Montgomery County, Pennsylvania

Preserving Open Space in Rural Areas

# land preservation district

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# land preservation district

## Preserving Open Space in Rural Areas

Prepared by the Montgomery County Planning Commission
2011

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# Introduction

The Land Preservation District (LPD) offers communities an opportunity to preserve open space, sensitive natural features, and rural community character in residential developments. In this zoning district, homes are arranged on a site to protect natural features, such as farmland, woodlands, steep slopes, riparian corridors, or scenic views. The Land Preservation District was developed for areas planned for single-family homes at a maximum density of 1 dwelling per 80,000 square feet of developable acreage. The LPD is a preferred alternative to conventional subdivision, providing design flexibility to locate open space and homes where they can best meet community open space goals. In conventional subdivisions, the entire tract is divided into lots with no permanent open space. In the LPD, at least 75 percent of a tract is preserved as open space by reducing lot sizes without reducing overall density. This guidebook focuses on the LPD and how municipalities can utilize this zoning technique to preserve open space.

## The Guidebook

This guidebook updates and expands our earlier LPD reports. It includes enhancements to the open space design standards, introduces environmental adjustment factors and the use of a yield plan to determine density, and modifies the site planning process. The guidebook describes design elements and community facilities and contains a model zoning ordinance and subdivision ordinance. The appendix provides information on homeowners' associations, sewer issues, additional design elements, and examples of cluster developments in Montgomery County.

# Benefits of the LPD

## Environmental

Two major benefits of the LPD are open space preservation and the protection of natural features. By reducing lot sizes, large areas of open space can be preserved on a tract. These open space areas can be linked to adjacent areas identified in a municipal open space plan to create open space networks. Flexible design standards in the LPD help preserve key resources, such as farmland, steep slopes, floodplains, woodlands, wetlands, and riparian corridors. This flexibility allows the protection of sensitive natural features while placing homes in the most suitable locations. Stormwater management is also improved with more opportunities to use best management practices.

## Economic

The LPD preserves open space at no cost to taxpayers and can help reduce demand for new public parkland in some communities. Municipalities and developers benefit in the review process since key natural, scenic, historic, and cultural resources that should be preserved on a site are indentified and prioritized early in the design process. Developers also experience reduced infrastructure and maintenance costs.

## Recreational

Open space can be used for active and passive recreation and link to adjacent open space areas. This helps communities develop trail systems, preserve farmland, protect riparian corridors, and establish greenway corridors.

## Historic and Cultural

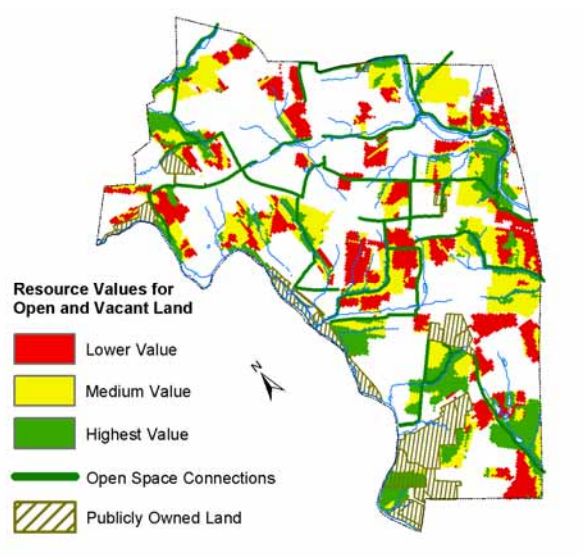
Open space areas can preserve historic structures, including homes, barns, and other buildings as well as surrounding landscapes. Existing homes can become estate lots with undeveloped portions counting toward the tract's overall open space requirement. In some cases, these undeveloped portions have continued to function as working farms, preserving the cultural and historic heritage of rural areas.

## Municipal Open Space Planning

The Land Preservation District is an excellent way to preserve open space in our communities. It can be an integral part of municipal open space planning, helping communities preserve resources, such as riparian areas, wetlands, floodplains, steep slopes, scenic views, or highly productive agricultural soils. Preserving open space and natural areas protects the aesthetic, environmental, economic, and historic resources in a community. Municipal open space planning is a critical component of successfully implementing a LPD district.

Using the open space plan, a municipality can successfully implement the LPD because the plan identifies where and how open space should be saved. The design flexibility of the LPD allows homes and open space to be located where they best meet community goals. The LPD offers land owners and developers the opportunity to contribute to municipal open space preservation.

Upper Salford Township Open Space Priorities




*Upper Salford Township created an open space plan that included a detailed map outlining priority open space acquisition areas. This map helps the municipality and developers identify and prioritize which areas on a particular site should be preserved.*

## Open Space Preservation Options

While this publication focuses on the LPD, other options are available to municipalities for preserving open space. These include:

- Purchasing land or conservation easements with public and/or private funding.
- Transfer of Development Rights. This zoning technique involves transferring development potential from one area to another, typically from rural areas to developed areas with the appropriate infrastructure. This preserves rural areas and places development in more appropriate locations.
- Rural Residential District. This model zoning district is intended for rural areas of the county that lack public water and sewer facilities. It creates conservation areas on larger lots that are privately owned, helping to preserve natural features and rural character.

The Montgomery County Planning Commission has published model zoning ordinances explaining transfer of development rights and the Rural Residential District. These publications are available at www.planning.montcopa.org.

*This LPD type subdivision preserves a large farm field in Lower Salford Township, Montgomery County.*

## Key Elements of the Land Preservation District

- A minimum of 75 percent of the gross tract area is preserved as open space.
- Density of homes is 1 house per 80,000 square feet of developable acreage.
- Priority natural, historic, scenic, and cultural resources are identified and preserved.
- The maximum number of lots on a site is determined by calculating developable acreage and using a yield plan.
- Design flexibility allows open space and homes to be placed on a tract where they best meet community open space goals.
- 60 percent of all homes face central open space.
- The LPD offers flexibility to create small neighborhoods with an identifiable character.
- The LPD offers the opportunity to provide recreational uses and trail connections.

# Frequently Asked Questions

***Can municipalities require open space preservation through the LPD?***

Yes. The LPD is based on the concept of allowing full density on a tract of land and only limiting the pattern of development or lot size.

***Who will own and maintain the open space?***

The open space in the LPD may be owned in several ways. A municipality may own the open space through fee simple dedication or a dedication of an easement. A condominium association, homeowners' association, or private conservation organization may also own the open space. The owner is responsible for maintaining the open space.

***Is the open space permanently protected?***

Yes. Open space areas are subdivided from the rest of the homes and deed restricted, or a conservation easement is placed on the area to prohibit further development.

***How will sewer and water facilities be provided?***

Depending on existing conditions, a number of options are available. The Montgomery County comprehensive plan—*Shaping Our Future: A Comprehensive Plan for Montgomery County*—offers guidance in this area. Where existing public facilities are within 1/2 mile of any new development, connection to these facilities is preferred. Extending public systems beyond these limits is not recommended by the plan. If public systems are not available, other options, including community systems and individually owned on-lot systems, are suggested. Chapter 3 and Appendix 5 of this publication explore this topic in greater detail.

***Does development in the LPD create greater housing density?***

No. To determine the number of permitted homes on a property, the developer must first calculate the amount of developable acreage by subtracting any environmentally constrained land. The number of homes permitted can not be greater than the developable area of the site divided by 80,000 square feet. A yield plan must than be submitted demonstrating that the calculated number of homes can be realistically built on the site before proceeding to the preliminary plan.

***Which communities in Montgomery County preserve open space in residential developments?***

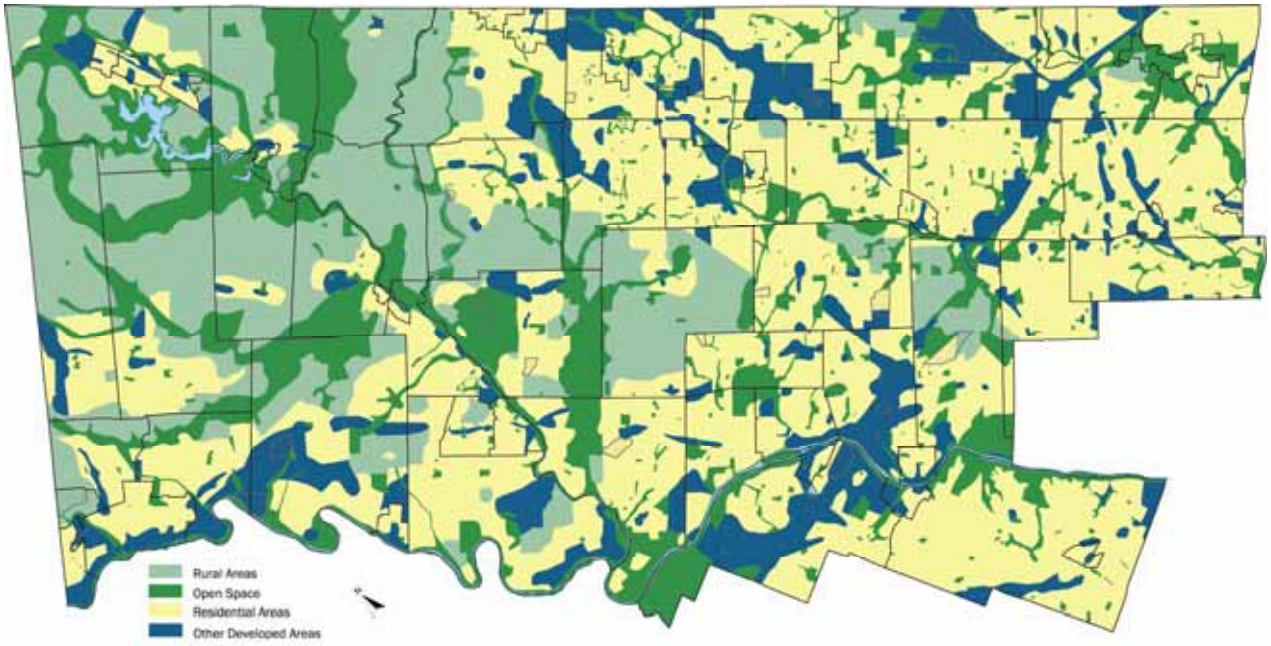
Successful residential subdivisions that have preserved open space can be found in many communities, including Worcester, Lower Salford, Skippack, Franconia, Limerick, and Lower Merion. See Appendix 8 for specific examples.

# *design process*

# *Part 1*

**Part 1** of this publication discusses the design process involved in creating a LPD development. This includes choosing appropriate locations, indentifying key resources to be preserved, calculating density and developing a LPD subdivision.

## Land Use in Montgomery County




## Locating the LPD

A first step in implementing a Land Preservation District is to determine locations within a municipality that are appropriate for low-density residential development. These include areas which already permit single-family detached housing with a minimum lot size of 80,000 square feet. These areas tend to be in more rural communities where future development is anticipated. Local, regional, and county comprehensive plans can also be helpful in determining appropriate locations for LPD development.

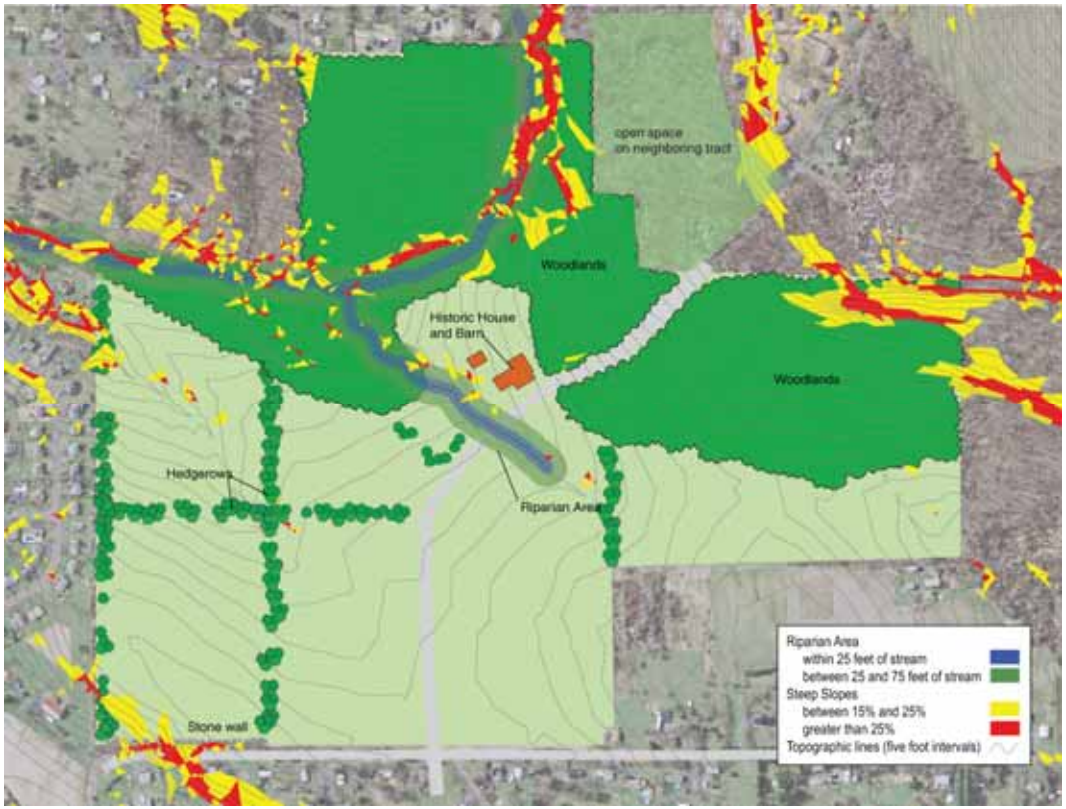
Montgomery County's comprehensive plan provides guidance on land use policy to local municipalities. It can be used to determine appropriate areas for LPD district zoning. The areas most appropriate for implementing the LPD are shown as Open Space and Rural Areas on the Future Land Use Map (shown to the left). Rural areas that can be served by central sewers are appropriate for LPD development.

## Site Design Process

Site planning is an essential component of the Land Preservation District. The placement of homes, the alignment of streets, and the location of open space work together to create a site design that minimizes the impact of new development on the environmental, historic, and visual character of a community.

