GUIDING REGIONAL GROWTH

Land Use Element of the DVRPC Year 2020 Plan



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

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Delaware Valley Regional Planning Commission The Bourse Building - 8th Floor 111 South Independence Mall East Philadelphia, PA 19106-2515

JULY 1995

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Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, intercounty and intercity agency which provides continuing, comprehensive and coordinated planning for the orderly growth and development of the Delaware Valley region. The region includes Bucks, Chester, Delaware, and Montgomery counties as well as the City of Philadelphia in Pennsylvania and Burlington, Camden, Gloucester, and Mercer counties in New Jersey. The Commission is an advisory agency which divides its planning and service functions between the Office of the Executive Director, the Office of Public Affairs, and four line Divisions: Transportation Planning, Regional Planning, Regional Information Services Center, and Finance and Administration. DVRPC's mission for the 1990s is to emphasize technical assistance and services and to conduct high priority studies for member state and local governments, while determining and meeting the needs of the private sector.



The DVRPC logo is adapted from the official seal of the Commission and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the diagonal bar signifies the Delaware River flowing through it. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey. The logo combines these elements to depict the areas served by DVRPC.

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Publication Abstract

TITLE	Date Published: JULY 1995
Guiding Regional Growth: Land Use Element of the DVRPC Year 2020 Plan	Publication No. 94031 Direction 2020 Report No. 23

Geographic Area Covered: Nine-county Delaware Valley region: Bucks, Chester, Delaware, Montgomery and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester and Mercer in New Jersey

Key Words: Land Use; Development; Open Space; Agriculture; DIRECTION 2020; Population; Employment; Centers; Corridors; Natural Resources; Recreation; Parks, Farmland Preservation; Implementation

ABSTRACT

This report provides the Land Use element of DVRPC's Year 2020 Land Use and Transportation Plan in three chapters — Development, Open Space and Agriculture. The Development chapter examines past trends and current forces and provides a plan for future growth focused on centers and corridors. The Open Space chapter considers existing park resources and regional needs based on population and natural resources and proposes a regional system of open space. The Agriculture chapter looks at the role of agriculture today and existing farmland preservation programs and identifies additional approaches for the future.

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I. INTRODUCTION

As we approach the 21st Century, the way we deal with the issues of land use and development, transportation access, and environmental protection will not only determine the quality of our lives, but the lives of generations to come. Since 1965, the Delaware Valley Regional Planning Commission has addressed the emerging needs of the region through long-range plans which considered the land use and transportation issues of the day. In response to changing conditions and the new federal mandates, DVRPC is preparing a long-range LAND USE AND TRANSPORTATION PLAN FOR THE **YEAR 2020** that will provide a framework for state, county and municipal governments, enabling them to better plan for their communities.

This "future vision" will help public and private sector decision-makers to make planning-related choices which will prevent many of the problems associated with the region's past development practices. Municipalities can maintain or improve the quality of life within their communities and the region by designing local policies, plans and ordinances which are consistent with the goals of the region's long-range plan.

Over the past two decades, dramatic changes have occurred in the Delaware Valley which present significant opportunities and challenges for the region's future. Between 1970 and 1990, the number of housing units increased by almost 400,000, the number of jobs increased by 28%, and the population loss of 2% in the 1970's was reversed by the more than 3% gain in the 1980's.

However, it is the pattern of growth and change that is most striking. Suburban and rural areas at the region's fringe grew at a rapid pace during this time, while urbanized areas such as Philadelphia, Trenton and Camden lost both residents and jobs.

Regional forecasts prepared by DVRPC for the year 2020 predict continued growth in suburban areas and slow or no growth in the region's cities. A continuation of these trends in the cities would mean a shrinking tax base, increased social costs, and underused infrastructure. In the suburbs, traffic congestion, limited mobility, the loss of open space and farmland, and a diminishing supply of affordable housing are already major concerns.

The challenge now facing public officials, planners and citizens in the Delaware Valley is to create a more efficient, competitive and sustainable region by providing equal access to opportunities. Fundamental to this challenge is the need to improve the linkage between land use and transportation planning and facilities in both city and suburb. In addition, the region must consider such critical issues as: the supply and cost of housing, the environmental protection of critical natural resources, the loss of farmland and open space, economic development in older communities and the preservation of the region's existing infrastructure.

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The Policy Agenda adopted by the DVRPC Board in December 1994 provides the specific goals, policies and actions needed to advance the Delaware Valley into the 21st Century. Within each of eight primary issue areas, a goal statement defines the broad vision for the future. A number of policies define the various components of each issue area and provide further specificity. These policies, in turn, are to be implemented through a series of action steps and implementation strategies. Included are recommendations for changes at the federal, state, regional, county and municipal levels, as well as strategies for transit operating agencies, bi-state agencies, regional authorities, non-profit organizations, farmers and real estate developers.

The goals of the 2020 Plan give priority to promoting sustainable development by preserving and strengthening the existing resources of the region in order to create a more efficient and compact pattern of development. Investment in infrastructure will be used to encourage development within existing communities and appropriate growth areas, rather than further dispersing land uses. Economic development strategies to stabilize and encourage growth in the urban centers of Philadelphia, Camden, Chester, Trenton and other established communities are an essential element of the plan.

The region's highway and transit network will be maintained and improved toward the goal of providing the efficient movement of both people and goods. Strategies to reduce traffic congestion by creating alternative travel modes or reducing the number of single-occupant vehicles are given priority over capacity increases or new facilities.

New development must be sensitive to the critical natural resources of the region, such as woodlands, wetlands, stream corridors, groundwater recharge areas and habitat areas. The goals and policies support strategies which preserve open space and productive farmland and provide the park and recreational facilities needed for the future. Development around centers, along corridors and within existing communities is a primary land use objective.

The goals for 2020 encourage concentrating new development within a hierarchy of existing and emerging centers, and along those highway or transit corridors that link a mix of land uses with transportation facilities. By concentrating development into existing and designated new growth centers and corridors, scarce resources will be better utilized and preserved, and existing rural character can be maintained. Concentrating development in centers and corridors will provide a better link with transportation facilities while preserving open space, natural resource areas and farmlands. Providing economic opportunities and a diversity of housing choices in these centers will ensure the future health of the region.

In order to be successful, these areas must have a sufficient mix of residential, commercial, employment and recreational opportunities to attract both residents and workers. Densities must be sufficient to make public transit such as bus or rail service feasible and should be compact enough to accommodate pedestrians and bicycles, thus alleviating the need for many vehicle trips. As alternatives to the automobile become possible, traffic congestion will decrease and the region's air quality will improve.

GUIDING REGIONAL GROWTH

This element of the Year 2020 Plan provides the physical representation of the land use conditions envisioned by the *Policy Agenda*. Recognizing the essential link between land use and development and transportation needs and conditions, the Plan's maps of proposed land use, open space and agriculture in the year 2020 will provide for the development of the detailed 2020 Transportation Plan.

The physical development pattern of the Delaware Valley represents a rich and complex mosaic. From the office towers of Center City Philadelphia to the older suburbs, villages, boroughs, emerging suburbs and farmland, it is the diversity of uses and landscapes that make this area unique. The plan for the year 2020 is intended to maintain that diversity, building on our strengths and preserving that which is most valuable.

Guiding Regional Growth addresses the future land use of the region in three related areas: development, open space and agriculture. The development chapter reviews the overall patterns of development and recent changes in land use and presents two alternative scenarios of future development. The trend scenario quantifies the amount of acreage that could be developed between 1990 and 2020 if the region continues on its current trend of sprawl development. A Centers and Corridors scenario, in contrast, would focus future growth in and around existing communities — centers — and along the primary intermodal transportation routes corridors — in order to create a more efficient and compact pattern of development. Transportation improvements would be used to support economic development and growth within existing communities and emerging growth areas. rather than further dispersion of land uses. The map of proposed land use in the year 2020 includes growth and infill areas, existing and proposed open space, rural and farmland areas, and the key centers of the region — including regional, county, growth and revitalized centers.

The open space section identifies the existing parks and natural resources of the region and considers those areas that are permanently protected as park or open space resources. An analysis of recreational open space needs utilizes three different methodologies to assess demand and needs, considering future population forecasts, development patterns, and land resources. A sketch map of proposed open space includes those existing natural resources such as woodlands, wetlands, stream corridors, habitat areas or other unique features in need of protection. The open space map also includes sufficient area to meet the recreational needs of the Delaware Valley through the year 2020.

The agriculture chapter includes a more detailed analysis of land use changes as they relate to farming and agricultural uses in the region, including the changes in farms and farmland acreage. Programs to preserve agriculture as a viable land use and as a way of life are highlighted, including nuisance protection, agricultural security or development areas, purchase of development rights, and local land use controls.

While Guiding Regional Growth provides a regional overview and broader policy perspective, a more detailed examination of local area conditions with recommendations for the future is reflected in DVRPC DIRECTION 2020 Report No. 22, Centers and Corridors. In that document, the region is divided into 31 regional analysis corridors and 13 study areas that reflect the primary multi-modal transportation corridors and development centers in the region. Each corridor and study area includes a detailed analysis of existing land use and transportation conditions and trends, with site-specific recommendations for future improvements. A separate analysis of the four primary urban areas of the region, Reinvesting in **Cities: Transportation Improvements for** Urban Revitalization, considers regional policy toward Camden, Chester, Trenton and Philadelphia, and identifies specific transportation investments in the cities that can support economic development initiatives.

The land use recommendations of *Guiding Regional Growth* are further reflected in the DVRPC report *Moving People and Goods: The Transportation Element of the DVRPC Year 2020 Plan* (DVRPC DIRECTION 2020 Report No. 24). That document provides a summary of the regionally significant recommendations for improvements to the transportation system. Recognizing the critical interrelationship between land use plans and transportation impacts and needs, both *Guiding Regional Growth* and *Moving People and Goods* include a matrix of recommended transportation improvements as related to individual land use categories. For each of seven distinct land use categories as identified for 2020, the plans identify the appropriateness of different types of transportation improvements.

A number of other important issues for the future development of the region are not reflected here. For example, issues of public education, crime control and the provision of social services are all central to the future success and long-term health of the region but are beyond the scope of this effort. The *Policy Agenda* for DIRECTION 2020 does identify specific goals, policies, actions and implementation strategies in the areas of economic development and housing, but neither issue is explored in detail here.

Instead, interested readers are referred to DVRPC reports *Building The Dream:* Solutions For Affordable Homeownership (July 1991) and Solutions For Affordable Rental Housing (August 1994), as well as Bridging The Gap: Closing The Mismatch Between Jobs and Workers In The Delaware Valley (October 1992).

USES OF THE PLAN

Taken together, the plans for development, open space and agriculture in *Guiding Regional Growth* provide a comprehensive blueprint for land use in the Delaware Valley to the year 2020. These plans will provide the guidance for the specific improvements of the DVRPC Year 2020 Transportation Plan by identifying the centers and corridors appropriate for growth, those revitalized areas which may require investment, and the rural or agricultural areas where additional infrastructure should be limited as a means to manage growth. Transportation investment policies will be consistent with these land use policies. The plan will inform and support state transportation planning efforts in Pennsylvania and New Jersey and provide a linkage to help implement the New Jersey State Development and Redevelopment Plan.

The plan will also provide direction in the preparation and update of county and municipal comprehensive or master plans, by providing a framework and broader perspective for consideration by local governments. Counties and municipalities may also use the plan and the maps as another means to manage growth, by encouraging or discouraging growth in appropriate locations. State and federal agencies should also use the plan as guidance for future infrastructure investment decisions. Particularly, it should be used to inform PADER or NJDEP in their review of applications for water and sewer system expansion into inappropriate areas.

The open space map can also serve as a blueprint for county, regional, state and federal efforts to preserve open space in the region, by identifying significant undeveloped forested or habitat areas for priority protection, as well as a network of *"greenway"* and *"blueway"* corridors that would serve to protect natural resources and address recreational needs.

Finally, the Year 2020 Land Use Plan can provide a strong unifying vision for the citizens of the region, with a vibrant Center City and a network of smaller centers; a clear linkage between transportation improvements and land use; a well-defined system of open space; and a continuing rural and agricultural presence. This vision, together with the implementation strategies of *The Policy Agenda*, will lead the way into the 21st century.



II DEVELOPMENT





II. DEVELOPMENT

INTRODUCTION

The relationship between land use and transportation is fundamental. Early settlements located along rivers and waterways which served as travel routes, linking different villages for the purposes of commerce and exchange. Later, the extension of the railroads allowed development to spread out along these routes and, finally, the coming of the automobile and the highway system permitted the growth of modern suburbia. Today, the freedom of travel created by the automobile has also brought sprawling, auto-dependent development patterns that require more cars, more trips and more traffic.

Just as new or expanded transportation systems create new access opportunities which attract new development, new development patterns create a need for additional transportation facilities. In fact, land use patterns and transportation patterns are linked in a continuing cycle, whereby transportation opportunities create a climate for development which in turn triggers additional transportation needs.

A 1989 report by the *Institute of Transportation Engineers* characterized the link as such:

> ... Put simply, trip-making patterns, volumes, and modal distributions are largely a function of the spatial distribution and use of land. Over the long run, the spatial distribution of land use can greatly

influence regional travel patterns, and in turn this land use distribution can be influenced by the level of accessibility provided by the transportation system. Avoiding future congestion therefore requires careful attention to zoning and land use plans, in coordination with the strategic provision of transportation services to influence where development occurs.

This primary relationship between land use and transportation must be recognized, understood and utilized in order to create conditions where new growth and new transportation systems or improvements can proceed together, in a logical and planned manner. Promoting land use patterns matched to the transportation system can help to relieve congestion and traffic on existing roads, expand the use of the regional public transit system, and reduce the requirements and costs of building new roads. Incorporating land use considerations into transportation planning can both influence future development patterns and assure that future transportation facilities have adequate capacity to meet demand.

Improving the link between land use and transportation will also reduce congestion, improve mobility, and yield environmental benefits such as an improvement in air quality and preservation of additional open space. A closer integration of land use and transportation will help to create more attractive and livable communities.

PATTERNS OF DEVELOPMENT

The historical development and current land use patterns of the Delaware Valley are a reflection of the variety of economic, social and technological forces which have shaped many of the urban regions of the Northeast. The settlement of Philadelphia in the late 17th century, along the Delaware and Schuylkill rivers, capitalized on these waterways for travel by ferries and boats. Small villages and farms soon spread out and surrounded the city center, following the terrain and natural features. Simple dirt roads for horse-drawn carriages and farm wagons connected the various farmsteads and villages.

In the 19th century, an expanding population coupled with the dawn of the industrial age led to increasing urbanization and infrastructure construction. Wider streets in Philadelphia served the movements of goods and people. New roads, bridges, canals and railroads were built to serve a rapidly expanding industrial base. In addition to the commercial core in Philadelphia, major towns and cities were established in Pottstown, Trenton, Camden, Norristown and Chester. During this period, residential development was concentrated in these areas as industrial and employment centers, surrounded and linked by farmland and open space.

The early 20th century saw the development of low cost electricity and transmission lines and the extension of electrified commuter rail and trolley lines. These lines were constructed in a radial manner surrounding Philadelphia and served to encourage a dispersal of development, as housing, retail and service activities grew surrounding the train stations along each route. Suburban commuting became faster, as it was now possible to live in the "suburbs" and travel to work in the city by train.

As automobiles became increasingly popular, the era of road construction dominated. The personal car, and the network of roads which was rapidly built to serve these cars, now enabled new development to be located almost anywhere within the region. The post-World War II boom furthered the pattern of decentralization by building suburban shopping malls, apartment complexes, large-scale housing developments and suburban office and manufacturing parks. Former farmland became residential subdivisions. The region grew by leaps and bounds, as new roads led to new development which again in turn led to still more roads and development. From 1930 to 1970, the region's population grew from three million to over five million people.

Since 1970, the trends of suburbanization and decentralization have both continued and accelerated, as population and employment growth in the suburbs have been matched with population and employment decline in the City of Philadelphia. While Center City Philadelphia still has the region's largest concentration of jobs, new suburban centers are competing successfully with older urban places for employment, housing and shopping.

The overall population of the region has grown by just over 1% since 1970, from

5.12 to 5.18 million. However, the distribution of that growth has been significant. Philadelphia's population base declined by 363,000 from 1970 to 1990, while population in the four New Jersey counties increased by almost 200,000 and in the four Pennsylvania counties by just over 200,000.

New development in the region continues today as primarily low-density single-use, often on land previously used for farming. Population in the cities, boroughs and urban areas of the region is not growing, and in many areas is declining. Older suburban communities adjacent to urban areas are also beginning to experience population loss.

These growth patterns have serious implications for transportation mobility and congestion, air quality, regional economic competitiveness, social equity, and the use of our land resources.

