New town mixed use district
Montgomery County, Pennsylvania
subdivision and land development ordinance

Building Sustainable Communities
subdivision and land development ordinance

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Building Sustainable Communities
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Subdivision and Land Development Ordinance

This publication was developed as a resource for municipal officials who use a subdivision and land development ordinance (SALDO). It includes a guidebook and subdivision and land development model ordinance. The guidebook provides important background information about the SALDO, including its historical use in Montgomery County, how it differs from a zoning ordinance, its purposes, and what constitutes a subdivision and a land development.

The guidebook explores the three components contained in a SALDO: process requirements, design guidelines, and engineering and construction standards. Each of these is discussed to provide background for the suggested model ordinance text. The description of the process focuses on the law—the Pennsylvania Municipalities Planning Code (MPC), the people involved, information provided in the review process, and alternative review options. Design guidelines pertain to overall community design objectives and site element design. Ten site elements are further described to provide a basis for design standards used in the model ordinance. Guidance is also provided on how to express design standards.

Engineering and construction standards address capital improvements, guarantees for public improvements, and the construction process. Though these provisions are primarily used by municipal engineers and solicitors, they are fundamental to ensuring that the designed plans are properly built.

The model ordinance is introduced with guidance about modifying it to suit a particular municipality, the adoption process, and how to effectively use the ordinance. Various examples of process forms and subdivision materials are included in the appendix.
The SALDO

The subdivision and land development ordinance (SALDO) is the most commonly used land development control mechanism in the Commonwealth of Pennsylvania. Subdivision is the creation of separate parcels of land for various purposes; while land development refers to the construction of improvements on land to facilitate some use. A lot formed through the subdivision process becomes a permanent commodity that can be bought and sold. The creation of new lots is often followed by the development of new houses or businesses. Land development projects can have significant impacts on the community and natural resources. Because our communities are essentially built through the creation of individual lots and private development projects, it is important to ensure that all subdivisions and land developments conform to local comprehensive plans and employ good design. A clear and up-to-date SALDO can be the key to establishing great communities.

The Pennsylvania Municipalities Planning Code (Act 247 of 1968) empowers municipalities to enact SALDOs and establishes minimum ordinance requirements. Article V of the MPC pertains to the subdivision and land development process. Municipal capital improvements, which can be part of the subdivision and land development process, are discussed separately in Article V-A. Definitions listed in Article 107 may also be important in understanding the municipal subdivision and land development process.

History in Montgomery County

As far back as 1895, owners of land subdivided into lots were required under state law to record a plan of subdivision in the county office of the recorder of deeds. Subsequent acts of the Pennsylvania Assembly authorized municipalities to require the submission and approval of plans prior to recording. In 1968, the Pennsylvania Municipalities Planning Code, finally consolidated those community planning laws including subdivision and land development. The MPC has undergone several revisions in the past few decades. Many of the changes have been undertaken to better define the powers of municipalities to regulate growth and development and to apply new techniques to enhance the character of their communities. A major change to the MPC occurred in 1988 with the passage of Act 170. This revision broadened the scope of land developments was broadened to include almost any type of development other than single-family homes. Other changes included amended review periods, fee in lieu of development for parks and recreation, and the plan process and approval procedure.

All 62 municipalities in the county have SALDOs in place. Cheltenham Township was the first to adopt an ordinance in 1931. In the 1950s, the greatest growth decade in the county, over half of the municipalities adopted SALDOS. Also in 1950, Montgomery County adopted subdivision and land development standards to be used in municipalities that did not have their own ordinance. While all 62 municipalities have an ordinance, because they were adopted at different times they may not contain the latest standards. Over the past twenty years, the land development and subdivision process has changed to reflect new laws, court decisions, increased environmental awareness, new design standards for public improvements, the use of impact fees, an increased concern for the long-term maintenance and replacement impacts of improvements, and the need to coordinate with surrounding municipalities.
How Do the SALDO and Zoning Ordinance Differ?

Typically, municipalities have two fundamental land use ordinances: the subdivision and land development ordinance and the zoning ordinance. Though both regulate development in a municipality, they address different aspects of the development design and review process. The zoning ordinance typically includes general development standards and different zoning districts, which are also mapped. The SALDO contains design requirements, engineering and construction standards, and process guidelines. There are key points of overlap where both ordinances address the same design element. Where this occurs, it is important to ensure both are utilizing the same standards and that appropriate cross-referencing is established. In other parts of the United States, municipalities have consolidated both the zoning ordinance and SALDO in a unified development ordinance. Though there are some advantages to doing this, it is not feasible under the current Pennsylvania Municipalities Planning Code.

Purpose of the SALDO

- Enables the municipality to grow in a coordinated manner in accordance with the comprehensive plan.
- Ensures that all future development is well designed to protect the health, safety, and general welfare of the community.
- Provides consumer protection to a lot or development purchaser by ensuring the creation of developable lots and adequately designed developments.
- Enables a fair apportioning of public and private costs for infrastructure improvements.
- Establishes uniform standards to ensure that public infrastructure and other community facilities are built properly.
- Coordinates private development with public infrastructure development.
- Prevents the imposition of undue future cost burdens on the municipality.
- Establishes a fair and expeditious process for reviewing subdivisions and land developments.

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Definition

A Subdivision is …
...the creation of lot lines dividing a tract into two or more parcels

...any change in lot lines—either moving, altering, or deleting them

A Land Development is …
...the improvement of one lot or two or more contiguous lots for any purpose involving the following:

Subdivision is part of the definition

...a group of two or more residential or nonresidential buildings on a lot or lots

...division of land or space between two or more prospective occupants

Nearly every type of construction except a single residential home on a lot is considered a land development. Three potential exclusions can be enacted by local municipalities.
Three Major Components of a SALDO

The subdivision and land development ordinance can logically be divided into three major components: process requirements, design guidelines, and engineering and construction standards.

**Process**

A major purpose of the SALDO is to delineate a reasonable process through which landowners and their agents can subdivide and develop their land. The MPC provides latitude in the way municipalities conduct the review while also ensuring due process for the applicant. In this respect, the ordinance can enumerate various procedures to achieve the most effective review process, which establishes a dialogue between the municipality and the applicant as opposed to establishing a bureaucratic maze. Additionally, various administrative tools and processing forms can streamline the way the ordinance is administered. Ultimately, the goal is to approve good plans in a timely manner.

**Design**

The overall shape and layout of a development or subdivision is governed by various design guidelines established in the ordinance. These guidelines work to ensure that all development in a community is designed in accordance with the overall goals and objectives of the municipal comprehensive plan and the most up-to-date professional design standards. Ultimately, the design standards established are necessary to ensure the overall health, safety, and welfare of the community.

**Engineering and Construction**

Technical engineering standards are placed in the ordinance to ensure that various physical improvements called for in land development and subdivision plans are built properly. Specific standards are used to not only develop the engineered plans and specifications but also to ensure that the appropriate land development improvements are uniformly constructed so they can be easily maintained in the future. A SALDO may also include technical specifications for studies and reports to be performed by the applicant.
Introduction

The subdivision and land development process is shaped by the law (MPC), the people engaged in the process, and the information required for the design and review of subdivisions and land developments. Since every plan is different, it is impossible to have a simple, standardized process. Variations of the process can be incorporated into the model to allow alternative development approaches such as the Growing Greener Design strategy.

Optional steps, such as sketch plan review, are suggested in the model to provide benefits for both the applicant and municipality. Alternative development approaches, such as traditional neighborhood design and planned residential districts, should be recognized as appropriate community development options.

Article III in the model ordinance provides most of the process requirements. Other procedural requirements, including enforcement, can be found in Articles VIII and IX. The process portions of the ordinance seek to expedite and improve the way plans are reviewed to ensure good decisions in a reasonable time. No one benefits from a disorganized and endless review process.

The Law

Section 503 (1) of the Pennsylvania Municipalities Planning Code broadly authorizes municipalities to establish provisions for the submittal and processing of plans, including review fees, plan specifications, and provisions for preliminary and final plan approval. Section 503 is flexible and recognizes that different approaches may be needed to meet the unique characteristics of each municipality. At the same time, in Section 508 of the MPC, a specific 90-day time clock is established for the review and approval of preliminary and final plans. This must be adhered to unless the applicant grants an extension. Under Section 502 of the MPC, the municipality is also required to submit all plans to the county planning commission for review.

Many court challenges have been raised on the issue of how municipalities review and act upon subdivisions and land developments. Defects can occur as a result of improper ordinance provisions and the way the ordinances are followed. In the past, challenges have been made when actions are not taken in the 90-day mandated review period. These challenges can result in deemed approval of the plans not acted upon. Courts have also ruled against municipalities when denials have been made improperly. Overall, the courts have recognized that the MPC provides some latitude in establishing review processes that work best for the municipalities, so long as they are reasonable and followed uniformly for all similar applicants.
People

There are many people involved in the subdivision and land development review process. Generally, people fit into several roles: applicants who promote a project in some way, municipal officials who review and will also approve a project, potential stakeholders who may become involved in the review process, and other organizations that could participate in the review process and might also have responsibilities for approving project permits. It is important to structure the process in a way that allows all the participants to contribute to the ultimate goal—approval of good plans. This involves making information available and providing a reasonable forum for discussion, debate, and ultimately consensus. The ordinance defines the roles of applicant as well as the municipal staff. It also establishes opportunities for other participants.
Alternative subdivision and land development processes are possible in Pennsylvania. The Pennsylvania Municipalities Planning Code specifically empowers municipalities to use a planned residential development (PRD) and the traditional neighborhood development option.

The planned residential development process, as described in Article VII of the MPC, enables a flexible development regulation that combines design aspects of both subdivision and land development and zoning. The PRD requirements are included in zoning codes and focus primarily on large-scale and mixed residential use developments. These generally employ a cluster style and entire project design approach as opposed to the traditional lot-by-lot residential development approach. The review and approval process utilizes a hearing process to arrive at tentative plan approval for a planned unit development.

The traditional neighborhood design approach was added in 2000 to facilitate and streamline the review and approval of developments that incorporate “new urbanist” or “neo-traditional” design. Basically, these developments are built in the style and density of a pre-automobile town. The traditional neighborhood development option allows municipalities to set up appropriate review and approval procedures. The MPC specifically allows municipalities to have an informal sketch review stage and to establish a design manual.

The MPC also enables municipalities that have adopted regional comprehensive plans and intergovernmental agreements implementing them to develop a specific plan for nonresidential property. With an approved specific plan addressing the site development and infrastructure needs of a property, future applicants for subdivision and land development approval involving that property would only need to submit a final plan as long as it is consistent with and implements the specific plan.
Growing Greener ordinances, developed by the Natural Lands Trust, incorporate a unique development approach that can also work in Pennsylvania. These ordinances utilize a four-step design process. The process begins with identifying land that should be permanently protected. At this stage, the plan delineates primary conservation areas and secondary areas. Remaining areas are potential development sites. During the second stage, buildings are located within the potential development sites. In the third stage, a system of roadways and trails is laid out to provide access to the buildings. Finally, in stage four, lot lines and other public improvements are planned. This process is very effective in preserving key natural features since it is based upon a philosophy of looking at the preservation potential of property first.

In other states, there has been an effort to mold both zoning and subdivision and land development together into a unified code or smart codes. This avoids potential conflicts between the two separate ordinances and creates the opportunity to streamline development codes.
Putting It All Together

The plan review process is established by the requirements of the law, the people involved, and the information needed to ensure good designs. Basically, the process begins with a landowner’s desire to do something with the property and ends with an approved plan that is recorded in the recorder of deeds office. The steps from beginning to end involve various plan submissions, reviews, meetings, and formal actions. It is important for a municipality to follow an established process for all reviews, although some flexibility within the process can be exercised to address the unique qualities of each proposal.

Discussion and Exploration

The first phase in the subdivision and land development process may involve informal discussions by the landowner, municipality, and county planning commission. This typically begins with a meeting between the property owner/developer and the municipal code officer and municipal manager. At that meeting, the proposal will be discussed, and the code officer can provide the applicant with guidance on the next steps. In some cases, a building permit can be filed if a subdivision or land development approval is not required. In other cases, the applicant may need a change of zoning or some form of relief from the existing ordinance for the proposed project. The applicant may also be directed to make a conditional use application based upon this meeting.

A sketch plan can be submitted by the applicant for municipal planning commission review. As previously discussed, this is highly recommended since it will enable the municipality to provide better direction to the applicant prior to the submission of a formal preliminary plan. Sketch plans can be submitted to the Montgomery County Planning Commission for review as well. Though sketch plans are not formally acted upon, it is important for the municipality to provide clear input to the applicant during this process. If necessary, the sketch plan process can be formalized through a volunteer agreement between the applicant and municipality.
**Preliminary Plan Review**

The Pennsylvania Municipalities Planning Code establishes two formal plan review steps, preliminary and final. The preliminary step is critical as plans approved during this step establish certain development rights for property owners. Receipt of preliminary plans by the planning commission begins a 90-day review process.

The preliminary plan is typically a detailed set of engineered drawings that requires careful review by municipal engineers. The municipal manager, code officer, and solicitor may provide detailed input into different aspects of the plans as well. Planning commissions should send copies of the preliminary plans to other key municipal advisory bodies including the police, fire departments/companies, public works or road master, parks and recreation board, water and sewer authorities or utilities, environmental commission, shade tree commission, and historic commission. The planning commission should consider comments from these groups prior to making recommendations to the governing body. The planning commission may also send copies of the preliminary plans to school districts, adjoining municipalities, regional planning commissions, and various community or environmental organizations.

All preliminary plans are sent to the county planning commission for review. A comment letter is sent back to the municipality within 30 days. The planning commission letter focuses on general planning, design, comprehensive plan conformance, and regional impact issues as opposed to compliance to the local subdivision code.

Preliminary plans are also provided to elected officials. Though there may be some overlap in the review of the plans to meet the 90-day review requirements, the governing body should wait for the recommendations of the municipal planning commission prior to deliberating on a preliminary plan. It may be important for municipal planning commission members to regularly attend and report their recommendations to the governing body at the time plans are considered for action. Formal action by the governing body must be done in accordance with the MPC.
Final Plan Review

This phase begins with the filing of final plans which reflect the conditions of preliminary plan approval and the requirements for final plan content in the SALDO. Most of the real planning issues have been reviewed and acted upon in the preliminary plan approval process. The challenge of final plan approval lies in the plan details. Engineering design details and legal concerns may become more important at this stage.

Final plans may not require much input from the planning commission and, in most cases, other municipal agencies will not be needed to review the plans. Action by the governing body, in most cases, is conditioned upon several important requirements to be fulfilled by the applicant. Most conditions can be handled through the execution of a developer’s agreement and the posting of appropriate financial security. After the conditions are fully met, plans can be signed and released to the applicant.

Plans must be recorded in the recorder of deeds office before the applicant can sell newly created lots or obtain building permits for land developments.
Introduction

What is good design? The answer depends upon the context, user, location, and several other variables. A well-designed subdivision or land development results from the basic principles of good community and site design, which will be explored in this section. After determining what is good design at the community and site plan level, the next challenge is translating good design concepts into ordinance standards. Ultimately, the standards should result in good developments that satisfy municipal objectives.

The MPC allows a municipality to include a broad range of design standards in the SALDO. The subdivision and land development ordinance may include, but need not be limited to, eleven different items listed in Section 503 of the Municipalities Planning Code.

Article IV of the model SALDO contained in this publication addresses design requirements for all subdivisions and land developments with the exception of mobile home parks. Due to the requirements of Section 501 of the MPC, Article V is established in the model SALDO to address design requirements for mobile home parks.

For detailed discussion on specific design issues, consult the appendix in this publication. It provides many helpful sources. We also recommend exploring other resources on the Internet.

Community Design

When a new plan is submitted, community planners should first examine how it fits in the community as a whole. The municipal comprehensive plan or other studies can provide guidance in this determination. Section 503 (2) (i) of the MPC recognizes the importance of the comprehensive plan by allowing municipalities to enact provisions in the SALDO to ensure conformance with the comprehensive plan.

Other documents that could provide guidance at this stage of a review include the county comprehensive plan, regional transportation plans, recreation plans and studies, sewage facilities plans, redevelopment plans, official maps, and other studies. These documents will show proposed roadway improvements and connections, trail and open space systems, infrastructure expansion plans, and other community improvements.

In addition to these documents, it is important to examine surrounding properties and the overall context of the proposed development. Typically, the applicant is required to provide information on the surrounding land and physical improvements. Other sources of information, such as aerial photography, may be consulted to understand the surrounding land and potential planning considerations. Local knowledge and site visits will also help in shaping community design decisions.
Community Design Example: Fitting Subdivisions Together

It is important to examine the relationship of different developments with their surrounding neighborhoods. Issues, such as interconnection (both roads and sidewalks), the preservation of large open space properties, and the development of common facilities, need to be addressed at this level. This should be done based upon the municipal and comprehensive plans.

Road and sidewalk connection between developments
Woodlands preserved in adjoining developments
Cul-de-sacs that could have connected to adjoining developments
Municipal park acquired through the developments

A community grows with each approved subdivision and land development
**Building a New Road Through the Development Process**

Significant infrastructure improvements in a municipality can be built by developers through the coordination of several land development projects. In this example, a by-pass road, shown with a dashed line, was built within four different development projects. Additionally, during the construction of the Lakeview Shopping Center, a significant road realignment was made between the interchange and the main street of the adjoining municipality. All of these improvements were identified in the municipal comprehensive plan and were discussed early on in the review process for each of the development sites. The first portion of the road was built nearly ten years before the road was fully opened and dedicated to the municipality. All the public improvements came at no cost to the municipality.
Community Design Example: Connecting Office Developments

Two separate office condominium projects were developed. The one along the main street (High Street) included an office addition to an existing house and a newly built residential-style office building. Three office condominiums were erected in the rear by a separate developer. Two driveway connections and an access easement were established to provide a connection with Willow Street and both developments.
Community Design Example: Trail System

Community trails can be developed as a requirement of the SALDO process through diligence and careful planning. This municipality has a paved trail system which is over 8 miles long and was largely developed through the SALDO process. In this example, trail portions are constructed on four different developments. Trail elements include sidewalks, pathways on separate rights of way, and road crossings. Careful planning is required to ensure connections between the trail segments as well as to neighborhoods, parks, and schools.
Community Design Example: Infill development

Each subdivision and land development must relate to its surroundings in order to expand the community in a logical way. In this example, a parcel of land was developed between two existing residential neighborhoods. When each of the two neighborhoods was originally developed, cul-de-sacs were constructed out to the edge of the property lines to enable a future connection. When the original plan was filed for the infill lot, only one cul-de-sac was proposed for connection. Later, after the review process, a second connection was made leaving two of the other cul-de-sacs unconnected. This result provides some connection between the neighborhoods, though the street grid pattern is broken, limiting mobility options.
Site Design Principles

After addressing the larger design issues that dictate how a new development fits into a community, it is important to focus on the internal design of the project. The site design should conform with the comprehensive plan and embrace the following principles:

1. Build Healthy Neighborhoods and Vibrant Commercial Areas
2. Design with Nature
3. Establish Open Space and Recreational Systems
4. Cultivate Natural Landscapes
5. Develop Safe and Functional Streets
6. Manage Stormwater Effectively
7. Layout Safe and Convenient Parking Lots and Driveways
8. Blaze New Pathways for People
9. Install Sustainable and Appropriately Scaled Infrastructure
10. Promote Energy Conservation and Alternative Energy Development

1. Build Healthy Neighborhoods and Vibrant Commercial Areas

The organization of buildings and other proposed site improvements should be based on the physical features of a site, the surrounding community, relevant plans and studies, and the needs of intended users. Healthy neighborhoods and vibrant commercial areas are established through the careful configuration of buildings, lots, and blocks as well as the preservation of special places.

When developments are configured to create logical groupings of houses, they establish neighborhoods where people want to live and houses appreciate in value. In these environments, social interaction is fostered creating a stronger and safer community. Businesses also thrive in well-planned commercial areas with good access, visibility, and other supporting land uses.

Good design standards in a SALDO should address context, appropriate scale, spatial relationships, access and visibility, and lot configuration. Additional site design consideration should be employed in the establishment of great retail and public spaces. Special places in a community should be recognized in the municipal comprehensive plan and protected through local codes, including the subdivision and land development ordinance.

Context

Design is dependent upon the surrounding conditions. The urban scale and spatial relationships are essential for infill development in a town. Yet, the densities and dimensions that work well in a town may be out of place in a rural area. Context is also dependent upon unique features and design elements indigenous to a particular area.

Appropriate Scale

Humans interact with their environments based upon their physical size and capabilities. To be successful, a development should recognize this and complement the human scale. Despite the overall size and complexity of the development, the fundamental unit of design should always be the resident, user, worker, or shopper. Though scale is often an issue more directly addressed in zoning, it is also important in SALDO design standards. Sometimes, seemingly minor improvements in the site design can have a big impact on the overall scale of the project.

Spatial Relationships

Interaction and a sense of community result from the spatial relationships of buildings. Residents whose homes face one another around a town green or courtyard can feel strong neighborhood bonds. The placement of a building on a lot and its relationship to other structures can significantly effect neighborhood character and sense of security. Spatial relationships are also critical in developing successful shopping facilities and employment centers.
Access and Visibility
Commercial areas depend upon customers or users who need to be able to readily find these facilities. Access, marketability, and visibility are required to create vibrant commercial development. The scale and spatial relationships of older towns have become the template for neo-traditional communities. In accessible communities, people can enjoy walking along streets, visiting stores, and stopping at restaurants and cafes.

Lot Configuration
It all starts with the way land is divided up into parcels of property. Lots created in a subdivision should meet the needs of its proposed use without impacting natural resources. This is especially important when lots are large enough to be further subdivided or will be subject to a future land development. Awkwardly shaped lots should be avoided. Blocks should be formed from logical groups of lots. Even though zoning addresses the overall bulk and intensity of development, zoning standards may yield undesired results when applied on a poorly configured lot. Through the subdivision process lots can be established so that they fit into the landscape and make sense for future users.

Preservation of Special Places
Every community has special places, including historic sites, local landmarks, and scenic vistas. These should be embraced by the new development and enhanced for the public to continue to enjoy. Special places may be historic such as an old building or farmstead or may be something that is a visual landmark such as a duck pond or stone wall. Even a scenic vista from a road may be an important element in the community that should be maintained within a development.

Great Retail Experience
Successful retail establishments are the result of good design. Integrating architectural design, landscaping, and site design is important to create an exciting shopping experience which will ensure successful businesses. To establish a sense of place, a commercial area needs to have design elements that are attractive for walking, sitting, meeting, and being entertained in addition to shopping. These elements are key in attracting shoppers back.

Key Design Points
- Create lots suitable for their intended use.
- Establish a human scale.
- Develop harmonious spatial relationships.
- Locate buildings in a way to foster interaction of users.
- Provide access and visibility for businesses.
- Design great retail spaces.
- Preserve special places.
2. Design with Nature

Our natural environment serves various functions relating to absorption of stormwater, groundwater recharge, wildlife habitat, scenic views, and cultural heritage. The loss of natural forests, wetlands, riparian vegetation, and natural meadows affects communities in many ways. In some cases, these resources are protected through state and federal laws. Even still, during the site development process there are choices in the placement of buildings and infrastructure which will have a great impact on the environment. It is important to begin the design process by examining resources on the site and delineating what should be protected. As a general rule, site disturbance and grading should be minimized. Additional protection measures for steep slopes, important woodlands, riparian corridors, and wetlands may be necessary to prevent the loss of natural vegetation and soil cover in these sensitive areas of the site.

Natural Resource Protection

There are various state and federal laws that seek to protect the most significant natural resources. Typically, developers need to obtain various permits to perform work in wetlands, along waterways, and where significant land disturbance is required. Zoning ordinances can protect floodplains, steep slopes, woodlands, wetlands, and other significant natural areas. Even with environmental permitting programs and local zoning in place to protect natural resources, critical choices made in the SALDO process may further affect natural systems.

Resource Protection Plans

Before good decisions can be made about preserving the natural resources on a site, developers need to fully document the existing natural resources. A full inventory of natural features should be required as a first step in the preliminary plan process. Through an evaluation of the natural features, decisions can be made on where development should take place. This inventory will also guide decisions on the placement of open space and the use of special protection measures.

Once natural areas are gone, they cannot be replaced.
Resources as Amenities
Preserved natural resources can greatly add to a community. Views of woods and stream corridors may significantly enhance the value of a property. Thriving natural areas can also protect water supply and enhance air quality. Preserved natural areas can be used for passive open space and may contain trails for hiking.

Natural Resource Area Protection
Natural areas are best protected by preventing any disturbance to them during construction. The layout of buildings and streets should work to minimize the disturbance of woodlands and other important environmental features. During construction, site clearing should be limited to the minimum needed for buildings and infrastructure. Other environmental areas may require special protection due to their unique natural qualities. Areas identified in the county natural areas inventory represent the most significant natural areas due to their ecological significance. These areas should be set aside as open space and protected in the future through careful land management strategies.

Land Disturbance
When land is disturbed, vegetation is destroyed, leaves and organic matter are removed, and the underlying soil is dramatically altered. Vegetation is more than a few trees, shrubs, and plants scattered upon a landscape. It is an integrated natural system that can greatly affect local habitat, microclimate, and stormwater generation. Soil is a complex mixture of organic and inorganic components that provides fertility to plants and filters rainwater. Changes to soil by compaction during construction, disturbance of soil organisms, or the loss of nutrients can lower its ability to capture and infiltrate stormwater and sustain plants after a site is developed. There is no way to fully mitigate this impact. The best solution is to minimize the area of disturbance.

Grading and Erosion and Sediment Control
When land must be cleared and soil moved, it should be done very carefully. Not only is the disturbance of soil detrimental to a property, erosion and sediment pollution is damaging to local streams. In fact, sediment is one of the most significant pollutants in Pennsylvania.

Brownfield Design
The reuse and redevelopment of older industrial sites is encouraged through the Pennsylvania Land Recycling Act. The act provides a sensible process that allows developers to clean up contaminated industrial sites and recycle them for new uses. Brownfield redevelopment begins with careful study of land contamination. Remediation of contamination may incorporate different strategies in compliance with the land recycling act as approved by the Pennsylvania Department of Environmental Protection (DEP).
The nation that destroys its soil, destroys itself.” - Franklin Delano Roosevelt

Key Design Points

- Minimize land disturbance.
- Protect riparian corridors, woodlands, wetlands, floodplains, Steep slopes.
- Minimize grading.
- Prevent erosion and sedimentation.
- Use resources as amenities.
- Recycle brownfield sites.

This old glass factory is now an attractive residential community.
3. Establish Open Space and Recreation Systems

Valuable open space can be saved for future generations as a result of the development process. Unfortunately, in some cases, the open space proposed in a typical subdivision is often left over land that cannot be developed. To preserve the important portions of a site, the municipality needs to carefully define open space and have an open space plan in place to guide them. The open space should be reasonably located for its potential use. It should be sized based upon its function for public access or resource protection. Land can be set aside as open space for many purposes, including resource protection, watershed management, farmland preservation, and recreation. In many developments one of the most important components of open space is recreational land.

Types of Open Space
Open space can serve many purposes, including:
- Recreation
- Natural resource protection
- Buffering
- Outdoor event space
- Social areas
- Natural education
- Greenway and trail corridors

Open Space Character and Configuration
It is best to have large, interconnected open space areas rather than small strips and disjointed pieces of land. The land should be sufficient to meet the purpose for which it is being preserved. Land for recreation not only should be sufficiently sized for the recreation uses but also to accommodate needed buffers with surrounding property. Recreational land needs to be flat and well drained through other types of open space land might include wetlands and steep slopes.

Open Space Location
The land set aside as open space should meet the overall resource protection and recreation objectives outlined in the municipal comprehensive plan. In some cases, the desired open space land may be mapped in the comprehensive plan. Open space should not be the little slivers of land left over from development that are too insignificant to provide any benefit to the community.

Open Space Dedication
The MPC specifically addresses recreation land in Section 503 (11). This section allows municipalities to establish standards for either the dedication of suitable recreation land or acceptance of fees in lieu of land dedication. This provision provides municipalities with a valuable tool to build open space systems with various recreation facilities according to their open space and recreation plans.

The funds received through payments in lieu of dedication can be used to acquire other parkland or to develop recreational facilities delineated in the municipal recreation plan. Developers can request repayment of unused funds.

Recreation Facilities
Suitable recreation facilities need to be provided on parkland proposed in new developments. The recreation facilities should suit the needs of the residents of a development. Playgrounds for children make sense in a small-lot single-family housing neighborhood built for young families, while a retirement community may have a greater need for a gazebo and walking trails.
Open space toward the front of the development buffers houses from the main access road.

Open space in the center of the development provides a village green, inviting residents to gather and recreate in a flat, mowed area.

Open space in this location preserves woodlands.

Public access is created to connect residents with open space.

Open space and recreation systems should serve a variety of users.

Key Design Points

- Designate suitable open space areas.
- Protect natural resources in open space areas.
- Provide a variety of recreation opportunities.
- Interconnect open space areas.
- Enhance access to open space and recreation land.
4. Cultivate Natural Landscapes

Landscaping can provide many benefits, including buffering, aesthetics, shade, and habitat. Good landscape design works to protect important trees and understory vegetation on a site and to add new plantings. Specific site design functions are addressed through landscaping such as street trees, property boundary screening, site element screens, and mitigation for lost forest cover. Landscaping should conform to surrounding conditions and, where possible, be comprised with native plants. Species selection should consider site conditions, adjoining uses, and the function of vegetation.

Tree Preservation

Trees provide numerous functions. They are difficult to replace when lost through the development process. It takes a century to grow a 65-foot oak tree and about 5 minutes to cut one down. The important step in preserving trees is to develop a comprehensive tree inventory and to identify important specimens. When trees must be removed, tree replacement requirements should be employed.

Tree Protection

Trees that will remain on a development site should be adequately protected so they will thrive in their new surroundings. Tree protection needs to start before construction. By fencing trees at the dripline, the tree trunk, branches, and roots are not damaged by heavy equipment or the stockpiling of materials. Even with this protection, it is important to consider how the site grading, new structures, and removal of other adjoining trees will affect preserved trees.

Street Trees

Street trees provide many benefits, including shading streets, adding beauty to a neighborhood, and creating separation from the roadway and individual yards.

Street trees should be given adequate room to grow without interfering with roads, curbs, sidewalks, underground utilities, and overhead wires. They should be located to avoid traffic safety hazards. It is best to select street trees that are hardy and capable of providing significant shade.

“Healthy mature trees add an average of 10% to the property’s value”

USDA Forest Service

Red snow fencing and signage to protect vegetation should be installed prior to development.

Nothing humanizes a street more than mature trees.
Buffer Plantings
Separating different land uses or shielding the view of unattractive site features can be done through a combination of buffer plantings and earthen berms. Dense plantings containing evergreens and shrubs are necessary to effectively block views. Buffers should also fit into the natural landscape, providing the site with a visual asset and environmental amenity. Selecting native vegetation and a variety of plants with different colors and textures may be helpful in achieving these objectives. It is important to plant a variety of trees in any buffer.

Parking Lot Landscaping
Landscaping in parking lots can shade cars during the summer and buffer views of parked cars. It is important to select the correct species in these settings to prevent any damage to vehicles and to ensure that adequate visibility is maintained within the lot for the safety of drivers and pedestrians.

Urban Landscape
Vegetation can be particularly important in urban settings. In compact areas, special considerations need to be made to ensure trees thrive without interfering with urban infrastructure and business. The proper type and amount of soil in tree-planting areas and access to oxygen and water is needed by trees located in urban streetscapes and parking lots.

Tree Species
Every tree has different qualities. Some grow very large and are good for shade, while others may be more modestly sized and produce showy flowers in the spring. Trees should be tolerant to various conditions in the landscape. Tree species should be carefully selected, with the future in mind. Hardy trees native to the area should be selected in most cases.

Key Design Points
- Mitigate for tree loss during construction.
- Select tree species that are appropriate for site conditions.
- Protect existing trees on site.
- Use landscaping to buffer land uses.
- Use landscaping as site element screens.
- Choose landscaping that will shade roads and parking lots.
- Use native landscape materials.

A variety of trees can be used in establishing a landscape buffer.

Large trees provide shade in this parking lot and also keep it from looking too large.

Oak trees are native and can grow very large.
5. Develop Safe and Functional Streets

Vehicular circulation in a new development should be logical, safe, and integrated into the current roadway system in a community. Section 503 (2) (ii) of the MPC allows municipalities to establish street standards to ensure streets within and bordering a proposed development are designed and built to accommodate traffic and public safety vehicles. A safe and functional street system is established based upon the functional classification of streets, single access street requirements, street alignment and intersection design, vehicle access analysis, clear sight triangles, and parking and internal driveways.

Traffic Circulation
The street system should provide sufficient routing choices. A well-connected street system distributes traffic and can eliminate bottlenecks. In addition to providing convenience to drivers, connected roads aid in emergency response and service routing. Cul-de-sacs should be minimized, since they greatly limit street connections.

Street Hierarchy
Streets should be designed based upon their role within the overall community road network. Appropriate street design will ensure safety and maximize mobility. Larger arterial roads carry the bulk of traffic at high speeds. Collector roads both move and distribute traffic, while local roads provide access to homes and businesses.

Minimizing the number of cul-de-sacs and creating additional road connections as shown in the right hand sketch improves traffic circulation.

Street hierarchy is important to managing traffic.
**Traffic Safety**
Road safety is imperative. To avoid hazardous situations, the road layout should enable drivers to safely navigate roads with few traffic conflicts. Since intersections and other points of access can often create conflicts, careful design is important. The number of driveways can be reduced through shared access.

**Road Width**
Streets and roads need to be wide enough to accommodate the vehicular traffic they are expected to carry, as well as provide for on-street parking and bicycles. Yet, every square foot of roadway is an impervious surface that will generate stormwater and will need to be maintained. Also, wide roads promote higher-speed traffic and are more difficult for pedestrians to cross. Most residential streets can be from 24 to 28 feet wide and accommodate some on-street parking.

**Highway Access**
Numerous driveways emptying onto a street in one area can create traffic hazards. Some properties may not be located along the best portions of a road for safe access. By combining driveways with other adjoining properties, the total number of access points can be reduced and the best driveway locations can be selected.

*Wide streets promote higher speeds and create more impervious surface.*

*Confusing intersections can create traffic accidents.*

*Different maneuvers are required by drivers at intersections such as this one.*
Mass Transit
New developments should provide access to public transit through the development of walkways to stations or bus stops. In larger developments, transit facilities, such as bus stops, should be incorporated into the site.

Traffic Calming
Traffic speed can be moderated in areas used by pedestrians through various traffic-calming measures, including speed tables (similar to speed bumps), narrow street design at crosswalks, roundabouts, rumble strips, change in road materials, curb extensions, and median barriers. These techniques force drivers to reduce speed. They can be easily installed in existing streets or incorporated into new roads.

Road Connections
Larger roadways can be developed over time through the development process. To enable this, a municipality needs to propose a new road alignment in the comprehensive plan or official map and work diligently to secure sections of the road or at least road right-of-way during individual development proposals.

Convenient access to transit is important in maintaining a local workforce

Traffic-calming devices, such as bump outs, slow down traffic and make roads safer.
6. Manage Stormwater Effectively

Stormwater facilities collect, convey, and manage surface runoff from a developed site. Collection and conveyance facilities include general site grading, inlets, pipes, and swales or channels that are designed to move water to stormwater management facilities or to discharge points at the property boundary. Stormwater management facilities include structures intended to control the volume, rate, and quality of stormwater runoff.

All land disturbance activities affect the magnitude and characteristics of stormwater discharged from a site. These changes can be positive or negative. Activities that reduce impervious area and the overall intensity of development can have a positive impact on the environment by reducing the volume and peak-rate of runoff and improving the quality of runoff leaving the site. However, activities that increase impervious area and/or compact pervious areas increase the volume and peak-rate of runoff, and reduce the overall quality of water leaving the site. These changes often result in flooding, surface erosion, stream bank erosion, and environmental degradation of habitat within receiving waters. Effective stormwater management should reduce the quantity of runoff while improving its quality. It should also provide for the safe conveyance of surface flows to downstream receiving waters.