The site design process involves the following steps:

- Submit site inventory
- Establish priority of key resources (planning commission review)
- Calculate developable acreage
- Determine number of lots
- Prepare yield plan
- Submit land preservation subdivision




*Site inventory shows existing site conditions and is the first step in the site design process.*

## The Site Inventory

The site design process begins by creating the site inventory. This inventory is used as a guide to identify and prioritize key natural, scenic, and historic resources on the site. These resources may include steep slopes, riparian and wetland areas, existing woodlands, streams, historic homes, and open space on neighboring tracts.

A community may have already identified important key resources in other planning efforts, including their comprehensive plan, open space plan, or recreational plan.

## Identifying Key Resources

Within 60 days of submitting the site inventory, the municipal planning commission will respond to the applicant by identifying and prioritizing the natural, scenic, historic, and cultural resources on the tract that are most important to the community and should be preserved.

This is accomplished by showing the prioritized resources on a site inventory plan or listing the key resources. Future plan submissions should protect the key resources identified by the planning commission.

Municipalities may want to consider requiring a site visit as part of the LPD design process to help determine what key resources should be preserved and where development should be located on a particular site. Those on the site visit could include members of the governing body, planning commission, and professional design consultants.

The plan to the left shows the key resources to be preserved as identified by the planning commission review. These include:

- Preserving the woodlands and riparian areas.
- Preserving the historic farmstead.
- Preserving the open space views from adjacent roads.
- Preserving the hedgerows and stone wall as elements of the rural character.

# Calculating Density/Environmental Adjustment Factors

| Environmental Constraint | Acres of Environmental Constraint | Acres That Do Not Overlap With More Restrictive Constraints | Adjustment Factor (EAF) | Acres of Constraint to Subtract |
|---|---|---|---|---|
| * Seasonal High Water Table <18" | n/a | 0.00 | 0.67 | 0.00 |
| * Seasonal High Water Table 18"-36" | n/a | 0.00 | 0.33 | 0.00 |
| * Depth to bedrock <42" | n/a | 0.00 | 0.33 | 0.00 |
| * Diabase bedrock | n/a | 0.00 | 0.67 | 0.00 |
| ** Slopes 15% to 24% | 6.00 | 6.00 | 0.67 | 4.02 |
| Slopes >24% | 2.67 | 2.67 | 1.00 | 2.67 |
| Woodlands | 69.93 | 57.73 | 0.50 | 28.87 |
| * Riparian Corridor Zone 1 | 4.30 | 3.57 | 0.67 | 2.39 |
| Riparian Corridor Zone 2 | 8.35 | 6.90 | 0.33 | 2.28 |
| Floodplain | 0 | 0.00 | 1.00 | 0.00 |
| Wetlands | 0 | 0.00 | 1.00 | 0.00 |
| Water bodies | 0 | 0.00 | 1.00 | 0.00 |
| Watercourse | 3.73 | 3.73 | 1.00 | 3.73 |
| **Total Constraints to be subtracted** | | | | **43.96** |

* *While these factors exist on the site, they have not been included in the density calculation since public water and sewer facilities are available within 1/2 mile of this proposed subdivision.*

** *When environmental constraints overlap only the acreage of the environmental constraint with the highest EAF is used.*

*(See site inventory map on page 11)*

| | |
|---|---|
| Net Tract Area | 160.0 |
| Total Constraints | - 43.96 |
| Developable Acres | =116.0 |
| D/U per Acre | x 0.54 |
| **Number of Lots** | **63** |

## Calculating Density

There are several steps needed to determine the density of the site, or the maximum permitted number of lots.

1. Determine the net tract area. This is the site's gross tract area minus areas within ultimate right-of-way lines, utility easements, or access strips.
2. Determine the site's environmental constraints. Areas with natural features, such as steep slopes, wetlands, or floodplains, are subtracted from the net tract area according to Table 3: Environmental Adjustment Factors of the model ordinance. (Constraints are identified as shown to the left.)
3. Determine the total developable acreage. Add the environmentally constrained acreages for all areas and subtract this amount from the total net tract area to determine the total developable acreage.
4. Calculate the maximum number of permitted lots. This number is found by dividing the developable area by the appropriate formula, depending on the required lot size (Section 4 of the model ordinance). When calculating for cluster lots, divide the developable area by 80,000 square feet (minimum lot size).

*This yield plan demonstrates that the maximum calculated number of permitted homes (63 conventional lots) can be built on this 160 acre tract.*

## The Yield Plan

A yield plan is prepared to show that the maximum calculated number of homes permitted can be realistically built on the site. The yield plan should meet all requirements for conventional lots as shown in Table 2 of the model ordinance.

The yield plan to the left shows 63 conventional lots on a 160-acre tract. Each lot is a minimum of 80,000 square feet in size. No open space has been preserved, and the historic farmstead and significant woodlands have been removed.

*This LPD subdivision shows 63 lots (62 cluster lots and one estate lot) on a tract of 160 acres with 120 acres of preserved open space.*

## Land Preservation Subdivision

The land preservation subdivision is the final phase of the design process. This plan satisfies the goals of the planning commission by protecting the key resources, preserving 75 percent of the tract in open space, and showing the allowable number of lots. This site design process should facilitate a streamlined final plan approval since the concerns of the municipality have been addressed early in the design phase.

The plan to the left illustrates a design that meets the goals identified by the municipal planning commission during its review of the site inventory. The plan shows the maximum number of allowable lots (62 cluster lots and one estate lot) and preserves 75 percent of the tract in open space (120 acres). The goals included preserving the woodlands and riparian areas, the historic farmstead, the views into the property, and elements of the rural character, such as the existing hedgerows and stone walls.

# *design elements*

# *Part 2*

**Part 2** of this publication introduces design elements that are featured throughout the Land Preservation District. This section is intended to illustrate concepts of the model ordinance found in Part 4 of this publication.

## Open Space

The LPD requires 75 percent of the gross tract area to be permanently preserved as open space. In addition to preserving the natural, scenic, historic, and cultural resources on a site, open space should be easily accessible and usable to residents. Where possible, the open space in LPD developments should be interconnected and linked to open space on neighboring tracts.

A range of uses are permitted within the open space. These include passive and active recreation, farming, stormwater management, and community water and sewer systems.

Open space areas in the LPD are defined as either general open space or central open space. Each category of open space has a specific purpose and design requirements.

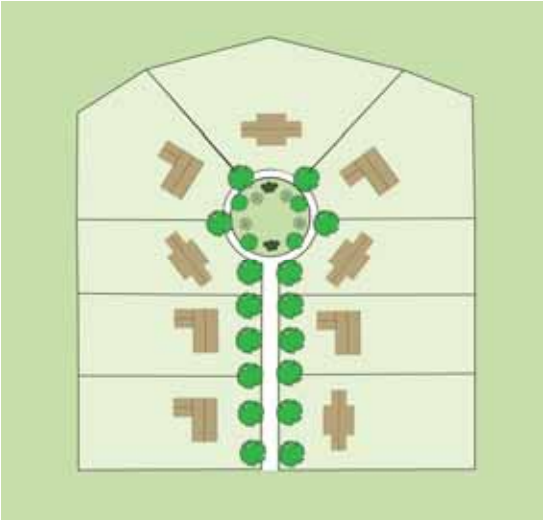
## General Open Space

General open space areas make up the largest area of preserved open space in the LPD. These large areas implement the priorities of the site inventory. They preserve sensitive natural features, such as woodlands, riparian corridors, farmland, or important scenic views. General open space areas also provide opportunities for interconnections with open space on adjacent tracts.

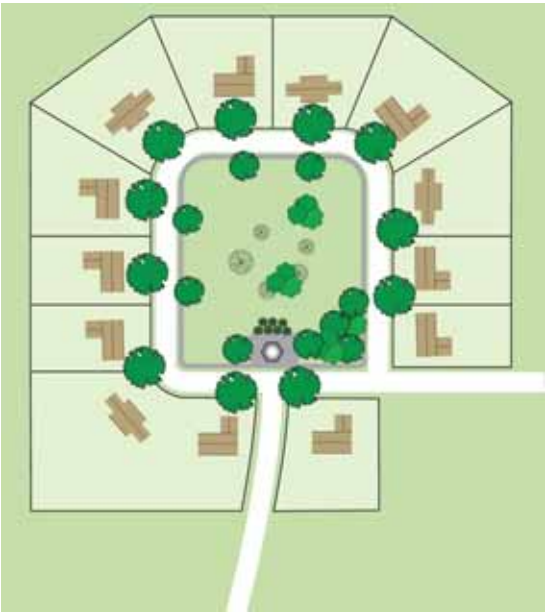
## Central Open Space

Central open space areas are smaller and are located throughout the LPD development. They provide focal points, gathering areas, and informal recreational opportunities. These areas may be designed as village greens, eyebrows, cul-de-sacs islands, or boulevard streets. They enhance the overall design of the development and provide residents with appealing open spaces and easy pedestrian access.

In the LPD, at least 60 percent of all lots in the development must border central open space along the width of a residential lot. Homes should face open space or be directly across the street from open space.



*Cul-de-sac islands can be planted with a mixture of trees and shrubs.*



*This village green is designed as a neighborhood park.*

## Central Open Space Design Options

There are several central open space design options which can be used in a LPD subdivision.

### Cul-de-sac Island

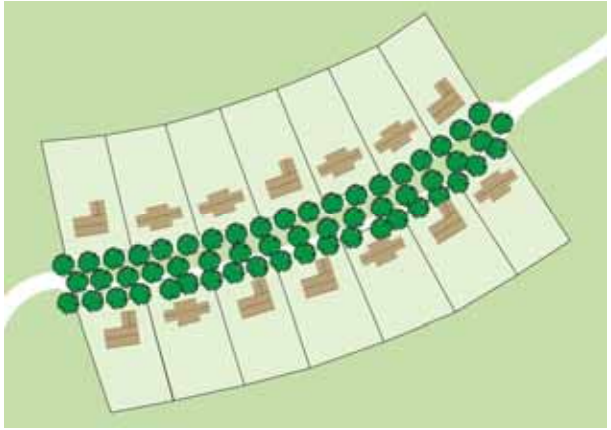
A cul-de-sac island is a planted area within the bulb of a cul-de-sac street. It utilizes space that would otherwise be paved, creating an open space amenity and potential stormwater management asset.

### Village Green

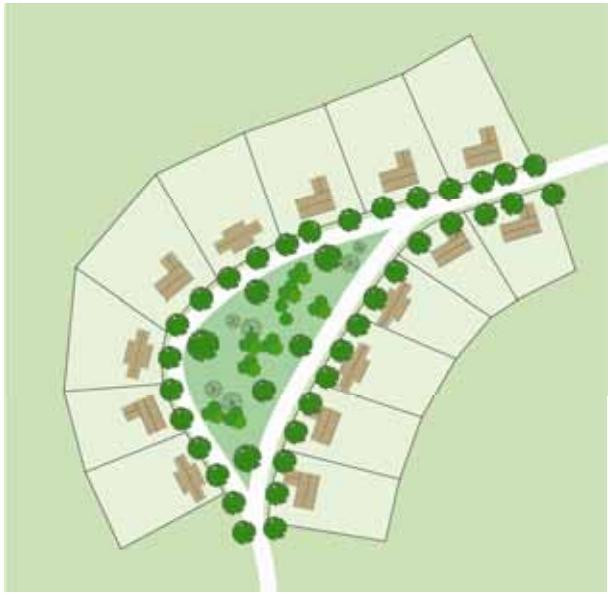
Village greens are larger open space areas surrounded by roads with homes typically facing the open space. Village greens serve as major focal points and gathering areas within LPD subdivisions. They are often planted with trees surrounding the perimeter.

### Neighborhood Park

A neighborhood park is required when there are more than 25 homes in any LPD subdivision. Neighborhood parks may be designed as a village green and can include amenities, such as passive seating areas with benches, a gazebo, or a fountain, or could provide a large grass area for active recreation. Neighborhood parks have specific design and grading standards.



*This boulevard is planted with a double row of shade trees .*



*This eyebrow was planted with shrubs and trees.*

## Boulevard

A boulevard is a two-lane street divided by a landscaped median. This roadway is surrounded by residential lots along both sides, and the median should be planted with shade trees. Over time, the trees form a canopy and create a sense of enclosure and a pleasant environment for residents. Landscape standards should require both the median area and adjacent lots to be planted with shade trees.

## Eyebrow

An eyebrow, usually designed as a semicircle, is a landscaped open space area that forms a large median along streets. In addition to being an open space amenity, eyebrows act as effective traffic-calming features. These median areas can be planted with a mixture of trees and shrubs.

*This land development preserves a historic farmhouse and the surrounding landscape as an estate lot.*

## Estate Lots

An estate lot is a privately owned lot at least 10 acres in size within a land preservation subdivision. A single-family residence may occupy a maximum of 2 acres of an estate lot. The remaining lot area is set aside as open space and counted toward the LPD overall open space requirement. This open space may be farmed or left in its natural state. The open space preserved as part of an estate lot is privately owned and maintained, and public access is not required. An estate lot may not be further subdivided.

Estate lots are helpful in preserving existing farmsteads and historic homes and their surrounding landscapes. Allowing developers to count a portion of the privately owned land toward the overall open space requirement provides an incentive to preserve existing structures. The benefits of preserving these homes and their rural landscapes outweigh limiting public access.

## Country Residences

Country residences are building lots of at least 4 acres in size that contain one single-family home. Creating country residence lots is an option on tracts greater than 10 acres as a conditional use in the Land Preservation District. No open space preservation is required for country residence lots. However, each lot is deed restricted against further subdivision. Applicants are also required to go through the same site inventory and municipal planning commission review process as land preservation subdivisions.

The plan to the left shows 31 country residence lots. This development shows no preserved open space, and much of the existing woodlands have been removed. The reduced density of this option (1 dwelling unit per 160,000 square feet of developable acreage) may discourage this type of development. Full density on a tract is only possible when using the land preservation subdivision. The country residence option, however, allows owners of large tracts of land to subdivide lots without having to do a land preservation subdivision.

## Landscaping

A well-designed landscape can mean the difference between an average development and one that looks outstanding. Landscaping can also enhance the environmental performance of stormwater facilities and riparian corridors. Landscape requirements for specific areas in the LPD are outlined in this section.