LAND USE 1970-1990

A review of land use changes over time provides an indication of how the region has developed, and a foreshadowing of the land use changes that might be expected in the future if we stay on our current course.

DVRPC recently completed a comprehensive analysis of land use conditions in the Delaware Valley as of 1990, when aerial photographs were taken of the nine-county region. Delineation of 14 land use categories was completed on a series of 1,330 individual photographs at a scale of 1 inch = 400 feet, then digitized into DVRPC's computer mapping (GIS) system at a scale of 1 inch = 2000 feet. Map II-1 represents the composite map of 1990 land use data for the region. This map and the accompanying data may be compared to a similar effort in the early 1970's, to consider the changes in land use from 1970 to 1990.

The 14 categories used for land use interpretation include single-family residential, multi-family residential, manufacturing, transportation, utility, commercial, community services, military, recreation, agriculture, mining, wooded, vacant and water. A more manageable classification for comparison might group these under the categories of RESIDENTIAL (single and multi-family), COMMERCIAL (manufacturing, utility, commercial, community service, military and mining), TRANSPORTATION, AGRICULTURE and UNDEVELOPED (wooded, recreation, vacant and water).

Figure II–1 presents the regional distribution of these five land use categories in 1970, while Figure II–2 provides the same analysis for 1990. Over this 20-year period, undeveloped and agriculture areas in the region decreased, while residential, commercial and transportation areas increased.

In terms of actual acreage, residential areas increased by 146 square miles, or over 93,000 acres, an area greater than the size of the City of Philadelphia. Transportation uses, including areas devoted to rail, air, marine, highway, residential streets and parking areas, increased by just over 100 square miles, or more than 65,000 acres. The total decrease in agricultural and undeveloped areas represents 300 square miles, or almost



FIGURE II-1 1970 REGIONAL LAND USE DISTRIBUTION

FIGURE II-2 1990 Regional Land Use Distribution





TABLE II-1 1990 COUNTY LAND USE TOTALS (ACRES)

	SINGLE	MULTI-			1. A.		COMMUN	-		· · ·					
	FAMILY	FAMILY	MANU	TRANS	UTILITY	COMMER	SERVICE	MILITARY	/ REC	AGRI	MINING	WOODED	VACANT	WATER	TOTAL
													· .		
BLICKS	50 226 05	6 220 80	7 270 20	25 519 22	3 206 40	0 286 40	2 825 20	710.40	4 832 00	130 668 80	2 272 00	121 184 00	13 520 60	11 104 00	398 074 08
BUCKU	59,520.95	0,220.00	1,319.20	20,510.00	3,200.40	9,200.40	2,835.20	710.40	4,032.00	130,000.00	2,272.00	121,104.00	10,020.00	11,104.00	330,074.00
CHESTER	63,552.65	4,153.60	3,033.60	24,979.51	4,819.20	5,689.60	3,788.80	0.00	4,435.20	213,478.40	1,024.00	146,822.40	6,291.20	4,108.80	486,182.40
	35 411 20	7 705 60	3 456 00	15 500 80	1 113 60	5 049 60	4 627 20	12 80	4 198 40	8 556 80	217 60	30 854 40	2 489 60	5 036 80	124 230 40
DELAWARE	00,411,20	7,700.00	0,400.00	10,000.00	1,110.00	0,040.00	4,027.20	12.00	4,100.40	0,000.00	217.00	00,004.40	2,400.00	0,000.00	124,200.40
MONTGOMERY	70,970.72	6,489.60	7,360.00	31,539.20	3,315.20	9,619.20	7,129.60	1,024.00	11,136.00	77,804.80	1,100.80	73,228.80	7,334.40	3,987.20	312,044.80
PHILADEL PHIA	5,122.18	23,219.20	4,928.00	26,540.80	601.60	6,233.60	3,296.00	1,254.40	3,769.60	473.60	0.00	5,715.20	3,238.40	5,228.80	89,621.38
											· · ·				
	004 000 70	47 707 00	00 450 00	104 070 04	10.054.40	05 000 00	01 070 40	0.004.00		400 004 00	4 04 4 40	077 004 00	00 00 4 00	00 405 00	4 440 450 00
PA 5-COUNTY	234,383.70	47,787.20	26,153.60	124,078.64	13,054.40	35,880.00	21,678.40	3,001.60	28,369.60	430,984.00	4,614.40	377,801.60	32,884.80	29,465.60	1,410,153.06
BURLINGION	37,523.20	4,755.20	1,792.00	17,420.80	1,728.00	8,608.00	1,932.80	4,684.80	5,196.80	95,891.20	716.80	314,598.40	15,820.80	14,400.00	525,075.20
CAMDEN	30,662.40	5,529.60	3,040.00	14,950.40	1,446.40	7,641.60	1,689.60	19.20	3,660.80	11,532.80	1,286.40	56,204.80	4,057.60	3,993.60	145,721.60
	24 524 80	1 683 20	3 436 80	11 820 80	1 991 60	3 506 80	1 272 60	22.00	2 216 90	65 622 00	702 60	91 006 90	0 042 00	9 505 60	015 707 60
GLUUCESTEN	24,024.00	1,000.20	3,430.00	11,020.00	1,001.00	3,590.00	1,273.00	52.00	2,310.00	05,032.00	793.00	81,990.80	0,243.20	8,505.60	215,737.00
MERCER	23,428.80	4,064.00	1,286.40	13,107.20	1,638.40	4,960.00	2,681.60	0.00	3,852.80	38,406.40	198.40	44,377.60	5,542.40	2,816.00	146,348.80
NJ 4-COUNTY	116,139.20	16,032.00	9,555.20	57,299.20	6,694.40	24,806.40	7.577.60	4,736.00	15.027.20	211.462.40	2.995.20	497.177.60	33.664.00	29.715.20	1.032.870.40
									•		•				
		· · · · ·													
REGIONAL			·										-		
TOTAL	350,522,90	63.819.20	35,708,80	181.377.84	19,748,80	60.686.40	29,256.00	7,737 60	43 396 80	642 446 40	7 609 60	874 979 20	66 548 80	59 180 80	2 443 023 46
TUTAL	,	-,						.,	,		.,	5. 1,070.20			2, 140,020.40

regional population masks the significant increases in certain areas and dramatic decreases in others.

Urban areas and older suburbs are generally fully developed, and have tended to lose population during this period. New growth has been almost exclusively in emerging suburban communities, where farmland or woodlands are most often converted to new residential or commercial uses.

At the local level, these changes in development and the resulting changes in land use patterns can be dramatic. For example, the population in Northampton Township in Bucks County increased by over 19,000 people from 1970 to 1990, while developed land area increased by over 4,300 acres during this period. This new development represents more than 25% of the total area of the township and 40% of the open space available in the township as of 1970. In Winslow Township in Camden County, the population increased by almost 19,000 people from 1970 to 1990, while developed land area increased by almost 3,900 acres. It is the continuing development pressure in currently undeveloped suburban and rural areas that has resulted in the reduction in agriculture, the loss of open space, the need to create new infrastructure and the resulting congestion and transportation problems in the region. If current trends continue, land use patterns in 2020 will be even more dispersed, with certain negative impacts on the region.

LAND USE 1990-2020

Maintaining the current pace and type of development in the region into the future will cause dramatic changes in the landscape. Over the past twenty years, the Delaware Valley has witnessed a significant loss of open space and farmland as new development has pushed further into the suburban and rural fringe of the region. Urban areas have seen little or no growth, and in some cases major population losses, as farmlands and woodlands have been converted to new suburban developments.

Despite the available infrastructure to support jobs and population growth in Philadelphia, Camden, Trenton and other urban areas of the region, market trends and development forces to date have brought both residential and non-residential development into new areas. Existing transportation and water and sewer service capacity has become underutilized and deteriorated, as the new development necessitates additional costs to create new infrastructure. The net land use result is that while the region's population grew by just over one percent from 1970 to 1990, new development covered over seven percent of the region, or more than 174,000 acres.

As the region looks toward 2020, it is the distribution of jobs and people together with the form of that new development that will determine the impacts on the landscape. Population and employment forecasts for the region predict a modest

population growth for the region of 11% from 1990 to 2020, and a moderate employment growth of 20% during the 30year period. It is, however, the distribution of that population and employment within the counties and municipalities of the region that is significant. As seen in Figures II-3 and II-4, the forecasted population and employment changes vary tremendously by county. The regional population gain of 11% includes a 5% population loss in Philadelphia, no growth in Delaware County, and growth of up to 30% and 37%, respectively, in Chester and Gloucester counties. Employment growth also varies by county, from an 11% gain in Philadelphia to a 16% gain in Camden to a 43% gain in Gloucester County.

At the municipal level, these changes are even more dramatic. Considering current market trends, infrastructure changes, land prices and availability and ongoing development proposals, the trend direction for 2020 is toward the greatest growth at the ex-urban fringe of the region, where existing suburban development now changes to a rural character. Over the next 30 years, if current trends continue, this next ring of development would transform these rural communities into the new suburbia. Developed suburbs and cities would see slow or no growth. Development patterns will also likely continue to be primarily low-density, single-use design under this trend scenario. New corporate centers and office parks would tend to locate on fields or farmland along highway corridors or at interchange areas, while new residential development

would continue to be primarily singlefamily detached dispersed across the countryside.

In order to assess the land use impacts of this trend direction, DVRPC developed a model to calculate land consumption associated with residential and nonresidential growth and change. The model considers the population and employment forecasts by decade to 2020 for each of the region's 352 municipalities, the changes in household sizes over that period, vacancy rates, existing density and development patterns and likely density changes over time. Depending on local conditions, each municipality is assigned an average residential land use consumption factor and an average employment land use consumption factor that represents existing development trends. As new development occurs and density increases in a community over time, those land use factors may also shift over time to reflect the changing character and density.

The different types of municipalities, densities, and residential and employment land use factors are shown below in Table II-2.

There are eight different categories of communities recognized, reflecting the range of gross population density and general development pattern, plus one density category unique to Center City Philadelphia. The residential and employment factors for each category represent the average net residential or non-residential development density in those communities.


FIGURE II-3

FIGURE II-4



TABLE II-2 LAND USE CONSUMPTION FACTORS

MUNICIPALITY TYPE	POPULATION DENSITY (PERSONS/SQUARE MILE)	<u>Residential Factor</u> (Units/acre)	Employment Factor (employees/acre)
Center City	+ 15,000	50	500
Urban borough or city	7,500 - 14,999	12.5	50
Mature borough or city	4,000 - 7,499	7.7	25
Suburban borough or city	< 4,000	3.4	17
Urban township	+4,000	9.1	20
Mature township	2,500 - 3,999	3.7	9
Suburban township	750 - 2,499	2.4	5
Suburban fringe township	250 - 749	1.2	2.7
Rural township	< 250	0.9	2.7

Source: DVRPC, 1994

The results of the analysis are shown in Tables II-3 and II-4. For the region as a whole, the trend forecasts of population and employment would yield a total of 274,070 acres of additional land developed by 2020, the majority of which is now in farms or woodlands. This represents over 11% of the total area of the region, or almost 17% of the remaining undeveloped land. Over 180,000 acres of this total would be residential development and 93,346 would be for non-residential employment-related uses. Over 173,000 acres would be developed in the five Pennsylvania counties and just over 100,000 in the four New Jersey counties. Greatest consumption, as predicted, would be in the low-density high growth areas.

Past experience has shown that this model may actually be conservative, and that future development and land consumption may be even greater. In 1932, the Regional Plan of the Philadelphia Tri-State District was prepared by the Regional Planning Federation of the Philadelphia Tri-State District. That plan looked ahead 50 years, to explore conditions in the Delaware Valley by 1980. In 1932, the vast majority of the region was still in farmland or in low density rural development. Only 201 square miles, just over 5% of the region, was fully developed with residential, commercial and industrial uses. Looking into the future, that plan forecast a doubling of developed area, or an additional 131,100 acres of land developed by 1980, to serve an additional 3 million people. (See Figure II-5).

In reality, the population grew by just over 2 million, but the amount of developed land increased by over 400,000 acres.

TABLE II-3 IMPACT OF FORECASTED POPULATION ON LAND 1990-2020

COUNTY	1990 POPULATION	Forecasted 2020 POPULATION	Additional Housing Units Required 1990-2020	Acres Used for Additional Housing 1990-2020	Percent of County Developed for New Housing 1990-2020	Average Dwelling Units per Acre Developed 1990-2020
Bucks	541,174	680,896	71,452	39,842	10.2%	1.79
Chester	376,396	489,300	52,720	41,678	8.6%	1.27
Delaware	547,651	548,981	15,737	9,043	7.7%	1.75
Montgomery	678,111	759,070	47,138	25,428	8.2%	1.85
Philadelphia	1,585,577	1,509,154	17,246	1,045	1.2%	16.67
Center City	45,644	52,409	8,946	179	11.2%	50.0
PA TOTAL	3,728,909	3,987,401	204,293	117,036	8.4%	1.75
Burlington	395,066	471,039	41,715	16,917	3.3%	2.44
Camden	502,824	588,962	43,788	14,638	10.3%	3.03
Gloucester	230,082	314,971	38,038	18,257	8.8%	2.08
Mercer	325,824	388,452	31,114	13,876	9.6%	2.22
NJ TOTAL	1,453,796	1,763,424	154,655	63,688	6.3%	2.44
REGIONAL TOTAL	5,182,705	5,750,825	358,948	180,724	7.5%	2.0

TABLE II-4 IMPACT OF FORECASTED EMPLOYMENT ON LAND 1990-2020

COUNTY	1990 EMPLOYMENT	Forecasted 2020 EMPLOYMENT	Additional Acres Used for Employment 1990-2020	Percent of County Developed for New Employment 1990-2020	Average Employees Per Acre 1990-2020
Bucks	245,345	304,248	11,582	2.98%	5.09
Chester	197,752	274,053	18,693	3.86%	4.08
Delaware	230,459	259,345	5,054	4.28%	5.72
Montgomery	457,500	554,550	19,574	6.33%	4.96
Philadelphia	836,874	931,919	1,439	1.66%	66.05
Center City	287,869	356,992	138	8.66%	500.89
PA TOTAL	1,967,930	2,324,115	56,342	4.06%	6.32
Burlington	191,345	244,368	11,188	2.17%	4.74
Camden	227,933	264,584	3,893	2.74%	9.42
Gloucester	86,079	122,904	8,379	4.03%	4.39
Mercer	220,592	277,247	13,548	9.37%	4.18
NJ TOTAL	725,949	909,103	37,008	3.66%	4.95
REGIONAL TOTAL	2,693,879	3,233,218	93,350	3.90%	5.78



Source: Regional Plan of the Philadelphia Tri-State District, 1932
Thus, while the DIRECTION 2020 trend scenario is designed to show the results of continuing our current development practices, the future results may be even more severe than we can now imagine.

A view toward the 2020 trend scenario may also be gained by considering the existing zoning ordinances of the region's municipalities. For example, an analysis of five municipalities along the Route 322 corridor in western Chester County (Honeybrook borough, Honeybrook township, East Brandywine, West Brandywine and Downington) revealed that the current zoning there could potentially yield an additional 18,821 dwelling units and about 16 million square feet of additional office, commercial or residential space.

If fully built-out under this current zoning, this additional development would accommodate an additional 54,000 people and 46,000 employees. Such zoning significantly overextends the capacity needed to accommodate the likely growth of these areas. The population forecasts for 2020 project only an additional 10,905 people and 2,108 jobs in these five municipalities.

A similar analysis along a section of Route 322 in Gloucester County provided similar results. Four municipalities there (Logan, Harrison, Woolwich and Swedesboro) have zoned their communities to accommodate an additional 25,702 housing units and an incredible 133 <u>million</u> square feet of additional office, commercial or industrial space. Such zoning could accommodate 73,000 new residents in an area with a current population of only 13,345. The 133 million square feet of non-residential space could represent over 380,000 new workers, in an area with current employment of just 6,500.

Obviously, such a complete build-out scenario is not likely to occur. However, by providing such expansive zoning capacity, these communities have created the potential for significant future impacts on traffic, school enrollment, park needs, sewage and water facilities, natural and historic resources, farmland and rural landscapes, and the overall quality of life. These and other municipalities need to examine their current zoning ordinances and consider the type of future they desire. Revising zoning densities and regulations to better represent their vision is the first step toward a more realistic and manageable future.

DIRECTION 2020: CENTERS AND CORRIDORS

The trend direction and the associated land use impacts to 2020 are not inevitable. If citizens, municipal officials, county and state planners, and private sector developers and businesses wish to see a different future, one with more open space, less congestion and an improved quality of life, changes in current laws, regulations and policies can be implemented to make it happen.

