

Characteristics of Farm Operators, Farms with Sales of $10,000 or More: Adams County, 1974 - 1987

	A. NUMBER				B. PERCENT			
	1974	1978	1982	1987	1974	1978	1982	1987
	(number of operators)							
Principal Occupation*								
Farming	586	581	462	465	67.9%	62.9%	79.2%	79.2%
Other	277	343	121	122	32.1%	37.1%	20.8%	20.8%
Total	863	924	583	587	100.0%	100.0%	100.0%	100.0%
No. days worked off farm*								
None	327	403	302	313	47.3%	45.4%	56.4%	57.7%
Any days	364	485	233	229	52.7%	54.6%	43.6%	42.3%
200 days or more	228	290	116	118	33.0%	32.7%	21.7%	21.8%
Total	691	888	535	542	100.0%	100.0%	100.0%	100.0%
Age of Operator*								
44 years or younger	222	284	177	188	25.7%	30.7%	30.4%	32.0%
45 to 64 years	502	504	327	290	58.2%	54.5%	56.1%	49.4%
65 years and older	139	136	79	109	16.1%	14.7%	13.6%	18.6%
	863	924	583	587	100.0%	100.0%	100.0%	100.0%
	(average age)							
Average age of operator*	52.6	50.9	50.9	51.5				

* Data for 1974 and 1978 refer to farms with sales of $2,500 or more.

Source: U.S.Census of Agriculture: 1987 (Table 16), 1982 (Table 16), and 1978 (Table 4).

Table 2.6.9

Characteristics of Farm Operators in Adams County and Nearby Counties: Farms with Sales of $10,000 and Over, 1987

A. NUMBER OF OPERATORS

		Adjacent Pa. Counties				Adjacent Maryland Counties				All Adj.	
	Adams	York	Cumberland	Franklin	Total	Washington	Frederick	Carroll	Total	Counties	Lancaster
Principal Occupation											
Farming	465	704	522	814	2,040	507	817	600	1,924	3,964	3,204
Other	122	232	78	134	444	399	622	638	1,659	2,103	527
Total	587	936	600	948	2,484	906	1,439	1,238	3,583	6,067	3,731
No. Days Worked Off Farm											
None	313	490	354	585	1,429	277	439	240	956	2,385	1,932
Any Days	229	380	195	282	857	150	172	186	508	1,365	1,360
Total	542	870	549	867	2,286	427	611	426	1,464	3,750	3,292
					0						
200 days or more	118	195	75	115	385	68	91	96	255	640	476
Age of Operator											
44 years or younger	188	287	261	459	1,007	200	241	179	620	1,627	2,072
45 to 64 years	290	477	261	379	1,117	199	400	278	877	1,994	1,425
65 and over	109	172	78	110	360	60	109	68	237	597	234
Total	587	936	600	948	2,484	459	750	525	1,734	4,218	3,731

B. PERCENT

						Adjacent Maryland Counties				All Adj.	
	Adams	York	Cumberland	Franklin	Total	Washington	Frederick	Carroll	Total	Counties	Lancaster
Principal Occupation											
Farming	79.2%	75.2%	87.0%	85.9%	82.1%	56.0%	56.8%	48.5%	53.7%	65.3%	85.9%
Other	20.8%	24.8%	13.0%	14.1%	17.9%	44.0%	43.2%	51.5%	46.3%	34.7%	14.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
No. Days Worked Off Farm											
None	57.7%	56.3%	64.5%	67.5%	62.5%	64.9%	71.8%	56.3%	65.3%	63.6%	58.7%
Any Days	42.3%	43.7%	35.5%	32.5%	37.5%	35.1%	28.2%	43.7%	34.7%	36.4%	41.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
200 days or more	21.8%	22.4%	13.7%	13.3%	16.8%	15.9%	14.9%	22.5%	17.4%	17.1%	14.5%
Age of Operator											
44 years or younger	32.0%	30.7%	43.5%	48.4%	40.5%	43.6%	32.1%	34.1%	35.8%	38.6%	55.5%
45 to 64 years	49.4%	51.0%	43.5%	40.0%	45.0%	43.4%	53.3%	53.0%	50.6%	47.3%	38.2%
65 and over	18.6%	18.4%	13.0%	11.6%	14.5%	13.1%	14.5%	13.0%	13.7%	14.2%	6.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: U. S. Census of Agriculture, 1987, Table 16.

Table 2.6.10

Type of Farm Organization, Adams County, 1978 - 1987

A. FARMS

	Number of Farms			Percent of Farms		
	1978	1982	1987	1978	1982	1987
Indiv. or Family	1,040	1,046	929	89.2%	84.6%	80.5%
Partnership	89	106	121	7.6%	8.6%	10.5%
Corporation	35	40	50	3.0%	3.2%	4.3%
Family held	n.a.	38	47	n.a.	3.1%	4.1%
Other	n.a.	2	3	n.a.	0.2%	0.3%
Other*	2	5	4	0.2%	0.4%	0.3%
Total	1,166	1,237	1,154	100.0%	100.0%	100.0%

B. ACREAGE

	Number of Acres			Percent of Total Acreage		
	1978	1982	1987	1978	1982	1987
Indiv. or Family	143,013	137,467	128,942	74.5%	69.9%	68.9%
Partnership	19,507	27,277	27,388	10.2%	13.9%	14.6%
Corporation	n.a.	n.a.	29,454	n.a.	n.a.	15.7%
Family held	n.a.	n.a.	28,591	n.a.	n.a.	15.3%
Other	n.a.	n.a.	863	n.a.	n.a.	0.5%
Other*	n.a.	513	1,251	n.a.	0.3%	0.7%
Total**	191,909	196,644	187,035	100.0%	100.0%	100.0%

* Cooperative, estate or trust, institutional, etc.

** Totals refer to total acreage reported in the county, not just the sum of the amounts listed above.

Source: U. S. Census of Agriculture, 1978, Table 4 and 1987, Table 10.
Type of Organization is not available for 1974.

Table 2.6.11

Economic Measures of the Agricultural Sector, Adams County, 1974–1987

	A. CURRENT DOLLARS				B.INDEX (1978 = 100)			
	1974	1978	1982	1987	1974	1978	1982	1987
Market Value of Agricultural Products Sold								
Total	$48,602,000	$68,423,000	$100,160,000	$105,153,000	71	100	146	154
Fruits, nuts, and berries	n.a.	$15,477,000	$21,985,000	$23,689,000	n.a.	100	142	153
Poultry & poultry products	$10,203,000	$19,496,000	$30,368,000	$34,189,000	52	100	156	175
Dairy products	n.a.	$9,489,000	$13,719,000	$12,761,000	n.a.	100	145	134
Value of Machinery and Equipment								
Total	$29,642,000	$41,795,000	$57,395,000	$55,819,000	71	100	137	134
Consumer Price Index								
For all Urban Consumers in								
Northeast States	51.7	66.2	95.8	116.0	78	100	145	175

Source: U.S. Census of Agriculture 1978 and 1988, Tables 1 and 2.
Statistical Abstract of the United States, 1987, Table 778.

Table 2.6.12

Comparison of All Farms with Farms Reporting Sales of $10,000 or Over

	1982			1987		
		Farms with sales of $10,000 or more			Farms with sales of $10,000 or more	
	All Farms	Amount	% of All Farms	All Farms	Amount	% of All Farms
Number of Farms	1,199	583	48.6%	1,104	587	53.2%
Area(acres)	196,644	157,316	80.0%	187,035	155,843	83.3%
Average Size (ac.)	164	270	164.6%	169	265	156.8%
Total Sales	$100,160,000	$97,911,000	97.8%	$105,153,000	$103,422,000	98.4%
Sales per Farm	$83,536	$167,943	201.0%	$95,247	$176,187	185.0%
Sales per Acre	$509	$622	122.2%	$562	$664	118.0%
Acres of Cropland	149,996	122,408	81.6%	142,575	121,094	84.9%
Sales per acre of Cropland	$668	$800	119.8%	$738	$854	115.8%

Source: U.S.Census of Agriculture, 1987, Table 16.

Table 2.6.13

Agricultural Infrastructure (numbers of establishments)

ADAMS COUNTY

FARM OPERATION	Gettysburg	Biglersville	Abbottstown	Aspers	New Oxford	Fairfield	Littlestown	York Springs	Gardners	Ortanna	Arendtsville	Heidlersburg	Peach Glen
A Farm Supply					1			1					
B Farm Machinery	1				1								
C Specialized Farm Equipment	5	2			2			1			1		
D Animal Food and Feed Mills	1				1			2	1				
E Fertilizer and Pesticides	1	1											
F Aerial Spraying and Seeding	2	1											
G Farm Veterinarians	1	1		1									
H Blacksmith and Welding	1	1				1		2					
I Diesel, Electric, and Machine Shops	1	3											
J Orchard Stock Suppliers				2			j			1			
K Farm Structure Construction	5		2		1								
L Manure Hauling & Dead Animal Removal													
M Banking and Credit Service	1												
N Foresters and Other Consultants	1	1											
MARKETING AND PROCESSING													
1 Farm Cooperatives	1												
2 Grain and Commodity Buyers	1		1				1					1	
3 livestock Buyer	1												
4 Livestock Market													
5 Sawmills and Timber Buyers	1	2											
6 Hides and Pur Buyers	1							1	1				
7 Meat Processors													
8 Fruit Processors		1		1					1				1
9 Poultry Processors					2								
10 Other Food Processors						1							

NEARBY COUNTIES	York County								Cumberland County				Franklin County		Washington Co. Md.	Frederick Co. Md.		Carroll Co. Md.
FARM OPERATION	Hanover	Dillsburg	Dover	York	Thomasville	Spring Grove	Seven Valleys	Codorus	Carlisle	Camp Hill	Mechanicsburg	Newville	Chambersburg	Trace	Hagerstown	Tarrytown	Emmittsburg	Westminster
A Farm Supply										1								
B Farm Machinery	5		1						1									
C Specialized Farm Equipment	3	1																
D Animal Food and Feed Mills	1																	
E Fertilizer and Pesticides				1	1			1										
F Aerial Spraying and Seeding																		
G Farm Veterinarians					1						1						1	
H Blacksmith and Welding	1																	
I Diesel, Electric, and Machine Shops	1												1					
J Orchard Stock Suppliers																		
K Farm Structure Construction	1																	
L Manure Hauling & Dead Animal Removal			1				1					1						
M Banking and Credit Service																		
N Foresters and Other Consultants															1			
MARKETING AND PROCESSING																		
1 Farm Cooperatives																		
2 Grain and Commodity Buyers	2															1		
3 livestock Buyer																		
4 Livestock Market									1					4				1
5 Sawmills and Timber Buyers						1												
6 Hides and Pur Buyers																		
7 Meat Processors																		
8 Fruit Processors																		
9 Poultry Processors																		
10 Other Food Processors	1																	

Source: District Conservationist, Soil Conservation Service, U. S. Department of Agriculture, Gettysburg.

Table 2.6.14

Agricultural Security Areas as Compared with Area in Prime Soils, by Municipality
(as of December 1991)

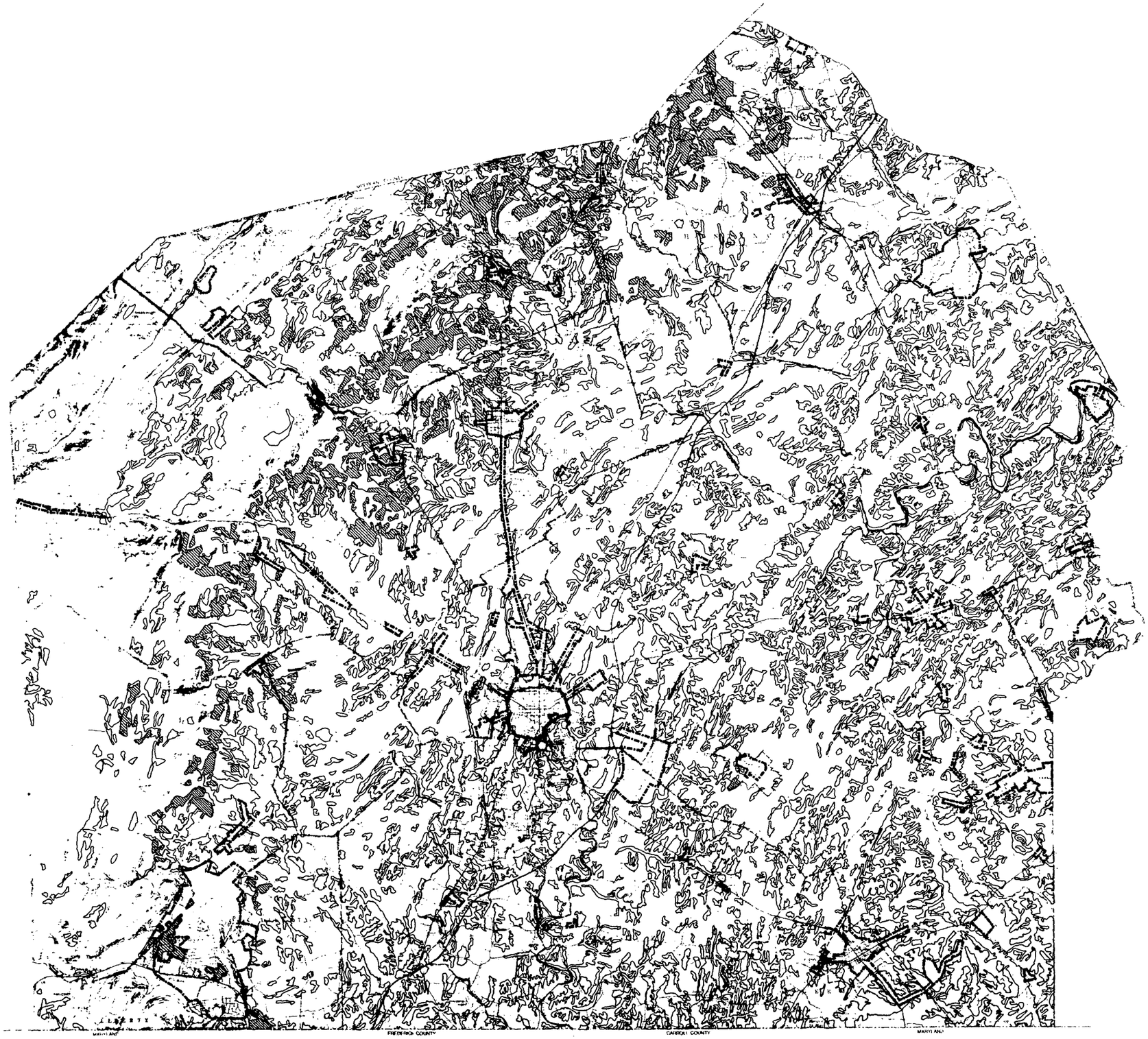
	Agricultural Security Areas				Prime Agricultural Land	
TOWNSHIP	Number of ASAs	Number of Owners	Number of Parcels	Number of Acres	Number of Acres	ASA as % of Prime Land*
Berwick					1,502	0.0%
Butler	2	42	46	6,576	7,864	83.6%
Conewago					3,806	0.0%
Cumberland	2	19	27	2,600	8,271	31.4%
Franklin	2	47	92	7,783	9,553	81.5%
Freedom	1	14	17	1,439	4,180	34.4%
Germany	1	16	19	1,723	3,456	49.9%
Hamilton	1	31	60	2,705	5,312	50.9%
Hamiltonban	1	31	34	5,184	4,737	109.4%
Highland					2,668	0.0%
Huntington	1	26	50	5,544	6,912	80.2%
Latimore	2	16	31	2,507	5,530	45.3%
Liberty	1	8	8	896	3,295	27.2%
Menallen	1	40	95	7,448	7,079	105.2%
Mount Joy	1	44	58	4,130	9,469	43.6%
Mount Pleasant	1	35	54	5,374	11,953	45.0%
Oxford	1	9	10	824	2,246	36.7%
Reading	1	6	6	833	8,726	9.5%
Straban	2	48	37	3,666	11,579	31.7%
Tyrone					7,016	0.0%
Union	1	29	55	2,982	6,772	44.0%
Total	22	461	699	62,214	131,926	47.2%
	17 townships					

*Note that farms include non-prime soils as well as prime soils.
Accordingly, in some townships, ASAs cover more area than prime soils do.

Sources:
ASA data: Adams County Agricultural Land Preservation Board
Prime Soil Data: 21st Century Appraisals

Figure 2.6.1

PRIME & UNIQUE FARMLAND



Prime Farmland (Total Acres = 97,330)

Unique Farmland (Total Acres = 15,100)

Approximate Urban & Built-up Area

Source: USDA SCS Important Farmlands, 1981

ADAMS COUNTY
Pennsylvania

Comprehensive Plan Update

SCALE

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

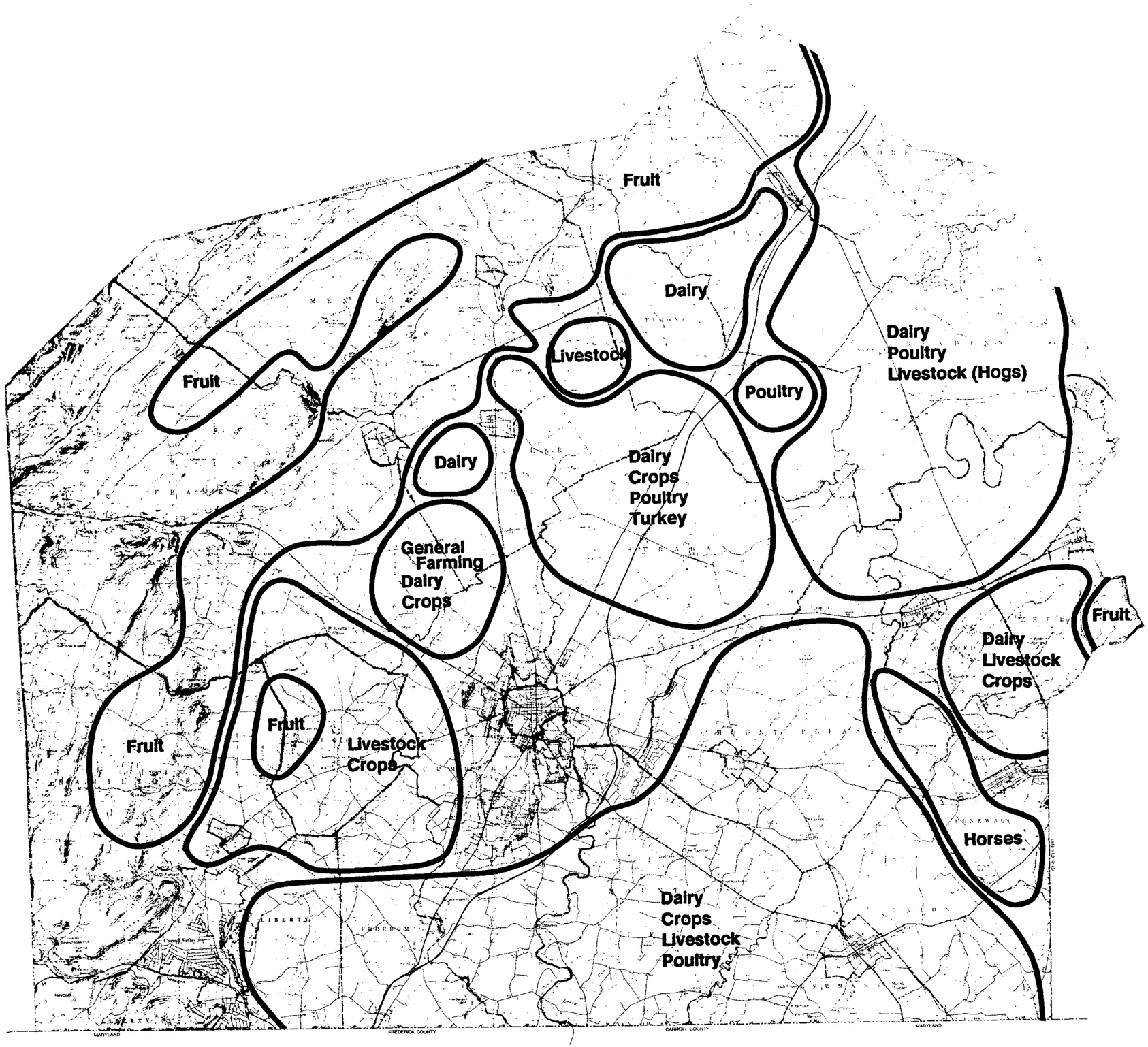
Norman Day Associates

Planning & Urban Design
1811 Walnut Street 2nd Floor
Philadelphia, PA 19103

- Orth-Rodgers & Associates
- Couglin, Keene & Associates
- John Milner Associates
- R F. Wright Associates

Figure 2.6.2

GENERALIZED FARMING TYPES



ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

NDA Norman Day Associates
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Philadelphia, PA 19103

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- Cougill, Kearns & Associates
- John Milner Associates
- R.E. Wright Associates

Figure 2.6.3

AREAS WITH AGRICULTURAL LAND PROTECTION DEVICES

December 1991

- Agricultural Security Areas
- Agricultural Easement Purchases
- Agricultural Zoning

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

Norman Day Associates
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1811 Walnut Street, 2nd Floor
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- John Milner Associates
- R.E. Wright Associates

SECTION 7: POPULATION, HOUSING, AND EMPLOYMENT

Population projections are an essential part of planning for future growth, in that they can be translated into approximations of the future need for housing, community facilities, and other forms of development. Many factors are taken into account in making population projections but these factors are constantly subject to change. The longer the time period of the projections and the smaller the present population, the less reliable the projections are likely to turn out to be. For instance, projections for individual counties are less valid than those for a large region or for the entire nation, and 15- or 20-year projections usually are less valid than five-year projections.

Population, housing, and employment trends and projections are discussed in this section. Data for Adams County and its constituent municipalities are contrasted with regional and statewide data where appropriate. The demographic analysis provides a basis for predicting future growth and estimating residential and nonresidential land area requirements.

Population Trends

Population trends in Adams County were examined for the period 1900-1990, including detailed studies since 1950. The total county population stayed close to the 34,500 level during the early twentieth century, but by 1930 a growth trend had materialized that would continue to the present day (Figure 2.7.1). There were 44,000 residents by 1950 and 57,000 residents by 1970. Final results from the 1990 census show that the current population has reached 78,000 (Table 2.7.1). The highest absolute growth and the largest percentage increase in population occurred during the 1970s (Table 2.7.2).

Adams County has 13 boroughs and 21 townships. Gettysburg, the most populous borough and the county seat, has 7,025 residents. Littlestown and McSherrystown are the next largest boroughs, but they have fewer than 3,000 persons each. Gettysburg grew steadily from 1900 to 1960, when 7,960 persons were counted, but then entered a period of slow population decline. Five boroughs have lost population since 1980. From 1980 to 1990 the two newest boroughs, Carroll Valley and Bonneauville, grew the fastest; Carroll Valley now has 1,457 residents and is the most rapidly growing municipality in Adams County.

During the 1980s population growth in Adams County townships was generally greater than in its boroughs, with Reading, Oxford, and Conewago Townships each gaining over 1,100 persons during the decade, and Cumberland, Latimore, and Mount Pleasant Townships adding between 600 and 900 persons apiece (Figure 2.7.2). The highest rate of population increase among townships was achieved by Latimore Township, a relatively small township based on 1980 populations, which gained 61 percent over the decade from 1980 to 1990 (Figure 2.7.3). Oxford, Reading, and Conewago Townships all grew by 30 to 50 percent, and Huntington Township, a relatively small municipality of 1,557 persons in 1980, grew by 28 percent through the time period. By contrast to the population changes exhibited in Figure

2.7.2, Figure 2.7.3 reveals that the relatively populous townships of Cumberland and Mount Pleasant grew by more-modest 17 percent rates when compared to the eastern and northeastern townships of Latimore, Oxford, Reading, Conewago, and Huntington.

Figures 2.7.2 and 2.7.3 and Table 2.7.2 show that although the Gettysburg vicinity continued to exhibit healthy population growth in absolute numbers, growth rates declined significantly from the previous (1970-1980) decade. In contrast, eastern and northeastern townships such as Latimore, Oxford, and Conewago, which experienced relatively modest growth rates in the 1970-1980 decade (Conewago Township lost population between 1970 and 1980), had much more rapid growth from 1980 to 1990. The growth impetus clearly shifted from the Gettysburg-centered area of the county to the eastern tier from one decade to the next.

With the obvious exception of Carroll Valley, borough population trends generally reinforce this growth-area shift. Bonneauville, East Berlin, and Littlestown were the only boroughs other than Carroll Valley to experience population growth over 100 persons (Figure 2.7.4).

Carroll Valley gained over 600 persons through the latest decade, putting the municipality in league with the second group of townships (Cumberland, Latimore, and Mount Pleasant) in terms of total number of persons added (Figure 2.7.2). The borough ranked first among all Adams County municipalities in terms of growth rates (Figures 2.7.5 and 2.7.3). Bonneauville, located midway between Gettysburg and the eastern-tier townships, grew by almost 40 percent, a rate ranking it fifth overall among county municipalities.

Other significant local growth areas include the unincorporated Lake Heritage and Lake Meade areas. Lake Heritage, located southeast of Gettysburg, has a population of about 1,150, and there are approximately 1,300 residents at Lake Meade in the northeast region.

Six counties adjoin Adams County, consisting of Cumberland, Franklin, and York Counties in Pennsylvania and Carroll, Frederick, and Washington Counties in Maryland. To the north of York County lies Dauphin County, which includes the Pennsylvania State Capital at Harrisburg. York is the most populous county in the group, but Frederick and Carroll are the fastest-growing counties by a wide margin, reflecting the rapid growth in Maryland generally in the 1980s (13.4 percent). (Pennsylvania's population rose by only 0.1 percent over the same decade.) (Table 2.7.1 and Table 2.7.2).

The population density in Adams County is 149 persons per square mile (Table 2.7.3), a low figure when compared to nearby counties, which have population densities ranging from 161 persons per square mile in Franklin County, to 459 persons per square mile in Dauphin County. Pennsylvania as a whole has an average density of 264 persons per square mile. At the municipal level, McSherrystown and Gettysburg have the highest densities, with 5,538 and 4,391 persons per square mile respectively (Table 2.7.4). Freedom and Hamiltonban Townships each have fewer than 50 persons per square mile.

Age Characteristics

Age characteristics for Adams County and the states of Pennsylvania and Maryland are given in Tables 2.7.5 and 2.7.6. Between 1970 and 1980, Adams County experienced a proportional decrease in its population at the 0-14 age levels, an increase at the 15-39 levels, a decrease at the 40-54 levels, and an increase at the 55+ age levels. Senior citizen representation climbed from 10.1 to 11.3 percent of the total county population. The median age of county residents rose accordingly, changing from 27 years to 30 years over the decade. Similar trends occurred at the state level, but the median ages are higher.

Selected age data from the 1990 census were released in June 1991. Between 1980 and 1990, Adams County had a proportional increase in preschoolers, a decrease at the 5-24 year age levels, an increase at the 25-54 levels, a decrease at the 55-64 levels, and an increase in the number of senior citizens. The median age of county residents in 1990 was 34 years.

The increase in the county's median age from 27 years in 1970 to 30 years in 1980 and 34 years in 1990 reflects general national population-aging trends, in-migration of retirees to Adams County from urban centers of the East, and, perhaps, the exodus of young college-age adults from the area alluded to in Chapter One.

Housing Characteristics

There were 30,141 housing units in Adams County in 1990, an increase of 5,646 units (23.0 percent) since 1980 (Table 2.3.3). By comparison, the county population increase was only 14.6 percent for the same period. Adams County thus was following regional and national trends towards more rapid household formation than population growth, a phenomenon that, in itself, can place additional growth pressures on a locale, since even an area with a stagnant or declining population may experience significant demand for additional housing units. An area with growing population, such as Adams County, can experience disproportionately high levels of demand for new housing units in this scenario.

The two most populous municipalities have, understandably, the greatest number of housing units as well: Gettysburg Borough had 2,812 housing units and Cumberland Township had 2,034 units in 1990. Biglerville and Fairfield Boroughs are the only municipalities with fewer housing units in 1990 than in 1980; both communities had registered increases exceeding 20 percent in the previous decade.

Adams County had 28,067 occupied housing units in 1990, with 73.3 percent owner occupancy and 26.7 percent renter occupancy. Vacant housing units totaled 2,074, including 937 units for seasonal, recreational, or occasional use. The homeowner and rental vacancy rates are 1.1 percent and 3.8 percent respectively.

Housing unit data by structural type are given in Table 2.3.2. Some 68.9 percent of the

existing housing units in Adams County in 1990 were single-family detached houses, down somewhat from 1980. There were 5,863 residential building permits issued from January 1980 through July 1990, with 72.6 percent of the new dwellings represented being single family detached houses.

Assisted Housing

According to the Adams County Housing Authority, some 900 units of assisted housing are distributed throughout the county. Most of these units are managed by the Adams County Housing Authority and/or the Interfaith Housing Corporation (Table 2.7.7). These two organizations operate together with a joint staff.

A survey was made of neighboring counties in Pennsylvania to try and gauge the adequacy of Adams County's assisted housing efforts, at least relative to other nearby locales. About 3.2 percent of all Adams County households live in assisted housing units, compared to 2.9 percent for Cumberland County, 2.4 percent for York County, and 3.3 percent for Lancaster County. Perhaps the most impressive aspect of these numbers is not their relative difference, but the fact that in all these counties the overwhelming majority of households (96.7 to 97.6 percent) must try and find affordable housing without formal assistance. (This issue is discussed further in Chapter 3, Section 5.)

Population and Housing Projections

Alternative population projections for Adams County are explored in Table 2.7.8 and Figure 2.7.6. All projections (except one) use the U.S. Bureau of the Census's 1990 county population total of 78,274 as a base line figure.

Alternative 1 is based on a growth rate projected by the Adams County Solid Waste Management Plan, adjusted to the Bureau of the Census's 1990 base line population. A growth rate of 16.8 percent is projected from 1990 to 2000 and 14.2 percent from 2000 to 2010. Total 2010 population is projected at about 104,000 persons, or 26,000 more than as of 1990.

Alternative 2 presumes that growth over the 1990-2010 period will occur at the same rate as in the 1980-1990 decade, namely 14.6 percent per decade or 30.2 percent overall. Final 2010 population is figured as 101,500 persons, for a gain of about 23,000 over 1990.

Alternative 3 projects population growth at a rate roughly equivalent to the housing construction rate for the county, 1980 to 1989. The results here closely resemble those of Alternative 1.

Alternative 4 assumes a population growth rate for Adams County equivalent to the average

population growth rate for six adjoining counties (Cumberland, Franklin, York, Carroll, Frederick, and Washington) from 1980 to 1990. Overall, the 2010 figures fall midway between those of Alternatives 1 and 3 on the one hand, and Alternative 2 on the other. The 2010 population for Alternative 4 is 102,000, an increase of about 24,000 over 1990.

Alternative 5 follows growth rates projected for Carroll and Frederick Counties by the Maryland Office of Planning. For Adams County, these rates of 24.1 percent from 1990 to 2000 and 14.6 percent for 2000 to 2010 translate into a total 2010 population of nearly 111,000 persons.

Alternative 6 resembles Alternative 4 to a degree, but in this case the rapidly-growing Maryland counties are omitted. The average growth rates for adjoining Pennsylvania counties from 1980 to 1990 are applied to Adams's base line figure of 78,274, for a 2010 population of 90,000, an increase of around 12,000 persons over 1990 and 15.8 percent over the twenty-year period.

Alternative 7 follows a trend observed in the relationship of Adams County's population to Pennsylvania's over the past four decades. Table 2.7.1 (at the bottom) reveals that the county has been taking a 0.1 percent increase per decade (more or less) of the state's population over the period. Assuming a continuation in the state's nearly flat growth rate and a corresponding 0.1 percent increase per decade in Adams County's population as a percent of Pennsylvania's, the county's 2010 population would reach 104,000 persons. This number closely resembles Alternative 1's and Alternative 3's results.

Alternative 8 is included in Table 2.7.8, since these figures are the latest (1988) projections of population for Adams County by the Pennsylvania State Data Center. Their 1990 projected county population is too low and their 2000 population of 77,400 is exceeded by the U.S. Bureau of the Census 1990 population figures.

The population projections from Table 2.7.8 and Figure 2.7.6 show some degree of convergence at a 2010 county population of around 100,000-110,000 persons. For the purpose of making housing projections, a 2010 population of 104,000 has been used. Table 2.7.9 shows projected 1995, 2000, 2005, and 2010 county populations and corresponding figures, at the bottom of the table, of new housing units required to accommodate the projected population. For an assumed 2010 population of 104,000 and an assumed occupancy level of 2.4 persons per household, nearly 15,000 new housing units would be required from 1990 to 2010, about 750 units per year. This compares to about 11,800 units built in the twenty-year period 1970-1990, about 590 units per year.

Land Area Requirements for New Residential Development

A translation of the number of housing units to be constructed over the planning period into land area requirements entails making certain assumptions with respect to the kind of

housing units that would be built. Table 2.7.10, for example, presumes that residential construction over the next twenty years would take place with roughly the same distribution of structural types that occurred during the 1980-1990 construction period (see Table 2.3.2). Seventy-two (72) percent of all new construction would be single-family detached units, eight (8) percent would be single-family attached units (twins, townhouses, multiplexes), eight (8) percent would be multi-family units (garden apartments, mid- and high-rise apartments), and twelve (12) percent would be mobile home units.