An effective stormwater system should treat water as a resource by concurrently managing water quantity and water quality. Natural hydrologic (surface water) systems, such as floodplains, wetlands, and drainage swales, provide many valuable stormwater management functions. Good stormwater management design starts with understanding these natural systems on a property in order to integrate them into a stormwater management system for the developed site. Where possible, land disturbance should be minimized. Design elements include drainage systems and best management practices for retaining, infiltrating, and treating stormwater generated on site.

Land Disturbance

Every time vegetation is removed and land is graded, existing natural systems are significantly altered. Land becomes less porous due to the compaction of heavy equipment during the construction process. This compaction reduces natural infiltration of stormwater. Vegetation and organic leaf matter is no longer in place to filter out impurities in surface water runoff. The natural swales are lost, and slopes are exposed to the erosive impacts of water runoff. Though there are various techniques available for environmental restoration, repairing the damage is difficult. The best solution is to limit the extent of land that has to be disturbed.

Natural Drainage Systems

In a natural condition, water drains through a series of channels and swales and, ultimately, into streams and rivers. Developed sites should also employ natural drainage systems where possible instead of relying upon pipes. Natural drainage systems can provide water filtration and some infiltration. These systems can also be designed as a landscape amenity.

“Stormwater running off the land and bring with it pollutants causes 89-90% of the pollution in our rivers today”

Fairmont Waterworks Interpretive Center
Infiltration of Stormwater
Infiltration of stormwater into the ground is the best place to start. This eliminates excess stormwater and serves to recharge groundwater levels. The ability to infiltrate stormwater is tied to the permeability of soils found on a site. Infiltration can be enhanced through structural changes to the ground surface and by directing stormwater to permeable areas.

On-Site Retention
Remaining stormwater should be retained on site for slow release to minimize the peak runoff of stormwater. On-site retention can take place in various structures including stormwater basins and ponds. Other types of structures can capture stormwater underground below parking lots.

Best Management Practices
Under the Phase II National Pollutant Discharge and Elimination System (NPDES), most municipalities in Montgomery County are responsible for reducing the water quality impact of stormwater. As one step to achieve this, municipalities have adopted new model stormwater management regulations developed by the Pennsylvania Department of Environmental Protection, which promote various stormwater best management practices (BMPs). These BMPs can incorporate natural processes to filter and renovate stormwater prior to release.

Stormwater Law in Pennsylvania
In Pennsylvania, local governments have the authority to establish standards for the design and construction of stormwater management facilities. Pennsylvania’s Stormwater Management Act of 1978 (Act 167) requires that counties prepare stormwater management plans for designated watersheds. Municipalities are required to implement these plans by adopting ordinances based upon them.

Key Design Points
- Minimize land disturbance.
- Utilize natural drainage systems.
- Infiltrate stormwater first.
- Provide adequate on-site retention to minimize flooding.
- Manage surface stormwater to address water quality.
7. Layout Safe and Convenient Parking and Internal Circulation

Parking often takes up a majority of the land in a development project. The parking lot and internal circulation drives can be confusing areas and are often the location of vehicular accidents. Additionally, parking lots have a high volume of pedestrian traffic. Large parking lots can be unsightly and can generate excess heat if not properly landscaped.

Connections
Parking lots should be connected with other stores and parking lots to provide good access without requiring drivers to return to public streets in order to enter adjoining properties. Additionally, by sharing access, the number of driveways connecting to public streets can be decreased, and the best locations can be selected for shared access points.

Parking Lots
Parking lots can be very large and unattractive places, hurting both the businesses they serve and overall community character. They are also the location of many accidents due to the maneuvering required to and from a parking lot. Lots should be carefully located and designed for better integration into a site. Landscaping, outdoor lighting, and earthen berms or fencing can further buffer unattractive elements of the parking lot. The configuration of drives and traffic aisles, signage, and clear sight triangles need to be carefully considered in designing a safe parking lot.

Drive-Through Windows
Banks, fast-food restaurants, and some pharmacies use drive-through windows to service customers. In some cases, the majority of customers at a fast-food restaurant are serviced through these windows. Drive-through window sales can account for up to 80 percent of lunchtime sales and 60 percent of overall sales at fast-food restaurants. Drive-through windows complicate site design because a drive-through lane with sufficient stacking distance oftentimes wraps around three sides of the building. Generally, drive-through windows should be located at the side or rear of the building. The drive-through lane should be separated from other pedestrian and vehicle circulation areas.

Entrance Drives
Driveways, especially busy commercial drives, can have a significant impact on the adjacent roadway. Good driveway design should facilitate smooth vehicle ingress and egress to and from the roadway and should also provide for pedestrians and bicyclists. Driveway design needs to account for roadway functional class or driveway usage to better accommodate varying roadway environments, community needs, and existing conditions. Where possible, shared access should be employed.
Safe pathways leading to stores
Deciduous trees planted in large protected tree islands
Convenient handicap parking
Planted buffer areas in front of the parking lot
Internal circulation roadway
Connections to other parking lots
Separated access drive with sufficient stacking distance

Putting it all together
Special Needs Parking
Handicap parking space requirements are listed in the International Building Code. Generally, 1 space per 25 should be designated and designed for handicap use and be located the shortest distance possible from the door.

Emergency Access
During emergency situations, such as fire, suitable access is needed to support various types of public safety equipment. Emergency access points should be clearly marked and designed to be used by a variety of types of equipment in different weather conditions.

Carpooling can be encouraged by offering preferential parking lot spaces

Key Design Points
- Parking should be convenient.
- Create safe and attractive parking lots and access drives.
- Establish shade in parking lots.
- Use vegetation to buffer parking lots.
8. Blaze New Pathways for People

Non-vehicular systems include facilities such as sidewalks, trails, pathways, and bike lanes. These facilities provide critical links in a community’s transportation network, connecting houses, businesses, schools, parks, and other public facilities. In addition to their use for transportation, they serve as an important recreation component. Recent surveys have demonstrated that these facilities are important in shaping the quality of life in a community. With higher energy costs, they also make sense on an economic basis. Good pathways are located and designed for user safety and convenience.

**Pathway Location**
The location and design of trails, pathways, sidewalks, and bike lanes should be carefully considered to make them community assets. These facilities should be safe, attractive, convenient, and easy to use. Planned non-vehicular facilities should conform to municipal plans and interconnect with other facilities in adjoining municipalities.

**Pedestrian Safety**
Pedestrians should be separated from motor vehicles. This is a challenging design issue when road crossings are required. The location of crossings and various physical improvements, including warning signals, striping, raised walkways, and various traffic-calming measures are essential to pedestrian safety.

**Pathway Types**
People should be able to walk or bike on many different types of pathways. Sidewalks are commonly used in developed areas to provide a safe walking area and access to businesses and residences. Pathways and various types of paved and unpaved trails can be used in open space areas and to connect sidewalks. Bike lanes can provide safe areas to ride within the roadway. Pathway choice should take into account pathway users and the physical limitations of the site.

“In 2006, there were 4,673 pedestrian involved accidents in Pennsylvania representing 3.6% of all crashes.”

-PADOT

Sidewalks and pathways should be interconnected to provide safe access to neighborhoods.

Street crossing areas should be visible and well signed to alert motorists.

Trails and pathways serve as part of the transportation system and provide recreation.

Sidewalks in parking lots can be made more attractive by setting them into landscaped areas.
Pathway Design
The design of the pathway system should fit the needs of current and future users and the surrounding environment. Key features are surface materials, pathway width, signage, safety controls, and pedestrian amenities. The Montgomery County Trail Guidelines provide details on trail design options.

Sidewalks
The design of sidewalks is dependent upon the surrounding conditions. In suburban areas, sidewalks can be 5 feet wide and, in some cases, located on one side of the road. In urban settings, streets should have sidewalks that are, in some cases, 8 to 10 feet wide. Other sidewalk streetscape amenities, such as pavers, bricks, benches, and trash cans, should be considered in urban areas as well. In urban settings, sidewalks provide for more than just pedestrian traffic. They can be meeting areas, waiting areas for public transit, and outdoor sales and eating space.

Road Crossings
Pedestrian road crossings need to be carefully designed to alert drivers and make pedestrians visible. Minimizing the road crossing distance with bulb outs along each sidewalk can improve pedestrian safety. The use of bold striping, signage, and different paving materials can alert drivers of the crosswalk.

Key Design Points
- Interconnect trails and sidewalks with municipal and county trail systems.
- Design for a variety of sidewalk and pathway users.
- Trails should connect important community facilities, including parks, schools, retail areas, and houses.
- Pathways should provide both recreation and transportation opportunities.

Two studies in the American Planning Association Journal in Winter 2006 found that people in walkable communities are more healthy and less obese.

A raised crosswalk slows traffic and makes pedestrians crossing a street more visible.
9. Install Sustainable and Appropriately Scaled Infrastructure

Water and wastewater infrastructure systems may have a big impact on the overall intensity and design of a project. The design of water and wastewater infrastructure involves county, state, and regional agencies who should work together to ensure that the infrastructure meets the needs of the proposed development and appropriate areas surrounding it in accordance with the comprehensive plan. Infrastructure should be designed to be sustainable so that it can continue to service the community in the future without significant cost and energy burdens. In developing water supply, careful attention needs to be made in protecting groundwater. Sewage facility systems address water quality.

Sewage Facilities
Act 537, the Pennsylvania Sewage Facilities Act, requires each new lot or development to have an adequate method for sewage management. This is done through the sewage facilities plan. Simultaneous with the submission of the subdivision or land development, the applicant must also address compliance with the municipal sewage facilities plan. This can involve the municipality, county health department, and the Pennsylvania Department of Environmental Protection. The municipal plan should dictate the choice of appropriate sewage management method.

On-lot Wastewater Disposal Systems
The simplest form of wastewater disposal is the on-lot septic system. An on-lot system includes a septic tank for the biological decomposition of wastewater prior to being discharged underground. In the soil, further biological and physical breakdown occurs to the effluent. In areas with insufficient soils to allow complete renovation of the wastewater, sand mounds and other innovative systems can be employed. Permits for most on-lot wastewater systems are approved by Sewage Enforcement Officers employed by the Montgomery County Health Department. Soil suitability tests are performed as part of the permit approval process. These tests also dictate the system design and location.

Centralized Wastewater Treatment Systems
Centralized wastewater management involves collection systems and off-site disposal facilities. Most large systems are owned and managed by municipal wastewater authorities. Privately owned systems can be used in individual developments, though the municipality is typically responsible for private systems under the state permitting process. This is done to ensure that the systems are properly maintained. Since municipalities ultimately may be involved in these systems, it is important for municipalities to be involved in ensuring the systems are well constructed. One way of doing this is to include design specifications within the SALDO. Specific types of equipment and treatment process requirements will ensure uniformity in the operation of all private systems installed.

Water Supply
In Pennsylvania, there is no formalized process for determining the water supply alternatives to service a land development or subdivision. Yet, Section 503 (10) of the MPC empowers municipalities to confirm reliable, safe, and adequate water supply as part of the subdivision and land development review. This could be done through the assurance of the efficiency of public or community water suppliers (addressed in Section 503.1 of the MPC) or by testing the groundwater yield at a site if individual wells are proposed. In Montgomery County, larger groundwater supplies in excess of 10,000 gallons per day undergo a permitting process through the Delaware River Basin Commission. A permit is required by the Montgomery County Health Department prior to construction of a well to ensure potability. Generally, the municipal role is to ensure the applicant is complying with appropriate county, river basin, and state permitting with respect to water use. In developments not within the jurisdiction of either entity, the municipality may need to establish standards or procedures for the applicant to provide adequate supply without impact on existing water uses.

The thousands of underground pipes in our communities provide an essential service.

Typical construction of a sand mound, the most common on-lot wastewater disposal system in the county.

Most of the county is serviced by large centralized sewage management systems.
**Individual Wells**
Many homeowners in rural areas depend upon individual wells for their water supply. In the construction of a well, a bore hole is dug and sealed with steel casing with a diameter of 6 inches or wider. Casing seals the well down into bedrock to avoid collapse of the well and seepage of contaminants from the upper soil layer. Typically, a submersible pump is installed in the well and connected to a pressure tank and the plumbing system of the house. The well is capped off to further protect it from contamination.

**Groundwater Supply**
One in eight home owners in Montgomery County is dependent upon their own well for water supply. The groundwater that replenishes individual residential wells and larger public water supply wells originates in the county. Rainwater that percolates into the ground is the primary source of groundwater supply. Changes in the landscape, caused through the development process, can have an impact on this source of new groundwater. Also, the increased use of groundwater can diminish supplies, affecting other users.

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**Key Design Points**
- Scale infrastructure to the development needs.
- Design should account for long-term use and maintenance.
- Address requirements for future infrastructure owners.
- All lots should demonstrate an adequate water supply source.
- Protect groundwater sources.
10. Promote Energy Conservation and Alternative Energy Development

Energy use considerations should be part of any design. In Section 503 (6) of the MPC, municipalities are permitted to establish standards in the subdivision and land development ordinance for encouraging renewable energy resources and energy conserving building design. The location of buildings may be important in minimizing adverse temperature and weather conditions. The placement of landscaping can block cold winter winds from the northwest while providing cool summer shade on buildings and in parking lots. The location and orientation of buildings and other structures may also be important in expanding opportunities to develop alternative energy sources. Other design features already discussed, such as roadway design and the development of pathway systems, may reduce our dependency on cars helping us to lessen fuel consumption.

Energy Conservation

Most energy conservation measures are part of the building design. Even still, there are site design techniques which might address on-site microclimate issues to minimize the use of energy within a building or even in motor vehicles. Landscaping to shade buildings, roads, and parking can greatly reduce ambient heat during the summer. Landscape buffers can serve as windbreaks, reducing the impact of cold winter winds. Also, by incorporating facilities, such as bike racks, into a design, individuals can be encouraged to bike instead of drive.

Alternative Energy

In the next several decades many new alternative sources of energy will be developed. Some of these will have applications at the site level. All new lots and developments should be designed to incorporate these new technologies. One potential place to start would be to allow flexibility to site alternative energy features within open space areas. Facilities, such as geothermal systems, involving large well fields can be easily located under athletic fields.

Solar Access

All buildings should have access to the sun to take advantage of solar power opportunities. Active solar power heating and electric generating systems require buildings with roofs oriented to the south. Passive solar heat gain also requires a southern exposure of the longest portion of the building, particularly where the main windows are located. To enable a desirable building solar orientation, roads should be generally oriented on an east–west axis and lots should be laid out for the property building envelop to enable ideal solar access.

“Trees properly placed around the buildings can reduce air conditioning needs by 30% and can save 20-50% of the energy needed for heating”

USDA Forest Service
Expressing Design Standards

Though it is clear new developments should be well designed, it is not easy to articulate standards that create good design. Good design standards should be derived from the recommendations in the municipal and county comprehensive plans. They should also be based upon professional judgment, research, and experience.

Standards should be specific and must achieve a public purpose of protecting health, safety, and general welfare. It is important that standards are interpreted uniformly and are not vague. Measureable standards, where compliance can easily be determined, are the easiest to enforce, though it is not always possible to reduce complex design issues into simple measurable standards.

Throughout the model ordinance, two types of standards are employed: literal and performance based. Literal standards are established based upon a specific measurement or process. For example, road cartways (the paved area used for traffic) are often required to be built to a minimum width based upon classification. All local roads must be a minimum of 26 feet wide. The ordinance further defines a local road. Another example would be the typical standard for a cul-de-sac to be a maximum of 600 feet long. In this case, the maximum length would be in effect whether the street would serve four or forty homes.

Performance standards, on the other hand, are developed based upon the actual intensity of the use and desired levels of service expected from a design. Instead of providing an exact dimension or measurement to be used as the design maximum or minimum, the desired outcome is expressed. Any way of achieving it would be acceptable. For example, with respect to road width, the ordinance could tie the minimum road dimensions to expected traffic based upon a traffic study. Or, in the case of the cul-de-sac, the ordinance could indicate that the cul-de-sac should provide access for no more than a certain number of homes. It could be any length.

Design standards should be based upon the average situation, though extreme conditions should be taken into account. Municipalities often require excessively wide paved roads in suburban residential neighborhoods to accommodate traffic and parking. On street parking in many low and medium density neighborhoods is only sporadically used. The extra street width creates an increased maintenance burden, produces more stormwater, and serves to encourage high-speed traffic. Bigger and more are not always better in the long run. Some standards create unintended consequences or will create conflicts with other ordinances or municipal policies. These potential conflicts should be recognized and worked out.
engineering and construction

Part 3
Introduction

Well-designed projects need to be constructed properly. This is vitally important since the improvements installed in new developments, including roads, sewer and water infrastructure, stormwater management facilities, curbing, sidewalks, streetlights, and landscaping, are built to last for several decades. Well-built improvements are a result of good design, engineering, and construction.

This section discusses how the subdivision and land development ordinance works to ensure that uniform and well-engineered improvements are properly installed. Since the installation of improvements can occur over time, it is important to establish a system to guarantee construction when each improvement is required. As a project is completed, improvements are transferred to municipalities, utilities, homeowners associations, or other future owners. Since these facilities will be owned by public or quasi-public entities, it is important that the long-term maintenance of the improvements has been considered as part of the SALDO process.

The SALDO addresses engineering and construction in Article VI, which deals with construction and engineering standards, and Article VII, which establishes improvement construction requirements.

Engineering and Construction Standards

Engineering and construction standards can be established in several ways. In some SALDOs, they are embedded into the design section. This practice was sufficient when most of the original SALDOs were developed in the county. As design and engineering standards have grown more complex, the overall design section has grown dramatically, making it more difficult to use.

Another approach is to simply include all appropriate engineering and construction standards in a design manual adopted by the governing body outside of the subdivision and land development ordinance. This approach provides flexibility since the design manual is not an ordinance but rather serves as a guideline. However, this flexibility may also create uncertainty for the developers using it.

The third approach advocated in the model ordinance is the creation of a separate article in the SALDO which contains all engineering and construction standards. The model ordinance also provides a separate article describing the contents of required studies submitted with plans.
Improvements

Municipal officials always want to know about what types of capital improvements they can get from the development process. The answer is found within the Pennsylvania Municipalities Planning Code. Essentially, all public improvements on a site, including improvements constructed along the edge of the property needed for access and egress, can be required as part of the development approval process. Though in Section 503-A of the MPC, municipalities are specifically prohibited from levying impact fees or requiring the construction of any off-site improvements as a condition of land development approval.

However, the MPC does establish two processes for funding off-site improvements. Under Article V-A, municipalities may establish transportation improvement districts and set fees to fund the cost share of off-site improvements. The process for establishing the transportation improvements district is prescribed in Article V-A. The other capital improvement process established in the MPC is found within Section 503 (11), which permits municipalities with recreation plans to establish requirements for recreation land dedication or payments in lieu of dedication. Additionally, the Pennsylvania Municipal Authorities Act enables authorities to collect impact fees for off-site capital improvements.

There are cases where it may be advantageous for a developer to install off-site improvements, such as extending water and sewer lines. Developers may also voluntarily agree to other off-site improvements as a trade-off for other improvements or requirements in the SALDO.

Improvement Guarantee

The purpose of the two-stage plan approval process—preliminary and final plan—is to enable developers to install improvements after preliminary plan approval and prior to receiving final approval. In most cases, this is not feasible since the development improvements may be significant and require time to install or would be financed through construction loans. To address this situation, Section 509 of the MPC establishes a process by which developers can guarantee the completion of improvements as a condition of final plan approval. The guarantee can be made in the form of financial security posted prior to final plan approval. Even still, the developer may be confronted with a process dilemma. Major lending institutions that provide the financial security require proof of final plan approval prior to extending a loan. To address this, 509 (b) in the MPC enables municipalities to issue an approval resolution contingent upon financing. In this case, the municipality holds the final plans so they cannot be recorded until the financial security or other required conditions are fully met.

Requirements for the type of financial security, the means of calculating it, and how it is paid out are fully addressed in Section 509 of the MPC. To further clarify the improvement guarantees and other conditions, many municipalities require a developer’s agreement. This instrument is referenced in Section 509 (e), though no specifications are provided for its contents. Generally, it is important that all forms of financial guarantees or conditions of approval are formally agreed upon and put into writing.

Construction

Construction of a project can take several years to complete. During that time, the municipality needs to monitor work being done to ensure adherence to the original plan. In some cases, changes may be required, forcing staff to decide whether they can be dealt with administratively or whether a formal plan amendment is required. It is important that these decisions are made carefully by the appropriate person. For example, something as simple as the substitution of tree species by the developer can dramatically alter the character of a development.
Working with the model
subdivision and land development ordinance
About This Model

The model ordinance was developed based upon several sources. First the ordinance accurately reflects the requirements and limitations on the subdivision and land developments contained within the Pennsylvania Municipalities Planning Code. It also includes many procedures and standards that have proven to be effective within other ordinances in place throughout the county. The ordinance also takes into account appropriate state and federal statutes that bear on the subdivision and land development process. Efforts have been made to incorporate the latest professional design and engineering standards from various state and national sources.

The model subdivision and land development ordinance is offered to assist municipalities in updating current ordinances that may be out of date. Naturally, each municipality is different and therefore changes will need to be made to this model prior to its use. This model could also serve to standardize SALDOs throughout the county to assist applicants and their engineers in the preparation of good development projects.

The model ordinance has been structured in a way that will be familiar to many municipal officials. It uses many of the traditional articles found in current municipal ordinances. Standard terminology used in the past has been retained. Additional articles have been added to break out engineering and construction standards and the content of special studies.

Modifying the Model

Even though this model has been developed as a comprehensive ordinance, it will require some adaptation and modification for use in any municipality. Throughout the ordinance, brackets appear where words should be inserted or modified as appropriate to a given municipality. Most of these insertions deal with the structure of the governing body in a municipality. Some other aspects of the ordinance or standards may not be appropriate in all municipalities. We have tried to note the standards that depend upon the overall development of a municipality (i.e. rural, suburban or urban). Also some municipalities may have a tradition of requiring certain types of public improvements that aren’t contemplated in the ordinance. In those instances, it may make sense to continue to require those types of improvements.

It is also important that the ordinance fits into the current set of municipal codes since there are portions of the proposed ordinance that addresses the same design aspects of the zoning ordinance. Also, stand alone ordinances governing stormwater, grading, lighting, landscaping and other topics should be examined. The International Building Code 2006 does address some site design issues which have been reflected in this ordinance.

As part of the review and adoption of the model ordinance for a specific municipality, we also recommend the full involvement of not only the governing body and planning commission, but other advisors and boards including the park and recreation committee, the fire commission, the code enforcement officer, the engineer, the solicitor, the sewer authority and others.

Rural and highly developed communities may need to make several adjustments to the ordinance. The commentary along side of the model ordinance notes were alternative design standards may be appropriate in more rural or urban situations.

Adoption

Enactment of the SALDO should comply with the requirements of the Municipalities Planning Code. Amendment requirements are contained in Section 106 of the model ordinance. Essentially the governing body is required to hold a public hearing prior to the enactment or amendment of the ordinance. The hearing must be properly advertised according to public notification requirements including a brief summary of the principal provisions of the ordinance and reference to a place within the municipality where a copy of the proposed ordinance can be secured or viewed.

The municipality must also publish a notice of its intent to enact the ordinance or amendment. The notice of intent to enact must be in addition to the notice of the hearing unless the notice requirements of MPC Section 504, 505, and 506. The ordinance or any amendments to it must be reviewed by the municipal and county planning commissions prior to the adoption by the governing body.

After enactment the SALDO revision can be incorporated into the municipal code book by reference. A municipality must send a copy of the enacted ordinance to the county planning commission within 30 days of its adoption. Procedures governing the enactment of ordinances must be strictly followed. Improper enactment procedures may jeopardize the legality of the ordinance.

Using the Ordinance

How does a subdivision ordinance really work? Some standards and criteria are very specific and can easily be applied when evaluating plans. Other elements of the ordinance are general and at times so flexible in nature that it is very difficult to determine compliance. Often times municipal solicitors will be reluctant to allow governing bodies to deny plans based upon general standards within the ordinance. Given this dilemma it is evident that even a good ordinance will not ensure good plans. To achieve good designs, local planning commissions will have to work effectively with local developers and realtors in order to collaboratively produce good plans.

When applying the ordinance it is important to make sure that the judgment and interpretation of it is consistent. Every applicant should have their plan evaluated fairly under the provisions of the ordinance. This is not to say that each standard will be applied uniformly in every case. Due to differences in properties proposed for development or subdivision, there may be good reason to exercise flexibility.
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ARTICLE ONE
GENERAL PROVISIONS

Section 100. Title.
This Ordinance shall be known and may be cited as the [municipality] Subdivision and Land Development Ordinance of [date].

Section 101. Enactment.
This Ordinance has been enacted in conformance with the provisions of the Pennsylvania Municipalities Planning Code, Act No. 247 of 1968 and the Pennsylvania Stormwater Management Act P.L. 864 (Act 167), as amended.

Section 102. Contents.
This Ordinance contains regulations which include, but are not limited to the following:
A. Provisions for the filing, processing, review, and approval of all subdivision and land development plans;
B. Design standards and guidelines for the overall layout, configuration, and placement of lots, roads, open space, parks, public facilities and other physical improvements on property to promote orderly development compatible with the [municipality] comprehensive plan;
C. Engineering and technical standards, including appropriate financial guarantees, governing the manner by which various improvements including streets, bridges, common facilities, water supply and sewage facilities infrastructure, stormwater management facilities, walkways, lighting, and other improvements are properly constructed.

Section 103. Purposes.
The following are the purposes of this Ordinance:
A. To ensure the overall health, safety, and general welfare of the residents of [municipality];
B. To enable the development of [municipality] in an orderly, efficient, integrated, and harmonious manner;
C. To guide the future growth and development of [municipality] in conformance to the [municipality] Comprehensive Plan and to other relevant regulations, maps, studies, and reports adopted in furtherance thereof;
D. To ensure that streets in and bordering a subdivision or land development shall be coordinated, and be of such design, and in such locations as deemed necessary to

Commentary
The general provisions section provides a legislative and legal foundation to the subdivision and land development ordinance. The most critical components to review and consider are the statements of purpose, jurisdiction, and waiver requirements.

The contents are generally the three elements described in the report: process, design, and engineering and construction standards.

The statements of purpose describe public goals that the ordinance is intended to achieve. These comprehensive purpose statements could provide a link between the actual standards and procedures in the remainder of the ordinance and the overall police powers under which municipal governments may limit the use of private property. If a specific standard comes under legal scrutiny, the court may examine the logic of the standard including whether it meets a
accommodate prospective traffic and parking, and to facilitate fire protection and other emergency services;

E. To require adequate, appropriately located easements or rights-of-way for existing and future utilities and storm drainage facilities;

F. To ensure that any lands offered for dedication or otherwise reserved for use as public or common grounds shall be of suitable size, configuration, and topographical character for their designated uses;

G. To ensure conformance of subdivision and land development proposals with the availability of municipal services and public facilities, and the coordination of inter-municipal programs;

H. To preserve lands subject to inundation or flooding from subdivision or land development which would endanger life or property or further aggravate or increase the existing flooding or inundation conditions;

I. To encourage and promote flexibility, economy, and ingenuity in the layout and design of subdivisions and land developments, including provisions authorizing the municipality to modify the requirements of this Ordinance in accordance with concepts and practices consistent with the modern and evolving, generally accepted principles of site planning, engineering, and land development;

J. To provide equitable and expeditious handling of all subdivision and land development proposals by providing uniform procedures and standards;

K. To encourage subdivision and land development in accordance with principles and practices which conserve energy, both during and after construction, and which encourage the use of alternative energy sources by the layout of the lots and the siting of buildings;

L. To ensure conformance of subdivision and land development plans with the public improvements of the municipality, and coordination of inter-municipal, county, and Pennsylvania improvement plans and programs;

M. To provide adequate open space lands and recreation facilities;

N. To preserve and protect natural resources and to prevent pollution of air and water so as to maintain the quality of life within the municipality and adjacent lands;

O. To maintain the character and the social and economic stability of the municipality and to encourage the orderly and beneficial development of the community;

P. To provide for the buffering of certain types of land uses to minimize their impact upon their surroundings.

The five core elements of a subdivision and land development ordinance stated in Section 503 (2) are included in the purpose statements.

Purpose statement I is taken from Section 503 (5) of the MPC.

Wise energy use is encouraged in the MPC, see Section 503 (6).

If the recreation land dedication option is chosen, it is important to emphasize its importance to the community.
Section 104. Interpretation.
The provisions of this Ordinance shall be the minimum requirements to meet the above-stated purposes. Where the provisions of this Ordinance impose greater restrictions than those of any other statute, ordinance, or regulations, then the provisions of this Ordinance shall prevail unless specifically preempted by a state or federal statute. Where the provisions of any other statute, ordinance, or regulations impose greater restrictions than those of this Ordinance, the provisions of such statute, ordinance, or regulations shall take precedence.

Section 105. Jurisdiction.
[municipal governing body] shall, with the recommendation of the Planning Commission, review and act upon as appropriate all subdivision and land development plans as defined below and in Section 201 of this ordinance which are located entirely or in part of the [municipality].
A. Subdivision and Land Development. No subdivision or land development of any lot, tract, or parcel of land as defined in Article Two, shall be made, and no street, alley, sanitary sewer, storm drain, water main, gas, oil or electric line, or other improvements in connection therewith, shall be laid out, constructed, or dedicated for public use, or travel, or for the common use of occupants of a building abutting thereon, except in strict accordance with this Ordinance.
B. Sale of Lots, Issuance of Building Permits, or Erection of Buildings. No lot in a subdivision or land development may be sold, and no permit to erect, alter, or repair any building upon land in a subdivision or land development will be issued unless and until a subdivision and/or land development plan has been approved, and where required, recorded, and until the required improvements in connection therewith have either been constructed or guaranteed for construction in the form of a bond, escrow, or other means approved by [municipality] under the advice of the [municipality] Engineer and Solicitor, in accordance with the laws of the Commonwealth of Pennsylvania.
C. Condominiums. No provision of this Ordinance shall be construed to prohibit condominium ownership as permitted by the applicable enabling legislation of the Commonwealth of Pennsylvania.

Section 106. Waiver of Requirements
[municipal governing body] may grant a modification of the requirements of this ordinance, through a waiver, if strict application of these requirements would be unreasonable or cause undue hardship, or when an alternative standard can be demonstrated to provide equal or better results, provided that such waiver will not be contrary to the public interest and that the purpose and intent of the Ordinance is
observed. All requests for modifications shall be provided in writing and be part of the application for subdivision and/or land development. In the request for a modification, the applicant shall:

1. State the grounds and facts of unreasonableness or hardship on which the request is based or demonstrate that an alternative standard can provide equal or better results;
2. List the provision(s) of the Ordinance involved;
3. State the minimum modification necessary.

It is important that waivers are granted in accordance with this section of the ordinance. Records of waiver approval should be maintained by the municipality and detailed on plan notes. In the event that numerous waivers are granted for one or more provisions of the ordinance, it may be worthwhile to consider an amendment to that section.

The waiver or modification process differs from the manner in which relief is granted under the zoning ordinance. Under zoning, relief is granted in the form of variances by a zoning hearing board.
ARTICLE TWO
DEFINITIONS

Section 200. Language Interpretations.
For purposes of this Ordinance, certain words shall be interpreted as follows:
A. Words used in the present tense include the future.
B. The singular number includes the plural and the plural includes the singular.
C. The phrase "used for" includes "arranged for," "designed for," "intended for," "maintained for," and "occupied for."
D. The word "person" includes an individual, corporation, partnership, incorporated association, and/or any other similar entity.
E. The words "include" or "including" shall not limit the term to the specified examples, but are intended to extend the meaning to all other instances of like kind and character.
F. The word "building" shall always be construed as if followed by the words "or part thereof.
G. The word "may" is permissive, and the words "shall" and "will" are always mandatory.
H. The words: "he" or "she" or "they" are to be used interchangeably with the word person.
I. The word "street" includes road, highway, avenue, boulevard, or expressway.
J. The word "stream" includes watercourse, creek or river, and, where referenced, a seasonal or intermittent stream.
K. The names of organizations including government agencies shall be construed to include their successors.

Section 201. Definition of Terms.
Words and terms used in this Ordinance shall have the meanings given in this Article. Unless expressly stated otherwise, any pertinent word or term not a part of this listing, but vital to the interpretation of this Ordinance, shall be construed to have its legal definition, or in absence of a legal definition, its meaning as commonly accepted by practitioners including civil engineers, surveyors, architects, landscape architects, and planners.
Accepted Engineering Practice. That which conforms to accepted principles, tests or standards of nationally recognized technical, scientific, and/or engineering authorities.

Commentary
This Article is entirely devoted to defining key terms used in the ordinance. This model was intentionally written with more definitions than might be necessary in any particular ordinance. As the ordinance is revised, extraneous definitions can be deleted.
The definitions come from several sources. The primary source is the Pennsylvania Municipalities Planning Code. Any term defined in the Planning Code that relates to land development and subdivision is included here with the same definition used in the MPC. Other terms are defined from different state statutes, regulations, or policies. It is important to review other municipal codes that contain these terms to ensure that the definitions are similar.

**Accelerated Erosion.** The removal of the surface of the land through the combination of man's activities and natural processes at a rate greater than would occur from natural processes alone.

**Acceleration Lane.** The portion of a roadway adjoining the traffic lane constructed for the purpose of enabling a vehicle entering a roadway to increase its speed to a rate at which it can safely merge with traffic.

**Accepted Engineering Practice.** That which conforms to accepted principles, tests, or standards of nationally recognized technical, scientific, and/or engineering authorities.

**Access Drive.** A privately owned, constructed, and maintained vehicular access from a public or private right-of-way to off-street parking or loading spaces.

**Access Strip.** A piece of land which provides physical access to, and legal road frontage for a lot, but which does not comply with the minimum lot width regulations of this Ordinance. Access strips provide access to "flag," "rear," or "interior" lots.

**Accessory Structure or Building.** A structure or building detached from a principal building on the same lot and customarily incidental and subordinate to the principal building.

**Aisle.** The traveled way by which cars enter and depart parking spaces.

**Alley.** A public or privately owned right-of-way, on which no new dwellings, stores, or other principal buildings are intended to front, serving as the secondary means of access to two or more properties whose principal frontage is some other street.

**Applicant.** A person who has filed an application for approval of subdivision, land development plan, variance, special exception or conditional use, including his/her heirs, successors, agents and assigns. The term also includes landowner, developer, builder and/or other persons responsible for the plans and construction of buildings or other improvements on any parcel of land.

**Application for Subdivision or Land Development.** Every application, whether preliminary or final, required to be filed and approved prior to start of construction or development, including but not limited to an application for a building permit, for the approval of a subdivision plan, or for the approval of development plan.
Application Date. The date of the day when an application for development is filed with the [municipality] in accordance with submission requirements outlined in Article Three. This date is not necessarily the date when the 90-day plan review period begins.

Authority. A public organization created pursuant to the Pennsylvania Municipal Authorities Act of 1945 (P.L. 382, No.164).

Average Vehicle Occupancy. A numerical value calculated by dividing the number of employees scheduled to start work between the hours of 6:00 A.M. and 10:00 A.M. by the number of vehicles arriving between those hours.

Best Management Practice (BMP) - Activities, facilities, designs, measures or procedures used to manage stormwater impacts from regulated activities; to meet Pennsylvania water quality requirements, to promote groundwater recharge; and to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one of two broad categories or measures: “structural” or “non-structural.” In this ordinance, non-structural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff, whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices, from large-scale retention ponds and constructed wetlands, to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. Structural stormwater BMPs are permanent appurtenances to the project site.

Block. A unit of land bounded by streets or by a combination of streets and public land, railroad rights-of-way, waterways, or any other barrier to development.

Bond. Any form of surety bond in an amount and form satisfactory to [municipal governing body]. All bonds shall be approved by the [municipal governing body] whenever a bond is required by regulations.

Buffer. An area designed and functioning to separate the elements and uses of land which abut it and to ease the transition between them. Unless otherwise specified, "buffer" may be included as part of the required setbacks and yard areas.

Builder. See Applicant.

Building. Any structure having a roof supported by columns or walls and intended for the shelter, housing or enclosure of any individual, animal, equipment, goods or materials of any kind or nature. (Also see Accessory Structure and Principal Building)
**Building Envelope.** The area of a lot within which a principal building may be erected. This area is defined by the limits of the minimum front, side, and rear yard areas, and encompasses the area of the lot not found in the yard areas, legal rights-of-way, or other areas defined in the zoning ordinance.