Trend forecasts to 2020 predict a shrinking tax base, increased social costs and underused infrastructure in the cities and urban areas of the region, with increasing traffic congestion, limited mobility, the loss of open space and farmland and a diminishing supply of affordable housing in suburban and rural areas. If the challenge for the Delaware Valley is to create a more efficient, competitive and sustainable region for the future, improving the linkage between land use and transportation planning and facilities in both city and suburb is essential. Changing land use patterns of development is a key component to meeting the transportation and mobility needs of 2020.

For example, just a slight shift in the way we build our communities can have a dramatic impact on overall land use patterns and land consumption. If the future forecasts of population and employment occur as predicted, but with only a slight increase in density within each community, a significant amount of land can be preserved.

The land use consumption model was rerun using the same municipal distribution of population and employment, but with a minor adjustment to the land use consumption factors. The residential and employment factors were held consistent for Center City, urban townships, and urban or mature boroughs (see Table II-2). Projected densities were increased somewhat in the suburban boroughs and the mature, suburban, suburban fringe and rural townships. For example, in suburban townships residential density was increased from 2.4 units per acre to 3.2 units per acre. Rural residential density increased from .9 units per acre to 1.4 units per acre. Employment density increased from 5 employees per acre to 7 employees per acre in suburban townships and from 2.7 employees per acre to just over 4 per acre in suburban fringe and rural townships.

The net result is a projected reduction in land consumption to the year 2020 from 180,724 acres needed for housing to only 130,205 acres. Employment land use needs would decease from 93,350 to only 64,513 acres. This possible saving of almost 80,000 acres could be achieved with only a slight shift in development density within the projected trend forecast. If an alternative development pattern could be achieved with future growth areas shifted within the region, the land use savings could be much more significant.

GOALS FOR 2020

Defining that alternative future for 2020 is the first step toward change. The *Policy* Agenda identified by DVRPC would give priority to preserving and strengthening the existing resources of the region in order to create a more efficient and compact pattern of development. Investment in infrastructure would be used to encourage development within existing communities and appropriate growth areas, rather than further dispersion of land uses. Economic development strategies to stabilize and encourage growth in the urban centers of Philadelphia, Camden, Chester, Trenton and other established communities are essential.

The goals of the 2020 plan support concentrating new development within a hierarchy of existing and emerging centers and along those highway or transportation corridors that link a mix of land uses with transportation facilities. By concentrating development into existing and designated new growth centers and corridors, scarce resources can be better utilized and

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preserved and existing rural character can be maintained. Providing economic opportunities and a diversity of housing choices in these centers will ensure the future economic health of the region.

In order to be successful, these areas must have a sufficient mix of residential, commercial, employment and recreational opportunities to attract both residents and workers. Densities must be sufficient to make public transit feasible and be compact enough to accommodate pedestrians and bicycles. Alternatives to the automobile would become possible, reducing traffic congestion and improving the region's air quality.

At the same time, new development must be sensitive to the critical natural resources of the region, such as woodlands, stream corridors, groundwater recharge areas, floodplains and habitat areas. Preserving open space and productive farmland, and providing the park and recreational facilities needed for the future population, must go hand in hand with the development plan.

2020 CENTERS

The New Jersey State Development and Redevelopment Plan *Communities of Place* is built around the concept of development centers, the existing and future compact mixed-use communities where future growth should be focused. The policies of the State Plan are designed to help support and foster growth in these centers. The development pattern and history of the Delaware Valley region, in both Pennsylvania and New Jersey, is also tied to these communities, or centers.

The New Jersey Plan identifies a series of five different planning areas and five different types of centers, including urban centers, towns, regional centers, villages and hamlets. These are defined based on the physical size and density of each center.

Four different types of development centers have been identified for the Delaware Valley that differ somewhat from the definitions used in the State Plan, but reflect the diversity of communities in the region, as well as the different challenges and approaches needed to address changes in these centers. Centers in DIRECTION 2020 are defined based on existing physical size, forecasted growth, and social and economic conditions. These include Regional, County, Growth and Revitalized Centers. Specific centers in each category were determined by considering previous county and regional planning efforts, the New Jersey State Development and Redevelopment Plan, existing demographic and land use data, and long-range population and employment forecasts. The centers also integrate closely with the transportation planning corridors of the 2020 plan.

The definitions and criteria used to identify the centers of the plan are as follows. Centers identified by type and by county for Pennsylvania and New Jersey are on Table II–5 and are shown together on Map II–2.

REGIONAL CENTERS

Existing centers that serve a regional population with a stable concentration of people, employment and services.

- Regional focal point for employment, services, governmental or cultural activities with compact pattern of development
- Existing population base greater than 10,000 in immediate area
- Existing employment base greater than 10,000 in immediate area
- Employment density greater than 2,000 jobs per square mile in entire center
- Population and employment stability or growth over time
- Intermodal transportation center, with access via mass transit or intersections of major roadways
- Served by public water and sewer service

COUNTY CENTERS

Existing centers of importance within the county that provide a stable concentration of housing, jobs and services

- County focal point for employment and services with a compact pattern of development
- Balanced mix of residential and worker population
- Residential densities of suburban borough or greater (at least 4 units per acre in residential areas) or 3,000 persons per square mile in entire center
- Employment density greater than 2,000 jobs per square mile in entire center
- Provides service to surrounding rural area with commercial or other needs
- Significant retail center for surrounding residential development, but serves county population as well
- Local transportation center, with access via primary arterial and/or mass transit, and transportation and land use well integrated
- □ Public water and sewer service

GROWTH CENTERS

Emerging centers forecast for growth, which will see an increasing concentration of people, employment and services

Area of extensive new development between 1980 and 1990 and many current development proposals

- Population or employment growth forecast at least 50% higher than county or regional forecast to 2020
- Well served by existing transportation or planned and programmed transportation improvements
- □ Land area available for new development
- Forecast for both residential and employment growth as a mixed use center; combined forecast growth of jobs and residents increase by 15,000 to 2020
- Existing or proposed expansion of public sewer service

REVITALIZED CENTERS

Existing regional or county centers in need of directed action to reverse the decline in people or employment.

- Area focal point for employment, services or cultural activities that is receding in importance
- Compact pattern of development but vacancies or in-fill opportunities are available
- Population and employment densities and concentrations similar to regional centers
- □ Transportation access via primary arterial and/or mass transit
- Loss of population and/or employment greater than 5% over past decade, or forecast for no growth or continued losses to 2020
- □ Household income levels generally less than 75% that of county average

TABLE II-5 DVRPC YEAR 2020 DEVELOPMENT CENTERS

COUNTY	Regional Centers	County Centers	Growth Centers	Revitalized Centers	
Βυςκς	Doylestown Boro, Quakertown Boro	Newtown Boro, Sellersville/Perkasie	Oxford Valley (Middletown), Doylestown Township, Northampton, I-95/276 Interchange, Warrington	Warminster/ Hatboro (Montgomery County), Bristol Boro, Morrisville	
CHESTER	West Chester	Downingtown, Kennett Square, Oxford	Exton (West Whiteland), Great Valley (Tredyffrin), Uwchlan/Eagle	Coatesville, Phoenixville	
DELAWARE	Media, Radnor, Upper Darby	Newtown Square	Newtown Square Painters Crossroads (Birmingham/Concord), Middletown, Springfield		
MONTGOMERY	King of Prussia (Upper Merion), Willow Grove (Upper Moreland), Fort Washington/Ambler	Jenkintown, Bryn Mawr/Ardmore, Souderton/Telford (Bucks County)	Jenkintown, Bryn Mawr/Ardmore, Souderton/Telford (Bucks County) Upper Providence, Plymouth, Montgomery, Limerick, Conshohocken		
Philadelphia	Center City, University City/30th Street Station, Airport, Sports Complex/Naval Yard	Bustleton/Roosevelt Byberry/Franklin Mills, Broad/Olney	Central Waterfront	North Philadelphia, Central Germantown, American Street, South Waterfront, Naval Depot/Sears	
BURLINGTON	Mt. Holly, Moorestown	Bordentown, Browns Mills (Pemberton), Medford, Wrightstown	Mt. Laurel, Evesham	Burlington City, Route 130 Industrial Corridor	
CAMDEN	Cherry Hill, Haddonfield Boro, Berlin Boro/Town	Lindenwold	Voorhees, Winslow, Gloucester	Camden, Gloucester City	
GLOUCESTER	Glassboro/Pitman, Woodbury City	Swedesboro, Clayton, Williamstown (Monroe)	Logan/Woolwich, Deptford, Washington, Elk	Paulsboro, National Park	
Mercer	Trenton, Princeton Boro	Pennington, Hightstown	East Windsor, Hopewell, West Winsdor (Route 1)	South Trenton	



LAND USE PLAN FOR 2020

The 96 development centers of the region — regional, county, growth and revitalized — serve as the basis for the 2020 land use plan. Growth and stability within the centers is the first priority toward creating active, vibrant mixed-use communities, with a range of housing, employment and transportation options.

For regional and county centers, development policy should focus on selective infill of uses to complement the existing land use mix. This could mean encouraging new residential development in proximity to an employment center or introducing services or employment opportunities to support a residential neighborhood. Design should foster compact, walkable communities with bicycle and transit facilities and amenities.

Growth centers are those now at a crossroads to establish their future form. Growth centers are already facing a strong market demand, but must channel that growth to create new communities that are compact enough to be walkable, bikeable or served by transit, and that provide a range of housing types and employment opportunities for their residents.

Finally, revitalized centers face the greatest challenge to stem the flow of residents and jobs from their communities and rebuild their neighborhood and employment base through selective infill, redevelopment and new development.

The 2020 centers generally tend to fall along the highway or transit transportation corridors of the region, reflecting the clear linkage between land use development and transportation facilities. Future growth within these transportation corridors should not necessarily infill all areas, but should seek to improve and integrate existing uses, through better access management along the main roads, linkage of residential and commercial uses with sidewalks or paths, shared driveways and service roads, improved bus or rail stops, and sufficient density to support public transit. Intermodal connections and transportation centers should locate within the development centers to provide easy access for residents and employees.

Finally, development by the year 2020 should fall within the existing and proposed sewer service area boundaries and infill areas of the region. In most cases, these areas are already at least partially developed with a mix of low density residential and commercial uses. Infrastructure expansion to serve these areas would be permitted with concurrent efforts to coordinate land use planning that focuses on more compact, transit-friendly, and bicycle or pedestrian-oriented development.

The designated future growth areas, together with the identified centers, represent the proposed *regional growth boundary* where the most intense future suburban development will be encouraged. Additional infrastructure investments should be used to support growth in the centers and within these areas. New and infill development should seek to fit within the context of the area, clustering residential development to preserve open space where appropriate or providing a link between commercial uses, services and residential areas.

The *Regional Growth Boundary* is meant to foster the majority of the region's growth in those areas where infrastructure and services can be provided in an efficient and timely manner. The land within the growth boundary is or will be served by public water and sewer systems, highway capacity and transit services. New development can easily utilize this available capacity, or expand the systems as needed to provide additional capacity concurrent with the new development.

Public investment policies would channel public funds to maintain, repair and expand the existing systems within the regional growth boundary while limiting significant roadway capacity increases outside of the designated growth area. Transportation improvements outside of the growth areas would focus on system reconstruction, maintenance and targeted improvements.

The regional growth boundary builds on the existing strengths of the region, with sufficient land to accommodate the regional and county forecasted growth through the year 2020, while reducing development pressures on existing rural and farming communities. The potential future growth areas identified on the 2020 land use map are more than enough to meet the development needs in each county through the year 2020, but in a more compact and efficient manner.

Outside of these service areas, future land uses should remain primarily as farmland or rural in character. Areas in Agricultural Security or Development Areas should continue to expand the purchase of conservation easements as well as initiate other agricultural land use controls such as special zoning districts. New development should occur either within or adjacent to existing villages or hamlets, or as limited subdivision to support existing farms. New infrastructure investments that would trigger further growth in these areas should be limited (see Agriculture chapter for more detail).

Overlaid on all these areas are the existing and proposed open space areas of the region. Existing open space includes county and major municipal parks, state parks, forests and gamelands, and national parks and environmental centers. Proposed open space incorporates those forested areas, stream corridors and critical habitat areas needed to link open space resources, serve recreational needs, and protect natural resources. Open space is woven throughout the region — in urban, suburban and rural areas - to create a network of "greenways" and "blueways" that link forested areas and stream corridors with existing parks and population centers. Over 500,000 acres of proposed open space are identified in the network (see Open Space chapter for more detail).

The land use map for 2020, with existing development, centers and corridors, future growth areas, rural and farmland areas, and existing and proposed open space, is shown as Map II–3. Figure II–6 compares the land use distribution in 1990 to that proposed for 2020.



Figure II - 6 PROPOSED LAND USE - 2020



LAND USE - TRANSPORTATION LINKAGE

As an integrated land use and transportation plan for the year 2020, DIRECTION 2020 has recognized and responded to the regulations and policy objectives of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The ISTEA legislation has transformed transportation planning by providing the tools for a significantly strengthened metropolitan transportation planning process. By requiring a regional - or metropolitan - transportation plan, ISTEA has designated the MPO (metropolitan planning organization, in this region DVRPC) as the most appropriate body to prepare that plan.

The metropolitan transportation plan must address at least a 20-year planning horizon and include both long-range and shortrange strategies or actions that lead to "...the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods." Among other requirements, the plan must:

> "Reflect consideration of: the area's comprehensive long-range land use plan and metropolitan development objectives; national, state and local housing goals and strategies, community development and employment plans and strategies, and environmental resource plans; local, state, and national goals and objectives such as linking low income households

with employment opportunities; and the area's overall social, economic, environmental, and energy conservation goals and objectives." (23 CFR Part 450, Subpart C, Section 450.316[a][4])

DIRECTION 2020 provides an opportunity for DVRPC to update the region's longrange land use plan and utilize that plan to link the region's larger policy objectives with transportation planning. The land use map and plan for 2020 will therefore serve to guide the recommendations of the year 2020 transportation plan.

Guiding Regional Growth has defined a hierarchy of land use categories and centers for the region with objectives for managing future growth. One method to help influence those development objectives is to use infrastructure investments, particularly transportation improvements, as a tool to help foster, support, or even limit future growth. Infrastructure capacity is an essential determinant to guide future growth. By first identifying a preferred land use pattern as shown here, then targeting infrastructure investment, DVRPC can begin to better influence future growth patterns. Transportation improvements, in the different categories as described below, will be applied in the different land use categories as shown on Table II-6. The specific project recommendations of the 2020 transportation plan will be reviewed against the land use map and the matrix of Table II-6 to assure planning consistency and help to facilitate implementation of the land use goals.

TABLE II-6

TRANSPORTATION IMPROVEMENT MATRIX¹

	Roadway	Public Transit	Freight	Passenger Intermodal	Traffic Operations	Other Improvements ² or Facilities
EXISTING DEVELO	OPED AREAS	3				
Major Facilities Minor Facilities	s ⁴ O S	•	•			•
REGIONAL AND C	OUNTY CEN	ITERS				
Major Facilities Minor Facilities	s 0 s	•		•	•	•
REVITALIZED CEN	ITERS					
Major Facilities Minor Facilities	s () s	•		•		•
GROWTH CENTER	RS					· · · · · · · · · · · · · · · · · · ·
Major Facilities Minor Facilities	s () s	•		•		•
FUTURE GROWTH	I AREAS				·	
Major Facilities Minor Facilities	s O	0 0	0 0		0 0	•
EXISTING OR PRO	OPOSED OPE	N SPACE				
Major Facilities Minor Facilities	s s O	0			0	•
RURAL AND AGR	ICULTURAL	AREAS				
Major Facilities Minor Facilities	5 5	0	0	0	0	•

• Improvement type is appropriate in virtually all cases.

O Improvement type is appropriate under certain conditions.

Blank indicates improvement type is usually not appropriate.

- ¹ Travel Demand Management improvements are implemented regionwide and are not included here.
- ² Includes Safety and Environmental Improvements, Network Reconstruction and Maintenance, Enhancements and Amenities, and Bicycle and Pedestrian Improvements, which are appropriate in all areas.
- ³ Land use categories as specified in DIRECTION 2020 *Guiding Regional Growth*, DVRPC 1995.
- ⁴ Roadways and transit lines to be assigned to Major or Minor category designations.

Delaware Valley Regional Planning Commission, 1995

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TRANSPORTATION IMPROVEMENT CATEGORIES

Roadway Improvements: A significant increase in the capacity of a roadway to carry single-occupant vehicular traffic, such as a major widening or relocation; new roadways or interchange; or major traffic circle or intersection improvements.

Public Transit and Ridesharing: Transit and/or shared-ride facility capacity increases, such as high occupancy vehicle lanes; shuttle, car and vanpool services; or transit service improvements such as new stations, expanded service, or new equipment.