## Tract Buffers

To minimize the visual impact of new development and to reduce conflicts between neighboring properties, landscape buffers should be planted along tract boundaries, especially along external roads. These buffers can enhance scenic views or screen unwanted views. Creating naturally designed buffers helps integrate new development with the surrounding landscape. Buffer standards are outlined in the Landscaping Standards of this publication.

## Central Open Space

Providing central open space in LPD developments offers residents visual, as well as physical, access to open space close to their homes. Landscaping central open space areas with a variety of trees and shrubs makes them more inviting for residents. Landscape standards for central open space design options, such as village greens, boulevards, eyebrows, and cul-de-sac islands, are outlined in Appendix 3 of this ordinance.

## Stormwater Management

When stormwater management facilities are appropriately landscaped, they can be successfully integrated into the LPD open space. For example, central open space areas, such as cul-de-sac islands or eyebrows, could be used as bioretention areas. The use of landscaping in nonstructural Best Management Practices (BMPs), such as roadside swales and detention basins, can help increase their overall performance and aesthetic appeal. Landscaping should include native plantings consisting of a mixture of trees, shrubs, and seed mixes adapted to periodic inundation.

Riparian areas, including buffer areas along delineated wetlands, should be preserved or restored with plantings of native vegetation to slow the flow of runoff, help remove sediment and pollutants, and decrease downstream erosion during major storms.

*This 22- foot-wide street calms traffic, reduces impervious coverage, and allows service vehicles.*

*The photo rendition depicts a possible LPD street design scheme that shows no curbs, narrow street width, roadside swales, a sidewalk, and street trees.*

## Street Design

Many communities have road design standards that permit wide streets. These regulations are problematic in rural neighborhoods, where LPD developments are located. When narrower streets are built, developers save on construction costs, municipalities save on road maintenance costs, and stormwater management is improved. It is also not necessary for roads in LPD subdivisions to have curbs or on-street parking, which can further reduce costs.

Reducing the total area of streets can be critical for stormwater management. Street paving typically represents more than half of a residential community's total impervious coverage. For example, a subdivision containing 50 homes with 36-foot-wide streets creates approximately 2.5 acres of impervious coverage, while 26-foot-wide streets create less than 1.8 acres—a savings of 28 percent. Using even narrower streets would result in greater savings.

In the LPD, streets are designed to be narrow to decrease excessive traffic speed and minimize impervious coverage. Street width is directly linked to the traffic and parking demand generated by the number of homes. Communities in Pennsylvania, Oregon, and Colorado have experimented with narrower residential streets and have found them to be a safe and attractive alternative.

## Pedestrian Facilities

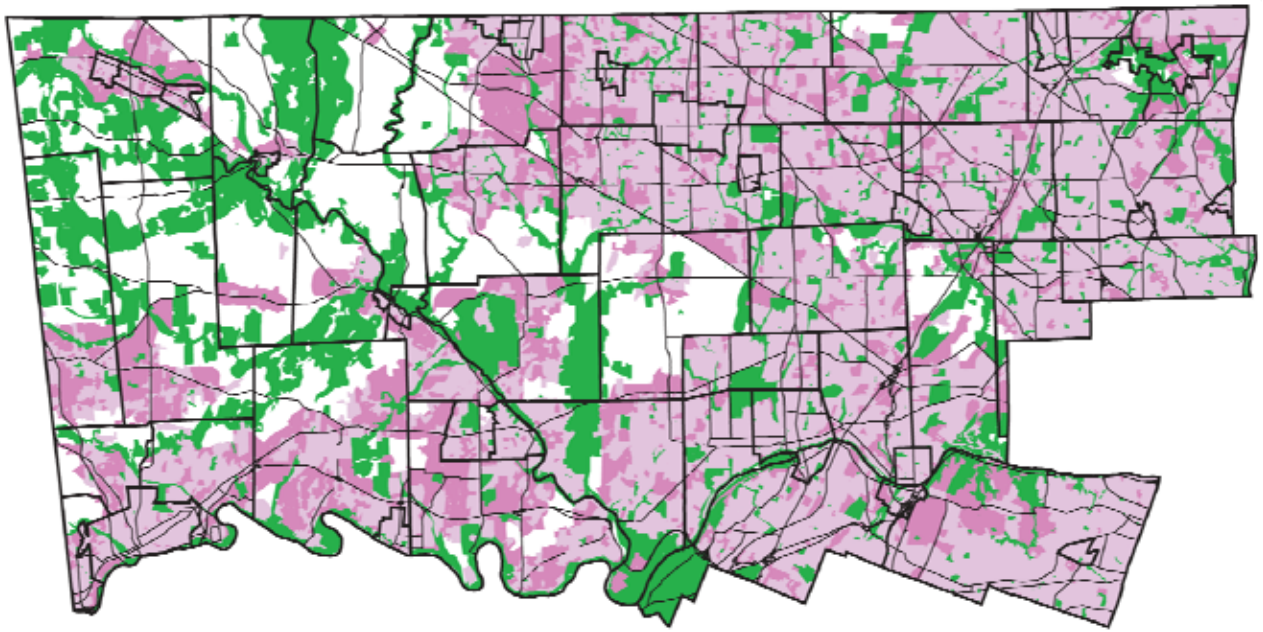
Sidewalks and trails in the LPD should connect homes to open space, as well as any trails or sidewalks on neighboring properties. The LPD suggests minimum width standards for trails based on their intended use. A multiuse trail for pedestrians, cyclists, and rollerbladers should be paved and be a minimum of 12 feet wide. Trails that prohibit wheeled vehicles can be narrower due to slower travel speeds. Full specifications for both trail types are listed in the Appendix 2 of this publication.

# community facilities

# Part 3

**Part 3** of this publication discusses the community facilities that are needed in all LPD developments, this includes sewer and water facilities, and stormwater management.

## Montgomery County Sewer Service Areas



Future Public Sewer Service

Existing (2000) Public Sewer Service

Existing and Preserved Open Space and Preserved Farmland

Non-Sewered Area

*NOTE: Mapping based upon 2000 Land Use information.*

## Sewage Facilities

The most appropriate locations for the LPD are rural areas with access to public or central sewers. In LPD developments, when existing public facilities are within 1/2 mile of the development, connection to these facilities is preferred. Extending public systems beyond these limits is not recommended by the county comprehensive plan. The Montgomery County comprehensive plan offers municipalities guidance in this area. (See Appendix 5 for more information.)

If public systems are not available, other options, including community systems and individually owned on-lot systems, are suggested. In conventional large-lot residential subdivisions, sewage is treated on each lot. LPD standards result in compact neighborhoods with smaller lots. These lots may not be able to handle on-lot sewage treatment and disposal.

## Individual Systems

On-site systems combine collection, treatment, and disposal on the lot. While these systems may not be possible on every lot, they can be used when the open space can provide the area needed for disposal of effluent, either as an individual or combined disposal field.

*The Jarrett tract in Salford Township uses individual sand mounds, located in the open space, for sewage disposal.*

*Use of sand mounds in a residential development.*

## Individual Disposal Field

The most common disposal field for individual systems is the absorption bed. Due to soil limitations in the county, most absorption beds are elevated sand mounds. The typical sand mound for an individual system would require approximately 500 to 800 square feet of land. The sand mound could be located in the open space adjacent to the lot.

## Combined Disposal Field

Individual sewage treatment systems can be connected to subsurface disposal fields that are shared by two or more dwelling units. These combined disposal fields can also be located in the open space.

In these examples, only a small area of the open space is needed for effluent disposal. Treatment would take place on the individual lot, while the disposal field would extend into the open space. Using open space for individual systems makes LPD development more feasible by eliminating the need for a more expensive or complex centralized community system.

*This mechanical sewage treatment plant serves thousands of homes in Upper Merion Township.*

*This development in Whitemarsh Township uses a community lagoon system.*

## Community Systems

A community system collects and treats sewage from individual dwelling units at a centralized location and disposes of the treated effluent. There are two treatment techniques and three disposal options which can be used in any combination to meet site conditions.

### Mechanical Treatment

This method uses an integrated system of tanks and processing units to manage sewage. This system is commonly sized to handle only the sewage generated by a particular development.

### Lagoon Treatment

This simpler method of sewage treatment involves using a large holding pond or marsh area to process sewage. Water is aerated to aid biological treatment and prevent odors. The ponds and marsh can be easily integrated into a landscaping scheme. Advantages of a lagoon system include less maintenance, lower energy needs, and lower operating and maintenance costs. Lagoon systems with a longer retention time minimize the production of sludge. This reduces the need for pond dredging, which further lowers costs.

## Subsurface Disposal Systems

Perforated pipes beneath the soil frost line are common types of subsurface disposal systems. Sand mounds are used where soil conditions prohibit buried pipes. These systems can be scaled up to handle multiple dwelling units and can be located in open space areas.

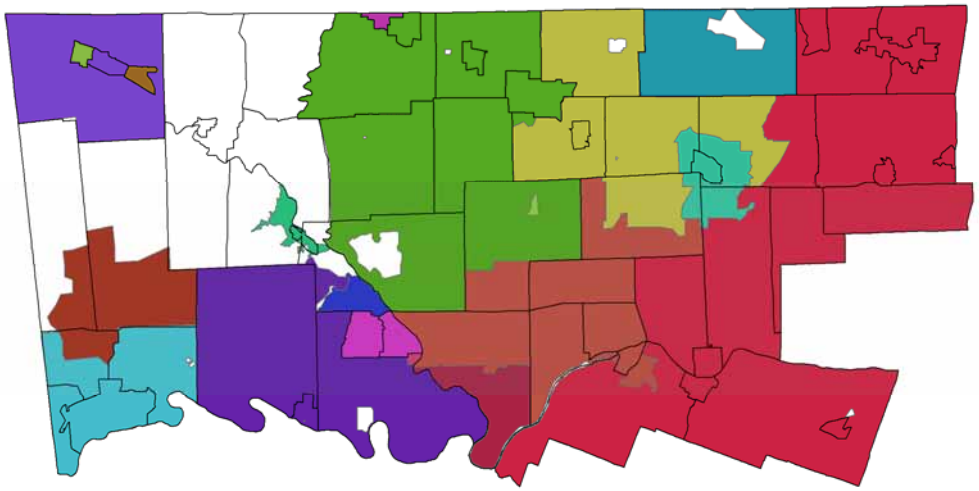
## Spray Irrigation Disposal

Treated effluent can be applied to soil surfaces in meadow, forested, or open space areas at rates equal to natural infiltration. Many areas of the county use treated effluent for nonfood irrigation purposes, such as golf courses.

## Stream Discharge

The least preferred alternative is to discharge effluent directly to surface waters. This technique should only be used when all other options are impossible, since downstream water quality suffers.

# Montgomery County Public Water Franchise Areas



**Legend**

- Ambler Borough Water Department
- Audubon Water Company
- Collegeville-Trappe Joint PWD
- East Greenville PWD
- Horsham Water and Sewer Authority
- North Conventry Water Authority
- North Penn Water Authority
- North Wales Water Authority
- Pennsylvania American
- Pennsylvania American
- Pottstown Borough Water Authority
- Aqua America
- Aqua America
- Aqua America
- Red Hill Water Authority
- Schwenksville Borough Water Authority
- Superior Water Company
- Superior Water Company
- Telford Borough Authority
- Upper Hanover Water Authority

## Water facilities

The preferred alternative for developers and municipalities is to choose a public water provider. The map to the left shows public water system franchise areas in the county. In cases where a new development is within a franchise area but there are no existing facilities within 1/2 mile of the development, public water companies may be interested in building and operating a satellite system within their franchise territory. Where public water is not an option, developers must choose between individual on-lot wells or a community water system.

*Water system wells can match the character of surrounding buildings, like this facility in Chester County.*

*Water system wells can be unobtrusive.*

## Individual Water System

The Montgomery County Health Department issues permits for the construction and operation of individual water wells. Wells must be properly sited and pass a pump test to demonstrate suitable yield. Given the smaller lot size in the LPD, it is unlikely that every lot will have a suitable site for a well.

## Community Water System

Community water systems should be sized for the community they serve. Community systems consist of one or more wells with a treatment facility. Water systems that withdraw more than a daily average of 10,000 gallons of groundwater in Montgomery County need approval from the Delaware River Basin Commission. Community systems of all sizes need water quality permits from the Pennsylvania Department of Environmental Protection (PADEP). These water systems will need to register with DEP and comply with the annual water quality monitoring criteria in the Pennsylvania Safe Drinking Water Act.

Community water systems can be located within open space areas. Their maintenance and operation are usually the responsibility of a homeowners' association. Most homeowners' associations that manage water systems hire private companies to perform maintenance and repairs. Community systems provide homeowners greater protection from well failure and contamination, since risk is shared among all the homeowners.

## Stormwater Management

LPD subdivisions can help reduce stormwater runoff. A cost-effective method is to incorporate comprehensive stormwater management early in the site design. Effective stormwater management starts with protecting the natural systems that already manage on-site runoff. Protecting these areas during the development process helps balance environmental benefits and costs. Many natural areas are mapped in the site inventory process and include steep slopes, hydric soils, wetlands, natural drainage ways, soils, and floodplains.

LPD developments should use a variety of Best Management Practices (BMPs). BMPs involve many possibilities—from structures, such as stormwater basins, to bioretention techniques—that use planting and grading to achieve stormwater goals. The Land Preservation District, together with the subdivision and land development regulations for roads, open space, and riparian areas, can help integrate these stormwater features into the overall site design.

*The swale along this road could be planted with a mixture of perennials. This would help slow runoff and provide greater infiltration of stormwater.*

## Best Management Practices Roads

A simple way to reduce stormwater runoff in the LPD is to build less and narrower roads. Clustering homes may reduce the overall length of roads, and reducing road widths decreases the total amount of impervious coverage. Recommended street standards are included in the Subdivision Ordinance Standards of this publication.

Another simple technique to manage stormwater is to require roadside swales in the subdivision ordinance. A community's landscape standards should support this technique by requiring plantings to help facilitate infiltration, decrease water velocity, and encourage the deposition of sediment and pollutants from road surfaces. Flatter areas within roadside swales could be designed as infiltration beds.