**Caliper.** Tree trunk diameter measured in inches at six (6”) inches above ground level for trees four (4”) inches or less in diameter or twelve (12”) inches above ground level for larger trees.

**Capital Improvement Plan.** A plan setting forth, by category of public facility, those public improvements and that portion of their costs that are attributable to servicing new development within a designated service area for such public facilities over a period of specified years.

**Cartway.** The paved portion of a street or highway designed for vehicular traffic.

**Common Facilities.** All of the real property and improvements set aside for the common use and enjoyment of the residents, including, but not limited to, buildings, open land, 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 Open Space.** A parcel or parcels of land within a development site designed and intended for the use and enjoyment of the residents or occupants of the development or community or for the protection of natural or historic resources, not including streets, off-street parking areas and areas set aside for public facilities. Common open space shall not be part of individual residential lots, and shall be substantially free of structures but may contain recreational facilities for park users or historic buildings as are shown in the approved development plan.

**Comprehensive Plan.** The Comprehensive Plan and amendments thereto, including maps, charts, and/or descriptive matter officially adopted by the municipality, indicating recommendations for the continuing development of the municipality and including all elements required in Article III of the Pennsylvania Municipalities Planning Code.

**Conservation District.** A conservation district, as defined in Section 3(c) of the Conservation District Law (3 P. S. § 851(c)), which has the authority under a delegation agreement executed with the Pennsylvania Department of Environmental Protection to administer and enforce all or a portion of the erosion and sediment control program in their county.

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Caliper is the term that should be used in defining the size of nursery stock for planting. When measuring existing trees in landscape and woodland settings, the measurement of tree size used in both the arboriculture and forestry industry is DBH, diameter at breast height. DBH is the trunk diameter measured at 4 ½ feet above the ground.

As part of the comprehensive plan definition, reference could be made to the most recently adopted plan for the municipality.

The definition of conservation district could specifically reference the Montgomery County Conservation District.
Concurrency. The requirement that development applications demonstrate that adequate public services be available at prescribed levels of service concurrent with the impact or occupancy of the developed property.

Condominium. Real estate, portions of which are designated for separate ownership and the remainder of which is designated for common ownership solely by the owners of those portions, created under either the Pennsylvania Unit Property Act of July 3, 1963 or the Pennsylvania Uniform Condominium Act.

Contiguous. Properties sharing a common boundary. Properties on opposite sides of a public right-of-way shall not be considered contiguous.

Construction. The construction, reconstruction, renovation, repair, extension, expansion, alteration, or relocation of a building or structure, including the placement of mobile homes.

Crosswalk. An improved right-of-way for pedestrian travel across a street connecting two blocks.

Cul-de-sac. A local street with only one outlet and having an appropriate terminus for the safe and convenient reversal of traffic.

Culvert. A conduit not incorporated in a closed storm sewer system, that carries drainage water under a driveway, roadway, or paved area.

Curb Elevation or Curb Level. The elevation of the top of a curb at a given point with a reference to a designated datum.

Curbline. A line formed by the face of the existing curb or in its absence, the outer edge of the shoulder, along which a curb would be other wise located.

Curb Return. The connecting link between a street curb and the curb of a driveway.

Cut. An excavation; the difference between a point on the original ground and a designated point of lower elevation on the final grade. Also, the material removed in an excavation.

De Minimis Improvements. Non-residential property improvements which would, by their use, require less than five parking spaces with a maximum footprint of the addition being less than 1,000 square feet of new building.

Design Storm. The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g. a 5-year storm) and duration (e.g. 24-hours), used in the design and evaluation of stormwater management systems.
Developer. Any landowner, agent of such landowner, or tenant with the permission of such landowner, who makes or causes to be made a subdivision of land or a land development.

Development. Any manmade change to improved or unimproved real estate, including but not limited to, buildings or other structures, streets and other paving, utilities, mining, dredging, filling, grading, excavation, or drilling operations.

Development Plan. The provisions for guiding development, including a plan of subdivision, all covenants relating to use, location and bulk of buildings and other structures, intensity of use or density of development, streets, parking facilities, ways, common open space, and public facilities.

Disconnected Impervious Area (DIA) – An impervious or impermeable surface which is disconnected from any stormwater drainage or conveyance system and which directs water to a pervious area which allow for infiltration, filtration, and retention of stormwater.

Disturbed Area – An unstabilized land area where vegetation has been removed and soil has been exposed, graded, or removed.

Drainage Structures. The natural or manmade features of land that are specifically designed to store or carry surface water runoff.

Driveway. A private way providing for vehicular access between a public street and a parking area or garage within a lot or property.

Dwelling Unit. One or more rooms designed, occupied, or intended for occupancy as a separate living quarter with cooking, sleeping, and sanitary facilities for the exclusive use of a single occupant, multiple occupants, or a family maintaining a household.

Earth Disturbance - A construction or other human activity which alters the surface of the land, including, but not limited to, clearing and grubbing; grading; excavations; embankments; road maintenance; building construction; or the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

Easement. A vested or acquired legal right to use land other than as a tenant, for a specific purpose, such right being held by someone other than the owner who holds title to the land.

Elevation. A vertical distance above or below a fixed reference level; or a flat scale drawing of the front, rear, or side of a building.
Engineer. A professional engineer licensed as such in the Commonwealth of Pennsylvania and competent in the profession as established under the Pennsylvania Engineer, Land Surveyor, and Geologist Registration Act.

Equivalent Development Unit. A standardized measurement of the consumption, use, or generation of water equivalent to that of a new single family residential development unit.

Escrow. A deposit of cash with the [municipality] or escrow agent to secure the promise to perform some future act.

Excavation. Any act by which natural materials are dug into, cut, quarried, uncovered, removed, displaced, relocated, or bulldozed, as well as the conditions resulting from such activities.

Existing Condition. The dominant land cover during the five (5) year period immediately preceding a proposed regulated activity.

Fence. A man-made barrier placed or arranged as a line of demarcation between lots or to enclose a lot or portion thereof. The term “fence” shall be deemed to include a freestanding wall.

Fill. Any act by which natural materials are placed, pushed, dumped, pulled, transported, or moved to a new location above the natural surface of the ground or on top of the stripped surface, as well as the conditions resulting from such activities.

Floodplain Related Terms.

1. Base Flood. The flood which has been selected to serve as the basis upon which the floodplain management provisions of this and other ordinances have been prepared. For the purposes of this ordinance, it shall be the 100-year flood as referenced in the current Flood Insurance Study and delineated on the Flood Insurance Rate Map of the Federal Insurance Administration.

2. Base Flood Elevation. The 100-year flood elevation is the computed elevation to which floodwater is anticipated to rise during a base flood.

3. FEMA and FIA. The Federal Emergency Management Agency and the Federal Insurance Administration who have jurisdiction over the National Flood Insurance Program and its related studies and regulations. "FEMA" is the parent agency of the "FIA." Both are within the US Department of Homeland Security.

4. Flood. A temporary condition of partial or complete inundation of normally dry land areas.

The existing condition term is used to define the overall characteristics of a property for establishing existing storm water and forest cover conditions.

The various terms used to describe flooding hazard are from the federal Emergency Management Agency regulations and the Pennsylvania Flood Management Act. These terms are often included in the zoning ordinance.
5. Flood Insurance Rate Map. The official FIA map which shows special hazard zones and risk areas for insurance rating purposes. For the purposes of this ordinance the floodway and floodfringe which make up the 100-year flood plain will be used.

6. Flood Insurance Study. The examination and determination of flood hazards by the FIA. The flood elevations contained in this study are used for floodplain management purposes as related to this and other ordinances.

7. Floodplain. A relatively flat or low land area adjoining a stream, river, or watercourse, which is subject to partial or complete inundation during a 100-year flood, or any area subject to the unusual and rapid accumulation of surface water from any source; also referred to as flood-prone area.

8. Floodplain Districts. These specifically designated areas delineated in the [municipal] Zoning Ordinance includes land which will be inundated primarily by the 100-year flood. Included would be areas identified as the Floodway District (FW), Flood-Fringe District (FF) and General Floodplain District (FA).

9. Floodplain Management. The application of a program or activities which may consist of both corrective and preventive measures for reducing flood damages.

10. Floodproofing. Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents. Such measures are set forth in Flood Proofing Regulations published by the Office of the Chief Engineers, U.S. Army, publication number EP 1165 2 314 (June, 1972 and as subsequently amended).

11. Floodway. The channel of a river, stream, or other watercourse and the adjacent land area required to carry and discharge a flood of the 100-year magnitude.

12. Obstruction. Any wall, dam, wharf, embankment, levee, dike, pile, abutment, projection, excavation, channel, rectification, culvert, building, fence, stockpile, refuse, fill, structure or matter in, along, across or projecting into any channel, watercourse or designated floodplain district which may impede, retard or change the direction of the flow of water, either in itself or by catching or collecting debris carried by such water, or is placed where the flow of the water might carry the same downstream to damage of property or threaten lives.

13. One-Hundred Year Flood. A flood that has one (1) chance in 100 or a one (1%) percent chance of being equaled or exceeded in any one year. For the purposes of this Ordinance, the "100-year flood" (base flood) is as defined by the
Federal Insurance Administration in the Flood Insurance Study pertaining to [municipality].

14. Regulatory Flood Elevation (RFE). The 100-year flood elevation plus a freeboard safety factor of one and one-half \(1\frac{1}{2}'\) feet.

15. Substantial Damage. Damage of a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50% percent of the market value of the structure before the damage occurred.

16. Substantial Improvement. Any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50% percent of the market value of the structure either,

a. before the improvement or repair is started; or

b. if the structure has been damaged, and is being restored, before the damage occurred.

For the purposes of this definition "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either:

a. any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions or

b. any alteration of a structure listed on a National Register of Historic Places or a State Inventory of Historic Places.

Footcandle. Unit of light intensity stated in lumens per square foot and measureable with a luminance meter.

Forestry. The management of forests and timberlands when practiced in accordance with accepted silvicultural principles, through developing, cultivating, harvesting, transporting and selling trees for commercial purposes, which do not involve any land development.

Frontage. That side of a lot abutting on a street or right-of-way and ordinarily regarded as the front of the lot.

Full Cutoff. The attribute of a light fixture from which no light is emitted at or above a horizontal plain drawn through the bottom of the fixture and no more than 10% of the lights intensity is emitted at or above an angle of 10° degrees below the horizontal plain, at all lateral angles around the fixture.

The forestry definition is taken from the MPC. It is important to note at the end of the definition, a distinction is made between normal forestry and clearing a site in preparation for the construction of a land development.
Glare. Excessive brightness in the field of view that causes a loss in visual performance or annoyance so as to jeopardize health, safety, and welfare.

Grade. The slope of a street, parcel of land, utility lines, drainageways, etc., specified in percent (%) and shown on plans as required herein.

Ground Cover. Low growing plant materials planted in a manner to provide continuous plant cover of the ground surface and other low plant materials are included. Non-plant ground cover may also include bark or wood chips, gravel, and stone provided they are maintained as a continuous pervious cover.

Guarantee, Maintenance. Any security which may be required from the developer by the [municipality] after final acceptance by the [municipality] of improvements installed by the developer. Such security may include irrevocable letter of credit, cash escrow account or surety bond with a bonding company or commonwealth or federally chartered financial institution as further specified in this ordinance.

Guarantee, Performance. Any security which may be required from the developer by the [municipality] in lieu of the requirement that certain improvements be made before the [municipality] approves a developer's subdivision or land development plan. Such security may include irrevocable letter of credit, escrow account or surety bond with a bonding company or commonwealth or federally chartered financial institution as further specified in this ordinance.

Height of Building. The vertical distance measured from the average elevation of the existing grade at the location of the building to the highest point of a flat or multi-level roof or, for gable, hip or gambrel roofs to the mean height between the eaves and ridge. Chimneys, spires, towers, mechanical penthouses, tanks, and similar projections not intended for human occupancy shall be excluded.

Hydrologic Soil Group (HSG) - Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSG’s (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The Natural Resources Conservation Service (NRCS) of the US Department of Agriculture defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D.

Impact Fee. A fee imposed on new development to help finance the cost of new improvements or services. Impact fees do not include the dedication of rights-of-way or easements for such new facilities or construction of such improvements.

Maintenance Guarantee is further discussed in Article Seven

Performance Guarantee is further discussed in Article Seven.

Height of the building is typically defined in the zoning ordinance. There are several ways to define height and exempt various structures from it.

The Hydrologic Soils group definition comes from the Pennsylvania Model Stormwater Management Ordinance.
Impoundment. A body of water, such as a pond, confined by dam, dike, floodgate, or other barrier.

Improvements. The physical additions, installations, and changes required to render land suitable for the use proposed, including streets, curbs, sidewalks, utilities, and drainage facilities.

Improvements, Public. Improvements, including but not limited to those contained in the definition of “improvements,” that are intended for dedication to the [municipality], or other municipal body or authority, either in fee or in easement.

Improvements, On-site. Improvements, including but not limited to those contained in the definition of “improvements,” that are constructed on the applicant’s property or along the road frontage of the tract being developed up to the centerline of the road.

Individual Sewage Disposal Systems. A septic tank and drainage field or other type of sewage disposal system located on a single lot and serving one equivalent development unit.

Infill Development. Development that takes place within existing communities, making maximum use of the existing infrastructure instead of building on previously undeveloped land.

Karst. A type of topography or landscape characterized by surface depressions or sinkholes, rock pinnacles, uneven bedrock surface, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone and dolomite.

Land Development. Any of the following activities:

1. The improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving:
   a. A group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively or a single nonresidential building on a lot or lots regarded less of the number of occupants or tenure; or
   b. The division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features.

2. A subdivision of land.

3. Development in accordance with Section 503 (1.1) of the Pennsylvania Municipalities Planning Code.

The definitions for on-site improvement and off-site improvement are provided in Section 502-A of the MPC.

The definition of Land Development is one of the most important definitions in the Ordinance. This definition comes from the MPC. It includes all types of residential and commercial construction except for a single family home built on one lot. Additions to commercial or multifamily structures are also included. Even renovations involving the modification of interior space and change in use are considered a land development. The term land development also includes subdivision or lot consolidation.
Landowner. The legal or beneficial owner or owners of land, including the holder of an option or contract to purchase (whether or not such option or contract is subject to any condition), a lessee if he is authorized under the lease to exercise the rights of the landowner, or other person having proprietary interest in land.

Light Trespass. Light emitted by a fixture or installation which is cast beyond the boundaries of the property on which the lighting fixture is placed.

Lot. A contiguous tract, parcel, or unit of land held by a landowner and/or intended for use, development, lease, or transfer of ownership, and for which a deed description is recorded or is intended to be recorded at the Office of the Recorder of Deeds for Montgomery County.

Lot Area, Buildable. Net lot area contained within the deeded boundaries of the lot minus the area of any land unsuitable for development due to natural conditions or various legal or physical restrictions.

Lot Area, Gross. Calculated land area contained within the deeded boundaries of a lot.

Lot, Corner. A lot having contiguous frontage on two or more intersecting roads. The yard setback for each road frontage shall be the front yard setback for the district in which the lot is located. One of the other two sides should have a rear yard setback while the other would be the side yard.

Lot, Flag. A lot not substantially fronting or abutting a public roadway and where access to the public roadway is limited to a narrow strip of land.

Lot Line. Any property boundary line of a lot, further defined as follows:

1. Front lot line is the line identical with the street ultimate right-of-way line (also known as Street Line).
2. Rear lot line is the line or lines most nearly parallel or concentric to the front lot line.
3. Side lot lines are the lines most nearly perpendicular or radial to the front lot line. On a corner lot, the side lot line shall be the line or lines most nearly perpendicular or radial to the higher classification of street, where applicable. The remaining line shall be considered the rear lot line.
4. A lot which fronts on more than one street shall have a front lot line on each street frontage.

Definitions for lot area should be coordinated with the Zoning Ordinance. Net lot area is sometimes referred to as developable area.
Lot, Rear. A lot which conforms in all respects to the dimensional requirements of the zoning district in which it is located, except that the only road frontage and access is limited to a narrow strip of land. This definition does not include the commonly used wedge-shaped lots located on a cul-de-sac turnaround. Also known as flag or interior lot.

Lot, Through. A lot that fronts upon two parallel streets that do not intersect at the boundaries of the lot. A through lot is referred to as a reverse frontage lot when access is taken from only one street, usually a street with less traffic volume.

Lot Width. The horizontal distance between side lot lines, measured at the building line, parallel or concentric to the ultimate right-of-way line. For a corner lot, lot width shall be measured parallel or concentric to the ultimate right-of-way line of the higher classification of street, where applicable.

Mature Tree. Any tree of six (6") inches or more in caliper, whether standing alone or in a tree mass or woodlands. A mature tree shall be a desirable species as determined by the Shade Tree Commission or landscape architect.

Mobile Home. A transportable single family dwelling intended for permanent occupancy in one unit or two units designed to be joined into an integral unit, which arrives at the site complete and ready for occupancy except for minor and incidental un-packing and assembly operations, and constructed so that it may be used without a permanent foundation. A mobile home need not meet local building codes, but shall meet the standards of the U.S. Department of Housing and Urban Development, as indicated in the Structural Engineering Bulletin(s) which shall be provided to the [municipality] by the applicant. Also referred to as a manufactured home.

Mobile Home Park. A parcel or contiguous parcels of land which has been so designated and improved that it contains two or more mobile home lots for the placement of mobile homes.

Modular Home. A single-family dwelling unit for permanent occupancy, made by assembling one or more factory-produced, three-dimensional sections into one integral building, not capable of easily being separated for repeated towing, whose construction materials must conform to those of conventionally-built units, as required by the [municipality]'s building code, and must be placed on a permanent foundation. A copy of the Structural Engineering Bulletin(s) must be provided to the [municipality], indicating approval of the dwelling or its components by the U.S. Department of Housing and Urban Development.

Monument. A tapered, permanent survey reference point of stone or concrete having a top four (4") inches on each side and a length of twenty-four (24") inches.

The measurement of lot widths should coincide with the Zoning Ordinance.

The term mobile home is based upon the definition in the MPC. This term is used throughout the ordinance, though manufactured housing is a more current term for this type of housing.
Natural Feature. A component of a landscape existing or maintained as part of the natural environment and having ecological value in contributing beneficially to, among other things, air and water quality, erosion control, groundwater recharge, noise abatement, visual amenities, growth of wildlife, human recreation, reduction of climatic stress and energy costs.

Official Map. The map adopted by [municipality] pursuant to Article IV of the Municipalities Planning Code.

Open Space. Public or private lands designated for the use and enjoyment of residents of a development and/or the general public, incorporating natural features such as woodlands, streams, or meadows, and including state, county or [municipality] parks, trails, and other recreational facilities. Also includes Common Open Space as defined below, and other private lands which are available for the use of [municipality] residents (i.e., through access easements). (See Common Open Space)

Open Space, Common. A parcel or parcels of land within a development site designed and intended for the use or enjoyment of the residents of the development and or the general public, not including streets, street right-of-ways, off-street parking areas, and areas set aside for public facilities. Common open space shall be substantially free of structures but may contain such recreational facilities for residents as are shown in the approved development plan.

Park. Any area which is predominantly open space, is used principally for active or passive recreation, and is not used for a profit-making purpose.

Pathway. A designated land corridor containing a route designed for non-motorized travel that connects local facilities, neighborhoods, commercial districts, etc. to a larger trail or sidewalk network. Sidewalks are not considered pathways.

Pennsylvania Municipalities Planning Code. The Municipalities Planning Code, originally enacted as Act 247 of 1968, which establishes the basic authority for the exercise of municipal land use controls in Pennsylvania. All subsequent amendments are included. Abbreviated as “MPC” or “Act 247”.

Peak Discharge. The maximum rate of flow of stormwater runoff at a given point and time resulting from a particular magnitude storm.

Percolation Test. One of the tests required to identify a suitable area for the location of an on-site septic system. The test measures the ability of the soil to absorb water.

Plan. A graphic representation of a proposal for subdivision and/or land development, including necessary written notes.

Plat. The map or plan or a subdivision or land development, whether preliminary or final.

Principal Building. A building which is considered the principal use of the lot on which it is located.

Principal Use. The single dominant use or single main use on a lot.

Property Line. A recorded boundary of a lot. Any property line which abuts a street or other public way shall be measured from the right-of-way.

Public Hearing. A formal meeting held pursuant to public notice by the governing body, planning commission, or other municipal agency, intended to inform and obtain testimony and public comment, prior to taking action in accordance with the Pennsylvania Municipalities Planning Code, as amended.

Public Meeting. A forum held pursuant to notice under the act of July 3, 1986 (P.L.388, No. 84), known as the "Sunshine Act." ("...any prearranged gathering of an agency which is attended or participated in by a quorum of the members of an agency, held for the purpose of deliberating agency business or taking official action.")

Public Notice. Notice of a public hearing published in a newspaper of general circulation in the municipality. Such notice shall state the time and place of the hearing and particular nature of the matter to be considered at the hearing. The publication of a public notice shall be in accordance with the Pennsylvania Municipalities Planning Code, as last amended.

Release Rate. The level of control of the post-development peak rate of runoff to be achieved for a particular site, expressed as a percentage of the pre-development peak rate of runoff.

Reserve Strip. A parcel of land whose primary function is to separate a street from adjacent properties, while not being used or capable of being used as a building lot, open space, or recreation area.

Reverse Frontage Lotting. Lotting which extends between two streets of differing classifications, with vehicular access provided from the lesser street, in order to promote traffic flow and safety on the greater street.

Right-of-Way. A strip of land occupied or intended to be occupied at some future date by roads, railroads, transmission lines, pathways, oil and gas pipe lines, water lines, sewer lines, and other similar facilities.
Security. A letter of credit, surety bond, certified check, or cash escrow provided by the applicant to secure its promises regarding public improvements associated with an approved subdivision or land development.

Sediment. Soils or other materials transported by surface water as a product of erosion.

Sewage Enforcement Officer. A licensed employee of the Montgomery County Health Department who issues permits, reviews permit applications and sewage facilities planning modules, and conducts inspections and investigations necessary to implement the Pennsylvania Sewage Facilities Act and regulations promulgated under it.

Sewage Facilities Plan. A comprehensive plan for the provision of adequate sewage facilities which was adopted by [municipality] and approved by the Department of Environmental Protection under the Pennsylvania Sewage Facilities Act (Act 537).

Sewage Facilities Planning Module. Completed forms submitted to the Sewage Enforcement Officer and PADEP for the purposes of revising the sewage facilities plan resulting from a proposed land development or subdivision.

Sight Distance, Stopping. The distance of unobstructed view along the centerline of a street from the driver’s eye-height of three and one-half (3½’) feet above the pavement surface to the furthest visible point twenty-four (24) inches above the street surface.

Sight Triangle. A triangular-shaped portion of land established at street intersections in which nothing is erected, placed, planted, or allowed to grow in such a manner as to limit or obstruct the site distance of motorists entering or leaving the intersection.

Specimen Tree. Any tree with a caliper that is 75% or more of the record tree of the same species in the Commonwealth of Pennsylvania


Stormwater Management Facility. Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff. Typical stormwater management facilities include, but are not limited to, detention and retention basins, open channels, storm sewers, pipes, and infiltration structures.

Stormwater Basin. A structure which provides for the storage and controlled release of stormwater runoff during and after a storm. Also referred to as a sediment, retention, or detention basin.

1. Wet Basin. An impoundment basin designed to retain stormwater runoff within a permanent pool of water or existing pond.

2. Dry Basin. A naturalized impoundment basin designed to retard stormwater runoff by temporarily storing the runoff and releasing it at a pre-determined rate.

Stormwater Runoff. Water from rainfall or melting snow in a watershed in excess of the natural absorbency of that watershed, which flows over the ground surface to collect in streams and channels.

Street or Road. Any way which serves to access and provide for transportation between multiple properties, whether under public or private ownership, and used or intended to be used by vehicular traffic or pedestrians including street, avenue, boulevard, road, highway, freeway, parkway, lane, alley, viaduct, or other similar facilities.

1. Arterial. A street serving a large volume of comparatively high speed and long distance traffic.
   a. Principal Arterial. An arterial serving the heaviest volumes of traffic in municipality, providing the highest degree of vehicular mobility, and involving controls on access.
   b. Minor Arterial. An arterial serving high volumes, providing a high degree of mobility, and some limits on access.

2. Collector. A street designed and located to provide a means to accommodate traffic between neighboring communities and to interconnect arterial streets with local roads.
   a. Major Collector. A collector serving moderate levels of traffic within the municipality, providing a mix of mobility and access and linking adjacent communities.
   b. Minor Collector. A collector serving lower amounts of traffic, providing more access than mobility, and serving as a major road through residential neighborhoods.

3. Local Road. A road intended to provide access to other roads from individual properties.

Basins are common stormwater best management practices used in the county.

Street is defined in the MPC.

The road system hierarchy is further described in Article Four and in the Transportation Element of the Montgomery County Comprehensive Plan.
4. Cul-de-Sac Street. A local street with only one outlet and having an appropriate terminus for the safe and convenient reversal of traffic.

5. Private Street. A local street, serving abutting lots that is not offered or required to be offered for dedication.

6. Alley. A public or privately owned right-of-way, on which no new dwellings, stores, or other principal buildings are intended to front, serving as the secondary means of access to two or more properties whose principal frontage is on some other street.

7. Marginal Access Street. A street parallel to and adjacent to a collector or arterial street which provides access to abutting properties and separation from traffic.

8. Loop Street. A local street with access and egress at two points along the same collector street.

9. Through Street. A street which connects to two different collector or higher order streets.

Street Line. A line identical to the ultimate right-of-way line.

Street Rights-of-Way. Rights-of-way for street purposes are defined as follows:

1. Legal Right-of-Way. The street right-of-way legally in the public domain at the time a subdivision or land development plan is submitted.

2. Ultimate Right-of-Way. The street right-of-way projected as necessary for adequate handling of anticipated maximum traffic volumes, according to the Ultimate Right-of-Way Map incorporated in the [municipality] Comprehensive Plan. The ultimate right-of-way becomes the legal right-of-way where it has been offered for dedication and accepted by the [municipality].

3. Equivalent Right-of-Way: A street right-of-way required to be reserved where private streets are permitted. The width shall be determined by the street's function, in accordance with street classifications contained in this ordinance.

Structure. Any thing built, constructed, or erected which requires location on the ground or attachment to something located on the ground.

Subdivision. The division or re-division of a lot, tract, or parcel of land by any means into two or more lots, tracts, parcels, or other divisions of land, including changes in existing lot lines for the purpose, whether immediate or future, of lease, partition by the court for distribution to heirs or devisee, transfer of ownership or building or lot

Since private streets do not have a legal right-of-way, an equivalent right of way is established during the subdivision process to provide needed space for future improvements.

Legal rights-of-way are often times more narrow than the ultimate rights of way called for in this ordinance. The legal rights-of-way reflect past conditions, while ultimate rights-of-way reflect future needs for road widening and other mobility improvements.

Structure is defined in the MPC.
Subdivision and Land Development Ordinance

Subdivision by lease of land for agricultural purposes into parcels of more than ten acres, not involving any new street or easement of access or any residential dwelling shall be exempted.

Subdivision, Major. All subdivisions not classified as minor subdivisions, including but not limited to subdivisions of four or more lots, or any size subdivision requiring a new street or extension of the municipal facilities or the creation of public improvements.

Subdivision, Minor. Any subdivision containing not more than three lots fronting on an existing street, not involving any new street or road, or the extension of municipal facilities or the creation of public improvements, and not adversely affecting the remainder of the parcel or adjoining property, and not in conflict with any provision or portion of the Comprehensive Plan, Official Map, Zoning Ordinance, or other pertinent regulations. Minor subdivisions include lot line adjustments and simple conveyances, as defined herein:

A. Lot Line Adjustment. A proposal between two abutting, existing, legally approved and recorded lots in which a lot line between the two lots is proposed to be adjusted in terms of its location or configuration. Reasons for lot line adjustments include:

1. Correcting errors regarding locations of existing improvements (e.g. if the driveway for Lot #1 is located on Lot #2);

2. Relating the line to definitive physical characteristics (e.g. to adjust the line to run along an existing hedgerow);

3. Preferences of the landowners involved.

B. Simple Conveyance. A proposal between two abutting, existing, legally approved and recorded lots in which a portion of one lot is being divided off to be conveyed to the owner of the abutting lot. The land area to be conveyed in a simple conveyance generally does not comply with one or more of the dimensional standards of the district in which the lots are located.

Surveyor. A land surveyor, registered as such in the Commonwealth of Pennsylvania, and competent in profession as established under the Pennsylvania Engineer, Land Surveyor, and Geologist Registration Act.

Topsoil. The original upper layer of soil material to a depth of six (6”) inches which is usually darker and more fertile than subsoil.
Traffic Impact Study. A technical evaluation of the traffic impacts associated with a proposed subdivision or land development. Criteria for a traffic impact study are contained in Section 801.

Trail. A designated land corridor containing an improved route designed for non-motorized travel that provides recreational, aesthetic, alternate transportation, or education opportunities for people of all ages and abilities. Sidewalks are not considered trails though they can serve as trail connections.

Trip. A single or one-way vehicle movement to or from a property or study area. "Trips" can be added together to calculate the total number of vehicles expected to enter or leave a specific land use or site over a designated period of time.

Ultimate Right-of-Way Line. The dividing line between a lot and the outside limit of a street ultimate right-of-way. Identical with “front lot line” and “street line”.

Viewshed. The viewing area readily perceived by the observer from a certain location or series of locations, commonly delineated by visual accents such as, but not limited to, treelines or ridges, geologic features, historic structures, stone walls, and water courses.

Visual Screen. A barrier for the purpose of limiting or obscuring a view; generally comprised of vegetation, structures, or earthworks suitable for the purpose.

Watercourse. A depression which carries the flow of surface water including permanent and intermittent streams, brooks, creeks, channels, ditches, swales, and rivers.

Water Supply System. A system designed to transmit water from a source to users, in compliance with the requirements of the appropriate state agencies and the local authorities. Includes the following definitions:

1. Water Facilities, Public. A water distribution system serving all or a portion of the [municipality] and operated by [municipality], municipal authority, or certified public utility.

2. Water Facilities, Common. A water distribution system serving a single neighborhood or development.

Wetland. Those areas that are inundated and saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions; includes swamps, marshes, bogs and similar areas. Development in "wetlands" is regulated by the U.S. Army Corps of Engineers and the Pennsylvania Department of

Traffic impact studies are further described in Article Eight.

Trail designs are discussed further in Article Four.

Trip is a key term in traffic analysis.

The definition of wetlands conforms with the definition used by the Commonwealth of Pennsylvania.
Environmental Protection. Identification of "wetlands" should be based upon the "1987 Corps of Engineers Wetlands Delineation Manual".

**Yard.** The area(s) of a lot which must remain free of buildings or other structures and may be used as lawn or planted area, parking, or driveway space, in compliance with the provisions of this Ordinance. A yard is measured at right angles from the right-of-way or lot line to the nearest building wall. Yard is further defined as follows:

1. **Front Yard.** A yard which extends across the full width of a lot, for a depth equal to the minimum front yard setback distance required by the specific regulations of the Zoning Ordinance, measured perpendicular from the street right-of-way line, unless stated otherwise, toward the center of the lot.

2. **Rear Yard.** The space extending across the full width of a lot for a depth equal to the minimum rear yard setback distance required by the specific regulations of the Zoning Ordinance, measured perpendicular from the rear lot line to the center of the lot.

3. **Side Yard.** A space extending from the front yard to the rear yard for a depth equal to the minimum side yard setback distance required by the specific regulations of the Zoning Ordinance, measured perpendicular from the side lot line toward the center of the lot. However, corner lots shall be regarded as having two front yards for the frontage along a street. Therefore the setback for a side yard with street frontage shall be the same as the front yard setback for the district in which the property is located.

**Yard Line.** A line which locates and delineates the minimum yard setback requirements, measured from the appropriate property lines.

**Zoning Officer.** The person or agency appointed by [municipality] to administer and enforce the provisions of the Zoning Ordinance. The term “Zoning Officer” shall also include any duly appointed staff or assistants.

**Section 202. Abbreviations.**

**ASCE.** American Society of Civil Engineers

**ASLA.** American Society of Landscape Architects

**ASTM.** American Society for Testing Materials

**AWWA.** American Water Works Association

**COE.** Army Corps of Engineers

The definition of yard in the subdivision and land development ordinance should agree with the definition of it in the zoning ordinance.

Zoning officers are defined here since they are often the key municipal staff involved in the subdivision and land development process. Other municipal officials could also be included in the definitions for clarity.

Since the Ordinance uses abbreviations of key organizations, a listing of the abbreviations and full name of the organizations are included here.
ARTICLE THREE
PLAN FILING, PROCESSING, AND REVIEW

Section 300. Applicability.
The standards, requirements, and procedures contained in this Article shall govern the filing and processing of all applications for subdivision and/or land developments in the [municipality].

Section 301. Types of Plans.
All applications for subdivision and/or land development shall be classified as Sketch Plans, Preliminary Plans, Final Plans, or Minor Plans, as further regulated herein. Figure 3.1 graphically presents the general plan processing procedure.

A. Sketch Plans. The [municipality] strongly recommends that applicants submit a pre-application Sketch Plan in accordance with the requirements of Section 302, Sketch Plan Requirements and Section 303, Sketch Plan Review Procedure. A Sketch Plan may be filed in cases where only a portion of the property is currently proposed for subdivision or land development to show how the immediate proposal can fit logically into an overall plan for the entire site.

B. Preliminary Plans. A Preliminary Plan is required to be filed for all proposals for subdivision and/or land development in accordance with the requirements of Section 304, Preliminary Plan Requirements and Section 305, Preliminary Plan Review Procedure.

C. Final Plans. A Final Plan is required to be filed for all proposals for subdivision and/or land development in accordance with the requirements of Section 306, Final Plan Requirements, and Section 307, Final Plan Review Procedure.

D. Minor Plans. Applications which qualify as Minor Plans may be submitted for concurrent Preliminary and Final Plan processing and approval, in accordance with the standards and requirements of Section 309, Minor Plan Submission Requirements and Review Procedure.

Section 302. Sketch Plan Requirements.
A. Purposes. The purposes served by a Sketch Plan are as follows:

1. To inform the [municipality] of an applicant’s intent to subdivide and/or develop a property, and graphically show the concepts and extent of the proposal.

2. To allow the [municipality] to provide advice and guidance to an applicant so that:

   a. Overall layout and circulation issues can be resolved prior to preparation of...
Preliminary Plans.

b. The Preliminary Plan approval process may then be able to proceed more efficiently.

3. To show how a tract of land may be further subdivided or developed in cases where only a portion of a property is currently under an active proposal.

a. This plan shall show a logical and efficient pattern of roads, lots, and/or buildings, as appropriate for the type of plan proposed, and shall not be acceptable if it proposes lotting or development that would adversely impact floodplain, steep slopes, or other important site features.

b. A sketch plan may be shown on the Preliminary Plan for the subject site in the form of a reduced-scale inset drawing, although larger scale drawings are encouraged for review and discussion purposes.

4. Sketch plans shall have no legal standing with regard to the formal plan approval process mandated by the Pennsylvania Municipalities Planning Code, but are recommended and will be considered as a tool for discussion and guidance regarding future development issues.

B. Sketch Plan Information. A Sketch Plan should be drawn legibly and to scale of not greater than 1:200, but it need not be a precisely surveyed or engineered plan, and it should show the following information:

1. The entire tract boundary, total acreage, and acreage of each lot.

2. Existing and proposed streets, lots, buildings, approximate building envelopes and other improvements.

3. Significant physical features such as floodplain, steep slopes, woodlands, and existing structures.

4. Contour lines at five to ten foot intervals, based on U.S.G.S. datum.

5. Approximate locations for stormwater control facilities, if necessary.

6. Location plan showing the relationship of the subject tract to the surrounding road network and major physical features.

7. North point and scale.

8. Name and address of the owner.


10. Name and address of the engineer, surveyor, or architect, if applicable.
This is a simplified chart of the plan review stages. It can be modified and used in the ordinance or made available to prospective applicants as a separate guide.