Travel Demand Management:

Coordinating the demand for transportation with the availability of facilities and services, giving preference to public transportation and shared ride mechanisms. Examples include transportation management associations (TMA's), special service districts or public/private partnerships.

Freight Movement Initiatives: Roadway or rail network improvements that address the unique needs of trucks and freight trains, such as bridge strengthening or raising overhead clearances; intermodal facilities; special truck lanes; or truck weigh-in or staging areas.

Passenger Intermodal Facilities:

Improvements to promote joint highway and public transit trips, such as park and ride lots, bus shelters or transportation centers, or improved transit station access. **Traffic Operations:** Minor modifications to the existing road network at spot locations or along minor stretches of a corridor, such as signs or signal improvements; turning lanes or jughandles; incident management; or minor reconstruction, realignment or intersection improvements.

Isolated Safety and Environmental Improvements: Targeted improvements to safety conditions such as improved lighting and signage; curbing, guard rail or median improvements; or noise barriers or wetland mitigation.

Network Reconstruction and

Maintenance: Essential maintenance of the existing network, including operating assistance to public transportation providers, including resurfacing, or rehabilitation of highways or bridges; drainage and culvert work; and public transit system maintenance.

Transportation Enhancements and

Amenities: Related recreational, environmental, or aesthetic amenities to the system, including rest areas; landscaping; and archaeological planning or historic preservation.

Bicycle and Pedestrian Improvements:

Facilities or services to increase the usage and improve the safety of walking or biking, including sidewalks or bicycle lanes; recreational bicycle paths including rail-to-trail conversions; crosswalks and signals for pedestrians; or bicycle parking facilities.

DEVELOPMENT IMPLEMENTATION

The Policy Agenda adopted as the framework for DIRECTION 2020 provides three specific action steps under the broader goal and issue area of Physical Form aimed at managing land use and growth in the region while encouraging and facilitating growth in appropriate locations. These action steps are:

- Encourage population and employment stability or growth in urbanized areas
- Encourage suburban growth in designated areas with adequate infrastructure
- Limit new infrastructure in rural areas

These action steps, in turn, provide a number of detailed implementation strategies appropriate for federal and state legislatures, federal and state agencies, cities, municipalities, counties and transportation providers. Additional action steps specific to open space, natural resource protection or farmland preservation are reflected in the open space and agricultural chapters of the Plan. Significant implementation strategies within other areas of the *Policy Agenda* such as economic development or housing are included here if they are essential for land use implementation. For other important, but related issues, such as traffic congestion, waste management, goods movement or historic preservation, refer to the *Policy Agenda*.

Congress or State Legislatures

- 1. Congress should restore the Historic Preservation Tax Credit to encourage investment in urban areas. The credits in place prior to the Tax Reform Act of 1986 were used extensively by developers, particularly in Philadelphia, to restore and rehabilitate many older and historic buildings for new uses.
- 2. States should adopt legislation and federal and state regulatory agencies should adopt or revise regulations aimed at encouraging the reuse of old industrial sites rather than new development in inappropriate areas. Clear guidelines for cleanup measures based on the risks and the use of the property should be set that protect surrounding residents; the liability of innocent parties not responsible for the pollution but involved in its cleanup should be limited; and a loan fund and industrial land recycling fund to aid industrial site cleanups should be established.
- 3. The Commonwealth of Pennsylvania should implement growth management legislation, (which exists in New Jersey) that would provide a legal underpinning for counties and municipalities to adopt land use policies that are coordinated with county, regional and state planning goals. DVRPC and county planning offices should provide technical assistance to local governments.
- 4. The States of New Jersey and Pennsylvania should enact, and counties and municipalities should implement, county-level *Transfer of Development Rights* (TDR)

legislation that designates appropriate rural areas and those areas without infrastructure as *sending* areas and emerging and existing center and corridor areas with adequate infrastructure as *receiving* areas. Municipal TDR is now authorized in the Pennsylvania suburban counties but only within Burlington County in New Jersey.

- 5. Pennsylvania and New Jersey should enact enabling legislation permitting counties and municipalities to adopt and implement an *Adequate Public Facilities Ordinance*. Such ordinances could act as an enforceable legal instrument requiring that necessary water and sewer infrastructure, schools, and other public services are provided for and in place at the time of development.
- 6. State enabling legislation for planning in Pennsylvania and New Jersey should assign counties the authority to review, approve or deny projects of regional significance and to establish Urban Growth Boundaries (UGB) or Community Development Boundaries to preserve rural areas. New or expanded infrastructure facilities would not be built outside the UGB until development opportunities within the UGB are depleted.
- 7. State legislatures should consider tax reform to reduce the municipal dependence on real estate taxes and to provide additional revenue options for local governments, as proposed for Pennsylvania. Reducing the reliance on real estate taxes will reduce the desire to zone for commercial development in inappropriate areas in order to increase local revenues.
- 8. The Pennsylvania state legislature should authorize the five southeastern counties to adopt a dedicated regional wage tax to enable reduced property taxes while funding education, public services and infrastructure improvements and to *level the playing field* between Philadelphia and the suburban counties.

Federal or State Agencies

- 1. State and federal regulatory agencies should provide priority funding for infrastructure maintenance and improvements, including sewer, water, roads and parks in urbanized areas and seek to locate public offices, employees and facilities in the urban areas. Local governments must provide adequate services, including police, fire, sanitation, recreation and school systems.
- 2. **PADER and NJDEP could halt the spread of** *leap-frog* **development** by strengthening the rules for on-lot treatment or preventing new residential development if existing sewer and water facilities have insufficient capacity to treat the new development. Local sewage facilities plans need to be coordinated with comprehensive and master plans to limit growth in areas without adequate infrastructure.

- 3. PADER, NJDEP and municipal governments should prohibit the use of package sewage treatment plants in rural areas unless maintenance and oversight responsibilities are clearly defined. These facilities cannot be expanded and often are poorly managed resulting in below standard performance. Local governments often have to assume control of the facility and all associated costs. Groundwater protection programs are essential, particularly in areas without public water systems.
- 4. PADER, DRBC, DVRPC and the counties should explore the establishment of regional watershed authorities in Pennsylvania to set policies and review new development proposals affecting ground and surface water resources. Such a regional watershed authority, similar to the Tri-County Water Quality Management Board in New Jersey, should also establish and maintain a regional water quality management plan.
- 5. State agencies, counties and municipalities in New Jersey should adhere to the stated goals and strategies of the State Development and Redevelopment Plan. The Office of State Planning, DVRPC and county planning offices should provide technical planning assistance to municipalities.

Cities and Urban Areas

- 1. Cities and municipalities should utilize all available state and federal funding programs in conjunction with a local capital improvements program to revitalize residential neighborhoods in urbanized areas. Social services programs should be linked with neighborhood preservation and housing assistance programs to encourage homeownership opportunities. Municipal zoning regulations should encourage infill development and mixed-uses where appropriate, stressing good urban design and creation of local parks and green spaces.
- 2. The City of Philadelphia and other urban centers should create or expand urban enterprise zones as tax incentives, coupled with targeted efforts to improve police and sanitation services, safety and the image of the area. The Philadelphia and Camden federal "empowerment" zone designation is an opportunity to target resources to priority neighborhoods in these two cities.
- 3. The Philadelphia City Planning Commission and Streets Department should continue to improve the overall street life and image of Philadelphia, particularly in the area of the Convention Center, Avenue of the Arts, and the historic districts. Encourage activity such as cafes or retail at street level and use special district or tax increment financing for street furniture, facade improvements, cleaning and patrolling. The Center City District has been very successful to date in addressing many of these issues.
- 4. Urbanized areas should expand their work with business groups (such as Chambers of Commerce and merchants associations) to promote business improvement districts.

These organizations can be a source of funding for business district improvements, and can prioritize and carry out the goals of the business community. Public-private development opportunities should be pursued.

5. Urban area housing and development agencies should acquire vacant properties and market them at reduced costs to interested developers with bonuses (such as increased densities or streamlining of the permit and review process) to undertake in-fill projects on vacant urban tracts. Local jurisdictions should examine their existing statutes and ordinances to remove barriers to such programs.

Counties

- 1. Counties should designate Urban Growth Boundaries (UGB) or Community Development Boundaries within their comprehensive plans consistent with the DVRPC regional growth boundary that contain only those land areas served or projected to be served by adequate infrastructure and ensure that development policy is consistent with those plans.
- 2. Counties should encourage municipalities to utilize existing infrastructure capacity before constructing new capacity. They should also initiate comprehensive planning analyses to determine the location of growth areas and the anticipated residential and commercial needs for infrastructure and public services within. These plans should be consistent with regional plans.
- 3. County industrial development corporations should create and appropriately locate industrial parks specially geared toward high technology and other growth industries which are known to outperform other industries in terms of employment generation, economic growth, productivity, product and process innovation and invention, and international trade. Urban enterprise zones should continue to be specifically marketed.
- 4. Counties should continue to provide technical planning assistance to municipalities, assure consistency among municipal, county and regional plans, and be prepared to assume additional planning and regulatory authority if so assigned by their respective State legislatures.

Municipalities

1. Local land use, transportation, and sewage facility plans should be consistent with state, regional and county plans. Counties and municipalities should review and revise their comprehensive plans and zoning regulations to direct future development to areas with adequate infrastructure.

- 2. Municipal zoning regulations must be revised to encourage residential growth and development of employment centers within existing and emerging centers and corridors by incorporating techniques such as clustering, density bonus provisions, village zoning, planned unit development, shared municipal planning and zoning, station area overlay zones, and more efficient and expedited permitting. These centers should service the retail, service, and transportation needs of the surrounding rural area.
- 3. Municipalities should encourage mixed-use development to provide opportunities to live closer to work and allow alternative housing arrangements such as shared housing, accessory apartments, or conversions from commercial to residential. Clustering and zero-lot line development in certain areas can reduce development costs, accommodate mixed-use projects, and help protect open spaces.
- 4. Grant density bonuses for developer improvements, such as a transit center or locating adjacent to a regional rail station. An overlay zone or special district may be created at an intersection or around a rail station, to allow more intense and efficient use of land, a unique mix of uses, or to require the provision of amenities such as bus stops or shelters. Planned unit developments should be encouraged to coordinate development of larger tracts of land with new or expanded transit service and a mix of compatible uses.
- 5. Municipalities in Pennsylvania, with technical assistance from counties, should investigate the use of Transfer of Development Rights (TDR) programs as a means to maintain agricultural viability and rural character and limit new infrastructure development. Receiving areas should be established in areas with adequate existing water, sewer and transportation infrastructure, while sending areas should be those prime agricultural and rural areas without the necessary infrastructure to support development. While TDR is authorized with limitations in Pennsylvania, the New Jersey legislature should authorize TDR beyond Burlington County.
- 6. Municipal governments should amend zoning ordinances to preserve prime agricultural land in rural areas. These lands should be zoned exclusively for *agriculture* rather than large-lot residential or commercial. Sliding scale or net-lot averaging techniques could be used to permit limited development. Existing agricultural preservation programs, such as Agricultural Security Districts and purchase of development rights, should be expanded in priority areas.
- 7. Counties and municipalities should require that developers conduct a full impact analysis of significant development proposals, including the fiscal impacts of providing new services and infrastructure to the proposed development. Reasonable and equitable impact fee programs should be established where appropriate to pay the necessary cost of these improvements such as the transportation improvements permitted under Pennsylvania's Planning Code and the roads, water, sewer and drainage improvements

authorized under New Jersey's land use law. Regulations in the Pennsylvania Municipal Planning Code should be improved to provide consistency and coordination between Impact Fees and the Transportation Partnership Act.

Transportation Providers

- 1. SEPTA, NJ TRANSIT, PATCO and other transit providers should continue to maintain their existing services and seek to provide more flexible services in areas designated for future suburban growth. State DOTs should work to reduce local congestion conditions in center and corridor areas in order to make those areas more attractive for residents and employers. Municipal zoning ordinances should require pedestrian, bicycle and transit-friendly urban design.
- 2. SEPTA, NJ TRANSIT and PATCO should continue to explore joint development projects with municipalities and private developers on land surrounding transit stations. A higher-density mixed use development, which could include parking structures, will serve to increase ridership while providing an economic benefit to these communities.
- 3. Transit agencies should promote transit-friendly and accesible design of new developments by defining and advocating these principles (such as the NJ Transit report "Planning for Transit-Friendly Land Use", 1994) and by working with cities and municipalities to review subdivision and land development proposals.
- 4. PennDOT and NJDOT should continue to work closely with DVRPC through the TIP process and development of state capital programs to assure that transportation investments are appropriate to the land use categories as designated in the regional plan.

III OPEN SPACE





INTRODUCTION

Of the almost 2.5 million acres that comprise the Delaware Valley, almost 70% still remains as "open space," incorporating park and recreation areas, farmland, woodlands, vacant areas and open water. These open spaces represent a rich mosaic in the region, including a land and water natural resource base of rivers, streams, lakes, wetlands, estuaries, floodplains, steep slopes, pine barrens and woodlands. Existing open space also includes public and private parks and recreation areas, owned and operated by federal, state, county, municipal and private entities.

This extensive and diverse park system ranges from small neighborhood parks within easy reach of the urban population to such expansive natural forest preserves as the New Jersey Pine Barrens. However, despite the existing park network, the region lacks many of the facilities needed for such popular outdoor recreation activities as walking, picnicking, sightseeing, bird watching, nature walking, and fishing. The two major rivers of the region, the Delaware and Schuylkill, have very limited opportunity for public access and recreation. While the 1993 edition of the PLACES RATED ALMANAC ranks the Philadelphia region as the third best place to live in the country — first among the ten largest metropolitan areas - we are only 81st among the 343 metros studied with respect to recreational opportunities or 7th among the top 10 metros.

The Delaware Valley region is also now at a crossroads, as development pressures on

the region's remaining undeveloped open spaces may limit the ability to protect the habitat and natural resource values of these areas or to secure these areas for recreational use. The regional population growth forecast of 11% is fairly moderate, but in the areas with the greatest amount of unprotected open space — such as Bucks, Chester or Gloucester counties growth pressures and population forecasts are much higher.

PLANNING APPROACH

Planning for open space in the region must recognize the different types and functions of existing resources. Open space may serve an active recreational function such as ball fields, tennis courts or playgrounds. It may also serve a more passive recreational function, for uses such as bird watching, picnicking or fishing. Open space may provide critical habitat area for different species, or act as a floodplain overflow, groundwater recharge or water retention area. Open space can also help to define the visual character of an area or provide the rich bounty of agriculture.

This element of the 2020 plan has two primary purposes. The first concern is the preservation and protection of the critical natural resources of the region. A complimentary objective is to use these areas, in part, to meet the future active and passive recreational needs of the growing population. Preservation of farming as a way of life through the permanent protection of prime farmland is a related open space issue but is addressed in the Agriculture chapter of this plan. Preparation of the open space element involved three steps:

- The existing parks and natural resources were identified, mapped and analyzed with respect to existing land uses and the emerging population centers and growth areas identified in the Plan. Natural resource areas mapped include streams, rivers, lakes, floodplains, wetlands, and woodlands of ten acres or more that provide a continuous canopy of solid tree cover. Park resources include publicly-owned facilities that provide either active or passive recreation, including national parks or environmental centers, state parks, forests or gamelands, county parks and municipal parks. Private recreational facilities such as golf courses or country clubs were not included. Private conservation areas and existing farmland were also not included here. Permanently protected agricultural preservation easements were shown as such.
- Projections were then made of the likely demand for recreational open space for the year 2020. A variety of different methods and standards exist to assess recreational demand and needs. Three different approaches were utilized to represent the range of statistical analyses available. The deficits between existing protected areas and future needs were then

calculated under each approach to serve as a quantitative guide for state, county and local planners in the final selection of open spaces for preservation.

Finally, a sketch plan was created to identify existing natural resources for protection that could also potentially be used for recreational purposes. This was accomplished taking into account the nature of the resource and the likely location of the future demand for recreational open space. The intention was to provide a regional picture to serve as a guide to planners at the state, county and local level to help them make their own natural resource or recreational open space plans.

EXISTING OPEN SPACE RESOURCES

The existing natural resources and public parks of the region are represented on Maps III-1 and III-2. Map III-1 includes the rivers, lakes, stream corridors and wetlands of the region, as well as the existing woodlands and flood-prone areas. Map III-2 presents public parkland held by federal, state, county or municipal agencies by ownership.

Table III–1 below indicates by county and by public ownership the existing public park resources in the region.