Suburban-style road standards in rural areas can result in generating large volumes of runoff that require larger structural BMPs, such as detention basins. The opportunities for stormwater management gains are greatest with a low-impact road design that includes eliminating curbs, inlets, piping, and manholes. This design can improve stormwater performance and reduce costs.

## Open Space

The LPD requires that at least 65 percent of all homes face central open space. This central open space may be designed as a village green, eyebrow, cul-de-sac island, or boulevard. Communities should allow these open space areas to be designed as stormwater facilities. For example, cul-de-sac islands and eyebrows can be designed as bioretention facilities to collect, infiltrate, and treat stormwater. Municipalities should update their landscape ordinances to include appropriate planting standards and plant lists. These lists should include native species that tolerate both wet and dry conditions.

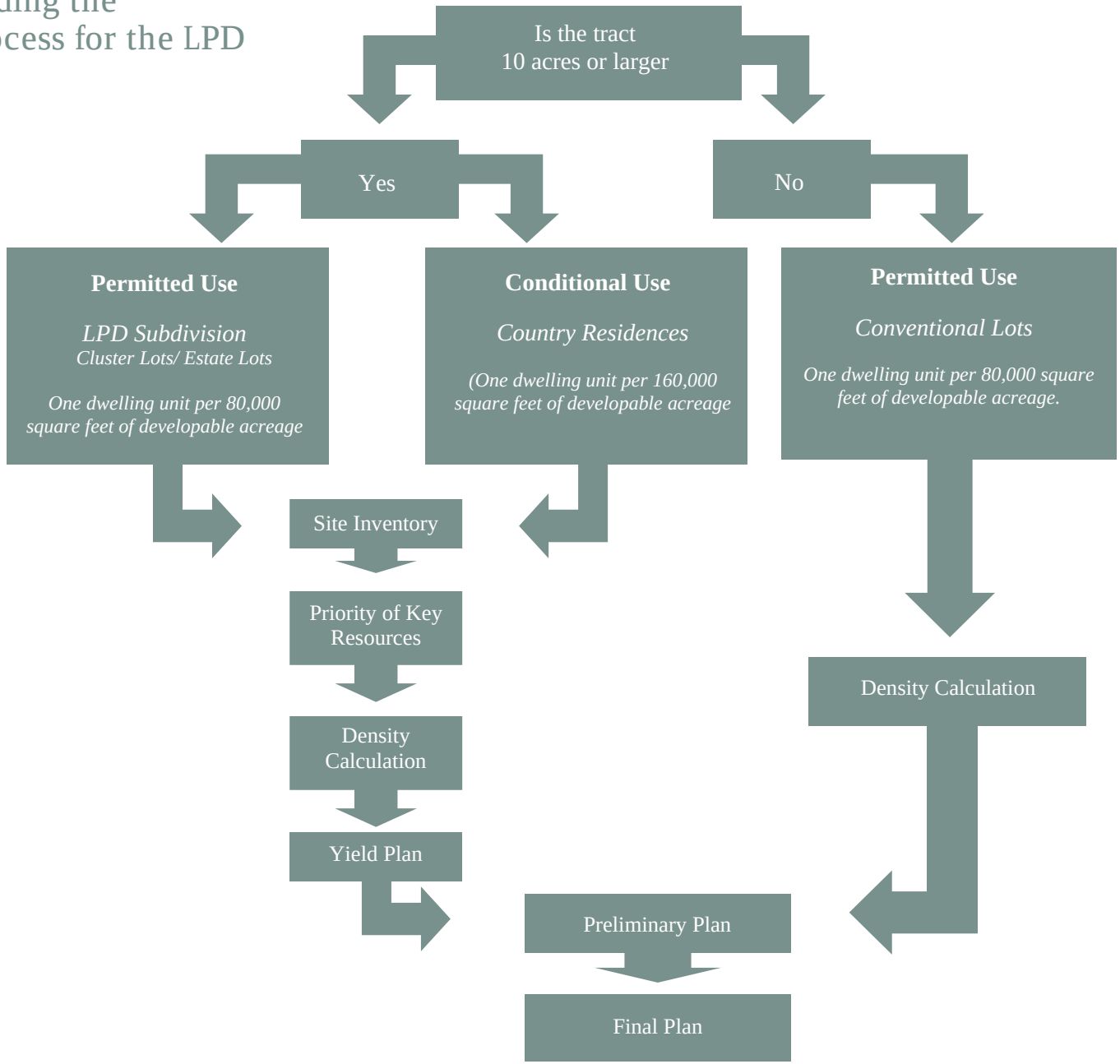
## Riparian Areas

Buffers along riparian areas are another important stormwater issue for communities to address. Protecting these sensitive natural areas is critical and usually is achieved through a riparian corridor ordinance in the zoning code. A riparian ordinance typically limits uses and intensity within certain distances of intermittent and perennial streams. In addition to a riparian ordinance, a municipality should also consider adopting planting standards to enhance riparian areas.

# model zoning ordinance

# Part 4

# Understanding the Design Process for the LPD



## Section 1. Intent

The primary purpose of the Land Preservation District (LPD) is to preserve open space, sensitive natural features, and rural community character that would be lost under conventional development. In this district, homes are arranged on a site to protect natural features such as farmland, woodlands, steep slopes, riparian corridors, or scenic views. The LPD provides design flexibility to locate open space and homes where they can best meet community open space goals.

The LPD District is intended to:

A. Preserve open space, including those areas containing natural features such as woodlands, steep slopes, streams, floodplains, and wetlands, by setting them aside from development.

B. Preserve scenic views and vistas and elements of a municipality's rural character by minimizing views of new development from existing roads.

C. Provide design flexibility and efficiency in the location of services and infrastructure, by reducing road length, utility runs, and the amount of paving required for residential development.

D. Create neighborhoods with visual as well physical access to preserved open space, with amenities in the form of central open space, and with strong neighborhood identity.

E. Implement the goals of the municipality's comprehensive plan and open space/recreation plan, as well as the county comprehensive plan.

F. Reduce erosion and sedimentation by preserving existing vegetation and minimizing development on steep slopes.

G. Create new woodlands, where appropriate, through natural succession and reforestation and encourage the preservation and enhancement of wildlife habitat.

H. Preserve large land areas with productive agricultural soils for continued or future agricultural use.

I. Preserve and maintain open space for active or passive recreation use by residents.

J. Encourage the preservation of historic homes and structures and their surrounding vernacular landscape as much as possible.

*Legislative Intent:*
*This section is intended as a model that reflects important elements of the ordinance. Individual municipalities should tailor this section to fit the goals and objectives for their community.*

## Section 2. Permitted Uses/Dimensional Standards

Land in the LPD Land Preservation District may be used for the following purposes:

A. Single-family detached dwellings in compliance with one of the following options:

1. On tracts of ten or more acres: Cluster lots and Estate lots according to the standards in Table #1, Land Preservation Subdivision With Preserved Open Space, or Country Residence lots according to the standards in Table #2, Subdivision With No Preserved Open Space.

2. On tracts less than ten acres: Conventional lots according to the standards in Table #2, Subdivision with no Preserved Open Space.

B. Open space, including parks, recreation areas, and preservation of natural features or farmland, in compliance with the standards in Section 6, Open Space Standards for Land Preservation Subdivisions.

### Table 1. Land Preservation Subdivision With Preserved Open Space

| | | |
|---|---|---|
| A. Permitted Lot Types: | **Cluster Lots and Estate Lots**<br>Permitted By Right With Preserved Open Space On Tracts of 10 or More Acres | |
| B. Minimum Preserved Open Space | 75% of gross tract area in compliance with the standards in Section 6, Open Space Standards for Land Preservation Subdivisions | |
| C. Maximum Permitted Density: | One Dwelling Unit Per 80,000 Square Feet of Developable Acreage in compliance with Section 4, Maximum Permitted Number of Lots | |
| D. Dimensional Standards | Cluster Lots | Estate Lots |
| 1. Minimum Lot Area | 15,000 square feet | 10 acres |
| 2. Minimum Lot Width | 90 feet | 200 feet |
| 3. Minimum Front Yard | 25 feet | 100 feet |
| 4. Minimum Side Yard | 15 feet each | 50 feet each |
| 5. Minimum Rear Yard | 25 feet | 50 feet |
| 6. Maximum Building Height | 35 feet | 35 feet |
| 7. Maximum Building Coverage | 30 percent of gross lot area | 15 percent of designated developable area |
| E. Other Requirements | Cluster Lots | Estate Lots |
| 1. Designated Developable Area | Not Applicable | Maximum 2 acres |
| 2. Deed Restriction Against Further Subdivision | Not Applicable | Yes |

### *Lot Types:*

*The Land Preservation District allows a range of single-family lot sizes depending on the size of the tract and if open space is preserved.*

*Cluster Lots (15,000 square feet in size) and Estate Lots (10 acres in size) with preserved open space are permitted on tracts of 10 acres or greater. (Table 1)*

*Conventional Lots (80,000 square feet in size) are permitted on tracts of less than 10 acres with no preserved open space. (Table 2)*

*Country Residences (160,000 square feet in size) with no preserved open space are permitted on tracts of 10 acres or greater as a conditional use. (Table 2)*

*An Estate Lot is a privately owned lot at least 10 acres in size within a land preservation subdivision. A single-family residence may occupy a maximum of 2 acres of an estate lot. The remaining lot area is set aside as open space and counted toward the overall open space requirement. An estate lot owner can farm the land or leave it in its natural state but it can not be further subdivided . The open space preserved as part of an estate lot is privately owned and maintained, and public access is not required.*

*Smaller Lot Options A municipality may want to consider permitting homes on smaller lots than allowed in this ordinance. Regulations for Village Homes are found in Appendix 7.*

*Maximum Building Height Height exceptions for existing structures such as barns and silos that are to be preserved may be added to the ordinance.*

## Table 2. Subdivision With No Preserved Open Space

| A. Permitted Lot Types: | **Conventional Lots**<br>On Tracts Less Than 10 Acres<br>Permitted By Right | **Country Residence Lots**<br>On Tracts 10 Acres or More<br>Permitted By Conditional Use |
|---|---|---|
| B. Minimum Preserved Open Space: | Not Required | Not Required |
| C. Maximum Permitted Density: | One Dwelling Unit<br>Per 80,000 Square Feet<br>of Developable Acreage in<br>compliance with Section 4,<br>Maximum Permitted<br>Number of Lots | One Dwelling Unit<br>Per 160,000 Square Feet<br>of Developable Acreage in<br>compliance with Section 4,<br>Maximum Permitted<br>Number of Lots |
| D. Dimensional Standards | Conventional Lots | Country Residence Lots |
| 1. Minimum Lot Area | 80,000 square feet | 160,000 square feet |
| 2. Minimum Lot Width | 200 feet | 200 feet |
| 3. Minimum Front Yard | 100 feet | 100 feet |
| 4. Minimum Side Yard | 40 feet each | 40 feet each |
| 5. Minimum Rear Yard | 40 feet | 40 feet |
| 6. Maximum Building Height | 35 feet | 35 feet |
| 7. Maximum Building Coverage | 10 percent of gross lot area | 4 percent of gross lot area |
| E. Other Requirements | Conventional Lots | Country Residence Lots |
| 1. Deed Restriction Against Further Subdivision | Not Applicable | Yes |

C. Agriculture activities including the cultivation, harvesting, and sale of crops and related farm products.

D. Accessory uses on the same lot and customarily incidental to any permitted use.

E. Low-impact nonresidential uses.

*Conventional Lots ( 80,000 square feet) are allowed in the LPD District on tracts less than 10 acres in size to provide a development alternative on smaller sized tracts.*

*Country Residences are building lots of at least 160,000 square feet in size that contain a single-family home. Country residence lots is an option on tracts greater than 10 acres in size as a conditional use in the Land Preservation District. No open space preservation is required. However, each lot is deed restricted against further subdivision.*

*Nonresidential uses—Municipalities considering adding nonresidential uses should specifically state the uses permitted. We suggest these uses should be agricultural in nature to reflect the rural character of the LPD. Industrial uses are not consistent with the intent of this ordinance and should be regulated by other zoning districts.*

## Section 3. Site Inventory and Identification of Resources to Preserve

For tracts of ten (10) or more acres, the applicant shall submit a site inventory prior to submittal of any subdivision plan under the provisions of this ordinance.

A. Required Information.

The site inventory shall show the following information for the subject site on one or more scaled drawings and aerial photos.

1. Contours showing the general slopes of the site with steep slope areas highlighted.
2. Floodplains, wetlands, streams, ponds, and riparian areas.
3. Woodlands and hedgerows.
4. Existing structures, scenic views, historic and/or culturally significant features, including farmlands and farmsteads.
5. Nearby public and private preserved open space and trails.

B. Prioritization of Resources.

1. Use of the Site Inventory. The municipal planning commission will use the site inventory as a guide to identify and prioritize key natural, scenic, historic, and cultural resources to retain and protect from adverse impacts of subdivision and development of the site.
2. Site Visit. The municipal planning commission may conduct a site visit with the applicant to facilitate this process.
3. Time Limit. Using the site inventory as a guide the municipal planning commission shall complete its prioritization of resources and communicate it to the applicant within sixty (60) days from submittal of a complete site inventory by the applicant.
4. Supporting Documents. In determining priorities for preservation of resources, the municipal planning commission may refer to adopted plans for guidance, including municipal, regional, and county comprehensive and open space plans, as well as other documents that provide information useful to the process.

*Aerial photographs of the site are submitted as part of the site inventory to help evaluate the property and its surrounding landscape.*

*The site inventory is used to identify and prioritize key natural, scenic, and historic resources on the site. Within 60 days of submitting the site inventory, the Municipal Planning Commission responds to the applicant by identifying and prioritizing the natural, scenic, historic, and cultural resources that should be preserved on the site. This is accomplished by showing the prioritized resources on the site inventory plan or listing the resources. Future plan submissions should protect the key resources identified by the planning commission.*

*Municipalities may want to consider requiring a site visit attended by members of the governing body, planning commission, and professional design consultants and applicant to help determine what key resources should be preserved and where development should be located on a particular site. The Natural Lands Trust advocates this approach in their "Growing Greener" model ordinance. Visit www.natlands.org for more information.*

C. Submission of Subdivision Plans**.** Following completion of the site inventory process, the applicant may submit subdivision plans for the site that preserves, to the greatest extent possible, the key resources as prioritized by the municipality.