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<tr>
<th>Subdivision and/or Land Development Plan Review Procedure</th>
<th>Minor Plan Review Procedure</th>
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<tr>
<td><strong>Sketch Plan - Section 303</strong> (strongly encouraged)</td>
<td><strong>Minor Plan - Section 309</strong></td>
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<tr>
<td>• Plan Filing 7 days prior to Planning Commission meeting</td>
<td>• Plan Filing 15 days prior to Planning Commission meeting [# copies*]</td>
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<tr>
<td>• Planning Commission review</td>
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<th>Preliminary Plan - Section 305</th>
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<td>• Review by outside agencies (PADEP, MCCD, PADOT, sewer authority, etc)</td>
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<tr>
<td>• [municipal governing body] Approval/Denial/Approval Subject to Conditions of Preliminary/Final Plan</td>
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<tr>
<td>• Plan Filing 15 days prior to [municipality] meeting [# copies*]</td>
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<td>• Review by outside agencies (as necessary)</td>
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<tr>
<td>• [municipal governing body] Disapproval/Approval of Final Plan</td>
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11. Any additional information which the applicant believes will help explain the proposal.

C. The applicant shall make a request to the [municipality] [manager/secretary] to be scheduled on the meeting agenda of the [municipality] Planning Commission for presentation and discussion of the Sketch Plan, provided the plan is received seven (7) days prior to the next [municipality] Planning Commission meeting.

Section 303. Sketch Plan Review Procedure.
The Planning Commission shall review sketch plans in accordance with the criteria contained in this ordinance and with other applicable ordinances. The commission members shall discuss the plan with the applicant and advise them as promptly as possible of the extent to which the proposed subdivision or land development conforms to the [municipality] Comprehensive Plan and relevant standards of this ordinance, and will discuss possible plan modifications that would increase its degree of conformity. The applicant may also choose to submit alternative sketch plans. A sketch plan review agreement may be used to further define the roles and obligations of the applicant and municipality in the review process. Aspects of the sketch plan that shall be specifically evaluated include but are not limited to:

A. The location of all areas proposed for disturbance (streets, foundations, yards, septic disposal systems, stormwater management areas etc.) with respect to notable features of natural or cultural significance as identified on the applicant’s plan.

B. The potential for street connections with existing streets, other proposed streets, or potential developments on adjoining parcels.

C. The location of proposed access points along the existing road network.

D. The general location and extent of open space, preserved land, and trail system.

E. The location and extent and configuration of buildings, parking lots, and common areas in multifamily and commercial developments.

F. The proposed building density and impervious coverage.

G. The compatibility of the proposal with respect to the objectives and policy recommendations of the Comprehensive Plan, the Open Space Plan, and other pertinent [municipality] plans and studies.

H. Consistency with the Zoning Ordinance.

If chosen by the developer, the sketch process could proceed under an agreement between the developer and the municipality. That agreement would provide guidance on the plan submission and review process and outline the obligations of both parties during that process. A model agreement worked out between the Montgomery County Planning Commission and the Bucks/ Montgomery Home Builders Association is included in the appendix.

Sketch plan review should result in general guidance, not a vote of approval or denial.
Section 304. Preliminary Plan Requirements.

This Section contains the requirements for Preliminary Plans for subdivisions and/or land developments in terms of Drafting Standards, Basic Information, Existing Features, and Proposed Features.

A. [number] paper copies of the Preliminary Plan shall be filed with the [municipality] [manager/ secretary or other designated staff], in person by the applicant or applicant's agent, at the [municipality] Office during normal [municipality] business hours. In addition to the paper copies of the plans required for submission, the applicant shall also provide a compact disk with plan sheets in a pdf or other acceptable software format.

B. Notice of all applications for the approval of a subdivision and land development shall be given by conspicuously posting a written notice of the application on the affected tract prior to submission of the Preliminary Plan. This notice shall adhere to the following:

1. The notice must remain in place until Final Plan approval is given.
2. The notice shall be printed on a sign with the minimum dimensions of 24" by 36" of the type used for real estate sales.
3. The sign shall state the following: “This property is subject to a subdivision and land development application in [municipality].”
4. The sign(s) shall be posted in such locations that are clearly visible from an adjacent roadway or roadways.
5. Proof of posting by way of dated photograph must be provided in the application submitted to the [municipality].

C. Plans must be accompanied by:

1. [municipality] filing fee.

D. Drafting Standards. Plans shall be professionally prepared in compliance with the following:

1. The plan shall be drawn to a standard engineering scale not exceeding 100’ feet to the inch.
2. Sheet size shall be or 18" X 30" or 24" X 36", appropriately related to the scale of the drawing.

The Preliminary Plan stage is the important part of the overall subdivision and land development process. With Preliminary Plan approval the developer gains significant rights to proceed in subdividing or developing a piece of property. Under the MPC, a review time limit of 90 days is established for the Preliminary Plan. To meet this time limit, the municipality must carefully manage the overall review process. If both parties agree, this time limit can be extended.

It is important to specify the number of plans to be filed. Generally plans should be available to all reviewers, though some may not require full sets.

Public disclosure of proposed subdivisions and land developments is important. Neighbors and other people who may wish to present information should have a chance to be heard in the process, preferably early in it. The model ordinance requires that the applicant post the property with a reasonably sized sign to indicate that the property is being proposed for a subdivision or land development. This sign would remain on the property until final approval is made. The municipality may also seek to make other public information available on a proposal through the internet or through a listing at the municipal building.

Municipal filing fees can be set from time to time through resolution.
3. All sheets shall be the same size, and be numbered relative to the total number of sheets (i.e., 1 of 5, etc.)

4. Where two or more sheets are needed to show the entire tract, a reduced scale key plan shall be provided to show how the sheets fit together. Match lines shall be shown.

5. A reduced scale plan of the entire site at a scale greater than 100’ feet to one (1) inch may be required in cases where it would facilitate the review and approval process. Applicants are encouraged to submit such plans in cases where they are not required.

6. Property lines shall be drawn and labeled in conformance with the act of May 23, 1945 (P.L. 913, No. 367), known as the “Engineer, Surveyor, and Geologists Registration Act,” and accepted surveying and civil engineering practices, including dimensions shown in feet and decimal fractions thereof, and bearings shown in degrees, minutes, and seconds.
   a. Tract boundary lines shall be the heaviest property lines.
   b. Proposed lot lines shall be the next heaviest.
   c. Possible future lots, if shown, shall be the lightest line weight, and may be shown as dashed lines.
   d. Property lines to be eliminated where 2 or more lots are proposed to be joined in common deed should be properly noted and depicted on the boundary to be removed.

E. Basic Information. All Preliminary Plans shall show the following basic information:
1. Name of the subdivision or land development.
2. Name, address, email, and phone number of applicant.
3. Name, address, email, and phone number of the firm which prepared the plan and professional seal of the individual certifying its accuracy and compliance with applicable standards.
4. Date of preparation of the plan and a descriptive list of revisions to the plan, and the revision dates.
5. North point and scale displayed in graphic and written form.
6. Location plan showing the relationship of the subject tract to the surrounding road network, adjacent properties, and major physical features.
7. The entire tract boundary with bearings and distances and total tract acreage.

 Though this ordinance calls for standardized information, it acknowledges that different engineers and surveyors may employ their own style in presenting the information.
8. A list of the basic dimensional and density requirements of the applicable zoning district, compared to the applicant's proposal.

9. Zoning classification(s) of all lands abutting the proposal.

10. Names of all current owners of immediately adjacent lands.

11. A statement showing:
   a. Number of acres under proposal (net and gross acreage should be indicated in accordance with the zoning ordinance).
   b. Number of lots and/or dwelling units and total building area. If existing buildings are to be reused, the building area should be expressed as existing building area and additional building area.

12. Description of variances or special exceptions, conditions of their approval, and the dates they were granted, if any.

13. Description of any deed restrictions, including conservation and environmental, or other covenants affecting development of the tract. This information should contain the name of the easement holder or parties in the covenant agreement and a reference to their deed and page book recording location.

14. The requirements of any other local ordinance which may affect the proposal.

15. Legend shall be sufficient to indicate clearly between existing and proposed conditions.

16. Name and address of the owner of record if different from the applicant.

17. Tax parcel number(s) of all parcels being subdivided or developed.

18. Deed book and page numbers for all parcels being subdivided or developed.

19. A note shall be shown on the plan which states “Preliminary Plan - Not to be Recorded.”

20. Dimensions shall be displayed in feet and decimal parts thereof, and bearings in degrees, minutes, and seconds.

21. The plan shall bear an adequate legend to indicate clearly which features are existing and which are proposed, and include a description of all symbols used.

F. Existing Features Plan. Within the tract proposed for subdivision and/or land development, and within one-hundred (100') feet of the tract boundaries, the following information shall be shown on the Preliminary Plan:

1. Streets bordering or crossing the tract, including:
a. Locations.
b. Names.
   1) Legal.
   2) Ultimate.
d. Cartway widths.
e. Surface conditions.
f. Location of curbs and sidewalks.

2. Water resources, including:
   a. Lakes and ponds.
   b. Wetlands, swamps, or marshes.
   c. Watercourses and springs.
   d. Existing well locations - in use, capped, and abandoned
   e. Floodprone or floodplain areas including data from FEMA Studies, supporting hydrologic and hydraulic data for 100-year flood limits, or Montgomery County Soil Survey when applicable, as determined appropriate by the [municipality] Engineer for the watercourse(s) affecting the site.

3. Sanitary Sewers, including:
   a. Pipe locations.
   b. Pipe sizes and materials.
   c. Direction of flow.
   d. Gradient of flow.
   e. Manholes.
   f. Invert Elevations.
   g. Septic systems and drainfields.

4. Storm sewers, including:
   a. Pipe locations.
   b. Pipe sizes and materials.
   c. Direction of flow.

*Floodplains are a very important existing feature that should be very accurately depicted. Flood elevations should be derived from FEMA flood insurance rate maps.*
d. Gradient of flow.
e. Inlets, catch basins, and manholes.
f. Invert elevations.

5. Other existing stormwater and/or erosion control facilities, including:
   a. Basins.
   b. Swales.
   c. Diffusion devices.
   d. Velocity controls.
   e. Related technical data for those facilities.

6. Other natural features, including:
   a. Location, size, species, and condition of trees six (6") inches in diameter (dbh) or greater, when standing alone or in small groups.
   b. Outer limits of woodlands and a general description of their types, sizes, and conditions.
   c. Locations and limits of geologic features which may affect the locations of proposed streets or buildings, including:
      1) Rock outcroppings.
      2) Quarries.
      3) Sink holes.
      4) Ravines

7. Soil types, including:
   a. Mapped limits.
   b. Names.
   c. Significant limitations, such as, high water table or shallow bedrock.

8. Contour information including:
   a. Contours at a vertical interval of two (2') feet, accurately drawn from photogrammetric or on-site survey data.
   b. Areas with slopes of fifteen (15%) percent or greater should be adequately depicted, as determined from the contours shown on the plan.
9. Other man-made features, including:
   a. Location, size, character, and configuration of existing buildings or structures, driveways, parking lots or any type of paved surface, labeled “To Remain” or “To Be Removed” as applicable.
   b. Location and description of existing buildings and other structures less than one-hundred (100’) feet beyond the tract boundaries.
   c. Location, type, and ownership of utilities, both above and below ground, with notes to describe:
      1) Easement or right-of-way dimensions.
      2) Additional setback or development restrictions imposed by the utility company or other regulations.
      3) Specific type of product transported with pipelines.

G. Proposed Features and Lotting Plan. Within the tract proposed for subdivision and/or land development, the following information shall be shown on the Preliminary Plan:

1. Subdivision and/or Land Development Layout
   a. Proposed streets, alleys, driveways, and parking areas, including:
      1) Names or other identification.
      2) Right-of-way widths and lines.
      3) Cartway widths.
      4) Centerline courses, distances, and curve data.
      5) Curb lines.
      6) Radii at intersections.
      7) Street location tie-ins to nearest intersection by courses and distances.
      8) Capacity of parking areas.
      9) Sight distance at proposed intersections with existing streets.
     10) Location and type of all traffic control signs, signals, and devices proposed to be installed.
     11) Rights of way or easements proposed for drainage.
     12) Plan of street lighting indicating location and type of fixtures to be installed.

Other existing features information that may be relevant include a recent aerial photograph showing the site and 400 feet of surrounding property.
b. Layout and dimensions of all lots, including the net and gross lot area as defined within the zoning ordinance.

c. All building setback lines (including existing buildings to be used).

d. All parking setback lines where applicable.

e. Proposed sidewalk or other walkway locations.

f. Proposed buildings, including:
   1) Locations.
   2) Configurations.
   3) Sizes (ground level floor area, total floor area, number or stories, and height).
   4) Total building coverage (square feet and percentage of site).
   5) Locations, configuration, and types of accessory structures.
   6) Ground floor elevations.

g. Common use areas, including:
   1) Open Space Areas.
      i) Locations.
      ii) Configurations.
      iii) Size.
      iv) Use and management of common area.
      v) Proposed ownership of common area
   2) Recreation facilities.
      i) Locations, configuration, and size.
      ii) Types of facilities.
      iii) Proposed ownership.
   3) Parking, driveway, or road areas when privately owned for common use.
   4) Walkways or pathways.
   5) Notes regarding offers of dedication or retention in private ownership, as applicable.

h. Areas reserved for future uses, including:
1) Road extensions.
2) Stormwater management facilities.
3) Additional subdivision or land development in sketch form, in accordance with the requirements of Section 302, Sketch Plan Submission Requirements, and in accordance with the intent of Section 303, Sketch Plan Review Procedure.
4) Explanatory notes for such future uses.

i. Impervious Coverage Area Calculations
j. Proposed Landscaping Plan including:
   1) Existing vegetation to be removed.
   2) Existing vegetation to be preserved.
   3) A plan of proposed plantings showing the locations of street trees, parking lot landscaping, stormwater facilities landscaping, and any required buffer areas.
   4) Proposed planting schedule, including the number, location, and species and sizes of plantings.
   5) Existing and proposed contours including related landscape features such as mounding and water features.
   6) Other planting areas such as managed meadow or other naturalized settings.

k. Proposed Outdoor Lighting Plan. Proposed fixtures roadways, parking lots, and other public areas.
   1) A detailed ten-foot grid showing the horizontal maintained foot candle levels at grade, to the boundary of the site or past the boundary until the illumination values reach 0.0 foot candles.
   2) The minimum and average, and maximum maintained illumination levels for the areas being illuminated to demonstrate compliance with lighting requirements in [municipality].
   3) Description of existing and proposed equipment including:
      i) The mounted height from the lowest point of the fixture to the finished grade.
      ii) Fixture mounting equipment
iii) Light shielding angle and device for shielding.
iv) Light standard or pole height and type of material.

2. Grading and Drainage Plan. The following information shall be shown on the Preliminary Plan:

a. Proposed contours for the entire site.

b. Approximate limits of site disturbance, including a clear delineation of existing vegetation including trees, hedge rows, wooded areas, scrub growth, meadow, and actively farmed land:
   1) To be removed.
   2) To be preserved including method of preservation.

c. Stormwater management and erosion control and sedimentation facilities, including:
   1) Basins.
   2) Swales.
   3) Diffusion devices.
   4) Velocity controls.
   5) Pipe locations.
   6) Pipe sizes and materials.
   7) Direction of flow.
   8) Gradient of flow.
   9) Inlets, catch basins, and manholes including rim and invert elevations.
   10) Invert elevations.
   11) Design calculations for these facilities shall be submitted in report form with a note on the plan referencing the report.

3. Infrastructure Plan

a. Sanitary sewer line locations, clearly identifying the following:
   1) Pipe sizes and materials.
   2) Direction of flow.
   3) Gradient of flow.
4) Manholes.
5) Invert and rim elevations.

b. Sanitary sewage pumping stations.
   1) Dimensions and material of pumping station.
   2) Pump type.
   3) Float and alarm elevations.
   4) Electrical equipment.
   5) Force main material, location, size and tie-in.

b. Approved on-site disposal locations and other locations where soil tests were performed.

c. Sewage treatment plant locations.

d. Water supply facilities, including:
   1) Central water supply lines.
   2) Pipe sizes and materials.
   3) Fire hydrant locations.
   4) Well locations when on lot, including the 100-foot radius clear zone separating wells from sewage disposal locations.

e. Finished floor elevations of proposed buildings.

f. Municipal waste disposal facilities.

4. Cross Sections, Profiles, and Preliminary Structural Designs. The following shall be provided:

a. Cross section and centerline profile for each proposed or widened cartway, driveway, or parking area shown on the Preliminary Plan including:
   1) Road centerline grades and vertical curvature including road centerline elevations shown at horizontal intervals of twenty-five (25’) feet along vertical curves and 50’ feet for straight grades.
   2) Profiles for sanitary sewers, water mains, storm drains, including locations of manholes, inlets, and catch basins.
      i) Location, size, and type of line with stations.
      ii) Slope between manholes or inlets.

Since the Preliminary Plan process is the important step, it is necessary for the municipality to get full information about the property and all proposed improvements planned for it. The model ordinance calls for a significant amount of information to be submitted at this stage. Other information may be necessary and should be required by the ordinance. Remember that the municipality may, in certain cases, waive requirements of the subdivision and land development ordinance including the required information needed for a Preliminary Plan submission. If the information is not spelled out in the ordinance, it is difficult for the municipality to ask for it latter. It is important in the submission process to spell out a stage where the submitted material is checked to ensure that it is complete. As an aid, the municipality may wish to establish a check list of information that could be part of their application form. If incomplete filings are attempted, the municipality should return them immediately to the applicant with all fees. By formally accepting the application in its incomplete stage the municipality is starting the review time clock prematurely.
iii) Location of laterals or water services including fire hydrants, valves, tees and fittings.

iv) Existing ground surface with elevation of rim/grate and invert elevations.

v) Location, size, depth, and type of material of all other utilities in the vicinity of the pipe.

vi) Vertical curve data including length, elevations, and stations at the beginning and ending of the vertical curve, including high points and low points, elevations at fifty-foot intervals and minimum site difference.

b. Preliminary design of any bridges, culverts, or other structures and appurtenances which may be required.

c. Cross-section (Streets)
   1) Right of way and cartway width.
   2) Type, thickness, and crown of paving.
   3) Type and size of curb.
   4) Grading of sidewalk area.
   5) Location, width, type and thickness of sidewalks.
   6) Grading of stormwater swale adjacent to cartway.
   7) Typical location of sewers and utilities, street trees, street lights and other improvements along roads.

5. Supporting Information.
   a. A new development schedule including the approximate date when the construction is expected to begin and completed.
   b. A copy of all restrictions or covenants if any under which lots are to be sold.
   c. Copy of the last recorded subdivision or land development plan pertaining to the site.
   d. Traffic impact or water resources impact statement if applicable.
   e. A plan for the ownership, maintenance, and management of open space areas.
   f. Reports or letters regarding availability of sewer and water facilities.

Once the full submission is made, the municipality must quickly set the review process in motion. This should be described in the ordinance. Things to consider here are the number of plans and who gets them, the role of the planning commission and elected board, and how other municipal staff and advisory boards communicate their recommendations to the planning commission and elected officials. It may also be helpful to develop forms and a tracking system to enable municipal staff to carefully manage the process. In the past, municipalities have missed deadlines which have enabled developers to obtain deemed approvals of substandard development projects.

Action on the Preliminary Plan is an important step since plan approval conveys certain rights to the developer. If denial is appropriate, the municipality needs to carefully take that action since legal challenge to it will be possible. The courts in Pennsylvania have
g. Copies of letters and permit applications to all reviewing agencies.

h. Stormwater calculations and reports.

i. Wetlands delineation study, if applicable.

6. Additional Plans. Other plans as required to comply with this Ordinance or other provisions in the [municipality] Zoning Ordinance.

Section 305. Preliminary Plan Filing and Review Procedure.
The procedure contained in this Section shall regulate the review of Preliminary Plans for subdivision and land development.

A. The [municipality] [staff person designated] will conduct a cursory review of the application filed including administrative forms, Preliminary Plans, and other required studies and reports to ensure that the submission appears to be complete, and will then stamp the plans with the Plan Filing Date.

B. The Preliminary Plan shall be placed on the agenda of the next regularly scheduled meeting of the [municipality] Planning Commission following the Plan Filing Date provided that plans are filed at least fifteen (15) days prior to the meeting date.

C. The [municipality] [staff person designated] shall distribute copies of the plan to the following for review and recommendations:
   2. [municipal governing body].
   3. [municipality] Engineer.
   4. Montgomery County Planning Commission, along with the required review fee and completed review request form.
   5. [municipality] staff including: Solicitor, Roadmaster, Public Works Director, Fire Marshall, Police Chief, other [municipality] boards or officials, sewer and/or water authorities, and/or other technical consultants as needed.
   6. Adjacent municipalities and the [school district name]

D. Upon completion of its review of the Preliminary Plan, which should include consideration of the timely recommendations of the [municipality] Engineer, Montgomery County Planning Commission, and other technical advisors when requested, the [municipality] Planning Commission shall communicate its recommendations to [municipal governing body].

E. [municipal governing body] shall have a ninety (90) day time period to act on the plan unless the applicant has agreed in writing to an extension of the time period.

In 1988, an amendment was made to the MPC encouraging municipalities to coordinate with adjacent municipalities. Section 503.7 the MPC allows municipalities to solicit reviews and reports from adjacent municipalities and other government agencies affected by the plan. As part of the normal plan distribution process, plans for properties located near municipal boundaries can be sent to adjacent municipalities. All plans can also be sent to the school district business manager or superintendent. For example, a school district could comment on the safety of potential school bus stops or potential pathways connecting residential developments to schools.
1. The ninety (90) day time period shall be measured from the date of the next regularly scheduled [municipality] Planning Commission meeting following the Plan Filing Date provided that such meeting shall occur at least fifteen (15) days after the Plan Filing Date.

2. If an extension of the ninety (90) day time period is applied, it shall be measured from the expiration of the original ninety (90) day period. A time extension shall postpone the deadline and effects of the ninety (90) day time period for the additional number of days agreed to in writing prior to the last scheduled [municipal governing body] meeting within the ninety (90) day plan review period.

F. The [municipal governing body] shall consider the Preliminary Plan application at one or more of its public meetings during the 90 day time period, and/or extension thereof if applicable, and shall render a decision on the plan following receipt of the recommendations of the [municipality] Planning Commission, [municipality] Engineer, Montgomery County Planning Commission, and/or other technical advisors as requested.

1. Provided, in accordance with the Pennsylvania Municipalities Planning Code, that the [municipal governing body] shall not approve an application until the Montgomery County Planning Commission report of its recommendations is received, or until the expiration of 30 days from the date the application was forwarded to the County.

2. The applicant or appropriate representatives shall be present at all public meetings at which the plan is to be discussed and shall be prepared to provide a presentation of the proposed plan utilizing paper display maps or digital projected images.

3. In accordance with the policies of the Montgomery County Planning Commission, the date the application was forwarded to the county shall be considered to be:
   a. The date noted on the [municipality]’s request for review, or
   b. Two days prior to the county’s receipt of the request if no date is noted on the request, except that in no instance will the date be earlier than 5 days prior to the County’s receipt of the request.

G. Procedure Following the [municipal governing body] Decision. When the [municipal governing body] makes a decision on a Preliminary Plan, one of following procedures will be followed, depending on the type of decision:

1. Denial. If [municipal governing body] denies a Preliminary Plan, then the written notification to the applicant shall specify the defects found in the application and
describe the requirements which have not been met, and shall cite the provisions of the statute or ordinance relied upon.

2. Approval. If a [municipal governing body] approves a Preliminary Plan, as filed by the applicant, then the Secretary will so certify thereon, and a copy of the approved plan will be forwarded to the applicant. The applicant shall then submit two paper copies of the approved plan for [municipality] seal and signature.

3. Approval Subject to Conditions. If [municipal governing body] approves a Preliminary Plan, conditioned upon the performance of any act or the obtaining of any other approval or permit by the applicant, the applicant shall be given the opportunity to accept or reject the conditions within a ten (10) day period. The approval of the plan shall be rescinded automatically without action of [municipal governing body], at the end of 10 days from the date at which conditional approval was granted or notice received by the applicant regarding the conditional approval, upon either the applicant's failure to execute the written acceptance or upon rejection of such conditions by the applicant. Written notice will be provided to the applicant in the following manner:

   a. Specify the conditions of approval and request the applicant's written agreement to the conditions.

   b. State that the application will be denied if the applicant does not agree to the conditions, and specify the defects found in the application, describe the requirements which have not been met, and cite the provisions of the statute or ordinance relied upon for denial of the plan.

   c. State that the plan approval shall be rescinded automatically upon the applicant's failure to accept or reject the conditions within 10 days following the decision by [municipality] to grant conditional approval.

Following submission of written agreement to the conditions specified by [municipal governing body] the applicant shall submit two paper copies of the Preliminary Plan, which show compliance with the conditions, by plan revision or notation, for [municipality] seal and signatures.

4. Written notification of the [municipal governing body's] decision shall be hand delivered to the applicant or be mailed to the applicant's last known address not later than fifteen (15) days following the decision.

H. Effective Period of Approval. Approval will be effective for a period of five (5) years from the date of plan approval in accordance with the MPC, unless extended in writing by the [municipal governing body].

   1. No subsequent change or amendment in the zoning, subdivision, or other governing ordinance or plan shall be applied to affect adversely the right of the ap-
Final plans are developed to create documents that will be legally recorded or used during the actual development construction process. In many cases, Final Plans will be identical to the Preliminary Plans. The submission and processing of these plans is generally done in a manner similar to Preliminary Plans. The difference is that the Engineer and perhaps the Solicitor will have the biggest role during Final Plan review. In addition to the plans, the Final Plan process may include the submis-
scale of the plan shall be 2’, 4’, or 5’ feet to the inch, whichever is most appropriate.

2. Information to be Shown. The plan shall contain sufficient information needed for the construction of the proposed streets, or any portion thereof, including all appurtenances, sewers and utilities, as shown on the approved Preliminary Plan. This information shall include:

a. Horizontal Plan. The horizontal plan shall show details of the horizontal layout as follows:
   1) Information shown on the approved Preliminary Plan.
   2) The beginning and end of proposed immediate and future construction.
   3) Stations corresponding to those shown on the profiles.
   4) The curb elevation at tangent points of horizontal curves, at road or alley intersections, and at the projected intersections of the curb lines.
   5) The location and size of sanitary sewers and lateral connections and water mains with distances between manholes, gas, electric and other utility pipes or conduits and of storm drains, inlets and manholes.
   6) The location, type, and size of curbs and all paving widths.
   7) The location of fire hydrants and street lights.

b. Profiles. The profiles shall show details as follows:
   1) Profiles and elevations of the ground along the centerlines of proposed streets.
   2) Profiles of sanitary sewers with a profile over the sewer of the existing and finished ground surface showing manhole locations beginning at the lowest manhole.
   3) Profiles of storm drains showing catch basins, inlet, and manhole locations, swales, ditches, or related features.
   4) Profiles of water mains.

c. Cross Sections. The cross section for each classification of street shall comply with the municipality’s standards and specifications as minimum requirements. It shall show a typical cross section across the road with details of grading and construction as follows:
   1) The ultimate right-of-way width and the location and width of the cartway.
2) The type, depth, and crown of paving.

3) The type and size of curb.

4) When sidewalks are required, grading of the sidewalk area should be carried to the full width of the ultimate right-of-way.

5) The location, width, type and depth of sidewalks, when required.

6) The typical locations, size, and depths of sewers and utilities.

7) Proposed grading to the ultimate right-of-way line.

d. Construction Detail Drawings. Drawings in sufficient detail shall be provided for all site improvements.

e. Additional Information. The following additional information shall be submitted with the Final Plan.

1) All required Local, State, and Federal Permits shall be submitted. These permits may include: Montgomery County, PADOT, or [municipality] road access permits; PADEP permits for drainage, stream alteration, wetlands encroachment, water quality discharge, dams, erosion, and sedimentation control, air pollution, or sanitary sewage facilities.

2) The following statements shall be required on the Final Plan:

   i) “The Approved Improvement Construction Plan, a copy of which may be inspected at the [municipality] Office, has been made a part of the Approved Final Plan.”

   ii) “For access to a highway under the jurisdiction of PADOT, a highway occupancy permit is required, pursuant to Section 420 of the act of June 1, 1945 (P.L. 1242, No. 428) known as the “State Highway Law.” Access to the State highway shall be only as authorized by the highway occupancy permit.”

3) All engineering calculations which support the proposed improvements such as drainage calculations, sanitary facility design calculations, or structural calculations.

4) Certification of inspection and satisfactory functioning of any on-lot sewage disposal system which will remain in use, in accord with current industry, DEP, or County Health Department standards.

5) Developments utilizing public water or sewer facilities should provide proof that those services will be provided.

6) Sewage facilities plan approval from PADEP.
7) Approval of the erosion and sediment control plan from the Conservation District.

C. Record Plan.

1. Drafting Standards. The same standards shall be required for a Record Plan as for a Preliminary Plan, and in addition, for recording purposes, the plans shall be placed on sheet sizes of 15” x 18”, 18” X 30”, or 24” X 36”. All lettering and lines should be drawn to be legible if the plan is reduced to half size. A 2 inch border on the left side of the plan should be free of information.

2. Information to be Shown. The plan, which includes all portions of an approved Preliminary Plan, shall also show:

   a. Basic Information, as required for a Preliminary Plan, Section 304.5.
   b. Courses and distances sufficient for the legal description of all the lines shown on the plan. The error of closure shall not be greater than 1 part in 5,000.
   c. Names or identification of the following:
      1) Abutting owners.
      2) All dimensional and technical descriptions of roads.
      3) Easements.
      4) Rights-of-way.
      5) Open space, recreation, and/or other common use areas.
      6) Other public improvements.
      7) For land development plans, all additional information pertinent to the location and construction of site improvements, including buildings, walks, parking, driveways, and other related facilities.
      8) Parcel identification number.
      9) Montgomery County Planning Commission file number.
   d. All lots deeded to the ultimate right-of-way so that a single deed may be drawn to the appropriate body having jurisdiction for the dedication of streets by the applicant.
   e. Evidence that the plans are in conformance with the zoning ordinance and other applicable [municipality] ordinances and regulations. In any instance where such plans do not conform, evidence shall be presented that an exception, waiver, or variance has been officially authorized.
f. The location, material, and size of all existing and proposed monuments or pins with reference to them.
g. Building setback lines with distances from the ultimate right-of-way line, and property lines.
h. Appropriate notes and conditions governing the use or development of the proposed property.

D. Certifications. When approved, the Record Plan must show:

1. The signature and seal of the registered Engineer and Surveyor certifying that the plan represents his/her work; that the monuments shown thereon exist as located; that the dimensional and geodetic details are correct and that the survey has been prepared in accordance with the "Pennsylvania Engineer, Land Surveyor, and Geologists Registration Law," PL 913, No. 367.

2. The signature of the applicant certifying ownership of the property and intent to record the plan.

3. The signature of the [municipality] Secretary, certifying that [municipal governing body] approved the Final Plan on the date shown.
   a. Spaces shall be provided for the signatures of [municipal governing body] whose signatures are required.
   b. Space shall be provided for the signature of the [municipality] Engineer and Chairman of the [municipality] planning commission.

4. A blank space or appropriate certification language shall be provided for the stamp and seal of the Montgomery County Planning Commission, located along the right-hand edge of the plan, measuring three and one-half (3 ½”) inches wide and two and one-half (2 ½”) inches tall.

Section 307. Final Plan Filing and Review Procedure.

Final Plans shall be filed and reviewed in accordance with the procedure contained in this Section.

A. The application for approval of the Final Plan shall be placed on the agenda of the next regularly scheduled meeting of the [municipality] Planning Commission following the Plan Filing Date provided that plans are received at least 15 days prior to the meeting date.

B. The [municipality] Secretary shall distribute copies of the plan to the following for review and recommendations:
2. [municipal governing body].
3. [municipality] Engineer.
4. Montgomery County Planning Commission, along with the required review fee and completed review request form.
5. [municipality] Solicitor, Roadmaster, Public Works Director, Fire Marshall, Police Chief, other [municipality] boards or officials, sewer and/or water authorities, and/or other technical consultants as needed.

C. A Final Plan for an application that has been previously granted Preliminary Plan approval shall be approved by [municipal governing body] when it is assured that:
1. The Final Plan conforms to the approved Preliminary Plan and any conditions made in the approval of it.
2. All engineering and other technical details have been resolved to the satisfaction of the [municipality] Engineer, as evidenced by a letter from the [municipality] Engineer, and to the satisfaction of other technical advisors, when requested by [municipal governing body].
3. A recommendation is received from the Planning Commission if specifically requested by the [municipal governing body].
4. All financial security and legal agreements, including a development agreement, have been satisfactorily executed by applicant and found acceptable by [municipal governing body], under the advice of the Solicitor.
   a. When requested by the developer, in order to facilitate financing, [municipal governing body] shall furnish the applicant with a signed copy of a resolution indicating approval of the Final Plan contingent upon the applicant obtaining a satisfactory financial security.
   b. The Final Plan shall not be signed, released to the applicant, nor recorded until the financial improvements agreement is executed.
   c. The resolution of approval contingent upon a financial security agreement shall expire and be deemed to be revoked if the financial agreement is not satisfactorily executed within 90 days unless a written extension is granted by the [municipal governing body].
5. The plan complies in all respects with applicable [municipality] ordinances or that appropriate variances or waivers have been granted for features that do not comply.
6. All necessary permits and other plan approvals have been obtained from the applicable regulatory agencies, authorities, or departments.
D. After the Final Plan is approved, the applicant shall present three (3) paper copies of the plan to the [municipality] Secretary for signature by [municipal governing body], including the affixing of the official [municipality] seal. Digital shape files of the appropriate proposed public improvements and record plan, in a form satisfactory to the municipality, shall also be provided at that time.

Section 308. Recording the Final Plan.

Within ninety (90) days following Final Plan approval or ninety (90) days following the delivery of the signed plans to the applicant by the [municipality] or following completion of conditions imposed for such approval, the applicant shall record the Final Plan in the Office of the Recorder of Deeds of Montgomery County.

A. In accordance with the Pennsylvania Municipalities Planning Code, whenever Final Plan approval is required by a municipality, the Recorder of Deeds shall not accept any plan for recording unless it contains the official approval of [municipal governing body] and certification of review by the County Planning Commission.

B. Prior to recording, the applicant shall present the approved plan to the Montgomery County Planning Commission for its stamp and seal, with one paper copy given to the County Planning Commission for its files.

Section 309. Minor Plan Filing Requirements and Review Procedure.

Minor Plans may be filed and processed only for Lot Line Adjustments, Simple Conveyances, Minor Subdivisions, Mortgage Subdivisions, or Minor Land Developments as characterized herein, in accordance with the standards and requirements in this Section.

A. Standards for Qualification as a Minor Plan Submission.

1. Lot Line Adjustment.

   a. A proposal between two abutting, existing, legally approved and recorded lots.

   b. A common lot line is proposed to be adjusted in terms of its location or configuration or eliminated.

   c. The land area of each lot may be different after adjustment, but the total lot area of the 2 lots will be unchanged.

   d. No alteration will occur to the perimeter boundary lines of the 2 lots.

   e. Neither lot shall violate the applicable dimensional requirements of the zoning ordinance as a result of the lot line adjustment.

   f. Possible reasons for lot line adjustments include, but are not necessarily...

It may not make sense to have one process for all types of plans ranging from several hundred lot subdivisions or large commercial developments to two-lot subdivisions or small building additions. Simple plans that are not likely to have a major impact in a community can be handled in an expedited fashion. Speeding them up saves time for both the applicant and the municipality. The model ordinance defines five types of minor plans including lot line adjustments, simple conveyances, minor subdivisions, mortgage subdivisions, and minor developments. Reduced plan submission requirements and a combined Preliminary/ Final Plan approval process are established for each.
limited to:

1) Correcting errors regarding locations of existing improvements (e.g. if the driveway for Lot #1 is located on Lot #2);

2) Relating the line to definitive physical characteristics (e.g. to adjust the line to run along an existing hedgerow);

3) Preferences of the landowners involved.