Obviously, many other assumptions may be made with respect to the distribution of structural types: More of one type and fewer of another type is a distinct possibility for the county. Since, however, projections of county population, housing units, and employment are necessary steps towards establishing some "ball-park" estimates of required amounts of land for new residential, commercial, and industrial uses over the next ten to twenty years, certain assumptions have been made with respect to the distribution of housing structural types in the county and their relative consumption of land. If it is assumed that single-family detached homes are developed at an average density of 1.5 units per acre, single-family attached housing at 4 units per acre, multi-family dwellings at 8 units per acre, and mobile home units at 2.5 units per acre, a total of 8,360 acres would be required to accommodate this new residential development. This figure, which translates to about 13 square miles, should be compared to the 200 square miles of land reasonably well-suited for development that is available in Adams County (see Section 4 of this chapter). The land area required for new residential development over the next twenty years or so is relatively modest compared to the large amount of available land for development, but from the points of view of agricultural and rural open space preservation, economic efficiency, and environmental protection, it may still be advisable to try and build more compactly than the 13-square-mile scenario outlined.

Employment Trends

Employment information is important in planning for future growth. While population and housing characteristics and projections can be translated into approximations of the future need for housing units and land for new housing construction, employment data and projections for a given locale can be converted into estimates of potential demand for land for new commercial and industrial establishments. Both kinds of projections provide indications as to the future need for various kinds of community facilities and services.

Unfortunately, employment data for smaller geographic areas are not as readily available as population data. While the U.S. Department of Commerce, Bureau of the Census, conducts a Census of Business every five years, the census does not cover all economic sectors and the data it reports are riddled with gaps because of the disclosure rules under which it operates. The Pennsylvania Department of Labor receives highly detailed employer and employee information in the course of administering an unemployment insurance fund, but the agency will not release information for municipalities with populations under 25,000.

Comprehensive employment data by place of work is available at the county level from the U.S. Department of Commerce, Bureau of Economic Analysis. They show that 35,136 persons were employed within Adams County in 1988, up 23.3 percent since 1980 (Table 2.7.11).

Nonfarm jobs in Adams County constituted 93.2 percent of total employment in 1988, with private employment at 81.6 percent and employment in government and government enterprises at 11.6 percent. Nonfarm employment is concentrated in three major sectors--manufacturing, retail trade, and services. Together they accounted for 63.3 percent of all employment in 1970, 60.6 percent in 1980, and 61.11 percent in 1988. Manufacturing jobs declined during the 1970s but rebounded after 1980. Retail and service employment, however, showed steady increases over the entire 18-year period.

Agriculture and tourism have traditionally been important sectors in the Adams County economy. In agriculture, the county consistently ranks first or second among all counties in Pennsylvania with respect to production of apples, turkeys, peach products, and eggs. In 1988, some 1,250 farms operated in the county and there were 2,387 employees in the farm sector; however farming has been declining in importance in Adams County. Travel- and tourism-generated employment was estimated to approach 1,200 jobs. Gettysburg National Military Park, the major tourist attraction in the county, has over 1.3 million visitors annually.

The distribution of employment in Adams County is compared with regional and state employment levels in Table 2.7.12. Farm and manufacturing employment is high in the county, comprising nearly one-third of all employment by place of work. Government employment is relatively low, as are jobs in finance/insurance/real estate and services.

Many of the service sector jobs are seasonal in nature and pay relatively low wages. A substantial proportion of Adams County residents commute to other counties for employment. Out of 31,200 county residents employed in 1980, some 10,000 persons worked in other Pennsylvania counties, while 1,800 persons held jobs in other states.

Adams County experienced strong growth in the 1980s in the total number of full-time and part-time jobs in the county (Table 2.7.11). While the number of jobs in the county rose at roughly the same rate as population during the 1970s (19.9 percent population growth, 20.6 percent employment growth), employment rose at about twice the rate of population during the 1980s (14.6 percent population growth, 29.2 percent employment growth, when adjusted for a full ten-year period from the 1980-88 data). This trend of much more rapid job growth compared to population growth also occurred in neighboring counties, in the state, and in the nation as a whole.

There are several factors which contribute to this tendency of more rapid job growth compared to population growth. The first is labor force participation rates, which have been

steadily rising, reflecting general national social changes such as greater participation in the job market by women and students. The second factor is the rapid rise in part-time employment (replacing full-time employment) in the retail trade and service sectors; segments that captured steadily increasing shares of total Adams County employment over the 1970-1988 period (see Table 2.7.11). These sectors have, in effect, substituted numbers of full-time employees with a greater number of part-time employees, although the U.S. Bureau of Economic Analysis, the agency that provides the job counts, treats each type of employee equally. The total number of employees may be increasing rapidly, but these are not necessarily full-time employees.

Another factor may be the division of the period (1970-1988) at the 1980 date, with the country heading into a recession. The 1980 employment figures may be skewed downwards on account of the economic climate for that year, and the pronounced economic expansion in the mid-1980s may likewise bias employment trends upwards for the 1980-1988 period.

Employment Projections

Table 2.7.13 and Figure 2.7.7 present alternative projections for Adams County employment through the twenty-year planning horizon to 2010. Alternative 1 conforms to the view that the factors which led to extremely high rates of job creation relative to population increases observed in the 1980s will tend to level off and that "equivalent full-time" (discounting in some unspecified manner the biasing effects of part-time job growth) jobs will grow at a rate similar to projected population growth. For a county 2010 population of about 104,000 persons, about 48,000 jobs would be provided in the county, an increase of about 12,000 from 1990.

Alternative 2 projects that the 1980-1988 job growth rate will continue to 2010. Sixty-one thousand (61,000) jobs are envisioned, an increase of 65 percent or about 24,000 jobs from 1990.

Alternative 3 uses the only U.S. Bureau of Economic Analysis (BEA) projections of future employment available for anywhere in the Adams County area. The BEA makes employment projections for states and metropolitan areas only, and the closest metro area is York, Pennsylvania. Here the BEA has projected population growth at 6.45 percent and jobs at 10.47 percent from 1988-2000. Applying the York 62 percent higher rate of job growth over population growth to the Adams County situation (and an assumed population growth rate to produce 104,000 residents by 2010), total county employment would be 57,350 by 2010, an increase of 20,300 or 55 percent over 1990.

Alternative 4 postulates that since the retail trade and services sectors are the ones experiencing rapid growth in numbers of jobs, owing both to the shift towards part-time workers in those sectors and their increasing share of the local economy, recent (1980-1988) growth trends in jobs for those sectors will continue. Jobs in retail trade and services

comprised 29 percent of all county jobs in 1970, 34 percent in 1980, and 37 percent in 1988. Assuming a job-capture rate of 40 percent in 2000 and 43 percent in 2010 for retail trade and services of all jobs, a job-growth rate in these two sectors similar to the 1980-1988 overall county job-growth rate is combined with a population-growth rate for jobs in other sectors to yield nearly 54,000 total county jobs by 2010, an increase of 17,200 over 1990, or 47 percent.

Obviously, there are a great many potential influences on the total number of jobs likely to be found in Adams County by 2010. A concerted effort to attract new industry (such as recommended in A Targeted Economic Development Program for Adams County, Pennsylvania, prepared for the Gettysburg Industrial Development Corporation and the Economic Development Office for Adams County in 1988) could produce results which would seriously affect these projections. A decline in the rate of population growth could reduce the expected increase in demand for retail trade and services, which usually accompanies residential growth.

The primary purpose in projecting future jobs is to arrive at some general estimates of the land required for new commercial and industrial development. Naturally, other factors come into play apart from total numbers of jobs. The kinds of jobs which will comprise the total is a significant determinant of land needed for new non-residential development, as is the intensity of development (jobs per acre).

Total county jobs are projected to be around 50,000 by 2010. Based on more detailed county economic sector analysis, all new jobs have been grouped under three categories - office (22.5 percent of all new jobs), retail and service (46 percent of all new jobs), and industrial and business park (31.5 percent of all new jobs). Office uses are presumed to use land at a rate of 40 jobs per acre, retail and service uses at a rate of 10 jobs per acre, and industrial and business park uses at 20 jobs per acre. Total land required for new non-residential uses would be about 900 acres, or somewhere between one and two square miles.

As with residential land consumption estimates made earlier, the key point here may be that the significant impacts of potential commercial and industrial development are not so much in terms of total land required, but rather in terms of quality-of-life and economic well-being issues.

Other employment-associated issues concern the resident labor force and the degree of out- and in-commuting for work. "Resident labor force" describes the total number of Adams County residents who work - they may work in the county or outside of it. The latest U.S. Bureau of the Census data on resident labor force (1980) show that out of 31,257 county residents employed, 10,168 persons (32.5 percent) worked in other Pennsylvania counties, while 1,815 persons (5.8 percent) held jobs in other states. While the trend towards out-commuting by Adams County residents has likely increased from the 38.3 percent revealed in 1980, the in-commuting factor must also be taken into account, especially with respect to the transportation system. Of the 28,485 total jobs in the county in 1980, 19,274 were filled

by county residents, but 9,211 (32.3 percent) were held by residents of other counties. Significant out-commuting for jobs may still be matched or nearly matched by significant in-commuting.

Figure 2.7.1

Population Profile, 1900-2010 Adams County

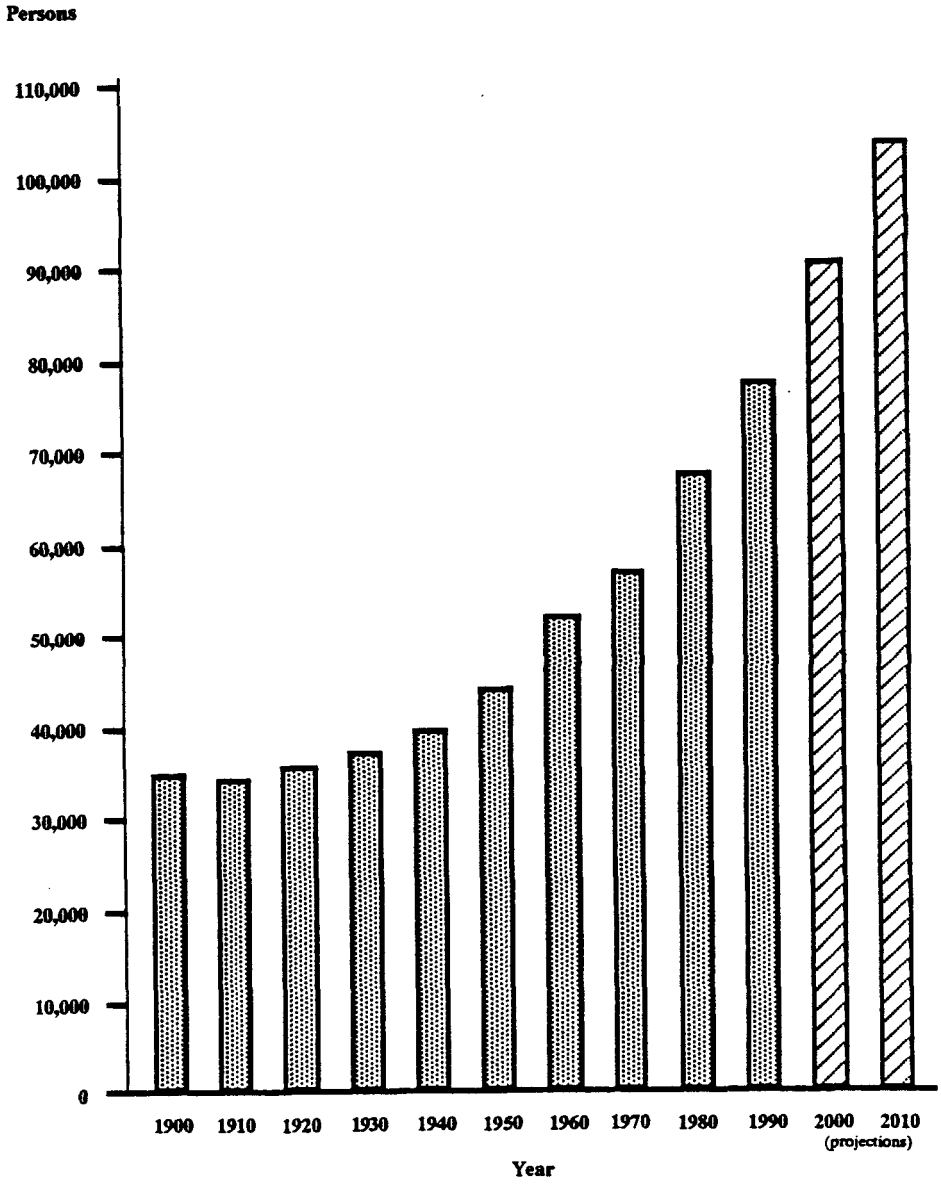


Table 2.7.1

Population Totals in Adams County Municipalities and Selected Jurisdictions, 1950-1990

	1950	1960	1970	1980	1990
Adams County	44,197	51,906	56,937	68,292	78,274
Boroughs					
Abbottstown	538	561	552	689	539
Arendtsville	409	588	589	600	693
Bendersville	409	484	528	533	560
Biglerville	870	923	977	991	993
Bonneauville[a]	-	-	819	920	1,282
Carroll Valley[b]	-	-	-	817	1,457
East Berlin	913	1,037	1,086	1,054	1,175
Fairfield	451	519	547	591	524
Gettysburg	7,046	7,960	7,275	7,194	7,025
Littlestown	2,635	2,756	3,026	2,870	2,974
McSherrystown	2,510	2,839	2,773	2,764	2,769
New Oxford	1,366	1,407	1,495	1,921	1,617
York Springs	413	384	467	556	547
Borough Totals	*17,560*	*19,458*	*20,134*	*21,500*	*22,155*
Townships					
Berwick	870	1,102	1,379	1,492	1,831
Butler	1,295	1,504	1,757	2,166	2,514
Conewago	2,429	3,004	3,431	3,405	4,532
Cumberland	1,999	2,925	3,497	4,637	5,431
Franklin	2,334	2,483	2,744	3,692	4,126
Freedom	464	470	555	650	692
Germany	954	1,151	1,308	1,652	1,949
Hamilton	603	763	1,048	1,692	1,760
Hamiltonban	1,673	1,779	1,686	1,835	1,872
Highland	409	546	662	717	815
Huntington	1,348	1,491	1,484	1,557	1,989
Latimore	910	1,092	1,105	1,369	2,209
Liberty	608	724	1,075	823	938
Menallen	1,514	1,827	1,937	2,354	2,700
Mount Joy	1,143	1,380	1,795	2,564	2,848
Mount Pleasant	1,867	2,531	1,817	3,473	4,076
Oxford	1,193	1,581	1,808	2,302	3,437
Reading	1,138	1,352	1,724	2,660	3,828
Straban	1,941	2,387	3,221	4,240	4,565
Tyrone	1,037	1,186	1,291	1,534	1,829
Union	908	1,170	1,479	1,978	2,178
Township Totals	*26,637*	*32,448*	*36,803*	*46,792*	*56,119*
Cumberland County	94,457	124,816	158,177	178,541	195,257
Dauphin County	197,784	220,255	223,713	232,317	237,813
Franklin County	75,927	88,172	100,833	113,629	121,082
York County	202,737	238,336	272,603	312,963	339,574
Carroll County	44,907	52,785	69,006	96,356	123,372
Frederick County	62,287	71,930	84,927	114,792	150,208
Washington County	78,886	91,219	103,829	113,086	121,393
County Totals	*756,985*	*887,513*	*1,013,088*	*1,161,684*	*1,288,699*
Pennsylvania	10,498,012	11,319,366	11,793,909	11,863,895	11,881,643
Maryland	2,343,001	3,100,689	3,922,399	4,216,975	4,781,468
Adams County as Percent of Pennsylvania	0.4	0.5	0.5	0.6	0.7

Source: U.S. Bureau of the Census, Decennial Censuses of Population.

[a]Incorporated from part of Mount Pleasant Township in 1961.
[b]Incorporated from parts of Hamiltonban Township and Liberty Township in 1974.

Table 2.7.2

Percent Change in Population in Adams County Municipalities and Selected Jurisdictions, 1950-1990

	1950-1960	1960-1970	1970-1980	1980-1990
Adams County	17.4	9.7	19.9	14.6
Boroughs				
Abbottstown	4.3	(-)1.6	24.8	(-)21.7
Arendtsville	43.8	0.2	1.9	15.5
Bendersville	18.3	9.1	0.9	5.1
Biglerville	6.1	5.9	1.4	0.2
Boonesauville	-	-	12.3	39.3
Carroll Valley	-	-	-	78.3
East Berlin	13.6	4.7	(-) 2.9	11.5
Fairfield	15.1	5.4	8.0	(-)11.3
Gettysburg	13.0	(-)8.6	(-) 1.1	(-)2.3
Littlestown	4.6	9.8	(-) 5.2	3.6
McSherrystown	13.1	(-)2.3	(-) 0.3	0.2
New Oxford	3.0	6.3	28.5	(-)15.8
York Springs	(-) 7.0	21.6	19.1	(-)1.6
Boroughs	*10.8*	*3.5*	*6.8*	*3.0*
Townships				
Berwick	26.7	25.1	8.2	22.7
Butler	16.1	16.8	23.3	16.1
Conewago	23.7	14.2	(-) 0.8	33.1
Cumberland	46.3	19.6	32.6	17.1
Franklin	6.4	10.5	34.5	11.8
Freedom	1.3	18.1	17.1	6.5
Germany	20.6	13.6	26.3	18.0
Hamilton	26.5	37.4	61.5	4.0
Hamiltonban	6.3	(-) 5.2	8.8	2.0
Highland	33.5	21.2	8.3	13.7
Huntington	10.6	(-)0.5	4.9	27.7
Latimore	20.0	1.2	23.9	61.4
Liberty	19.1	48.5	(-) 23.4	14.0
Menallen	20.7	6.0	21.5	14.7
Mount Joy	20.7	30.1	42.8	11.1
Mount Pleasant	35.6	(-) 28.2	91.1	17.4
Oxford	32.5	14.4	27.3	49.3
Reading	18.8	27.5	54.3	43.9
Straban	23.0	34.9	31.6	7.7
Tyrone	14.4	8.9	18.8	19.2
Union	28.9	26.4	33.7	10.1
Townships	*21.8*	*13.4*	*27.1*	*19.9*
Cumberland County	32.1	26.7	12.9	9.4
Dauphin County	11.4	1.6	3.8	2.4
Franklin County	16.1	14.4	12.7	6.6
York County	17.6	14.4	14.8	8.5
Carroll County	17.5	30.7	39.6	28.0
Frederick County	15.5	18.1	35.2	30.9
Washington County	15.6	13.8	8.9	7.3
Counties	*17.2*	*14.1*	*14.7*	*10.9*
Pennsylvania	7.8	4.2	0.6	0.1
Maryland	32.3	26.5	7.5	13.4

Source: U.S. Bureau of the Census, Decennial Censuses of Population
Norman Day Associates

Figure 2.7.2

Adams County
Township Population
Change, 1980-1990

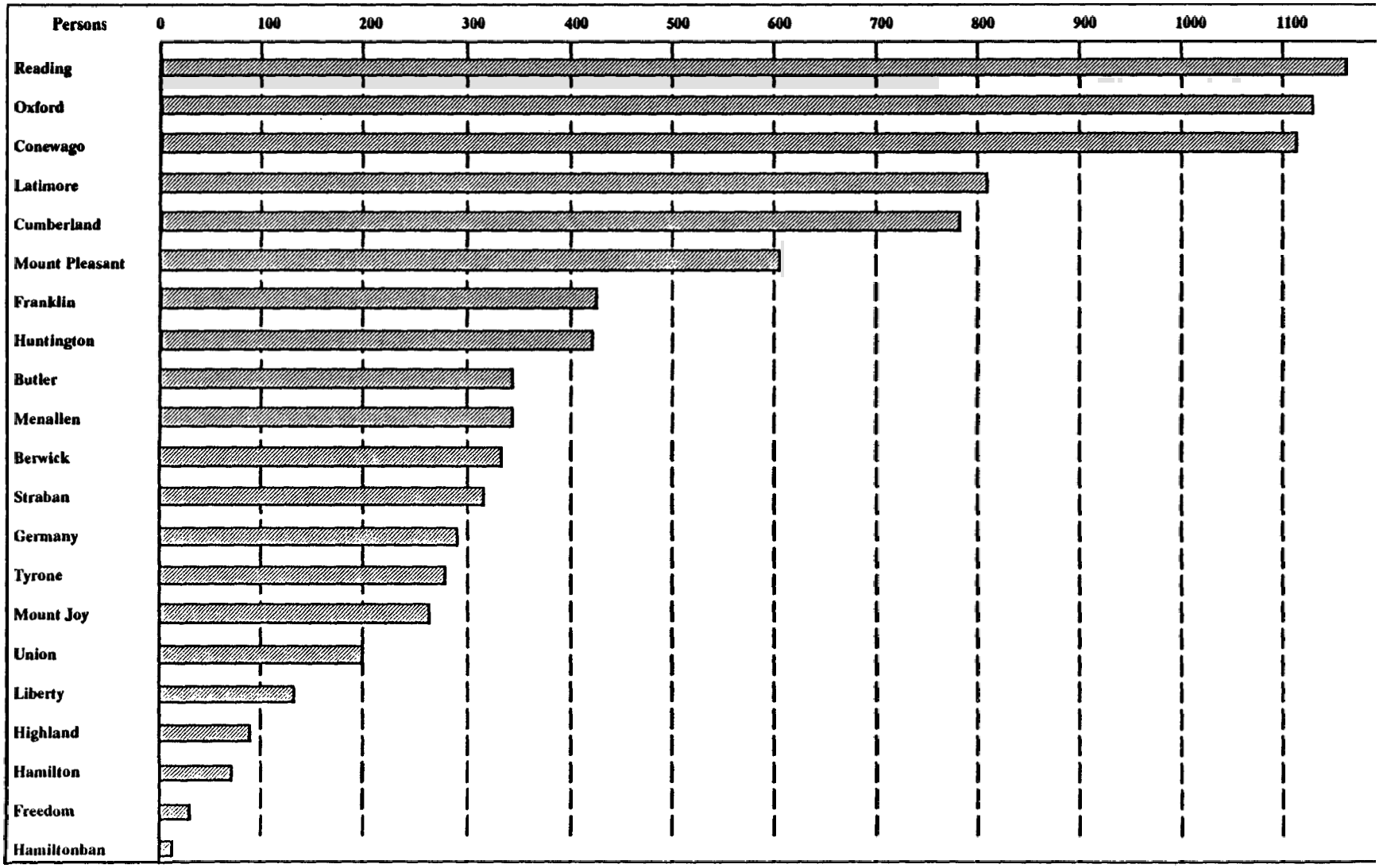


Figure 2.7.3

Adams County Percent Change in Township Population, 1980-1990

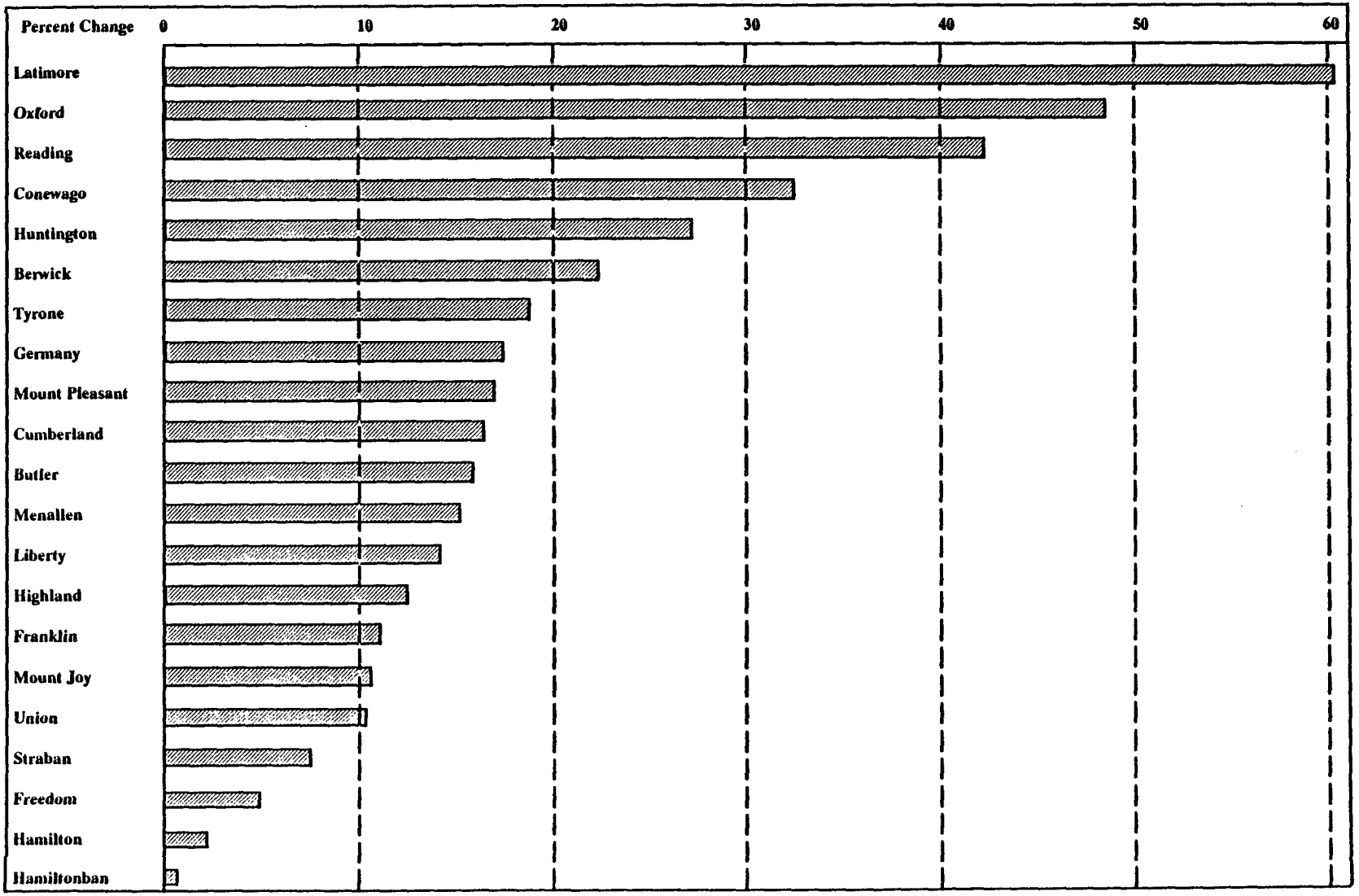


Figure 2.7.4

Adams County
Borough Population
Change, 1980-1990

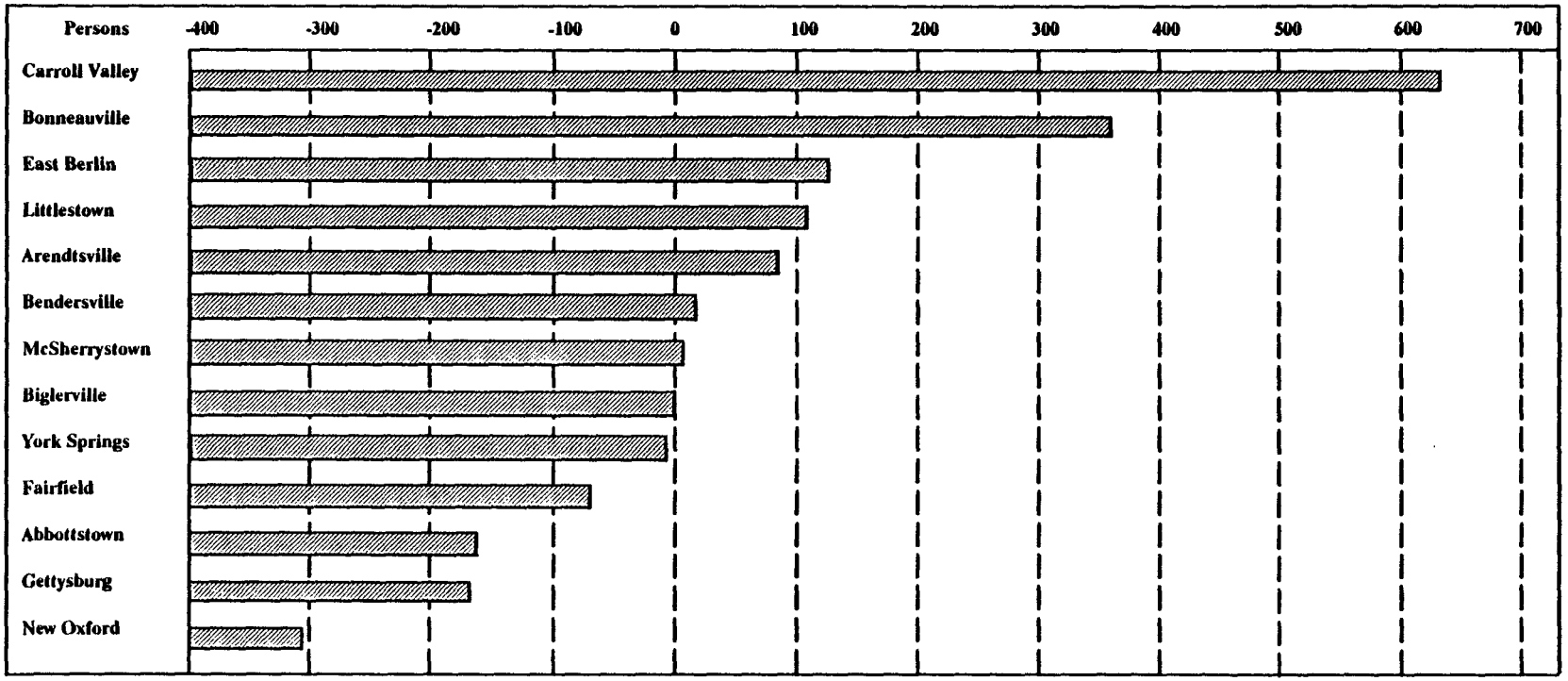


Figure 2.7.5

Adams County
Percent Change in
Borough Population,
1980-1990

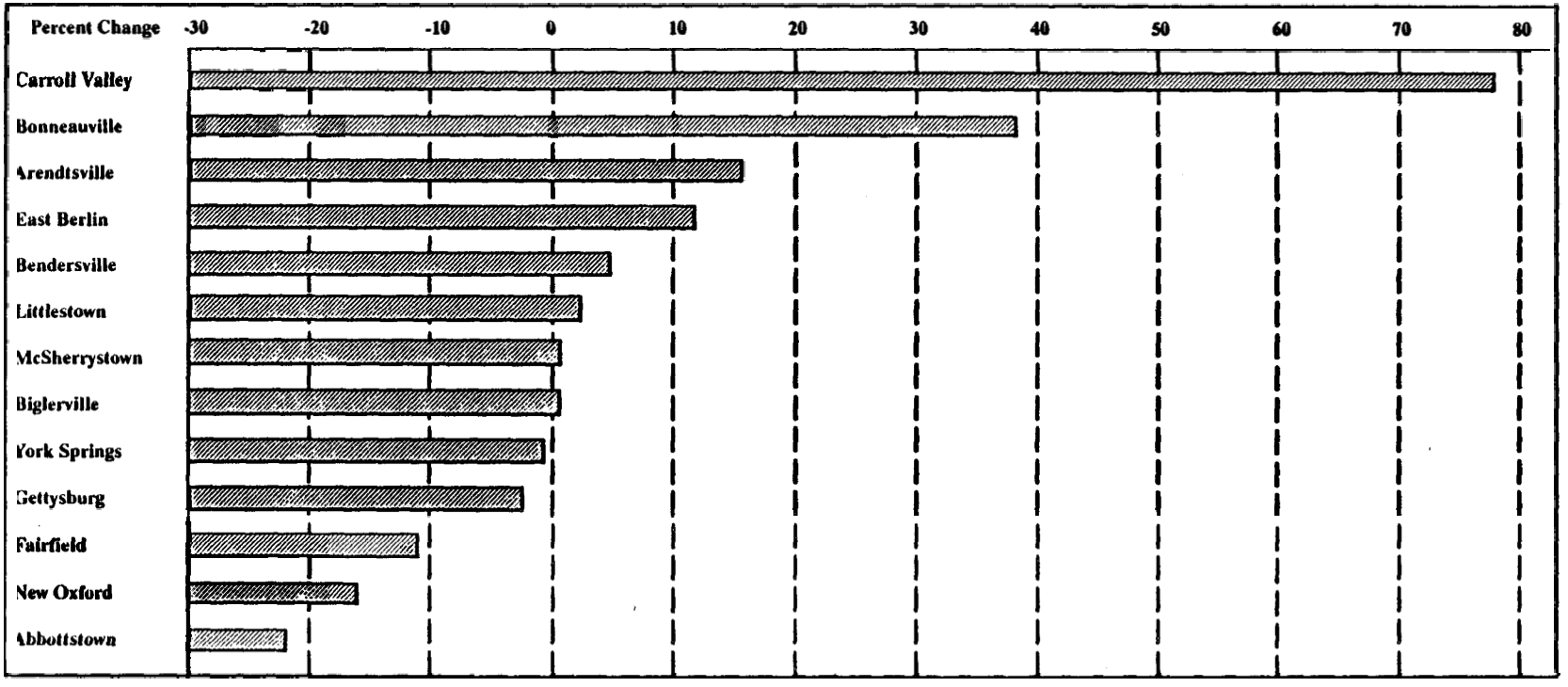


Table 2.7.3

Population Density in Adams County and Selected Jurisdictions, 1950-1990

	Population Density (persons per square mile)					Land Area (Square Miles)
	1950	1960	1970	1980	1990	
Adams County	84	99	108	130	149	526
Cumberland County	170	225	285	322	352	555
Dauphin County	382	425	432	448	459	518
Franklin County	101	117	134	151	161	754
York County	223	262	300	344	374	909
Carroll County	98	116	151	211	271	456
Frederick County	94	108	128	173	226	665
Washington County	172	199	226	246	264	459
Pennsylvania	233	252	262	264	264	44,966
Maryland	237	313	397	426	483	9,891

Sources: **U.S. Bureau of the Census, Decennial Censuses of Population**
Norman Day Associates

Table 2.7.4

Population Density, Adams County Municipalities, 1980 and 1990

Borough	Area in Square Miles	Population per Square Mile	
		1980	1990
Abbottstown	0.5	1,378	1,078
Arendtsville	0.7	857	990
Bendersville	0.5	1,066	1,120
Biglerville	0.6	1,652	1,655
Bonneauville	1.0	920	1,282
Carroll Valley	5.4	151	270
East Berlin	0.7	1,505	1,679
Fairfield	0.6	985	873
Gettysburg	1.6	4,496	4,391
Littlestown	1.4	2,050	2,124
McSherrystown	0.5	5,528	5,538
New Oxford	0.6	3,201	2,695
York Springs	0.2	2,784	2,735
Borough Totals	14.3	1,503	1,549
Township			
Berwick	8.1	184	226
Butler	23.6	92	107
Conewago	10.6	321	428
Cumberland	34.0	136	160
Franklin	70.2	53	59
Freedom	14.2	46	49
Germany	10.8	153	180
Hamilton	14.0	121	126
Hamiltonban	40.0	46	47
Highland	11.9	60	68
Huntington	25.0	62	80
Latimore	22.0	62	100
Liberty	15.8	52	59
Menallen	43.0	55	63
Mount Joy	25.8	99	110
Mount Pleasant	31.5	110	129
Oxford	10.0	230	344
Reading	27.4	97	140
Straban	34.4	123	133
Tyrone	21.6	71	85
Union	17.8	111	122
Township Totals	511.7	91	110
Adams County	526.0	130	149

Table 2.7.5

Population by Five-Year Age Groups in Adams County, 1950-1980

Age Groups	1950		1960		1970		1980	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0-4	4,889	11.1	5,863	11.3	5,025	8.8	4,691	6.9
5-9	4,089	9.3	5,579	10.7	5,777	10.1	5,084	7.4
10-14	3,575	8.1	5,017	9.7	5,942	10.4	5,771	8.5
15-19	3,545	8.0	4,429	8.5	5,780	10.2	6,941	10.2
20-24	3,704	8.4	3,565	6.9	4,677	8.2	6,509	9.5
25-29	3,347	7.6	3,024	5.8	3,454	6.1	5,611	8.2
30-34	3,042	6.9	3,235	6.2	3,077	5.4	4,948	7.2
35-39	2,920	6.6	3,290	6.3	2,974	5.2	4,103	6.0
40-44	2,721	6.2	3,053	5.9	3,208	5.6	3,478	5.1
45-49	2,370	5.4	2,830	5.5	3,232	5.7	3,301	4.8
50-54	2,231	5.0	2,659	5.1	3,008	5.3	3,501	5.1
55-59	1,894	4.3	2,266	4.4	2,706	4.8	3,497	5.1
60-64	1,703	3.9	1,985	3.8	2,336	4.1	3,109	4.6
65-69	1,489	3.4	1,720	3.3	1,868	3.3	2,619	3.8
70-74	1,159	2.6	1,467	2.8	1,491	2.6	2,035	3.0
75-79	1,307	3.0	983	1.9	1,089	1.9	1,422	2.1
80-84			571	1.1	747	1.3	897	1.3
85+	212	0.5	370	0.7	546	1.0	775	1.1
Totals	44,197	100.0	51,906	100.0	56,937	100.0	68,292	100.0

Source: U.S. Bureau of the Census, Decennial Censuses of Population

Table 2.7.6

Percent Distribution of Population By Selected Age Groups in Adams County and Selected Jurisdictions, 1970-2010

Age Groups	1970	1980	1990	1995	2000	2005	2010
Adams County							
0-4	8.8	6.9	7.8	-	6.8	-	-
5-14	20.6	15.9	13.5	-	14.8	-	-
15-24	18.4	19.7	15.5	-	13.3	-	-
25-44	22.3	26.6	32.4	-	30.6	-	-
45-64	19.8	19.6	18.4	-	22.0	-	-
65+	10.1	11.3	12.4	-	12.4	-	-
Pennsylvania							
0-4	7.9	6.3	7.0	-	6.0	-	-
5-14	19.1	14.6	12.9	-	13.8	-	-
15-24	16.3	18.0	13.8	-	12.2	-	-
25-44	22.7	25.9	31.3	-	29.1	-	-
45-64	23.2	22.3	19.8	-	23.3	-	-
65+	10.8	12.9	15.2	-	15.7	-	-
Maryland							
0-4	8.8	6.5	7.7	7.1	6.3	5.8	5.8
5-14		15.4	13.1	14.4	14.6	13.4	12.2
15-24	63.6	18.9	14.3	12.6	12.6	14.2	14.5
25-44		29.7	34.0	32.9	30.8	28.0	25.8
45-64	20.0	20.1	19.5	21.1	23.5	26.1	28.2
65+	7.6	9.4	11.3	11.9	12.2	12.6	13.5

Sources: U.S. Bureau of the Census, Decennial Censuses of Population.
Maryland Office of Planning, Population Projections.
Pennsylvania State Data Center, Population Projections.