TABLE III-1

EXISTING PARK RESOURCES (IN ACRES)¹

County	Federal	State	County	Municipal	Total Public Park Area	% of Total Area	Park Acreage Per 1,000 Population
Bucks	0	12,838	6,051	2,717	21,606	5.4	39.9
Chester	1,196	5,899	3,658	3,359	14,112	2.9	37.5
Delaware	600	2,882	646	1,871	5,999	5.1	11.0
Montgomery	2,250	4,301	5,247	5,606	17,404	5.6	25.7
Philadelphia	343	275	8,900	1,137	10,655	12.3	6.7
PA TOTAL	4,389	26,195	24,502	14,690	69,776	5.0	18.7
Burlington	2,367	130,278	247	3,956	138,848	26.6	351.5
Camden	0	17,746	1,946	2,241	21,933	15.4	43.6
Gloucester	0	5,837	1,612	2,905	10,354	5.0	45.0
Mercer	0	2,417	4,622	3,487	10,526	7.3	32.3
NJ TOTAL	2,367	156,278	8,427	12,589	181,661	18.0	124.9
REGION TOTAL	6,756	182,473	32,929	27,279	251,437	10.5	48.6

The following points are worth noting about Table III-1:

Public parks represent just over 10% of the region's area, but the analysis shows that this area is not very well distributed. Whereas Burlington and Camden counties have percentages as high as 26% and 15%, Delaware and

Chester are as low as 5.1% and 2.9%. Furthermore, even within counties or the City of Philadelphia open space is often not well distributed among communities or neighborhoods.

 Comparing total park acreage per 1,000 population may be more illustrative than total area. While

¹ Park resources under federal and state ownership are based on 1990 data from the Pennsylvania Department of Environmental Resources for Pennsylvania, and 1993 data from the Greenacres Program for New Jersey. Park resources under county and municipal ownership are based on information obtained from the respective county planning departments.

Chester County has only 2.9% of its area in parkland, the population-based ratio is relatively high at 37.5 acres per 1,000. In comparison, Philadelphia has 12.3% of its area as parkland, but the population ratio is only 6.7 acres per 1,000 residents. The Fairmount Park system is included on this table as Philadelphia county parks; other recreational facilities in the city are included as municipal parks although the analysis of City resources here considers both systems together.

- Though New Jersey, particularly Burlington County, has a high open space acreage per 1,000 population, there are few large protected open spaces near population centers. Much of this area is accounted for by the Pine Barrens which is primarily for conservation purposes rather than for recreational use.
- There are additional areas in the region that remain in private ownership but are held for permanent conservation or preservation purposes through restrictive easements or other means. These areas are not shown on the map but can serve a critical function as linkages between park areas or as preservation of valuable habitat. There are also many private recreational areas such as private golf courses or schools which serve a recreational function. While these areas are an important component of the existing picture, they are not included in the inventory of public open space since in many cases their future status remains uncertain.

There are few large stretches of protected open space on waterfronts. The stream corridor network of the region is a valuable natural resource that can also provide the opportunity for outdoor recreation. Philadelphia county is the best endowed in this respect with waterfront parks located along many of its rivers and creeks within easy reach of population concentrations. New Jersey on the other hand has few such waterfront parks.

FUTURE RECREATIONAL NEEDS ANALYSIS

Assessing future recreational needs can be a simple or complex task. There are a variety of methods and approaches that have been used by different agencies to consider what is the necessary and appropriate amount and type of park and recreational facilities in a given region. While certain assessments relate open space needs to population, both existing and projected for the future, other approaches identify needs based solely on the land resources.

What each of the various assessment methods does hold in common is the setting of a goal or "standard" for parks or open space. Many of these "standards" grew out of the work done by the National Recreation and Park Association, which developed ideal standards for different types of parks and for specific recreational facilities. These standards each relate to an ideal park acreage or number of facilities per 1,000 population. For example, the national standards recommend 2.5 acres of neighborhood parks, 5.0 acres of large urban parks and 20.0 acres of regional parks per 1,000 population. Standards similar to these, modified for the Delaware Valley, are one approach used in this analysis.

Another approach to assessing open space needs is that developed by the State of New Jersey, in their "Balanced Land Use Guidelines." This approach sets a goal, or "standard" of recreational open space to be preserved by different levels of government as a percentage of total land area.

The primary difference in these two approaches is that the population-based standard sets a goal for a finite period of time, based on the existing or projected population, while the land use standard sets its goal in perpetuity, recognizing that the land is finite and any preservation efforts now will benefit all generations to follow. Neither method, though, relates the goals or standards to the natural resources of the area. These assessments are for recreational areas only.

In order to assess park and recreational needs in the Delaware Valley region, three different analyses have been completed which recognize these different approaches. The first assessment utilizes population-based standards developed by DVRPC for the Delaware Valley. This method considers the population forecasts by municipality to the year 2020 and assigns park standards based on the average population densities in each municipality, summed to the county level. A population-density standard more accurately reflects the different ways these parks are used in different areas, the varied accessibility in different areas, and the likely relative cost and ease of acquiring open space for recreation in different areas. Thus, the standards used for Philadelphia or a higher density county such as Camden will be different from those used for lower density counties such as Chester or Burlington.

This method also sets different standards for the SUB-REGIONAL, or county parks that meet a more local recreational demand, and the REGIONAL, or state and federal facilities including parks, forests and gamelands that serve a larger regional recreational demand. The sub-regional requirements are therefore presented for each county while the regional requirements are grouped at the state level. While some parks do serve a multi-county population, the analysis focuses on the provision of recreational park areas by each county. A further analysis of municipal or local park needs is not included here except for Philadelphia, but population-based standards that could be used for municipal park planning are included below.

STANDARDS FOR PARKS AND RECREATIONAL AREAS (acres/1000 pop.)					
	I				
CATEGORY	> 10,000	5,000 - 9,999	500 - 4,999	0 - 499	REGION
Regional (State)	-	-	-	-	25
Sub-regional (County)	4.0	6.0	8.0	10.0	-
Local (Municipal) ²	3.08	6.17	8.0	6.0	. =

The second method of analysis utilized the "Balanced Land Use Guidelines" as specified in the 1994 New Jersey Open Space and Outdoor Recreation Plan. As noted, this method defines a standard for recreational land to be set aside in perpetuity irrespective of current or projected population forecasts. From this perspective, even the long-range 2020 population forecasts would be considered as short-term, and irrelevant to the analysis. The balanced land use guidelines determine the developable land in each

county, defined as the total area excluding wetlands, steep slopes (over 12%), and state or federal open space. A goal for county-owned parks or recreational land is assigned as a percentage of the remaining developable land. Separate goals for state and federally-owned recreational land are assigned to the total area of the region. Municipal goals are also provided in the State Plan and are included below, but are not included as part of the analysis. The balanced land use guidelines are as follows:

NEW JERSEY BALANCED LAND USE GUIDELINES			
CATEGORY	STANDARD		
Federal	4% of the total area of the state (region)		
State	10% of the total area of the state (region)		
County	7% of the total developable area of the county 3		
Municipal	3% of the total developable area of the municipality ⁴		

² Includes community parks and playgrounds, neighborhood parks and playgrounds, vest pocket parks and tot lots.

³ and ⁴ Total developable area includes existing developed area, plus all other area excluding wetlands, slopes over 12% and state or federal open space.
OPEN SPACE

The third analysis utilized the specific county, state and federal standards of the New Jersey Balanced Land Use Guidelines but adjusted the analysis to recognize the existing patterns of land use and development in the region. Thus, in addition to removing existing state or federal parks and steep slopes and wetlands to yield developable area, the adjusted method further removed county and municipal parks, farmland preservation easements, existing developed areas and the "Preservation" areas, as defined by the Pinelands Plan of New Jersey. Existing developed areas include all residential, manufacturing, transportation, utility, commercial, community service and military land uses as identified by aerial photographs on DVRPC's 1990 land cover analysis of the region. "Preservation" areas within the PINELANDS COMPREHENSIVE MANAGEMENT PLAN are defined as "especially vulnerable to the environmental degradation of surface and ground waters which would be occasioned by the improper development or use thereof" and are managed to remain undisturbed and protected in perpetuity. Farmland preservation easements are those areas where development rights have been purchased, and must remain in agricultural use only.

The adjusted land use guidelines approach acknowledges that it may be difficult, if not impossible, in certain counties to meet the ideal standard because of the extensive development that already exists. Adjusting out for existing development or land otherwise preserved allows each county to consider their open space goals from the perspective of remaining available land that could be acquired for recreational open space.

FUTURE RECREATIONAL NEEDS RESULTS

Population-Based Standards

Table III-2 provides the results of the population-based needs assessment. DVRPC-adopted population forecasts by municipality for the year 2020 were reviewed to determine total population in each density category by county. The appropriate density standards were applied and summed to calculate the sub-regional or individual county park requirements in 2020. The regional or state and federal park requirements are calculated based on the total population in each of the Pennsylvania and New Jersey portions of the region.

This analysis shows a total need for 26,186 acres of county parks in Pennsylvania and 13,309 acres of county parks in New Jersey in the year 2020. Almost 100,000 acres of state and federal parks will be needed in Pennsylvania and 44,075 will be needed in New Jersey by 2020.

As the standards vary by density, becoming higher in lower density areas, it is interesting to note that the total need is higher in low-density Chester County than in higher-density Delaware County, despite the higher total population in Delaware. Or that Philadelphia, with almost twice the population of Montgomery County, will need only 14% more park space.

	POPULA	TION BY D	ENSITY C	ATEGORY			
COUNTY	0 to 499	500 to 4,999	5,000 to 9,999	ABOVE 10,000	Тотаl Рор. 2020	PARK PARK REQUIREMENT (ACRES)	REGIONAL PARK REQUIREMENT (ACRES)
Bucks	95,219	563,884	21,793	0	680,896	5,594	
Chester	117,480	336,440	17,040	18,340	489,300	4,042	
Delaware	4,200	277,700	247,581	19,500	548,981	3,827	
Montgomery	30,350	630,820	97,900	0	759,070	5,937	
Philadelphia (County) <i>Philadelphia (Local)</i>	0	0	374,558	1,134,596	1,509,154	6,786 <i>5,806</i> ⁵	
PA TOTAL	-	-	-	-	3,987,401	26,186	99,675
Burlington	62,805	388,668	19,566	0	471,039	3,855	
Camden	38	398,255	96,275	94,394	588,962	4,142	
Gloucester	29,390	274,625	10,956	0	314,971	2,557	
Mercer	19,311	265,601	11,658	91,882	388,452	2,755	
NJ TOTAL					1,763,424	13,309	44,075
REGION TOTAL					5,750,825	39,495	143,750

TABLE III-2 PARK REQUIREMENTS TO 2020 (Based on Population Forecasts)

It is also important to note that this analysis only looks at needs to the year 2020.

Table III–3 shows the projected demandsupply deficits and surpluses for recreational open space based on the population standards. Calculations were based on a comparison of the needs of the 2020 population shown in Table III–2, with existing protected park areas shown in Table III–1. In this table too, the park needs are analyzed under the regional and sub-regional categories as described above. Adequacy of sub-regional parks includes the available county park acreage and so are compared to needs based on the forecasted county population in 2020.

⁵*Philadelphia local park needs are not included in the sub-regional totals.*

TABLE III-3

PARK AND RECREATION AREA DEFICITS AND SURPLUSES TO 2020

	DEFICITS/SURPLUSES (-/+)			
COUNTY	SUB-REGIONAL (acres)	REGIONAL (acres)		
Bucks	+ 457			
Chester	- 384	~		
Delaware	- 3,181			
Montgomery	- 690			
Philadelphia (County) <i>Philadelphia (Local)</i>	+ 2,114 - <i>4,669</i>			
PA TOTAL	- 4,285	- 69,091		
Camden	- 2,196			
Gloucester	- 945			
Mercer	+ 1,867			
NJ TOTAL	- 6,749	+ 114,570		
REGION TOTAL	- 11,034	- 69,091		

The smaller municipal parks have been excluded from this analysis except in Philadelphia since the focus here is on the kind of outdoor recreational activities that require more extensive open spaces, and on habitat and natural resource areas. Furthermore, an excess of these smaller parks does not make up for a deficit in sub-regional and regional parks since they support a different kind of activity. It should also be noted that sub-regional surpluses in one county do not make up for deficits in others for reasons of accessibility. Thus, in summing up the deficits for the region, the surpluses are ignored. Philadelphia local park needs are

also not included in the regional or subregional totals.

The results of this analysis suggest that Bucks, Philadelphia and Mercer counties have sufficient public county parks to serve their population needs through the year 2020. However, while Philadelphia may show a surplus of sub-regional or county parks (the Fairmount Park system), there is a significant deficit of local or neighborhood facilities (the Department of Recreation). Chester, Montgomery and Gloucester counties would require modest park additions of up to 945 acres. Delaware, Burlington and Camden would require additional county parkland of 2,000 acres or more for a total net deficit of 11,034 acres of county parks.

Such a view, however, would not factor in the available state or federal parkland, nor would it account for the local need for park and recreation facilities. In Pennsylvania, the standard of 25 acres per 1,000 population for regional parkland would yield a projected deficit of 69,091 acres in 2020. In New Jersey, on the other hand, the same standard yields a surplus of 114,570 acres due to the extensive state forest holdings in southern Burlington County. This method does not, however, provide credit for surpluses at one level of government to make up for deficits at another level. Thus, the net deficit for state and federal parks is 69,091 acres using the population-based standards. This regional need in Pennsylvania should be met primarily by the State, via the acquisition and development of additional state parks, forests and gamelands in southeastern Pennsylvania. While the deficit and need is meant to serve the entire five-county region, the location of any new facilities should also be sensitive to the distribution and density of population and the ease of accessibility of these facilities.

Balanced Land Use Guidelines

Applying the New Jersey balanced land use guidelines to the nine counties of the Delaware Valley yields the results presented in Table III–4. For each county, the federal and state parkland as identified in Table III–1 is subtracted from the total area of the county, together with the identified steep slopes or wetlands, to yield the "developable" land. A standard of 7% is then applied as the county goal. The available county parkland is then subtracted from this goal to determine the deficit or surplus. As noted, this method does not incorporate existing development patterns, existing or projected population, or a specific timeframe. The goal is for the total area needed in perpetuity.

Under this approach, all counties except Philadelphia present a deficit when compared to the 7% goal although local park needs in Philadelphia do present a deficit. In the Pennsylvania suburbs, the deficits range from 7,265 additional acres of county parks needed in Delaware County to 29,172 additional acres needed in Chester County. In New Jersey, deficits range from 4,294 acres of county parks needed in Mercer County to 25,779 acres needed in Burlington County.

The state goal of 10% of the total area of the region represents a need for 138,637 acres in Pennsylvania and a net deficit of 112,442 acres of state land in Pennsylvania. The New Jersey State goal of 100,973 acres is more than exceeded, providing a surplus of 55,305 acres for the New Jersey portion of the region.

The federal goal of 4% of the total area of the region would require 55,455 acres in Pennsylvania, with a net existing deficit of over 50,000 acres. The 40,389 acres needed in New Jersey yields an existing net deficit of 38,022 acres. Again, surpluses in one county or of state or federal parklands do not serve the deficits in another county or another state.

TABLE III-4 **OPEN SPACE NEEDS Based on** NEW JERSEY BALANCED LAND USE GUIDELINES

COUNTY	AREA	FED/STATE	SLOPES/WETLANDS ¹	DEVELOPABLE	7%	DEFICIT/
	А	- F/S	- S/W	= D	COUNTY GOAL	SURFLUS
Bucks	389,056	12,838	10,144	366,074	25,625	- 19,574
Chester	483,776	7,095	7,676	469,005	32,830	- 29,172
Delaware	118,080	3,482	1,582	113,016	7,911	- 7,265
Montgomery	308,992	6,551	3,493	298,948	20,926	- 15,679
Philadelphia	86,464	618	747	85,099	5,957	+ 2 ,943
Philadelphia (Local)					2,553 a.	- 1,416 a.
PA TOTAL	1,386,368	30,584		· · · · · · · · · · · · · · · · · · ·	138,637 b.	-112,442 b.
					55,455 c.	- 51,066 c.
Burlington	514,880	132,645	10,432	371,803	26,026	- 25,779
Camden	142,272	17,746	14,798	109,728	7,681	- 5,735
Gloucester	208,064	5,837	13,164	189,063	13,234	- 11,622
Mercer	144,516	2,417	16,045	126,054	8,824	- 4,294
NJ TOTAL	1,009,732	158,645			100,973 b.	+ 55,305 b.
					40,389 c.	- 38,022 c.

¹ PA counties exclude wetlands only; NJ counties exclude both slopes and wetlands
^{a.} Municipal goal (3%) and deficit
^{b.} State goal (10%) and deficit/surplus
^{c.} Federal goal (4%) and deficit/surplus

Adjusted Land Use Guidelines

The third analysis of recreational open space needs begins with the New Jersey balanced land use guidelines, then provides adjustments to the method to take into account existing development patterns and land use. The adjusted method applies the 7% county goal to the <u>remaining</u> <u>developable</u> land of the county, rather than the <u>total developable</u> area.