2. Simple Conveyance.

a. A proposal between two abutting, existing, legally approved and recorded lots.

b. A portion of one lot is being divided off to be conveyed to the owner of the abutting lot.

c. The land area of each lot will be different after conveyance, but the total lot area of the two lots will be unchanged.

d. The lot from which the land is being conveyed must be suitable in terms of the applicable dimensional requirements of the zoning ordinance, so that after conveyance, it will remain in compliance with those requirements.

e. The land area being conveyed need not satisfy any of the dimensional requirements applicable to lotting in the district in which it is located, nor the street frontage requirements of the zoning ordinance, provided that it shall be deed restricted to the extent that it may not be transferred independently, but must be transferred together with the lot to which it is being functionally added by the process of simple conveyance.


a. A subdivision proposal which would divide one existing lot into not greater than 3 lots, each of which will comply with the applicable dimensional requirements of the zoning district in which the existing lot is located.

b. The existing lot has sufficient frontage on an existing, improved public street to satisfy the applicable [municipality] requirements for lot frontage and access to a public street for both proposed lots.

c. The existing lot has not been a part of an approved subdivision proposal during the five (5) years previous to the current application.

d. The subdivision will not require new road construction, road improvements, or the extension of existing public utility lines.

e. The proposal will not involve significant stormwater and/or erosion control issues.

In a simple conveyance, a portion of one lot is divided off and attached to an adjoining lot. This is a simple transfer of land between two neighbors and often does not raise any significant planning issues.

It is important to limit the use of this option on a particular property so that incremental lotting decisions are made as minor plans. The cumulative impact of several minor subdivisions could be significant.
issues, as determined by the [municipality] Engineer.

f. Disqualification. [municipal governing body] may require standard Preliminary Plan submission in place of a Minor Plan when conditions warrant it, at the advice of the Planning Commission or Engineer.

4. Mortgage Subdivision

a. A subdivision established for the sole purpose of granting separate and distinct mortgages on each parcel within a commonly managed and maintained land development. The individual parcels created as a result of the mortgage subdivision may not individually meet the required yard setbacks, ground cover, limitations, or other bulk and area requirements of the zoning district in which the property is situate provided that the applicant documents to the satisfaction of the [municipality] the following:

1) The responsibility for the construction, control, and maintenance of development shall be carried at by an entity irrespective of parcels to be established through the mortgage subdivision.

2) Irrevocable cross easements shall be established in favor of all parcels created through the mortgage subdivision within the land development as respect to the use, control, and maintenance for the facilities and areas to be used in common so that each parcel becomes an integral of the land development.

3) Declaration that the interest of any mortgagee and that of any transferee of the mortgage property upon any default of the mortgage, shall be subject to the obligations and responsibilities as to the facilities and areas to be used in common and the requirements of the cross easements so that such a mortgagee or transferee, in the event of such default or transfer of title to the property, shall be bound thereby.

b. In the event of a subdivision for mortgage purposes, the entire area included within the plan shall continue to be treated by the [municipality] as a single parcel for the purposes of maintaining compliance with the [municipality] zoning ordinance.

5. Minor Land Developments

a. A land development proposal where it is found that the intended development or modification of a site, or use and occupancy of an existing structure will create a minimal impact upon traffic, drainage, visual image, landscaping, buffering, lighting or other elements described within the purposes of the Ordinance.

The need for mortgage subdivision usually occurs in larger commercial developments where multiple lenders are involved. In these cases, the project is divided for the purposes of apportioning real estate property to be used to secure the various mortgages on it extended by the lenders. Though the property is divided into two or more parcels, the property would function as one complete whole.
b. Parking lot expansions.

c. Additions to existing non-residential buildings provided that the addition is less than 5,000 gross square feet and involves no more than a 25% in the size of the existing building.

d. The conversion of a residential dwelling that results in the creation of no more than four (4) new dwelling units.

e. The addition of tenants to an existing non-residential building when minimal structural improvements are required.

B. Submission Requirements and Review Procedure

1. All Minor Plans shall be considered to be Preliminary Plans for the purposes of submission for review and approval, and shall comply with the requirements of Section 304, Preliminary Plan Submission Requirements and Section 305, Preliminary Plan Review Procedure.

2. When a Minor Plan qualifies for approval, or for approval subject to conditions, in accordance with Section 309 A, herein, the Minor Plan may be granted concurrent Preliminary and Final Plan approvals, provided that the plan includes the Final Plan Certifications required by Section 306 D herein, and complies with Section 307 C, herein.

3. A Minor Plan is not required to include an Improvements Construction Plan or a Record Plan as required by Sections 306 B and 306 C, herein.

4. A Minor Plan which will require access to a State highway shall provide the "highway access" statement on the plan, as required by Section 306 B.

Section 310. Resubmission.

The [municipality] may consider changes to plans that are submitted as Preliminary or Final Plans if they are resubmitted in the following manner:

A. [# number of copies] of resubmitted plans must be filed with the [staff person designated] during regular business hours.

B. The resubmission must be accompanied with a completed resubmission application form.

C. The applicant shall grant an extension of the ninety (90) day review time as a condition of filing a resubmission that involves substantial changes to the current plan if requested by the [municipality].

Most Preliminary Plans or even Final Plans can go through various revisions during the plan review process. Changes are often done to address concerns of municipal boards or staff or to accommodate changes initiated by the applicant. The plan review process is set up such that only the plan and all associated material that is officially filed as a Preliminary or Final Plan is subject to review leading to a decision on it by the governing body. Obviously if the filed plan doesn’t comply with municipal ordinances, it could be denied by the municipality forcing the applicant to submit an entirely new application restarting the entire process. To avoid that, the applicant would prefer to simply revise the plan. Acting in good faith, a municipality should allow reasonable resubmissions that are carefully managed as described in the resubmission standards in the model ordinance. Key factors include a formal filing process, a completed resubmission form (a sample is included in the appendix), withdrawal of all plans replaced by the resubmission, extension of review time clock and additional review fees if necessary to review resubmissions that include substantial changes. The extension of the time clock and review fees should be reasonably related to the scope of the resubmission. If insubstantial changes are made to the plan, no extension of the review time frame may be needed. It is important to make sure that all submission and resubmissions are
The issue of which land developments or subdivisions need to be reviewed and how they are reviewed is often a vexing question for municipalities. On one hand, it is important for the municipality to review land developments or subdivisions in accordance with the MPC to ensure that they fit into the overall community character and don’t cause adverse impacts. At the same time, applicants should not be subject to the review process, it’s timing, and costs, unless it is absolutely necessary.

This model offers a few ways to efficiently deal with this. One approach is to have a minor land development review process. This enables smaller projects to be reviewed in a more streamlined process. The other approach in this ordinance is to specifically exempt certain land development projects since they have a de minimis impact.

The Municipalities Planning Code gives little guidance in determining what development projects to review as minor land developments or which to exempt. The definition of land development in the MPC by itself, seems to include any non-residential construction and residential development except for a single family house on one lot.

**MPC Definition:**

**Land Development.** Any of the following activities:

The improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving: A group of two or more residential or non-residential buildings, whether proposed initially or cumulatively or a single non-residential building on a lot or lots regardless of the number of occupants or tenure; or

The division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features.

A subdivision of land.

**Development in accordance with Section 503 (1.1) of the Pennsylvania Municipalities Planning Code.**

This question has not received lengthy scrutiny from the Pennsylvania courts. The issue has arisen in cases involving cellular towers and billboards. In these cases the courts have opined that certain non-residential developments that involve physical improvements could be excluded from the land development review and approval process even though they seem to fit the definition in the MPC. The courts reasoned that the definition of land development in the MPC must be read with other provisions of the MPC and should not be examined in a vacuum. Sections in Article V of the MPC addressing the contents of the subdivision and land development ordinance appear to be focused on residential development and substantial non-residential development that can generate various off-site impacts. In the case of improvements such as billboards and cellular towers the improvements do not have the same impacts. It would seem from this line of argument that exclusion of certain small improvements that have no impact would meet the overall intent of the MPC as well.
D. All plans or other supporting studies or materials being replaced by the resubmission shall be officially withdrawn from the filed application by the applicant and will no longer be considered by the [municipality].

E. Additional review fees may be required by the [municipality].

Section 311. Excluded Land Developments
The following activities shall be excluded from the land development review and approval requirements:

A. The conversion of single family detached or semi-detached homes into not more than three residential units unless they are intended to be condominiums.

B. The addition of an accessory building less than 5,000 square feet in size that is proposed on a lot or lots subordinate to an existing principal building at that same location.

C. An addition or conversion of buildings or rides within the confines of an amusement park.

Section 312. De minimis Improvement Process.
No subdivision or land development approval is needed for a de minimis improvement as defined in Section 201. An applicant who wishes to proceed under these provisions shall submit to the [municipality] Zoning Officer the following for their review:

A. A building permit application setting forth the proposed improvement, the cost thereof, and any changes to be made to the land.

B. Where the project has a previously recorded land development plan, the applicants must file an amended land development plan for the record.

C. The Plan, when filed, shall undergo engineering and zoning review to address all zoning issues such as trash enclosures, landscaping, site access, and stormwater management. An escrow shall be established with the [municipality] to cover appropriate fees for plan review as determined by staff.

D. Any given building may have no more than three de minimis improvements including the current application, provided that they taken together require less than five additional parking spaces and the total footprint of the de minimis additions does not exceed 1,000 square feet.

E. Upon completion of the appropriate staff review, if the applicant agrees in writing to the conditions, improvements, and/or requirements determined by the review, the application will be approved and the appropriate permits will be issued. In the event that the applicant does not agree with the review conclusions, the application is done in writing in a manner so that both the applicant and municipality clearly understand the plan review deadlines.

The MPC establishes a broad definition of a land development such that any physical improvement to a non-residential structure may be considered a land development and would be subject to review. Practically speaking, issues of fairness may arise due to the review requirements for very small (de minimis) land developments that have no impacts on a community. As a possible way to avoid review of these projects, even as minor land developments, the model ordinance suggests a de minimis category for certain expansions less than 1000 square feet that comply with appropriate zoning requirements. These projects would not be required to be submitted as land developments, but instead would be reviewed only under the building code. This option should be considered very carefully since the MPC only allows municipalities to make only three specific exceptions to the definition of land developments listed in Section 311- 1) for residential conversions to up to three apartments; 2) accessory buildings; and 3) amusement park rides. The MPC doesn’t specifically address de minimis reviews.
deemed denied and the applicant may elect to resubmit the application under the standard land development procedures as set forth herein.

Section 313. Other Approvals.
The applicant is responsible for making the appropriate applications for various federal, state, county, and municipality permits or other approvals from governments or private utilities or service providers. These should be sought in a timely manner that fits into the overall plan review and approval process described in this Article. To the extent that the applicant is required to modify the plan as a result of permits or other approvals, the applicant is still required to comply fully with the [municipality] Subdivision and Land Development and Zoning Codes.

Section 314. Development Disclosure.
All developers, owners, builders, or agents representing them who are selling a vacant subdivided residential lot or a newly constructed home to a member of the general public shall adhere to the following disclosure requirements:
A. The seller of any newly constructed residential property or subdivided lot for a residential building shall prominently display the approved subdivision or land development in the location where property sales are transacted so as to be plainly visible to all potential buyers. The approved subdivision or land development plan shall include the record plan complete with all approval notations and all accompanying plans approved with the record plan.

B. Before signing a sales agreement for a newly constructed property or a newly subdivided lot for a residential building, buyers shall sign a disclosure statement that verifies that the seller has been provided all relevant information described below and limitations or restrictions associated with them which is clearly displayed on plans with appropriate narrative materials including:

1. Common areas such as park lands, streets, and open space which is part of the subdivision or land development or adjacent to it. Any improvements to these common areas that may occur in the future as described during the development process or as noted on the plans should be discussed.

2. All lot lines in the development.

3. All limits to the use of the lot subject to purchase including the setbacks for building, building coverage restrictions, and height restrictions.

4. All uses permitted in the development under current zoning.

Often times people buying residential lots or homes in newly established subdivisions or land developments are not aware of proposed actions or restrictions that could impact their future property. These misunderstandings which can erupt into major public issues have occurred due to the way open space, trail, or park facilities have been developed; proposed new roads, temporary cul-de-sacs or other connector roads that are to be extended to adjoining developments; or restrictions placed on individual properties due to deed restrictions or environmental laws. It is important that future buyers have access to all of the available information about their property and its surroundings before they purchase it. The disclosure requirement in the model ordinance would result in a condition of plan approval whereby the applicant or future property owner must take certain steps to ensure that the buyer of a building lot or new house has been provided with all of the necessary information about their future
5. All dimensional requirements for accessory structures on the lot to be purchased.
6. Any easements, deed restrictions, or conservation areas in the development and what limitations they make to the property.
7. Membership requirements for homeowners association. A copy of the homeowners association or condominium agreement shall be provided.
8. The location of all wetlands in the development.
9. The location of all 100-year floodplains in the development.
10. The location of steep slopes.
11. The location all stormwater management facilities including maintenance requirements and drainage easements.
13. The zoning of the land that adjoins the development.
14. Proposed new road rights-of-way in or adjoining the development including the extension of temporary cul-de-sacs.

property and its surroundings. Prior to closing, the buyer would execute a disclosure form (sample copy included in the appendix) which would be recorded with the original deed.
ARTICLE FOUR
DESIGN STANDARDS

Section 400. General Standards.
The following principles, standards, and design requirements shall be used in the evaluation of all subdivision and land development proposals. Other design requirements as established in the Zoning Ordinance or other municipal ordinances shall be used in addition to the following:

A. All portions of a tract shall be designated as to its use, such as lots, roads, open space, parking areas, etc.

B. Applicants shall preserve scenic areas, historic sites, other community assets and landmarks, and natural amenities such as trees and waterways.

C. Plans shall be designed to avoid excessive disturbance of vegetation and movement of earth.

D. Development and disturbance of floodplain land areas shall be governed by additional standards contained in this Ordinance, the [municipality] Zoning Ordinance, and the [municipality] Building Code.

E. The applicant shall construct, install, and guarantee, at no expense to the [municipality] or its authorities, all improvements required as part of plan approval, including, but not limited to, streets, curbs, sidewalks, water and sewage facilities, stormwater management facilities, street lights, fire hydrants, road signs, monuments, lot pins, utilities, and shade trees.

F. The standards contained within this Article are the minimum standards and requirements for the protection of the health, safety, and welfare of the residents of the [municipality] and are to be used in all subdivisions and land developments. In addition, the [municipal governing body] reserves the right to require standards in excess of the minimum requirements if warranted to protect the health, safety, and general welfare of the community.

Section 401. Conformance with Plans.
A. Comprehensive Plans. Proposals for land development or subdivision shall be generally consistent with the [municipality] Comprehensive Plan, especially as to the use of land, intensity of development, transportation, community facilities, and resource protection. Residential development should also be consistent with the housing element of the plan. All proposals should be located in areas designated for development in the future land use plan element and be serviced by currently available infrastructure or infrastructure that will be developed concurrent with the development.

Commentary
This Article is the largest portion of the subdivision and land development ordinance. It provides all of the design standards to be used in developing subdivisions or land development plans. In this model ordinance, the design provisions begin with the basic site organization including: lot configuration, block development, open space, natural features protection, and roads since they often have the biggest overall impact on the form of the development project. Other key design elements addressed in this Article are: grading and erosion control, stormwater management and drainage, sensitive area protection, infrastructure, renewable energy resources, landscaping, sidewalks, curbs, and storm sewers.

Under Section 503 (2) I, the MPC empowers municipalities to adopt provisions ensuring that the layout or arrangement of the subdivision or land development shall conform to the comprehensive plan. Regional plans should also be referenced where they apply.
B. Other Plans. Proposals shall be generally consistent with the appropriate state, regional, county, and the municipally adopted comprehensive plan and other plans. Where regional facilities are proposed in the plan, such as highways, effort shall be made to preserve needed right-of-way for future infrastructure projects in the proposed land development or subdivision.

C. Public Service Improvements. Proposals shall be consistent with the location and timing of public service improvements, such as water and sewage facilities, in accordance with the appropriate infrastructure plans governing those facilities. In addition, the location of public service facilities as outlined in a capital improvement program or official map should be considered.

Section 402. Site Organization.

Proposed land developments and subdivisions shall be designed to address the opportunities and limitations present on a site and its adjacent surroundings. The plan shall use site opportunities to enhance the overall quality of the development and lessen potential negative impacts upon a site and the surrounding community. The physical, social, and psychological needs of the users of the site should be evaluated and appropriately incorporated into the final subdivision layout or site design. The impacts of the proposed development on the natural environment and surrounding land uses shall be given a high priority and made an integral part of the overall design for the land development and subdivision. The following site organization guidelines shall be used:

A. Site Improvement Layout. The buildings shall be placed in consideration with the site's topography, existing vegetation, and surrounding land uses, taking into account energy conservation, solar access, and pertinent natural features.

B. Existing Natural Features. Existing natural features should be recognized and integrated into the site layout. Natural features such as streams, hillsides, wetlands, unique habitat, woods, and similar natural resources should be considered strong design determinants and be incorporated into the overall site plan to strengthen the unique quality of the land.

C. Open Space and Scenic Views. The placement of open space and preservation of scenic views should be a fundamental design decision. Open space lands should provide for a variety of benefits including recreation, natural resource protection, scenic views and vistas, and buffers for site elements and land uses.

D. Circulation. Movement within a site and access to the site should be designed for the safety and convenience of various types of users. Cross access between properties and joint access are encouraged to improve circulation and improve access safety.

Other plans to be considered could include regional transportation plans or corridor plans, the county trail plan, stormwater management plans, infrastructure service plans, or redevelopment plans. Referenced plans should be formally adopted or endorsed by the municipality.

Section 503 (5) in the MPC which discusses design creativity should be taken into account.

Alternative site layout should be considered to better address site attributes and constrains.
E. Relationship to Surrounding Uses. The proposed design should compliment appropriate surrounding uses through building set backs, buffers, and separation of uses. Various potential negative impacts upon surrounding land uses including noise, light, and loss of privacy should be mitigated.

F. Sustainable Development. The development of a site should use methods that reduce energy, water, and fuel consumption needs of the property. Opportunities to utilize renewable energy sources, conserve and reuse water resources, and reduce fuel consumption should be considered.

G. Health Hazards. The configuration of a subdivision or land development should reduce potential health hazards to the future users of the subdivision or land development and to the community as a whole.

Section 403. Lots.
A. Lot Size and Width. Each lot shall comply with the minimum area and width requirements of the Zoning Ordinance and be generally sufficient in size and shape to adequately accommodate the development or use proposed for it. Lots that contain natural restrictions such as wetlands, water bodies, steep slopes, or other features shall be made large enough to provide suitable area for the intended use of the lot without requiring encroachment upon natural amenities. Lots with existing or planned public improvements such as fuel pipe lines, underground utility easements, stormwater detention basins, high voltage power lines, or other facilities should be sized to allow suitable room for the intended use of the lot without requiring encroachment on the public facilities or easements.

B. Lot Shape. Deep, narrow lots and wide, shallow lots are to be avoided except that lots containing uniquely designed structures, such as certain types of attached dwelling units, may receive special consideration. The depth of a lot for a single family detached home should not exceed two and one half (2.5) times its width at the building line. Every lot shall contain a building envelope suitable for the type(s) of development proposed.

C. Lot Frontage. Every lot shall have a minimum of twenty (20') feet of frontage along the right-of-way of a public, private, or common street. Sufficient frontage is the minimum width required to site a driveway into the property in accordance with the design requirements in this section, the [municipality] Zoning Ordinance, and other appropriate state, federal, and local regulations. Corner lots will meet lot frontage requirements on two streets.

D. Lot Lines. Lot lines shall be drawn parallel, concentric, at right angles, or radial to the street right-of-way line unless not feasible or undesirable due to existing, permanent, natural or man-made features or need for solar access. Where possible,
lot lines shall coincide with abutting lot lines and lot lines across streets. Generally, lot corners of several lots should coincide.

E. Reverse Frontage Lots. Reverse frontage lots may be used as an alternative to marginal access streets or normal lotting when the lots abut a major collector street or street of a higher classification, or has natural conditions along one street that prevents safe access. When reverse frontage lots are used, an additional twenty-five (25') feet shall be added to the minimum rear yard set back abutting a major collector street or street of a higher classification, to provide a landscaped buffer area in the rear yard in accordance with Section 434.

F. Rear or Flag Lots.

1. Purpose of Rear or Flag Lots
   a. To permit reasonable subdivision of land which is physically constrained by an unusual configuration of the tract or limited road frontage, and which could not be subdivided in a desirable manner using conventional streets and lot geometry.
   b. To preserve farmland, woodland, scenic views, historic sites, or other environmental amenities by locating buildings away from roads.
   c. To avoid access to a major collector street or a street of a higher classification.
   d. To avoid building an unnecessary road.

2. Parts of a Rear or Flag Lot. Rear or flag lots shall be comprised of two parts, the access strip and the body of the lot, in compliance with the following standards.
   a. The access strip shall be a minimum of twenty-five (25') feet wide for its entire length unless the body of the flag lot is likely to undergo further subdivision in the future. If a flag lot is capable of subdivision in the future and is not deed restricted against further subdivision, the access strip must be at least fifty (50') feet wide and be able to contain a road capable of meeting all appropriate public street and intersection standards contained in this ordinance. When an access strip is designed for a future road, a note shall be placed on the plan reserving the access strip for a future road; however, dedication is not required.
   b. The access strip shall be a fee-simple part of the rear or flag lot, and shall not be a separate parcel or easement. This portion of the lot shall not be used for any purpose other than the location of an access driveway. Vehicle parking, sewage disposal systems, and the development of any structures

Flag lots should not be allowed in urban areas or in subdivisions where lots are 20,000 square feet or less.

Since flag lots sit behind other lots and may face the back of houses on those lots, it is necessary to increase flag lot set backs to ensure privacy for each lot owner.
shall be specifically prohibited in the access strip.

c. The body of a flag lot shall comply with all the minimum dimensional require-
ments of the zoning district in which it is located. The area of the access
strip shall not be counted toward the minimum lot area requirement.

d. The front yard of the rear or flag lot shall be parallel the frontage street. In
the event the access strip is proposed for a future road, a second front yard
for the purpose of establishing set backs shall be measured from the poten-
tial access road.

e. All minimum set back requirements in the applicable zoning ordinance shall
be increased by 25% in flag lots.

3. Review Factors. Flag lots shall only be allowed when the [municipal governing
body] based upon advice from the Planning Commission and the Engineer has
determined the following:

a. Flag lots would enhance the rural character of their proposed location.

b. The minimum number of flag lots needed are being proposed.

c. The access would allow safe driveway locations for flag lots.

d. The use of flag lots will result in saving trees, avoiding steep slopes, and
preserving floodplain, wetlands and other environmental features if present.

e. Flag lots would provide a positive fiscal economic impact on the municipality
by limiting future road maintenance.

f. Flag lots would promote shared driveways reducing access along public
roadways.

4. Design Standards for Flag Lots

a. The length of the access strip shall be kept to a minimum. As a guide, the
preferred length is approximately equal to the depth of one lot which com-
plies with the minimum lot width and area requirements of the district in
which it is located. No access strip shall exceed two (2) times the lot depth
described above, unless the primary purposes of the additional length are to
preserve farmland or other land for preservation of agriculture or rural char-
acter, by locating new development remote from road frontage.

b. The location of the access strip should be logical relative to the body of the
rear lot, surrounding lot configurations, and natural features of the land, and
it shall intersect the public street at a safe, visible location.

c. Turns greater than 120° degrees or with a radius less than (150') feet and

Unusual lot configuration may be war-
ranted to protect natural resources or
avoid hazard conditions. In some
cases, lots may need special orienta-
tion to maximize solar exposure.

Some municipalities prohibit flag lots in
zoning or only allow them in certain
zoning districts. In considering their
approval, a municipality must weigh the
impact of them on their surroundings
against the overall community benefit.
The placement of flag lots in rural ar-
eas may alleviate the need for small
cul-de-sacs or allow lotting flexibility
that will enable natural resource pro-
tection.
vertical grades in excess of ten (10%) percent are prohibited in access strips. It may be necessary to widen the access strip at such sharp turns and steep slopes to accommodate grading, drainage, tree preservation, or emergency vehicles. Access strips that may become future roads shall be configured to accommodate horizontal curves required for roads.

d. Driveways within access strips shall be paved from the edge of road pavement to a distance of fifteen (15') feet from the ultimate right-of-way.

e. Joint driveways are encouraged among both front and rear lots. No more than two (2) access strips may abut each other. Each pair of access strips must share a common access point and driveway from the edge of pavement to a distance of at least fifty (50') feet beyond the ultimate right-of-way line of the road, from which point either one common driveway or two individual driveways may continue. The shared portion shall be a minimum of twelve (12') feet wide. Shared portions of driveways may be wider where access is taken from major collector streets or streets of a higher classification.

f. Access points to flag lots, whether single or paired, shall be separated by at least 300' feet as measured along the right of way. Separation distance shall be measured from the center point of the nearest access strips unless specific driveway access points have been clearly established.

g. No more than one (1) "tier" of flag lots shall be permitted on a tract. In other words, a flag lot may not be located behind another flag lot.

h. In a subdivision of five (5) or more lots, flag lots may comprise no more than fifteen (15%) percent of the total number of lots, rounded to the nearest whole number.

i. Flag lots are not permitted at the bulb or turn-around of a cul-de-sac.

j. Flag lots are not permitted to gain access from a single access street.

k. The access strip must serve as the primary access point for the lot unless a common drive or access is gained through an easement at a safer and less environmentally damaging location.

Section 404. Blocks

A. The ideal block length measured along the building frontages is 1000' feet. The minimum block length shall be 400' feet and the maximum block length shall be 1600' feet unless the zoning ordinance specifies different minimum/maximum lengths.

If flag lots are sized so that they could be further subdivided, the access strip becomes even more important from a design perspective. In these situations it should be wider, generally 50 feet or more in width. It also should be configured so that a road access that meets appropriate design standards can be constructed. Municipalities may want to require a sketch showing how a flag lot may be further subdivided to demonstrate the appropriateness of its design. Otherwise, the deed restriction of a flag lot against further subdivision should be considered.

Blocks are groupings of lots in logical neighborhoods separated from other lots by roads or other barriers. Generally block length should reflect the intensity and style of development in a community. Blocks lengths of 400-600 feet are typical in many boroughs or more intensely developed areas. Suburban
B. A block shall be two (2) lots in depth when the lots are laid out back to back according to the requirements of the Zoning Ordinance. When reverse lots are used, the block width shall be in accordance with the reverse frontage lot standards (Section 403.5).

C. Blocks shall be designed to continue the municipality’s existing street pattern and provide efficient, convenient, and safe pedestrian and vehicular circulation, including the reduction of intersections with arterial streets.

D. Blocks shall be designed to reflect natural features that may constrain subdivision and land development. Unless a watercourse is located along the rear of lots in the block, drainage should be away from the interior of the block toward the abutting streets.

E. Where blocks are longer than 1200’ feet, direct pedestrian access to commercial, institutional, or open space/recreation areas as determined by the [municipality], walkways should be designed into block area. The walkways should extend straight from one street to the other on an easement or public right-of-way at least fifteen (15’) feet in width.

Section 405. Community Facilities

A. The [municipal governing body] shall determine the need for additional community facilities to serve the proposed subdivision or land development.

B. Where identified in the [municipality] Comprehensive Plan, official map, or otherwise deemed essential by the [municipal governing body] upon consideration of the particular type of development proposed, and especially in large-scale residential developments, the [municipal governing body] may seek the dedication or reservation of such areas or sites of an extent and location suitable to the needs created by the development for schools, parks, roads, emergency services, and other facilities to service the community.

C. Areas provided or reserved for such community facilities shall be adequate to provide for building sites, related activity areas, landscaping, and off-street parking as appropriate to the use proposed.

Section 406. Open Space

A. Applicants shall provide open space including appropriate recreation facilities and trails in accordance to the [municipality] Recreation and Open Space Plan, adopted as an element of the Comprehensive Plan and the [municipality] Zoning Ordinance.

B. Open space shall protect the environmental, scenic, historical, and cultural features of the [municipality].

The reservation of land for community facilities other than recreation land is addressed in the MPC in Section 503 (2) (iv). In that section it states that any land reserved for public use shall be sufficient in size and location for its intended use. This section, though, does not specifically mandate the reservation or dedication of land for community facilities.

Delineating the land to be set aside as open space should be done early on in the development process. The amount of open space to be preserved is often called out in the zoning ordinance.
C. Open Space Criteria. Open space preserved in fulfillment of the requirements of this Article shall be in accordance with the following standards and principles.

1. Open space shall be consistent with the plans and proposals outlined in the [municipality’s] adopted park and open space plan. The [municipal governing body] shall review the consistency of the proposed open space with the recommendation of the [municipality] Planning Commission and Park and Recreation Board.

2. Open space shall connect to permanently preserved land on abutting property, if possible, including provisions for access ways for general public use to permit residents safe and easy access to open space.

3. Open space areas shall be contiguous, except that two or more separate open space parcels may be connected by other legal public access means.

4. Open space shall have frontage on a public or private road or easement capable of providing suitable grade for access to the open space from the roads for maintenance vehicles and equipment traffic.

5. Open space may include land within utility corridors only if the utility companies having legal rights to these corridors do not prohibit their use for such purposes.

6. Open space shall have the physical characteristics capable of serving the purposes intended for such areas including recreational use.

7. Open space shall be visible from dwelling units and roadways.

8. Open space shall protect environmentally sensitive and/or aesthetic features and be landscaped to provide sufficient screening or buffer areas to minimize any negative impacts from or upon adjacent development.

D. Conservation of Natural Resources in Open Space. Environmentally sensitive features should be conserved based on the natural tolerances to encroachment and development as follows.

<table>
<thead>
<tr>
<th>Natural Feature</th>
<th>Minimum % to be Preserved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood Plains and watercourses</td>
<td>100%</td>
</tr>
<tr>
<td>Wetlands</td>
<td>100%</td>
</tr>
<tr>
<td>Ponds</td>
<td>100%</td>
</tr>
<tr>
<td>Steep Slopes (15-25%)</td>
<td>70%</td>
</tr>
<tr>
<td>Very Steep Slopes (25%)</td>
<td>80%</td>
</tr>
<tr>
<td>Woodlands</td>
<td>50%</td>
</tr>
</tbody>
</table>

It is important to describe the physical characteristics of desired open space to be established through the development process. In doing this, the municipality should consult their parks and recreation plan and consider the needs of the future residents and users of the proposed subdivision or land development.

These natural resource protection guidelines might be a starting point. Most municipal open space plans articulate goals for the preservation of various resources in a municipality. Municipal zoning ordinances may also incorporate environmental factors into density and lot size calculations.
Where features overlap, the greater percentage shall be conserved. The percentage of each feature is the extent that it shall not be altered, regraded, filled or built upon. The land shall be permanently restricted by an easement preventing further development. The deed restrictions shall be in a form acceptable to the [Municipality].

E. Open Space Designation. All land held for open space shall be so designated on the plans. The plans shall contain the following statement for lands in categories (1), (2), (3) …..(8) below: “Open space land may not be separately sold, nor shall such land be further developed or subdivided.” All plans shall further designate the use of open space, the type of maintenance to be provided and a planting plan or schedule. In designating use and maintenance, the following classes may be used.

1. Natural Area. Land which is left predominately in a natural condition and managed to protect significant natural resources in accordance with a natural areas management plan.

2. Farmland. Land which will be used to grow agricultural crops or for the pasturing of farm animals maintained in accordance with the Soil and Water Conservation Plan as approved by the Montgomery County Conservation District.

3. Lawn. A grass area with or without trees which may be used by the residents for a variety of informal purposes and which shall be mowed regularly to insure a neat and orderly appearance.

4. Recreation Area. An area designated for a specific recreational uses including, but not limited to, tennis, athletic fields and tot lots. Such areas shall be maintained so as to avoid creating a hazard or nuisance, and shall perpetuate the proposed use.

5. Garden Area. An area designated for community vegetable plots.

6. Stormwater Management. Stormwater best management structures may not be counted toward required open space unless they are vegetated and used as in a way that complements the surrounding open space.

7. Park. A small area designated for use for a variety of outdoor activities. It may include lawn areas, decorative plantings, seating areas, or walking paths.

8. Public Plaza. An area in an urban or village center designated as a meeting place for community residents. May include gazebos, information stands, seating areas, decorative plantings, fountains, or other similar elements.

F. Open Space Ownership and Perpetuation. Any of the methods cited under this Section may be used individually or in combination, to own and perpetually preserve open space that is provided in fulfillment of this Article and the [municipality] Zoning Ordinance. The final subdivision and or land development plan shall clearly

It is important to come to agreement about the long term function of open space land. Uses of it can have different impacts upon the land and surrounding neighbors. Where active recreation is contemplated, a municipality should make sure that the potential improvements of the land are noted on the plan and appropriate buffers are designed to reduce the impact on neighboring properties. Active recreation areas such as lighted athletic fields can cause the greatest potential impact on the surrounding residents.
indicate the manner in which open space will be owned and administered. Following Final Plan approval, the open space ownership shall be established as outlined below. Written notice of any proposed transfer of open space shall be given to the [municipality] for approval no less than thirty (30) days prior to such event.

1. The [municipality] may, but is not required to, accept fee simple dedication of recreation land portions of open space in accordance with Section 407.
   a. There shall be no cost of acquisition (other than costs transfer costs agreed upon by the [municipality]).
   b. The [municipality] shall agree to maintain the open space.
   c. The open space shall be in an acceptable condition to the [municipality] at the time of dedication with regard to size, shape, location, and that any improvements are certified as satisfactory by the [municipality] Engineer.
   d. The applicant shall prepare, at no expense to the [municipality], the legal description, with metes and bounds, of the land being offered for dedication.
   e. The [municipality] shall accept the dedication by means of a signed Municipal resolution to which a property description, deed, and plan of dedication area or areas shall be attached.
   f. All dedications in fee simple shall be free and clear of any liens or encumbrances.
   g. An agreement citing all applicant obligations serving as a condition to plan approval shall be approved by the [municipality] and recorded with the plan at the same time as the plan is approved.

2. A public agency acceptable to the [municipality] including county, state, or federal government or another municipality may, but shall not be required to, accept the fee simple dedication of open space, provided that the [municipality] approves a maintenance plan whereby the grantee agrees to and has access to maintain the open space.

3. Open space may remain or be placed in the ownership of the individual property owners and shall be restricted from further subdivision and/or land development by deed restriction, provided that:
   a. The [municipality] shall agree to the boundaries of the open space that shall be held in private ownership.
   b. Restrictions providing for the protection and continuance of the open space which meet [municipality] specifications shall be placed in the deed for each property that has the open space area within its boundaries.

Municipal ownership is always the first option to consider. If a property fits into the municipal parks and recreation plan, the municipality should consider acceptance of it. Other ownership options may make sense if the purpose of open space can be better managed by non-municipal owners. Ownership of adjoining open space lands may also be a factor in determining appropriate ownership.

Ownership of open space needs to be clearly described. Proof of acceptance of open space should be sought by municipalities when non-municipal ownership is proposed. The municipality may also need to investigate the viability of an organization that accepts the open space to ensure that it has the capacity to manage it effectively. Various legal mechanisms such as covenants and deed restrictions may be employed to ensure that the open space is properly managed and protected.
c. A maintenance agreement suitable to the [municipality] shall be established, and the deeds to the properties that are located within the deed restricted open space areas shall clearly state that the maintenance responsibility for the open space lies with the individual property owner.

4. A private, non-profit conservation organization, among whose purposes is to conserve open space land and/or natural features, may, but shall not be required to accept the conveyance of fee simple or less-than-fee simple interests in any portion of the open space, provided that:
   a. Any private, non-profit conservation organization intended to be the grantee of a conveyance shall be acceptable to the [municipality] as a bona fide conservation organization with perpetual existence.
   b. Any conveyance shall contain appropriate provisions for proper reverter or retransfer in the event that the grantee becomes unwilling or unable to continue carrying out its function.
   c. A maintenance agreement acceptable to the [municipality] shall be established between the owner and the conservation organization.

5. Open space may be controlled with condominium agreements that shall be approved by the [municipality] and be in conformance with the Pennsylvania Uniform Condominium Act or Uniform Planned Community Act. All open space land and facilities shall be held as a common element.