Table 2.7.7

Assisted Housing in Adams County

OPERATOR/FACILITIES			Units
INTERFAITH HOUSING			
Gettysburg Interfaith Gardens (elderly)			36
New Oxford Interfaith Gardens (family)			20
Bonneauville Interfaith Gardens (family)			20
McSherrystown Interfaith Village (elderly)			47
Other (family)			5
	Total:		128
HOUSING AUTHORITY			
Harold Court, elderly, Stratton Street, Gettysburg			36
McIntosh Court, Aspers, farmworker, family			12
Certificates, mixed, scattered			271
Vouchers, mixed, scattered			157
Moderate Rehab			56
a.	Gettysburg	40	
b.	McSherrystown	7	
c.	Bonneauville	4	
d.	Littlestown	5	
Low Income Rehab (mixed)			17
a.	York Springs	10	
b.	Littlestown	2	
c.	Hampton Village	2	
d.	Gettysburg	3	
Fahnestock Building (elderly), Gettysburg			27
	Total:		578
OTHER LOW INCOME HOUSING			
Breckenridge Village, Gettysburg Farmers Home Administration "Rental Assistance" Subsidy, not Section 8			56
Gettysburg Place, Boyd's School Road, Cumberland Township			56*
Littlestown Village			40*
New Oxford Manor			32*
Easte Berlin Manor			19*
	Total:		203

* These four projects were financed through "1% Interest," Farmers Home Loan Funds. As a result rents are artificially low. e.g. $280 per month for 1 or 2 bedroom units. Also, about 25 of these units are occupied by certificate or voucher holders.

Table 2.7.8

Alternative Population Projections for Adams County, 1990-2010

Basis	1990	1995	2000	1990-2000 Number	1990-2000 Percent	2005	2010	2000-2010 Number	2000-2010 Percent	1990-2010 Number	1990-2010 Percent
1. SWMP Projections (adjusted) for Adams County	78,274	84,394	91,056	13,125	16.8	97,527	104,001	12,945	14.2	26,070	33.5
2. Population Growth Rate for Adams County, 1980-1990	78,274	83,250	88,930	10,999	14.1	95,000	101,482	12,552	14.1	23,551	30.2
3. Housing Construction Rate for Adams County, 1980-1989	78,274	84,752	91,306	13,375	17.2	97,860	104,146	12,840	14.1	26,215	33.6
4. Average Population Growth Rate for Adjoining Counties, 1980-1990	78,274	83,426	89,309	12,181	15.6	95,607	102,348	13,039	14.6	24,417	31.3
5. MOP Projections for Carroll and Frederick Counties	78,274	88,530	96,719	18,788	24.1	104,021	110,834	14,115	14.6	32,903	42.2
6. Average Population Growth Rate for Adjoining PA Counties, 1980-1990	78,274	80,838	83,854	5,923	7.6	86,982	90,227	6,373	7.6	12,296	15.8
7. County Population as an Increasing Percentage of State Population	78,274	87,880	93,363	15,432	19.8	98,800	104,193	10,830	11.6	26,262	33.7
8. PSDC Projections for Adams County (1987)	72,859	-	77,357	4,498	6.2	-	-	-	-	-	-

Legend: SWMP - Adams County Solid Waste Management Plan
MOP - Maryland Office of Planning
PSDC - Pennsylvania State Data Center

Figure 2.7.6

Alternative Population Projections for Adams County, (1990), 1995, 2000, 2005, 2010

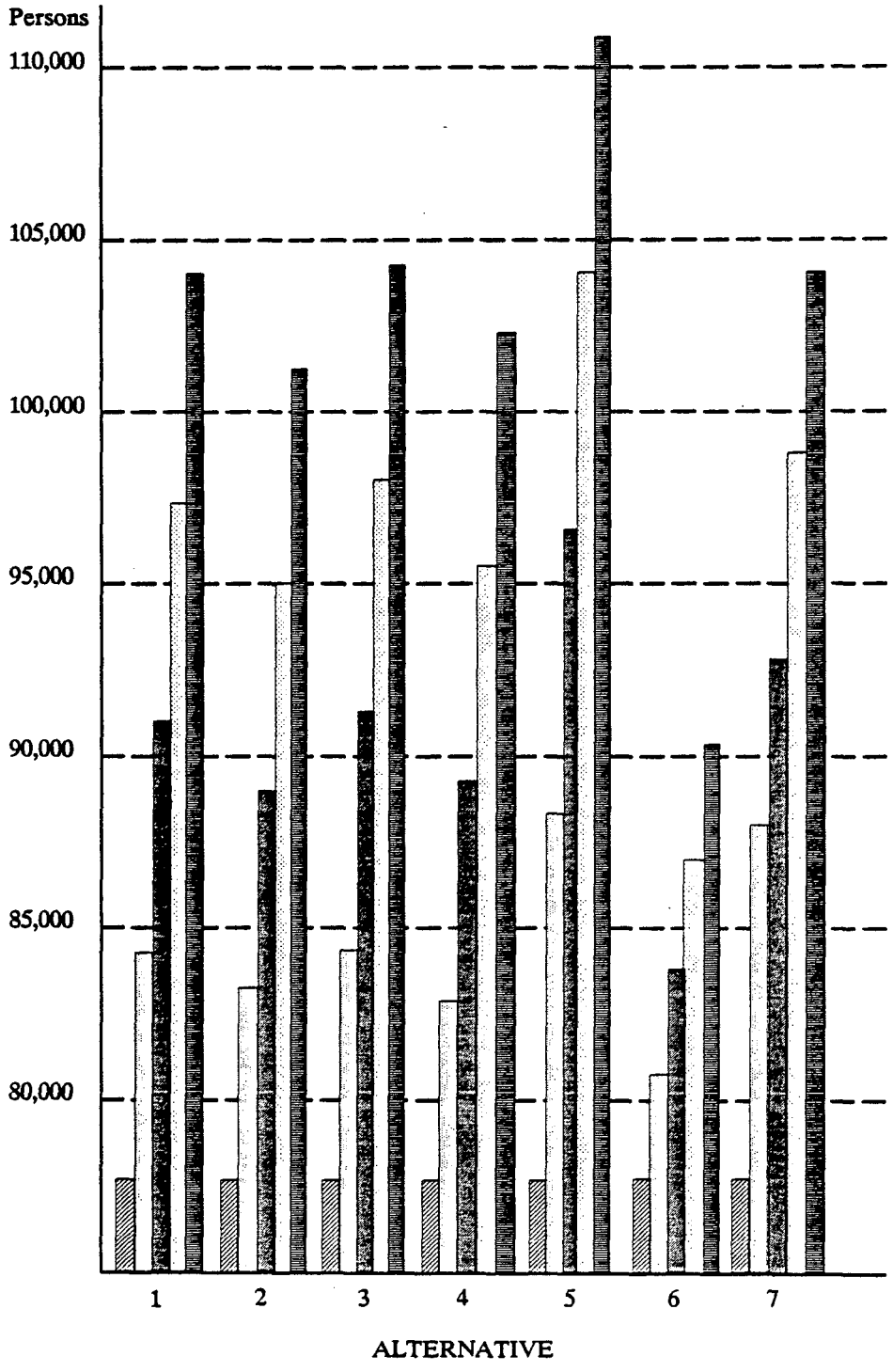


Table 2.7.9

Housing Units to be Constructed in Adams County, 1990-2010

	1995	2000	2005	2010
Projected Population	84,000	91,000	98,000	104,000
Population in Households (97%)	81,480	88,270	95,060	100,880
Persons per Household	2.55	2.5	2.45	2.4
Occupied Housing Units	31,953	35,308	38,800	42,033
Vacant Rate	4%	4%	4%	4%
Total Housing Units Required	33,284	36,779	40,417	43,784
Existing Housing Stock, 1990	29,990	29,990	29,990	29,990
Existing Year-round 1990 Housing Units (98%)	29,390	29,390	29,390	29,390
Net Additions to 1990 Housing Stock	3,894	7,389	11,027	14,394
Replacement of Existing 1990 Stock (0.15% per year)	220	440	660	880
Conversions (0.05% per year)	73	147	220	294
Total Housing Units to be Constructed (cumulative)	4,041	7,682	11,467	14,980

Source: Norman Day Associates.

Table 2.7.10

Housing Units to be Constucted by Structural Type, Adams County, 1990-2010

	1990-1995	1995-2000	2000-2005	2005-2010	1990-2010
Single-Family Detached	2,910	2,622	2,725	2,529	10,786
Single-Family Attached	323	291	303	281	1,198
Multi-Family	323	291	303	281	1,198
Mobile Home Parks (Units)	485	437	454	422	1,798
Total Units	4,041	3,641	3,785	3,513	14,980

Table 2.7.11

Employment by Major Industry in Adams County, 1970-1988

Industry	Number of Employees			Percent Distribution		
	1970	1980	1988	1970	1980	1988
Total Employment	23,614	28,485	35,136	100.0	100.0	100.0
Farm	2,780	2,638	2,387	11.8	9.3	6.8
Non-farm	20,834	25,847	32,749	88.2	90.7	93.2
Agricultural Services & other[a]	260	396	.[b]	1.1	1.4	-
Mining	.[c]	22	24	-	0.1	0.1
Construction	946	1,366	2,559	4.0	4.8	7.3
Manufacturing	8,033	7,646	8,522	34.0	26.8	24.3
Transportation & Public Utilities	766	1,023	1,498	3.2	3.6	4.3
Wholesale Trade	688	1,214	.[b]	2.9	4.3	-
Retail Trade	3,146	4,305	5,717	13.3	15.1	16.3
Finance, Insurance & Real Estate	747	1,052	1,329	3.2	3.7	3.8
Services	3,778	5,318	7,186	16.0	18.7	20.5
Federal Government - Civilian	231	391	620	1.0	1.4	1.8
Federal Government - Military	322	264	370	1.4	0.9	1.1
State & Local Government	1,912	2,850	3,073	8.1	10.0	8.7
				100.0	100.0	100.0

Source: U.S. Bureau of Economic Analysis, Regional Economic Information System.

[a]Includes forestry, fishing, and jobs held by U.S. residents employed by international organizations and foreign embassies and consulates in the United States.

[b]Not shown to avoid disclosure of confidential information

[c]Fewer than 10 jobs

Table 2.7.12

Percent Distribution of Employment by Major Industry in Adams County and Selected Jurisdictions, 1988.

Industry	Adams County	Nearby Counties[a]		States	
		Pennsylvania	Maryland	Pennsylvania	Maryland
Total Employment	100.0	100.0	100.0	100.0	100.0
Farm	6.8	1.7	3.7	1.5	1.0
Non-farm	93.2	98.3	96.3	98.5	99.0
Agricultural Services & other[b]	.[c]	0.7	1.3	0.6	0.9
Mining	0.1	0.2	0.0	0.6	0.1
Construction	7.3	5.5	11.0	5.3	7.5
Manufacturing	24.3	20.1	12.3	17.9	8.3
Transportation & Public Utilities	4.3	5.3	4.2	4.8	4.4
Wholesale Trade	.[c]	4.8	4.6	4.7	4.5
Retail Trade	16.3	16.9	18.6	17.1	18.0
Finance, Insurance & Real Estate	3.8	6.0	5.3	6.8	7.5
Services	20.5	22.3	24.3	28.2	29.1
Federal Government - Civilian	1.8	4.0	2.4	2.3	6.0
Federal Government - Military	1.1	1.1	2.5	1.2	2.5
State & Local Government	8.7	11.4	9.6	9.0	10.2

Source: U.S. Bureau of Economics Analysis, Regional Economic Information System.

[a]The counties nearby to Adams County include Cumberland, Dauphin, Franklin, and York Counties in Pennsylvania and Carroll, Frederick, and Washington Counties in Maryland.

[b]Includes forestry, fishing, and jobs held by U.S. residents employed by international organizations and foreign embassies and consulates in the United States.

[c]Not shown to avoid disclosure of confidential information.

Table 2.7.13

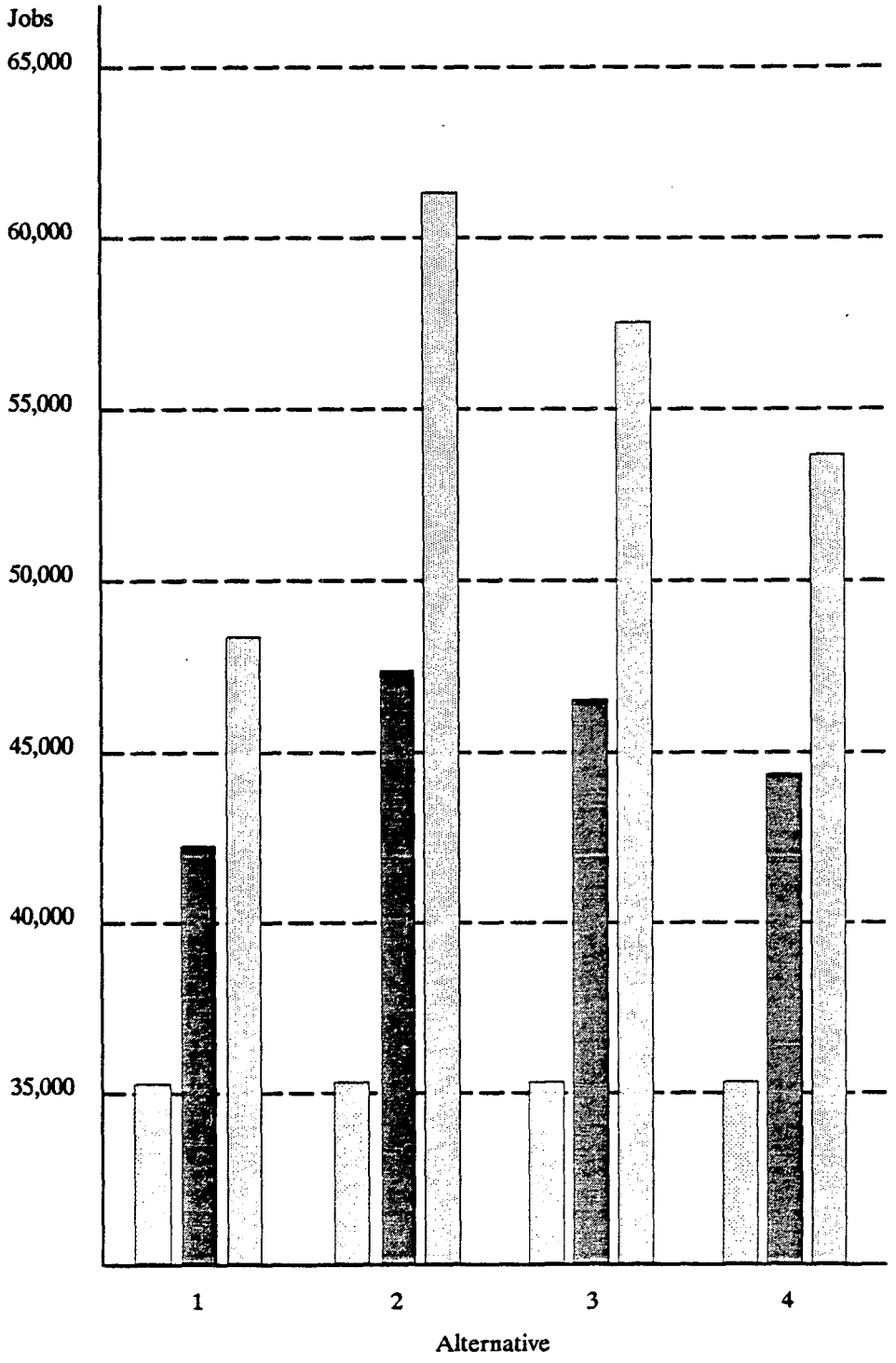
Alternative Employment Projections for Adams County, 1988-2010.

Basis	1988	2000	1988-2000 Number	1988-2000 Percent	2010	1988-2010 Number	1988-2010 Percent	1990-2010 Number	1990-2010 Percent
1. SWMP Population Growth Rate (adjusted) for Adams County	35,136	42,237	7,101	20.2	48,242	13,106	37.3	11,922	32.8
2. Adams County Job Growth Rate 1980-88	35,136	47,442	12,306	35.0	61,295	26,159	74.4	24,108	64.8
3. BEA York Metro Area 1988-2000 Job to Population Growth Rate Ratio	35,136	46,625	11,489	32.7	57,349	22,213	63.2	20,299	54.8
4. Blend of Retail & Services Growth as per #2 and all other Sectors as per #1	35,136	44,313	9,177	26.1	53,847	18,711	53.3	17,182	46.9

Legend: SWMP - Adams County Solid Waste Management Plan
BEA - U.S. Bureau of Economic Analysis, Regional Economic Information System

Figure 2.7.7

Alternative Employment Projections for Adams County, (1988), 2000, 2010



SECTION 8: CIRCULATION

Since the period in the early 1970s when Adams County's first Comprehensive Plan was completed, traffic in the county has increased substantially; yet except for the "dualization" of US Route 15; little has changed in the transportation system. Steady residential growth, particularly development serving commuters to York, Harrisburg, and Washington, D.C., means that a rethinking of current and future transportation needs is due.

The Existing Roadway Network

Aside from US Route 15, a four-lane expressway-type road traversing the center of the county on a north-south axis, the transportation network of Adams County is configured in a classic "hub and spoke" pattern, with as many as 10 different roadways branching out from the Borough of Gettysburg. Lincoln Square, at the center of Gettysburg and the hub of the county, is frequently the location of a great deal of traffic congestion, especially during peak traffic hours and during the tourist season. In addition, congestion is experienced in many of the "crossroad" villages and boroughs, particularly McSherrystown and Littlestown.

Figure 2.8.1 illustrates the key roadway corridors and Comprehensive Plan study area intersections in Adams County. The key corridors are described below:

- US Route 30 - This east-west route passes through the heart of Adams County and provides access to a wide variety of land uses. For the most part, the roadway is one lane in each direction, with shoulders and a center, two-way left-turn lane. There is a major interchange with US Route 15, where US Route 30 provides two lanes in each direction. East of Gettysburg, the road passes through New Oxford and Abbottstown, where the main intersections in the center of the boroughs are historic town squares. The intersection of US Route 30 and PA Route 94 in Cross Keys is a major one, characterized by large traffic volumes and some congestion, especially during the evening peak hour.

- PA Route 116 - This is another east-west roadway passing through Gettysburg, connecting Fairfield to the west with McSherrystown and Hanover to the east. The road provides one traffic lane per direction and generally follows a straight course. PA Route 116 is characterized by a rolling vertical alignment presenting some sight distance limitations, especially at offset intersections. McSherrystown Borough is located adjacent to Hanover Borough in York County. Traffic congestion occurs along Main Street in McSherrystown during the evening peak hour.

- Littlestown Borough Area - Littlestown Borough lies at the intersection of PA Route 97 and PA Route 194. Both routes are major corridors between developing areas of Adams County and Carroll County, Maryland, and are characterized by

residences built close to the roadways. Some peak-hour traffic congestion exists, and local and through trucks are significant components of the traffic stream.

- PA Route 97, including its interchange with US Route 15 - The interchange area has had to accommodate a large increase in traffic with the development of the Lake Heritage residential area. More than 500 houses are located on the site, with several hundred more proposed. PA Route 97 is generally one lane per direction throughout its length.

- PA Route 234 - This east-west roadway connects US Route 30 west of Cashtown with East Berlin Borough and York County to the east. The road connects to US Route 30 just west of York, and travels through the boroughs of Arendtsville and Biglerville. One lane per direction, with shoulders of various widths, the route's western portion travels through the mountains near the Buchanan Valley, while the eastern portion passes through rolling hills near US Route 15. Some sight distance problems for cross streets occur along this route.

- Mummasburg Road - This roadway generally runs north-south between Arendtsville and Gettysburg. The road provides one lane per direction and services adjacent residential land uses and the Gettysburg National Military Park. There are a number of offset intersections along the corridor.

- PA Route 94 - This roadway runs north-south and provides access between York Springs and US Route 15 in the north and Cross Keys (US Route 30) and Hanover Borough (York County) in the south. The highway is characterized by one lane for travel in each direction, various shoulder widths, and high travel speeds due to the straight horizontal alignment. PA Route 94 generally is bordered by residential land uses. The largest community along its length is the village of Hampton, which contains a large town square. Some traffic congestion occurs at the PA Route 94/US Route 15 interchange and in the vicinity of York Springs. As noted earlier, traffic congestion also takes place at the Cross Keys intersection and in the vicinity of Hanover Borough.

- PA Route 34 Corridor - Extending from the Borough of Gettysburg northward to Cumberland County, this roadway is generally two lanes wide with variable-width shoulders.

In addition to the above corridors, the following key intersections were identified for concentrated analysis and are shown in Figure 2.8.1:

	Intersection	Intersection Number
1.	US Route 30 and	
	- PA Route 194 (Abbottstown)	12
	- PA Route 94 (Cross Keys)	11
	- US Route 15 interchange	25

	- Lincoln Square/Downtown Gettysburg	1
	Intersection	**Intersection Number**
	- Herr's Ridge Road	36
	- Shealer Road	26
	- Cashtown Road	34
2.	PA Route 116 and	
	- Mt. Pleasant Road	9
	- Third Street	10
	- Centennial Road	8
	- Miller Street (Fairfield)	38
	- PA Route 116 - Old Mill Road	37
	- PA Route 16	40
3.	Littlestown Community	
	- PA Route 194 (King Street) and PA Route 97 (Queen Street)	6
	- PA Route 97 and Old Littlestown Road	5
4.	Route 97 and	
	- The US Route 15 diamond interchange on- and off-ramps	2
	- Entrance driveway to Lake Heritage and PA Route 97	3
5.	PA Route 234 and	
	- US Route 30	35
	- Arendtsville Borough	33
	- Biglerville Borough	32
	- Old Harrisburg Pike	22
	- US Route 15	21
6.	Mummasburg Road (State Route 3017) and	
	- National Park Service Loop Road	27
	- Herr's Ridge Road	29
	- Belmont Road	30
	- Goldenville/Hilltown Road (Mummasburg Village)	31
	- PA Route 194 (East Berlin)	14
	- Ridgewood Drive	28
7.	PA Route 94 and	
	- US Route 15 interchange	18
	- PA Route 394 (Hampton)	15
	- Idaville Road	19
	- Lake Meade Road	16
	- Goodyear/Latimore Road	20
	- Pine Run Road	13
8.	PA Route 194 and	
	- Pine Grove Road	7
	- Harney Road	4
	- Mt. Pleasant Road	24
9.	US Route 15 and	
	- Emmitsburg Road interchange	39
	- Latimore Valley Road	17
	- PA Route 394 interchange	23

Current Traffic Volumes

Current turning movements and average daily traffic volumes on the study area road network were determined by conducting turning movement traffic counts and automatic traffic recorder (ATR) counts. The manual turning movements counts were collected at the locations shown in Figure 2.8.1 during the week of August 13, 1990, between the hours of 3:30 pm and 5:30 pm. The automatic recorder counts were collected during the same week at the following locations:

- PA Route 97 - Mt. Joy Township
- PA Route 116 - Mt. Pleasant Township
- US Route 30 - Straban Township
- PA Route 116 - Highland Township
- US Route 30 - Franklin Township
- PA Route 234 - Tyrone Township

These traffic count data indicate that the evening peak hour typically occurs between 4:30 pm and 5:30 pm. Two-directional evening peak hour traffic volumes were collected as follows:

<u>US Route 30</u>		
High	1319	west of the US Route 15 interchange
Low	692	at PA Route 234
<u>PA Route 116</u>		
High	1258	west of McSherrystown
Low	726	Fairfield area
<u>PA Route 97</u>		
High	886	east of US Route 15
Low	663	west of US Route 15
<u>PA Route 234</u>		
High	407	east of PA Route 34
Low	110	at US Route 30
<u>Mummasburg Road</u>		
High	287	north of Ridgewood Drive
Low	134	south of Goldenville Road
<u>PA Route 94</u>		
High	653	east of Berlin Road
Low	233	east of Latimore Road

PA Route 194

High	946	north of Pine Grove Road
Low	321	south of Harney Road

Peak hour turning movements on a corridor basis are illustrated in Appendix 1.

Daily traffic volumes at the automatic traffic count recorder stations were as follows:

Location	Daily Volume
PA Route 97 - Mt. Joy Township	6,728
PA Route 116 - Mt. Pleasant Township	6,326
US Route 30 - Straban Township	12,308
PA Route 116 - Highland Township	5,213
US Route 30 - Franklin Township	5,370
PA Route 234 - Tyrone Township	3,082

Traffic Volume Trends

Daily traffic volumes for key roadway links in Adams County were plotted for the period of Adams County's original Comprehensive Plan preparation and compared to recent counts. Table 2.8.1 and Figure 2.8.2 illustrate traffic volumes on these roadways in 1972 and today. As shown, US Route 30 volumes have grown between 21% and 173% over the 18-year period and US Route 15 volumes between 5% and 123%. Each of the noted roadways have sections of high traffic growth. Overall, of the monitored roadways, an average growth in traffic volume of 65% over 18 years has been experienced, or an average annual growth rate of about 3.6% per year (2.8% compounded annually).

Volume/Capacity and Level of Service

While traffic volumes provide a measure of activity on the county road system, it is also important to gauge how well that system can accommodate those volumes (i.e., what is the capacity of the highway or intersection?). By definition, the capacity of a highway or intersection is the maximum number of vehicles that can be accommodated given the constraints of roadway geometry, environment, traffic characteristics, and controls.

An unsignalized intersection along a major route is seldom critical from an overall capacity standpoint. However, it may be of great significance to the capacity of a minor cross route and it may influence the level of service on both the through route and the minor cross route. It is assumed that the through movement on the major street has the right of way over all side street traffic and left-turns from the major street. A descriptive

mechanism has been developed by the Transportation Research Board, based upon a scale from 'A' to 'F', relating capacity (based upon the number of gaps) to the expected traffic delay (described as Levels of Service) for side street traffic and for left-turns from the major street. The relationships are described in Table 2.8.2.

At signalized intersections, other factors affect the various approach capacities, including width of approach, number of lanes, signal "green time", turning percentages, truck volumes, etc. However, operation at capacity is far from satisfactory since substantial delays or reduced operating speeds are likely. Therefore, a comparable descriptive mechanism has been developed (see Table 2.8.3, Level of Service for Signalized Intersections), indicating average delays at intersections on a scale from 'A' (indicating little or no delay) to 'F' (indicating average delay of more than 60 seconds).

Delays cannot be related to capacity in a simple one-to-one fashion. It is possible to have delays in the Level of Service 'F' range, without exceeding roadway capacity. High delays can exist without exceeding roadway capacity if one or more of the following conditions exist:

- long signal cycle lengths;
- a particular traffic movement experiences a long "red time"; or,
- progressive movement for a particular lane group is poor.

While the previous discussion describes the level of service concept in general, it is important to relate the concept to Adams County in particular. Levels of Service A and B indicate typically congestion-free operation and are clearly acceptable in Adams County. Levels of Service C and D, on the other hand, represent the start of congestion and, while still acceptable, indicate that further increases in traffic could result in congestion. Consequently, conditions should be continually monitored. Levels of Service E and F are usually considered not acceptable and indicate short-term improvements must be considered.

A detailed volume/capacity analysis was completed for existing conditions at the study area intersections during the evening peak hour, and is presented in Figure 2.8.3. Most intersections operate at Levels of Service A or B. No intersections were found to operate at Level of Service F conditions. Of the remaining intersections, the following two operate at Level of Service E:

- US Route 30 and the US Route 15 interchange ramps
- US Route 30 and Shealer Road.

Finally, the following intersections operate at Levels of Services C and D:

- US Route 30 and Herrs Ridge Road

- PA Route 116 and Herrs Ridge Road
- PA Route 97 and the US Route 15 interchange ramps
- PA Route 97 and Old Littlestown Road
- PA Route 97 and Hanover Pike (PA Route 194)
- PA Route 194 and Mt. Pleasant Road
- PA Route 116 and Mt. Pleasant Road
- PA Route 116 and Centennial Road
- PA Route 116 and Third Avenue

Functional Classification of Major Highways

Roadways perform two very distinct and sometimes contradictory functions - moving traffic and providing access to adjacent land uses. Limited access highways (expressways) provide no access to adjacent land uses and, of course, are best at moving traffic. Since providing access to adjacent land uses detracts from the ability of a highway to move traffic, it is important for planning purposes to classify roadways by function. The following functional categories are typically used and were employed in the 1972 Adams County Comprehensive Plan preparation (Figure 2.8.4):

1. Major Arterial - A street or road that is used primarily for fast or heavy volumes of through traffic - freeways, expressways, and high-volume through roadways carrying regional traffic.

2. Minor Arterial - A street or road that is used primarily for through traffic. Minor Arterials carry generally lower volumes of traffic than Major Arterials.

3. Collector - A street or road that carries traffic from minor borough streets and township roads to the arterial system.

4. Minor - All other borough streets or township roads, providing access to abutting properties in residential, commercial, industrial, and rural areas. (These are not shown in Figure 2.8.4.)