## Section 4. Maximum Permitted Number of Lots

Within the Land Preservation District, the Maximum Permitted Number of Lots on a tract shall be calculated by dividing the Total Developable Acreage of the tract by the minimum lot size for the type of lots proposed. For subdivisions with cluster and estate lots, a Yield Plan shall also be required.

A. Developable Acreage Calculations. Calculate the Total Developable Acreage of a tract by subtracting portions of environmentally constrained land from the Total Net Tract Area, using Table 3, Environmental Adjustment Factors (EAF).

**Step 1:** Determine the Total Net Tract Area. The net tract area is the gross tract area minus areas within ultimate rights-of-way lines, utility easements, and access strips. (Note: Other areas may be subtracted in accord with municipal practices.)

**Step 2:** Determine Environmentally Constrained Acreage to Subtract from Net Tract. In Table 3 (following page), multiply the acreage of each Environmental Constraint by its EAF ratio to calculate its Environmentally Constrained Acreage to subtract from the Net Tract Area. *(Example: Depth to Bedrock _10_ acres X 0.67 = _6.7_ constrained acres)*

**Step 3:** Determine Total Developable Acreage. Add the Environmentally Constrained Acreages for all Environmental Constraints and subtract the total from the Total Net Tract Area.

*Submission of a sketch plan based on the priority resources to be preserved and the site inventory is suggested before preliminary plan submittal.*

*Density Calculations: The allowed density in the LPD is directly related to the carrying capacity of the land. For example, a site with significant floodplains and steep slopes could not have as many homes built on it as a identically-sized site with flat farmland. The density is determined by subtracting environmentally constrained land from the total site area.*

*Woodlands: In this ordinance a portion of woodlands is subtracted form the total tract area (as per Table 3 of this ordinance). Since woodlands can easily be removed, this woodland requirement is based on woodlands that existed 5 years prior to the application.*

*Riparian Corridors: Communities with a riparian corridor preservation ordinance typically require more than a 25-foot setback from watercourses and water bodies. If a community has a riparian corridor ordinance, Section 5.A.4 should be changed to reflect the riparian ordinance requirements.*

## Table 3. Environmental Adjustment Factors

| Environmental Constraint | Total Acreage of the Constraint on the Tract* | EAF Ratio (Environmental Adjustment Factor) | Environmentally Constrained Acreage to Subtract from Net Tract Area |
|---|---|---|---|
| Woodlands (Applies to woodlands that existed on a tract within five years prior to an application for land development or subdivision.) | _____acres | X .50 | =_____acres |
| Riparian Corridor (area within 25 feet of the edge of a perennial or intermittent stream.) | _____acres | X .67 | =_____acres |
| Riparian Corridor (area from 25 feet to 75 feet of the edge of a perennial or intermittent stream.) | _____acres | X .33 | =_____acres |
| Floodplain | _____acres | X 1.0 | =_____acres |
| Wetlands | _____acres | X 1.0 | =_____acres |
| Waterbodies | _____acres | X 1.0 | =_____acres |
| Watercourses | _____acres | X 1.0 | =_____acres |
| Slopes of 15% to 24% | _____acres | X .67 | =_____acres |
| Slopes greater than 24% | _____acres | X 1.0 | =_____acres |
| Seasonal High Water Table (less than 18" depth. Only applies when sewage system utilizes land for disposal) | _____acres | X .67 | =_____acres |
| Seasonal High Water Table (18"- 36" depth. Only applies when sewage system utilizes land for disposal) | _____acres | X .33 | =_____acres |
| Depth to Bedrock (less than 42" depth. Only applies when sewage system utilizes land for disposal) | _____acres | X .33 | =_____acres |
| Diabase Bedrock (Applies to sites with water supply wells) | _____acres | X .67 | =_____acres |
| | **Total Environmentally Constrained Acres to be Subtracted** | | = _____acres |
| | **Total Net Tract Area** | | = _____acres |
| | **Subtract Total Environmentally Constrained Area** | | = _____acre |
| | **Total Developable Acreage** | | = _____acres |

** When environmental constraints overlap, only the acreage of the environmental constraint with the highest EAF ratio is used. Do not double count overlapped areas.*

*Total Net Tract Area: The Gross Tract Area minus areas within ultimate right-of-way lines, utility easements, and access strips.(Note: Other areas may also be subtracted in accordance with local municipal practices.)*

*Total Developable Acreage: The Total Net Tract Area minus the Total Environmentally Constrained Acres in compliance with the EAF Ratios (environmental adjustment factor) in Table # 3.*

*Examples for the purposes of these calculations:*

*Where the EAF Ratio = 0.67, two-thirds of the land area is considered undevelopable.*

*Where the EAF Ratio = 0.33, one-third of the land area is considered undevelopable.*

*Where the EAF Ratio = 1, all of the land area is considered undevelopable.*

B. Maximum Permitted Number of Lots.

Calculate the Maximum Permitted Number of Lots using the appropriate formula from the options below. The calculated number of lots shall equal the number of permitted dwelling units and shall be rounded down to the nearest whole number.

1. Cluster and Estate Lots with Preserved Open Space:

   Maximum Permitted Number of Lots = Total Developable Acreage of the tract in square feet divided by 80,000 square feet (minimum conventional lot size)

2. Country Residence Lots with No Preserved Open Space:

   Maximum Permitted Number of Lots = Total Developable Acreage of the tract in square feet divided by 160,000 square feet (minimum country residence lot size)

3. Conventional Lots on Tracts Less Than Ten Acres with No Preserved Open Space:

   Maximum Permitted Number of Lots = Total Developable Acreage of the tract in square feet divided by 80,000 square feet (minimum conventional lot size).

C. Required Yield Plan.

For subdivision with cluster and estate lots, the applicant shall prepare a Yield Plan showing no more than the Maximum Permitted Number of Lots calculated in Section 4B.

1. The Yield Plan shall meet all requirements for Conventional Lots as identified in Table # 2, Subdivision With No Preserved Open Space (minimum 80,000 square feet, 200' lot width).

2. The Yield Plan shall also comply with all other applicable standards of the Township's Zoning and Subdivision and Land Development Ordinances.

3. The number of lots on the Yield Plan found acceptable by the Township Board of Supervisors, with the advice of the Township Engineer, shall be the final determination of the Maximum Number of Lots permitted for subdivision.

*Maximum Permitted Number of Lots: The number of residential lots permitted on a tract is determined by dividing the total developable acreage by the minimum lot size for the type of lot you are creating. For example, if creating cluster lots if would be the total developable acreage of the tract in square feet divided by 80,000 square feet (minimum lot size for cluster lots).*

*A yield plan is prepared showing that the maximum number of homes permitted can be realistically built on the site. The yield plan is required to meet all the municipal subdivision and land development requirements.*

## Section 5. Additional Dimensional and Design Standards

All setback areas along external roads including areas on estate lots shall be landscaped according to the standards of the municipal subdivision and land development ordinance in order to preserve scenic views and integrate the neighborhood into the surrounding landscape. Suggested methods compatible with rural character include preserving existing woodlands/hedgerows, tree planting, and naturalistic buffer plantings.

A. Building setbacks.

1. Minimum from external arterial or scenic road ultimate right of way: 200 feet.
2. Minimum from tract boundaries: 80 feet.
3. Minimum from all other external ultimate right of ways: 100 feet.
4. Minimum from wetlands, floodplains, or watercourses: 25 feet.
5. All setback areas along roads shall be landscaped according to the standards of the Subdivision and Land Development Ordinance. The landscape design shall preserve scenic views and integrate the development into the surrounding landscape. Berms and reforestation may be used where appropriate.

B. Design Standards.

1. All lots with new proposed homes shall take access from interior roads rather than roads exterior to the tract.
2. Views of new homes from exterior roads and abutting properties shall be minimized by the use of changes in topography, existing vegetation, or additional landscaping.
3. When homes are visible from roads exterior to the tract, the front or side façade of the home shall face the exterior road.
4. When homes are located adjacent to central open space only the front of the homes can face the central open space.
5. No more than ten (10) residential lots may be located in a row on the same side of the street without an open space break that is a minimum width of 100 feet along the street. Open space breaks may provide access into larger areas of General Open Space.

*Design Standards:*
*Individual municipalities may add additional design standards tailored to fit the goals and objectives of their community.*

## Section 6. Open Space Standards for Land Preservation Subdivisions

For Land Preservation Subdivisions, a minimum of seventy-five percent (75%) of the gross tract area shall be permanently preserved as open space in compliance with the following standards:

A. Land That Qualifies as Required Open Space.

1. Within the entire site, all land that is not within privately owned Cluster Lots, Estate Lots, road rights-of-way, and/or utility corridors (easements or rights-of-way) may be counted as part of the minimum seventy-five percent (75%) requirement.

2. Within Estate Lots, land that is *not* within the Estate Lot's designated developable area may be counted as part of the minimum seventy-five percent (75%) requirement.

B. Categories of Open Space.

1. General Open Space Areas. These are the larger areas of open space that implement the priorities of the Site Inventory by preserving natural, scenic, historic, and cultural resources and by providing opportunities for interconnections with other open space areas on adjacent lands. General Open Space Areas shall comply with the standards in Section 6, C, herein.

2. Central Open Space Areas. These are the smaller improved areas of open space that serve as visual focal points, gathering areas, and informal active and passive recreation areas located within or adjacent to the cluster lots. Central Open Space Areas shall comply with the requirements in Section 6, D, herein.

C. General Open Space Area Standards.

General Open Space Areas shall be designed to achieve the following objectives:

1. Retain and protect features identified and prioritized as key natural, scenic, historic, and cultural resources in the Site Inventory process. Farmsteads and other cultural resources may also be protected within Estate Lots.

2. Accommodate greenways, riparian and trail corridors, other open space features, and/or preserved farmland as identified in the municipal open space plan and consistent with the Site Inventory's priorities.

3. Maximize common boundaries with open space on neighboring tracts to implement the objectives of municipal, regional, and county open space, recreation, and comprehensive plans, especially with regard to preservation of extensive areas with significant natural features.

*The LPD requires 75% of the gross tract to be preserved as permanent open space.*

*Open Space:*
*In the LPD open space is divided into two categories. These include general open space and central open space.*

*General Open Space are larger areas of open space that preserves natural features that are identified as priorities in the site inventory.*

*Central Open Space are smaller improved areas of open space that serve as visual focal points and community gathering areas for informal active and passive recreation. Central open space is located adjacent to residential homes.*

4. Maintain natural features such as woodlands, meadows and streams in their natural state. Modifications may be permitted to improve the health of the ecosystem, including reforestation, woodland management, meadow management, streambank protection, wetlands management, and riparian restoration, as recommended by experts in the particular area being modified.

5. Form an interconnected system of areas with practical configurations and sizes, with a minimum dimension of one hundred (100) feet, fifty (50) feet for trail corridors, and no isolated parcels counted toward the 75% requirement.

6. Be conveniently accessible by a network of sidewalks and/or trails throughout the development.

7. Allow stormwater management facilities with naturalized character in compliance with Best Management Practices (BMPs).

8. Allow water supply and/or sewage disposal facilities in compliance with the standards in Section 7, Sewage and Water Facilities, herein.

D. Central Open Space Requirements.

Central Open Space areas shall serve as visual and functional focal points among groups of cluster lots within a Land Preservation Subdivision. They may include the areas within village greens, eyebrows, cul-de-sacs, and boulevard streets that form landscaped, usable, and/or decorative islands. Central Open Space shall comply with the following standards:

1. Village Green Open Space. A large landscaped island that may serve as the major focal point and gathering area within a Land Preservation Subdivision. It may be counted as central open space in compliance with the following:

    a. Minimum area of 15,000 square feet with a minimum width of 100 feet.

    b. Shall be surrounded entirely by one or more roads.

    c. May provide seating areas and/or other types of improved gathering spaces that may include a gazebo, fountain, shelter, and/or patio.

*Central open space may be configured as village greens, eyebrows, cul-de-sac islands, boulevards, or neighborhood parks.*

*Village Green Open Space may be rectangular, circular or free form and large enough to serve as neighborhood park. All homes should face a village green.*

*Another option for the design of Village Green Open Space is to permit at least 75% of its perimeter to be surrounded by roads.*

2. Eyebrow Open Space. A landscaped island between an internal through street and a semi-circular street lined with cluster lots. It may be counted as central open space in compliance with the following:

   a. A minimum area of 5,000 square feet, configured so that a circle with a diameter of fifty (50) feet can fit within the island.

   b. Landscaping shall include a variety of trees and shrubs, but shall not impede sight distance for vehicles exiting driveways or traveling along or around the island, and shall not hide pedestrians crossing the street.

   c. May provide a seating area.

3. Cul-de-sac Open Space. A landscaped island within the turnaround bulb of a cul-de-sac street. It may be counted as central open space in compliance with the following:

   a. Minimum radius of thirty (30) feet.

   b. Cartway surrounding the island shall not exceed twenty-two (22) feet in width.

   c. Landscaping shall include a variety of trees and shrubs, but shall not impede sight distance for vehicles exiting driveways or traveling around the island, and shall not hide pedestrians crossing the street.

4. Boulevard Open Space. A landscaped median island within the cartway of a street lined on both sides with cluster lots. It may be counted as central open space in compliance with the following:

   a. Minimum width of 20 feet and a minimum length of 150 feet.

   b. U-turn breaks shall be provided no more than 250 feet apart along the length of the islands to allow convenient access to homes along the boulevard street.

   c. Landscaping shall include a variety of trees and shrubs, but shall not impede sight distance at u-turn breaks and shall not hide pedestrians crossing the street.

5. Neighborhood Park Open Space. An open space area for neighborhood recreation activities in subdivisions of twenty-five (25) or more lots. It may be counted as Central Open Space in compliance with the following:

   a. Minimum area of 25,000 square feet with a minimum width of one hundred (100) feet.

   b. May be located within a Village Green.

   c. Shall provide active and passive recreation facilities for informal use by residents of the subdivision, including a variety of playground equipment and a lawn area with a gentle, uniform slope not exceeding 3 percent slope, suitable or informal ball games or other group play.

   d. Shall provide seating areas and/or other types of improved gathering spaces that may include a gazebo, fountain, shelter, and/or patio.