6. Open space may be held in common ownership by a homeowners association. In addition, the homeowners association shall be governed according to the following:
   a. The owner or applicant shall provide to the [municipality] a description of the organization, including its by-laws, and all documents governing maintenance requirements and use restrictions for open space. The homeowners' association agreement shall be recorded.
   b. The organization shall be established (with financial support by the applicant if necessary) before any lot in the subdivision or building in the development is sold.
   c. Membership in the organization and fees shall be mandatory for all purchasers of property therein and their successors.
   d. The organization shall be responsible for the maintenance of suitable insurance on the open space.
   e. The members of the organization shall share equitably in the costs of maintaining, insuring, and operating the open space.

It may be necessary to identify a successor organization when land is proposed to be dedicated to a private non-profit organization.

Homeowners associations may have functions other than the maintenance of open space.
f. The applicant proposing any plan containing open space shall arrange with the County Board of Assessment a method of assessment of the common facilities which will allocate to each tax parcel in the development a share of the total assessment for such open space. Where this alternative is not utilized, the organization shall be responsible for applicable real estate taxes on common facilities.

g. The organization shall have or hire adequate staff, as necessary, to administer, maintain, and operate the open space.

h. The organization shall have the power to compel fees from property owners therein to cover their proportionate shares of the initial cost and costs associated with the maintenance and upkeep of the open space.

G. Open Space Restrictions. Every property proposed for open space shall be restricted in the following manner:

1. The property deed shall contain the following deed restriction:

   This property was established as permanent open space through the approval of the [subdivision or land development name] and recorded in Deed Book ____ and Page ______, and shall be maintained as open space in accordance with the approved plan. No change of use, transfer of ownership, or sale of this property shall occur without the written consent of the [municipality] in accordance with requirements of the Zoning Ordinance. This restriction shall have the effect of a covenant running with the land, and shall otherwise be binding upon the Grantee, and shall be enforceable only by the [municipality], its residents or former owners of the property.

2. The [municipality] is authorized to make random inspections of any open space property created through municipal actions to ensure that the owner and any successors duly perform, abide by, and complete any duties, obligations, or requirements as set forth in the Final Plan and/or deed restrictions.

3. The [municipality] may require financial security to ensure appropriate long term maintenance of the open space depending upon the ultimate owner of the open space. The amount of financial security shall be established necessary to reimburse the [municipality] for its expense of performing remedial measures if not performed by the owner.

   a. In the event that the entity charged with maintenance responsibilities, or any successor thereto, fails to maintain all or any portion of the open space in reasonable order and condition in accordance with the development plan

Unless clearly preserved through some appropriate recorded legal instrument, land set aside as open space may eventually be sold or used in ways that do not conform with the originally intentions of the subdivision or land development approval. A recorded deed restriction serves as a permanent record.

In cases where the future owner of the open space is not a unit of government, the municipality may want to establish some form of financial security to ensure sufficient maintenance throughout the future.
and all applicable laws, rules, and regulations, the [municipality] may serve written notice upon such entity, upon the residents and owners of the uses relating thereto, setting forth the manner in which the entity has failed to maintain the open space in reasonable condition.

b. Such notice shall set forth the nature of corrections required and the time within which the corrections shall be made. Upon failure to comply within the time specified, the organization, or any successor organization, shall be considered in violation of their responsibilities, in which case the [municipality] may enter the premises and take corrective action.

c. The financial security funds in the applicant's escrow account, if any, may be forfeited, and any permits may be revoked or suspended. If the funds of the escrow account are insufficient to pay the costs of remedial maintenance, the costs of corrective action by the [municipality] shall be assessed ratably, in accordance with tax assessments, against the properties that have the right of enjoyment of the common facilities and shall become a lien on said properties. The [municipality], at the time of entering upon such common facilities for the purpose of maintenance, shall file a notice of such lien in the Office of the Prothonotary of Montgomery County, upon the properties affected by such lien.

Section 407. Recreation Land Dedication Criteria and Standards.
A. Suitable recreation land shall be dedicated to the [municipality] according to the provisions of the [municipality] Zoning Ordinance regarding minimum open space requirements, of which the following may be utilized for parks and recreation purposes:

1. Single-family detached: 2,500 square feet per unit.
2. Two-family and single-family attached: 2,000 square feet per unit.
3. Multi-family apartments: 1,500 square feet per unit.
4. Non-residential: One (1%) percent of gross acreage.
5. Should the amount of land required to be utilized for parks and/ or recreation purposes exceed the required land for dedication regarding open space requirements, the lesser amount shall apply.
6. Nothing herein shall be construed as limiting the ability of the [municipal governing body], based upon the recommendation of the [municipality] Planning Commission, to waive all or a portion of the recreation land set aside requirements.

B. Location and Criteria for Dedicated Recreation Land. Lands to be dedicated shall:
1. Comply with the recreation criteria set out in the [municipality] Zoning Ordinance.
2. Implement the findings of the [municipality] open space and recreation plan.
3. Be suitable for the location of facilities which can meet the various recreational needs of the residents, businesses, and industries.
5. Be readily accessible with at least fifty (50') feet of public road frontage.
6. Be generally well drained and suitable for different forms of active and passive recreation with the following features:
   a. No more than fifteen (15%) percent of the area consisting of environmental constrains such as wetlands, 100 year floodplains, or areas with greater than 15% slopes.
   b. No more than fifty (50%) percent of the area should be wooded.
   c. The area shall not be divided by a public or private road.
   d. No more than fifteen (15%) percent of the area should be encumbered by easements, utilities or stormwater management facilities. Land within utility easements may be used for recreation purposes only if the utility companies possessing legal rights to the easements do not prohibit their use for such purposes.

C. Acceptance and Use of Park and Recreation Land.

1. Any land dedicated to the [municipality] shall be used only for the purpose of providing park and recreational facilities and for the preservation of open space and shall be available for use by all residents of the [municipality].
2. When land is dedicated, acceptance by the [municipality] shall be by means of a signed resolution to which a property description of the dedicated area shall be attached. A fee simple warranty deed conveying the property shall be delivered to the [municipality] with title free and clear of all liens, encumbrances and conditions excepting public utility easements.

D. Alternatives to the Dedication of Park and Recreational Land. Upon agreement of both the [municipality] and the applicant, the applicant may pursue the following alternatives:

1. Fee in Lieu. The applicant may pay a fee in lieu of dedication of park and recreational land. The amount of the fee shall be established by resolution of the municipality.

Describing the recreation land which the municipality would accept for dedication is difficult. Generally this description should be based on the municipal open space and recreation plan. Essentially the municipality should seek land that fits into their existing park and open space system. The land accepted for dedication should provide a benefit to the community as a whole and not just adjoining property owners.

It is important that the municipality makes sure that they accept title to dedicated land. In some cases, land is transferred soon after approval. In other cases the land is not accepted by the municipality until the whole development has been completed.
Section 503 of the MPC allows municipalities to require dedication of suitable recreation land. In accordance with this section municipalities can establish standards in their subdivision and land development ordinances for the dedication of suitable recreation land. Under these provisions developers may offer to do the following instead of the dedication of land for recreation:

- Pay a fee to the municipality for providing park and recreation facilities accessible to the new development;
- Construct a recreation facility; and/or
- Privately reserve land for park or recreation purposes

The selection of one of the alternatives can’t be required by the municipality, though incentives can be made to encourage one or more of these.

This provision was added to the MPC to avoid arbitrary and abusive application of open space and recreation requirements by establishing basic ground rules that limit municipal discretion. There are a few key points that municipalities need to understand in order to utilize this option.

- The subdivision ordinance must establish definite standards for determining the amount of land to be used for recreation or fees when land is not offered.
- All fees must be used for park and recreation purposes that are accessible to the development from which the fees were paid.
- Fees and standards must be consistent with a formally adopted recreation plan.
- The relationship between the amount of fees required and the potential use of facilities by future occupants of the development must be reasonable.
- Fees must be deposited in an interest bearing account and earmarked for specific facilities.
- Developers can request reimbursement of unused funds after three years.
- Municipalities do not have to accept dedication.
- The decision to pay fees or to construct recreation facilities on existing public park land in lieu of fees is up to the developer.

The calculation of a reasonable recreational land contribution should be derived from recreation land requirements established in the recreation plan based on a future municipal population. Generally, these figures are derived from national standards such as the NRPA standards. These standards provide a range of acreage needed per 1000 residents for different types of recreation parks. A household may typically require .025 acres (1089 sq. ft.) to .06 acres (2,624 sq. ft.). In the model ordinance the dedication requirements are more finally adjusted to the type of unit based upon the expected household size. The fee, should approximate the value of the land that is needed to meet these recreation requirements. Though the raw acre value may vary from place to place, the general range of fees per housing unit are between $2,000 to $6,000.
2. Improvements to Other Recreation Sites. The applicant may, through an agreement with the [municipality], construct recreational facilities on existing or proposed parkland that is readily accessible to residents of the proposed development as defined in this section. The value of such improvements shall be comparable to the fee in lieu of dedication that would have otherwise been required, based upon the applicant's estimates, as reviewed by the [municipality] Engineer.

3. Private Preservation of Land. The applicant may reserve land in the amount required under this Ordinance. The land shall meet all the standards in this section, be available for use by [municipality] residents, and managed and maintained in conformance with the Park and Recreation Plan, Zoning Ordinance and Section 406 referring to the maintenance requirements for private ownership of common elements.

4. A combination of land dedication and/or alternative approaches listed herein may be pursued, based upon an agreement between the applicant and the [municipal governing body].

E. Use of Fees. Fee in lieu payments shall be used to expand and improve existing public parks or to acquire land and develop new recreational facilities. Fees received for a particular development shall be expended on sites or facilities accessible to residents of the proposed development as defined below:

1. If part or all of the fee is to be spent on a neighborhood park, that park must be located within one-half (1/2) mile of the development, provided a principal arterial or limited access highway does not need to be crossed.

2. If part or the entire fee is to be spent on a community park, that park must be located within two (2) miles of the development, provided that a principal arterial or limited access highway does not need to be crossed.

3. A fee authorized by this Ordinance shall, upon receipt by the [municipality], be deposited in an interest-bearing account, designated as the [municipality] Parks and Recreation Fund. Interest earned on such accounts shall become funds of that account. Funds from such accounts shall be expended only upon the design, construction, or acquisition of specific recreational facilities as approved by the [municipal governing body].

4. Upon request of an applicant who has paid fees under this Ordinance, the [municipality] shall refund such fee, plus interest accumulated thereon from the
date of payment, if the [municipality] has failed to utilize said funds for recreation purposes within three years from the date that the fee was paid.

Section 408. Recreation Facility Requirements.
A. Figure 4.1 lists the recreation facilities required in all residential subdivisions and land developments.

B. At the discretion of the [municipal governing body] upon recommendation of the [municipality] Planning Commission, land developments with greater than two hundred (200) dwelling units proposed may have increased recreation facility requirements.

C. The [municipal governing body], upon recommendation of the [municipality] Planning Commission, may accept alternative recreation facility design if it can be shown to be more desirable and provide an equal level of service to residents.

D. Tot Lot Design Requirements.
1. Tot Lot. A confined, developed, neighborhood play area primarily for use by preschool-age children under the supervision of parents or guardians.
2. Use of tot lots shall be limited to daylight hours only; no lighting shall be installed.
3. Low maintenance play equipment and structures shall be included and confined by a gated fence, a minimum of three (3’) feet high. The gate shall be self-closing and self-latching.
4. Sitting areas, including benches, shall be provided for the convenience of persons supervising the children.
5. Shade trees shall be provided for sitting and play areas; gazebo or picnic-type shelters may be used in addition to shade trees.

Recreation facility requirements are based upon the National Parks and Recreation Association standards. These may be modified based upon the findings of the municipal open space and recreation plan.

### Figure 4.1. Recreation Facility Requirements

<table>
<thead>
<tr>
<th>Total Number of Lots or Dwelling Units</th>
<th># of Tot Lots</th>
<th># of Playfields</th>
<th># of Basketball or Tennis Courts</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 to 99</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>100 to 149</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>More than 150</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Recreation facility requirements are based upon the National Parks and Recreation Association standards. These may be modified based upon the findings of the municipal open space and recreation plan.
6. When a tot lot is placed adjacent to the playfield, practical measures, such as fencing and orientation of facilities, shall be addressed to reduce hazards resulting from other recreation activity, especially from balls or other flying objects.

7. Minimum dimensional standards shall be as follows:
   a. Minimum area: 1,500 square feet within the fenced areas. Applicants shall provide a landscaped, but not screened, buffer within an area a minimum of ten (10') feet in depth around the fenced area.
   b. Minimum horizontal dimension: twenty-five (25’) feet.
   c. Minimum setbacks for the fenced-in area:
      1) From lot lines: twenty (20’) feet.
      2) From the ultimate right-of-way of streets:
         i) Residential streets: twenty (20’) feet.
         ii) Collector streets: forty (40’) feet.
         iii) Arterial streets: sixty (60’) feet.

8. Locations: At convenient, centralized intervals, requiring not longer than a 1000-foot walk from any dwelling unit.

E. Playfield Design Requirements.

1. Playfield. A common area within a subdivision or land development for neighborhood residents and the general public to use for informal, active recreation purposes such as ball games and other activities requiring a large lawn area, away from homes or other buildings.

2. Playfields shall be used only during daylight hours; no lighting shall be installed.

3. Playfields are intended for informal, neighborhood use. Playfields shall not be used for formalized programs such as youth or adult athletic leagues which should be conducted on larger sized fields, located, designed, and intended for use by the extended community.

4. Playfields shall consist of a lawn area, unobstructed by trees, shrubs, benches, playground equipment and other obstacles. Applicants should locate trees and shrubs along the perimeter of a playfield in order to define its limits, enhance its appearance, and filter noise generated by activities.

5. Playfields shall be sloped for proper drainage, not less than one (1%) percent nor more than three (3%) percent grade, and shall be well-drained so that they are suitable for use in most weather.

Recreation areas should be established based upon NRPA recreation standards and safety considerations. Setbacks address safety considerations. Larger setbacks are proposed for streets with high volumes and higher speed traffic.

These minimum playfield standards are meant for informal field recreation by younger children. Fields considered for organized sports should generally be larger in size and depend upon the specific athletic uses. Also, where spectators are expected or lighting is proposed, significant setbacks will be necessary to avoid conflicts with adjoining property owners.
6. Playfields shall be fenced at the discretion of the [municipal governing body].

7. Minimum dimensional standards shall be as follows:
   a. Minimum area: 12,000 square feet.
   b. Minimum horizontal dimension: 80’ feet.
   c. Minimum setbacks to the edge of a playfield:
      1) From any dwelling unit: 60’ feet.
      2) From the ultimate right-of-way of streets:
         i) Residential streets: 30’ feet.
         ii) Other classifications: 60’ feet.

8. Locations: at convenient, centralized intervals.

F. Basketball and Tennis Court Design Requirements.

1. Basketball Court. A basketball facility including pavement, striped court area of at least high school standard size, with posts, backboards, and baskets at both ends of the court.

2. Tennis Court. A tennis facility including paved, standard sized and striped court area, posts, net, and fencing around its perimeter.

3. These courts shall be constructed in accordance with specifications approved by the [Municipality] Engineer, and shall be generally oriented in a north/northeast-south/southwest direction.

4. Minimum dimensional standards shall be as follows:
   a. Tennis court areas shall be of 60’ x 120’.
   b. Basketball court areas shall be at least high school standard size.
   c. Minimum setbacks to the edge of paving:
      1) From any dwelling unit: 60’ feet.
      2) From the ultimate right-of-way of streets:
         i) Residential and feeder streets: Thirty (30’) feet.
         ii) Other classifications: 60’ feet.
      1) From any lot line: Fifteen (15’) feet.

5. Tennis courts shall be fenced around the entire perimeter with minimum ten (10’)-foot high fencing.

Noise can be a big issue with basketball courts. Alternative more porous pavement types can lessen the noise. Landscape buffers and berms can also be effective in attenuating the noise from basketball courts.
6. Basketball courts shall be fenced with minimum six (6')-foot high fencing under the following conditions:
   a. When the edge of pavement is less than thirty (30') feet from a lot line, that edge shall be fenced.
   b. When the edge of pavement is less than thirty (30') feet from an area sloping ten (10%) percent or greater downward from the court, the edge shall be fenced.

7. Lighting may be provided for nighttime use of courts, if they are arranged so that no glare affects abutting residences or streets, to be used on a demand-activated basis, until not later than 10:00 PM.

8. Locations: at convenient, centralized intervals.

G. Consolidation of Facilities. Applicants are required to provide the numbers and types of facilities as required in this section, spaced for convenient access by the residents. However, applicants are encouraged to consolidate several facilities in fewer locations to better serve the residents’ needs in the following possible ways:

1. By locating all required tennis or basketball courts in one area, thereby restricting noise and light to one area, and providing convenience to users

2. By combining two (2) 12,000’-square foot playfields into one (1) 20,000’-square foot area to permit larger fields for softball, football, soccer, or other field sports, while maintaining the neighborhood use character.

3. By creating one or more park-like facilities rather than several sets of scattered facilities.

4. Tot lots may be adjacent to other types of recreation facilities but not to other tot lots so that they are dispersed throughout the development and only require short walking distances from all homes.

Section 409. Preservation and Protection of Existing Vegetation
A. Preservation of Existing Vegetation.

1. All subdivisions and land developments shall be laid out in such a manner as to minimize the removal and/or disturbance of healthy trees, shrubs, and other vegetation on the site. Special consideration shall be given to mature specimen trees and ecologically significant vegetation.

2. Removal or disturbance of vegetation in environmentally sensitive areas, including wetlands, floodplains, steep slopes, riparian corridors, wildlife habitats, and ecologically significant woodlands as identified in the Montgomery County Natu-
reral Areas Inventory or other sources shall be undertaken only as permitted in Section 409 D. 1. to minimize the adverse effects of such actions.

3. The applicant shall prove to the satisfaction of the [municipal governing body] that vegetation removal is minimized. A written document or plan may be requested to be performed by a registered landscape architect or other qualified professional showing that no more desirable layouts are possible and no alternative clearing or grading plan would reduce the loss of mature trees, tree masses, and woodlands.

4. Each freestanding mature tree, tree mass, or woodland on the site shall be designated "TO REMAIN" or "TO BE REMOVED" in accordance with the following criteria:

a. A mature tree, tree mass, or woodland may be designated "TO BE REMOVED" only if it meets all of the following criteria:

1) The outermost branches of the tree(s) are at least five (5') feet or the trunk of the tree at least twenty (20') feet, whichever is less, from any proposed buildings, structures, paving, parking, or utilities (overhead or underground).

2) The outermost branches of the tree(s) are at least five (5') feet or the trunk of the tree is at least twenty (20') feet, whichever is greater from any proposed changes in grade or drainage such as excavations, mounding, or impoundments.

3) The tree(s) interfere with traffic safety or are located within proposed sight triangles.

4) The tree(s), by its location or apparent health, poses any undue threat to the health, safety, and welfare of the community.

5) The tree does blocks required solar access.

b. Mature trees, tree masses, or woodlands that do not fit the above criteria should be designated "TO REMAIN."

c. Unique or Specimen Trees should be preserved

B. Protection of Existing Vegetation

Existing vegetation designated "TO REMAIN," in accordance with Section 409 D. 1., as part of the landscaping of a subdivision or land development shall be identified in the field prior to any clearing and shall be physically protected throughout the construction process. A temporary, sturdy physical barrier, such as a snow fence, shall be erected a minimum of one foot outside the drip line or a minimum of twenty feet.
feet from the tree’s trunk, whichever is greater on all sides of freestanding
trees, tree masses, or woodlands prior to major clearing or construction. The barrier
shall be placed to prevent disturbance to or compaction of soil inside the barrier and
shall remain until construction is complete. The barrier shall be shown on the ero-
sion and sedimentation control plan and the landscape plan. Reference to the in-
stallation of tree protection should be included in the sequence of construction
notes to insure incorporation of tree protection before the earliest stages of site dis-
turbance.

C. Credit for Preserved Trees

Requirements for street trees and buffer plantings may be met, whenever possible,
by preserving existing trees. Credit for existing trees which are “To Remain”, as
determined in Section 409 A 4, to offset either the street tree or buffer planting
requirements are to be calculated as follows:

<table>
<thead>
<tr>
<th>Preserved tree (dbh)</th>
<th>Number of Trees Credited (2 ½” caliper)</th>
</tr>
</thead>
<tbody>
<tr>
<td>36” or greater</td>
<td>8 trees</td>
</tr>
<tr>
<td>18–35”</td>
<td>6 trees</td>
</tr>
<tr>
<td>12–17”</td>
<td>4 trees</td>
</tr>
<tr>
<td>8-11”</td>
<td>2 trees</td>
</tr>
</tbody>
</table>

D. Tree Replacement Planting Requirements

1. Any subdivision or land development proposal which will result in the destruc-
tion of 25 (%) percent of the existing trees six (6) inches dbh or greater on a lot
shall replace the removed trees. The total tree removal impact of woodland
areas designated “TO BE REMOVED” shall be measured by a forest density
survey that calculates the approximate quantity of trees (with 6” or greater dbh)
per square foot area. Calculated woodland tree removals and individual mature
tree removals shall be listed on the plan. Tree replacement shall occur in the
following manner:

   a. Each tree six (6) inches dbh or greater that is destroyed shall be replaced
      with one tree with a caliper of 2½ “ inch caliper.

   b. Replacement trees shall generally comply with the general landscape de-
      sign criteria in Section 438 of this ordinance.

2. Replacement trees shall be planted on the site to mitigate for the existing trees
   removed, in addition to other landscaping requirements. Proposed replacement
tree plantings shall be listed on the plan.

There are various tree replacement
requirements that can be employed. It
is important to select one that reasona-
bly compensates for the removal of ex-
isting vegetation in a manner that can
be administered by municipal staff.
Complex tree replacement systems
may involve an arborist or tree expert.
3. If the site does not reasonably contain enough room for the required replacement trees, the [municipal governing body] may allow the developer to locate some or all of the replacement trees on public lands or accept an equivalent fee-in-lieu of plantings, at their discretion.

4. Calculation and estimation of existing trees shall be performed before any clearing commences and shall be documented on the plan.

5. Calculation and estimation of the existing trees remaining after construction shall be performed and compared with the calculations of the approved plan. Any tree removals additional to those on the approved plan shall be replaced as required by this section prior to the issuing of any occupancy permits.

Section 410. Wetland Protection.
A. The presence of hydric soils may indicate wetlands. When hydric soils are indicated on the site, a wetlands study should be conducted in accordance with the federal Corps of Engineers Wetlands Delineation Manual (1987 Manual). In the event no wetland study is undertaken, the location of soils with soils rated as all hydric in the county soil survey on site will be assumed to be wetlands for the purpose of this ordinance and so noted on the plan.

B. Wetlands as defined by the U.S. Army Corps of Engineers and the Commonwealth of Pennsylvania in accordance with Section 404 of the Federal Clean Water Act of 1977 and the Pennsylvania Clean Streams Act shall be preserved in subdivisions and land developments. Required permits shall be obtained at an early stage to determine the extent and location in the proposed subdivision and/or land development.

C. A twenty-five (25')-foot setback shall be maintained around the perimeter of all wetlands. This area will be known as the Wetland Buffer. No removal of vegetation, except the selective removal of dead trees and or other noxious vegetation in the wetland area or buffer shall take place without the specific permission of the [municipality].

D. Required building setbacks as described in the Zoning Ordinance shall be measured from the edge of the Wetland Buffer.

Section 411. Riparian Corridor Management.
A. Whenever a pond, watercourse, stream, or intermittent stream as identified by the USGS is located within a development site, it shall remain open in its natural state and location.

Federal and state laws serve to protect wetlands as waters of the nation or commonwealth. These laws do not protect wetland vegetation or the areas surrounding the designated wetland.

By requiring the building setback to be taken from the edge of the wetland, municipalities are protecting wetland areas from being damaged by future home owners who extend decks and add other improvements around their house.
B. Unless otherwise described in the Zoning Ordinance or separate code, a fifty (50') foot buffer (twenty-five (25') feet from each bank of the water body) shall be maintained along all intermittent or perennial water courses and ponds. This buffer area will be known as the Riparian Corridor. No removal of vegetation, except for removal of dead trees and shrubs or periodic mowing of existing lawns or fields, shall take place within this buffer area without the specific permission of the [municipality].

C. No stormwater detention basins shall be allowed within the twenty-five (25') foot buffer zone.

D. Within any Riparian Corridor, no construction, development, use, activity, or encroachment shall be permitted unless a Corridor Management Plan is submitted and approved by the [municipal governing body] and the impacts of such development are mitigated by the implementation of the Corridor Management Plan.

Section 412. Top Soil Protection and Grading.

A. Minimal Grading: Grading shall be limited to the minimum amount of disturbance of soil or natural topography.

B. Top Soil Protection. The top six (6") inches of soil that existed naturally on the site prior to subdivision or land development shall be managed in the following way:
   1. In areas to be graded, the top soil shall be stripped off and stockpiled on the site in accordance with the erosion and sediment control plan.
   2. Following construction, the stockpiled soil shall be redistributed uniformly on the site to a minimum depth of six (6") inches.
   3. Any topsoil in excess of soil needed to for the reestablishment of six (6") inches depth in areas of the site that will not be paved may be removed from the site based upon the determination of the [municipality] Engineer.

C. Grading. All permanent and temporary cutting, filling, grading, regrading, and/or other forms of earth-moving activities shall be known as "grading" and shall be conducted only in compliance with the standards as described below.
   1. All grading shall be set back from property lines at least three (3') feet, or a sufficient distance to prevent any adverse effects on adjacent properties.
   2. No permanent excavation shall be made with a cut face steeper in slope than three (3) horizontal to one (1) vertical. For steeper slopes, a soils report prepared by a qualified engineer or geologist experienced in performing such studies and registered in the Commonwealth of Pennsylvania shall be prepared to document the soil stability.

A separate riparian corridor ordinance can be enacted by a municipality. A model ordinance prepared by the Montgomery County Planning Commission staff is referenced in the appendix.

Overall, grading is the process of remolding landforms whenever anything is constructed or modified on the earth’s surface. Grading is generally done to level the natural surface for buildings and parking lots, create a safe circulation system, create special effects, or solve drainage problems. Grading has a big impact on the look and function of the land development or subdivision. It also has a significant impact upon the soil structure and natural environment. In all situations, grading should be limited to only areas which are being developed or where land contours must be altered to meet development objectives.
3. Wherever grading will increase the volume or velocity of stormwater flow toward a property line, the applicant shall install and maintain drainage facilities sufficient to prevent adverse effects on the adjoining property. The construction and operation of these drainage facilities shall not cause any adverse effects on abutting properties.

4. Within the property proposed for development or along property lines, where grading creates an abrupt drop-off in contrast to a previously existing gradual change or where a wall is being installed, the applicant shall be required to install a fence or other suitable protective barrier.

5. A permit shall be required for grading operations. Permits shall be issued by the [code officer] upon recommendation of the [municipality] Engineer for each tract, lot, parcel, or site which comprises a separate operation, unrelated to or not contiguous with nearby grading proposed or performed by the applicant. A permit shall not be required in the following situations, however:
   a. For an excavation that does not exceed twenty (20) cubic yards total material removed.
   b. For a fill that does not exceed twenty (20) cubic yards of material deposited.
   c. For an excavation below finished grade for basements and footings for a single-family detached or two-family dwelling, swimming pool, or underground-structure authorized by building permits, excavation for a driveway for a single-family detached or two-family dwelling, or the regrading of such excavated materials into the site from which they were excavated.

Section 413 Erosion and Sediment Control.
A. General. Erosion and Sediment Control must be addressed in the following manner:
   1. An Erosion and Sediment Control Plan, which meets the requirements of the Chapter 102 regulations must be approved by the Montgomery County Conservation District and available on site for all earth disturbance activities over 5,000 sq. ft.
   2. All construction activities proposing to disturb between one and five acres with point source discharge to surface waters of the Commonwealth, or projects disturbing five (5) or more acres of land must be authorized by a National Pollutant Discharge Elimination System (NPDES) permit.
   3. No subdivision or land development plan shall be approved unless:
      a. There has been a plan approved by the [municipal governing body] that provides for minimizing erosion and sedimentation consistent with this Section,
and an improvement bond or other acceptable securities are deposited with the [municipality] in the form of an escrow guarantee which will insure installation and completion of the required improvements; or

b. There has been a determination by the [municipal governing body] that a plan for minimizing erosion and sedimentation is not necessary.

4. The [municipal governing body], in its consideration of any Preliminary Plan of subdivision and land development, shall condition its approval upon the execution of measures designed to prevent accelerated soil erosion and resulting sedimentation, as required by PADEP. All applicable regulations and permit requirements of PADEP as stipulated in its Soil Erosion and Sedimentation Pollution Control Manual shall be followed for all earth-moving activities.

B. Performance Principles.

1. Any appropriate action which minimizes erosion and sedimentation as described in the Pennsylvania Erosion and Sediment Pollution Control Program Manual can be included in the plan. Alternative methods should be discussed with the [municipality] Engineer prior to the preparation of an erosion and sediment control plan.

2. No unfiltered stormwater coming from an area which has been disturbed shall be permitted onto an adjacent tract or allowed to be discharged into any waterbody.

C. Responsibility.

1. Whenever sedimentation is caused by stripping vegetation, regrading or other development activity, it shall be the responsibility of the applicant to remove it from all adjoining surfaces, drainage systems and watercourses and to repair any damage at their expense as quickly as possible.

2. It is the responsibility of applicant doing any act on or across a stream, watercourse, or swale or upon the floodplain to maintain, as nearly as possible, in its present state the stream, watercourse, swale, floodplain or right-of-way during the activity and to return it to its original or equal condition after such activity is completed. Adjacent to the watercourse, dominant vegetation shall be composed of a variety of native riparian tree and shrub species and appropriate plantings necessary for streambank stabilization.

3. Disturbed areas shall be re-vegetated with riparian corridor plants, in compliance with Section 437 (B).
D. Areas that cannot be re-vegetated shall be restored using management practices accepted by experts qualified in riparian corridor management.

Section 414. Preservation of Existing Structures and Historic Features

The design of subdivisions and land developments should be done to preserve desirable structures containing cultural and historic features wherever reasonably possible.

A. No proposal will be approved with a property line extending through any portion of an existing building, except where that property line follows a party wall separating semi-detached or attached units, in accordance with the [municipality] Zoning Ordinance.

B. When existing buildings are retained:

1. Minimum building setbacks shall be met or exceeded, in respect to all new lot lines created, for the district in which the buildings are located, even if this results in a lot area or dimensions in excess of the otherwise applicable minimums.

2. Building setbacks in excess of the applicable minimums are encouraged, in respect to all new lot lines created, when the height of the existing building significantly exceeds that of proposed, abutting development. For tall buildings, a setback equal to the height of the building should be used.


4. Additions to retained buildings shall conform in all respects to the requirements of the Zoning Ordinance applicable to the district in which the building is located, and shall be in harmony with the character, design, building materials, and other architectural features of the building.

5. Historical or culturally significant buildings shall retain their respective character, to the greatest extent practical.

6. New buildings abutting any retained building should reflect their respective characters, to the greatest extent practical.

7. In non-residential districts, retained buildings shall be provided with adequate parking, service, and landscaped areas in accordance with the zoning ordinance provisions for the intended use. If the applicant cannot specify the intended use, then the most land consumptive provisions shall be applied, to ensure sufficient land area for uses permitted in that district.

C. When existing buildings will be removed:

Every effort should be made to preserve all older structures and incorporate them into new developments. Different strategies under zoning and separate historic preservation codes can provide incentives for the retention of historic structures or structures important in the overall fabric of the community.

One option is to require an impact statement or some form of documentation of historic buildings that are proposed to be removed. This information can be maintained by the local historic society or association. The developer could be encouraged to donate elements of removed historic structures, such as date stones, to local historic organizations.
1. The plan must show the location and include a brief description of the building(s) to be removed.

2. Final plan approval will be conditioned upon written agreement to the expeditious removal of buildings intended for removal, in conformance with [municipality] demolition permits requirements.

3. All applicable [municipality] requirements and procedures regarding demolition of buildings and disposition of the reusable parts and/or disposal of the rubble shall be complied with.

4. If the building will not be removed immediately, it shall be secured in a manner that it is not a public safety hazard and a financial guarantee must be posted for its removal, in compliance with Section 702, herein.

Section 415. New and Existing Streets Design Standards

A. All new streets and additions to existing streets shall:

1. be offered for dedication to the [municipality]. The [municipality] may accept or refuse dedication of any street.

2. conform with the transportation element of the [municipality] Comprehensive Plan and county or state highway plans, and be designed to conform with the existing street system.

3. provide appropriate access between abutting tracts of land for immediate or future use.

4. create a road hierarchy among interior subdivision and land development streets and exterior streets to insure proper through-traffic flow, local access, and internal traffic distribution and flow.

5. conform to existing topography to assure reasonable grades, alignment and drainage, appropriate access to lots, and to minimize regrading and removal of vegetation.

6. be designed to continue existing streets at equal or greater right-of-way and cartway width, as recommended by the [municipality] Engineer and Planning Commission.

7. include curbs and sidewalks installed along all existing and proposed public and private streets and common parking areas except when this requirement is waived at the discretion of the [municipal governing body], upon recommendation of the [municipality] Planning Commission and Engineer.

A large portion of Article Four deals with the overall layout and design of the road system serving a new development or subdivisions. The MPC allows municipalities to provide street standards to ensure that the streets within and bordering a proposed development are designed and located in a way to accommodate traffic and fire protection. (Section 503 (2) (ii).

The overall street pattern may vary based upon the surroundings. In an urban environment, the SALDO should require a continuation of the grid street pattern.
B. Street names shall be assigned in accordance with Section 616.

Section 416. Private Streets:
Whenever an applicant proposes to establish a street which is not offered for dedication of public use or when dedication is not accepted, the [municipal governing body] shall require the applicant to submit, and also to record with the plan, a copy of the agreement made with the [municipality] addressing the ownership, access rights, and maintenance responsibilities for that street. Such streets shall be constructed in conformance with the [municipality] Engineering standards for public streets. Maintenance responsibility shall be outlined and defined by the applicant and reviewed by the [municipality] prior to final approval. When, in the determination of the [municipality governing body], it becomes necessary for the [municipality] to assume responsibility for a private street in order to maintain the health, safety, and welfare of the residents of the [municipality], the [municipality] may do so and assess the property owner(s) or abutting owners who use the street for any improvements necessary to restore the street to conformance with [municipality] specifications.

A. Residential Private Streets. Private streets may be permitted by the [municipal governing body] to provide access to land which abuts its right-of-way. Private streets shall comply with the following:

1. The minimum right-of-way or equivalent right-of-way shall be fifty (50') feet.
2. Minimum paved cartway width shall be eighteen (18') feet.
3. Streets shall be built in accordance with the Construction and Engineering Standards in Article Six of this ordinance.
4. An irrevocable right-of-access shall be guaranteed to all properties whose access depends upon the private street, by means of legal agreement or covenants, subject to approval by the [municipal governing body] as advised by the [municipality] Solicitor.
5. The legal access agreements and/or covenants shall be:
   a. Clearly noted on the subdivision or land development plans for all properties using private streets for access.
   b. Included in the deeds for all properties having these access rights.
   d. Clear and specific with regard to property owner’s rights to further subdivision or land development, especially in regard to the need to receive approval from the private street owner and/or waiver from the requirement of this ordinance.

Private streets are used for commercial, institutional, and some residential developments. Generally when a single property owner or homeowners association retains control over the streets and other public areas in a development, private streets can be a good transportation option. Other uses of private streets serving multiple private lots can work if reasonable safeguards are established. This section on private streets addresses the various issues that should be clarified for private streets.

Private streets can become a problem for the municipality if ownership and maintenance issues aren’t adequately addressed before they are established.
6. The private street may be owned by one or more of the property owners who have right-of-access or may be jointly owned by an association of these property owners.