In Adams County, the 1972 Comprehensive Plan also established a "Scenic Road Network" and developed a special Scenic Route classification, as follows:

5. Scenic Route - A locally-designated route selected to give tourists an opportunity to view (in Adams County) Gettysburg National Military Park, the rural countryside, the fruitbelt, boroughs and villages, and various historic landmarks, in a self-conducted tour of the area.

Figure 2.8.4 shows the 1972 Functional Classification of Adams County roadways. The classification of key roadways is summarized as follows:

Major Arterials

US Route 15 (noted separately as an expressway)
US Route 30

Minor Arterials

PA Route 194
PA Route 34
PA Route 116
PA Route 97 (then known as US Route 140)
PA Route 94
PA Route 16

Collector Roadways

PA Route 233
PA Route 234
PA Route 394
PA Route 194
Business Route 15

LR 01010	--	SR4008	Wenksville Road
LR 01047	--	SR1020	York Springs Road
LR 01043	--	SR1012	Lake Meade Road
LR 01008	--	SR1008	Quaker Church Road
LR 01004	--	SR1015	Oxford Road
LR 5610	--	SR2009	Edgegrove Road
LR 01005	--	SR2006	Centennial Road
LR 01003	--	SR2001	Two Taverns Road
LR 01010	--	SR3011	Carrolls Tract Road
LR 01001	--	T304	Knightstown Road

In 1980, the Pennsylvania Department of Transportation (PaDOT) classified the roadways of Adams County based upon national criteria as established by the Federal Highway Administration. This system classified roadways by function and by eligibility for federal highway funds for improvements.

Correspondence between the 1972 Adams County Comprehensive Plan functional classification system and the Pennsylvania Department of Transportation system is as follows:

1972 Comprehensive Plan	Pennsylvania Department of Transportation
Major Arterial	Principal Arterial
Minor Arterial	Minor Arterial
Collector	Major Collector
Minor	Minor Collector

For Adams County, the 1980 PaDOT reclassification had the following effects:

- PA Route 233 became upgraded to a Minor Arterial.
- Business Route 15 was upgraded to a Minor Arterial.

Current Status of Proposed Roadway Improvements

The Pennsylvania Department of Transportation maintains an administrative document called a 12-Year Plan of Roadway Improvements for state highways across Pennsylvania. PaDOT's "12-Year Program" is divided into three four-year segments, with the first four years already funded by the legislature and the remaining two four-year segments awaiting funding. As of mid-1991, the Adams County portion of the 12-Year Program contained 14 projects, all relating to bridges. There were no projects designed to increase the capacity of the county roadway network on the Program. (As noted previously, the only significant recent improvement to the county road network was the "dualization" of US Route 15 into a full-fledged, four-lane expressway.)

Of the $7.2 million program scheduled for Adams County, the first four years contained seven projects, as follows:

US Route 30 -- Replacement of the Marsh Creek Bridge	$496,000
PA Route 94 -- Replacement of the Conewago Creek Bridge	$807,000
PA Route 134 -- Replacement of the Rock Creek Bridge	$619,000
PA Route 394 -- Replacement of the Rock Creek Bridge	$487,000
Marsh Run Bridge Replacement -- Hilltown Village	$454,000
Jacks Mountain Road -- Replacement of Bridge over Toms Creek	$552,000
Mill Road -- Replacement of Bridge over Pine Run	$108,000
Total	$3,523,000

In the second four-year portion, there were five projects, the most significant of which was the replacement of the Marsh Creek Bridge on Business Route 15. In the third four-year period the most significant project was the replacement of the PA Route 234 bridge over Conewago Creek.

It should also be noted that in 1987 traffic flows within the Borough of Gettysburg were studied as part of the Pennsylvania Department of Transportation's ECONS program. (ECONS, an acronym for Energy CONservation and Safety, has recently been replaced by the Department's Safety And Mobility Initiative (SAMI) program.) The study recommended a $712,000 program of traffic signal modernization and coordination on Business Route 15, PA Route 34, US Route 30, and PA Route 116, at eleven traffic signals within the borough. The project has not been placed on the 12-Year Program for implementation.

The Pennsylvania Department of Transportation recently announced that it will undertake major planning studies for the US Route 30 corridor between Chambersburg in Franklin County and Thomasville, just west of York in York County, during 1992.

Public Transportation System

Within the county, scheduled bus service is provided by Capitol Trailways, Greyhound, Lincoln Bus Lines, and Wolf's Bus Lines. According to the Pennsylvania Public Utilities Commission, service is provided as follows:

Carrier	Service Area
Capitol Trailways	York Springs, Gettysburg, McSherrystown
Lincoln Bus Lines	Gettysburg, Abbottstown, Littlestown, New Oxford, Cross Keys, McSherrystown, Irishtown, East Berlin
Greyhound Lines	Gettysburg, Littlestown
Wolf's Bus Lines	Greenstone, Fountain Dale, Fairfield, Orrtanna

In addition, Hanover has recently instituted public bus service, reaching as far west as the York-Adams county line.

Scheduled airline and passenger rail service is available in Harrisburg and in Washington, D.C.

Accident Analysis

Accident histories for key study area roadways were provided by the Pennsyvlania Department of Transportation for analysis as part of the Adams County comprehensive planning process. The accident histories provided cover a five-year period from January 1, 1985 to December 14, 1990.

Accidents are classifed by type, severity, time-of-day, day-of-week, number of injuries/fatalities, vehicle type, and cause. Figure 2.8.5, illustrates, for each of the 40 study area intersections, the number of accidents and number of injuries or fatalities recorded. Intersections are ranked by total number of accidents in Table 2.8.4 and illustrated in Figure 2.8.5. The five highest total accident intersections are:

1. PA Route 234 and Old Harrisburg Pike, with 26 accidents;
2. PA Route 116 and North Third Street, with 19 accidents;
3. US Route 30 and PA Route 94, with 18 accidents;
4. US Route 30 and Herr's Ridge Road, with 18 accidents; and,
5. US Route 30 and PA Route 194, with 15 accidents.

A total of 247 accidents occurred at study area intersections, including 262 injuries and five fatalities. Of special concern are the five intersections where fatal accidents occurred:

- US Route 30 and PA Route 194;
- PA Route 194 and Mount Pleasant Road;
- PA Route 116 and South Third Street;
- Mummasburg Road and Herr's Ridge Road; and,
- PA Route 94 and Pine Run Road.

Other locations that exhibited a high incidence of accidents are:

- PA Route 234 and PA Route 194, with 14 accidents;
- US Route 30 and Lincoln Square, with 13 accidents;
- PA Route 194 and Mount Pleasant Road, with ten accidents;
- PA Route 234 and U. S. Route 15, with ten accidents, and;
- PA Route 116 and South Third Street, with nine accidents.

Each roadway corridor was examined for overall acccident trends, with the following conclusions:

- Route 116 - Six intersections were included in this corridor analysis. Most accidents occurred at the intersection with Third Street/Oxford and were right-angle accidents. The only intersection fatality involved a pedestrian at South Third Street. Including the midblock segments, a total of 544 accidents have occurred along PA Route 116, with 14 fatalities - four

involving pedestrians, four collisions with fixed objects, three head-on accidents, and three right-angle accidents. "Drinking" or "drugs" were noted in four fatalities, with "speeding" as the leading cause of all accidents occurring along the corridor.

- US Route 30 - Seven intersections were analyzed along this corridor. Eighteen accidents occurred at the intersection of US Route 30 and Herr's Ridge Road and also at the intersection of US Route 30 and PA Route 94. At PA Route 94, there was generally an even distribution of accident types. At Herr's Ridge Road, 80 percent of all accidents were rear-end accidents, with "tailgating" or "driving too fast" being the primary causes. The only intersection fatality involved a large truck at PA Route 94 that overturned due to "brake failure". A total of 859 accidents occurred along the corridor, with sixteen fatal accidents. Of the fatal accidents, six involved collisions with fixed objects and four accidents each qualified as head-on and right-angle ones. "Drugs" or "alcohol" were cited in six fatal accidents and were the leading cause of all fatal accidents.

- PA Route 234 - Six intersections were studied on this corridor. The intersection of PA Route 234 and Old Harrisburg Pike experienced the greatest number of accidents of any study intersection, with 26. Twenty-five accidents were right-angle accidents and only one accident involved "drinking" as a cause factor. A total of 388 accidents were recorded within the corridor. No fatal accidents occurred at any study intersections, however, six fatal accidents did occur within the corridor - two right-angle accidents, two collision-with-fixed-object accidents, one head-on accident, and one pedestrian accident. "Drinking" was involved in two fatalities and in a total of eight percent of all accidents. "Crossing over the centerline" was the leading cause of all accidents within the corridor.

- PA Route 97 - Nine accidents occurred at the four study intersections. Five accidents (three right-angle and two pedestrian) occurred at King Street. A total of 146 corridor accidents were recorded, with two fatalities (one a pedestrian accident and one a head-on accident that was alcohol-related). "Drinking" was a factor in 13 percent of all corridor accidents.

- Mummasburg Road (SR3017) - Five intersections were studied on this route, with a total of 103 accidents occurring along its length. Seven intersection accidents were recorded, including the only corridor fatal accident (at Herr's Ridge Road). Intersection accidents included four right-angle accidents, one fixed-object accident, one head-on accident, and one rear-end accident. "Speeding" was the leading cause of all accidents.

- US Route 15 - Three intersections accounted for seven accidents along US

Route 15, including three right-angle accidents, one head-on accident and one rear-end accident. Two accidents were caused by "deer running onto the road". A total of 77 corridor accidents were recorded, with no fatalities.

- PA Route 194 - Fourteen intersection accidents at three locations occurred along this corridor. Ten accidents, including a fatal one, occurred at Mount Pleasant Road. Accident types included five right-angle accidents, two head-on accidents, two rear-end accidents, and one hit-fixed-object accident. "Drinking" was the leading cause of all accidents and involved in several of the 349 total corridor accidents and nine fatalities in the corridor.

- PA Route 94 - Six intersections were studied along this corridor. The intersection with PA Route 394 experienced eight accidents, including five right-angle accidents, two rear-end accidents, and one head-on accident. A total of 326 accidents were recorded within the corridor. "Drinking" was the leading cause of all accidents and involved in half of the fatal accidents.

Table 2.8.1

Average Daily Traffic Volumes
Adams County Roadways, 1972 and 1990

Roadway	1972	1990	% Change
U. S. Route 30 - Franklin Township	4,440	5,370	21%
U. S. Route 30 - Cumberland Township	4,613	12,597	173%
U. S. Route 30 - Gettysburg	12,300	18,652	52%
U. S. Route 30 - Straban Township	8,100	12,308	52%
U. S. Route 15 - Freedom Township	4,360	4,589	5%
U. S. Route 15 - Straban Township	2,300	5,124	123%
U. S. Route 15 - Latimore Township	5,660	5,839	3%
PA Route 34 - Biglerville	3,200	5,947	86%
PA Route 34 - Menallen Township	2,800	3,096	11%
PA Route 116 - Highland Township	3,300	5,213	58%
PA Route 116 - Mt. Pleasant Township	2,300	6,326	175%
PA Route 97 - Mt. Joy Township	2,800	6,728	140%
PA Route 94 - Berwick Township	4,800	6,326	32%
PA Route 94 - Latimore Township	1,400	2,401	72%
PA Route 234 - Biglerville	2,000	2,829	41%
PA Route 234 - Tyrone Township	900	3,082	242%
PA Route 394 - Schrivers Corners	3,000	3,274	9%
PA Route 194 - Union Township	2,203	3,455	57%
PA Route 194 - Hamilton Township	1,460	5,736	293%
	71,936	118,892	

Table 2.8.2

Level of Service and Expected Delay for Unsignalized Intersections[1]

LEVEL OF SERVICE	RESERVE CAPACITY (vehicles)
A	400 or more
B	300 to 399
C	200 to 299
D	100 to 199
E	0 to 99
F	Less than 0

1) Transportation Research Board, Special Report 209, Highway Capacity Manual, 1985, published by the Transportation Research Board, Washington, D. C., 1985.

Table 2.8.3

Level of Service
For Signalized Intersections[1]

LEVEL OF SERVICE	DESCRIPTION	AVERAGE STOPPED DELAY PER VEHICLE (SECONDS)
A	Very low delay, good progression; most vehicles do not stop at intersection.	< 5.0
B	Generally good signal progression and/or short cycle length; more vehicles stop at intersection than level of service A.	5.1 to 15.0
C	Fair progression and/or longer cycle length; significant number of vehicles stop at intersection.	15.1 to 25.0
D	Congestion becomes noticeable; individual cycle failures; longer delays from unfavorable progression, long cycle length, or high volume/ capacity ratios; most vehicles stop at intersection.	25.1 to 40.0
E	Usually considered limit of acceptable delay indicative of poor progression, long cycle length, or high volume/capacity ratio; frequent individual cycle failures.	40.1 to 60.0
F	Could be considered excessive delay in some areas, frequently an indication of oversaturation (i.e., arrival flow exceeds capacity), or very long cycle lengths with minimal side street green time. Capacity is not necessarily exceeded under this level of service.	> 60.0

1) Transportation Research Board, Special Report 209, Highway Capacity Manual, 1985, published by the Transportation Research Board, Washington, D.C. 1985.

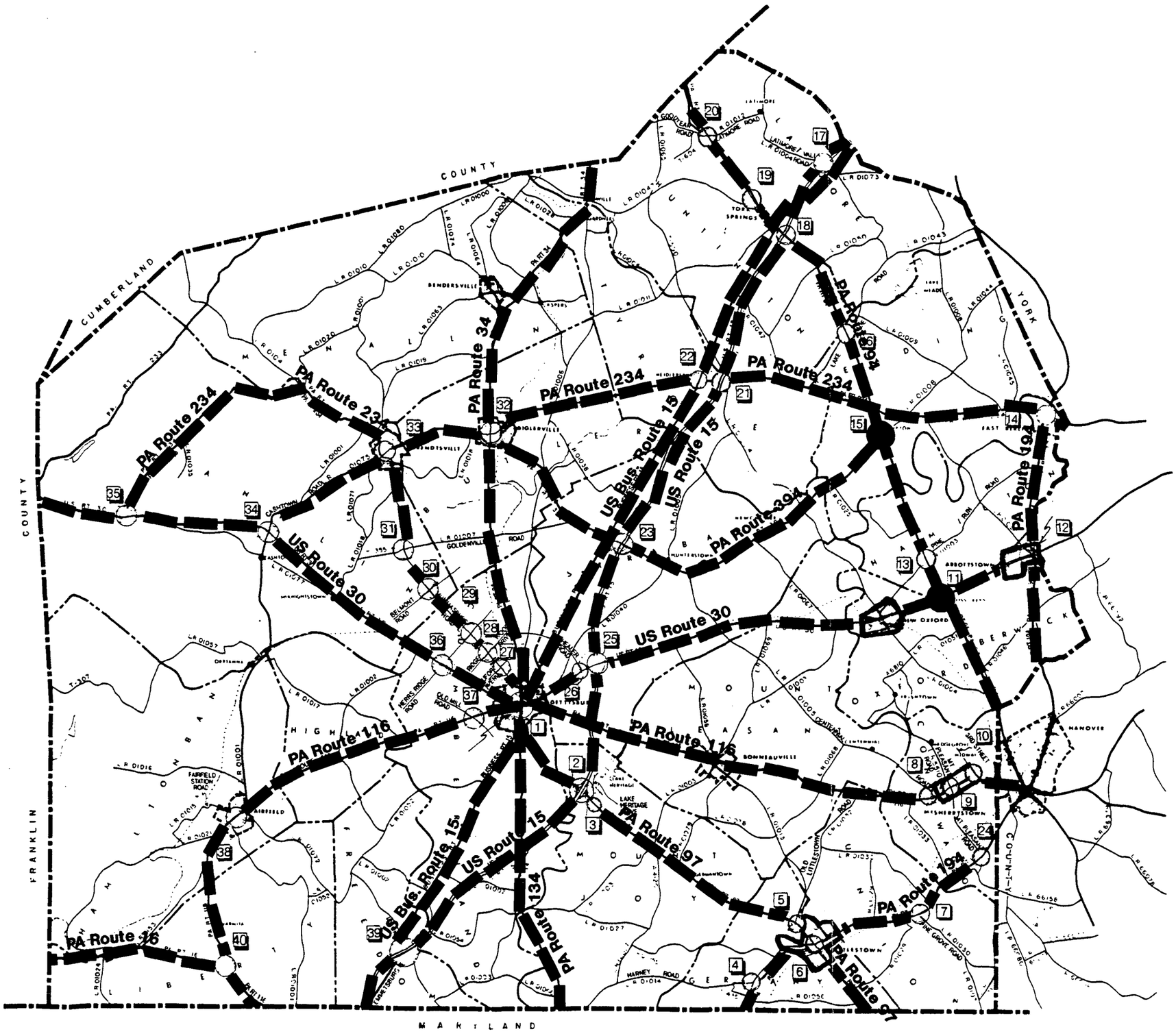
Table 2.8.4

Study Intersections Accident Tabulation
Adams County, Pennsylvania
January 1, 1985 to December 14, 1990

Intersection Number	Intersection	Total Accidents	Total Injured	Total Fatalities
22	PA Route 234 and Old Harrisburg Pike	26	31	
10	PA Route 116 and North Third Street	19	10	
36	U. S. Route 30 and Herr's Ridge Road	18	19	
11	U. S. Route 30 and PA Route 94	18	12	
12	U. S. Route 30 and PA Route 194	15	14	1
14	PA Route 234 and PA Route 194	14	9	
1	Route 30 and Lincoln Square	13	10	
24	PA Route 194 and Mount Pleasant Road	10	11	1
21	PA Route 234 and U. S. Route 15 Interchange	10	9	
9	PA Route 116 and South Third Street	9	6	1
40	PA Route 116 and PA Route 16	9	4	
15	PA Route 94 and PA Route 394	8	10	
29	Mummasburg Road and Herr's Ridge Road	7	12	1
34	U. S. Route 30 and Cashtown Road	7	25	
17	U. S. Route 15 and Latimore Valley Road	6	12	
32	PA Route 234 and Biglerville Road	6	8	
19	PA Route 94 and Idaville Road	6	3	
13	PA Route 94 and Pine Run Road	5	12	1
31	Mummasburg Road and Goldenville/Hilltown Road	5	7	
6	PA Route 97 and PA Route 194	5	5	
35	PA Route 234 and U. S. Route 30	4	7	
26	U. S. Route 30 and Shealer Road	4	2	
30	Mummasburg Road and Belmont Road	3	3	
16	PA Route 94 and Lake Meade Road	3	3	
7	PA Route 194 and Pine Grove Road	3	2	
25	U. S. Route 30 & U. S. Route 15 Interchange	2	3	
3	PA Route 97 and Lake Heritage Driveway	2	3	
33	PA Route 234 and Arendtsville Borough	2	2	
2	PA Route 97 and U. S. Route 15 Interchange	2	2	
4	PA Route 194 and Harney Road	1	2	
39	U. S. Route 15 & Emmitsburg Road Interchange	1	1	
38	PA Route 116 and Miller Street	1	1	
37	PA Route 116 and Old Mill Road	1	1	
27	Mummasburg Road and Buford Road	1	1	
18	PA Route 94 and U. S. Route 15 Interchange	1	0	
20	PA Route 94 and Goodyear/Latimore Road	0	0	
5	PA Route 97 and Old Littlestown Road	0	0	
28	Mummasburg Road and Ridgewood Drive	0	0	
23	U. S. Route 15 and PA Route 394 Interchange	0	0	
8	PA Route 116 and Centennial Road	0	0	—
		247	262	5

Figure 2.8.1

KEY ROADWAY CORRIDORS & STUDY AREA INTERSECTIONS



LEGEND:

12 – Study Area Intersection

– Study Area Roadway

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

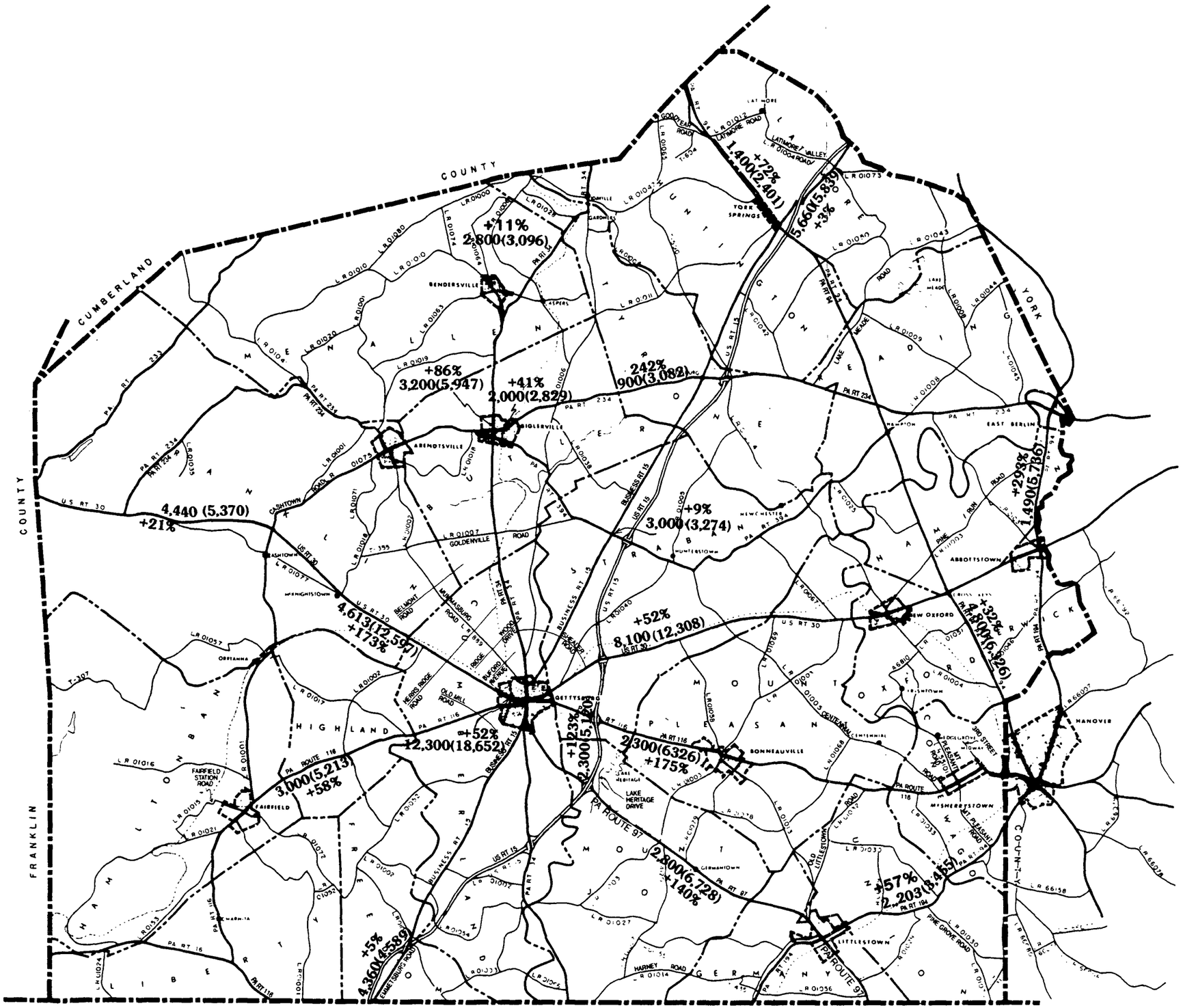
SCALE IN MILES

0 1 2 3 4

Orth-Rodgers & Associates, Inc.
TRAFFIC · HIGHWAY · SITE ENGINEERING

Figure 2.8.2

AVERAGE DAILY TRAFFIC VOLUMES, 1972 & 1990



LEGEND:

1972(1990) Average Daily Traffic
+00% Percent Increase

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE IN MILES
0 1 2 3 4

Orth-Rodgers & Associates, Inc.
TRAFFIC · SITE ENGINEERING

Figure 2.8.3

EXISTING TRAFFIC CONDITIONS, STUDY AREA INTERSECTIONS

LEGEND:

- – Level of Service A or B
- – Level of Service C or D
- – Level of Service E

(Level of Service F – None)

12 – Study Area Intersection

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE IN MILES

0 1 2 3 4

Orth-Rodgers & Associates, Inc.
TRAFFIC · HIGHWAY · SITE ENGINEERING

Figure 2.8.4

FUNCTIONAL CLASSIFICATION

Source: 1972 Adams County Comprehensive Plan

LEGEND:

- = – Freeway
- ▬ – Major Arterial
- >>> – Minor Arterial
- ■ ■ – Collector
- ▪▪▪ – Scenic Route

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE IN MILES

1 0 1 2 3 4

Orth-Rodgers & Associates, Inc.
TRAFFIC · HIGHWAY · SITE ENGINEERING

Figure 2.8.5

STUDY AREA INTERSECTIONS' ACCIDENTS

LEGEND:

TOTAL ACCIDENTS	NO. OF FATALITIES	NO. OF INJURIES

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE IN MILES

1 0 1 2 3 4

NORTH

NDA
Norman Day Associates
Planning & Urban Design
1811 Walnut Street 2nd Floor
Philadelphia, PA 19103

- Orth-Rodgers & Associates
- Coughlin Keane Associates
- John Milner Associates
- R.E. Wright Associates

SECTION 9: COMMUNITY FACILITIES

Schools

Adams County is divided into six school districts: Bermudian Springs, Conewago Valley, Fairfield Area, Gettysburg Area, Littlestown Area, and Upper Adams. The number is one fewer than existed at the time of the original Adams County Comprehensive Plan preparation, with the former New Oxford Area and Conewago Township districts having combined in the interim.

Districts are comprised of adjoining boroughs and townships, with six municipalities divided between school districts (Figure 2.9.1): Tyrone Township is mostly in the Upper Adams district and partly in the Conewago Valley district; the northeast corner of Straban Township is in the Conewago Valley district, while the majority of the municipality falls within the Gettysburg Area district; Mount Joy Township is about half in the Gettysburg Area district and half in the Littlestown Area district; the southern half of Bonneauville and southern tier of Mount Pleasant Township are in the Littlestown Area district, with the remainder of the respective municipalities in the Conewago Valley district; and a small northerly corner of Union Township is outside the Littlestown Area district and within the Conewago Valley district. The remaining 28 townships and boroughs fall wholly into one district or another. Geographically, the Gettysburg Area district is the largest.

Generally, facilities are not distributed widely in each district and tend to be concentrated either in a centrally-located borough or, as in the case of the Bermudian Springs district, in a centrally-located "campus" in a rural setting. This trend toward centralization has been underway over the period since the original Comprehensive Plan was prepared and the process in the Bermudian Springs district is still underway: As of January 1, 1991, East Berlin Elementary and York Springs Elementary were closed and the new Bermudian Springs Elementary, adjacent to the existing middle and high schools, was opened. In contrast, the Upper Adams district, despite some centralization of facilities in Biglerville, maintains elementary schools in Arendtsville and Bendersville.

In the past, efforts have been made to establish a county Vocational-Technical school, but these plans did not come to fruition. In 1989 Harrisburg Area Community College and the Gettysburg Area School District reached in agreement to operate day and evening post-secondary-level classes in the county. Wilson College of Chambersburg operates evening classes at Biglerville High School, and York College of Pennsylvania runs courses at Hanover.

Gettysburg College and Lutheran Theological Seminary are two prominent Adams County institutions of higher education, but county residents are also close to: Penn State and York College of Pennsylvania, at York; Penn State at Harrisburg; Penn State at Mont Alto;

Wilson College, in Chambersburg; Mount Saint Mary's College, in Emmitsburg, Maryland; Western Maryland College, in Westminster, Maryland; Dickinson College, in Carlisle; and Hood College, in Frederick, Maryland.

School Enrollments

The Gettysburg Area district has the largest enrollment, totalling about 3,400 students. Conewago Valley has about 2,800; Bermudian Springs over 2,400; Upper Adams about 1,750; Littlestown Area nearly 1,600; and Fairfield Area close to 900 students. Fairfield Area, Gettysburg Area, Littlestown Area, and Upper Adams all possess total enrollments which are approximately the same as in 1968-69, the period of the original Adams County Comprehensive Plan preparation (see Table 2.9.1). Bermudian Springs has experienced a 22 percent increase over the 22-year period and the Conewago Valley district has gone up about 45 percent over the same period. Total county public school enrollments rose 8.8 percent in the interval under study.

In contrast to the relatively-constant or growing public school enrollments over the period, parochial school enrollments are about one-half of the levels from the late 1960s (Table 2.9.2).

A review of the capacities of the various public school facilities outlined in Table 2.9.1 suggests that new building additions will be needed, at the very least, in the Bermudian Springs and Conewago Valley districts over the next few years. Much more floor area per student is required in today's pedagogy when compared to the late 1960s, in consideration of the emergence of the computer as a tool in business and student life, and in view of other curriculum changes. The Upper Adams facilities at Arendtsville and Bendersville were expanded in 1990, and Littlestown Area's buildings are currently being enlarged.

Special Education

Lincoln Intermediate Unit # 12, encompassing Adams, York, and Franklin Counties, serves special-education needs in the area through an administrative office in New Oxford. Lincoln Intermediate Unit does not operate any independent educational facilities, but utilizes those of the public and parochial school systems in the three counties.

Police

Police services in Adams County are provided by the State Police and by local police departments where (and when) they are in existence. Table 2.9.3 outlines the service characteristics of local police forces.

State Police provide coverage for municipalities lacking any local police force and for areas with part-time local forces at times when these are not operating. There are 29 full-time State Police officers working out of barracks on Route 116, west of Gettysburg, operating on a staggered three-shift schedule. Information on numbers of personnel staffing each shift is not made available to the public.

State Police will assist local police forces if specifically requested. The following municipalities are served full-time by State Police:

Butler Township	Huntington Township
Franklin Township	Menallen Township
Freedom Township	Mt Joy Township
Germany Township	Mt Pleasant Township
Highland Township	Straban Township

Fire Protection

Fire protection in Adams County is provided by 27 volunteer fire companies, each with its own station at locations arrayed across the county (Figure 2.9.2). Company service areas, or fire districts, have been delineated by fire company agreement, and are intended to provide adequate fire protection for all areas. The fire district boundaries describe general areas of service for each company, but there is mutual aid among companies in fighting fires. Fire company stations also are used frequently for district and neighborhood community center functions.

Table 2.9.4 lists the various fire companies, the municipalities each serves, and whether ambulance services are provided in addition to fire fighting (also see Figure 2.9.3).

Ambulance Corps

In addition to the ambulance corps associated with 11 of the fire companies, the Gettysburg Hospital Medic Unit provides ambulance services.

Adams County Emergency Management Agency

The Adams County Emergency Management Agency (EMA) is responsible for direction and control of all emergency situations that occur in Adams County. The agency is also

responsible for the overall operation of the Adams County Communications Center, the county's emergency dispatch center, which processes the dispatch of all police, fire, and ambulance calls for the county.

Recreation (Figure 2.9.4)

Adams County does not own or operate any parks or recreation areas; other units of government, however, provide open space and recreation facilities in the county. The federal government operates Gettysburg National Military Park and Eisenhower National Historic Site; the Commonwealth of Pennsylvania manages Michaux State Forest and Caledonia State Park (in Franklin County) on South Mountain, and several small pieces of game land in the northeast quadrant of the county; and a few of the local municipalities operate facilities. (For a discussion of the emerging conflicts between the Gettysburg National Military Park's federal mandate and local recreational needs, see Section 5 of this chapter and Chapter 3).

Adams County residents make use of a variety of State-operated recreational facilities outside but within ten miles of the county limits. The aforementioned Caledonia State Park borders on the county's western edge, and features a swimming pool, picnic groves, campground, the Totem Pole Playhouse, and opportunities for hiking and nature study. An 18-hole golf course is located adjacent to the park. Pine Grove Furnace State Park, just across the line in Cumberland County, has two lakes with swimming beaches and boat rentals. Codorus State Park, in York County, has a lake for fishing and boating, a swimming pool, and hiking trails. Gifford Pinchot State Park, also in York County, provides facilities for picnicking, hiking, swimming, fishing, boating, and winter sports such as skating and tobogganing. The Appalachian Trail skirts the western boundary of Adams County.

In Maryland, Catoctin Mountain Park and Cunningham Falls State Park are within a few miles of the Pennsylvania line and readily accessible to Adams County residents.

Municipal parks in Adams County are provided by Gettysburg, Littlestown, Carroll Valley, Abbottstown, and McSherrystown. The Gettysburg Recreational Park has several ball diamonds and court-game facilities. Littlestown's community park features an outdoor swimming pool, ballfields, and pavilions. Butler Township operates a ballfield.

While there is not a strong tradition of municipally-administered open spaces in the county, community-based, quasi-public entities have filled some of the need for local parks. The South Mountain Fairgrounds, near Arendtsville in Menallen Township, is a 38-acre tract which is home to the annual South Mountain Fair and the Apple Blossom and Apple Harvest festivals. The Oakside Community Park, near Biglerville in Butler Township, is operated by the Upper Adams Jaycees. The Cashtown Lions Club runs the Cashtown Lion Park along US Route 30. The York Springs Firemen's Association owns a 26-acre tract partly in the borough and partly in Latimore Township.

Local recreational needs are also filled by the Gettysburg YWCA, which has a gym and indoor swimming pool, and by the schools, all of which have outdoor recreational facilities.

East Berlin Borough has recently purchased the former East Berlin Elementary School (see "Schools", above). Plans are underway to provide services to an area consisting of seven muncipalities in eastern Adams and western York Counties.