*Neighborhood Park is a larger central open space area that is required in LPD subdivisions of 25 or more lots.*

e. Shall be centrally located for convenient pedestrian access from a majority of the lots.

f. Shall be provided at the rate of one Neighborhood Park for each twenty-five lots, which may be provided individually or be combined into one larger area.

g. May also be used in subdivisions with fewer than twenty-five (25) lots.

6. Visual Access to Open Space. At least 60% of all lots (rounded up to the nearest whole number) in the development must border central open space along the whole width of the lot with the front or side of the homes facing the central open space, including open space directly across a road from the lots.

## Section 7. Sewage and Water Facilities

A. All development within the LPD shall be provided with adequate sewage treatment facilities. Only when a tract is located less than 1/2 mile from an existing public sewer system, should this development connect to the system.

B. For development located greater than 1/2 mile from a public sewer system the following hierarchy of sewage facilities options should be followed. They are shown in order of most to least desirable.

1. On-lot systems with subsurface disposal (the on-lot system could include one or more septic or aerobic tanks, and a sand filter. Subsurface disposal methods include sand mounds, drip and trench systems).

2. Individual residential spray irrigation system on estate lots only.

3. Community lagoon system with spray discharge.

4. Community lagoon system with subsurface discharge (for small developments).

5. Community sand mound (with either individual or commuity septic tank(s).

6. Mechanical treatment system with spray discharge.

7. Mechanical treatment system with subsurface discharge (for small developments).

8. Community lagoon system with stream discharge.

9. Mechanical treatment with stream discharge.

10. Individual low flow treatment systems with stream discharge.

*Visual Access to Open Space:*

*At least 60% of all lots in the LPD must border central open space along the whole width of the lot with the front of the homes facing central open space, including open space directly across a roadway.*

C. All development within the LPD shall be served by public water if available or by a centralized water system. Conventional Lots, Estate Lots and Country Estate Lots may be served by on-site wells.

## Section 8. Conditional Use Standards

In order to develop country residence lots with no open space as a conditional use within the LPD the applicant must demonstrate to the municipality's satisfaction that all the following conditions are met.

A. The proposed development will not have a disruptive effect on the existing topography, floodplains, wetlands, mature woodlands or other natural features on the site.

B. The proposed development shall be consistent with good design principles and land development practices. Specifically, it shall be designed to minimize views of dwellings from exterior roads, and to avoid "stripping out" of lots along exterior roadways.

C. The tract in question shall be developed in a manner consistent with community goals as expressed in the Municipal Comprehensive and Open Space Plans.

## Section 9. Ownership and Management of Open Space and Community Facilities

A. All open space shall be permanently restricted from future subdivision or land development by conservation easement acceptable to the Township Solicitor and recorded in the Office of the Recorder of Deeds of Montgomery County.

B. Conservation Easement Requirements. A conservation easement shall be recorded for each Land Preservation Subdivision indicating the purposes, locations, uses, and enforcement procedures for the preserved open space. Parties to the conservation easement should include the municipality, the subdivision's homeowners' association, and/or one or more conservation and open space oriented organizations such as land trusts and conservancies

C. The following methods of ownership of open space and community facilities may be used either individually or in combination:

1. Fee simple dedication to the municipality, although the municipality need not accept the offer of dedication.

2. A homeowners or condominium association.

*Country Residence Lots are permitted as a conditional use in a LPD District on tracts of 10 acres or more. Country Residences require no preserved open space and a minimum lot size of 160,000 square feet.*

3. Fee simple dedication to a private conservation organization.

4. Privately owned open space on estate lots.

5. Transfer of easements to the municipality or a private conservation organization.

D. Maintenance of open space. The applicant shall, at time of preliminary plan submission, provide a plan for the disposition, use, and maintenance of the common open space, including provisions for funding.

E. Maintenance and operation of water and sewer facilities. At the time of preliminary plan submission, the applicant shall provide a plan that defines ownership, establishes necessary operation and maintenance schedules, estimates staffing needs, insurance requirements and associated costs, and defines the means for funding the same on an ongoing basis. During the first year following final plan approval, the applicant may be required to escrow sufficient funds for the maintenance and operation of the facilities for up to one year.

F. In the event that the organization established to own and/or maintain open space and/or community facilities fails to maintain them in reasonable order and condition in accordance with the development plan and all applicable laws, the municipality may serve written notice. This notice shall set forth the nature of the corrections required and the time within which they shall be completed. Upon failure to comply, the organization shall be considered in violation of this chapter, in which case the bond, if any may be forfeited, and any permits may be revoked or suspended. The municipality may take corrective action which includes assessing a tax against the properties that have the right of enjoyment of the common facilities to effect the necessary corrections.

*Conservation easements are the preferred method of open space preservation. These easements run with the property title in perpetuity, and specify the various conservation uses that can occur on the property. These restrictions are separate from zoning ordinances and continue regardless of any changes to zoning. Conservation easements are typically signed by the land owner, the municipality, and a third party conservation organization such as a land trust. Easements can only be modified within the spirit of the original agreement, and only if the co-holders agree. Deed restrictions and covenants are, by comparison, not as effective.*

# appendices

# Part 5

**Part 5** of this publication contains supplemental regulations and resources that compliment the Land Preservation District model ordinance. These appendices cover definitions, subdivision ordinance standards, landscaping standards, sewage facilities, homeowners associations, village homes, and cluster developments examples in Montgomery County.

# Appendix 1. Definitions

**Cluster Lots**—Building lots of at least 15,000 square feet that may each be used for one single-family detached dwelling within a Land Preservation Subdivision.

**Common Facilities**—All the real property and improvements set aside for the common use and enjoyment of the residents, including, but not limited to, buildings, open space, private roads, parking areas, walkways, recreation areas, landscaped areas, drainage easements, and any utilities that service more than one unit, such as sewer and water facilities. Common facilities may be owned and maintained by a homeowners' association.

**Common Open Space**—Open space accessible for the shared use and enjoyment of the residents, including, but not limited to, landscaped areas, trails, walkways, recreation areas and facilities. Common open space may be counted toward the minimum required 75 percent open space preservation.

**Conventional Lots**—Building lots of at least two acres that may each be used for one single-family detached dwelling. Conventional Lots are permitted by right only on tracts of less than ten (10) acres with no open space preservation required.

**Country Residence Lots**—Building lots of at least four acres that may each be used for one single-family detached dwelling. Country Residence Lots are a conditional use option for development on tracts greater than ten (10) acres, with no open space preservation required.

**Designated Developable Area**—The portion of an Estate Lot that may be improved with a single-family detached dwelling and accessory structures or features, including lawns, gardens, driveways, and recreational facilities. It may also be used instead to preserve a farmstead.

**Estate Lots**—Privately-owned lots of at least ten (10) acres that may each be used for one single-family detached dwelling within a Land Preservation Subdivision. Buildings must be located within the lot's Designated Developable Area while the remainder of the Estate Lot area may be farmed or retained in its natural state and may be counted as part of the minimum required open space preservation of the Land Preservation Subdivision. Estate Lots provide visual open space that does not require public access and they are especially well-suited for preservation of farmsteads.

**Front Façade**—The face of a building that is closest to a street and contains the front door or other features identifying it as the primary face of the building.

**Homeowner's Association (HOA)**—An organization in which individual homeowners share responsibility for costs and upkeep of common open space and common facilities.

**Land Preservation Subdivision**—A type of subdivision permitted by right that provides site design flexibility by locating single-family detached dwellings on Cluster Lots with a minimum of 75 % of the gross tract area is preserved as open space within tracts of ten (10) acres or more.

**Open Space**—A parcel or parcels of land within a land preservation subdivision designed and intended for the use and enjoyment of the residents of the subdivision and/or for the protection of sensitive natural features, farmland, scenic views, historic, and cultural resources.

**Restricted Open Space**—Open Space areas that are not physically accessible to residents but may be counted toward the minimum required 75% open space preservation. Restricted Open Space may include farmland , portions of Estate Lots, or historic features.

**Woodlands**—Areas, groves or stands of primarily mature trees (i.e. larger than 6 inches in caliper) covering an area of one quarter of an acre or more, or groves of mature trees (greater than 12 inches in caliper) consisting of more than ten individual specimens.

# Appendix 2. Subdivision Ordinance Standards

The following regulations shall apply to any subdivision or land development proposed within the LPD–Land Preservation District as is described in the municipal zoning ordinance and delineated on the official municipal zoning map.

## Section 1. Pedestrian Facilities

A. Sidewalks are required to be constructed along all interior road frontages on both sides of the street. Where deemed appropriate by the governing body sidewalks may be constructed on one side of the street.

B. A pathway or trail may be provided in lieu of sidewalks in appropriate locations with the approval of the governing body.

C. Pedestrian facilities shall provide access to general open space areas and central open space areas throughout the development, as well as access to existing pedestrian facilities on abutting tracts.

D. Design Standards.

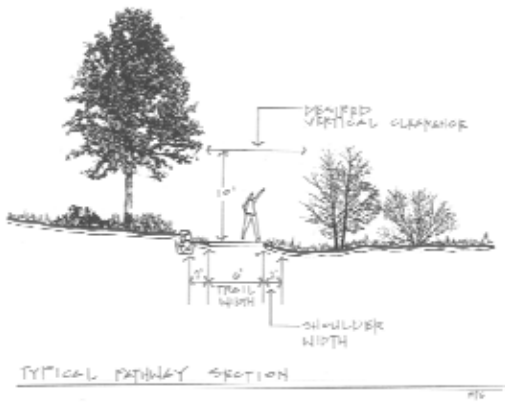
1. Sidewalks shall be at least five feet wide, but may be reduced to 4 feet wide, if appropriate and with the approval of the governing body.

2. Pathways are pedestrian only facilities designed according to the following specifications.

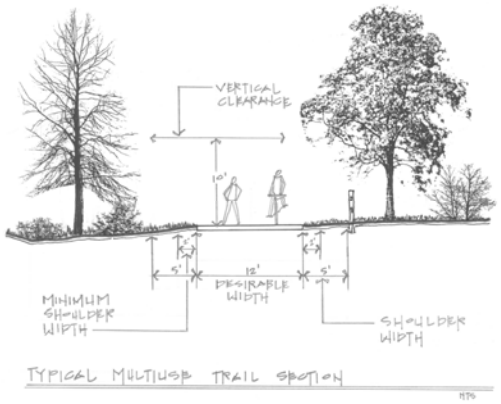
   a. Pathway width—6 feet
   b. Pathway shoulder width—2 feet
   c. Surface type—cinder/macadam
   d. Pathway grades—1%-3%
   e. Vertical clearance—10 feet
   f. Horizontal clearance—2 feet
   g. Design speed—3-7 mph

3. Trails are multi-use (pedestrian and bicycle) facilities designed according to the following specifications and must connect with existing or planned trail facilities as outlined in the municipal or county open space and recreation plan.

   a. Trail width—12 feet
   b. Trail shoulder width—4-5 feet
   c. Surface type—macadam




*Pathways requires limited horizontal and vertical clearance.*




*A multiuse trail can be paved and requires a wider area.*

d. Trail grade—1%-3%

e. Vertical clearance—10 feet

f. Horizontal clearance—4-5 feet

g. Design speed—20 mph

## Section 2. Road Design

A. All new roads shall be designed according to the criteria in Table __ and where possible shall include stormwater swale(s) along one or both sides of the street.

B. Curbs shall only be used when absolutely deemed necessary by the municipality for stormwater management purposes.

C. When no curbs are provided, a drainage swale shall not exceed 3 feet in depth as measured from the adjacent edge of the roadway to their deepest point. with a maximum slope of 3:1 shall be constructed in appropriate locations on each side of the street.

D. Roads shall be designed relative to existing topography to minimize grading or realignment.

E. New roads shall follow existing site features like access roads, tree lines, or stone rows to minimize their visual impact and to maintain the integrity and usability of existing open space.

## Section 3. Parking,Driveway and Estate Lot Requirements

A. Parking

1. Each residential lot shall include two, paved off-street parking spaces, exclusive of a garage. Each space shall be accessible to the street.

2. If the door of an attached or detached garage faces the street, the garage shall be set back at least 10 feet behind the front façade of the dwelling.

B. Driveways

1. Driveways shall be designed with a width of at least 10 feet and no more than 15 feet. The use of shared driveways is strongly encouraged.

C. Estate Lots

1. Estate lots shall be accessed by separate or shared drives. Shared drives shall be designed with a width of at least 16 feet and no more than 20 feet.

2. All estate lot parking, including any guest parking, shall be provided on the lot.

*In the Land Preservation District roads should be designed to decrease traffic speed and minimize impervious surfaces. Road width is directly linked to the traffic and parking demand generated by the homes served. Roads shall be designed to include roadside swales to collect and treat stormwater runoff.*

### *Road Design Standards*

| Design Criteria | LPD Roads |
|---|---|
| Minimum cartway width for two-lane roads with no on-street parking. | 16 ft. (<100 ADT)<br>20 ft. (100 - 500 ADT)<br>26 ft. (500 - 1,000 ADT)<br>28 ft. (1,000 - 3,000 ADT) |
| Additional right-of-way* | 8 - 16 ft. |
| Design Speed (level terrain) | 15 - 25 mph. |

*ADT – Average Daily Traffic.*

** Additional right-of-way will accommodate roadside swales.*

# Appendix 3. Landscaping Standards

All subdivisions and land developments in the Land Preservation District shall comply with the standards contained in this section, unless the standards contained in other applicable sections of the municipal Subdivision and Land Development Ordinance are more stringent. The following landscape standards are recommended for new developments in the Land Preservation District.

## Section 1. Applicability

A. A landscape plan shall be submitted as part of the preliminary plan submission. The landscape plan shall be prepared by a qualified professional, such as a landscape architect, landscape designer or horticulturalist.

B. The landscape plan shall depict a planting design that preserves and enhances the rural character of both the proposed development and its nearby surroundings.

## Section 2. Preservation and Protection of Existing Vegetation

A. All subdivisions or land developments shall be laid out in such a manner as to minimize any disturbance to the site's natural features.