7. When several properties use a private street, maintenance shall be guaranteed by the formation and administration of an association or other legally binding organization of all landowners with access rights.
   
a. Documents governing such associations shall be subject to approval of the municipal governing body upon the advice of the municipality Solicitor, shall be filed with the municipality, and shall be recorded with the deed for each property with access rights.

b. All property owners in such an association or other type of organization shall have a share in the rights and bear a share of the costs and other burdens of maintenance, as specified in the access agreements and/or covenants. This share shall also apply to the assessed costs for upgrading to public street standards, in accordance with the Construction and Engineering Standards in Article Six of this ordinance.

c. If one or more property owners in the association or other type of organization believe that the street is not being properly maintained, and cannot succeed in having the association or other type of organization authorize or conduct proper remedies, then that/those property owner(s) may request the municipality to authorize an inspection of the street by the municipality Engineer. The cost of the inspection shall be paid by those property owners requesting the inspection. If the municipality Engineer determines that the street is not being properly maintained, the municipality may take corrective actions against the entity maintaining the road.

8. The municipal governing body reserves the right to order the private street to be upgraded to meet all of the standards and requirements for a public street, if, at any time, they deem the road to be a health or safety hazard for reasons of improper or inadequate maintenance.

   a. The full costs of upgrading the street, including engineering, legal and related costs, shall be assessed against the owner of the road. The share of the assessment to be determined by the association’s legal access agreements and/or covenants recorded for the private street.

   b. Prior to such action by municipal governing body, the landowners with access rights shall be notified, in writing, by certified mail, of the pending action. The landowners will have thirty (30) days from the date of such notice to propose an alternative solution acceptable to the municipal governing body.
   
a. Any vehicular access way which provides the primary access to more than three (3) lots or housing units, but is not offered for dedication as a public street, shall be considered a private street subject to these requirements.

b. Not more than ten (10) dwelling units may be served by a private street which has access to a public street (private dead-end or cul-de-sac street) if the street is not owned and managed by a homeowners association or owner of the entire property.

c. Emergency access to a private street which has only one public street access may be required.

d. For private cul-de-sac streets, a suitable turnaround shall be provided, subject to the approval of the [municipality] Engineer. A forty (40') foot radius paved bulb turn around is preferred, but other configurations may be used if acceptable to the [municipality] Engineer.

10. Further subdivision or land development of any lot depending upon a private road for vehicular access where properties and streets are under multiple ownership or not subject to a homeowners association is prohibited if it would exceed the number of lots permitted, maximum length of a cul-de-sac, or any other applicable requirements contained in this ordinance. If an applicant requests such further subdivision, the following standards shall apply:

   a. The street must be upgraded to meet all the standards and requirements for public street construction, and must be offered for dedication to the [municipality], or

   b. Further subdivision may be permitted and the street may remain private, if the [municipal governing body] approves the waiver of necessary design standards.

   c. The applicant shall apply in writing to the [municipal governing body] for approval to upgrade the street or to be granted appropriate waivers.

   d. Application to the [municipal governing body] shall include written approval from the association or organization which controls the street for the applicant to seek [municipality] approval for upgrading or waivers.

   e. Upgrade of the street or waivers should not be approved by the [municipal governing body] unless approval is first received from the association or other organization which controls the street.

   f. The costs of upgrading a private street to public street standards including the dedication, and/or costs involved in granting waivers shall be borne by
11. An individual private driveway may be legally reclassified and physically upgraded and improved to become a private street upon approval of the [municipal governing body].

   a. A right-of-way shall be established to contain the private street in compliance with the requirements herein.

   b. The private driveway shall be physically improved to comply with private street construction and paving width standards, as well as applicable dimension standards.

   c. Maintenance shall be guaranteed as established for private street in this ordinance.

   d. Upgrading of existing individual driveways to private street status is encouraged where it would take the place of several individually owned and maintained access strips.

12. Parking shall not be permitted within the minimum eighteen (18') foot wide cartway of a private street, but may be permitted outside the cartway in a manner that does not interfere with the free movement of emergency vehicles along the private street.

   a. The legal access agreements and/or covenants shall guarantee free unobstructed access throughout the minimum eighteen (18') foot wide cartway. If violations occur, attempts should be made to resolve the problems within the structure of the association or organization which controls the street. Under situations of repeated and/or flagrant violations, individual property owners may request police enforcement of free and unobstructed access.

   b. If there is a continuing access problem caused by improper parking, the [municipal governing body] shall notify the owner of the private street or homeowners association, in writing, that the problem must be corrected by some means satisfactory to the [municipality] Engineer or Solicitor, depending upon whether the solution is a physical or legal remedy.

   c. If, after written notification, the owner or association or organization which controls the road fails to correct the parking problem, the [municipal governing body] may order the upgrading of the private street to public street standards as specified herein. The owner or association or organization which controls the road shall have thirty (30) days from the date of written notification to propose a solution to the parking problem.
13. In considering applications for waivers of private street standards, the [municipal governing body] shall consider the following:

a. Number of lots and/or dwelling units in excess of the permitted maximum.

b. Whether or not more lots could be proposed along the private street, in conformance with the applicable zoning, in addition to those proposed in conjunction with the waiver application. For example, one additional unit may be acceptable in itself, but may not be acceptable if a potential would exist for five more lots.

1) The [municipal governing body] may require the applicant to submit a sketch plan and/or information showing the approximate maximum number of lots and/or dwelling units which could be created under the applicable zoning requirements, on all lands serviced by the private street.

2) When conditions are considered favorable for limited additional subdivision under the private street access, the [municipal governing body] may request deed restrictions against further subdivision as a condition of final approval of the subdivision.

c. Ability of a private street to be served by an emergency access as a condition of granting a waiver.

d. Characteristics of properties, neighborhood and private street(s) involved:

1) Configuration of the properties.

2) Lot sizes and development characteristics, with particular regard to avoiding congested appearance and functioning.

3) Topography, including vegetation and other environmental characteristics.

4) Character of land and development surrounding the properties in question, including their development status and potential development.

e. Whether or not requiring a public street would have an appreciable benefit to the properties and/or the [municipality] in terms of access and traffic circulation.

f. The economic impact of permitting the waiver compared to requiring a public street.

B. Non-residential Private Streets. Private streets may be permitted by the [municipal governing body] to provide access to various non-residential developments or lots.
Section 417. Street Classifications.

Every street, road, or highway within the [municipality] shall be classified by its function, and shall be subject to the requirements for its classification as contained in this Article. These classifications are based on the Montgomery County Comprehensive Plan which incorporates standards established by the American Association of State Highway and Transportation Officials (AASHTO), and used by PADOT. Street classifications are intended to provide appropriate standards for each road, as well as to coordinate street functions and improvements among neighboring municipalities, the region, and the state. The classifications are as follows:

A. Expressways. The highway carrying the largest traffic volume is an expressway which is a multi-lane divided highway with fully controlled access provided only at grade separated interchanges. Expressways serve high volumes of traffic at high speeds while providing high levels of safety and efficiency. The typical posted speed is fifty-five (55) miles per hour.

B. Arterials. Arterial roads provide a high degree of mobility in order to better serve trips of longer length. Since access to abutting property is not their major function, access controls are desirable to enhance mobility. They are further classified as follows:

1. Principal Arterials. The design standards for principal arterials are contained in Figure 4.2. Principal arterials generally provide between two (2) and four (4) lanes of travel depending upon traffic volume and land use density. Urban Principal arterials may have wider travel lanes and should have parking lanes. Both urban and rural principal arterials generally have posted speeds of forty five (45) miles per hour depending upon local site conditions.

2. Minor Arterials. Minor Arterials interconnect with and augment Principal Arterials in serving major activity centers. They typically accommodate trips between three (3) and five (5) miles in length. They are spaced at intervals consistent with population density and carry vehicles within or between several municipalities of the county. The only difference between rural and urban design for minor arterials is the location of a parking lane on urban arterials. Lastly, they link other communities not connected by principal arterial and provide key connections between roads of higher classification. The design standards for minor arterials are included in Figure 4.2.

C. Collectors. Collector roads serve a dual function of providing a mix of accessibility and mobility. They typically serve trips of up to four (4) miles in length and channel or distribute traffic to or from a road of a higher classification. They are further sub classified as Major and Minor Collectors.
### Figure 4.2. Road Design Standards

<table>
<thead>
<tr>
<th>Functional Classification</th>
<th>Right of Way</th>
<th>Number of Lanes</th>
<th>Travel Lane Width</th>
<th>Left Turn Width</th>
<th>Paved Shoulder Width</th>
<th>Parking Lane Width</th>
<th>Bicycle Lane Width</th>
<th>Border Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ARTERIALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal Urban</td>
<td>80'-100'</td>
<td>4-6</td>
<td>12'-14'</td>
<td>11'-12'</td>
<td>8'-10'</td>
<td>8'-10'</td>
<td>5'-6'</td>
<td>5'</td>
</tr>
<tr>
<td>Rural</td>
<td>4-6</td>
<td>11'-12'</td>
<td>11'-12'</td>
<td>8'-10'</td>
<td>N/A</td>
<td></td>
<td>5'-6'</td>
<td>5'</td>
</tr>
<tr>
<td>Minor Urban</td>
<td>80'-100'</td>
<td>2-5</td>
<td>11'-14'</td>
<td>11'-12'</td>
<td>8'-10'</td>
<td>8'-10'</td>
<td>5'-6'</td>
<td>5'</td>
</tr>
<tr>
<td>Rural</td>
<td></td>
<td>2-3</td>
<td>11'-14'</td>
<td>11'-12'</td>
<td>4'-10'</td>
<td>N/A</td>
<td>5'-6'</td>
<td>5'</td>
</tr>
<tr>
<td><strong>COLLECTORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>60'-80'</td>
<td>2-3</td>
<td>11'-14'</td>
<td>10'-12'</td>
<td>6'-10'</td>
<td>8'-10'</td>
<td>5'-6'</td>
<td>4'</td>
</tr>
<tr>
<td>Rural Major</td>
<td>60'-80'</td>
<td>2</td>
<td>11'-13'</td>
<td>10'-12'</td>
<td>6'-10'</td>
<td>N/A</td>
<td>5'</td>
<td>N/A</td>
</tr>
<tr>
<td>Rural Minor</td>
<td>60'</td>
<td>2</td>
<td>10'-12'</td>
<td>N/A</td>
<td>2'-8'</td>
<td>N/A</td>
<td>5'</td>
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<tr>
<td><strong>LOCAL ROADS</strong></td>
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<td>[Total Cartway Width 26 to 30 Feet]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4'</td>
</tr>
<tr>
<td>Rural</td>
<td></td>
<td></td>
<td>[Total Cartway Width 20 to 30 Feet]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

1) **Right-of-Way**: The right-of-way may be adjusted to accommodate highly urbanized and laterally restricted areas as well as unrestricted areas.

2) **Number of Lanes**: The number of lanes vary in order to accommodate the traffic volume, turning movements, and land capacity demand for selected level of service. This number does not include right-turn lanes where needed.

3) **Range of Lane Width**: Lane width is based upon minimum and desirable standards as well as other conditions such as being adjacent to a curb or the anticipation of heavy truck traffic. When feasible, a 14 foot lane should be located next to a curb.

4) **Shoulder**: Shoulder width is based upon minimum and desirable standards as well as other conditions such as highly urbanized and laterally restricted areas, or the anticipation of heavy truck traffic. Wide shoulders may function as bike lanes.

5) **Parking Lane**: Parking lane width is based upon minimum and desirable standards as well as other conditions such as lot size, intensity of development, or potential for use as a traffic lane where required by future demand. For principal arterials, parking lanes are only recommended in highly developed areas.

6) **Bicycle Lane**: A portion of a roadway that has been designated by striping, signing, or pavement markings for the preferential or exclusive use of bicyclists. Width specifications must be in accordance with FHWA / AASHTO standards. Refer also to Chapter 4 of this plan, Bicycle Mobility. Wide shoulders may function as bike lanes.

7) **Border Area**: The presence of curbing, grass planter strips and sidewalks will depend upon adjacent land uses and site conditions. Otherwise, the border area would consist of a drain- age swale and slope.

8) **Sidewalks/Pathway**: Sidewalk width is based upon minimum desirable standards for use along each particular roadway. Under certain circumstances, the location, feasibility, and other site specific conditions may require deviations from these guidelines.

9) **Cartway Width**: For local roads, the total cartway width generally includes travel lanes, parking lanes, and/or shoulders.
1. Urban Collectors: These types of roads provide a combination of mobility and access with a priority on mobility. Ideally access is partially controlled with preference given to through traffic. Access is permitted with at grade intersections and major access driveways of selected land uses such as a retail or employment center. Few if any individual driveways should be permitted off of urban collections. Urban collectors may accommodate trips within and between neighboring municipalities and may serve as the major road through large industrial complexes or office parks or provide key connections between roads of higher classification. The typical posted speed is thirty-five (35) to forty (40) miles per hour. The design standards for urban collectors are in Figure 4.2.

2. Rural Collectors: Rural collectors provide a combination of access and mobility with more emphasis on access. They allow more access to abutting properties with little or no restriction. Individual driveway access is permitted. Generally rural collectors accommodate trips only within a small segment of a municipality. They are spaced at intervals to collect traffic from local roads and neighborhoods and channel it to urban collectors and arterials. Finally rural minor collectors may serve as a major road through a residential neighborhood. Rural minor collectors serve the same function as urban collectors, though due to their location, they handle smaller volumes of traffic and generally have smaller travel lanes and shoulders. The typical posted speed is twenty-five (25) to thirty-five (35) miles per hour. The design standards for minor collectors are in Figure 4.2.

D. Local Roads. Local roads and streets have relatively short trip lengths, generally not exceeding one mile. Because property access is their main function, there is little need for mobility and high operating speeds. This function is reflected by use of lower posted speed between twenty-five (25) and thirty five (35) miles per hour. Though traffic is discouraged from using local roads. Local roads can only provide a link between individual properties and the collector road network. Rural local roads can be more narrow due to the lower volumes of traffic expected on them. Local roads should be oriented on an east-west axis to maximize the potential solar access on adjoining lots.

1. Residential Streets. New streets or extensions of existing streets in residential developments function primarily to provide vehicular access and street frontage for each lot. The design standards for residential streets are in Figure 4.2. Parking on both sides will be assumed on residential streets unless no driveways take access on them or the development otherwise provides significant off street public parking which is convenient to all the proposed houses.

2. Non-residential Access Streets: These streets shall function primarily to provide vehicular access and street frontage for industrial, office, institutional, and com-
mercial lots and land uses. The standards for non-residential access streets are in Figure 4.2.

3. Alleys: Alleys are small service roads which provide a secondary access to lots and buildings. They should not be more than 800’ feet in length and should have a paved cartway of twelve (12’) feet with two foot clear stabilized grass or gravel shoulder area.

Section 418. Street Alignment.
Sight distance, horizontal, and vertical curvature, super-elevation, and maximum and minimum street grades shall be determined by the [municipality] Engineer in compliance with the standards contained in *A Policy on Geometric Design of Highways and Streets*, published by the American Association of State Highway Transportation Officials (AASHTO), most recent edition, or PADOT standards, whichever is more suitable to site conditions. In addition, the following standards and guidelines shall be complied with:

A. Minimum horizontal and vertical curvature for all local access streets shall conform with the standards in Figure 4.3.

B. Long radius, gentle curves shall be used rather than shorter radius curves connected by tangents particularly where truck traffic is anticipated.

C. Curve-tangent relationships shall follow accepted engineering guidelines for safety and efficiency. For example, minimum radius curves shall not be used at the ends of long tangents.

D. Street grades shall be measured along the centerline in accordance with the following:
   1. Minimum grade for all streets shall be one (1%) percent.
   2. Maximum grades for arterials and collectors shall be five (5%) percent and for residential streets shall be ten (10%) percent.
   3. Curve-grade combinations shall follow accepted engineering guidelines for safety and efficiency. For example, minimum-radius horizontal curves will not be permitted in combination with maximum grades.
   4. At all approaches to intersections, street grades shall not exceed four (4%) percent for a minimum distance of fifty (50’) feet from the intersection of curblines or the edges of cartways.

Section 419. Street Intersection Design.

Alleys can be important features in neo-traditional styles of development and may also be addressed in a Zoning Ordinance.
**Figure 4.3. Street Alignment and Intersection Standards**

<table>
<thead>
<tr>
<th>Functional Classification</th>
<th>Intersection Spacing</th>
<th>Clear site triangle</th>
<th>Corner Radius</th>
<th>Vertical Curve Length</th>
<th>Horizontal Curve Radius (centerline)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban</td>
<td>Rural</td>
<td>125</td>
<td>30</td>
<td>NA</td>
</tr>
<tr>
<td>Principal Arterial</td>
<td>400</td>
<td>800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>600</td>
<td>100</td>
<td>25</td>
<td>130/220/310</td>
</tr>
<tr>
<td>Minor Arterial</td>
<td>400</td>
<td>800</td>
<td>125</td>
<td>30</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>600</td>
<td>100</td>
<td>25</td>
<td>90/145/205</td>
</tr>
<tr>
<td>Major Collector</td>
<td>300</td>
<td>400</td>
<td>100</td>
<td>25</td>
<td>90/145/205</td>
</tr>
<tr>
<td>Minor Collector</td>
<td>300</td>
<td>400</td>
<td>100</td>
<td>25</td>
<td>90/145/205</td>
</tr>
<tr>
<td>Local Road - Residential</td>
<td>125</td>
<td>125</td>
<td>75</td>
<td>15</td>
<td>90/145/205</td>
</tr>
<tr>
<td>Urban Local- Nonresidential</td>
<td>125</td>
<td>125</td>
<td>75</td>
<td>75</td>
<td>90/145/205</td>
</tr>
</tbody>
</table>

Intersection spacing is the distance between the centerline of two streets intersecting a common road.

Clear site triangle measurement is taken from the intersection back along each road. The endpoints of each line are connected with a hypotenuse forming a triangle in which no vegetation can be planted that would interfere with site distance.

Radius of the corner is an arc connecting two intersecting street segments.

Crest refers to the arc length of road way at the top of the hill. The crest length expands when grades are steeper.

Sag refers to the arc length of road way at the low point in the road. The sag length expands when grades are steeper approaching it.

Horizontal curve radius is the minimum radius at the road center line used for all road turns except for intersections. Minimum curve radii for arterial streets is related to design speed, volume, and topographic conditions.

Based upon design speeds of 40 miles per hour for major collectors, and 35 miles per hour for minor collector and minor roads.
All street intersections shall be governed by the standards of this section and the appropriate PADOT or AASHTO Standards.

A. Number of Streets. Not more than two streets shall intersect at the same point.

B. Three-Way/Four-Way Intersections. Three-way or "T" intersections should be used instead of four-way intersections involving local streets intersecting arterial or collector streets unless the four-way intersection would promote necessary and desirable traffic movements or where traffic signals or four way stop signs are proposed.

C. Angle of Intersections.
   1. All intersection approaches shall be designed at ninety (90) degree angles for a minimum of fifty (50') feet from the edge of the cartway.
   2. Where angled intersections are used they should be no less than sixty-five (65°) degrees and designed so that the heavier traffic flow will make the obliquely angled turn rather than the acutely angled turn.

D. Improvements to Existing Intersections. When existing streets intersect at odd angles or have more than four approaches, the applicant shall improve the intersection, to bring it into compliance with this Ordinance, as required by the [municipal governing body], based upon advice of the [municipality] Engineer and Planning Commission and other technical advisors or agencies, as appropriate. For state and county highways, improvements shall comply with the requirements of the appropriate agency having jurisdiction over the road.

E. Radii of Pavement and Right-of-Way at Intersections. Street intersections shall be rounded with tangential arcs at pavement edge (curbline) and right-of-way lines as indicated in Figure 4.3.

F. All radii specified herein must be increased if large trucks, fire trucks, or other emergency vehicles would have difficulty with ingress or egress as determined by the [municipality] Fire Marshall.

G. Waiver of Improvements. The [municipal governing body] may waive the above requirements for improvements to intersections under one or more of the following conditions:
   1. When changes made on the applicant's land will not improve the intersections deficiencies.
   2. When other road improvements are already planned which would correct the problem without changes required of the applicant.
   3. When not required by PADOT where the intersections are under their jurisdiction.

Most traffic accidents occur within an intersection due to the number of potential traffic conflict points. In a three-way intersection there are six points of conflict; while in a four-way intersection there are 20. Due to the high number of conflict points at four-way intersections, they should be used sparingly unless signalized or controlled in some other manner.

Roads should meet other intersecting roads at 90 degree angles for the best visibility. Generally, a road should be perpendicular for at least 50 feet, or two and a half car lengths prior to an intersection. The roads entering the intersection should also be relatively flat.
H. Single-access Street Intersections.
   1. Single access streets shall be established beginning at a three-way intersection perpendicular to a through street.
   2. Four-way intersections may be created using two permanent single access streets intersecting directly opposite one another along a through street, when the through street is a local street.

I. All intersections shall provide clear sight distance in compliance with AASHTO and PADOT standards.

J. Street intersection spacing shall be in compliance with the regulations contained in this section, measured from centerline to centerline.
   1. The applicant shall prepare a Vehicular Access Analysis, for all street intersections proposed along Arterial and Collector streets.
   2. The spacings listed Figure 4.3 shall be considered minimum spacing. Where greater spacing is required in compliance with AASHTO or PADOT standards, the greater spacing distances shall be applied, as determined by the [municipality] Engineer.
   3. Offset Intersections. In any case where the centerlines of street intersections are, or would be, within 150’ feet of each other, they shall be made to coincide by relocating the street within the applicant’s land, unless additional problems of sight distance or other safety-related problems would be created. As an alternative, relocation further away from the offset intersection may be done in compliance with the Intersection Spacing requirements contained herein, when approved by the [municipal governing body].

Section 420. Single-access Street Standards.
Any street which is served by only one (1) intersection with a through-street shall be considered a single-access street, regardless of the street's configuration within the proposed subdivision or land development.
A. Single-access streets shall be classified as one of the following:
   1. Single-access loop streets.
   2. Cul-de-sac street.
   3. Stub streets.

B. Single-access loop streets shall be subject to the requirements for their street classification and the following additional requirements.
   1. Shall not serve more than 300 average daily trips.
The area within road rights-of-way may contain various elements depending upon the functional classification of the road and the surrounding land use. Sufficient space may be needed for sidewalks, planting areas, curbs, parking, bike lanes, travel lanes, and turning lanes. While the road design should provide for the dual objectives of safety and mobility, it is important to ensure that the overall road layout fits other community needs. Reducing paved areas can mitigate traffic speeds and lessen the amount of stormwater generated. Providing sufficient area between the road and sidewalk provides a suitable area for street trees and can also shield pedestrians along the sidewalk from motorists in the road. On-street parking areas, turning lanes, and bike lanes are options that may be needed in certain settings. Right of way should be sufficient to accommodate all of these potential uses.

### Roadway Design

#### Typical Minor Arterial Road

- **One Travel Lane with Designated Bike Lane**
- **One Travel Lane with Paved Large Shoulder**

Most of the arterial roadway is used to move traffic at higher speeds. The elements of the road vary depending upon traffic volume. As many as four travel lanes and one turning lane may be required. Additional elements include parking lanes, bike lanes, and paved shoulders.
Various options exist for collector roads. Urban collector roads will have curbs. Curbless roads may require a paved shoulder. Parking can be included on one or both sides. Bike lanes are optional. Sidewalks can range from 5 to 8 feet depending upon the surrounding land uses. Various green street amenities including bio-swales and rain gardens may also be incorporated into the roadway design.

Local roads generally have cartways between 26 and 30 feet, though less road width might be sufficient in lower density residential developments where on-street parking is not required. In low volume roads allowing parking on both sides for occasional events, the travel lane may be limited so that a vehicle might have to yield to another on coming vehicle. Where more traffic volume is anticipated on a local road, parking restrictions on one side of the street may be necessary. Sidewalks can vary in width from 4 to 8 feet wide. Five foot width for a sidewalk is adequate in residential settings. In commercial settings or high density residential settings, sidewalks greater than 5 feet wide may be necessary.
2. In addition to required sidewalks, shall be served by an appropriately located pedestrian access when required by the [municipal governing body] to connect surrounding neighborhoods and pedestrian destinations.

3. shall not exceed 2,000’ feet in length, measured from the intersection with the through street, along the entire centerline around to its intersection with itself.

C. Cul-de-Sac Streets.

1. Shall be permanently closed to vehicular traffic at one end.

2. Shall be identified by a standard warning sign stating “No Outlet” when deemed appropriate by the [municipal governing body] to help avoid mistaken turning movements.

3. Shall not be permitted when a through street is possible for the tract under consideration. All cul-de-sac streets must be approved by the [municipal governing body], with the [municipality] reserving the right to reject any and all cul-de-sac streets proposed. The following shall be used to determine the necessity of the cul-de-sac:
   1) Adverse topography such as steep slopes, floodplain, streams, etc.
   2) The shape of the tract does not lend itself to a through street.

4. Shall be a minimum 250’ feet but not exceed 800’ feet in length. Measurement of the length shall be made from the centerline of the abutting through road or point of intersection with another cul-de-sac to the centerline of the turnaround, measured along the cul-de-sac street’s centerline.

5. Shall be provided with a vehicular turnaround at the closed end with a right-of-way radius of at least fifty (50’) feet, and a paved radius of at least forty (40’) feet. Alternative vehicular turnaround designs are encouraged to improve traffic flow and overall design of the subdivision. If an off-set bulb turnaround is used, the bulb should be configured to the left of the approaching road center line. In addition, parking may be prohibited on the cul-de-sac by order of the Fire Marshall.

6. No more than five lots shall have frontage on the circular turnaround portion of a cul-de-sac street, and no more than five (5) driveways shall have access to the circular turnaround portion unless an expanded radius and island is incorporated into the turn around.

7. A permanent easement for snow removal may be required at cul-de-sac bulb. The easement shall have a minimum length along the right-of-way line of forty (40’) feet and a depth of fifteen (15’) feet. When curbing is required, a curb depression shall also be placed in this easement area. No shrubbery, fence, mail-
box, or any other obstruction shall be placed within the easement to hinder the placement of the snow.

8. Shall not extend from a single-access loop street.

9. Existing temporary cul-de-sac streets, stub streets, and rights-of-way located on adjacent parcels, whether improved or not, shall be used by the applicant to connect with their proposed roadway system. It shall be the responsibility of the applicant to complete all roadway improvements at their expense within the existing rights-of-way of adjacent parcels.

10. Shall be served by an appropriately located and constructed emergency access way when required by the [municipal governing body] using the following standards:
   a. Minimum cartway width shall be ten (10') feet.
   b. Pavement shall satisfy the standards of the [municipality] Engineer.
   c. Emergency access ways shall be maintained through properly recorded easements or deed restrictions which at a minimum prohibit the planting of any vegetation except grass within the access way.
   d. May be made available for pedestrian access.

11. Landscaped cul-de-sac islands are encouraged and shall conform to the following standards.
   a. Shall be located within the bulb of a cul-de-sac and be concave for use as part of the stormwater management infrastructure. Efforts should be made to retain the existing vegetation on the site within these islands.
   b. Shall have a maximum radius of twenty-four (24') feet and be surrounded by paving on all sides.
   c. Shall be designed to allow for emergency vehicle access into the cul-de-sac.
   d. In the event that right-of-way grading will not permit the retention of existing vegetation in a cul-de-sac, the landscaping proposed for the island shall be of low-maintenance varieties as approved by the [municipal governing body]. The landscaping plan shall specifically describe the maintenance required for any landscaping proposed on the landscape island.

D. Stub Streets or temporary cul-de-sacs

1. Shall be provided in appropriate locations for vehicular access to abutting undeveloped lands when required by the [municipal governing body], upon advice of the [municipality] Planning Commission and Engineer.
a. The length shall be designed in accordance with cul-de-sac street standards.
b. The width and other road improvements of temporary stub streets or temporary cul-de-sacs shall generally conform with the future functional classification of the roadway once it is fully connected.

2. Shall be provided with a vehicular turnaround that meets cul-de-sac standards.
3. Shall be constructed to the property line in accordance with the standards of this Ordinance applicable to the classification of streets it will be upon extension.

Section 421. Driveway Access

A. The term "driveway" as used here refers to every entrance or exit used by vehicular traffic to or from properties abutting a [municipality], county, or state road. The term includes proposed private streets, lanes, alleys, courts, and other ways.

B. Driveways with the following characteristics will be reviewed in the manner prescribed below:
   1. When any residential dwelling driveways will access an existing Arterial or Collector street.
   2. For all non-residential proposals which require a new driveway or upgrading of an existing driveway.
   3. For all proposals where driveways would generate twenty-five (25) or more vehicular trips per day, based on I.T.E. trip generation standards.

C. Following evaluation by the [municipality], the applicant may submit plans to the state, county, or [municipality] for formal review and, as appropriate, approval and issuance of permits.

D. No driveway location, classification, or design shall be considered finally approved by the [municipality] unless highway occupancy or access permits have been granted by the state, county, and/or [municipality] and Preliminary Plan approval has been granted by the [municipal governing body] for the subdivision and/or land development which the driveway(s) will serve.

E. Driveway intersections with streets:
   1. Shall provide adequate sight distance in compliance with the standards established by PADOT.
   2. Shall not cause or contribute to:
      a. hazards to the free movement of normal street traffic.
      
Ten vehicle trips per day is the average for a single family detached housing unit.
b. traffic congestion on the street.

c. interference with the design, maintenance, and/or drainage of the street.

3. Shall be designed and constructed in compliance with Title 67, Chapter 441 of the Pennsylvania Code unless [municipality] standards are more restrictive.

F. In order to facilitate safe and efficient access between streets and driveways, the number of driveways permitted to serve individual parcels of land shall be kept to the minimum needed to adequately serve the parcel in question. Shared access between adjoining lots should be considered first.

1. Properties with frontages of 100' feet or less may be permitted not more than one driveway intersection with a street. Exceptions may be made when adjacent property owners share parking, or when the need is determined in a traffic study prepared by a qualified traffic engineer.

2. Not more than two (2) driveway intersections with the same street may be permitted for any parcel of land unless anticipated traffic volumes warrant more than two (2), and then only when supported by a traffic study prepared by a qualified engineer warrants more than two driveway intersections.

G. Driveway intersections serving individual parcels of land may be prohibited by the [municipal governing body] where such intersections would create congestion, interference, and/or hazards to traffic flow and safety by reason of street grades, land forms, vegetation, frequency of driveway intersections, limited sight distances, and/or high speed traffic flow. In such cases, the [municipal governing body] may permit reasonable alternative forms of vehicular access to the parcel of land by means of:

1. Marginal access streets or driveways.

2. Reverse frontage lotting.

3. Other means which are legally and technically suitable in the opinions of the [municipality] Solicitor and Engineer.

H. Where driveway intersections are prohibited by the [municipal governing body] and alternative forms of vehicular access would cause an undue burden upon an applicant, the [municipal governing body] may permit an alternative interim access solution in compliance with the following:

1. It is the safest feasible alternative, acceptable to the [municipality] Engineer and/or PADOT.
2. Suitable provisions are made for a preferable permanent access solution, consistent with Section 421 G, including legal agreements to enable implementation of the permanent solution.

I. Distance from Street Intersections. Driveways shall be located as far from street intersections as is reasonably possible.

J. Choice of Streets. When a lot adjoins streets of different classes, the driveway shall provide access to the street of lesser classification unless this requirement is waived by the [municipal governing body] for reasons of sight distance, incompatibility of traffic, grading, drainage, or other major reasons.

K. Stopping Areas. Regardless of the driveway classification, all driveways shall be provided with a stopping area within which the grade shall not exceed six (6%) percent. The stopping area shall be measured as follows:

1. The length of stopping area shall be a minimum of twenty (20’) feet, or the length of the longest vehicles anticipated to use the driveway, whichever is greater.

2. Stopping areas shall be measured from the cartway line for all streets.

L. Maximum Grades for Driveways.

1. Residential driveways shall not exceed fifteen (15%) percent grade.

2. All other driveways shall not exceed ten (10%) percent grade.

M. Sight Distance Determinations. Determination of sight distances at intersections of new driveways and streets with existing [municipality] roads shall be in accordance with the following provisions.

1. Access driveways shall be located at a point within the property frontage limits which provides at least the minimum safe stopping sight distance (SSSD), as determined by the standards within PA Chapter 441 (Access to and Occupancy of Highways by Driveways and Local Roads) Title 67 of the Pennsylvania Code.

2. The calculated minimum SSSD shall be measured from a point ten (10’) feet back of the pavement edge and three and one half (3.5’) above the road surface.

3. If the minimum required SSSD’s cannot be achieved, the [municipality] may exercise one (1) or more of the following options:
   a. Prohibit left turns by exiting vehicles.
   b. Restrict turning movements to right turns in and out of a driveway.
   c. Require installation of a right turn acceleration lane or deceleration lane.

Section 508 (6) of the MPC describes requirements with respect to highway occupancy permits for lots with state road frontage.

As part of the Highway Occupancy Permit process for access to PennDot Roads, this analysis will be reviewed by PennDot personnel or contractors. The municipality may wish to be copied on relevant correspondence and permit issuance documents.
d. Require installation of a separate left turn standby lane.

e. Alter the horizontal or vertical geometry of the roadway.

f. Deny access to the road.

Section 422. Bridges and Culverts.

A. Bridges and culverts shall be designed to meet current AASHTO or PADOT Standards to support expected loads and to pass design stormwater flows. They shall be constructed to the full width of the planned cartway. Allowance for safe pedestrian crossing must also be made.

B. Where County owned roads or bridges are involved, the County Roads and Bridges Division must review and approve all proposals.

C. It is unlawful to construct any bridge, culvert, or other water obstruction, or to make any change in or addition to, any existing water obstruction, or in any manner change or diminish the course, current, or cross-section of any stream or body of water, without first having made written application to and obtained a permit or consent in writing from PADEP.

D. The following information is required when a bridge is to be constructed:

1. Drawings to include:
   a. location plan;
   b. cross-section of present bridge if one exists;
   c. profile of stream for a reasonable distance above and below bridge site, showing slopes of bed, normal water surface and flood water surface.

2. the total drainage area above the bridge site;

3. description of watershed;

4. length of stream from source to bridge site and to the mouth;

5. character of stream bed and banks;

6. extent and depth of overflow during floods;

7. effect of previous floods upon bridges, their span and clearance;

8. whether bridge will be within backwater influence of the stream.

E. A complete set of structural computations and drawings shall be submitted with plans involving construction of bridges and culverts.

Like roads, bridges and culverts are also dedicated to municipalities and become future maintenance responsibilities. As such they should be designed to meet the needs of the municipality.
Section 423. Parking and Related Internal Driveways.

Parking and related internal driveways shall be governed by the following regulations.

A. General.

1. The specific purposes to be served by these requirements are:
   a. To add visual character and improve the appearance of parking areas by reducing their massiveness into smaller units.
   b. To integrate parking areas into the pedestrian circulation system.
   c. To provide shade for parked cars and reduce heat islands, stormwater run-off, and air pollution.
   d. To reduce random vehicular flow across parking areas.
   e. To permit a high level of visibility for those uses for which visibility is an important factor.
   f. To facilitate snow removal and storm drainage, and to conserve energy in construction and resurfacing operations, by laying out the paving surface with minimal obstructions.

2. The terms "parking lot," "parking area," and "parking" are interchangeable. "Parking" includes the driveway which provides direct access to the parking spaces.

3. Off-street parking facilities shall be provided in compliance with the parking requirements of the [municipality] Zoning Ordinance and the regulations contained herein.

4. Parallel parking shall be used along roads where needed. Angled parking may be permitted along public or private streets or within parking lots, when it is specifically designed to address potential safety issues associated with vehicles using the parking. Perpendicular parking shall not be permitted along public or private streets though angled parking may be used in select locations.

5. Stormwater storage/infiltration facilities, such as vegetated swales, infiltration galleries, or seepage beds beneath parking areas should be used. These facilities avoid the generally negative visual impacts of surface detention or retention facilities, and enhance groundwater recharge, with the attendant positive effects on stream flows and quality.

B. All Parking Lots.

A parking lot design has to address more than vehicle parking. It is important to also ensure safe pedestrian access in parking lots to the associated buildings, simple and safe maneuvering to the parking spaces, and screening and landscaping in the lot to provide shade and visual interest.
1. Parking shall not be permitted along driveways which serve as the entrance(s) or exit(s) to parking areas with a capacity of fifty (50) vehicles or more. A minimum driveway length of fifty (50') feet shall be provided between the road ultimate right-of-way line and the first parking space or internal driveway intersection in parking lots with fifty (50) vehicles or more.