Publicly-accessible golf courses include: Carroll Valley Golf and Country Club; Cedar Ridge Golf Course, in Mount Joy Township; Flatbush Golf Course, north of Littlestown in Union Township; Mountainview Country Club, north of Fairfield in Hamiltonban Township; Piney Apple Golf Course, near Wenksville in Menallen Township; the South Hills Golf Club, on the Adams-York border in Conewago Township; and Caledonia Golf Club, on the Menallen-Franklin County line. Private golf clubs include Gettysburg Country Club, west of Gettysburg; and Hanover Country Club, on the Abbottstown-York County border.

Carroll Valley is home to the county's only major winter-sports attraction, Ski Liberty ski resort. To the west, on South Mountain, is the foundation-run, publicly-accessible Strawberry Hill Nature Center.

Many Adams County residents, in addition to tourists to the area, frequent the privately-operated local campgrounds. Granite Hill Campground, on Route 116 in Highland Township, has a water slide attraction. Gettysburg-area campgrounds also include Drummer Boy, in Straban Township; Always Welcome, Round Top, Heritage Resorts, and Artillery Ridge in Cumberland Township; and Gettysburg and KOA in Highland Township. Conewago Campground is adjacent to the Narrows, in the Buchanan Valley, and Hershey's Campground is southeast of York Springs, in Huntington Township.

Public Institutions (Figure 2.9.5)

The federal government operates a variety of institutions in the county, ranging from the nationally-prominent, such as Gettysburg National Military Park, Gettysburg National Cemetery, and Eisenhower National Historic Site, through the less-well-known, such as the GWYN communications tower off US Route 30, east of US Route 15. Distributed through the county are numerous post offices, and Gettysburg also has county offices for the Soil Conservation Service, Agricultural Stabilization and Conservation Service, and Farmers Home Administration. The Federal Communications Commission operates a national license-issuing office on Fairfield Road, just west of Gettysburg, and the borough is also home to a National Guard Armory and Armed Forces Recruiting Center. Southwest of Carroll Valley Borough, in Liberty Township, is a Defense Department military installation.

The Commonwealth of Pennsylvania owns and administers the state forests and game lands in the county, as well as Caledonia State Park (just over the Adams County line in Franklin County). The State Police barracks are on Route 116, just west of Gettysburg, and

PennDOT has a road maintenance depot adjacent. There is an Office of Public Assistance and a State Health Center in Gettysburg.

Adams County has its offices in the Courthouse and Annex in central Gettysburg, and also operates the Green Acres nursing home and County Prison on Route 34, just north of the borough. The Agricultural and Home Economics Extension Services facilities are on US Route 30, west of Gettysburg.

The regional library system includes the Adams County Library in Gettysburg, a branch in New Oxford, a bookmobile, and an independent affiliated library in East Berlin.

Municipal facilities include the various township and borough halls, and fire stations.

Private Institutions

Gettysburg College, the liberal-arts college on 175 acres in the north part of the borough, and the Lutheran Theological Seminary, on 52 acres west of Gettysburg, are two of the county's most prominent private institutions.

Adams County is also the location of a number of nursing home/life-care establishments. The Brethren Home, at the Cross Keys intersection in Oxford Township, has a full-range of independent living and nursing home facilities. The Lutheran Home, on Old Route 15 northeast of Gettysburg in Straban Township, offers a similar wide-range of living and special-care accommodations. Other nursing homes include Gettysburg Village Green, off US Route 30, in Straban Township; Michael Manor, west of Gettysburg on US Route 30; and the Piney Mountain Home, on US Route 30, west of Cashtown.

Other significant institutions include Gettysburg Hospital; the Children's Developmental Center, a residential facility for children with special needs near Abbottstown in Berwick Township; the Hoffman Home, a church-operated residential-care facility for children in Mt. Joy Township; the HART sheltered workshop, just east of New Oxford; the Adams County Office for the Aging, in Gettysburg; and the Apple Line paratransit service, with offices in Gettysburg.

Table 2.9.1a

Adams County Public Schools

Bermudian Springs District

Year Built	School	Acreage	Grades	Capacity	Enrollments 1968-69	1988-89	1989-90	1990-91	1995-96 (projected)
1990	Bermudian Springs Elementary		K-4	1000	-	-	-	opened 1991	1013
1977	Bermudian Springs Middle	75	5-8	500	-	489	536	515	857*
1960	Bermudian Springs High		9-12	600	600	470	457	481	587
[1878	East Berlin Elementary	9	K-4	450	440	366	397	435	closed 1991]
[1930	York Springs Elementary	13	K-4	450	445	359	383	393	closed 1991]
	Total District Public Enrollment				1,495	1,684	1,773	1,824	2,457

*Building addition planned

Conewago Valley District

Year Built	School	Acreage	Grades	Capacity	Enrollments 1968-69	1988-89	1989-90	1990-91	1995-96 (projected)
1954, 69, 86	New Oxford Elementary	18	K-6	900	804*	891	893	969	1,084
1958, 72, 86	Conewago Twp. Elementary	12	K-6	600	408	601	665	674	754
1976	New Oxford Junior High	89	7-9	800	-	619	632	609	944
1960	New Oxford Senior High	42	10-12	700	750	576	558	586	684
	Total District Public Enrollment				1,962	2,687	2,748	2,838	3,466

*Berlin Ave. Elementary & Peters St. Elementary Combined

Table 2.9.1b

Adams County Public Schools

Fairfield Area District

Year Built	School	Acreage	Grades	Capacity	Enrollments 1968-69	1988-89	1989-90	1990-91	1995-96 (projected)
1971	Fairfield Intermediate	44	K, 4-6	250	-	241	255	268	332
1928	Fairfield Elementary & Secondary	38	1-3, 7-12	714	848	487	578	603	628
	Total District Public Enrollment				848	728	833	871	950

Gettysburg Area District

Year Built	School	Acreage	Grades	Capacity	Enrollments 1968-69	1988-89	1989-90	1990-91	1995-96 (projected)
1959	Eisenhower Elementary	10	K-6	350[a]	650[a]	378	366	368	371
1988	Franklin Township Elementary	14	K-6	500	380	403	411	396	399
1969	James Gettys Elementary	60	K-6	525	-	548	535	527	530
1954	Keefauver Elementary	12	K-6	350[b]	615[b]	393	397	427	430
1896	Meade Elementary	1.5	K-3	200	206	169	174	184	187
1975	Gettysburg Junior High	25	7-9	653	890[c]	731	760	775	877
1963	Gettysburg Senior High	20	10-12	743[d]	886[d]	714	713	723	770
	Total District Public Enrollment				3,627	3,336	3,356	3,400	3,564

[a]Capacity was 660, acording to the 1970 Adams Co. Comprehensive Plan;
[b]Capacity was 600, according to the 1970 Adams Co. Comprehensive Plan;
[c]Older school structure;
[d]Capacity was 950, according to the 1970 Adams Co. Comprehensive Plan

Table 2.9.1c

Adams County Public Schools

Littlestown Area District

Year Built	School	Acreage	Grades	Capacity	Enrollments 1968-69	1988-89	1989-90	1990-91	1995-96 (projected)
1954	Rolling Acres Elementary	4	K-4	1020	544	718	699	718	717
1932	Maple Avenue Middle	4	5-8	727	301	497	488	493	554
1961	Littlestown High	22	9-12	814	732	482	423	384	387
	Total District Public Enrollment				1,577	1,697	1,610	1,595	1,685

Upper Adams District

Year Built	School	Acreage	Grades	Capacity	Enrollments 1968-69	1988-89	1989-90	1990-91	1995-96 (projected)
1954	Arendtsville Elementary	16	1-6	300	250	188	255	280	300
1950	Bendersville Elementary	5	1-6	350	250	199	284	309	300
1954	Biglerville Elementary	12	K-6	450	386	553	424	443	470
1916	Biglerville Junior & Senior High	12	7-12	750*	890*	705	694	719	802
	Total District Public Enrollment				1,776	1,645	1,657	1,751	1,872

*Capacity was 990, according to the 1970 Adams Co. Comprehensive Plan

Total County Public Enrollment	11,285	11,777	11,977	12,279	13,967

Table 2.9.2

Adams County Parochial Schools

School	Grades	Enrollments 1969-70	Enrollments 1987-88
Annunciation of the Blessed Virgin Mary School, McSherrystown	1-8	561	299
Immaculate Conception School, New Oxford	1-8	246	186
Sacred Heart of Jesus School, Conewago Township	1-8	307	175
Saint Francis Xavier School, Gettysburg	1-8	344	229
Delone Catholic High School, McSherrystown	9-12	1,023	538
Total Parochial School Enrollment		2,867	1,427

Table 2.9.3

Adams County Municipalities with Police Departments

Abbottstown Borough	1 Officer, varied schedule. Also patrols Hamilton Township.
Arendtsville Borough	1 Officer, currently on suspension. Worked 15-20 hrs./week.
Bendersville Borough	1 part-time Officer but due to end by Jan. 1, 1991 owing to new training standards.
Biglerville Borough	2 Officers, each works 45 hours/week.
Bonneauville Borough	2 Officers, only work weekend evenings.
Carroll Valley Borough	Sometimes 24 hours a day.
East Berlin Borough	1 full-time and 1 part-time Officers.
Fairfield Borough	1 full-time Officer works shifts in agreement with Carroll Valley, Liberty and Hamiltonban to maximize coverage.
Gettysburg Borough	24 hours a day. 13 Officers including Chief.
Littlestown Borough	24 hours a day. 5 full-time Officers including Chief, and 2 part-time Officers
McSherrystown Borough	4 full-time Officers, almost 24-hour-a-day coverage. Shift changes sometimes cause a break in coverage.
New Oxford Borough	2 full-time Officers. State Police take calls if they are off duty.
York Springs Borough and Latimore Township (combined)	2 full-time and 2 part-time Officers.
Conewago Township	24 hours a day. 5 Officers.
Cumberland Township	24 hours a day. 5 Officers.
Hamilton Township	[see Abbottstown Borough]
Hamiltonban Township	1 full-time Chief, 1 part-time Officer, 1 reserve Officer. Have operational agreement with Fairfield, Carroll Valley and Liberty.
Liberty Township	1 part-time Officer. Have operational agreement with Fairfield, Carroll Valley and Liberty.
Oxford Township	2 full-time Officers. Work 100 hours a week.
Reading Township	[information unavailable]

Table 2.9.4a

Adams County Fire Services

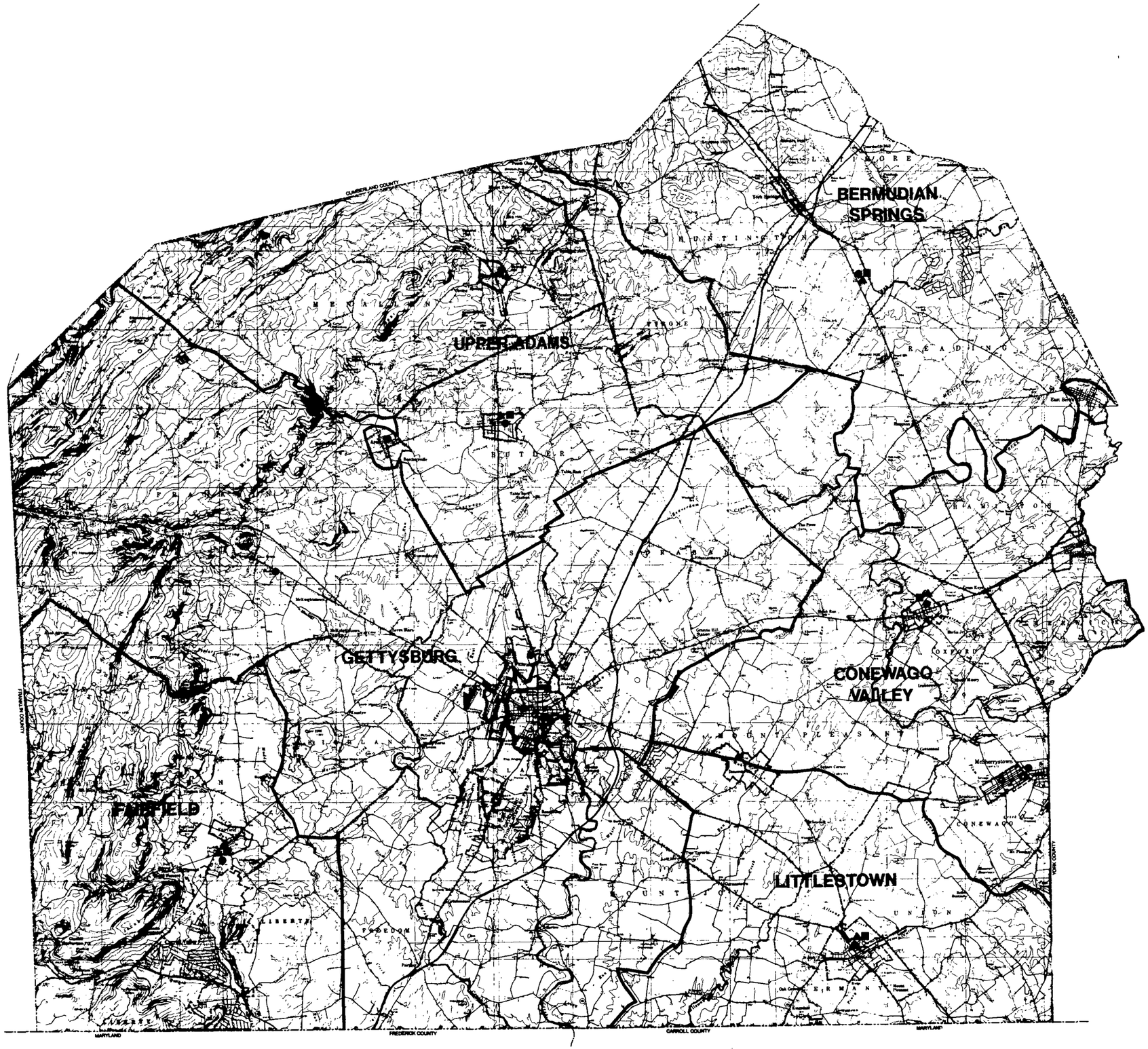
Company Number/Name	Municipalities Served	Ambulance Services
1. Gettysburg Fire Department	Butler Township Cumberland Township Gettysburg Borough Highland Township Mt Joy Township Mt Pleasant Township Straban Township	Yes
2. Fairfield Community Fire Company	Carroll Valley Borough- Fairfield Borough Franklin Township Freedom Township Hamiltonban Township Highland Township Liberty Township	Yes
3. Fountaindale Volunteer Fire Company	Carroll Valley Borough Hamiltonban Township Liberty Township	No
4. Cashtown Community Fire Company	Franklin Township Highland Township	No
5. Arendtsville Community Fire Company	Arendtsville Borough Butler Township Franklin Township Menallen Township	No
6. Biglerville Hose & Truck Company No. 1	Biglerville Borough Butler Township Menallen Township Straban Township	Yes
7. Bendersville Community Fire Company	Bendersville Borough Huntington Township Menallen Township Tyrone Township	No
8. Aspers Community Fire Company	Butler Township Huntington Township Menallen Township Tyrone Township	No
9. York Springs Volunteer Fire Company No. 1	Huntington Township Latimore Township Reading Township York Springs Borough	Yes
10. Hampton Volunteer Fire Company	Hamilton Township Huntington Township Reading Township Tyrone Township	No
11. Liberty Fire Company	East Berlin Borough Hamilton Township Reading Township	Yes
12. Abbottstown Fire Company	Abbottstown Borough Berwick Township Hamilton Township	No
13. New Oxford Fire Company	Berwick Township Hamilton Township Mt Pleasant Township New Oxford Borough Straban Township	Yes

Table 2.9.4b

Adams County Fire Services

Company Number/Name	Municipalities Served	Ambulance Services
14. Irishtown Fire Company	Oxford Township	No
15. Conewago Fire Company	Conewago Township	No
16. Centennial Fire Company	Conewago Township Mt Pleasant Township	No
17. McSherrystown Steam Fire Engine Company No. 1	Conewago Township McSherrystown Borough	Yes
18. Brushtown Fire Company	Conewago Township Mt Pleasant Township Union Township	No
19. Bonneauville Community Fire Company, Inc.	Bonneauville Borough Mt Joy Township Mt Pleasant Township Straban Township	Yes
20. Alpha Fire Company No. 1, Inc.	Germany Township Littlestown Borough Mt Joy Township Mt Pleasant Township Union Township	Yes
21. Kingsdale Volunteer Fire Company	Germany Township Mt Joy Township	No
22. Barlow Volunteer Fire Company	Cumberland Township Freedom Township Mt Joy Township	Yes
23. Greenmount Community Fire Company	Cumberland Township Freedom Township	No
24. Midway Volunteer Fire Company No. 1 of Adams County	Berwick Township Conewago Township Oxford Township	Yes
25. Heidlersburg Area Volunteer Fire Company	Butler Township Huntington Township Straban Township Tyrone Township	No
26. Lake Meade Fire and Rescue, Inc.	Latimore Township Reading Township	Yes
27. Buchanan Valley Fire Company	Franklin Township	No

Figure 2.9.1



SCHOOLS

School District Boundary

Public Schools

- Elementary
- Junior High
- Senior High

Parochial Schools

- Elementary
- High

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE

4000 2000 0 4000 8000 12000 Feet

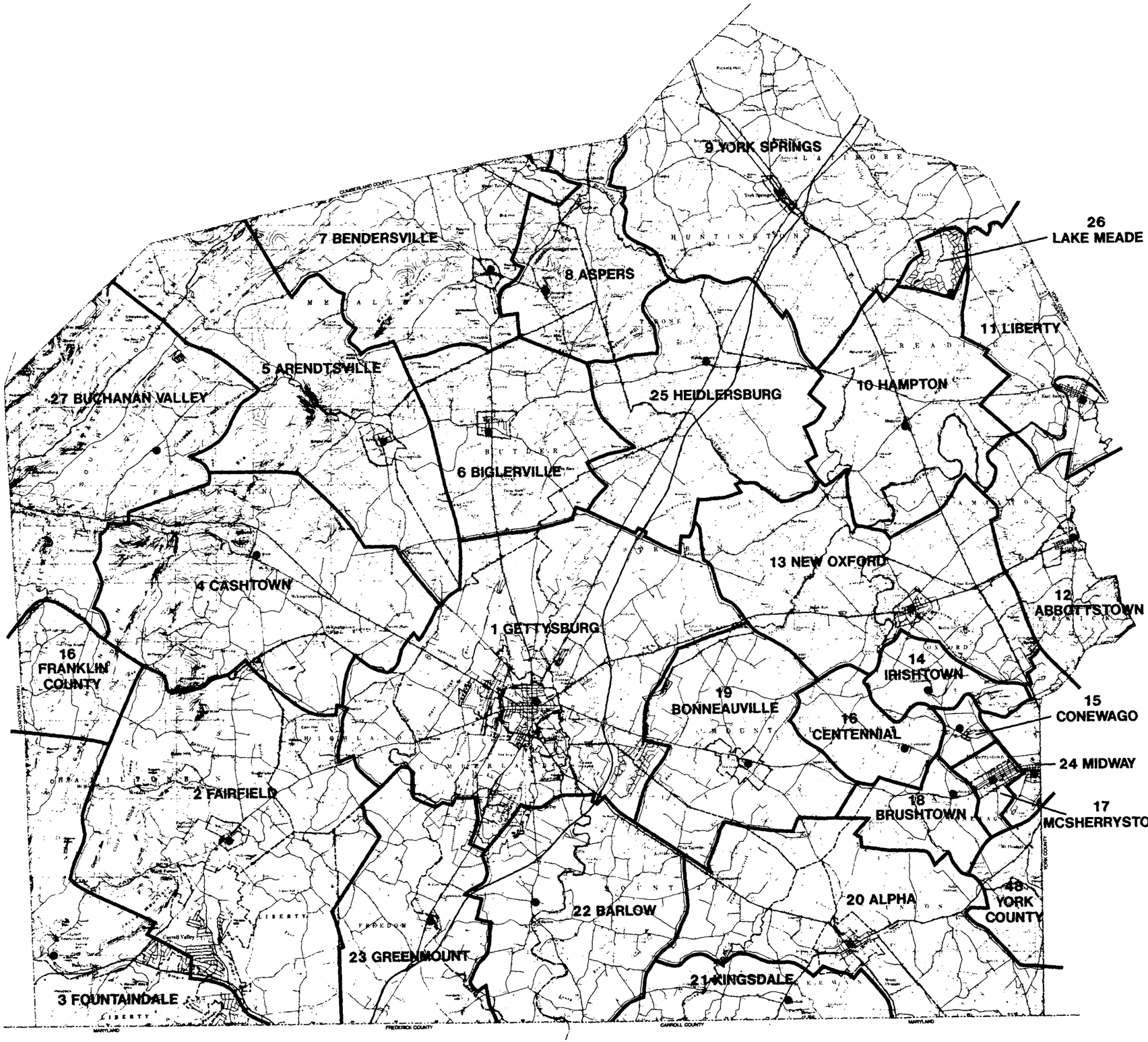
1 Square Mile

NORTH

NDA
Norman Day Associates
Planning & Urban Design
1611 Walnut Street 2nd Floor
Philadelphia, Pa. 19103

- Orth-Rodgers & Associates
- Coughlin Kearns Associates
- John Milner Associates
- R.E. Wright Associates

Figure 2.9.2



FIRE DISTRICTS & COMPANIES

Fire Stations

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

Norman Day Associates

Planning & Urban Design
1611 Walnut Street 2nd Floor
Philadelphia PA 19103

- Orth-Rodgers & Associates
- Couglin, Keene & Associates
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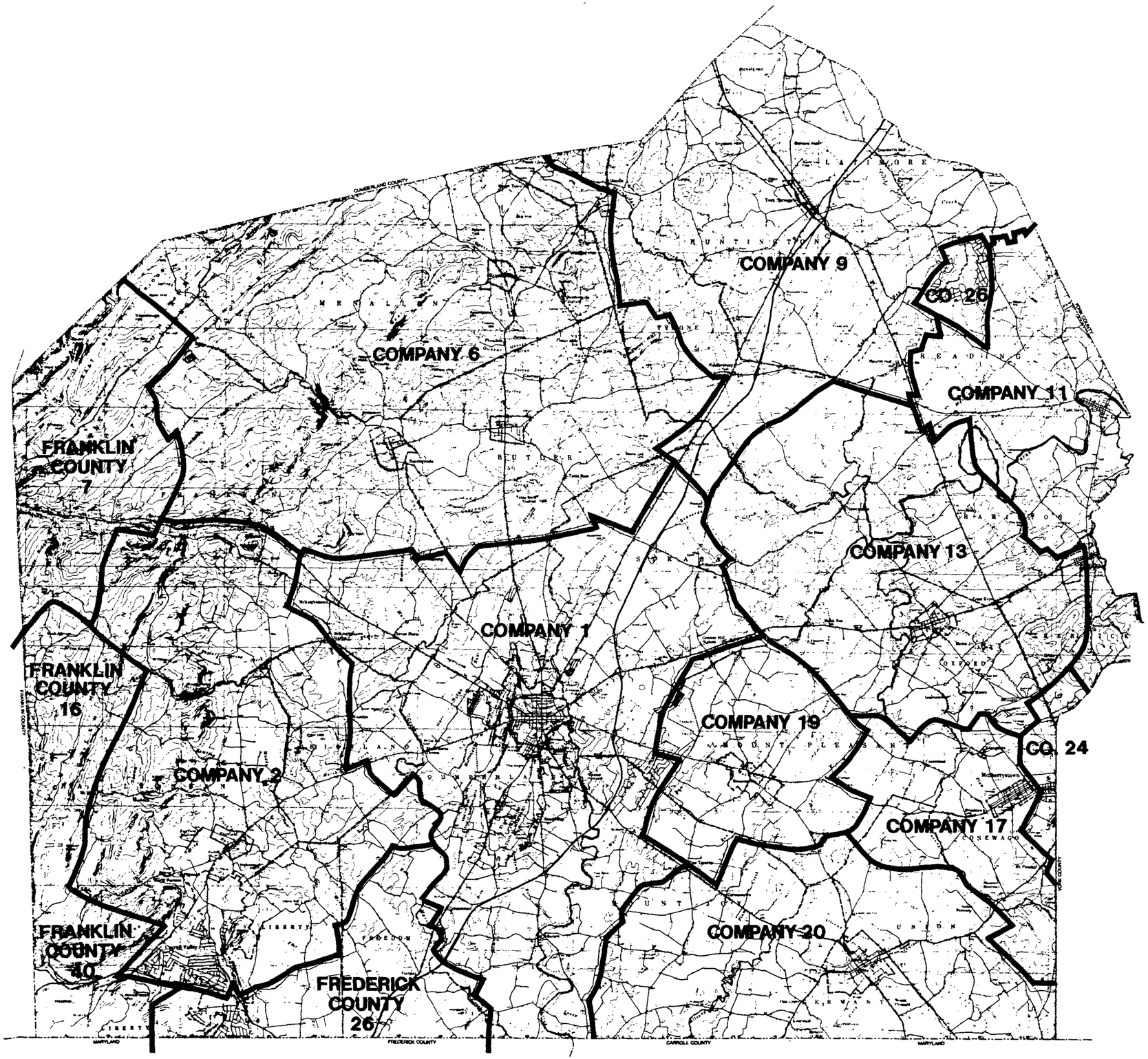
Figure 2.9.3

AMBULANCE DISTRICTS & COMPANIES



ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

Norman Day Associates

Planning & Urban Design

- Orth-Rodgers & Associates
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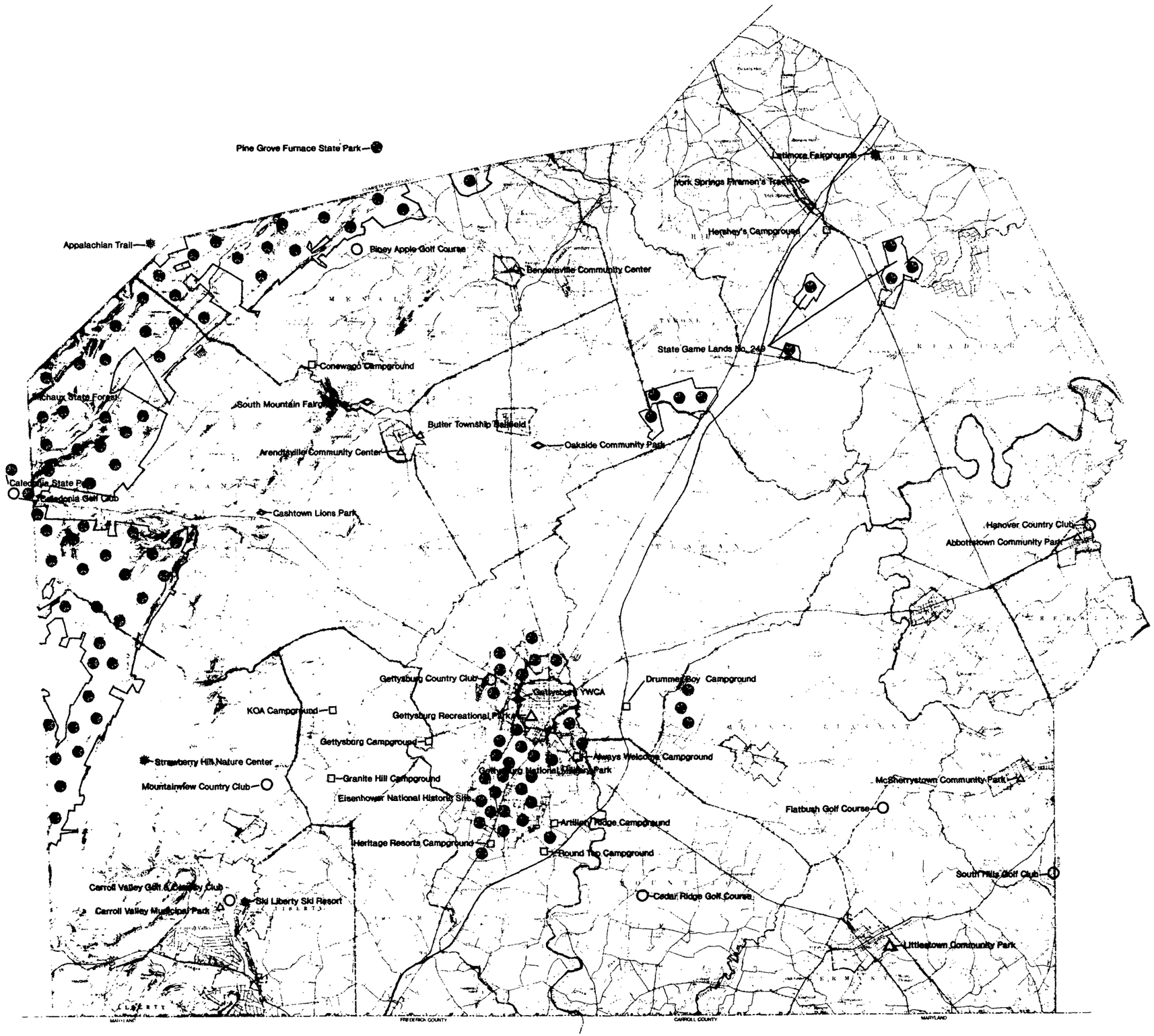
- R.E. Wright Associates

Figure 2.9.4



RECREATION

- Federal, State Parks/Facilities
- Municipal Parks/Centers
- Community Parks/Centers
- Golf Courses
- Campgrounds
- Other Recreational Facilities

ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

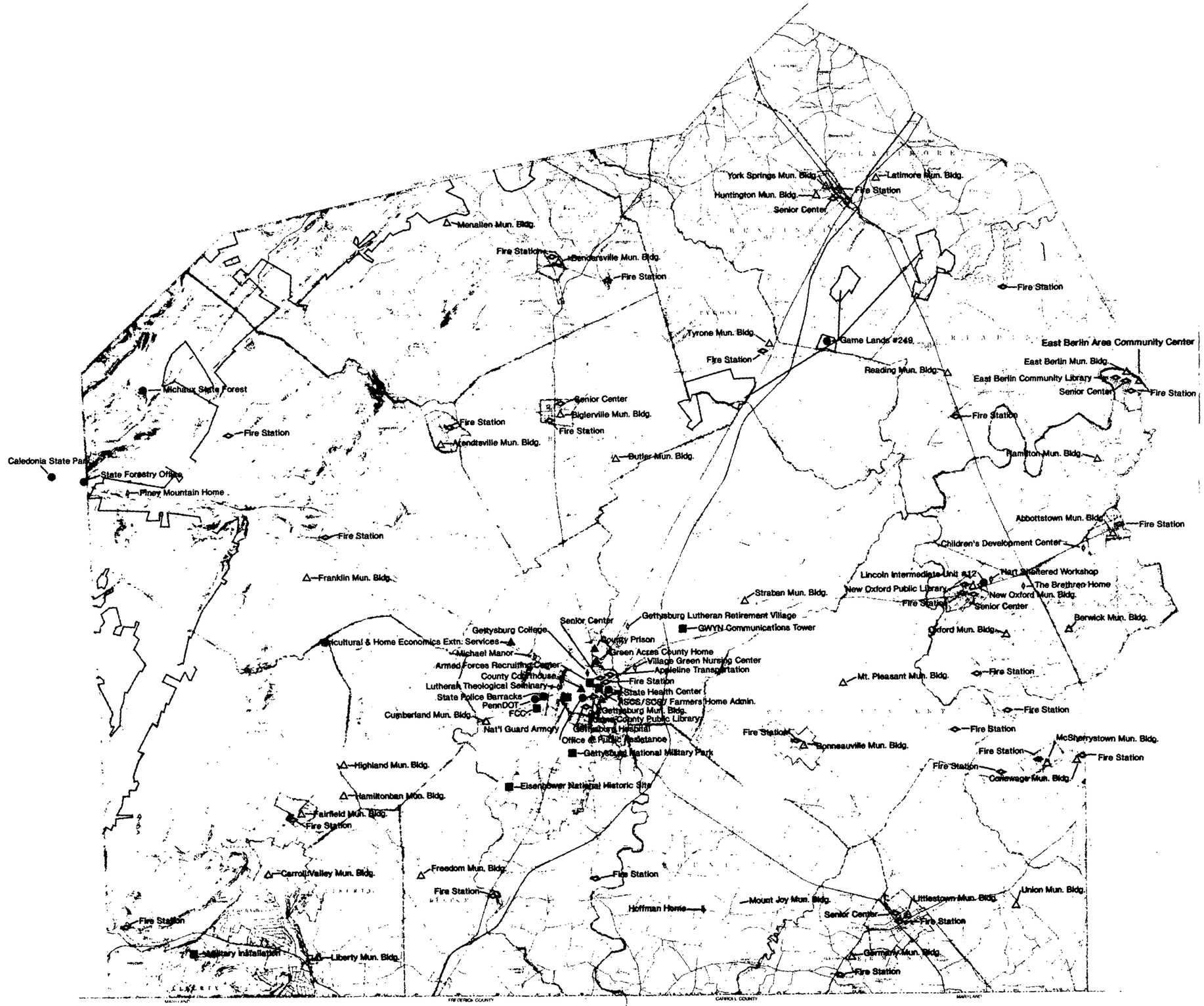
NDA Norman Day Associates
Planning & Urban Design
1611 Walnut Street 3rd Floor
Philadelphia, PA 19103

- Orth-Rodgers & Associates
- Cougill, Keane & Associates
- John Milner Associates
- R.E. Wright Associates

Figure 2.9.5

COMMUNITY FACILITIES - INSTITUTIONS

- Federal
- State
- County
- Local
- Quasi-Public
- Private



ADAMS COUNTY
Pennsylvania

Comprehensive Plan Update

SCALE:

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

NORTH

NDA
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Philadelphia, PA 19103

- Orth-Rodgers & Associates
- Cougill, Keane & Associates
- John Milner Associates
- R.E. Wright Associates

SECTION 10: INFRASTRUCTURE AND ENVIRONMENTAL SYSTEMS

Adams County as a public entity provides no utility or other infrastructure or environmental services. Ordinary utilities, including electric power, telephone, gas, radio, and television services are provided by private utility companies regulated by the Pennsylvania Public Utility Commission (PUC). Water supply and sewage collection and disposal services are provided only in a number of boroughs by borough or municipal authority public systems, as well as by a few private systems outside of the boroughs. In general, water supply and sewage system service areas are coincident with the boroughs. Outside of the boroughs, most residences, commercial firms, institutions, and industries rely upon on-site wells for water supply and on-site septic systems for sewage disposal.