Remaining, or existing developable area is determined by removing existing federal, state, county and municipal state parks, steep slopes and wetlands, existing farmland preservation areas and all existing developed area from the total area of the county. Existing developed area, as determined on 1990 aerial photographs, include all residential, manufacturing, transportation, utility, commercial, community service and military land uses. In addition, the "Preservation" areas of the Pinelands Plan are also removed from the developable total. While private conservation lands are not factored into this analysis, they should also be removed from the developable total if permanently protected.

The net result, or *"remaining developable area,"* is only a fraction of the total developable area determined by the original method. Applying the 7% standard to the remaining developable area of each county thus yields a very different result. The analysis first considers the adequacy of existing resources and then applies the standard to the remaining developable area.

As seen in Table III–5, Philadelphia is the only county to meet or exceed the 7% standard comparing existing parks to existing development although the analysis of local recreational facilities in Philadelphia indicates a small deficit. Existing park resources fall short of the 7% goal in all other counties; only Mercer County comes close with 5.9% of existing developed or preserved area as county parks. In Pennsylvania, existing state and federal parks fall short of the goals while New Jersey state parks, representing over 25% of existing developed or preserved areas, far exceeds the 10% goal.

The analysis of future needs, based on the remaining developable area, still points to significant open space deficits in most counties. Only Philadelphia has available capacity to meet future needs, although this open space may not be ideally located within the City to serve local neighborhood needs. The most significant deficits in Pennsylvania are in Chester and Bucks counties. The deficit in Burlington County, while still significant, is greatly reduced when consideration is given to all lands preserved within the Pinelands. In total, an additional 54,280 acres of land would need to be preserved in the Pennsylvania counties and 25,854 acres preserved in the New Jersey counties to meet these goals. Incorporating the state and federal goals results in a net deficit of 161,806 acres in southeastern Pennsylvania and 40,628 in the New Jersey portion of the region.

ASSESSING FUTURE NEEDS

Comparing the results of the three different needs analyses illustrates the

TABLE III-5 OPEN SPACE NEEDS BASED ON NEW JERSEY BALANCED LAND USE GUIDELINES (ADJUSTED)

COUNTY	AREA	EXISTING PARKS ⁽¹⁾	PRESERVATION AREAS ⁽²⁾	EXISTING DEVELOPED ⁽³⁾	REMAINING DEVELOPABLE	COUNTY, STATE, FEDERAL OR LOCAL PARKS AS % OF EXISTING DEVELOPED AND PRESERVED ⁽⁴⁾	COUNTY, STATE OR FEDERAL DEFICIT FOR REMAINING DEVELOPABLE ⁽⁵⁾
BUCKS	389,056	21,606	11,721	114,482	241,247	4.1%	- 16,887
CHESTER	483,776	14,112	11,896	110,019	347,749	2.7%	- 24,342
DELAWARE	118,080	5,999	1,780	72,878	37,423	0.8%	- 2,620
MONTGOMERY	308,992	17,404	5,121	137,448	149,019	3.3%	- 10,431
PHILADELPHIA Philadelphia Local	86,464	10,655	747	68,538	6,524	11.1% <i>1.4%</i>	0 - <i>196</i>
PA-STATE PA-FEDERAL	1,386,368 1,386,368	69,776 69,776	31,265 31,265	503,365 503,365	782,326 782,326	4.3% 0.7%	- 76,233 - 31,293
BURLINGTON	514,880	138,848	158,572	91,207	126,253	0.1%	- 8,838
CAMDEN	142,272	21,933	14,798	64,979	40,562	1.9%	- 2,839
GLOUCESTER	208,064	10,354	13,712	48,250	135,748	2.2%	- 9,502
MERCER	144,516	10,526	16,045	51,166	66,779	5.9%	- 4,675
NJ-STATE NJ-FEDERAL	1,009,732 1,009,732	181,661 181,661	203,127 203,127	255,602 255,602	369,342 369,342	24.4% 0.4%	0 - 14,774

⁽¹⁾ Includes federal, state, county and municipal parks

⁽²⁾ Includes slopes (New Jersey) and wetlands (New Jersey and Pennsylvania); Pinelands "*Preservation*" Areas (New Jersey); farmland on conservation easements (New Jersey and Pennsylvania). Wetlands in Burlington County as estimated by County Office of Land Use

⁽³⁾ Includes all residential, manufacturing, transportation, utility, commercial, community service and military land uses as of 1990

⁽⁴⁾ Parks as % of all parks, Existing Developed and Preservation Areas

⁽⁵⁾ Goal for Remaining Developable: County 7%; State 10%; Federal 4%; Municipal 3%

impossibility of selecting a single, objective "standard" as the final recommendation for the region. Mercer County, for example, yields a surplus of 1,867 acres in the year 2020 population-based analysis, a deficit of 4,294 acres in the balanced land use analysis, and an increased deficit of 4,675 acres under the adjusted land use approach. Bucks County moves from a surplus of 457 acres in the population-based method to a net deficit of 19.574 acres under the balanced land use guidelines to a need for 16,887 acres using the adjusted guidelines. Chester County moves from a slight deficit to a need for more than 29,000 acres between the population-based and land use approaches. Only Philadelphia County parks present a consistent surplus under all three methods. What may be concluded, instead, is that each of these different analyses is appropriate for a given purpose. The population-based method is useful as a "short-term" approach to assess primarily recreation area needs under the time horizon of the DIRECTION 2020 plan. The balanced land use guidelines, on the other hand, present an ideal long-term goal for open space preservation which represent not only recreational lands needed but open space held for natural resource or visual character purposes as well. The adjusted method presents a compromise long-term goal, which seeks a larger open space preservation goal over the long term, but sets a more realistic target that reflects existing conditions. Acquisition efforts, particularly at the county and state level, should focus immediately on meeting the population-based deficits but should work

over time toward achieving the standards of the adjusted land use guidelines.

PROPOSED OPEN SPACE NETWORK

Map III–-3 presents the proposed regional open space network. This map was prepared considering the location of the 2020 development centers, existing protected public park lands and remaining natural resource areas.

River and stream corridors have also been indicated to highlight the key relationship between land and water preservation. Permanently protected farmland easement areas are also indicated. The proposed areas for protection include unprotected woodlands, stream corridor buffer areas, wetlands, vacant lands, and in some cases agricultural lands. Many private recreational facilities, such as golf courses or country clubs, are also identified for permanent preservation. Where information was available, threatened and endangered species habitats were also reviewed and included for preservation.

Given the regional scale of the map, these recommendations are somewhat generalized but serve to create a framework for state, county and municipal plans. More detailed mapping at the local area scale is recommended to determine specific boundaries and priorities. The plan is aimed at achieving the following objectives:

The protection of woodlands and other upland habitat areas that provide an environment for the diverse plants and animals of the region, particularly those areas identified as containing threatened or endangered species. While certain sensitive areas will be incompatible with human activities, other woodland areas can also serve passive recreational uses.

- The protection of river and stream corridors and wetland areas that provide clean water for drinking, habitat for fish, plants and other wildlife, and recreational opportunities. Setback buffers along streams are recommended to maintain vegetation, reduce erosion, and filter non-point runoff to protect water quality. In certain areas, these stream corridor buffer areas may also accommodate scenic paths or other recreational access for fishing or boating or to increase other waterfront access uses.
- The protection of other unique natural resource features of the region that may represent a notable ecosystem, geologic formation, or habitat area. In many cases these areas contain unique, threatened or endangered plants or animals and may be inappropriate for recreational or other access.
- The creation of connections between existing parks, streams, and woodlands to establish an interconnected network of open space in the nine-county region. These connections may be on paths within protected buffers along streams, through existing wooded areas, or even along protected easements in developed areas. This system of "greenways" and "blueways" can

provide access to a variety of different but connected resource areas.

- Creation of connections between existing and emerging population centers to the nearest large park or other open space area and to the regional network of open space. Current land use development patterns were examined, together with forecasts of population growth, to determine those areas with the greatest need for expanded access to open space. The proposed greenways and blueways seek to link not only the larger state or county parks, but the smaller local parks maintained by the municipalities as well. In some cases bicycle paths or lanes can serve to provide these local connections.
- Provide additional land for recreational activities, with those recreational activities matched to the appropriate resource. For example, while certain upland areas should be further developed with ball fields, basketball courts or swimming pools, other sensitive areas such as stream valleys should only serve passive recreational goals such as walking or fishing. The most sensitive resource areas in the region should be protected for their ecological value and may not be appropriate at all for recreational use.
- Finally, open space in the region serves a valuable function for its visual aesthetic, the scenic vistas and opportunities for relief from the man-made that connects people to the natural environment. In many ways, it

is the ongoing presence of a stream valley, hillside or favorite woods that act as an identifier of home, or *"sense of place."* In urban areas, these remaining natural areas or efforts to return natural elements such as Philadelphia's Street Tree Program are particularly critical. Additional open space in urban areas, which may not be a *"natural"* environment, also provides an important neighborhood stabilization role.

The open space map is a key component of the DIRECTION 2020 plan, integrated with the transportation and land use recommendations of the plan to present a vision for 2020. The map can also serve as a *"conceptual"* guide for future acquisition or preservation efforts.

The proposed open space identified in the sketch plan also provides sufficient area to meet the open space recreational needs within each county and the region as a whole. In fact, the proposed open space acreage on this map exceeds the deficits for each of the methodologies used in each county and the region as a whole, and may thus be used to identify appropriate parcels for preservation by the counties, states, or federal government to meet these needs.

Total open space area proposed by county is shown in Figure III-1. The next section will consider the means available to increase both recreational and natural resource lands for preservation over time.

OPEN SPACE IMPLEMENTATION

The Policy Agenda adopted as the framework for DIRECTION 2020 provided three specific action steps aimed at increasing the supply of recreational open space and protecting the land and water natural resource areas of the region. These action steps are:

- Provide new land for open space and recreational facilities to meet forecasted population needs.
- Promote permanent protection of identified critical natural resource areas including no net loss of wetlands.
- Increase river miles protected under state and federal scenic river designation, where appropriate.

These action steps, in turn, provide a number of detailed implementation strategies appropriate for municipal, county, regional, state and federal agencies, as well as private landowners and non-profit organizations:





State and Regional Agencies

- 1. The States of Pennsylvania and New Jersey should encourage counties and municipalities to prepare *Recreation Master Plans* that evaluate the current and forecasted demographic characteristics of the community as well as the physical conditions. Local plans should support and serve to implement DVRPC's regional open space planning recommendations.
- 2. **Pennsylvania and New Jersey should modify the state planning codes** to require county and local governments to identify and inventory local natural resources and critical habitat areas in their comprehensive plans.
- 3. States should sponsor a wetlands delineation training program for local government staff and the interested public. Federal and state agencies should agree to use the same wetlands delineation manual and methods.
- 4. **PADER and NJDEP should develop state-wide data bases** with the goal of determining both qualitatively and quantitatively the effect of the cumulative destruction of wetlands and other environmentally important habitats.
- 5. **PADER and NJDEP should design state or region-wide surveillance monitoring programs** to document incidence of habitat/wetland loss.
- 6. **DRBC, PADER, NJDEP and the regional EPA offices** should investigate the feasibility of developing a regional wetland mitigation banking system.
- 7. PADER and NJDEP should conduct an evaluation of the compatibility/incompatibility of the states' economic development and environmental protection policies with respect to wetlands and habitat protection issues.
- 8. The State of New Jersey should enact a State Scenic Rivers Act in order to manage and protect rivers exhibiting significant aesthetic, ecological and cultural values.
- 9. **Pennsylvania should further expand its bond program** (most recently Key 93) to finance the acquisition and development of public open space in this region.

Counties and Municipalities

1. Counties and municipalities in the region should continue to take advantage of all available state and federal programs to assist in open space efforts, including ISTEA; the Pennsylvania Department of Community Affairs' Keystone Recreation Park

and Conservation Fund Program; the New Jersey Green Acres, Bureau of Green Trust Management program; and individual county bond programs.

- 2. Pennsylvania counties and municipalities in the region should provide and/or expand bicycle paths, picnic areas, hiking trails, jogging/fitness trails, natural/wild areas and outdoor theaters, as identified within *Pennsylvania's Recreation Plan* 1991-97. The Pennsylvania Bureau of State Parks should move to implement the Pennsylvania Trail Plan and to work with the National Park Service to define trails for the National Trail System, including rails-to-trails opportunities.
- 3. Counties and municipalities should require developers to prepare an impact analysis identifying the recreational needs created by that development and a plan for mitigating impacts of their development, if any, upon the public open and recreational spaces and natural resources of the community. Open space or recreational improvements must be designed to serve the residents of a community. Impact fee programs should be authorized by the states as a means to either acquire new parkland (based on a project's impacts) or to pay for other recreational improvements necessitated by the project.
- 4. Counties should provide technical assistance to municipalities on the use of open space preservation tools such as the official map technique to identify the public open and recreational spaces needed for forecasted needs. Both counties and municipalities should also prepare and adopt a capital facilities plan that budgets for and acquires sufficient lands over time to meet those needs.
- 5. Counties in the region should initiate bond issue programs for the acquisition and development of open space and recreational lands and facilities to meet their forecasted needs.
- 6. Local Comprehensive and Master plans should define and map natural resource areas, woodlands, watersheds and wetlands and include provisions for protecting significant resources in local zoning and subdivision ordinances.
- 7. Municipalities should identify, within their master plans, rivers and adjacent lands within their jurisdictions that possess outstanding aesthetic and recreational values of present and potential benefit to the people of the region. The Heritage Parks Program in Pennsylvania has recognized both the Delaware and Lehigh Heritage Park and the Schuylkill Heritage Park.
- 8. **Municipalities should continue to adopt special zoning and subdivision ordinances** to control development in 100 year floodplains, areas with steep slopes, and critical habitat areas. Setback buffers or conservation easements acquired through purchase,

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lease or donation will prevent development along the river's edge and may provide additional waterfront public access.

- 9. Municipalities should develop and enforce zoning and subdivision ordinances to control the indiscriminate cutting of trees or require the replacement of cut trees at a minimum of one to one size replacement.
- 10. Counties and municipalities should promote and support park and greenway proposals which aim to preserve sensitive areas as open space or to restore degraded urban areas back to useable open space. Local governments should coordinate agency actions to implement county and DVRPC regional open space plans.

Private Landowners and Non-profits

- 1. **Private landowners should be encouraged to donate conservation easements** over the land to qualified conservation organizations for preservation and/or recreational use. A number of conservation organizations have been very successful to date in permanently protecting open space. These organizations should promote the tax advantages of such easements to property owners. State agencies, such as the PA Bureau of Forestry *"Landowner Stewardship Program,"* should also provide landowner education on resource management and the tax benefits of conservation easements.
- Conservation districts, local governments and private conservation groups should participate in programs such as the Pennsylvania Fish Commission's "Adopt A Stream Program" — a program designed to help alleviate stream bank erosion and nutrient pollution problems. Other programs that provide planning grants to municipalities include the PADER Scenic Rivers Grant Program.
- 3. State or local resource protection or open space agencies should work in partnership with economic development agencies or private non-profit organizations to promote heritage tourism or to establish greenways, scenic uses and natural area preservation.

IV AGRICULTURE





IV. AGRICULTURE

INTRODUCTION

The farmland of the Delaware Valley is some of the most productive land in the country for agriculture. Pennsylvania ranks among the top ten states for the production of corn, oats, tobacco, apples, peaches, pears, grapes, cherries, tomatoes, strawberries and mushrooms. New Jersey is among the top ten states for the production of peaches, corn, blueberries, cranberries and tomatoes.

In addition to the jobs and revenue brought by farming, agriculture contributes far more to the quality of life of the Delaware Valley. The proximity of local farms to major population areas reduces shipping costs and offers fresher products for the public. Agricultural activities contribute to the diversity of the region and provide a sense of character and place that is so important to our quality of life. Farmland also provides pervious area needed for groundwater recharge and is the largest source of the open space, scenic beauty and rural lifestyles that help make the Delaware Valley unique.

In recent decades, farming as a business and as a way of life has been diminishing in this region for several reasons. Development pressures seek the real estate value of farmland, increasing property taxes reduce profits, new neighbors view farming operations as a nuisance, and increasing competition and inheritance tax burdens limit the incentives for the next generation of farmers to continue. Trends in the region have been toward continuing decentralization and suburbanization which often views farmland as a commodity for development of houses, shopping centers and office parks, rather than the unique resource that it is.

By embracing agriculture in the Delaware Valley as a lifestyle, as an economic producer, and as an important continuing land use, efforts that have begun in recent years to preserve farming and farmland can continue to ensure that agriculture will remain active in the Delaware Valley in 2020.