B. Any woodlands or trees within a subdivision or land development that are designated as priority resources shall be preserved in their entirety.

C. To the maximum extent possible, existing woodlands and hedgerows shall be incorporated into the site design, boundaries, and lot layout of a new development.

D. Existing vegetation shall be credited towards any applicable municipality landscaping requirements at the discretion of the municipality.

E. The applicant shall prove to the satisfaction of the municipality that vegetation removal has been minimized. If requested by the municipality, the applicant shall produce evidence such as written documents or plans that have been certified by a registered landscape architect or other certified professional.

## Section 3. Tract Buffers

A. Buffers shall be designed in a way which incorporates the preservation and enhancement of significant natural, historic, and scenic resources found on the site.

B. Buffers shall be used for the purpose of screening views of a development's new homes from external public rights-of-way and tract boundaries.

*Municipalities should include standards for the preservation and protection of existing vegetation to minimize site disturbance and protect priority resources.*

C. When topography changes or existing vegetation do not sufficiently screen new development, a perimeter tract buffer a minimum width of 25 feet shall be created and maintained along all property lines and external street boundaries of the tract proposed for subdivision or land development. The buffer area may be included within the front, side, or rear yard setback.

D. Buffer length shall be sufficient to screen new development from external roads and adjacent properties.

E. Paved areas and parking are not permitted in the buffer area, except for street and driveway crossings and/or sidewalks or pathways.

F. Stormwater basins are permitted in the buffer area provided that the screening requirements of the buffer is met.

G. The tract buffer screening shall be achieved in the following ways:

1. Existing evergreen trees, mature and healthy deciduous trees, shrubs, or other vegetation within the buffer shall be retained during the development process and used as part of the tract buffer.

2. The buffer area shall be a continuous pervious planting area consisting of trees, shrubs, groundcover, grass and/or perennial plants.

3. For every 100 linear feet of tract buffers, there shall be the following minimum number of plants arranged in an irregular and varied planting scheme.

   a. Medium to large deciduous trees - 4 trees
   b. Small deciduous trees - 4 trees
   c. Evergreen trees - 6 trees
   d. Deciduous shrubs - 12 shrubs
   e. Evergreen shrubs - 12 shrubs

4. Trees within the tract buffer shall be of varying species, heights, and caliper when installed. Trees shall also have varying heights at maturity.

5. Of the total trees planted within the tract buffer the following sizes are required:

   a. One-third shall have a 1.5 inch minimum caliper or be at least 10 feet in height when installed.
   b. One-third shall have a 2.0 inch minimum caliper or be at least 12 feet in height when installed.
   c. One-third shall have a 2.5 inch minimum caliper or be at least 14 feet in height when installed.

6. Plant species in the tract buffer shall be no more than 50% evergreens.

7. Shrubs at the time of planting shall have a minimum height of 30 inches.

8. No less than five (5) species of native plants shall be utilized.

## Section 4. Hedgerows

A. Existing hedgerows shall be preserved to the greatest extent possible.

B. Hedgerows shall be used for the purpose of screening views of a development's new homes from external public rights-of-way and adjacent tracts.

C. The minimum width for hedgerows is 15 feet and the maximum width is 25 feet.

D. Additional Hedgerow Requirements

1. For every 100 linear feet of hedgerows, there shall be the following minimum number of plants arranged in an irregular and varied planting scheme.

   a. Medium to large trees - 6 trees

   b. Small trees - 2 trees

   c. Deciduous shrubs - 15 shrubs

   d. Evergreen shrubs - 12 shrubs

2. If hedgerows are chosen as a screening option, they shall be enhanced and improved with additional plantings if gaps exist within the linear arrangements.

3. The composition of hedgerows shall be 50% trees and 50% shrubs.

4. No less than five (5) species of native vegetation shall be planted.

5. Vegetation shall be planted in at least two (2) staggered rows and grouped informally. A repetitive planting pattern shall be avoided.

## Section 5. Street Trees

A. Street trees shall be planted in the following locations, and shall comply with all applicable municipal regulations:

1. All existing streets when they abut or lie within the proposed subdivision or land development, except where existing vegetation serves to meet the planting requirements.

2. All proposed new streets, whether public or private.

*Hedgerows:*
*Hedgerows can consist of both existing and planted vegetation. They serve as visual buffers and enhance the rural character of the landscape. Hedgerows are typically narrow and linear in form and follow natural contours. A variety of plants grow within hedgerows and their unique appearance is due to their narrow form and the close planting of vegetation. Using native plants is recommended when creating new hedgerows or adding to existing hedgerows.*

B. Street trees shall be planted at a ratio of one tree for every 40 linear feet of a street, on both sides of the street. Street trees may be clustered informally to avoid a repetitive planting pattern.

C. The street tree requirement may be waived by the municipality to maintain scenic views of open space, farmland, hedgerows, or other rural elements.

D. Street trees shall be planted as close to the street cartway as feasible and outside of any swales or pathways.

E. The use of native tree species is strongly encouraged.

## Section 6. Central Open Space

A. Village Green Open Space

1. Village Green Open Space shall be planted with street trees along street frontages at a spacing of no greater than forty feet on center.

2. For every 1,000 square feet of area, or fraction thereof, Village Green Open Space shall be planted with one shade tree, and either one flowering tree or five shrubs .

B. Boulevard Open Space

1. Boulevard Open Space shall be planted with street trees along all street frontages at a spacing no greater than 30 feet on center.

C. Eyebrow Open Space

1. For every 1,000 square feet of area, or fraction thereof, Eyebrow Open Space shall be planted with one shade tree, and either one flowering tree or five shrubs .

D. Cul-de-sac Open Space

1. For every 1,000 square feet of area, or fraction thereof, Cul-de-sac Open Space shall be planted with one shade tree, and either one flowering tree or five shrubs.

## Section 7. Roadside Swales

A. The walls and floor of roadside swales shall be sodded or planted with suitable vegetation such as naturalized meadow plantings, which tolerate wet, intermittently wet and usually dry conditions. Trees and shrubs may be planted where they will not interfere with the swale's function.

*Central Open Space areas where appropriate should be designed as bioretention areas for stormwater management.*

## Section 8. Stormwater Basin

A. Stormwater Basin- Landscaping shall be required in and around all stormwater management basins according to the following:

1. All areas of stormwater basins and associated facilities are required to have landscaping in and around the basin. All basins, including basin floors, side slopes, berms, impoundment structures, or other earth structures, shall be planted with suitable vegetation such as naturalized meadow plantings or lawn grass specifically suited for stormwater basins

2. Trees and shrubs shall be planted in and around stormwater basins given they do not interfere in the proper function of the basin and no trees are planted within 30 feet of an outlet/drain structure, emergency spillway or dam. A minimum planting of two (2) trees and ten (10) shrubs per 100 linear feet of basin perimeter shall be planted in and around the basin.

3. Naturalized ground cover plant species, such as wildflowers, meadows, and nonaggressive grasses specifically designed for the permanently wet, intermittently wet, and usually dry areas of stormwater basins, shall be seeded in the floors and slopes of the basin given these plantings provide a satisfactory continuous cover to the basin and the plantings do not interfere in the safe and efficient function of the basin as determined by the Township Engineer.

4. Lawn grass areas may be sodded or hydro seeded to minimize erosion during the establishment period.

5. Basin shape shall incorporate curvilinear features to blend with the surrounding topography.

6. The maximum slope of any basin embankments and other graded areas shall not exceed 4:1.

7. Concrete low-flow channels are prohibited.

8. Stormwater basins shall be screened from adjacent properties using the requirements of the tract buffer plantings standards.

# Appendix 4. Recommended Plant Lists

The following is a short list of recommended plants that are appropriate for use in the Land Preservation District.

It is important to choose landscaping plants that grow well at a site despite any constraints. Much information can be found on the Internet about choosing the right plants for one's landscaping needs. What follows is a short list of recommended plants that are appropriate for the Land Preservation District.

## Medium - Large Deciduous Trees

| Botanical Name | Common Name | Mature Height |
|---|---|---|
| Acer rubrum | Red Maple | 75-100 feet |
| Acer saccharum | Sugar Maple | 75-100 feet |
| Betula nigra | River Birch | 50-75 feet |
| Celtis occidentalis | Common Hackberry | 75-100 feet |
| *Fraxinus americana | White Ash | 75-100 feet |
| *Fraxinus pennsylvanica | Green Ash | 50-75 feet |
| Liquidambar styraciflua | American Sweetgum | 75-100 feet |
| Liriodendron tulipifera | Tuliptree | 75-100 feet |
| Platanus occidentalis | Sycamore | 75-100 feet |
| Prunus serotina | Black Cherry | 50-75 feet |
| Quercus alba | White Oak | 75-100 feet |
| Quercus coccinea | Scarlet Oak | 50-75 feet |
| Quercus palustris | Pin Oak | 50-75 feet |
| Quercus rubra | Red Oak | 60-95 feet |
| Tilia americana | American Linden | 60-100 feet |

** Not recommended to be planted at this time due to the Emerald Borer infestation*

## Small Deciduous Trees

| Botanical Name | Common Name | Mature Height |
|---|---|---|
| Alnus rugosa | Speckled Alder | 20-35 feet |
| Alnus serrulata | Common Alder | 15-25 feet |
| Amelanchier arborea | Downy Serviceberry | 15-25 feet |
| Amelanchier canadensis | Shadblow Serviceberry | 35-50 feet |
| Amelanchier laevis | Allegheny Serviceberry | 25-35 feet |
| Carpinus caroliniana | Musclewood | 35-50 feet |
| Cercis candensis | Redbud | 20-30 feet |
| Chioanthus virginicus | Fringetree | 12-20 feet |
| Cornus florida | Flowering Dogwood | 25-50 feet |
| Hamamelis virginiana | Common Witchhazel | 20-35 feet |
| Halesia carolina | Silverbell | 30-40 feet |
| Magnolia virginiana | Sweetbay magnolia | 10-30 feet |
| Sassafras albidum | Common Sassafras | 35-50 feet |

### Invasive Species

*Invasive species are a constant concern in Southeast Pennsylvania. Invasive species are non-indigenous and undesirable species (in this case, plants) that heavily colonize a particular habitat, sometimes to the point of crowding out other native species and causing environmental or ecological damage.*

*We strongly encourage the removal of invasive plants during the construction process. The removal of invasive plants should not require any additional mitigation or landscaping requirements.*

*Plants invasive include:*

- *Norway maple*
- *Sycamore maple*
- *Tree of heaven*
- *Russian olive*
- *Autumn olive*
- *Korean evodia*
- *Mulberry*
- *Empress tree*
- *Amur cork tree (female)*
- *Sweet cherry*
- *Black locust*
- *Siberian elm*

## Deciduous Shrubs

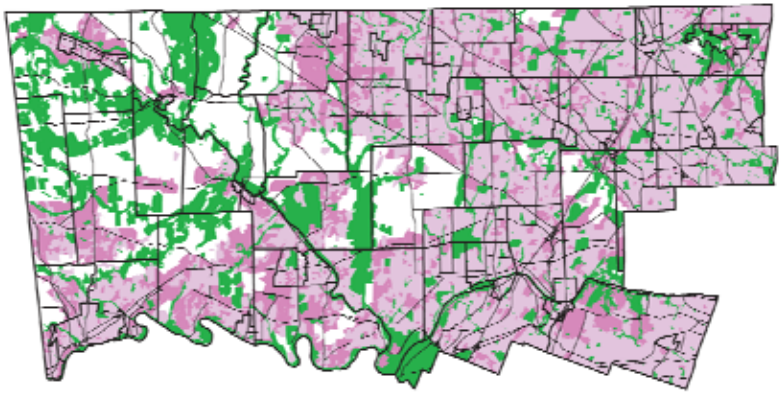
| Botanical Name | Common Name | Mature Height |
|---|---|---|
| Aronia arbutifolia* | Red Chokecherry | 6-12 feet |
| Aronia melanocarpa* | Black Chokecherry | 6-12 feet |
| Clethra alnifolia | Summersweet | 5-8 feet |
| Cornus amomum | Silky Dogwood | 6-12 feet |
| Cornus sericea | Redosier Dogwood | 7-12 feet |
| Ilex verticillata | Common Winterberry | 6-12 feet |
| Lindera benzoin* | Common Spicebush | 6-12 feet |
| Myrica pennsylvanica* | Northern Bayberry | 6-12 feet |
| Sambucus canadensis | Elderberry | 6-12 feet |
| Viburnum dentatum* | Arrowwood Viburnum | 6-12 feet |
| Viburnum prunifolium | Black Haw Viburnum | 12-15 feet |
| Viburnum trilobum | Highbush Cranberry | 6-12 feet |

## Evergreen Trees and Shrubs

| Botanical Name | Common Name | Mature Height |
|---|---|---|
| Ilex gabra* | Inkberry | 6-12 feet |
| Ilex opaca | American Holly | 25-50 feet |
| Juniperus communis* | Common Juniper | 3-6 feet |
| Juniperus virginiana | Eastern Red Cedar | 50-75 feet |

** Particularly suited for tough growing conditions*

# Appendix 5. Sewage Facilities and the Comprehensive Plan



Future Public Sewer Service
Existing (2000) Public Sewer Service
Existing and Preserved Open Space and Preserved Farmland
Non Sewered Area

*NOTE: Mapping based upon 2000 Land Use Information.*

## Comprehensive Plan

Providing public or community sewage treatment facilities in areas that are more rural is challenging since these areas may be located outside of a designated sewer growth area. The Montgomery County comprehensive plan offers municipalities the following suggestions. In order to consider a centralized (public or community) system in the rural resource area, a development should be designed as a rural cluster with:

- A minimum of 60% open space (ideally 75%).
- A proposed density of less than 1 dwelling unit per acre.

If a cluster-type development fits these two criteria and is located less than ½ mile from an existing public sewer system, the development should tie into public facilities. If the cluster-type development meets the above criteria and is located greater then ½ mile from a public sewer system, on-lot sewage facilities systems should be utilized.

If these systems are not feasible, the comprehensive plan recommends a hierarchy of sewage treatment alternatives (listed to the right in descending order of desirability). The intent of this hierarchy is to provide new low-density development in rural resource areas with an effective sewage treatment and disposal method that has the least growth-inducing impact.