Water Availability

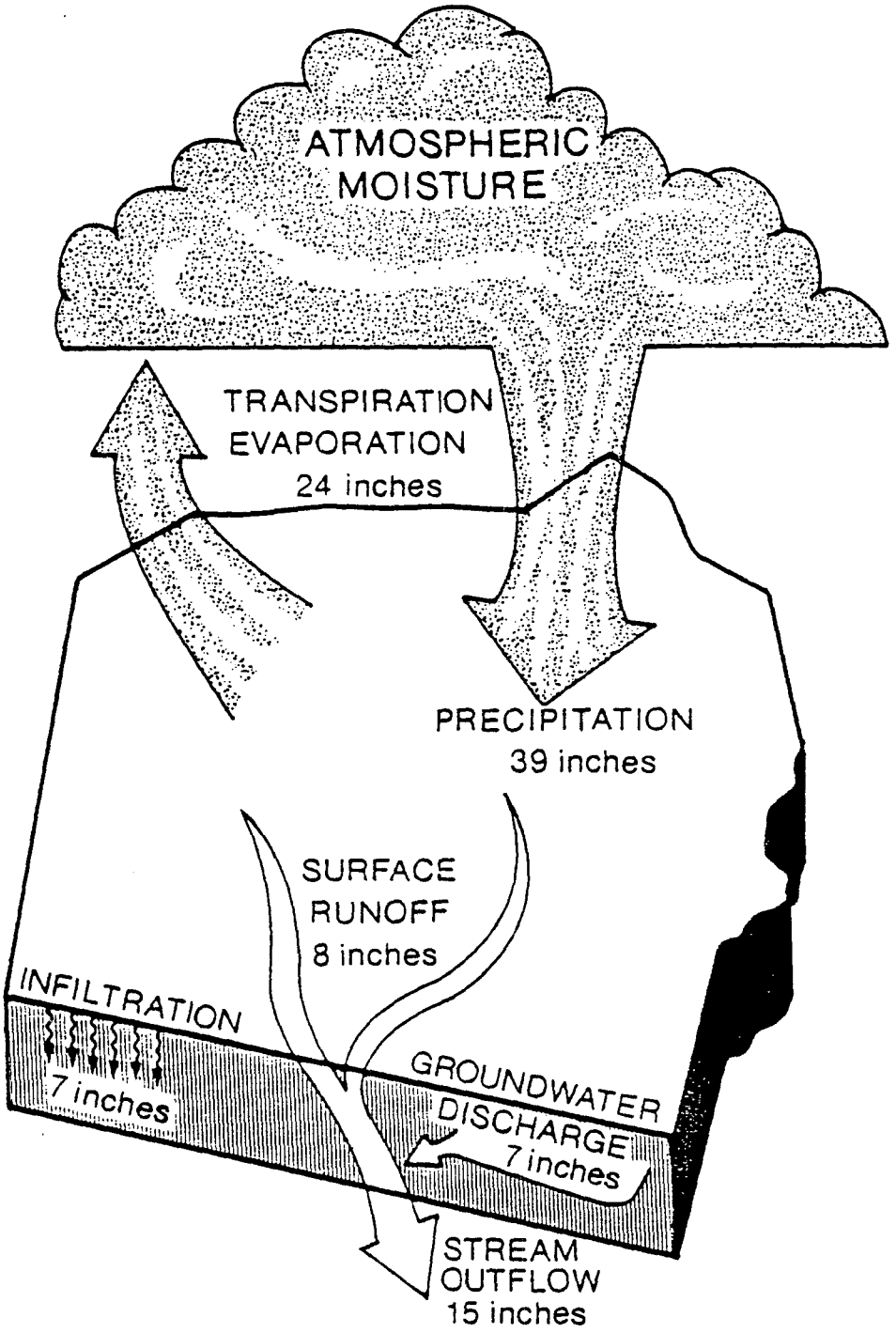
Water of adequate quality for drinking is widely available throughout Adams County, primarily from groundwater sources. The amount of water that can be withdrawn by wells is generally sufficient for most uses. However, many wells in Adams County do not produce an adequate supply of water, particularly considering the increased demands of modern household appliances and fixtures. During the drought years of the late 1980s, farm and orchard yields were significantly reduced by the lack of rainfall, and marginal wells went dry or produced insufficient yields. In some areas, surface water is available in substantial quantities, but use is made of surface water by only five community water supply systems.

As of 1990 it was estimated that the population of roughly 80,000 residents plus commercial firms, institutions, and industries used approximately 10 million gallons of water per day (mgd). As shown in Figure 2.10.1, normal annual precipitation averages 39 inches at Gettysburg, which is probably typical in the county. Precipitation is slightly more, about 44 inches, in the South Mountain area. Of this typical precipitation, 24 inches or 61 percent is lost to evapotranspiration (i.e., returns to the atmosphere). The remainder of about 15 inches runs into the creeks and streams or soaks into the ground as groundwater recharge and is available for withdrawal and use. It is estimated that in an average year about 8 inches runs directly into the creeks and streams as surface runoff, eventually reaching the Susquehanna and Potomac Rivers. About 7 inches in an average year infiltrates into the ground. The quantity of groundwater that is not consumed later discharges into the creeks and streams ("baseflow") or flows out of the county underground.

Baseflow to streams in the area underlain by Triassic age rocks averages about 200 gallons per minute per square mile (gpm/mi^2), while in the area underlain by carbonate rocks the baseflow discharge averages about 400 gpm/mi^2. These amounts are equivalent to a groundwater resource of about 98 mgd from the Triassic areas and 12 mgd from the carbonate areas, for a total of about 110 mgd for the entire county. Therefore, current use of water in Adams County of about 10 mgd represents less than 10 percent of the ground-

Figure 2.10.1

Average Annual Water Resources
for Adams County Water Supplies



water resources normally available.

Community Water Supply Systems

Community public water supply systems are defined by the U.S. Safe Drinking Water Act as "systems that have at least 15 service connections or regularly serve at least 25 people". There are eighteen municipal community water supply systems currently operating in Adams County (Figure 2.10.2). In addition, there are eleven non-municipal community water supply systems providing water to various residential communities, mobile home parks, campgrounds, and other residential establishments. There are also commercial and industrial firms with their own wells for water supplies. The community systems are listed in Table 2.10.1. Thirteen of the municipal systems rely solely on groundwater sources, either springs or wells. Five of the municipal systems rely, in part, on surface water sources: Fairfield (Maple Spring Run); Gettysburg (Marsh Creek); Hanover, serving McSherrystown and other areas in Adams County (with two reservoirs, one of which is in Conewago Township); Littlestown Borough (with a local quarry used as a reserve); and New Oxford (South Branch of the Conewago Creek). The Hanover system recently received an allocation for quarry pumping from the Pennsylvania Department of Environmental Resources (PaDER) for one mgd surface water withdrawal. Fairfield is responding to PaDER directives and, with Community Development Block Grant (CDBG) assistance administered by the County, is providing a groundwater supply.

The two largest of these municipal water supply systems are the Gettysburg system, serving a population of about 8,000, and the Hanover system in York County, serving a population of about 4,600 in Adams County in and around McSherrystown Borough and the Midway area of Conewago Township. The Gettysburg system provides about 1.5 million gallons per day (mgd), and the Hanover system provides about 3.5 mgd overall, roughly twelve percent of which is used in Adams County (about 440,000 gpd). The Littlestown Borough system pumps about 286,000 gpd, of which approximately 185,000 gpd is delivered (metered) to the population of 3,025. The New Oxford Municipal Authority provides about 550,000 gpd to residential, commercial, and industrial customers, of which approximately 177,000 gpd is delivered (metered) to the population of 2,940. The difference between the amounts of water pumped in Littlestown and New Oxford and the amounts delivered to residential customers can be accounted for by use by commercial and industrial firms, institutions, municipal government, fire fighting, and leaks.

Overall, the eighteen municipal community water supply systems serve approximately 39,200 persons out of a county population of about 80,000, providing almost 4 million gallons of water per day, or an average of roughly 100 gallons per person per day (including non-residential uses and leaks).

Table 2.10.1 provides information on the population served, number of service connections, and daily use for each of the municipal and non-municipal community water supply systems.

Table 2.10.1

Municipal and Community Water Supply Systems

	SERVICE AREA MUNICIPAL SYSTEMS	POPULATION SERVED	# SERVICE CONNECTIONS	DAILY USAGE (GPD) TOTAL	DAILY USAGE (GPD) PER PERSON
1	ABBOTTSTOWN	670	192	39,800	88
2	ARENDTSVILLE	658	323	110,500	168
3	ASPERS (MENALLEN TWP)	300	76	18,500	62
4	BENDERSVILLE	540	160	21,000	39
5	BIGLERVILLE	1,250	362	108,000	86
6	BONNEAUVILLE	1,130	186	100,000	88
7	CARROLL VALLEY	1,475	87	125,000	85
8	CASHTOWN	325	95	25,000	77
9	EAST BERLIN	1,172	560	100,000	85
10	FAIRFIELD	850	325	70,000	82
11	GETTYSBURG(Incl. parts of Cumberland & Straban Twps)	10,880	3,109	1,548,000	142
12	LAKE HERITAGE	3,500	1,000	136,000	39
13	LAKE MEADE	5,250	1,500	250,000	48
14	LITTLESTOWN	3,025	1,401	286,000	105
15	McSHERRYSTOWN	3,025	825	280,000	93
16	MIDWAY (CONEWAGO TWP) (by Hanover Boro)	1,600	460	160,000	100
17	NEW OXFORD	2,940	1,170	550,000	187
18	YORK SPRINGS	615	293	35,000	57
	TOTAL - MUNICIPAL SYSTEMS (INCLUDING GETTYSBURG)	39,205	12,124	3,962,800	101
	TOTAL - MUNICIPAL SYSTEMS (NOT INCLUDING GETTYSBURG)	28,325	9,015	2,414,800	85
	NON-MUNICIPAL SYSTEMS		(Estimated)		
19	HOFFMANN HOMES FOR YOUTH	366	122	10,000	27
20	TIMELESS TOWNS OF AMERICA	300	100	25,000	83
21	FRANKLIN TOWNSHIP	300	100	24,000	80
22	PINEY MOUNTAIN HOME	245	82	13,000	53
23	ANCHOR MOBILE HOME PARK	240	80	14,000	58
24	SECTION A WATER CO.	300	100	24,000	80
25	CHESAPEAKE ESTATES	240	80	14,000	60
26	BEAVER CREEK MOBILE HOME PARK	375	125	24,000	64
27	LINCOLN ESTATE MOBILE HOME PARK	330	110	17,000	52
28	ROUND TOP CAMPGROUND	200	67	10,000	45
29	STOCHAMS VILLAGE MOBILE HOME PARK	252	84	11,000	44
	OVERALL TOTAL - INCLUDING GETTYSBURG	42,353	13,173	4,148,800	98
	OVERALL TOTAL - NOT INCLUDING GETTYSBURG	31,473	10,064	2,600,800	83

Table 2.10.2

Water Yield and Storage Capacity
Municipal and Community Water Supply Systems

SERVICE AREA	MUNICIPAL SYSTEMS	SUPPLY SOURCE	YIELD (GPD)	TYPE OF TREATMENT	STORAGE CAPACITY (GALLONS)
1	ABBOTTSTOWN	3 SPRINGS 2 WELLS (1 MAIN WELL)	234,000	pH ADJUST +CHLORINATOR	93,000 COV'D.RES. 500,000 OPEN RES. 593,000
2	ARENDTSVILLE	3 WELLS	136,500	CHLORINATION pH ADJUSTMENT	300,000 (TANK)
3	ASPERS (MENALLEN TWP)	3 WELLS 10 SPRINGS	–	CHLORINATION	100,000 (RESERVOIR)
4	BENDERSVILLE	3 SPRINGS 3 WELLS	108,000	CHLORINATION	360,000 (2 RESERVOIRS)
5	BIGLERVILLE	5 WELLS	184,300	CHLORINATION	1,500,000 (EARTH RESERVOIR)
6	BONNEAUVILLE	6 WELLS	84,000	CHLORINATION	100,000
7	CARROLL VALLEY	2 WELLS	–		(STANDPIPE
8	CASHTOWN	1 SPRING 1 WELL	25,000	CHLORINATION	8,600 (TANK)
9	EAST BERLIN	4 WELLS	400,000	CHLORINATION	650,000 (TANK & EARTH RESERVOIR)
10	FAIRFIELD	MAPLE SPRING RUN 2 WELLS	86,000	CHLORINATION	None (250,000 Planned)
11	GETTYSBURG	MARSH CREEK & DEEP WELLS	2,270,900	RAPID FLOW FILTRATION	2,100,000 (2 TANKS)
12	LAKE HERITAGE	2 WELLS	–	CHLORINATION	ELEV. TANK
13	LAKE MEADE	WELLS	–	CHLORINATION	ELEV. TANK
14	LITTLESTOWN	7 WELLS QUARRY (RESERVE)	343,000 [+144,000/'91]	CHLORINATION	900,000 (TANK, STANDPIPE)
15	McSHERRYSTOWN	HANOVER BORO	280,000	CHLORINATION	HANOVER BORO
16	MIDWAY (CONEWAGO TWP)	HANOVER BORO	280,000	CHLORINATION	HANOVER BORO
17	NEW OXFORD	CONEWAGO CREEK 1 WELL	570,000 25,000	CLARIFIER FLOCCULATOR	(ELEVATED TANK) 1,700,000
18	YORK SPRINGS	3 SPRINGS 4 WELLS	15,000 236,000	CHLORINATION	200,000 (UNDERGRND. RES.)

NON-MUNICIPAL SYSTEMS

19	HOFFMANN HOMES FOR YOUTH	WELL	–	–	75,000
20	TIMELESS TOWNS OF AMERICA	WELL	162,000	–	–
21	FRANKLIN TOWNSHIP	WELL	–	–	42,000
22	PINEY MOUNTAIN HOME	WELL	159,000	–	–
23	ANCHOR MOBILE HOME PARK	WELL	–	–	–
24	SECTION A WATER CO.	WELL	40,000	–	50,000
25	CHESAPEAKE ESTATES	WELL	–	–	4,000
26	BEAVER CREEK MOBILE HOME PARK	WELL	25,000	–	2,000
27	LINCOLN ESTATE MOBILE HOME PARK	WELL	–	–	3,000
28	ROUND TOP CAMPGROUND	WELL	–	–	9,000
29	STOCHAMS VILLAGE MOBILE HOME PARK	WELL WELL	–	–	4,000
	TOTALS		5,663,700		8,700,600

Table 2.10.2 provides data on the sources of water supply, yields in gallons per day (gpd), types of treatment, and storage capacities of the systems to meet peak demand, as well as fire fighting and other emergency needs. The quality of community water supply systems is monitored by the Pennsylvania Department of Environmental Resources (PaDER), based on regular chemical and biological samples that are required to be taken, analyzed, and reported under the Safe Drinking Water Act. Prompt notification must be given by the system operators to the persons served by the system if and when any one of (currently) 83 contaminants exceeds allowable levels.

Non-Community Water Supply Systems

Non-community public water supply systems are defined by the Safe Drinking Water Act as "systems that regularly serve at least 25 of the same people over six months of the year". Such systems serve schools and other facilities not operating year-round. Schools and other facilities not served by the community water supply systems listed in Table 2.10.1 have their own on-site wells for water supply. Such systems must also comply with the Safe Drinking Water Act with regard to sampling and reporting to ensure that water quality meets regulatory limits.

Private Water Supplies - Groundwater

About one-half of the residential dwellings, farms, commercial firms, institutions, and industries in Adams county utilize on-site wells for their water supply. This reliance on groundwater places a significant limitation on the number and location new housing units and new commercial, institutional, and industrial buildings since, as noted above, the yield of wells drilled in most geologic formations throughout the county can vary widely and many wells have disappointing yields.

The report "Summary Groundwater Resources of Adams County, Pennsylvania" (by Larry E. Taylor and Denise W. Royer, Pennsylvania Geological Survey, Fourth Series, Water Resource Report 52, Harrisburg, PA, 1981) with accompanying map, is an excellent source of basic information on well yields and water quality with respect to each geologic formation throughout the county. In brief, the following generalizations can be made:

Latimore, Huntington, Reading, and Tyrone Townships

The oldest rock outcrops in these townships are of the pre-Cambrian volcanic type that occur on South Mountain in the northern part of the county. It is only in recent years that many drilled wells were placed in these rocks because in earlier years springs and dug wells adequately supplied the needs of the inhabitants.

A long belt of limestone is exposed in the vicinity of York Springs, and while most drilled wells in limestone are successful, failures to obtain water or sufficient water will occur. The water is usually hard, but if one wishes

to avoid the use of hard water, point-of-use treatment (i.e., a water softener) can be installed in the residence or commercial building.

The Triassic shales and sandstones are at the surface throughout most of these townships. The well-known York Sulfur Spring, one mile southeast of York Springs and once the site of a summer resort, is on the south bank of Bermudian Creek. This spring is a small one, yielding about 2 gallons per minute. The water has a distinct odor of hydrogen sulfide, but is quite clear.

The water-bearing properties of the Triassic rocks in this area vary greatly, with recorded yields of 10 to 110 gallons per minute. Drilled wells in this area are as shallow as 60 feet. The borough of East Berlin uses this formation as a source of municipal water. The borough has 2 wells, 910 and 225 feet in depth, yielding 50 and 110 gallons per minute respectively.

Hamilton, Oxford, Berwick, Conewago, and Union Townships

The oldest rock outcrops in these townships are Harpers phyllite, Antietam sandstone, and pre-Cambrian volcanics that are exposed in the Pigeon Hills. These rocks yield small supplies to drilled wells.

The Antietam sandstone in this area is overlain by limestone. Considerable amounts of limestone have been quarried in the vicinity of Bittinger, requiring large quantities of water to be pumped out of the quarry work areas every day. When one considers the size of the quarries, however, the percolation per unit area is actually small. Practically all of the water enters the quarries through solution channels. It is improbable that much water will be encountered at depths greater than 250 or 300 feet below the surface. The largest and deepest well in this area supplies 75 gallons of water per minute. Drilling into a solution channel is the key to success when drilling for large quantities of water in limestone regions. However, domestic sewage from on-site septic tanks in these same regions will often leach effluent into these same channels and contamination can result.

The Triassic sediments associated with this area can usually be depended upon to yield small supplies to drilled wells. The wells generally require screening to provide sediment-free water.

Straban, Mount Pleasant, Mount Joy, and Germany Townships

These townships are all underlain by Triassic sediments intruded by dikes and sills of diabase. Very few wells in the Triassic sediments fail; however, large yields have not been reported from this area. Yields range from 2-1/2 to 7 gallons per minute, but the depth of the wells range from 40 to 155 feet - deeper drilling would probably result in a higher water yield.

Menallen, Butler, Cumberland, and Freedom Townships

The oldest rock outcrops in these townships are pre-Cambrian volcanic rocks exposed in South Mountain. These rocks outcrop in a rugged, sparsely inhabited area where springs, drilled wells, and some dug wells supply present needs. Drilled wells not exceeding 250 feet in depth should yield enough water to supply the average residence. However, some wells in this area may be failures.

Gettysburg and its surrounding residential development are located in this geologic zone. One commercial well in Gettysburg yields 200 gpm with only a slight drawdown. The water is fairly hard; the hardness consisting primarily of calcium carbonate dissolved from the limestone formation.

Sedimentary rocks in the area can be depended upon to yield small supplies. In some places, small springs issue from the rock formations, as revealed by the spring at Devil's Run on the Gettysburg Battlefield that became famous because of use by both sides during the famous battle.

Most of the wells in this area are shallow, 40 feet to 125 feet deep, and produce yields from 2 to 7 gallons per minute. Deeper drilling usually results in improved yields.

Franklin, Hamiltonban, Highland, and Liberty Townships

The pre-Cambrian volcanic rocks are the oldest ones outcropping in these townships and contain numerous quartz veins. Small springs are numerous in this area, with several located around Cashtown and Orrtanna yielding 2 to 5 gallons a minute. The volcanic rocks yield water low in dissolved mineral matter. Springs and shallow wells are used by the majority of residents for water supply.

Overlying the volcanic rocks are the Cambrian formations, Weverton sandstone, Harpers phyllite, and Antietam sandstone. These are the same formations that outcrop in South Mountain. Springs, the main source of water supply in these formations, are usually low in dissolved mineral matter, causing them to be very soft.

Cambrian and Ordovician limestones, which overlie the Antietam sandstone, outcrop along the eastern side of South Mountain. These limestones supply small yields, except where large supplies are made possible by water-bearing solution channels.

Once out of the South Mountain area, the largest part of these four townships is underlain by Triassic sediments that furnish water yields of 2-1/2 to 7 gallons a minute at well depths of 40 to 150 feet.

Groundwater Pollution

Groundwater can become polluted through failed sewage treatment systems, improper agricultural practices, and improper industrial waste disposal. Housing densities, high water tables, and drought can also affect the location and degree of pollution. In Adams County, failed on-site domestic wastewater septic treatment systems are the primary cause of pollution of shallow potable water wells. High nitrate levels can be caused in domestic water supply wells through the over-application of fertilizers and manure on nearby agricultural fields or the overconcentration of farm animals in barnyards or on feed lots. Pesticides, herbicides, and rodenticides can reach groundwater from improper use on agricultural fields and in buildings.

In the Bonneauville-Littlestown-New Oxford area there is a history of groundwater pollution from failed septic systems. Other areas of the county are also experiencing problems from both failed septic systems and from high nitrate levels. No reports are known that would indicate significant groundwater pollution in Adams County from other agricultural, commercial, or industrial chemicals, unlike a number of other counties in Pennsylvania (but see "Hazardous Wastes", following).

Groundwater pollution problems may increase in areas of the county experiencing residential and commercial growth. To combat this trend, Sewage Enforcement Officers (SEOs) have been appointed in each township to ensure that new on-site septic systems are properly sited and built and that existing systems that fail are promptly identified and repaired or replaced. Also, federal, state, and county agencies assisting the agricultural community are working to get farmers to adopt "best management practices" (BMP) for the

use of fertilizers, pesticides, and herbicides in order to limit or prevent pollution of creeks, streams, and groundwater.

In any case, regular testing of every potable water supply for bacteriological and chemical pollutants is a prudent precaution against contamination and possible future health problems.

Surface Water

As noted earlier, only five communities obtain portions of their water supplies from surface water sources. No private water supplies are obtained from surface water; however, the county has several hundred farm ponds that range from one-tenth of an acre to 9 acres in surface area. Large ponds of 9 acres have a storage capacity of more than 100 acre-feet, or more than 35,000,000 gallons of water. Ponds are used for irrigation and for fire protection, watering livestock, raising fish, and recreation. The average farm pond is about one-half acre in size and is too small to irrigate any area except a very small one. A pond large enough to irrigate a substantial area is generally impractical, because it is expensive to build, and during dry periods when water is needed most, the rate of recharge is slowest.

In the Adams County Comprehensive Plan prepared in the early 1970s an extensive section was devoted to "potential for impounding areas" for new surface water reservoirs in Adams County. Reservoirs at one or more of the recommended locations were to be used for flood control, domestic and industrial water supply, fire protection, irrigation, and recreation. The locations were identified based on a comprehensive study of the Potomac and Susquehanna River basins conducted during the 1960s by federal agencies. The Soil Conservation Service of the U. S. Department of Agriculture identified 81 potential water storage sites in Adams County, ranging from 20 to 370 surface acres, capable of storing from 80 to 5,760 acre-feet of water. From this list, 10 locations were recommended in the Comprehensive Plan for more detailed investigation. The reasons for considering reservoirs included: (1) the failure of many wells to deliver the required yields; (2) increasing pollution of groundwater detected in many areas; (3) the need for increased quantities of irrigation water during periods of drought; (4) the need to augment stream flows during periods of drought; (5) lack of adequate fire protection in many communities and rural areas; (6) growing demands for water-borne recreation; and (7) the opportunity to plan ahead for water supply sources to meet growing needs in areas where groundwater resources were likely to become overutilized.

The ten locations described in the earlier Plan can be divided into two groups; one of six sites, and one of four sites.

Six sites that seemed to offer full potential as multiple-purpose impounding areas for flood control, domestic and industrial water supply, fire protection, irrigation, and recreation were:

Site 22 - Pine Run, in Hamilton Township;
Site 42 - Conewago Creek, in the Buchanan Valley;
Site 48 - Alloway Creek, in Germany and Mount Joy Townships;
Site 67 - Little Marsh Creek, in Highland Township;
Site 73 - Middle Creek, in Liberty Township; and
Site 74 - Middle Creek, in Freedom Township.

Four sites intended for flood control, limited recreation, and irrigation for farm crops were:

Site 14 - Bermudian Creek, in Huntingdon Township;
Site 16 - Bermudian Creek, in Tyrone Township;
Site 29 - Plum Run, in Reading Township; and
Site 59 - Rock Creek, in Cumberland and Straban Townships.

Although planning for the future implementation of one or more of these impoundments could be considered advisable from a water resource standpoint, consideration must also be given to the ecological and socioeconomic impact of dams and reservoirs. Despite the advantages enumerated above, impoundments also flood wetlands, farms, forests and, in some cases, residences, thereby displacing ecological habitats, agricultural and timber resources, and perhaps people. The recreational values created by the impoundment can cause increased traffic on limited-capacity roads, and the improved availability of water can stimulate residential and commercial growth.

Sewage Treatment

Municipal Sewage Collection and Treatment

There are twenty-one municipal centralized sewage collection and treatment systems currently operating in Adams County (Figure 2.10.3). These systems are listed in Table 2.10.3, including information concerning types of plants, dates of construction, populations served, and numbers of service connections. Table 2.10.4 lists the design capacity and reserve capacity for each system and its average daily flow.

There are several items to note from Tables 2.10.3 and 2.10.4. First, only about half of the county population is served by all of these municipal systems. The rest of the county population uses on-site septic tank and drain field systems, with a few cesspools and privies probably still in use. Second, there is reserve capacity available in several of the systems, but Gettysburg is effectively at its current design capacity, and Cumberland Township #1 and #2, Fairfield, Lake Meade, Reading Township, and York Springs Borough each have little or no reserve capacity. Third, the average daily flows through each system generally exceed the normal average per capita daily water use. Part of this excess load may come from commercial and industrial firms served by the systems, but a larger part of the excess is probably infiltration and inflow (I & I) from leaking sewer pipes. I & I occurs when

rainwater (and groundwater where the water table is above the level of the sewer pipes) leaks into the pipes and flows to the sewage treatment system, placing additional loads on the system. The municipal system operators, in general, appreciate the I & I problem and have undertaken programs to detect leaks and repair them one at a time. As the leaks are repaired, additional system reserve capacity becomes available.

All of these municipal systems discharge their treated effluent water into a creek or stream, except Orrtanna, which uses spray irrigation. At times of low rainfall, creek or stream flows consist largely or even completely of the wastewater treatment system effluent. Each of these municipal wastewater treatment systems discharging effluent to a creek or stream must meet the conditions of its National Pollutant Discharge Elimination System (NPDES) permit, which PaDER monitors closely. However, since even well-designed and well-operated wastewater treatment plants remove only 85% or less of the sewage (with many plants operating at 60% or less effectiveness), and since treatment plant failures happen occasionally if not frequently, the water quality in creeks and streams can vary widely (and rapidly) from acceptable to below State standards.

Land application of treated effluent as used, for example, by Orrtanna, is an alternative to stream discharge, either by spray or drip irrigation, by settling pond, or by underground drainage field. Local opposition to these types of disposal has frequently prevented their adoption. In the past, odors from land application were common occurrences. The design of more recent systems have paid particular attention to these problems, and proponents claim that odors are absent from well-designed and well-operated land application systems.

In Adams County and other areas of the country, land developers have installed "package" sewage treatment plants and sewers to serve small communities of, say, 10 to 300 homes, or a commercial office development or institution. The proliferation of such small package plants has been slowed by PaDER regulations and local opposition. However, where soil conditions are unfavorable for on-site septic tank installations, package plants remain an option for developers. In many recent cases, developers have proposed "clusters" of homes at moderate residential densities next to or surrounding an expanse of land to remain undeveloped in perpetuity, with a package plant to treat the residential sewage. Part of the open area could then be used for spray irrigation or a large drain field for the effluent from the package plant, where discharge to a creek or stream is not possible or unwarranted.

On-Site Wastewater Treatment Systems

As noted above, about half of the population of Adams County is served by on-site sewage treatment systems; generally septic tanks with tile drain fields, although septic tanks without drain fields, cesspools, and privies are probably still in use. A septic tank, in effect, treats the domestic sewage through bacteriological action within the tank, and the treated wastewater effluent flows out of the tank into a set of underground porous pipes (the "drain field"). Obviously, the successful operation of the system depends on the ability of the

Table 2.10.3

Municipal Sewer Systems - Description

	SERVICE AREA	TYPE OF PLANT	YEAR BUILT	POPULATION SERVED	SERVICE CONNECTIONS
1	ABBOTTSTOWN	Sequencing Batch Reactor(SBR) w/ UV Disinfec.	1989/90	2,500	850
2	ARENDTSVILLE	Extended Aeration, Activated Sludge	1973 Upgraded 1990	658	337
3	ASPERS,BENDERSVILLE (POSSUM VALLEY)	Extended Aeration & Phosphorous Removal	1985	842	336
4	BENDERSVILLE BOROUGH	Same as Aspers			
5	BIGLERVILLE (incl.portions of BUTLER TOWNSHIP)	SBR Chlorination	1960 Upgraded'85/87	2,330	477
6	BONNEAUVILLE*	Contact Stabilization	1970	1,170	400
7	CARROLL VALLEY	Contact Stabilization	1969	1,475 (seasonal)	109
8	CUMBERLAND TWP #1 & 2	Extended Aeration Sand Filter	1962	1,200	300
9	CUMBERLAND TWP #3	Extended Aeration	1968	2,000	400
10	EAST BERLIN	Activated Sludge	1957 Upgraded 1988	1,172	560
11	FAIRFIELD	Extended Aeration	1967	500	196
12	GETTYSBURG (incl.portions of Straban Township)	Activated Sludge Extended Aeration	1986	9,450	2,519
13	LAKE HERITAGE **	Extended Aeration	1987	1,500	500
14	LAKE MEADE	Rotating Biological Contactor	1987	1,800	600
15	LITTLESTOWN	Activated Sludge	1988	3,025	1,450
16	McSHERRYSTOWN	Complete	1937	2,800	825
17	MIDWAY (CONEWAGO TWP) (by Hanover Borough)	Hanover Plant Complete	--	3,000	1,466
18	NEW OXFORD	Counter-Current Low Load Aeration	1989	2,940	1,170
19	ORTANNA	Spray Irrigation	--	--	--
20	READING TOWNSHIP	Activated Sludge Extended Aeration	1975	1,000	339
21	YORK SPRINGS	Extended Aeration	1974	600	286
	TOTALS			39,962	11,595

* Current plans to upgrade to 0.331 mgd by 1993 to serve a population of 3,311.

** Expansion of capacity to 0.33 mgd approved by DER in 1990.

Table 2.10.4

Municipal Sewer Systems - Operating Characteristics

	SERVICE AREA	DESIGN CAPACITY (mgd)	RESERVE CAPACITY (mgd)	AVERAGE DAILY FLOW (GPD) TOTAL	AVERAGE DAILY FLOW (GPD) PER PERSON
1	ABBOTTSTOWN	0.210 (0.525 Proposed)	0.110	100,000	40
2	ARENDTSVILLE	0.140	0.063	76,700	117
3	ASPERS,BENDERSVILLE (POSSUM VALLEY)	0.120	0.048	72,000	86
4	BENDERSVILLE BOROUGH	Same as Aspers			
5	BIGLERVILLE (incl.portions of BUTLER TOWNSHIP)	0.370 (0.80 peak)	0.017	353,000	152
6	BONNEAUVILLE *	0.176 *	0.054	117,000	100
7	CARROLL VALLEY	0.086	0.062	24,000	(seasonal)
8	CUMBERLAND TWP #1 & 2	0.167	0.000	100,000	83
9	CUMBERLAND TWP #3	0.240	0.130	110,000	55
10	EAST BERLIN	0.150	0.075	85,000	73
11	FAIRFIELD	0.175	0.000	175,000	350
12	GETTYSBURG (incl.portions of Straban Township)	1.630	0.040	1,590,000	168 (+seasonal)
13	LAKE HERITAGE **	0.165 **	0.013	165,000	110
14	LAKE MEADE	0.080	0.005	75,000	42
15	LITTLESTOWN	0.880	0.515	362,000	120
16	McSHERRYSTOWN	0.420	0.170	250,000	89
17	MIDWAY (CONEWAGO TWP)	0.400	0.272	128,000	43
18	NEW OXFORD	1.016	0.441	575,000	196
19	ORTANNA	--	--	Below Capacity	--
20	READING TOWNSHIP	0.13	0	76,000	76
21	YORK SPRINGS	0.080	At Capacity	80,000	133
	TOTALS	6.555	2.010	4,513,700	113

* Current plans to upgrade to 0.331 mgd by 1993 to serve a population of 3,311.

** Expansion of capacity to 0.33 mgd approved by DER in 1990.

wastewater to flow from the drain field out into the ground. Thus, the siting and installation of septic tank systems is dependent on the "percolation rate" of water into the soil; that is, the rate at which water will flow into the soil surrounding the drain field. The system is also dependent upon the depth to the water table and other variables.