AGRICULTURE TODAY

Soil Characteristics

At the heart of agricultural activities is the soil. The "prime agricultural soils" and "special agricultural soils" of the Delaware Valley are the most productive and efficient areas to farm. As defined by the U.S. Department of Agriculture, prime agricultural soils include Class I, II and III soils. Classes I and II, generally considered to be "prime," tend to be nearly level or gently sloped, well-drained, fertile and suitable for a wide range of crops. Because of their fertility, they require relatively little fertilizer, which lowers the cost of production. Class III soils are also well-suited to agriculture but have limitations which reduce the choice of crops or require special farming and conservation measures.

Some of the best agricultural soils in Pennsylvania and New Jersey are found in the Delaware Valley. Approximately 40% of the region has been identified as Class I, II or III soils. Large areas of Chester, Gloucester and Burlington County contain Class I or II soils. Northern Bucks and Montgomery counties have large areas of Class III soils. Mercer County and central and lower Bucks County contains a mix of all three types. Southern Camden and western Delaware counties also contain a mix of prime soils.

"Special agricultural soils" include the unique resources needed for the production of certain specialty crops, including the bog soils and sandy soils needed for cranberry and blueberry cultivation found in central and southern Burlington County.

Despite this resource, not all of these areas remain in agricultural production. The flat, well-drained characteristics of prime soils also tend to make these areas the prime sites for developers looking for new construction sites.

TABLE IV-1

1990 COUNTY LAND USE TOTALS (Acres)

COUNTY	RESIDENTIAL	C OMMERCIAL [®]	AGRICULTURAL	WOODED	OTHER [®]
Bucks	65,548	48,935	130,669	121,184	31,738
Chester	67,706	42,317	213,478	146,822	15,859
Delaware	43,117	29,759	8,557	30,854	11,943
Montgomery	77,461	59,992	77,805	73,229	23,558
Philadelphia	28,341	37,139	474	5,715	17,952
PA TOTAL	282,171	223,862	430,984	377,801	95,335
Burlington	42,278	36,173	95,891	314,598	36,135
Camden	36,192	28,792	11,533	56,205	12,999
Gloucester	26,208	22,040	65,632	81,997	19,860
Mercer	27,493	23,663	38,406	44,378	12,409
NJ TOTAL	132,171	110,658	211,462	497,178	81,401
REGION TOTAL	414,342	334,520	642,446	874,979	176,736

 ${\scriptstyle \textcircled{O}}$ Includes manufacturing, transportation, utility, commercial, community service and military

Includes recreation, mining, vacant and water

Farms and Production

Even today, agriculture remains the dominant land use in the region. As seen in Table IV-1, based on the analysis of 1990 aerial photographs, agricultural land devoted to crops, pastures, orchards, tree farms and other agricultural uses is still the largest category of land cover in most counties. Representing over 26% of the total area of the region, or almost 43% of the area not accounted for by woodlands or water, agriculture is the primary land use in Bucks, Chester and Montgomery counties. After wooded areas, agriculture is still the dominant use in Burlington,

TABLE IV-2

FARMS,	WORKERS	AND	MARKET	VALUE
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Gloucester and Mercer counties as well. The most recent Census of Agriculture, completed in 1992, identified 2,582 farms in the five Pennsylvania counties and 2,004 in the four New Jersey counties. These farms sold more than \$500 million of products that year, and directly employed more than 17,000 people (see Table IV–2). The greatest number of farms, employees and total market value in the region is found in Chester County. Burlington County leads the New Jersey counties in number of farms and market value, but Gloucester County has more agricultural employees.

COUNTY	Total farms ^①	AGRICULTURAL WORKERS ^②	MARKET VALUE OF PRODUCTS SOLD [®]
Bucks	680	2,332	\$ 61,812,000
Chester	1,367	4,987	\$282,566,000
Delaware	68	294	\$ 6,943,000
Montgomery	461	4,509	\$ 27,714,000
Philadelphia	6	0	NA
PA TOTAL	2,582	12,122	\$379,035,000
Burlington	816	1,555	\$ 63,241,000
Camden	188	963	\$ 7,899,000
Gloucester	704	1,580	\$ 53,453,000
Mercer	296	936	\$ 15,400,000
NJ TOTAL	2,004	5,034	\$139,993,000
REGION TOTAL	4,586	17,156	\$519,028,000

① Source: U.S. Census of Agriculture, 1992

⁽²⁾ Source: Pennsylvania and New Jersey Departments of Labor, 1990 Covered Employment

The Delaware Valley counties also represent a significant share of the total agricultural production in both Pennsylvania and New Jersey. Table IV-3 provides the rankings of the nine counties within each state for various agricultural items. Chester County leads Pennsylvania, which leads the nation, in the production of mushrooms.

TABLE IV-3

DELAWARE VALLEY	AGRICULTURAL	PRODUCTION
STATE RANKING [®]		

CORN FOR GRAIN-WHEAT-BARLEY-ALFALFA HAY-TOBACCO-SOYBEANSCHESTERSWEET POTATOES-ASPARAGUSGLOUCESTERCABBAGE-LETTUCE-PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHES-HOGS AND PIGSGLOUCESTERDAIRY-	2	3	4	5
WHEAT-BARLEY-ALFALFA HAY-TOBACCO-SOYBEANSCHESTERSWEET POTATOES-ASPARAGUSGLOUCESTERCABBAGE-LETTUCE-PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHES-HOGS AND PIGSGLOUCESTERDAIRY-	-	-	CHESTER/ BURLINGTON	-
BARLEY-ALFALFA HAY-TOBACCO-SOYBEANSCHESTERSWEET POTATOES-ASPARAGUSGLOUCESTERCABBAGE-LETTUCE-PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHES-HOGS AND PIGSGLOUCESTERDAIRY-	- '	-	BURLINGTON	-
ALFALFA HAY-TOBACCO-SOYBEANSCHESTERSWEET POTATOES-ASPARAGUSGLOUCESTERCABBAGE-LETTUCE-PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHES-HOGS AND PIGSGLOUCESTERDAIRY-	-	BURLINGTON	CHESTER	-
TOBACCO-SOYBEANSCHESTERSWEET POTATOES-ASPARAGUSGLOUCESTERCABBAGE-LETTUCE-PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHES-HOGS AND PIGSGLOUCESTERDAIRY-	-	CHESTER	-	-
SOYBEANSCHESTERSWEET POTATOES-ASPARAGUSGLOUCESTERCABBAGE-LETTUCE-PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHES-HOGS AND PIGSGLOUCESTERDAIRY-	CHESTER	-	-	-
SWEET POTATOES-ASPARAGUSGLOUCESTERCABBAGE-LETTUCE-PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHES-HOGS AND PIGSGLOUCESTERDAIRY-	BURLINGTON	-	· _	BUCKS
ASPARAGUSGLOUCESTERCABBAGE-LETTUCE-PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHESGLOUCESTERBLUEBERRIES-HOGS AND PIGSGLOUCESTERDAIRY-	GLOUCESTER	CAMDEN	. –	-
CABBAGE-LETTUCE-PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHESGLOUCESTERBLUEBERRIES-HOGS AND PIGSGLOUCESTERDAIRY-	-	BURLINGTON	-	-
LETTUCE-PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHESGLOUCESTERBLUEBERRIES-HOGS AND PIGSGLOUCESTERDAIRY-	-	GLOUCESTER		BURLINGTON
PEPPERSGLOUCESTERSWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHESGLOUCESTERBLUEBERRIES-HOGS AND PIGSGLOUCESTERDAIRY-	-	-	GLOUCESTER	-
SWEET CORNBURLINGTONTOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHESGLOUCESTERBLUEBERRIES-HOGS AND PIGSGLOUCESTERDAIRY-	_	-	-	-
TOMATOESGLOUCESTERAPPLESGLOUCESTERPEACHESGLOUCESTERBLUEBERRIES-HOGS AND PIGSGLOUCESTERDAIRY-	-	GLOUCESTER	-	_
APPLESGLOUCESTERPEACHESGLOUCESTERBLUEBERRIES-HOGS AND PIGSGLOUCESTERDAIRY-	-	-	BURLINGTON	
PEACHESGLOUCESTERBLUEBERRIES-HOGS AND PIGSGLOUCESTERDAIRY-	BURLINGTON	-	-	CAMDEN
BLUEBERRIES - HOGS AND GLOUCESTER DAIRY -	-	CAMDEN	-	BURLINGTON
Hogs and Pigs Gloucester Dairy -	BURLINGTON	· –	-	-
Dairy -	BURLINGTON	-	-	-
	-	CHESTER	·: •	BURLINGTON
TOTAL LIVESTOCK -	- nt of Agricultu	- re 1991 Product	CHESTER	

New Jersey Department of Agriculture, 1992 Production

AGRICULTURE

Chester County also leads Pennsylvania in soybean production and is second in tobacco and third in alfalfa hay. Gloucester County leads New Jersey in the production of asparagus, peppers, tomatoes, apples and peaches. Burlington County leads the state in sweet corn and is second for soybeans, apples, and blueberries. Gloucester and Burlington are first and second, respectively, in the number of hogs and pigs in the state.

Economic Impacts

The economic contribution of agricultural activities in the region extends beyond the direct market value of these products and the number of people employed on farms. Economic analyses must consider the multiplier impacts, the value added impacts, and the employment impacts.

The multiplier impacts account for how spending by farmers related to production is recirculated within the economy. For example, total revenue minus production expenses yield net income which in turn generates tax payments, savings, and further spending. The value added impacts include the net difference between the cost of materials and the market value of production, the initial purchases of materials, supplies and services, and the final purchases of agricultural products by retailers, food processors and others. Finally, the employment impacts calculate both the direct employment benefits of farm and agricultural workers, as well as the additional jobs supported by the income spent by those farm workers.

A consideration of food and agriculture in the broader sense might also incorporate those additional jobs and activities related to the sale, transport, distribution, and services associated with food. Many of these jobs and activities remain based in this region because of the continuing presence of farms and agriculture. The Delaware Valley is a center for food distribution, supply, training and services, with a strong competitive position between the northeast and mid-Atlantic states and a deep water port. The assortment of local markets, food stores, restaurants and the Philadelphia Food Distribution Center account for a significant sector of the local economy.

For example, food-related investments are the third largest category of venture capital expenditures in the Delaware Valley. Food and agricultural cargo, particularly fruits and vegetables, are the largest general cargo items at the Ports of Philadelphia, accounting for over 40% of imports in 1990. The transport of food and agricultural products is estimated to account for 37% of truck traffic in the region.

The 1988 analysis of THE IMPACT OF FOOD AND AGRICULTURE ON THE ECONOMY OF THE DELAWARE VALLEY, by the Food and Agriculture Task Force, took the broadest view of employment, payroll and revenue associated with food, horticulture and agriculture in the region. In addition to direct farm workers, this study also considered those in manufacturing, wholesale and retail sales, services and government that are related in some way to food, agriculture, or horticulture. This study concluded that as many as 416,429 workers, or over 20% of the workforce in the eight-county Philadelphia PMSA (excluding Mercer) could be considered to be food, agriculture or horticulture-related. These workers, in turn, account for over \$5 billion in direct payroll. The combined sales and value added for all firms in these sectors total, in 1988 dollars, about \$21 billion. While only a small percentage of these jobs and revenue are directly on local farms, many of those other food services are located here because of the legacy and the continuing existence of farming in the region.

CHANGES IN LOCAL AGRICULTURE

While the contribution to the local economy is significant, the trends in the region have been toward a decreasing agricultural presence. The physical site conditions of farmland often make it a very attractive location for developers seeking new construction. If the next generation is not interested in farming, the hard labor coupled with the relatively low economic return may make the attraction of selling the land for other uses difficult to resist. Even for those farm families with an interest in continuing through the generations, local land use regulations may limit the ability to subdivide a limited number of lots for children's families or retirement income.

In an area undergoing rapid suburban development, such as the Delaware Valley, the development pressures on farm communities can seem intense. DVRPC's analysis of 1990 land use, based on aerial photography interpretation, may be compared to a similar 1970 analysis to document the changes over time (see Table IV-4). In individual municipalities that have experienced growth over this time, the impacts can be dramatic. For example, West Windsor Township in Mercer County increased its population by 9,961 people from 1970 to 1990, while converting 4,290 acres of farmland to other uses.

TABLE IV-4



(ACRES)				
USE	1970	1990	CHANGE (Acres)	
RESIDENTIAL	319,100	414,342	+ 95,242	•
COMMERCIAL	134,000	160,746	+ 26,746	•
WOODED	978,300	874,979	- 103,321	•
AGRICULTURE	784,100	642,446	- 141,654	Server 2010

Source: DVRPC, 1994

AGRICULTURE

A more precise analysis of land in operating farmland is conducted approximately every five years by the U.S. Bureau of the Census. The Census of Agriculture documents the actual number of farms, land in farms, and the value of the land and associated buildings. Table IV-5 illustrates the Census of Agriculture data from 1964 to 1992 for the eight suburban counties of the region. In the four Pennsylvania counties, over 240,000 acres of farmland have been converted to other uses between 1964 and 1992. Each county lost acreage, with the largest loss in Chester county of over 90,000 acres. With a net loss of over 100,000 acres in the four New Jersey counties, the greatest loss was in Burlington county. For the region as a whole, a total of more than 350,000 acres — almost 15% of the eightcounty area — has been converted from farmland to other uses from 1964 through 1992.

TABLE IV-5 CHANGES IN OPERATING FARMLAND (ACRES)

COUNTY	1964	1974	1992	CHANGE 1964 - 1992
Bucks	156,455	111,082	76,790	- 79,665
Chester	269,525	223,801	176,643	- 92,882
Delaware	15,675	11,679	5,095	- 10,580
Montgomery	104,455	74,757	44,425	- 60,030
PA TOTAL	546,110	459,731	302,953	- 243,157
Burlington	164,835	147,551	97,186	- 67,649
Camden	14,454	9,802	7,799	- 6,655
Gloucester	79,682	63,969	61,748	- 17,934
Mercer	50,531	44,510	35,786	- 14,745
NJ TOTAL	309,502	265,832	202,519	- 106,893
REGION	855,612	687,151	505,472	- 350,140

FARMLAND PRESERVATION PROGRAMS

In both Pennsylvania and New Jersey, the voters, legislatures and governors have recognized and responded to the loss of farmland by enacting legislation and approving bond funding designed to protect and preserve farmland. While each state's programs vary in content and application, each state has adopted legislation that addresses protection against nuisance suits, local planning provisions, and purchase of development rights.

Nuisance Protection

The "Right to Farm" law in Pennsylvania (Act 133 of 1982) follows "...the declared policy of the Commonwealth to conserve and protect and encourage the development and improvement of its agricultural land for the production of food and other agricultural products." The law seeks to protect existing farms from nuisance suits brought by adjacent landowners, many of whom may be in new residential or commercial developments, related to noise, smell, dust or other perceived nuisances. Protected farms must be at least ten acres, or yield a gross income of at least \$10,000, and have been in operation for one year or more.

The New Jersey Right to Farm ordinance, adopted in 1983, also seeks to protect farmers from nuisance suits. All farms in the state are protected, provided they produce an annual minimum income of \$2,500, regardless of whether they are in an agricultural district.

Agricultural Security or Development Areas

Planning approaches adopted by the states include the Agricultural Security Area program in Pennsylvania (Act 43 of 1983) and the Agricultural Development Area program in New Jersey, adopted in 1981.

Under the Pennsylvania program, farmers voluntarily request that individual local municipalities establish agricultural security areas. To be eligible, at least 500 acres of productive farmland in the district (which may include portions of multiple municipalities) must be included, with parcels of at least ten acres. Once adopted, local governments may not pass ordinances that unreasonably restrict farm structures or practices. The law prevents local municipalities from defining or prohibiting as a "public nuisance" agricultural activities and operations within the security areas and may protect farmland from eminent domain takings. State agency rules and regulations also encourage viable farming within these areas. Perhaps the most significant element of the program is that only farmers within agricultural security areas are eligible to sell their conservation easements, as discussed below.

Participation in the Pennsylvania program has been very strong to date. As of January, 1994, 60 municipalities in the four-county area have included all or part of their jurisdiction as an Agricultural Security Area, representing over 120,000 acres or 40% of the operating farmland identified in the 1992 Census of Agriculture (see Table IV-6).