## Sewage Treatment Alternatives

- On-lot systems with subsurface disposal (The on-lot system could include one or more septic or aerobic tanks, and a sand filter. Subsurface disposal methods include sand mounds, drip, and trench systems.)
- Individual Residential Spray Irrigation Systems (IRSIS)
- Community lagoon system with spray discharge
- Community lagoon system with subsurface discharge (for small developments)
- Community sand mound (with either individual or community septic tanks)
- Mechanical treatment system with spray discharge
- Mechanical treatment system with subsurface discharge (for small developments)
- Community lagoon system with stream discharge
- Mechanical treatment with stream discharge
- Individual low-flow treatment systems with stream discharge

## The Municipal Role

The location and use of sewage facilities in the LPD are best regulated by the municipality's adopted sewage facilities plan (Act 537 Plan) and site characteristics. The sewage facilities plan is an important municipal tool for implementing the LPD ordinance.

## Responsibility and Liability

A municipality's responsibility and liability for sewage facilities in the LPD are the same as for any type of sewage facility serving development in the municipality. These responsibilities are outlined in the Pennsylvania Sewage Facilities Act (Act 537) and Chapter 71 of the Pennsylvania Code under Title 25, which addresses the administration of the sewage facilities planning program.

Chapter 71 states that a municipality is required to assure the proper operation and maintenance of sewage facilities within its borders. To do so, the municipality must, under Section 71.72, require one or more of the following:

- A bond or security to cover any necessary improvements.
- A bond or security to cover future operation and maintenance needs.
- Establishment of a properly chartered association to be responsible for the operation and maintenance of the facility.
- Municipal ownership of the sewage facilities upon completion.
- Inclusion of the sewage facilities under a management agency through municipal codes or local ordinances.

## Overseeing Operation and Maintenance

While municipal ownership is only one of the previous five requirements, it is desirable from a long-range perspective. The municipality is more likely to ensure that necessary operation and maintenance activities will occur and effluent levels will not be exceeded over the life of the facility. Initial interest of developers or homeowners' associations in overseeing a sewage facility may diminish over time. In such instances, the municipality may be required to assume operation of the facility.

A municipality can prepare for future sewage facilities under Title 25, Chapter 71, which addresses sewage management programs. Implementing requirements found in Section 71.71-73 can lessen the administrative and economic impacts on a municipality that later may be directly responsible for the facility.

For example, the municipality can require the developer or homeowners' association to enter into an agreement with a certified sewage facilities operator for the long-term operation and maintenance of the proposed facility. Should the municipality need to take over the facility at a later date, its responsibility would be

administering the existing agreement. Other types of sewage facilities with low operation and maintenance needs (for example, lagoon systems) require only periodic inspection. Municipal costs can be passed on to the homeowners, as specified in a service contract or homeowner's agreement.

## Encouraging the Preferred Alternative

Once adopted as part of the sewage facilities plan, the list of preferred sewage alternatives outlined by the county comprehensive plan would require developers to consider the sewage facilities alternatives as prioritized. Although the list must allow for the use of all viable alternatives, the developer can be required to implement the first alternative that proves viable for the site. By prioritizing alternatives in the official sewage facilities plan, the municipality can promote the sewage facilities alternatives that best facilitate LPD development.

# Appendix 6. Homeowners' Association

One of the options for ownership of open space and community water or sewer systems in the LPD is to create a homeowners' association (HOA). These organizations oversee the maintenance of facilities and are granted certain enforcement powers. Municipalities should review the legal documents discussed in the following paragraphs to ensure the proper functioning of these organizations.

A homeowners' association is an organization in which individual homeowners share responsibility for costs and upkeep of common open space and facilities. In an HOA, the homeowners own and maintain their homes and individual lots, and the association owns and maintains the common ground and facilities. The homeowners pay a monthly fee, or assessment, to the association to cover these costs.

The responsibilities of an HOA are defined by the use of the common land and the facilities that are maintained on the common land. These may include recreational and open space land; roads and parking lots; amenities, such as common buildings, sidewalks, and trails; and stormwater, water, and sewage facilities.

The management complexities of the HOA vary greatly, depending on the types of facilities managed. For example, if a homeowners' association only manages natural open space, its maintenance responsibilities could be minimal. In other situations, the association's responsibilities could be more complex. For example, the HOA may manage sewer and water systems, provide trash collection and site security, maintain roads, parking lots, and landscaping, and be responsibility for the maintenance of the exterior portions of common buildings.

The monthly dues for members of an association are based on the actions and services provided by the HOA, so it is difficult to estimate actual costs.

## Creating a Homeowners' Association

The developer typically establishes the homeowners' association. This is done with the following legal documents which define the powers and authorities of the association:

The Declaration of Easements, Restrictions, and Covenants is essentially the constitution of the homeowners' association. This document identifies the rights and duties of the association, the developer, and the homeowners. Municipal rights and duties for the development are detailed in the declaration. The declaration also specifies assessments, governing laws of the development, controls and limitations, voting rights of members, and transfer of ownership from the developer to the homeowners.

The By-Laws are important because they define the operational and administrative procedures for the homeowners' association board.

The Articles of Incorporation establishes the homeowners' association as a nonprofit corporation, the purpose of the association, and establishes the powers of the association. The Articles of Incorporation also defines the board of directors, voting members, and rules for making changes to the association.

The site, type of development, size of the development, and developer preferences will determine many of the elements that are covered in the HOA documents. However, there are certain elements (summarized in this section) that municipalities should look for in all homeowners' association documents to help the associations operate successfully.

## Membership in the Association

Membership in the HOA should include all homeowners in the development. However, the definition of membership shares (this defines who can vote and the weight of their vote) can vary from development to development. The division of shares should be clearly defined in the legal documents establishing the homeowners' association.

## Transfer of Control From Developer to Homeowners

Another issue regarding membership concerns the transfer of ownership from the developer to the homeowners. Before homes are sold, the developers will likely hold all membership shares in the association since they own all units. As homes are sold, the developer's share of membership will decrease as homeowners become members. At some point, control of the association will shift to the homeowners, and the developer will relinquish all control. This transfer of ownership typically occurs after the last sale or at the point when the association has enough members to be financially stable without the developer. Regardless of how this transition is made, it should be reasonable and clearly defined.

## Financial Structure of the Association

Homeowners in an association pay a monthly fee. Homeowners' associations can run into financial difficulties if the fees are not sufficient to cover expenses. This situation can be avoided by ensuring fees cover all expenses typically incurred by associations: daily operating and maintenance costs; planned major maintenance, repair, or replacement projects; and unanticipated expenses.

By using a portion of the monthly fees for long-term projects, homeowners build a capital reserve that will contribute to long-term maintenance and unanticipated expenses.

## Enforceability

As the owner, the HOA has responsibilities that directly affect people living within and near the development. The ability of the association to meet these responsibilities is largely dependent on maintaining financial

stability. It is important that the homeowners' association has the legal authority to enforce the rules of the association, including payment of dues. This enforcement power comes from the ability of the association to fine and/or place liens on the property of members who fail to pay their dues. By ensuring that the homeowners' association has these powers, the municipality can help ensure the long-term viability of the association.

If the association is established with appropriate controls in place, the municipality should have no role in the maintenance of the common land and facilities. However, the municipality should make sure it has the power to step in and enforce the aspects of the association that affect the property values of community residents within and outside the development if needed. First, the municipality should have the power to maintain the common open space if the association fails to maintain it as agreed in the management plan. Second, the municipality should have the right to bill the association to cover any costs incurred by this maintenance and to impose liens to enforce payment. Third, the municipality should have the right to impose liens for failure to pay taxes or insurance on the open land.

The *Pennsylvania Municipalities Planning Code* gives these enforcement rights to municipalities for all planned residential developments. However, including these rights in the Declaration of Easements, Restrictions, and Covenants and in the municipal zoning ordinance will help avoid confusion regarding how far the municipality can go to enforce the rules of the homeowners' association.

## Flexibility

In establishing the HOA, the developer may not anticipate all of the needs or desires of future homeowners. For this reason, homeowners' associations need to have the flexibility to change when needed. The municipality can contribute to this flexibility by ensuring the process for making changes is well defined in the Articles of Incorporation.

Understanding HOAs and their documents, gives municipalities a good foundation for having successful homeowners' associations. To have effective homeowners' associations, municipalities should consider the following:

- Municipalities should establish minimum requirements for homeowners' associations in the municipal zoning ordinance.
- Require municipal review and approval of the association documents (By-Laws, Articles of Incorporation, Declaration of Easements, Restriction, and Covenants) as a step of the land development review process.
- Municipalities should encourage developers to provide homeowners, before closing, an easily understandable brochure explaining the role of the homeowners' association and the obligations of lot owners as members of the association.

## Conclusion

A homeowners' association is an effective mechanism for ownership and maintenance of common open space and facilities in an LPD development. It allows homeowners to maintain access to preserved open space, gives homeowners control over how the open space is used, and can provide homeowner services unavailable in conventional development. By taking a few simple steps, municipalities can help ensure that homeowners' associations achieve their potential in providing a quality living environment that benefits residents and the community.

# Appendix 7. Village Homes

Municipalities may also want to consider allowing homes on lots smaller than the minimum allowed in the LPD ordinance (15,000 square feet). This may be necessary on sites that have a high amount of natural constraints such as steep slopes, or floodplains that limit the potential development area. To achieve the permitted maximum number of lots using smaller lots may be needed. Below are recommended dimensional standards that could be used for village homes:

- Minimum lot size 6,000 square feet.
- Minimum lot width 60 feet.
- Minimum front yard 20 feet.
- Minimum side yard 10 feet with 30-foot aggregate.
- Minimum rear yard 25 feet.
- Maximum building height 35 feet.
- Maximum building coverage 40% of gross lot area.

Village homes require additional design standards found in the definitions section of the zoning code. These include the following:

- All village homes must have at least one primary entrance in the front facade.
- All village homes shall have pitched roofs covering at least 80 percent of the building with a pitch of at least 6 vertical inches to every twelve horizontal inches.
- All village homes shall contain a roofed, unenclosed front porch extending across at least half of the front of the dwelling and be at least 7 feet deep.
- All front facing garages on village homes must be located at least 20 feet behind the building's front façade. All other off-street parking, including other garages or unenclosed parking spaces, must be located behind the building's front façade.
- All village home lots shall be planted with one canopy tree, or two flowering trees, located within the front yard.
- All village homes must contain at least one of the following features:
    1. A front yard raised above sidewalk grade by at least two feet.
    2. A front yard enclosed by a continuous, permanent ornamental wall, wooden fence, or hedge of shrubs between 2 and 3 feet in height across the entire width of the front yard.
    3. A first floor level of the house, including the front porch, that is raised at least 2 feet above ground level at the front façade of the building.

*This village home has a raised front porch and a pitched roof.*

# Appendix 8. Cluster Examples

The illustrations on the following pages show some of the notable residential subdivisions in Montgomery County that have preserved significant amounts of open space. The examples span several decades and cover many different areas of the county.

Included with each example is a brief description of how much open space was preserved, the overall tract size, and the number of homes. While most of the developments exceed the density recommended in by the model ordinance, they illustrate some of the general design concepts of the Land Preservation District.

## Woodbridge Meadow

Lower Gwynedd Township
Penllyn Pike and Woodbridge Road

52 units
52 acres
60% open space
Average lot size 17,000 square feet

Approved in 1973, Woodbridge Meadows is one of the oldest cluster subdivisions in the county. An historic stone house is preserved on the property along with mature woodlands and two ponds.

## Heritage Hills

Limerick Township
Ridge Pike and Masters Drive

210 units
259 acres
70% open space
Average lot size 11,000 square feet

Heritage Hills is a golf course community in Limerick Township. Most of the residential lots are less than 10,000 square feet in size.

## Beechwood

Lower Salford Township
Freed Road and Astor Drive

76 units
70 acres
60% open space
Average lot size 10,800 square feet

Homes in this subdivision were designed around several village greens. A preserved open space area separates homes from Sumneytown Pike, an significant arterial roadway.

## Cambridge Reserve

Franconia Township
Hunsberger Lane and Yale Court

26 units
26 acres
53% open space
Average lot size 13,500 square feet

Homes in this development surround a large central green. A wooded riparian area was preserved as open space in the development.

## Summerwind

Lower Salford Township
Clemens Road and Ruth Road

84 units
87 acres
60% open space
Average lot size 10,700 square feet

The open space in this development was dedicated to the township as a municipal park.

## Hammersmythe Farms

Lower Salford Township
Landis Road and Bennington Court

22 units
43 acres
56% open space
Average lot size 34,400 square feet

This development is bisected by a stream and riparian area. Homes are located along two short cul-de-sac streets with large landscaped islands. A large wooded area was preserved as open space.

## Meadow Creek Crossing

Lower Salford Township
Landis Road and Creekview Drive

90 units
82 acres
60% open space
Average lot size 10,700 square feet

A large portion of the open space in this development is used for farming.

## Telvil

Skippack Township
Perkiomen Creek Road and Mesa Lane

37 units
35 acres
68% open space
Average lot size 10,300 square feet

This subdivision preserved a large amount of open space. Central open space was designed as boulevards and cul-de-sac islands.

## Skippack Ridge

Skippack Township
Perkiomen Creek Road
and Mountaintop Drive

53 units
50 acres
60% open space
Average lot size 11,000 square feet

A large portion of the open space in this subdivision preserves a riparian corridor.

## Hunter Ridge

Skippack Township
Garges Road and Squirrel Hill Road

56 units
57 acres
67% open space
Average lot size 11,000 square feet

Central open space compliments the large preserved northern portion of the tract.

## The Jarrett Tract

Salford Township
Morwood Road and Salford Way

35 units
77 acres
53% open space
Average lot size 30,800 square feet

Larger lot sizes were used in this low-density development.

## The Estates at Salford Lea

Lower Salford Township
Landis Road and Shakespeare Drive

48 units
95 acres
57% open space
Average lot size 28,500 square feet

This low-density development was designed using uses large cul-de-sac islands.

## Harriton Farm

Lower Merion Township
Old Gulph Road and Meadows Edge Lane

32 units
55 acres
48% open space
Average lot size 29,000 square feet

This luxury home development preserves several historic structures.

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