The installation and operation of these on-site systems is overseen by the Sewage Enforcement Officer (SEO) of the municipality. SEOs, trained and licensed by PaDER, conduct or witness the "perc" tests, on the basis of which, in part, SEOs determine whether a given septic tank and drain field installation is appropriate for its site and, if so, how far away the nearest drinking water well and the next nearest septic tank installation may be. In other words, housing density in Adams County is critically dependent on "perc" tests, and thus on the various soil types.

A brief indication of the ability of the various soil types found in Adams County to "perc" successfully is given in the following paragraphs. It should be noted, however, that wide variations in "perc-ability" occur from place-to-place within each soil type and even from one particular spot on a site to another. Early discussions with a SEO are extremely prudent for anyone contemplating a building development in Adams County.

A complete soil survey has been conducted for Adams County and reported in the Soil Survey, Adams County, Pennsylvania (Reginald Speir, United States Department of Agriculture Soil Conservation Service in cooperation with the Pennsylvania State University College of Agriculture and Agricultural Experiment Station and the Pennsylvania Department of Agriculture State Soil and Water Conservation Commission, Issued May 1967). The report contains a "General Soil Map" showing the major soil associations in color and also contains 65 highly-detailed individual maps at a scale of 1 inch = 1/4 mile.

A digest of the results of this survey is provided below. It should be noted that even the detailed study is a generalization and conditions within any of the soil associations shown may vary in degree of intensity. The limitations presented are typical conditions found over a majority of the soil associations. For more specific information as to suitability of soils for residential or commercial development, the U. S. Department of Agriculture Soil Conservation Service and the Adams County Soil Conservation District in Gettysburg should be contacted.

In view of the purpose of this report, limitations imposed by soils when used for sewage disposal is the main focus; primarily the ability of the soil to absorb, disperse, and renovate effluent given off by a septic tank system of the type used by a single-family residential unit. In the descriptions below, these soil characteristics are presented. Also presented are limitations for other residential uses, as well as public and semi-public and agricultural uses. Each soil association presented in the following text has been given a limitation rating of slight, moderate, or severe. (Also see Figure 2.10.4.)

Edgemont - Highfield Association - EH

This soil association area occupies about 7% of Adams County, covering the entire extreme northwest corner of the county, with small areas in the west and southwest and in the Pigeon Hills. The areas are rather steep with respect to topography, and are characterized by a number of ridges and valleys. Most of the areas are in woodlands, primarily hardwoods. The soils in this association have moderate limitations for on-site sewage disposal because of bedrock close to the surface and because of the steepness of the topography.

Highfield - Myersville - Catoctin Association - HMC

This association comprises about 11% of the county. Covering most of the South Mountain area of the Blue Ridge section, from the Maryland state line north and east to the Cumberland County line, the rather high, discontinuous ridges are cut by deep lateral valleys, forming steep, rugged, picturesque wooded slopes. A small area of this association occurs in the Pigeon Hills in the extreme eastern section of the county. The Pigeon Hills area stands over 1,000 feet above the Gettysburg Plain.

Most of the soils in the association have good natural fertility and moisture relationships and are excellent for tree growth. About one-half of the major area is too steep and stony for farming, with the remaining portion, located on the long southeastern slopes, cleared of native hardwoods and planted to orchards producing high yields of fruit. This association offers moderate limitations for the proper functioning of septic tanks because of shallowness to bedrock.

Arendtsville - Highfield Association - AH

This soil association occupies about 6% of the county. Covering the southeast slopes of South Mountain and extending from the west-central portion of the county near Cashtown northeast through the county, the association's topography is rolling and characterized by irregular or complex slopes ranging from gently sloping to steep. Soils are deep and well-drained, with deep rooting potential and high water-holding capacity for plants. High yields of cherries, apples, and peaches are common. Hay crop yields are high in this area, but management is handicapped because of irregular slopes and stones or gravel on the surface. The steeper slopes are in woodland, whereas hay and pasture are generally grown in the small narrow valleys or along streams. As in most areas of good agricultural soil, on-site sewage treatment plants work well, with only slight limitations in some areas caused by shallow depth to bedrock.

Penn - Readington - Croton Association - PRC

This is the largest soil association in Adams County and covers approximately 26% of its land area. Part of a long lowland about 600 feet above sea level and approximately 20 miles wide (with the Borough of Gettysburg located near the center), this association is one of the county's most important agricultural regions.

Penn soils dominate the area - moderately deep, well drained, and medium textured, they have an inherent red color. Yields are generally moderate-to-low because of a lack of nutrients in the parent material, shallowness to shale, and limited amounts of moisture available to plants. However, farmers using heavy fertilization and good management produce fairly high yields of alfalfa, corn, small grain, hay, and pasture. On-site sewage disposal limitations are severe in this area because of shallow bedrock and a seasonal high water table in some areas.

Klinesville - Penn - Abbottstown - Croton Association - KPA

This association covers approximately 7% of Adams County. Extending northeastward in a narrow belt through the county just west of Gettysburg, as in other areas of the Gettysburg Plain this association exhibits low hills

and broad gentle slopes broken by short steep slopes adjacent to streams. In this area of shallow and wet soils, there is frequent and heavy surface water run-off, causing severe erosion even on gentle slopes. Over 90% of the area has been cleared and farmed. General farming with dairy and poultry is common, with a few livestock farms. In recent years some areas have been left idle because of poor yields and difficult management problems. Most of the soils are best-suited to the production of adapted grasses and legumes. On-site sewage is limited severely in this area because of shallow bedrock and in some areas, a high water table.

Mont Alto - Mount Lucas - Watchung Association - MMW

Occupying about 9% of Adams County, the principal area of this association is a low ridge running from the Maryland state line northeastward through the county, passing through the Civil War battlefield just southeast of Gettysburg. There is a relatively large area of the association from Zora to Knoxlyn, south and west of Gettysburg, and a smaller area to the north of Heidlersburg. Some smaller areas occur throughout the red shale sections of the county.

Although some of the soils in this group are capable of high yields, many areas are too stony for farming and are best used for pasture, woodland, or wildlife. Some of the more rugged sections of these diabase ridges have rounded knobs or hills that rise abruptly out of the surrounding Gettysburg Plain. One of the best-known is "Round Top" in the Gettysburg National Military Park, standing 785 feet above sea level. This association has poor characteristics pertaining to sewage disposal, in that percolation tests show a high water table and slow permeability.

Lehigh - Brecknock Association - LB

Comprising about 10% of Adams County, this soil association occurs adjacent to ridges and in many small irregular bands within red shale areas. These soils are sometimes called "blue slate" soils because of an inherited dark bluish-gray color. Lehigh soils have a silt pan below the plow layer that retards drainage and root penetration. Most of the area is devoted to dairy and general farming; crop yields are usually only fair, and the soil is poorly suited to on-site sewage treatment in that shallow bedrock is present, as well as a seasonal high water table.

Penn - Lansdale - Abbottstown Association - PLA

This soil association occupies about 14% of Adams County. Extending northeastward through the county in a belt approximately 5 miles wide, with New Oxford near its center, the association's topography is gently to moderately rolling, but east of Bonneauville there is a broad nearly-level area. Corn, small grain, hay, and pasture dominate the soil use, yields are mostly only fair, and erosion is common. The soils over most of this association allow septic tank systems to function with moderate limitations; conditions become severe in some areas of the association in that shallow bedrock and a seasonal high water table are present.

Conestoga - Wiltshire - Lawrence Association - CWL

Occupying about 5% of the county, this association is in the southeastern part of the county, extending from Littlestown northeastward to McSherrystown and the York County line. This is a fairly-level limestone valley with elevations ranging from 500 to 600 feet. The general area is devoted to cropland and pasture, with dairying the major enterprise, and some commercial vegetable farming. Many farms north of McSherrystown have been purchased for the removal of underlying limestone, with the former owners retain living and farming privileges until a quarry is ready to be opened.

South of McSherrystown much of the soil is utilized for specialized pasture. Horse racing stables located here

are famous throughout the country, and near Hanover and McSherrystown increasing amounts of land are being used for residential and industrial development. There is very little woodland or idle land, with soils producing high yields of general farm crops grown in rotation. The limestone soils cause on-site sewage treatment systems to function under moderate-to-quite-severe limitations, since ground water contamination can result from the rapid effluent flow into limestone solution channels found in the underlying strata. Seasonal high water tables are also present in some parts of the association.

Glenelg - Manor - Glenville Association - GMG

This association occupies about 3% of Adams County and is found in the extreme southeast corner. Soils here are quite susceptible to erosion and have been subjected to accelerated losses. Available moisture-holding capacity is moderate-to-high and crop yields are fair-to-good. Dairy, poultry, and vegetable farms are common in the area and, in general, sewage systems work well with only slight-to-moderate limitations. The most difficult problem is posed by shallow bedrock in some areas and occasional high water table in some areas in the spring of the year.

Athol - Wiltshire - Readington Association - AWR

This association comprises about 2% of the county, with the largest area being a nearly-level lowland in the valley around Fairfield and some smaller areas found north of York Springs. Most of the soils are gently sloping and intensely farmed.

Dairying is the principal farming enterprise, with pasture, hay, and general farm crops being the main soil uses, and some fruit growing occurring on the higher slopes. These soils generally afford high yields of adapted crops. The soil in this association is quite permeable and, along with a seasonal high water table in some areas, moderate-to-severe limitations for on-site sewage systems result.

Soil Suitability

Soils found within the county are generally good, with the major limiting factors being a seasonal high water table and shallow bedrock in some areas. Agricultural crops can be grown on soils throughout the county, except in some parts of South Mountain where steep slopes limit use. The best soils are the limestone soils found on the Gettysburg Plain between McSherrystown and Gettysburg. Soils of lesser quality, but still having good depth and high fertility, are found on the southeastern slopes of South Mountain where the "orchard belt" is located.

From a development standpoint, soils on South Mountain have only slight limitations for on-site sewage disposal systems, and the southeastern corner of the county south of Littlestown and McSherrystown also has slight limitations for on-site systems. The remaining area, approximately 70% of the county, is of moderate-to-severe limitations, causing on-site septic systems frequently to malfunction due to the seasonal high water table and shallow bedrock. Soils of moderate limitations occupy the area with good agricultural soils around Littlestown, McSherrystown, New Oxford, and Abbottstown; as far north as East Berlin; and as far west as Bonneauville. The Fairfield area to the west has the same moderate limitations.

The area of severe limitation occupies the entire central portion of the county from the base of South Mountain east to the village of Two Taverns, Bonneauville, and East Berlin; south to the Maryland line; and north as far as York Springs (Figure 2.10.4).

Sewage Sludge and Septage

Under Pennsylvania Act 97 of 1980, sewage sludge and septage are considered as a part of municipal solid wastes and within the management responsibility of each municipality. Under the recently-enacted Pennsylvania Act 101 of 1988, however, sewage sludge and septage fall within the municipal solid waste planning responsibility of counties; thus counties must plan for future disposal of area sludge.

Sewage is collected from homes and businesses in all of the boroughs and several other municipalities in Adams County by sewer systems, and sewage sludge is produced by municipal sewage treatment facilities. The sludge varies in form from a liquid to a wet or dry solid, having a solids content from 2% to 7% in liquid form and from 12% to 88% in dry form. Septage is produced in on-site residential and commercial septic tank systems when the tank becomes filled with solid material and must be pumped out by a septage hauler. Septage is primarily in liquid or semi-liquid form, with a solids content varying from 2% to 7%. The production and disposition of sewage sludge by each municipal system is as follows:

Table 2.10.5

Sludge Production from Sewage Collection and Treatment Facilities in Adams County

Facility	Sludge Production and Solids Content
1. ABBOTTSTOWN/PARADISE JOINT MUNICIPAL AUTH.	[No information available]
2. ARENDTSVILLE BOROUGH	80 tpy dried filter cake (sand filter), 70-80% solids;
3. ASPERS/BENDERSVILLE/ POSSUM VALLEY	[No information available]
4. BENDERSVILLE BOROUGH	[No information available]
5. BIGLERVILLE BOROUGH	[No information available]
6. BONNEAUVILLE BOROUGH/ MT. PLEASANT	Sludge pumped into lagoon, no information on amounts;
7. CARROLL VALLEY BORO	12,000 gal. liquid sludge/yr, 70%? solids, land appl'n, projected to increase to 20,000 gal/yr in 10 years;
8. CUMBERLAND TOWNSHIP DISTRICTS 1 AND 2	225,000 gal./yr, 2% solids, projected to 275,000 gal/yr in 10 years;
9. CUMBERLAND TOWNSHIP DISTRICTS 3 AND 4	[No information available]
10.EAST BERLIN BOROUGH	24 dry tpy, 3% solids, projected to 32 tpy in 10 years;
11.FAIRFIELD BOROUGH	20 dry tpy, solids % unknown, proj. to 40 tpy in 10 yrs;
12.GETTYSBURG BOROUGH	Dewatered using a centrifuge, amounts not yet known;
13.LAKE HERITAGE MUNICIPAL AUTHORITY	520,000 gpy projected to 780,000 gpy in 10 yrs;
14.LAKE MEADE MUNICIPAL AUTHORITY	208,000 gpy, proj. to 450,000 in 10 yrs, 3% solids;
15.LITTLESTOWN BOROUGH	[No information at this time]
16.McSHERRYSTOWN BORO	Connected to the Hanover Regional Sewage Treatment Plant, Hanover Borough, York County, Pa.
17. MIDWAY (CONEWAGO TOWNSHIP)	[Connected to Hanover Borough Facility, York County].
18.NEW OXFORD MUNICIPAL AUTHORITY	182.5 tpy 12% solids, projected to 365 tpy in 10 yrs. [New filter press proposed to achieve 17-20% solids];
19.ORRTANNA SEWER AUTH.	5,000 gpy projected to 50,000 in 10 yrs., 50? solids;
20.READING TOWNSHIP	[No information available]
21.YORK SPRINGS BOROUGH	240,000 gpy proj. to 276,000 gpy in 10 yrs., 3% solids;

The above facilities, as well as on-site septic tank wastewater treatment systems, serve the following numbers of persons and produce the following amounts of sewage sludge and septage:

Table 2.10.6
Sewage and Septage Generation in Adams County

	1985	Est. 2005
Population Served by Sewers	27,000	42,000
Population Served by On-Site Systems	47,000	58,000
Daily Sludge Generated (0.2 lbs/capita)	5,400	8,400 lbs.
Daily Septage Generated (0.15 lbs/cap)	7,050	8,700 lbs.
Annual Sludge Production (365 days/yr)	985	1,533 tons
Annual Septage Production (365 days/yr)	1,287	1,588 tons

Source: Adams County Act 101 Solid Waste Management Plan, November 28, 1989. The estimates for the year 2005 are based on municipal projections and are roughly equivalent to the population to be served by sewers and by on-site systems under the Growth Management Plan outlined in Chapter 3.

As of 1987, 206 tons of dry sludge and 1,210,000 gallons of liquid sludge were being generated annually in Adams County. This was projected to increase within 10 years to 541 tons of dry material and 1,851,000 gallons of liquid material. There are no plans by any of the facilities listed to change their methods of sewage handling and sludge disposal, except one facility is proposing to update its vacuum filtration to increase the solids content of the sludge, and one other facility is purchasing equipment to improve sludge compaction. Also, in a recent announcement, the old Conewago sewage treatment plant will accept Hanover Regional Wastewater Treatment Plant sewage sludge.

The sewage sludge from Arendtsville and Fairfield Boroughs was formerly transported to the Harrisburg Municipal Incinerator for co-incineration with municipal trash. The Harrisburg Incinerator is no longer accepting sewage sludge nor any trash from Adams county municipalities. Currently, most of the sewage sludge is spread on unused or agricultural land for beneficial purposes. The nitrogen content can range from 1% to 8% and the phosphorous content from 1% to 10%, making the material very useful for its fertilizing power. Also, the dry or semi-dry material assists as a soil conditioner.

Three York County municipalities are known to send their sewage sludge into Adams County for land application, including Penn Township (which uses lands in Conewago, Germany, Huntington, Mt. Joy, Mt. Pleasant, and Union Townships), Dillsburg Borough (which uses two sites in Latimore Township), and Hanover Borough (which uses lands in Conewago Township). Other out-of county municipalities may also use lands within Adams county for disposal.

Sewage sludge may be spread on agricultural land under State regulations under the following circumstances:

Table 2.10.7
Conditions for Land Application of Sewage Sludge and Septage

Metals Content:	Cadmium less than 50 parts per million (ppm);	
	Chromium less than 1,000 ppm;	
	Copper less than 1,000 ppm;	
	Lead less than 1,000 ppm;	
	Mercury less than 10 ppm;	
	Nickel less than 200 ppm;	
	Zinc less than 2,000 ppm.	
Location:	Minimum Distance to the Nearest Stream =	100 feet;
	Minimum Distance to the Nearest Well =	300 feet;
	Minimum Distance to the Nearest Home =	300 feet;
	Minimum Distance to the Nearest Sinkhole =	100 feet;
	Minimum Distance to the Property Line =	50 feet.

Sludge and septage must be plowed-under or injected within 24 hours. Sludge and soil samples must be taken whenever a new source of sludge is accepted by the landowner or farmer.

Septage is pumped from septic tanks and disposed by one of seven haulers:

1. Dillsburg Septic Service, 516 U.S. Route 15, Dillsburg, Pa.
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7. Leonard Shealer, 1339 Baltimore Pike, Gettysburg, PA.

Disposal sites used by these haulers are as follows:

1. Chambersburg Sewage Treatment Plant;
2. Penn Township Sewage Treatment Plant;
3. King's Farm, Latimore Township, Adams County;
4. Lands in Washington Township, York County;
5. Cumberland County Landfill.

Solid Waste

A wide variety of solid wastes are generated within the boundaries of Adams County, including primarily residential, commercial, and other types of municipal solid wastes; industrial and agricultural residues; and sewage sludge and septage. Small amounts of hazardous, infectious, or other types of toxic materials may also be generated by particular industries or institutions.

The municipalities in the county are responsible under the Solid Waste Management Act of 1980 (Act 97) only for ensuring the proper collection, storage, processing, transportation, and disposal of household, commercial, and other types of municipal wastes. Passage of Pennsylvania Act 101 of 1988 did not change this situation: Industrial and agricultural residues, and all forms of toxic wastes are regulated by state and federal government agencies. In this section, the primary emphasis will be placed on municipal solid wastes, but mention will be made of the amounts of other wastes generated within the county, since county and municipal officials should be aware of potential problems from the storage, handling, and disposal of these other wastes.

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Table 2.10.8
Estimated Amounts of Municipal Solid Waste Generated in Adams County

YEAR	POP'N	MHI*	HOUSEHOLD		COMMERCIAL	"OTHER"	TOTAL MSW	
			TONS/YR	TPD[a]	TONS/YR[a]	TONS/YR[a]	TONS/YR	TPD[a]
1980	68,161	$16,859	22,920	62.8	9,377	6,484	38,781	129
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[NOTES: "POP'N" from Adams County Planning and Development Office, 1989.

* MHI = Median Household Income, from 1980 U. S. Census (Escalated at 5%/yr from 1980 to 1990 and 4%/yr from 1990-2000).

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* TPD = Tons per Day @ 365 days per year for "Household"; @ 240 days per year for "Commercial" and "Other".

HOUSEHOLD SOLID WASTES = [(MHI/1000)x0.054) + 0.94] pounds per capita per day (PaDER formula) = p/c/d = (p/c/d) x (POP'N)/2,000 lbs per ton in
TONS PER YEAR (TPY): TONS PER DAY (TPD) = TPY/365.

COMMERCIAL SOLID WASTES = 8 pounds/employee/day (retail + manufacturing) = 8 x employment (from Chamber of Commerce)/2,000
= tons/day x 250 working days per year = tons/yr.

"OTHER" MSW CATEGORIES = Institutional at:
10 lbs/patient/day in hospitals;
8 lbs/patient/day in nursing homes;
1 lb/student/day in schools;
+ Office at 1.5 lbs/employee/day;
+ Demolition/Construction at 0.1 lb/capita/day;
+ Park at 0.01 lb/cap/day;
+ Street at 0.04 lb/cap/day;
+ Tree/Landscape at 0.04 lb/cap/day;
(as per PaDER Municipal Solid Waste Planning Guide #1).

TOTAL MSW = HOUSEHOLD + COMMERCIAL + "OTHER".

It should be noted that considerable amounts of Adams County residential trash are most likely not collected because of the rural nature of certain areas - perhaps up to one-third of the trash originally generated in county homes and farms.

In a telephone survey of solid waste haulers in March 1989, five haulers responded as follows:

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	RESIDENTIAL	COMMERCIAL
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BENDER	5	0
BARNHART	0.2	0.6
TOTAL	188	76

TONS PER YEAR (5 DAYS/WK) = 47,000 + 19,000 = 66,000 TPY TOTAL MSW

The 66,000 tons-per-year figure given above for residential trash collection is somewhat higher than the calculated value of 44,086 for 1990 given in Table 2.10.8, and the total value above is 8% higher than the Table 2.10.8 total value of 60,935 tons for 1990. There are additional haulers serving Adams County who did not respond in March 1989, so the above figures may under-represent the true picture. The higher values reported by the haulers may represent additional solid wastes in the "other categories" of municipal solid waste being collected and hauled from Adams County.

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Pennsylvania Act 101 of 1988 requires each county in the Commonwealth to prepare a plan for municipal solid waste management. The Adams County Municipal Solid Waste Management Plan was developed by the Adams County Solid Waste Authority, Adams County Solid Waste Advisory Committee, and the Adams County Office of Planning and Development in 1989, was approved by a majority of municipalities and the Adams County Commissioners, and was forwarded to PaDER on November 28, 1989. The Plan indicates that storage, collection, and transportation of municipal solid waste (MSW) will remain a private function throughout the county. Furthermore, the Plan states that municipal solid waste will be disposed of at private, out-of-county disposal facilities and at the York County Solid Waste & Refuse Authority's waste-to-energy facility and ash landfill.

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Recycling

Recycling is the separation, collection, and recovery for sale or reuse of materials that

otherwise would become municipal waste. Recycling accomplishes at least five vital functions: (1) provides revenues from the sale of the materials; (2) avoids the costs of disposal; (3) saves critical landfill space; (4) protects the environment; and (5) saves the raw materials and fuel used in making the items to replace those otherwise discarded. Almost everything in ordinary residential and commercial trash is recyclable, including paper, cardboard, glass metals, wood, rags, and plastics. Food and yard wastes and other organic matter can be composted to produce a useful humus.

Recycling has long been practiced and is a normal activity in most industries with regard to metal, wood, and other scraps and rejects from industrial processes, as well as solvents and whatever other materials can be economically reused or refurbished. Recycling was an essential part of the civilian effort during World Wars I and II, and since the energy crisis and environmental re-awakening of the late 1970s and early 1980s has again become an essential activity. The high and increasing cost of trash disposal has made recycling a very economic pursuit.

Act 101, which became effective on September 26, 1988, establishes a goal of recycling at least 25% of all municipal waste and source-separated recyclable materials by 1997, and requires all municipalities above 5,000 population to develop a source separation and collection program for recyclable materials by September 26, 1991. Grants are available from PaDER to municipalities for development and implementation of recycling programs and for demonstrated performance of such programs, and to counties for hiring of recycling coordinators. The grants are supported by a recycling fee levied per ton on the municipal solid waste delivered to processing and disposal facilities. Recycling of at least three materials must be incorporated into local programs, selected from the following list:

Table 2.10.10
Types of Materials for Recycling Under Act 101

- clear glass
- colored glass
- aluminum
- steel and bimetallic cans
- high-grade office paper
- newsprint
- corrugated paper
- plastics

Leaf waste must be separated from other MSW for composting. Commercial firms, municipal offices, and institutions are to separate high-grade office paper, aluminum, corrugated paper, and leaf waste for recycling or composting, as appropriate.

Recycling Activities in Adams County

The primary recycling activity in Adams County has been conducted by the Adams Rescue Mission since 1977, although newspaper collection and other volunteer efforts have long been conducted by the Boy Scouts, Girl Scouts, firehouses, and church groups. In 1977, the Adams Rescue Mission (which was established in 1972 as a shelter for homeless men with

some ancillary services such as family aid) arranged to pick up cardboard from a few commercial firms. House calls were also made in the Gettysburg area for newspapers, clothing, used furniture, etc., for re-sale. In 1984, these efforts were expanded, and by 1985, 670 tons of recyclable materials were collected and marketed by the Mission. In 1986, 874 tons were handled. In 1987, the first curbside pick-up by the Mission was inaugurated in Fairfield Borough, and glass was added to the list of recyclables. A total of 1,440 tons of materials was recycled in 1987. Also during 1987, 16 more boroughs and towns were included in the curbside pick-up schedule. In 1988, 2,300 tons of materials were recycled. During the latter part of 1988, the weekly volume averaged 15 tons per week of newspaper, 13 tons of cardboard, 8 tons of clothing, 7 tons of glass bottles and jars, 1/2 ton of steel and tin cans, and 1/7th ton of aluminum. Recycling of some plastic items was also initiated.

The current schedule is as follows:

Table 2.10.11
Monthly Curbside Recyclables Pick-Up Schedule

Fairfield	York Springs	Gettysburg
Orrtanna	Littlestown	
Bonneauville	East Berlin	
Cashtown	Lake Heritage	
McKnightstown	Bendersville	
Twin Oaks	McSherrystown	
Biglerville	Herr's Ridge Road	
Arendtsville	Country Club Area, Ridgewood	
Mummasburg	Toddasville	

Monthly curbside collection was initiated throughout Gettysburg Borough in January 1989. In addition, the following locations have collection facilities for the Mission:

Carroll Valley Maintenance Building
Lutheran Home, Old Harrisburg Road, Gettysburg
W. L. Sterner Co., 516 Frederick Street, Hanover, PA. (York County).

The Adams Rescue Mission truck is parked at the following locations each month on the day assigned:

Cumberland Township Building, 1st Saturday
Barlow Fire Hall, 2nd Saturday
Superthrift store parking lot, Littlestown, 3rd Saturday
Gettysburg Presbyterian Church parking lot, 4th Saturday.

Future Impact of Recycling Activities in Adams County

A set of calculations has been made to determine how much recycling is possible to accomplish under various future conditions, and what the impact of that degree of recycling would be on MSW generation and disposal in Adams County. The calculations are based on the following percentages of recyclable materials in MSW:

Table 2.10.12
Percentages of Recyclable Materials in MSW
(by weight)

Newspaper	30%	
Glass	10%	
Aluminum	2%	
Bimetal Cans	4%	
Rags and Cloth	1.5%	
Plastic (PET)	0.5%	
Total	48.0%.	
Compostable	25%	(Food and Yard Wastes)

These percentages are similar to those given by PaDER in Guide #1 based on the work of W. E. Franklin in 1979. The actual percentages will vary from place to place and from time to time, but the above values are considered to be representative of today's trash in most suburban communities. Urban and rural trash may differ somewhat, but the above values may still be appropriate for certain kinds of analyses. If one-quarter of these materials were removed from the trash stream by 1995, the total removed would be 14,730 tons. If these amounts were removed by the year 2000, the total removed would be 18,760 tons. The net amount of MSW to be disposed in the future under these assumptions for the Adams County recycling program would be as follows:

Table 2.10.13
Estimated Total Municipal Solid Waste (Tons Per Day)

	Generated			Removed by Recycling			Remaining		
AREA	1990	1995	2000	1990	1995	2000	1990	1995	2000
Eastern Wasteshed Area	92	117	150	6	22	40	86	95	110
Western Wasteshed Area	98	116	137	9	26	32	89	90	105
Total County	190	233	287	15	48	72	175	185	215
[Percent Recycled	:			8%	21%	25%]			

These savings are significant amounts, both in terms of avoided tipping fees at processing or disposal facilities and a reduction in the need for additional processing or disposal

capacity.

Household Hazardous Wastes

Considerable concern has been raised about many ordinary products commonly used around the house, or by commercial firms and offices, that represent hazardous wastes when poured down the household drain or into the storm drain in the street, dumped on the soil in the backyard, or thrown out in residential or commercial trash. These types of materials include:

Table 2.10.14
Types of Household Hazardous Wastes (HHW)

1. Cleaners
2. Cosmetics
3. Deodorizers
4. Disinfectants
5. House & Garden Pesticides
6. Laundry Products
7. Ointments
8. Dead Batteries
9. Paint and Paint Products
10. Photographic and Dark Room products
11. Metal and Other Polishes
12. Wood and Other Preservatives
13. Bath and Kitchen Soaps and Detergents
14. Medicines
15. Used Auto Oils and Fluids
16. Other Household, Shop, Garage, etc., Materials.

Farms are likely to have left-over or unusable pesticides, fungicides, herbicides, fertilizers, and other chemicals in amounts smaller than are regulated under the current federal and state small- or very-small-quantity generator categories.

Several communities have organized household hazardous waste education and collection programs, including neighboring York County. These "HHW Collection Days" are arranged so as to have householders bring household hazardous wastes to a central location where a fully-licensed hazardous waste-handling firm collects the materials, identifies them, sorts and repackages them, prepares a hazardous waste manifest, and transports the repackaged materials to a location licensed for storage, treatment, and ultimate disposal. The wastes are generally treated or incinerated, if possible, to obtain a non-hazardous residue, or landfilled in a licensed hazardous waste landfill. The costs per pound of HHW for the collection, repackaging, transportation, storage, treatment, and disposal typically run around $20 per gallon or $100 per household carload. Typically, these "HHW Collection Days" collect 1% or less of the HHW present in the homes in the area, but they do serve to notify and educate the public as to the dangers of these products if carelessly used and disposed. Until regular collections of HHW can be implemented at reasonable cost, householders should be urged to restrict purchases of such items, to use them up completely in accordance with the manufacturer's label or instructions, and to dispose of the empty containers double-wrapped in the ordinary household trash.

Industrial Residual Solid Wastes

Neither the County nor its municipalities are responsible for the collection and disposal of industrial residual waste (wastes resulting from industrial processes). Adams County has a considerable number and a wide diversity of industrial firms, with an estimated total employment of about 7,600 in 1985. Firms manufacture products from electronics to kitchen cabinets, pipe fittings, footwear, clothing, food, lumber, and many other types. An estimate based on a survey made in early 1987 gave a value of 400 tons of industrial residues per week for Adams County - 80 tons per day for a 5-day week, or 20,800 tons per year. This is about 21 pounds of residues per employee per day. Given the wide variation in the nature of the industrial firms in the county, these residual wastes very likely include a wide variety of materials, ranging from metal turnings and foundry wastes to sawdust and wood wastes, clothing scraps and rags, leather scraps, food wastes, industrial solvents, etc.

Hazardous Wastes

Neither the County nor its municipalities are responsible for hazardous wastes. These are regulated by the federal government under the Resource Conservation and Recovery Act of 1976 (RCRA), the Comprehensive Environmental Responsibility, Compensation, and Liability Act of 1980 (CERCLA), and the Superfund Amendments and Reauthorization Act of 1986 (SARA); and by the State of Pennsylvania under Acts 97 and 106. Some hazardous wastes may be generated by industrial firms in Adams County, and any amounts over 220 pounds per month (100 kilograms) must be reported to PaDER and handled within the federal and state regulations. No authorized hazardous waste storage, treatment, or disposal facilities or sites are presently located within Adams County. However, some industrial firms within the county may legally treat or recycle their hazardous wastes on site.

Abandoned or "orphan" sites containing hazardous wastes are identified and cleaned up or "remediated" either under the federal CERCLA/SARA or State Act 106 "Superfund" statutes. Sites are investigated and placed on the "National Priority List" (NPL) in accordance with their ranking under the Hazardous Ranking System developed by the U.S. Environmental Protection Agency.

Four "Superfund" sites have been identified to date within Adams County (Figure 2.10.3). These sites are as follows (NPL # as of November 1990):

1. Westinghouse Elevator Manufacturing Plant, Route 34 and Boyd School Road (north of Gettysburg); NPL # 453;
2. Hunterstown Road Site, Shealer Road, Straban Township; NPL # 237;
3. Shriver's Corner, Route 394 and Goldenville Road, Straban Township; NPL # 288 (two properties, the Shealer Property and the Culp Property);
4. Keystone Landfill, Union Township; NPL # 794.

Agricultural Residues

Similar to industrial residual solid wastes and hazardous wastes, neither the County nor its municipalities are responsible for management of agricultural solid wastes. However, any water pollution or other environmental problems arising from agricultural practices may become an issue for municipal or county governments to handle.

Agriculture is a major activity and economic resource in Adams County. The estimated number of animal farms in the county in 1986 was as follows:

Table 2.10.15
Number of Animal Farms in Adams County in 1986

Cattle Farms	820
Commercial Dairies	130
Hog Farms	260
Sheep Farms	95
Chicken Farms	230
Total	1,535
Land in Farms	196,644 Acres
Average Size	128 Acres
Harvested Crop Land	125,218 Acres
Value per Acre	$ 1,677

In addition, there are about 20,000 acres in Adams County devoted to orchard cultivation; primarily apples, with some peaches and cherries. This orchard belt comprises about 5.9 percent of the total land area of the county, bordering South Mountain and extending from the north-central part to the southwestern corner of the county.

The total economic value of agriculture may be summarized as follows:

Table 2.10.16
Summary of Agricultural Cash Receipts in 1986

Fruit	$ 35,266,000
Meat and Misc. Products	$ 20,920,000
Poultry Products	$ 17,810,000
Dairy Products	$ 17,332,000
Field Crops	$ 7,272,000
Horticultural Specialties	$ 1,426,000

Sewage sludge may be spread on agricultural land under State regulations under the following circumstances:

Table 2.10.7
Conditions for Land Application of Sewage Sludge and Septage

Metals Content:	Cadmium less than 50 parts per million (ppm);	
	Chromium less than 1,000 ppm;	
	Copper less than 1,000 ppm;	
	Lead less than 1,000 ppm;	
	Mercury less than 10 ppm;	
	Nickel less than 200 ppm;	
	Zinc less than 2,000 ppm.	
Location:	Minimum Distance to the Nearest Stream =	100 feet;
	Minimum Distance to the Nearest Well =	300 feet;
	Minimum Distance to the Nearest Home =	300 feet;
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- high-grade office paper
- newsprint
- corrugated paper
- plastics

Leaf waste must be separated from other MSW for composting. Commercial firms, municipal offices, and institutions are to separate high-grade office paper, aluminum, corrugated paper, and leaf waste for recycling or composting, as appropriate.