(AS OF JANUARY 1994)			•
COUNTY	MUNICIPALITIES	ACRES	FARMERS
BUCKS	13	26,054	598
CHESTER	36	84,838	924
DELAWARE	1	808	20
MONTGOMERY	10	9,871	162
PA FOUR COUNTY TOTAL	60	121,571	1,704

TABLE IV-6AGRICULTURAL SECURITY AREAS IN PENNSYLVANIA(as of january 1994)

Source: Bureau of Farmland Protection, Pennsylvania Department of Agriculture

The New Jersey program operates somewhat differently under the Agricultural Development Area approach. County Agriculture Development Boards (CADB) authorize county Agricultural Development Areas, defined by the county as the areas where agriculture is the preferred use of the land. These areas must meet four criteria:

- 1. encompass productive agricultural lands (either currently in production or with a strong potential for production) where farming is a permitted use under the municipal zoning ordinance or is permitted as a non-conforming use;
- 2. should be reasonably free of conflicting residential and/or commercial development;
- 3. should comprise not more than 90% of agricultural land of the county; and
- 4. may incorporate any other characteristics deemed appropriate by the CADB. The four New Jersey

counties of the region participate in the Agricultural Development Area Program. Map IV–1 illustrates the municipalities in Pennsylvania participating in the Agricultural Security Areas program and the sites in New Jersey designated as Agricultural Development Areas by the counties.

Purchase of Development Rights (PDR)

Perhaps the most direct intervention that government can make to preserve farmland is to actually purchase the development rights of the land, to prevent the development or improvement of the land for any purpose other than agricultural production. In both Pennsylvania and New Jersey, such PDR programs now exist, based on bond funding approved by the voters of each state.

The purchase of development rights (also known as conservation or agricultural preservation easements) can preserve agriculture by providing compensation to farmers for the development value of the land that they forego by retaining the agricultural use of the land. The value is based on the difference between the value of the land as productive farmland and its fair market value for other uses, considering its location, farm value and local development pressure. PDR programs permit a farmer to retain ownership and continue farming or to pass the farm on to his children for farming purposes, while compensating him for the additional value of the farm as real estate. These programs mitigate the pressure to sell the farm for other uses while still recognizing and accommodating the equity value of the land. PDR programs also serve to support the continuation of farming as a way of life and preserve farmland as open space within growing areas. Development rights programs may be either short-term or permanent.

In Pennsylvania, the program operates under Act 149 of 1988, following a \$100 million bond issue approved by the voters in 1987. The Pennsylvania program provides either 25-year easements or permanent easements, with the 25-year option worth only ten percent of the permanent easement. Eligible farms must be in Agricultural Security Areas, and the County Agricultural Preservation Boards administer the program with an additional County match contribution. Pennsylvania has recently further strengthened this program through the Governor's Executive Order of May 9, 1994 which gives the highest priority to preserving the Commonwealth's primary agricultural land and preventing its conversion to other uses.

Table IV-7 summarizes the permanent development rights purchased or pending for sale through July 1994. Since 1989, a total of 84 farms have been permanently protected in southeastern Pennsylvania, representing 7,622 acres. The greatest activity has been in Chester County, where over 4,000 acres of development rights have been purchased. Chester County also administers a county-funded agricultural easement acquisition program, with an additional \$12 million from a 1989 county bond. Average costs are also lowest in Chester County although even there the cost of development rights are more than twice the statewide average.



TABLE IV-7

AGRICULTURAL CONSERVATION EASEMENTS AND APPROVED SALES AGREEMENTS FOR PURCHASE OF EASEMENTS IN PENNSYLVANIA THROUGH JULY 1994

COUNTY	NUMBER OF FARMS	Acres	Purchase Price	Average Price per Acre
Bucks	17	1,576.5	\$ 8,875,025.40	\$ 5,630
Chester	47	4,219.6	\$18,201,268.89	\$ 4,313
Delaware	2	198.0	\$ 2,678,359.50	\$ 13,527
Montgomery	18	1,628.0	\$10,073,242.37	\$ 6,187
Area Total:	84	7,622.1	\$39,827,896.16	\$ 5,225
State Total:	386	48,667.0	\$99,328,360.00	\$ 2,041

Sources: Bucks County Agricultural Land Preservation Program, Chester County Agricultural Preservation Program, Delaware County Conservation District, Montgomery County Farmland Preservation Program.

The New Jersey program dates to a statewide bond referendum in 1981, with an additional bond approved in 1989. The New Jersey program is somewhat similar to Pennsylvania in that there are short-term easements (8 years rather than 25), permanent easements, and county boards to administer the program. Eligible farms must be within an Agricultural Development Area, and the state and county share the purchase costs. New Jersey offers two additional elements: a fee simple purchase program, whereby the state may purchase farms in their entirety (not just development rights) and re-sell them with a deed restriction prohibiting any future non-agricultural use, and a

Transfer of Development Rights (TDR) program authorized in Burlington County only.

Table IV-8 summarizes New Jersey's activity to date in this region. A total of 7,444 acres of farmland on 45 separate farms have been protected through the purchase of development rights in Burlington, Gloucester and Mercer counties. Costs are highest in Mercer County while the greatest activity by far is in Burlington County. Map IV-2 includes the location of farms protected through the purchase of development rights in the region.

COUNTY	Number of Farms	Acres	Purchase Price	Average Price Per Acre
Burlington	37	6,452	\$ 29,489,058	\$4,571
Camden	0	0	0	0
Gloucester	3	548	\$ 1,387,862	\$2,531
Mercer	5	444	\$ 3,326,161	\$7,491
Area Total	45	7,444	\$ 34,203,101	\$4,595
State Total	126	18,532	\$104,245,097	\$5,625

TABLE IV-8PURCHASE OF DEVELOPMENT RIGHTS IN NEW JERSEYTHROUGH APRIL 1994

Source: New Jersey Department of Agriculture, State Agriculture Development Committee

LOCAL LAND USE CONTROLS

Local municipalities also have a variety of land use tools in their arsenal which may prove very effective for the long-term preservation of farmland in the region. A number of these tools are more general growth management measures while others are specific and unique to farmland preservation. Land use controls specific to agricultural areas discussed herein include the Transfer of Development Rights (TDR), exclusive agricultural zoning and non-exclusive or sliding scale zoning.

Transfer of Development Rights

TDR programs recognize, like the purchase of development rights programs, that the *"development"* rights of farmland can be separated from the ownership of that land and bought or sold with a quantified value. TDR is a concept that has been widely discussed in the planning literature for many years but has seen only limited use in the Delaware Valley.

In a typical TDR program, a community would identify farmland or other environmentally-sensitive areas for preservation, together with areas appropriate for higher-density development. Owners of land in the "preservation" areas would be assigned "development credits" which may be purchased by owners of land in the higherdensity "receiving" areas and used to increase the development rights on their land. The purchase price is negotiated by the buyer and seller but should represent the fair market value of the increased density of development. Landowners in the preservation areas retain the title to their


land and may continue to use it for farming. The advantage of a TDR approach over the purchase of development rights program is that, in theory, the TDR program operates in the open market without government cost. In practice, however, there has been concern about TDR programs and the effect on the landowner's equity, the distribution of TDR credits, the effects upon the overall real estate marketplace, and the general fear of the unknown.

Despite these concerns, TDR programs have been established or are being considered by several municipalities in the region. Buckingham Township, in Bucks County, has had such a program in place since 1975. Chesterfield Township in Burlington County recently adopted a TDR program, and Lower Salford Township in Montgomery County is currently considering the approach. If carefully crafted, TDR can be an especially effective way to use the forces of the marketplace to preserve farmland. Pennsylvania municipalities are authorized to use TDR programs now, but currently only Burlington County municipalities have that authority in New Jersey.

Exclusive Agricultural Zoning

Exclusive agricultural zoning may be the most effective approach to farmland preservation, but the severe restrictions imposed by this technique may limit its acceptability to landowners and municipalities. As its name implies, exclusive agricultural zoning limits uses and buildings on a site by prohibiting any non-farm dwellings: only farm homes or buildings to house farm employees are permitted.

Density standards in an exclusive agricultural zone are based on a minimum parcel size needed for viable agriculture, rather than standard "large-lot" zoning. Large lots of 5 to 10 acres are "too large to mow, but too small to plow" and are not effective as a means to preserve agriculture. Parcel sizes in an exclusive agricultural zone should reflect the average agricultural parcel size in a community. Minimum parcel sizes in these zoning districts would generally be between 20 and 40 acres but could be up to 100 acres or more. A performance definition of the farm or farm use is typically applied to determine if the site and use are acceptable.

While exclusive agricultural zoning has been used in farming communities from Hawaii, Oregon and California through North Dakota, Illinois and Maine, its application in metropolitan areas such as the Delaware Valley has been limited.

Non-Exclusive or Sliding Scale Agricultural Zoning

A more promising and practical approach to agricultural zoning in this region is the non-exclusive and sliding scale approach which allows a limited amount of non-farm development, while preserving the essential character and activities of the agricultural use. This approach can permit the landowner to realize some of the development potential of a site while still promoting effective agriculture production. Non-exclusive agricultural zoning might permit a limited amount of residential or commercial development. These non-farm uses may be permitted as-of-right, by special permit, or as a conditional use following Planning Commission review. A typical agricultural zoning ordinance using this approach might permit one additional non-farm residential dwelling unit for each 35 or 40 acres of a farm, subject to additional restrictions including performance standards related to soil classification, location in relation to roadways or other infrastructure, and lot size of the non-farm dwelling.

Sliding scale agricultural zoning also authorizes a limited amount of non-farm development but assigns the permitted nonfarm lots based on the overall size of the parcel. Density would actually decrease as the total parcel size increases, with smaller parcels allowed more lots proportionate to total acreage than are larger parcels.

For example, the sliding scale zoning approach used in Shrewsbury Township, Pennsylvania permits single-family houses in farm districts based on the following allocation:

Parcel	Units	Net
Size (acres)	Permitted	Density
1-5	1	0.2 to 1.0
5-15	2	0.13 to 0.4
15-30	3	0.1 to 0.2
30-60	4	0.67 to 0.13
over 60	5 plus 1 unit	0.03 to 0.08
	for each additional 30 acres	

The sliding scale agricultural zoning of Shrewsbury Township has successfully survived a legal challenge and been upheld by both the Pennsylvania Commonwealth and Supreme Courts.¹ The courts recognized that the preservation of agricultural soils and uses was a proper zoning purpose. It furthermore found that the sliding scale approach was not arbitrary or unreasonably discriminating against owners of large tracts even though the net-density decreased as the parcel size increased. Instead, the Supreme Court noted that the sliding scale approach has "a rational basis" and is consistent with the legislative purpose of preserving prime farmland.

Sliding scale zoning could also encourage clustering on the site to maintain a contiguous agricultural use by establishing maximum lots sizes of the new development and by requiring the placement of the new units onto the least productive soils of the site. A sliding scale agricultural zoning ordinance should work well in the Delaware Valley where farm sizes vary, and development pressures create a strong financial incentive to farmers.

¹Boundary Drive Associates v. Shrewsbury Township, 473 A. 2d 706 (PA Cmwlth. 1984)

IMPLEMENTATION OF FARMLAND PRESERVATION

The Policy Agenda adopted as the framework for DIRECTION 2020 provided three specific action steps aimed at maintaining farming as a viable and continuing component of the regional economy. These action steps are:

- Limit rural or farmland acreage developed
- Increase the acreage of productive farmland preserved for agriculture
- Improve the conditions that accommodate and support local farming

These action steps, in turn, provide a number of detailed implementation strategies targeted to municipalities, counties, regional, state and federal agencies, as well as toward the individual farmer. While specific conditions and issues will vary in different areas, these strategies provide a comprehensive menu for preserving farmland and agriculture into the 21st Century.

Federal

- 1. The Federal Government and Congress should: 1) enforce the Farmland Protection Policy Act of 1981 which requires federal agencies to review federally-supported development proposals and avoid certain farmland conversions; 2) adequately fund the 1990 Farms for the Future Act which authorizes federal cost-sharing for state and local programs that buy agricultural conservation easements.
- 2. Congress should modify the inheritance tax laws to provide a greater exemption from taxes for farmland that is passed onto a younger generation and remains in productive agricultural use. High land values in this region, coupled with high inheritance taxes, present a further impediment to young farmers maintaining and continuing a family farm.

State and Regional Agencies

- 1. DVRPC, county planning agencies and municipalities should identify existing viable farms with prime agricultural soils in appropriate areas and designate those areas for continued agricultural use.
- 2. States and counties should continue funding the purchase of development rights and easement programs in both Pennsylvania and New Jersey through installment purchase agreements; combining government funding with conservancy acquisitions or donations; expediting the process time for PDRs; and implementing PDRs and easement programs in concert with appropriate agricultural zoning and other techniques.

- 3. States, DVRPC, counties and local governments should plan and program public infrastructure improvements such as highways, sewer and water services, and other growth generating public facilities to avoid development pressure on prime farmland.
- 4. New Jersey should authorize the use of Transfer of Development Rights (TDR) for all municipalities in the state. Currently, TDR is only permitted to be used in Burlington County. TDR should also be authorized for use in a multi-municipal planning context.
- 5. State right-to-farm laws limit the circumstances under which agricultural operations may be subject to nuisance suits and ordinances. In order to further reduce conflicts between farms and their neighbors, these laws should also require that persons buying land be notified if agriculture is the primary industry in the area and that the ability to file nuisance suits will be limited.
- 6. A state or multi-state agency should establish and administer a *land link* program matching new farmers looking for land with retiring farmers who want to keep their land in agricultural use. The Pennsylvania Department of Agriculture has recently established such a program through a cooperative effort with the Center for Rural Pennsylvania and the Rodale Institute.
- 7. States should adopt tax reform measures that reduce the municipal reliance on the property tax and link taxes to income by giving localities more flexibility in levying an appropriate and equitable mix of personal income, real estate, real estate transfer, amusement or other taxes. Tax reform should also include measures giving cumulative preferential rates based not only on the land's current use, but on the period of time for which it will be preserved. For example, open space/farmland preserved in perpetuity under conservation and easement programs would receive an even greater reduction in its assessment than land preserved temporarily.
- 8. **DVRPC and/or county planning commissions should undertake a local fiscal impact** analysis comparing the costs of farmland and residential growth. The American Farmland Trust in their report *"Does Farmland Protection Pay"* showed that residential development can cost communities as much as a third more in public services than they raise in revenue, whereas with farmland a community only pays a range of 2 to 33 cents in services for every dollar raised from agricultural property taxes.

Counties and Municipalities

1. Local governments should be encouraged to use Agricultural Security districts, Purchase of Development Rights (PDRs), Transfer of Development Rights (TDRs), sliding scale and other effective agricultural zoning, adequate public facilities ordinances, capital improvement programs, growth staging plans, joint municipal zoning ordinances, and urban growth boundaries to preserve viable farm sites.

AGRICULTURE

- 2. Local governments with existing viable farmland should adopt a resource based comprehensive plan that considers farming to be an integral part of a community's economic portfolio. The plan should concentrate development in appropriate town centers while preserving critical farmland.
- 3. Municipalities should require developers of tracts in or adjacent to farming areas to provide setback buffers between new uses and adjacent agricultural tracts.
- 4. Municipalities should allow farmers to sell their own products directly to the consumer by permitting roadside stands at locations that can accommodate the traffic and parking during the season.
- 5. Counties should continue to promote cluster and mixed-use village development ordinances where appropriate which will reduce development pressures on farms and help to preserve the critical mass needed to support continued farming or more significant natural resources on the tract.
- 6. Counties should encourage joint municipal planning and zoning ordinances and promote Transfer of Development Rights programs within and between those municipalities. Counties and states should form TDR banks through creative mechanisms such as dedicated funding from real estate transfer taxes or sin taxes. Alternatives to local property taxes should be explored to reduce the pressure to zone for commercial development in order to pay for local services.
- 7. Counties in Pennsylvania should continue to encourage farmers and municipalities to establish agricultural security areas. Such a designation is a prerequisite for eligibility in the state funded purchase of development rights program and can protect farms from nuisance ordinances and condemnation proceedings. Counties should also work with land trusts, Cooperative Extension services, the Soil Conservation Service, local farms and preservation groups on education and outreach efforts to ensure that farmers are informed and can utilize the programs that exist.
- 8. County economic development agencies should continue to encourage and offer technical assistance to food processing, distribution and retail businesses that use locally grown and raised farm products.
- 9. County conservation districts should promote the "single plan farm management" approach. Such an approach integrates natural resource management with government regulations in order to avoid conflicts and duplication of efforts, save time, achieve stewardship goals, make the land more productive, and increase profits.

Farmers

- 1. Some farmers should form cooperative units in order to gain collective buying power, to share equipment and costs, and to jointly market their products in nearby urban areas.
- 2. Some farmers should pursue value-added and/or niche farming in order to improve profitability. For example, pick-your-own fruit and vegetables, farm stores, nurseries, festivals and demonstrations of agricultural practices through tours and demonstrations are all ways to not only raise farm profits but to foster a greater understanding of farming practices for area residents.
- 3. Farmers who plan to pass their farms down to family members should develop an estate plan in order to successfully transfer their farm upon retirement and avoid burdensome inheritance taxes.
- 4. Landowners should consider voluntary donation of conservation easements to a unit of government or a private conservancy to realize the tax benefits. These benefits include federal income and state estate tax reductions.