Recycling Activities in Adams County

The primary recycling activity in Adams County has been conducted by the Adams Rescue Mission since 1977, although newspaper collection and other volunteer efforts have long been conducted by the Boy Scouts, Girl Scouts, firehouses, and church groups. In 1977, the Adams Rescue Mission (which was established in 1972 as a shelter for homeless men with

some ancillary services such as family aid) arranged to pick up cardboard from a few commercial firms. House calls were also made in the Gettysburg area for newspapers, clothing, used furniture, etc., for re-sale. In 1984, these efforts were expanded, and by 1985, 670 tons of recyclable materials were collected and marketed by the Mission. In 1986, 874 tons were handled. In 1987, the first curbside pick-up by the Mission was inaugurated in Fairfield Borough, and glass was added to the list of recyclables. A total of 1,440 tons of materials was recycled in 1987. Also during 1987, 16 more boroughs and towns were included in the curbside pick-up schedule. In 1988, 2,300 tons of materials were recycled. During the latter part of 1988, the weekly volume averaged 15 tons per week of newspaper, 13 tons of cardboard, 8 tons of clothing, 7 tons of glass bottles and jars, 1/2 ton of steel and tin cans, and 1/7th ton of aluminum. Recycling of some plastic items was also initiated.

The current schedule is as follows:

Table 2.10.11
Monthly Curbside Recyclables Pick-Up Schedule

Fairfield	York Springs	Gettysburg
Orrtanna	Littlestown	
Bonneauville	East Berlin	
Cashtown	Lake Heritage	
McKnightstown	Bendersville	
Twin Oaks	McSherrystown	
Biglerville	Herr's Ridge Road	
Arendtsville	Country Club Area, Ridgewood	
Mummasburg	Toddasville	

Monthly curbside collection was initiated throughout Gettysburg Borough in January 1989. In addition, the following locations have collection facilities for the Mission:

Carroll Valley Maintenance Building
Lutheran Home, Old Harrisburg Road, Gettysburg
W. L. Sterner Co., 516 Frederick Street, Hanover, PA. (York County).

The Adams Rescue Mission truck is parked at the following locations each month on the day assigned:

Cumberland Township Building, 1st Saturday
Barlow Fire Hall, 2nd Saturday
Superthrift store parking lot, Littlestown, 3rd Saturday
Gettysburg Presbyterian Church parking lot, 4th Saturday.

Future Impact of Recycling Activities in Adams County

A set of calculations has been made to determine how much recycling is possible to accomplish under various future conditions, and what the impact of that degree of recycling would be on MSW generation and disposal in Adams County. The calculations are based on the following percentages of recyclable materials in MSW:

Table 2.10.12
Percentages of Recyclable Materials in MSW
(by weight)

Newspaper	30%	
Glass	10%	
Aluminum	2%	
Bimetal Cans	4%	
Rags and Cloth	1.5%	
Plastic (PET)	0.5%	
Total	48.0%.	
Compostable	25%	(Food and Yard Wastes)

These percentages are similar to those given by PaDER in Guide #1 based on the work of W. E. Franklin in 1979. The actual percentages will vary from place to place and from time to time, but the above values are considered to be representative of today's trash in most suburban communities. Urban and rural trash may differ somewhat, but the above values may still be appropriate for certain kinds of analyses. If one-quarter of these materials were removed from the trash stream by 1995, the total removed would be 14,730 tons. If these amounts were removed by the year 2000, the total removed would be 18,760 tons. The net amount of MSW to be disposed in the future under these assumptions for the Adams County recycling program would be as follows:

Table 2.10.13
Estimated Total Municipal Solid Waste (Tons Per Day)

	Generated			Removed by Recycling			Remaining		
AREA	1990	1995	2000	1990	1995	2000	1990	1995	2000
Eastern Wasteshed Area	92	117	150	6	22	40	86	95	110
Western Wasteshed Area	98	116	137	9	26	32	89	90	105
Total County	190	233	287	15	48	72	175	185	215
[Percent Recycled	:			8%	21%	25%]			

These savings are significant amounts, both in terms of avoided tipping fees at processing or disposal facilities and a reduction in the need for additional processing or disposal

capacity.

Household Hazardous Wastes

Considerable concern has been raised about many ordinary products commonly used around the house, or by commercial firms and offices, that represent hazardous wastes when poured down the household drain or into the storm drain in the street, dumped on the soil in the backyard, or thrown out in residential or commercial trash. These types of materials include:

Table 2.10.14
Types of Household Hazardous Wastes (HHW)

1. Cleaners
2. Cosmetics
3. Deodorizers
4. Disinfectants
5. House & Garden Pesticides
6. Laundry Products
7. Ointments
8. Dead Batteries
9. Paint and Paint Products
10. Photographic and Dark Room products
11. Metal and Other Polishes
12. Wood and Other Preservatives
13. Bath and Kitchen Soaps and Detergents
14. Medicines
15. Used Auto Oils and Fluids
16. Other Household, Shop, Garage, etc., Materials.

Farms are likely to have left-over or unusable pesticides, fungicides, herbicides, fertilizers, and other chemicals in amounts smaller than are regulated under the current federal and state small- or very-small-quantity generator categories.

Several communities have organized household hazardous waste education and collection programs, including neighboring York County. These "HHW Collection Days" are arranged so as to have householders bring household hazardous wastes to a central location where a fully-licensed hazardous waste-handling firm collects the materials, identifies them, sorts and repackages them, prepares a hazardous waste manifest, and transports the repackaged materials to a location licensed for storage, treatment, and ultimate disposal. The wastes are generally treated or incinerated, if possible, to obtain a non-hazardous residue, or landfilled in a licensed hazardous waste landfill. The costs per pound of HHW for the collection, repackaging, transportation, storage, treatment, and disposal typically run around $20 per gallon or $100 per household carload. Typically, these "HHW Collection Days" collect 1% or less of the HHW present in the homes in the area, but they do serve to notify and educate the public as to the dangers of these products if carelessly used and disposed. Until regular collections of HHW can be implemented at reasonable cost, householders should be urged to restrict purchases of such items, to use them up completely in accordance with the manufacturer's label or instructions, and to dispose of the empty containers double-wrapped in the ordinary household trash.

Industrial Residual Solid Wastes

Neither the County nor its municipalities are responsible for the collection and disposal of industrial residual waste (wastes resulting from industrial processes). Adams County has a considerable number and a wide diversity of industrial firms, with an estimated total employment of about 7,600 in 1985. Firms manufacture products from electronics to kitchen cabinets, pipe fittings, footwear, clothing, food, lumber, and many other types. An estimate based on a survey made in early 1987 gave a value of 400 tons of industrial residues per week for Adams County - 80 tons per day for a 5-day week, or 20,800 tons per year. This is about 21 pounds of residues per employee per day. Given the wide variation in the nature of the industrial firms in the county, these residual wastes very likely include a wide variety of materials, ranging from metal turnings and foundry wastes to sawdust and wood wastes, clothing scraps and rags, leather scraps, food wastes, industrial solvents, etc.

Hazardous Wastes

Neither the County nor its municipalities are responsible for hazardous wastes. These are regulated by the federal government under the Resource Conservation and Recovery Act of 1976 (RCRA), the Comprehensive Environmental Responsibility, Compensation, and Liability Act of 1980 (CERCLA), and the Superfund Amendments and Reauthorization Act of 1986 (SARA); and by the State of Pennsylvania under Acts 97 and 106. Some hazardous wastes may be generated by industrial firms in Adams County, and any amounts over 220 pounds per month (100 kilograms) must be reported to PaDER and handled within the federal and state regulations. No authorized hazardous waste storage, treatment, or disposal facilities or sites are presently located within Adams County. However, some industrial firms within the county may legally treat or recycle their hazardous wastes on site.

Abandoned or "orphan" sites containing hazardous wastes are identified and cleaned up or "remediated" either under the federal CERCLA/SARA or State Act 106 "Superfund" statutes. Sites are investigated and placed on the "National Priority List" (NPL) in accordance with their ranking under the Hazardous Ranking System developed by the U.S. Environmental Protection Agency.

Four "Superfund" sites have been identified to date within Adams County (Figure 2.10.3). These sites are as follows (NPL # as of November 1990):

1. Westinghouse Elevator Manufacturing Plant, Route 34 and Boyd School Road (north of Gettysburg); NPL # 453;
2. Hunterstown Road Site, Shealer Road, Straban Township; NPL # 237;
3. Shriver's Corner, Route 394 and Goldenville Road, Straban Township; NPL # 288 (two properties, the Shealer Property and the Culp Property);
4. Keystone Landfill, Union Township; NPL # 794.

Agricultural Residues

Similar to industrial residual solid wastes and hazardous wastes, neither the County nor its municipalities are responsible for management of agricultural solid wastes. However, any water pollution or other environmental problems arising from agricultural practices may become an issue for municipal or county governments to handle.

Agriculture is a major activity and economic resource in Adams County. The estimated number of animal farms in the county in 1986 was as follows:

Table 2.10.15
Number of Animal Farms in Adams County in 1986

Cattle Farms	820
Commercial Dairies	130
Hog Farms	260
Sheep Farms	95
Chicken Farms	230
Total	1,535
Land in Farms	196,644 Acres
Average Size	128 Acres
Harvested Crop Land	125,218 Acres
Value per Acre	$ 1,677

In addition, there are about 20,000 acres in Adams County devoted to orchard cultivation; primarily apples, with some peaches and cherries. This orchard belt comprises about 5.9 percent of the total land area of the county, bordering South Mountain and extending from the north-central part to the southwestern corner of the county.

The total economic value of agriculture may be summarized as follows:

Table 2.10.16
Summary of Agricultural Cash Receipts in 1986

Fruit	$ 35,266,000
Meat and Misc. Products	$ 20,920,000
Poultry Products	$ 17,810,000
Dairy Products	$ 17,332,000
Field Crops	$ 7,272,000
Horticultural Specialties	$ 1,426,000

Vegetables and Potatoes	$ 1,122,000
Forest Products	$ 137,000
Other Products	$ 659,000
Total	$101,944,000

An estimate of the wastes produced by animals is as follows:

Table 2.10.17
Estimated Animal Wastes Produced in Adams County in 1986

TYPE ANIMAL	NUMBER	TONS MANURE PRODUCED PER ANIMAL	TOTAL TONS/YR	RATE OF LAND APPLICATION	ACRES NEEDED
CATTLE	34,900	21.4	746,000	20 tons/acre	37,300
SWINE	23,000	0.72	16,560	20	820
SHEEP	3,200	0.75	2,415	20	120
FOWL	3,031,700	0.05	151,585	5	30,320
TURKEYS	[Not available]				
HORSES	[Not Available]		____	–	____
TOTALS	3,092,800		916,560	–	68,560

FARM ACREAGE AVAILABLE FOR LAND APPLICATION = 125,218

It would appear, therefore, that there is more than enough land for application of all of the farm wastes generated by farm animals in Adams County.

On the other hand, there does appear to be a problem with the disposal of fruit processing wastes, particularly apple wastes known as "pomace". A total of 320,665,000 pounds of apples and 20,424,000 pounds of peaches were grown in Adams County in 1986. Processing of apples produces roughly 25,000 tons of pomace (including a small percentage of rice hulls used to facilitate separation of the juice in the pressing process) and 5,000 tons of peach and cherry wastes annually. Five thousand tons of pomace are burned each year in an incinerator constructed in 1980-81 by Knouse Foods, Inc. in Orrtanna, assisted by two $300,000 grants from PaDER. The pomace is dried from about 65% moisture to 5-6% moisture, using the hot exhaust gases from a small gas turbine-generator. The dried pomace is then burned to create steam and the steam is used for drying and as process steam throughout the plant. The gas turbine-generator also produces electricity for in-plant use. Disposal of the remaining 20,000 tons of pomace and 5,000 tons of peach and cherry wastes is accomplished by land-spreading, dumping in landfills, and feeding to cattle.

The land-spreading process is becoming a concern, since roughly 132 tons per day are required to be disposed (at 65% moisture) during the five-month peak processing period of September through January. By way of contrast, 33 tons per day are produced from

February through June, and none in July and August. Pomace is too high in moisture and has other characteristics which make it inadvisable to co-fire with municipal solid waste in a conventional incinerator. A dedicated incinerator would have to handle the widely-varying amount of pomace produced seasonally and would likely be uneconomical for that reason. It has been suggested that a municipal waste incinerator be combined in one facility with a fluidized bed boiler dedicated to pomace, with savings coming from the combined use of various facilities at one location. Currently a private solution to the problem of pomace disposal is being sought.

Composting

The Adams County Solid Waste Authority has considered the possibility of having a composting facility constructed within the county. Such a facility could either compost the organic materials in municipal solid waste, or co-compost solid waste with sewage sludge and septage. Several composting and co-composting facilities have recently been built in the United States to demonstrate the technical and economic feasibility of the process. The Adams County Solid Waste Authority is continuing to study and evaluate composting and co-composting for possible implementation in the next update of the Adams County Act 101 Solid Waste Management Plan.

Public Utilities

Electric Power Service

The Adams Electric Cooperative Inc. of Gettysburg, Pennsylvania serves the extensive low-density rural areas of Adams and neighboring counties. The Adams Electric Cooperative also provides leadership and technical assistance for economic development, but does not generate electricity. Electric power is purchased wholesale from generating companies such as Pennsylvania Electric Company and Metropolitan Edison Company.

Metropolitan Edison Electric Company provides service to the urban areas and the more densely populated rural areas of Adams County. Potomac Edison Electric Company serves a portion of Liberty Township along the Maryland border. A major 230,000-volt electric transmission line on steel towers, with five lines in a 200-foot right-of-way forming part of a network serving Maryland, Pennsylvania, and New Jersey, enters Adams County from the west and follows north of US Route 30 to Gettysburg and then south towards Littlestown and into Maryland (Figure 2.10.5). Buildings may not be located in this right-of-way, but the land may be farmed or used for orchards.

The electric companies have established policies to provide local service in new residential and commercial areas by means of underground service lines.

Telephone

Telephone service for Adams County and the immediate surrounding area is supplied by United Telephone System (UTS). The majority of the county lies in the Gettysburg Telephone District of UTS, with a portion of southeastern Adams County receiving service from United System's Hanover UTS District. The Gettysburg District includes exchanges at Biglerville, Fairfield, Gettysburg, York Springs, Littlestown, and New Oxford.

The East Berlin and Abbottstown areas are served by York Telephone and Telegraph Company. Substantial increases in the number of telephone customers have occurred in proportion to the overall growth of the county.

Gas Service

Two companies supply gas in Adams County. Columbia Gas of Pennsylvania (CGP) serves the major portion of the county; the series of communities between Caledonia in Franklin County eastward to New Oxford along US Route 30. The service area also extends north to Aspers. CGP provides service to 8,000 customers, 35 of which include large commercial and major industrial users.

York County Gas Company (YCGC) serves the area suburban to Hanover, including about 1,100 customers. Both CGP and YCGS report continuous growth over recent years.

Radio Stations

There are two local radio stations servicing Adams County. Station WGET AM 1320 and WGTY FM 107.7 in Gettysburg broadcasts 1,000 watts during the day and 500 watts at night. The service area covers all of Adams County and parts of York, Franklin, Cumberland, Frederick, and Carroll Counties. The station provides news, weather, sports, and public service programs. Special services of the station include Mutual News Services, AP News, and Weatherwire Service from the Washington U.S. Weather Station.

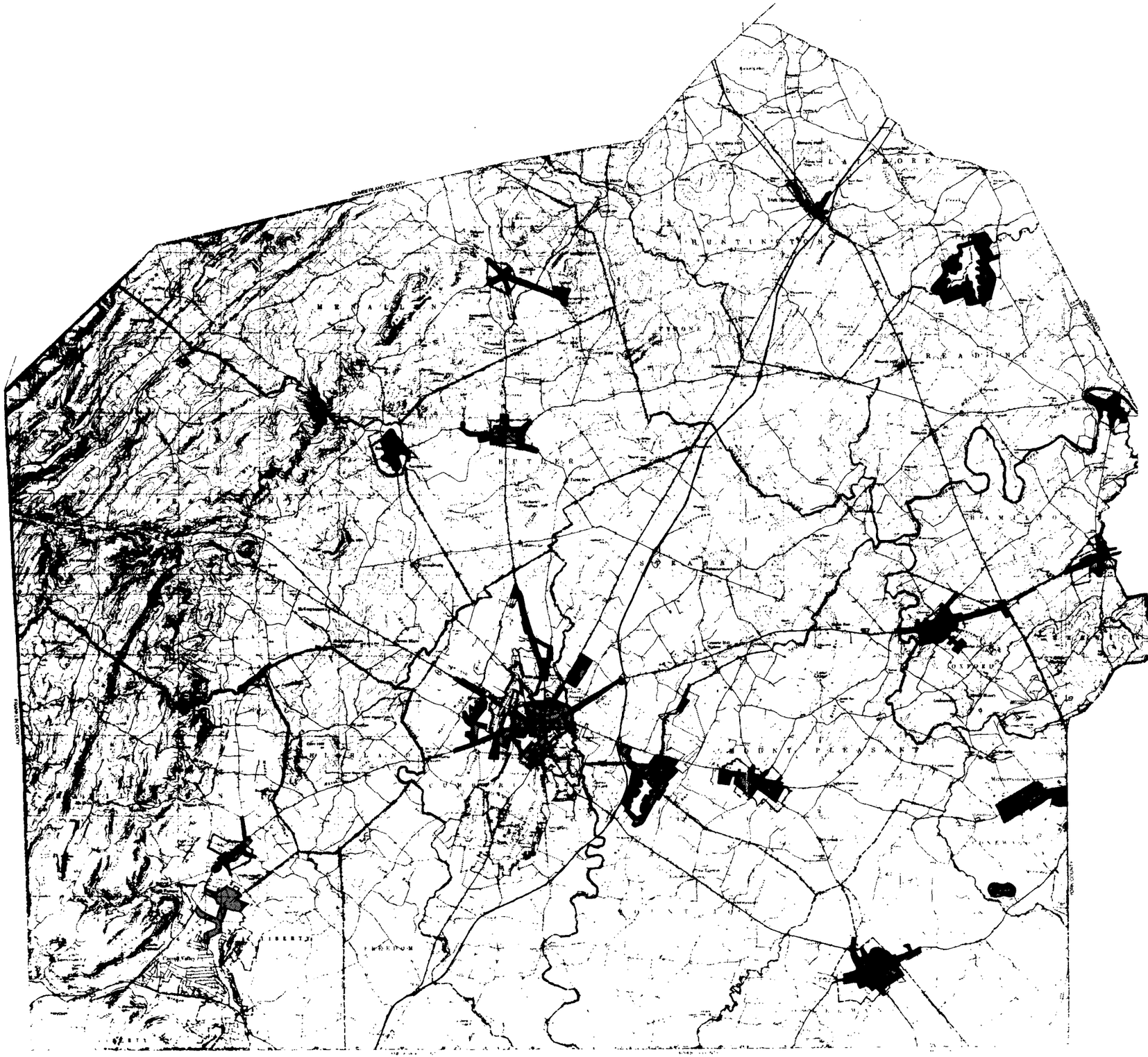
Station WHVR-AM and WYCR-FM Hanover provides service to an area from Harrisburg, Pennsylvania to Leesburg, Virginia and from York to Shippensburg, Chambersburg, Waynesboro, and Hagerstown, including Frederick and Carroll Counties in Maryland. Programming includes news, weather, sports, music, and public services. The news service includes United Press Audio Service, and coverage is also provided for professional football and basketball.

Television

In addition to individual antenna reception from Harrisburg, Lancaster, Washington, and Baltimore, Adams County residents can subscribe to one of two cable television companies operating locally. Sammons TV Cable Company provides 30 basic channels and 4 pay-TV channels to about 3,000 customers in Gettysburg and Biglerville Boroughs, and in parts of Butler, Cumberland, and Straban Townships. Pennsylvania Classic Cable TV Company is headquartered in East Berlin, and provides 36 channels to about 11,000 customers throughout Adams County except in the Borough of Gettysburg.

Figure 2.10.2

COMMUNITY WATER SUPPLY AREAS



ADAMS COUNTY

Pennsylvania

Comprehensive Plan Update

SCALE

4000 2000 0 4000 8000 12000 Feet

1 Square Mile

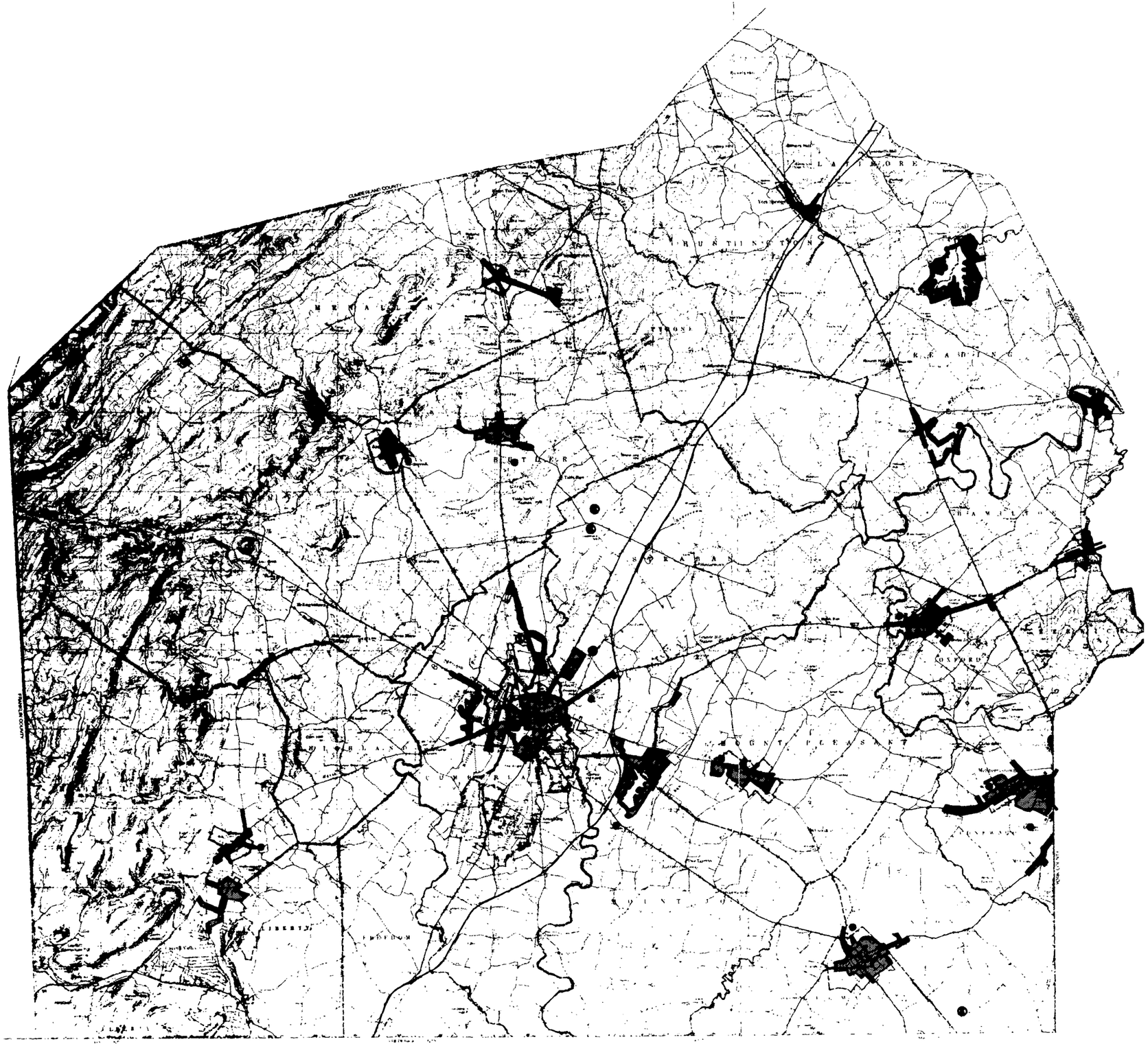
NORTH

NDA
Norman Day Associates
Planning & Urban Design
1611 Walnut Street 2nd Floor
Philadelphia, PA 19103

- Orth-Rodgers & Associates
- Couplin, Keene & Associates
- John Milner Associates
- R.E. Wright Associates

Figure 2.10.3

SEWERED AREAS & SUPERFUND SITES



- Sewered Areas
- Sewage Treatment Plants
- Superfund Sites

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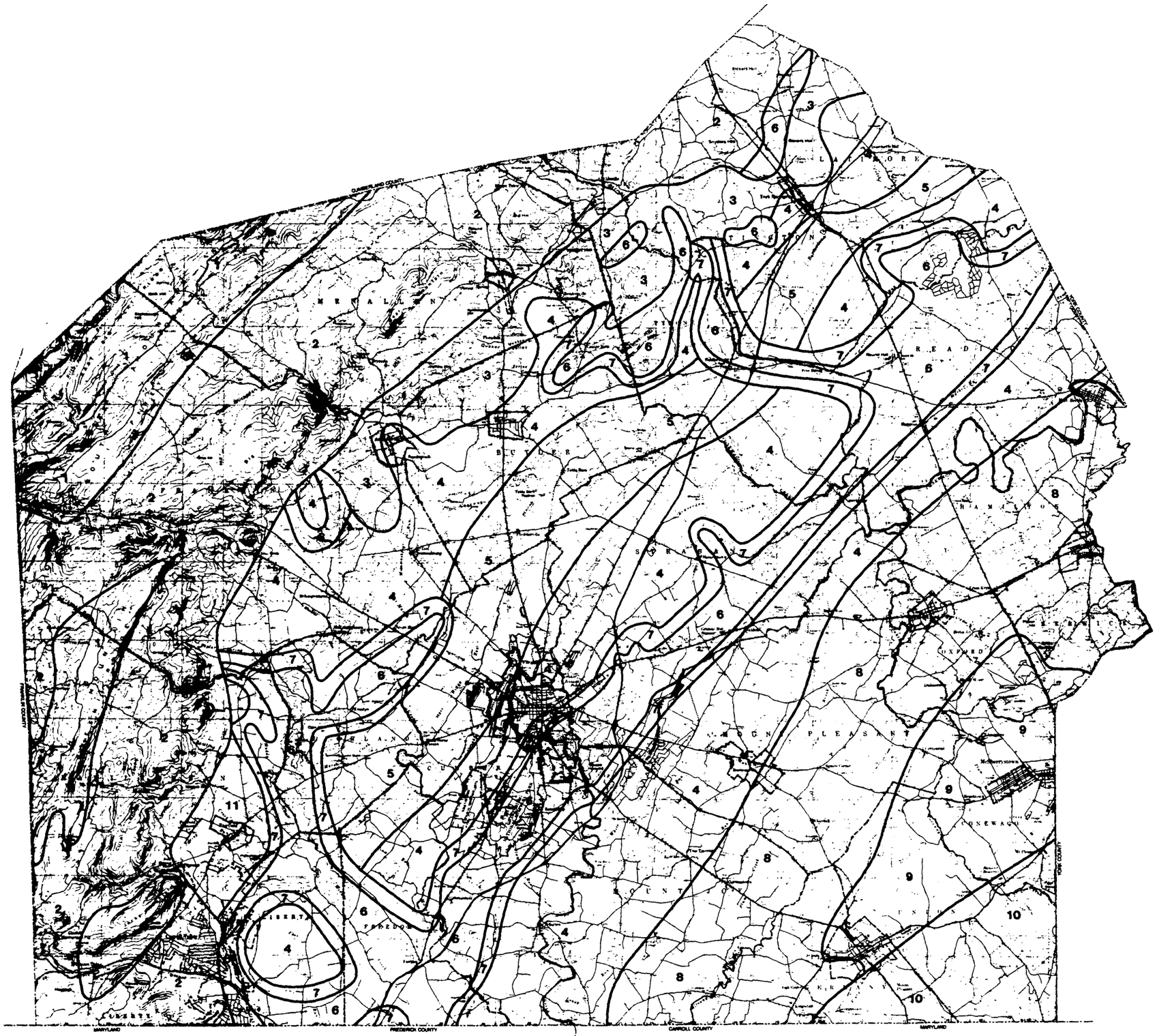
Figure 2.10.4

LIMITATIONS ON SEPTIC TANK INSTALLATIONS BY SOIL ASSOCIATIONS



1 Edgemont–Highfield association: Moderate (steep slopes)

2 Highfield–Myersville–Catoctin association: Moderate (shallow bedrock)

3 Arendtsville–Highfield association: Slight (shallow bedrock)

4 Penn–Readington–Croton association: Severe (seasonal high water table, depth to bedrock)

5 Klinesville–Penn–Abbottstown–Croton association: Severe (shallow bedrock)

6 Montalto–Mount Lucas–Watchung association: Poor (high water table, slow permeability)

7 Lehigh–Brecknock association: Poor (shallow bedrock, seasonal high water table)

8 Penn–Lansdale–Abbottstown association: Severe (shallow bedrock, seasonal high water table)

9 Conestoga–Wiltshire–Lawrence association: Moderate to severe (karst)

10 Glenelg–Manor–Glenville association: Slight to moderate (shallow bedrock seasonal high water table)

11 Athol–Wiltshire–Readington association: Moderate to severe (seasonal high water table)

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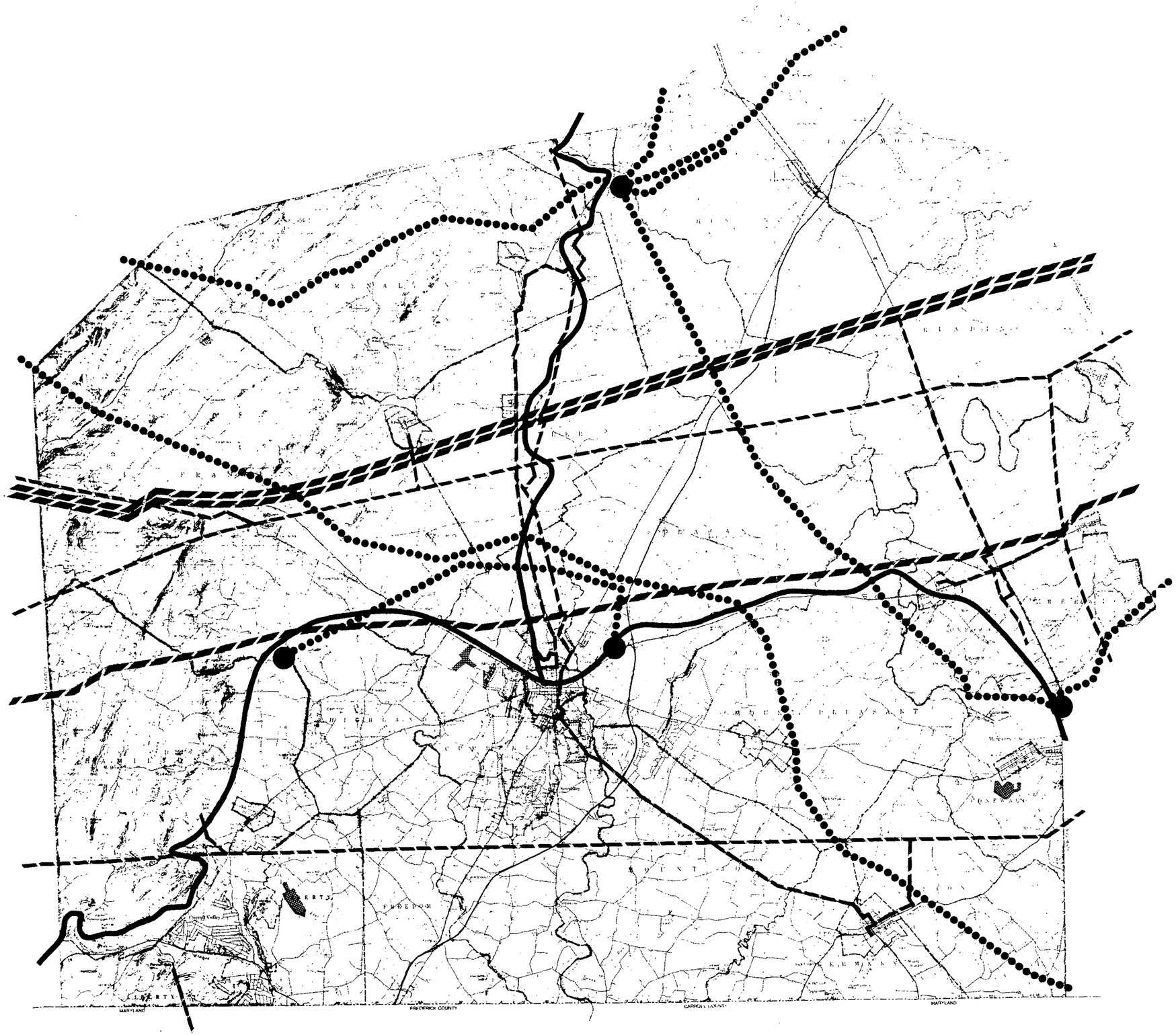
- Coughlin Kleins Associates
- John Milner Associates
- R.E Wright Associates

Figure 2.10.5

UTILITIES / TRANSPORTATION

- Electrical Transmission Line
- Substation
- Railroad
- Pipeline, 20" or 24" diameter
- Pipeline, less than 8" diameter
- Airport



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