2. Parking areas shall be set back from tract boundary lines and ultimate right-of-way lines in compliance with the requirements of the Zoning Ordinance. In any case not regulated by the [municipality] Zoning Ordinance, parking areas shall not be located closer than fifteen (15') feet from any tract boundary line unless it is along a street.

3. Where the edge of an existing parking area is located close to a street, driveway, or other parking area and the property is proposed for subdivision and/or land development, a minimum separation of ten (10') feet shall be provided between these features unless a shared parking or cross access arrangement is proposed. This spacing shall consist of a landscaped area with planting in conformance with Section 433.5, herein.

4. Dead-end parking areas shall not be used when the required parking capacity can be accommodated in a layout that permits more convenient vehicular movements. However, extraneous through-traffic flow should be avoided.
   a. Up to thirty (30) parking spaces may also be located in a dead-ended parking area if there is no more desirable alternative feasible, and sufficient back-up areas are provided for the end stalls.
   b. More than thirty (30) parking spaces may be located in a dead-ended parking area only if a turnaround area is provided at the closed end, suitable for passenger car turning. The turnaround area may be circular, "T" or "Y" shaped, or other configuration acceptable to the [municipal governing body].

5. Parking spaces designed for the exclusive use by disabled persons shall be installed in all parking lots as close and convenient to building entrances as is reasonable. The specific number and locations of handicapped stalls shall be in conformance with the Americans with Disabilities Act (ADA).

6. Provisions for pedestrian safety within a parking lot shall be required by providing sidewalks, delineated crosswalks, traffic calming devices, and other measures.

7. Innovative stormwater management controls such as rain gardens and porous pavement shall be used in parking lot design.

8. Planting islands shall be constructed within all parking lots with more than twelve (12) spaces based on the following standards:
a. One planting island shall be provided for every fifteen (15) parking stalls. There shall be no more than fifteen (15) continuous parking stalls in a row without a planting island.

b. Alternative planting islands (without planting islands located every fifteen parking stalls) must provide one (1) canopy tree for every ten (10) parking stalls in planting island areas and perimeter parking planting areas at the discretion of the [municipal governing body].

c. The ends of all parking rows shall be divided from driving lanes by planting islands.

d. Planting islands shall be a minimum of nine (9') feet by eighteen (18') feet in area. Unless designed to function as part of the stormwater management system, planting islands shall be underlain by soil mounded up to six (6") inches minimum above the paved parking or drive area and shall be protected by curbs or wheel stops.

9. Parking lots with more than fifteen (15) stalls shall require planting strips around the entire perimeter of the parking lot except where buildings, driveways, and walkways are located.

10. Unless otherwise described in this ordinance, where required, all planting strips shall be a minimum of fifteen (15') feet wide and run the length of the parking row. Unless designed to function as part of the stormwater management system, planting strips shall be underlain by soil mounded up to six (6") inches above the paved parking or drive area and shall be protected by curbs, wheel stops, or bollards.

C. Parking Area Dimensions.

1. Parallel parking stalls shall have minimum dimensions of nine (9') feet width by twenty-two (22') feet length.

2. Perpendicular parking stalls shall have minimum dimensions of (9') feet width by eighteen (18') feet length with a twenty-two (22') feet aisle.

3. At the discretion of the [municipal governing body] the minimum length of parking stalls may be reduced by one (1') foot if stalls are designed to allow vehicles to overhang an area of grass or other pervious surface. Bumper stops shall be provided which allow the parked vehicle to extend at least one (1') foot over the edge of the pavement.

4. Where parking stalls abut sidewalks, parked vehicles shall not overhang the sidewalks unless the sidewalk is widened by two (2') feet. Wheel stops are required in order to allow for full pedestrian use of the sidewalks.

The critical dimensions in a parking lot are the width and length of stalls, the width of aisles, the angle of parking, and the radius of turns. All of these dimensions are related to the vehicle dimensions and performance characteristics. In recent years there have been a number of changes in vehicle dimensions. The popularity of minivans and sport utility vehicles has had an impact on the design of parking facilities. For the near future, a wide mix of vehicle sizes should be anticipated.
5. Parking spaces for physically disabled persons shall be thirteen (13') feet wide and equal in depth to the spaces abutting them in accordance with standards developed under the Americans with Disabilities Act (ADA).

6. Long-Term Parking Areas. In parking lots which service the parking needs of commuters or employees and have limited turnover of vehicles or where vehicles are stored such as auto dealers, parking stalls may have minimum dimension of eight and one-half (8 1/2') feet width by seventeen (17') feet length with a twenty-two (22') feet aisle. The [municipal governing body] may allow a twenty (20') feet aisle under one of the following conditions.
   a. The parking area will be used by smaller vehicles;
   b. The parking area lot serves less than twenty (20) vehicles;
   c. The parking aisles intersect driveways on both sides;
   d. The parking lot serves as vehicle storage or valet parking; or
   e. Elevated or underground parking is used.

7. Short-Term Parking Areas. In parking lots that service retail areas with high turnover or where shoppers are loading merchandise into vehicles, stalls shall have a minimum dimension of ten (10') feet width by twenty (20') feet length with a twenty-two (22') foot aisle.

8. Angled parking shall have the same width dimensions as 90 degree parking and the following depth and aisle dimensions:
   a. For 75° (degree) parking— the length measured at right angles to the edge of parking shall be nineteen and one-half (19½) feet with an aisle dimension of twenty (20') feet.
   b. For 60° (degree) parking— the length measured at right angles to the edge of parking shall be nineteen (19') feet with an aisle dimension of fourteen (14') feet.
   c. For 45° (degree) parking— the length measured at right angles to the edge of parking shall be seventeen (17') feet with an aisle dimension of eleven (11') feet.

D. Residential Parking Lots.
   1. Parallel rows of parking spaces, which are not separated by a driveway, shall be separated by a planting strip.
2. A single row of parking spaces located parallel to and between two driveways, shall be separated from one of the driveways by a planting strip, a minimum of eight (8') feet wide.

3. Large parking lots shall be divided into smaller parking areas of no more than forty (40) stalls by planting strips.

4. No less than twenty (20') feet of open area shall be provided between the curb line of any parking area and the outside wall of the dwelling unit.

E. Non-Residential Parking Lots.

1. Parking lots with a capacity of from fifty (50) to one hundred (100) cars shall require a planting strip around the perimeter and one planting island for every ten spaces within the perimeter of the lot. Parking lots for more than one hundred (100) cars shall be divided into sections no greater than one hundred (100) stalls each by planting strips.

   a. These planting strips shall be located parallel to the rows of parking, to serve the following purposes:

      1) To separate main access (entrance-exit) driveways from rows of parking spaces.

      2) To separate other major driveways (service drives, general internal circulation) from rows of parking spaces.

      3) To separate large parking areas into smaller units at intervals of not more than four (4) rows of parking stalls.

   b. For parking areas with an ultimate capacity greater than four hundred (400) cars, the requirements may be modified by the [municipal governing body] to provide separation into units at intervals of six (6) rows of parking stalls, with each unit capacity no greater than one hundred (100) cars.

   c. The applicant may request the [municipality] to permit an alternative design which achieves the purposes of these parking area requirements as well or better than the requirements herein. The final decision to permit an alternative design shall be made by the [municipal governing body], with the advice of the [Municipality] Planning Commission and Engineer.

2. Shared Access. When required by the [municipal governing body] upon recommendation of the [Municipality] Planning Commission, applicants shall create agreements for shared vehicular access as the preferred means of reducing the total number of curb cuts for traffic safety and congestion reasons. Non-residential lots shall provide cross-access easements for parking areas and driveways guaranteeing access to adjacent lots. Interconnections shall be logi-
cally placed and easily identifiable to ensure convenient traffic flow in accordance with Section 421.

a. Non-residential lots shall provide cross-access easements for parking areas and driveways guaranteeing access to adjacent lots. Interconnections shall be logically placed and easily identifiable to ensure convenient traffic flow.

b. When two (2) or more abutting lots share an access driveway, the driveway should be designed as the main access to those lots, and one or more existing access driveways should then be closed.

c. Where development of three or more adjoining parcels consolidates vehicular access into one shared driveway, that driveway may be upgraded into a medium volume driveway according to PADOT standards.

d. Shared access may be located entirely on one lot or be split among a common lot line.

e. Access easement and maintenance agreements or other suitable legal mechanisms shall be provided, in a form acceptable to the [municipal governing body] in consultation with the [Municipality] Solicitor.

f. Liability safeguards for all property owners and lessees served by the shared access shall be guaranteed to the satisfaction of the [municipal governing body] in consultation with the [municipal] Solicitor.

F. Driveways Within Sites Proposed for Non-residential Development. The following requirements apply to all driveways within all sites proposed for non-residential land development.

1. A smooth transition shall be provided between the driveway section required for access to a public street and other driveway(s) required for internal site circulation.

2. Main access driveways (entrance-exit) and service driveways handling large trucks shall be a minimum paved width of thirty (30') feet, with one lane in each direction, unless otherwise required by PADOT standards governing the volume of traffic anticipated.

3. Access driveways for cars and other small vehicles which are clearly secondary in importance may be reduced to twenty (20') feet in paved width, unless otherwise required by PADOT standards governing the volume of traffic anticipated.

4. Interior storefront driveways in shopping centers shall be a minimum paved width of twenty-eight (28') feet, to allow one lane in each direction and a drop-off/pick-up lane along the sidewalks.
5. Driveways along other non-residential buildings shall be a minimum paved width of twenty-two (22’) feet, except where a drop-off/pick-up lane is proposed.

6. Parking Aisles shall be a minimum twenty-two (22’) feet wide with two-way traffic flow for convenience and efficiency except where one way traffic is used to access angled or parallel parking.

7. Wherever feasible, internal circulation driveways shall extend from access drives in locations which permit and encourage entering traffic to turn and enter the parking aisles without first travelling along a building-front driveway. This feature is intended to reduce the volume of vehicular traffic along building-front driveways to make it safer for pedestrian traffic.

Section 424. Curbing.
Curbing shall be installed along all existing and proposed public and private streets, common driveways, and common parking areas.
A. When utilizing an approved stormwater management technique, the [municipal governing body] may waive curbing requirements in full or partially. Grass swales and infiltration trenches along streets are encouraged in appropriate locations in the [municipality] provided that pedestrian safety and traffic circulation is addressed.
B. [municipality] may waive the installation of sections of curbing when adjoining sections of the road do not have curbing and in the opinion of the engineer it would be better to install the curbing at the same time that curbing is installed along the adjoining sections of the roadway. In these cases, payments shall be required to fund the installation of the curbing at a future time when other sections of curbing along the roadway are installed.
C. Handicap accessible curb cuts that meet the requirements of the American Disabilities Act shall be installed at all Intersections where sidewalks are provided or proposed.

Section 425. Sidewalks and Border Areas.
Sidewalks shall be installed along all existing and proposed public and private streets, common driveways, and common parking areas.
A. General.
1. The [municipal governing body] may waive the sidewalk requirements if an alternative pedestrian circulation system can be shown to be more desirable, especially when using open space areas, provided that appropriate connections are provided between the open space walkways and the surrounding pedestrian

Curbs help direct stormwater and protect the edge of roadways from damage.

Oftentimes waivers are provided for curbs and sidewalks. Though there may be good reasons to consider waivers for either or both in settings where adjoining land has not been developed or will not likely be developed in the near future, the municipality should consult with their engineer and comprehensive plan first. When waivers are made, fees in lieu of the improvements can be collected to fund sidewalk or curb installation in the future.
 origins and destinations or when it is determined that sidewalks are only necessary on one side of the street.

2. [municipality] may waive the installation of sections of sidewalks when adjoining sections of the road do not have sidewalks and in the opinion of the engineer it would be better to install the sidewalks at the same time sidewalks are installed in adjoining sections of the road. In these cases, payments shall be required to fund the installation of the sidewalks at a future time when other sections of sidewalks along the roadway are installed.

3. Installation of sidewalks, subject to approval by the [municipal governing body] upon recommendation of the Municipal Engineer and Solicitor, in accordance with Section 605 of this Ordinance.

B. Design and Layout

1. Sidewalks and border areas shall be provided in appropriate locations to provide safe and efficient pedestrian access between parking areas, buildings, and other pedestrian destinations.

2. Sidewalk and border areas widths are to follow the guidelines set forth in Figure 4.2.

3. The border area shall exist between the curb line or edge of cartway and the sidewalk.
   a. Border areas between a sidewalk and the curb may contain street lights, trees, benches, trash cans, mailboxes, or newspaper boxes. No obstacle in the border area may reduce the required sidewalk width for use by pedestrians.
   b. Border areas shall be maintained as a grass strip between the sidewalk and the curb. If grass is impractical at the site, brick pavers or similar surface material may be used at the discretion of the [municipal governing body] upon the recommendation of the [municipality] Planning Commission and Engineer. In this case, a wider sidewalk may be necessary in place of a border area to create a safer pedestrian environment. Border areas can also be used for stormwater management structures such as rain gardens.
   c. Border areas shall be at least three (3') feet wide.

Sidewalks have several functions. They provide pedestrian access and circulation, they are public meeting and congregational spaces in front of a property, and they can be used by children as a common play area. In determining where to require sidewalks, all three purposes should be considered. It is particularly important for a municipality to look into the future to project how sidewalks may be needed at a particular location. This could be addressed in a special municipal wide study or in the comprehensive plan. As a rule of thumb, residential development built at 1 dwelling unit per acre or less should include sidewalks.
4. The [municipal governing body] may require additional sidewalk width in areas where higher volumes of pedestrian traffic are anticipated. In no case shall sidewalk width be less than four (4') feet.

Section 426. Crosswalks.
A. Crosswalks shall be clearly delineated at all intersections and marked to the width of the largest contributing sidewalk or trail. In no case shall crosswalk width be less than five (5') feet.

B. Crosswalks and their transition to adjacent sidewalks or trails shall be designed to facilitate access and use by persons that are physically disabled, in compliance with the American with Disabilities Act.

C. Where a crosswalk is located at an arterial or collector street, the [municipal governing body] may require one or more of the following measures as described in the Pennsylvania Traffic Calming Handbook based upon the recommendation of the [municipality] Planning Commission and Engineer.

1. Textured Crosswalks - Crosswalk patterns, materials, and colors shall be consistent with surrounding crosswalks based on the theme established in the municipality and recommended to the [municipal governing body] by the [municipality] Planning Commission and Engineer.

2. Pedestrian signalization shall be provided at intersections where traffic signals exist.

3. Curb extensions, bulb-outs, raised medians, raised crosswalks, and other pedestrian safety methods shall be considered and, where determined to be appropriate by the [municipal governing body], constructed.

4. Raised speed table crosswalks.

Section 427. Trails and Pathways.
A. When a subdivision or land development includes an existing or a proposed trail with public access customarily used by pedestrians, bicyclists, and/or equestrians as delineated in the municipality’s adopted open space or recreation plans, the applicant shall make provision for the continued recreational use of the trail subject to alterations of the course of the trail within the boundaries of the development under the following conditions:

1. The points at which the trail enters and exits the tract shall remain unchanged.

2. The proposed alteration will not diminish the trail design and function.

*Trails and pathways can serve commuters as well as recreational users. Since the users cover a wide age span and may use the trail or pathway system in a variety of ways, design should focus on making them both simple and safe to use.*
3. Where an existing trail runs coincidentally with the paved road intended for use by motorized vehicles, landscaping and other physical structures shall be used to increase the separation between the trail and the road.

B. Trail widths shall be as follows
   1. Multi-use trails shall be twelve (12') feet wide with a cleared area of five (5') feet in width on either side.
   2. A pathway for walking or bicycling shall be a minimum of six (6') feet wide with a cleared area of two (2') feet on either side.

C. The [municipal governing body] may require, as a condition of Final Plan approval, the guarantee of public access and improvement of trails when the site is traversed by or abuts an existing trail or a trail proposed in an adopted open space or trail plan of the county, municipality, or adjacent municipality.

D. When existing developed parcels adjacent to a proposed subdivision or land development allow for dedicated public access through a defined area for the purpose of connecting to a county or municipal trail, this connection should be continued through a dedicated public access way to serve the proposed development.

E. When a subdivision or land development lies adjacent to a park, school, or other pedestrian destination, pedestrian connections should be made to that destination.

F. All trails and pathways shall be constructed before occupancy of residences and other buildings adjoining the trail.

G. When trails are intended for public use, they shall be protected by a permanent access easement on the properties on which they are located. The width of the protected area in which the trail is located shall be a minimum of twenty (20') feet. The language of the easement shall be to the satisfaction of the [municipal governing body] upon recommendation of the [municipality] Solicitor.

H. Any of the methods cited under Section 406 concerning open space ownership may be used either individually or in combination, to own and perpetually preserve trail easements provided in fulfillment of this Article.

I. Trails and pathways shall have adequate access for use by all residents of the development or, preferably, the general public.

J. Trails shall be landscaped in accordance with the specifications described in Section 434. Landscaping shall help delineate the route of the trail and screen surrounding properties from trail users.

Trails should be designed to follow the natural terrain to the extent practical. Where possible, grades should be maintained below 5%. Steeper grades may be used to minimize the areas of disturbance and grading. When designing steep trail segments, the following guidelines are appropriate:

- 8%-10%-Max. segment length 300 feet
- 10%-12.5%-Max segment length 100 feet
- More than 12.5% -Max seg. length 50 feet.
- In steeply sloped areas, warning signs should be provided.
K. The land area permanently designated for trails for public use may be credited toward any open space requirement as described in the Zoning Ordinance.

L. No trail shall be designed with the intent to accommodate motorized vehicles except for emergency or maintenance access.

**Section 428. Bicycle Routes and Bicycle Lanes.**

A. Bicycle lanes shall be located on a new or upgraded streets classified as an Arterial or a Major Collector.

B. Bicycle lanes shall be marked with appropriate striping, reflectors, and signage in accordance with Federal Highway Administration guidelines.

C. Bicycle lanes shall be a minimum five (5') feet in width.

D. Where the roadway narrows, signage and pavement markings shall be added to warn drivers and bicyclists to help them avoid bicycle-automobile conflicts.

E. Drainage improvements shall be made where necessary to eliminate puddles and sediment deposit on the section of the road used by bicyclists.

F. Proposed bicycle lanes shall meet the PennDot requirements.

**Section 429. Water Supply.**

A. Applicants shall provide a safe, reliable, and adequate water supply from public water service to support the intended uses approved as part of a development plan. When water is to be provided by means other than private wells owned and maintained by the individual owners of lots within a subdivision or land development, applicants shall present evidence to the [municipal governing body] that the subdivision or land development is to be supplied by the [Municipality] Authority or other suitable water supplier. A copy of a Certificate of Public Convenience from the Pennsylvania Public Utility Commission or an application for such certificate, a cooperative agreement, or a commitment or agreement to serve the area in question, whichever is appropriate, shall be acceptable evidence.

B. When individual private water supply wells are proposed, the applicant shall provide evidence that adequate potable water supplies are reasonably available for each lot. This can be performed in the following ways:

1. Performance of a groundwater study in accordance with Section 803;
2. Drilling and testing water supply wells for each lot; or
3. Providing suitable documentation based upon local geology and adjoining wells demonstrating availability of potable water in the vicinity of the proposed lots.

Under Section 503.1 of the Pennsylvania Municipalities Planning Code, a municipal subdivision and land development ordinance must contain requirements to assure the adequacy of public water service if individual wells are not proposed. The language in this section is taken directly from the MPC.
C. Fire hydrants shall be located at accessible points throughout the subdivision and land development and shall be located according to the [municipality] Engineer in consultation with the [municipality] Fire Marshall. As a general rule, hydrants should be located at each street intersection and at intermediate points as recommended by the [municipal] fire marshall. Generally hydrant spacing may range from 350’ to 600’ feet depending upon the area being serviced. The type and methods of construction to be employed in the installation of fire hydrants shall be in accordance with current State and local regulations.

D. Public Water Supply Facilities Design. The design for public water supply facilities shall be in accordance with PADEP Water Supply Manual, the specifications of the utility providing water service, or Article Six–Construction and Engineering Standards.

Section 430. Wastewater Disposal.
A. All lots created through subdivision or all proposed land developments must have a suitable method for the management of wastewater.

1. The applicant shall demonstrate suitable management of wastewater for each lot of a subdivision or land development through one of the following ways:

   a. If the site falls within the sewage facilities growth area established in the [municipality] Act 537 Sewage Facilities Plan, the following options should be pursued in the order listed:

      1) Where suitable collection system infrastructure and treatment facilities are reasonably available with adequate capacity, the applicant shall connect the proposed lots or land development to the collection system and treatment plant after complying fully with any permit or fee requirements established by the owner of the collection and treatment facility.

      2) Where suitable collection system infrastructure and treatment facilities are not reasonably available with adequate capacity to allow the applicant to connect the proposed lots or land development, the applicant may petition the owner of the collection system and treatment facility to extend the system or rectify the inadequacies of the treatment facility to enable future connection.

      3) Where connections cannot be made to the system by the applicant or through an expansion of the system by its owner, the applicant may install capped sewers in accordance with the specifications for public sewers in this ordinance which shall extend from each lot or building into a system that will terminate at the property boundary in a manner in which future connection to public sewers can be made at some point in the future.

Sewage facilities planning is based upon the requirements of Act 537 the Pennsylvania Sewage Facilities Act. Sewage facilities plan amendments are generally required for each development.
Each lot of the land development would have to be serviced with suitable on-lot disposal systems or a community system approved by the Montgomery County Health Department or DEP until such time as the capped sewers are connected. In limited situations, holding tanks may be used in accordance with [municipality] and Pennsylvania laws.

b. If the site does not fall within the sewage facilities growth area established in the [municipality] Act 537 Sewage Facilities Plan, the following options should be pursued:

1) The applicant may request a revision to the [municipality] Sewage Facilities Plan to add the site to the sewer growth area. If the revision is not made, the applicant should pursue the on-lot disposal options.

2) The applicant shall evaluate the feasibility of on-lot disposal options in the following order:
   i) Community spray irrigation.
   ii) Individual lot spray irrigation.
   iii) On-lot subsurface disposal.
   iv) Community subsurface disposal.
   v) Alternative or experimental community or on-lot disposal.
   vi) Community system stream discharge disposal.
   vii) Individual lot stream discharge disposal.

2. Sewage Facilities Plan Revision. Planning approval shall be obtained for the selected option from the DEP or Montgomery County Health Department.

3. Sewage Facilities Plan Revision Exceptions include:
   a. Minor subdivisions where no additional lots are created including lot line adjustments, simple conveyances, and mortgage subdivisions. The impact of existing wastewater facilities shall be considered in the placement of new lot lines in these types of subdivisions.
   b. Non-building lots provided a properly executed Request for Planning Waiver and Non-building declaration has been submitted to and approved by DEP. Where the waiver is approved by DEP, the Final Plan and the deed for the lot shall contain the following notation:

   As of the date of this deed/plot plan recording, the property/subdivision described herein is and shall be dedicated to the express
purposes of ____________ use. No portion (or lot number(s) ________________) of this property are approved by ______________________ [municipality] or the Department of Environmental Protection (DEP) for the installation, construction, connection, to or use of any sewage treatment facility. No permit will be issued for the installation, construction, connection to, or use of any sewage collection, conveyance, treatment, or disposal system (except for repairs of existing systems) unless the municipality and DEP have both approved sewage facilities planning for the property/subdivision described herein in accordance with the Pennsylvania Sewage Facilities Act (35 P.S. Sections 750.1 et seq.) and regulations promulgated thereunder. Prior to signing, executing, implementing, or recording any sales contract or subdivision plan, any purchaser or subdivider or any portion of this property should contact the appropriate officials of [municipality] who are charged with administering the Sewage Facilities Act to determine the form of sewage facilities planning required and the procedure and requirements for obtaining appropriate permits or approvals.

B. Sewage Facilities Design. The design and installation of domestic sewage facilities shall be done in accordance with the Pennsylvania Domestic Wastewater Facilities Manual prepared by PADEP and Article Six-Construction and Engineering Standards.

C. Existing on-lot sewage disposal systems that will remain in use shall be inspected and certified as to their satisfactory functioning, in accord with the Municipal Sewage Facilities Plan, Montgomery County Health Department, and DEP standards. Malfunctioning systems shall be repaired or replaced with systems designed and constructed to current standards

Section 431. Solid Waste Management.
All lots and land developments must contain proper facilities for the management of solid waste including recycling in accordance with the following:
A. Residential developments with single family homes may manage solid waste through a curbside collection service.

B. Developments without regular curbside collection shall have solid waste collection containers within enclosures. Enclosures should be made of durable material in accordance with Article Six—Construction and Engineering Standards.
C. Solid Waste Storage Facilities shall be located in the following manner:
   1. convenient to portions of the development where solid waste is generated.
   2. setback from adjoining property and adjoining structures in accordance with the Zoning Ordinance.
   3. Accessible for trash collection trucks.
   4. Solid Waste storage may be placed near building service entrances or loading docks, but may not be placed in any area used for parking or loading requirements.
   5. In apartment or condominium complexes with centralized waste storage, containers should be located in an area which is convenient to each grouping of ten (10) to fifteen (15) units or be located in a large enclosed facility at the entrance to the development.
   6. During the servicing of these containers (up to 5 minutes) it is important that internal circulation at the site is not impeded.

D. Operations. Trash storage containers should be serviced at least once a week. Recycling containers may be serviced at a less frequent interval. If a dumpster contains food it should be serviced every three days. A storage container should have tight fitting lids, secured at all times, and be leak free. It should also be cleaned out at least two (2) times a year.

Section 432. Stormwater Management and Drainage.

A. The stormwater management system should be designed in accordance with the [municipality] stormwater management ordinance and the Pennsylvania Stormwater Best Management Practices Manual.

B. Existing natural stormwater drainage systems should be preserved and incorporated into the overall site stormwater management system.

C. New stormwater conveyance and control devices should be designed to be compatible with natural site conditions.

D. When subdivisions or land developments are submitted to the [municipality] Engineer for approval in sections, a complete storm sewer design for the entire proposed subdivision and land development shall be submitted.

E. If only a section of a subdivision or land development is contemplated for construction, the applicant’s engineer shall show how storm water from each section will be managed to protect adjacent properties. If temporary construction is required, the engineer shall include such structures in the plan submitted.
F. Minimum grades inside stormwater basins and conveyance structures shall be two (2%) percent and maximum side slopes of any stormwater device should be 33% percent (3:1 slope).

G. Appropriate stormwater controls, best management practices, and conveyance facilities should be dispersed throughout the site and generally located close to the sources of stormwater release such as downspouts, culverts, and parking lots.

H. Prior to the granting of final approval of any subdivision or land development plan, the [municipality] must be satisfied through contractual arrangements that all stormwater facilities will be properly maintained. If all, or a portion, of the facilities will be on property which will be conveyed to an individual homeowners association or any other eventual owner, the guarantees must be in such a form that they will carry through to the new owners.

I. If the land of the proposed subdivision or development will be conveyed to two or more separate owners, the applicant shall provide written assurance and deed restrictions to the [municipality] that the stormwater management structures will be properly maintained by the owners or if acceptable to the [municipality], be dedicated to the [municipality], which shall then be responsible for maintaining the stormwater management structures.

J. Easements and Dedication. Where storm water or surface water will be gathered within the subdivision or land development and discharged or drained in volume over lands within or beyond the boundaries of the subdivision or land development, the applicant shall reserve or obtain easements over all lands affected. The easements shall be adequate for such discharge or drainage and for carrying off of such water and for the maintenance, repair, and reconstruction of the same, including the right of passage over, including vehicles, machinery, and other equipment for such purposes, and which shall be of sufficient width for such passage and work. The applicant shall offer the dedication, at no cost to the [municipality], drainage easements to the [municipality] at the completion and stabilization of all improvements. If drainage easements are not accepted for dedication by the [municipality] they shall be maintained by the owner of the property that uses them.

K. Storm Drainage Directed Into an Adjacent Municipality. When storm drainage will be directed into an adjacent municipality, all provisions for accommodating such storm drainage shall be submitted to the governing body of that municipality for review.

L. Discharge of Roof Runoff. Stormwater runoff from roofs shall not be discharged into the street right-of-way without approval by the [municipality] upon review by the [Municipality] Engineer, nor concentrated onto adjacent properties. It shall be returned to sheet flow or discharged into a structure adequately designed and approved by the [municipality].
M. Properties shall be graded to secure proper drainage away from buildings and to allow the collection of stormwater in catch basins. Minimum two (2%) percent slopes away from structures shall be required.

N. Drainage from Non-Natural Sources. Water originating from on site machinery or filtration systems, such as air conditioning units, sump pumps, or other dry weather flow, wherever practicable, shall be discharged into natural watercourses on the property. The discharge of water from these sources into the street is prohibited.

O. Storm Sewers

1. Existing Storm Sewer Accessibility. Where existing storm sewers are reasonably accessible and of adequate capacity, subdivisions and land developments shall connect to the existing storm sewers.

2. All storm sewer pipes shall have a minimum diameter of fifteen (15") inches.

3. Drainage Easements. Drainage easements shall be provided to accommodate all storm drainage requirements and shall be a minimum of thirty (30') feet in width. Storm sewers, as required, shall be placed in the road right-of-way, parallel to the roadway and shall be designed as a combination storm sewer and underdrain if necessary. When located in undedicated land, they shall be placed within an easement not less than twenty (20’) feet wide, as approved by the [municipality] Engineer.

4. Drainage Facilities Design Requirements. All drainage facilities shall be designed to adequately handle surface runoff and carry it to suitable outlets and shall be designed in accordance with the following minimum design standards.

   a. All storm drains and drainage facilities such as gutters, catch basins, bridges, inlets, and culverts shall be installed and the land graded for adequate drainage as shown on the grading plan submitted and approved with the Final Plan. Construction of these facilities shall generally conform with PADOT Specifications Publication 408, latest version. Storm drains and appurtenances shall be required to be constructed by the applicant to take surface water from the bottom of vertical grades to lead water away from springs, and to avoid use of cross gutters at street intersections and elsewhere.

   b. The existing points of natural drainage discharge onto adjacent property shall not be altered without the written approval of the affected landowners.

   c. No storm water run-off or natural drainage shall be so diverted as to overload existing drainage systems, or create flooding or the need for additional drainage structures on the other private properties or public lands. In cases where additional stormwater flows will overload adjacent structures, the ap-
d. Manholes. Manholes shall be constructed at all changes in horizontal or vertical alignment and otherwise required in Section 609.

e. Location within [municipality] Rights-of-Way. Storm sewer lines within street rights-of-way shall be placed at locations acceptable to the [municipality]. They shall be protected by a cover of at least eighteen (18") inches.

f. Location within State Rights-of-Way. Drainage structures that are to be located within state rights-of-way shall be approved by PADOT, and a letter from the Department indicating such approval shall be submitted to the [municipality].

Section 433. Street Trees

A. Street trees shall be required along:

1. All existing streets when they abut or lie within the proposed subdivision or land development except where existing trees serve to meet the planting requirement.

2. All proposed streets.

3. Access driveways that serve five (5) or more residential dwelling units.

4. Access driveways that serve two (2) or more nonresidential properties.

5. Major walkways through parking lots and between nonresidential buildings, as recommended by the [municipal governing body].

B. The street tree requirement may be waived by the governing body to maintain scenic views of open space, farmland, hedgerows, natural features, or other valued features.

C. Street trees shall be located between the ultimate right-of-way line and the building setback line and shall meet the following standards:

1. Trees shall be planted a minimum distance of five (5') feet and a maximum distance of fifteen (15') feet outside the ultimate right-of-way line. However, in certain cases, as follows, the governing body may permit trees to be planted within the ultimate right-of-way:

   a. In areas, such as existing villages, where planting areas may be located within the ultimate right-of-way.

   b. In cases where closely spaced rows of street trees may be desirable and future street widening is considered unlikely.
c. Where there are existing trees along the road, new trees should supplement them.

3. In nonresidential developments, trees shall be located within a planting area within the front yard setback, at least ten (10') feet in width, planted in grass or groundcover. In areas where wider sidewalks are desirable, or space is limited, tree-planting pits may be used.

4. Trees shall be located so as not to interfere with the installation and maintenance of sidewalks and utilities. Trees shall be planted such that their trunks are a minimum distance of three (3') feet from curbs and sidewalks, twelve (12') feet from overhead utilities, and six (6') feet from underground utilities.

5. Tree species shall be selected based on appropriate growth rates and mature heights for use adjacent to overhead utility lines.

6. Trees shall be planted at a rate of at least one tree per forty (40') feet of street frontage or fraction thereof. Trees shall be distributed along the entire frontage of the property, although they need not be evenly spaced.

7. Trees shall comply with the requirements of Section 438, herein. The use of tree species selected from the List of Recommended Plant Materials is encouraged/required.

**Section 434. Buffer Plantings.**

Use Requirements. Buffer plantings shall be installed in subdivisions and land developments to integrate new development with its surroundings, to separate incompatible land uses by providing screening, to reduce wind, and to minimize or eliminate views to certain site elements in compliance with the following regulations:

A. Buffer plantings shall be required for the following types of development and as otherwise specified in the [municipality] Zoning Ordinance:

1. All nonresidential development.
2. All single family detached development.
3. All multi-family, single-family attached, and semi-attached development.
4. All cluster development.
5. All mobile home parks.
6. Active recreational facilities
7. Construction of any of the following items which exceeds 400 square feet in ground coverage:

The species selected for buffer plantings should provide adequate screening over the life cycle of the tree. Avoid planting only species such as white pine that grows rapidly and becomes very large with little vegetation growing in the area of sight lines. It is particularly important to incorporate earthen berms in buffer areas. When earthen berms are used, trees should not be planted on them.
a. public utility facilities or structures,
b. waste collection, storage and/or treatment facilities
c. any other structure of similar character or impact.

B. An on-site investigation by the applicant shall determine the adjacent land uses along each property boundary. In the case of vacant land, the existing zoning shall be used. The existing or zoned uses shall be noted on the plan. In the case when several uses are allowed on a site, the most restrictive landscaping requirements shall apply as determined by the [municipality].

C. Buffer Area Location and Dimensions
a. A buffer planting area of not less than fifteen (15') feet in width shall be established along all property lines and external street boundaries of the tract proposed for subdivision or land development, unless otherwise specified in the zoning ordinance. Where zoning regulations allow building setbacks less than fifteen (15') feet, the buffer area may be reduced to equal the width of the minimum building setback.
b. The buffer area may be included within the front, side, or rear yard setback.
c. The buffer area shall be a continuous pervious planting area consisting of canopy trees, small understory trees, and shrubs, with grass or groundcover. No paving shall be permitted within the buffer areas except for driveway crossing and/or walkways.
d. Parking is not permitted in the buffer area.
e. Stormwater basins are permitted in the buffer area provided that the visual screening requirements of the buffer is met.

D. Minimum Buffer Planting Requirements. The minimum planting requirements shall be determined by the intensity of the proposed land use and the adjacent land use, vacant land, or zoning district.

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<th>Proposed Use</th>
<th>Office/ Institutional</th>
<th>Commercial/ Industrial</th>
<th>Multi-family/ SFA/ MHP</th>
<th>Twins/ Duplexes/ SFDs</th>
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<td>Office/ Institutional</td>
<td>Softening</td>
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<td>Commercial/ Industrial</td>
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In more developed communities, a narrow planting strip may be used. Also, no vegetative buffers, walls or fences may be more appropriate.
E. Minimum Plant Material Requirements. The following requirements are minimum standards; additional plant material, grading treatments, or architectural elements may be included in the plan, at the applicant’s discretion. Every 100’ linear feet of property line or external street boundaries of the tract proposed for subdivision or land development shall be buffered with the following minimum quantities, types, and sizes of plant material:

Softening Buffer:  
1 canopy tree (2-2 1/2” min. caliper)  
2 understory trees (1 1/2” min. caliper)  
2 evergreen trees (8’ min. ht.)

Filtering Buffer:  
2 canopy tree (2-2 1/2” min. caliper)  
2 understory trees (1 1/2” min. caliper)  
5 evergreen trees (8’ min. ht.)  
5 shrubs (24” min. ht.)

Screening Buffer:  
8 evergreen trees (8’ min. ht.)  
2 understory trees (1 1/2” min. caliper)  
2 canopy trees (2-2 1/2” min. caliper)  
10 shrubs (24” min. ht.)  
-or-  
30 upright evergreen shrubs (4’ min. ht.)  
-or-  
15 upright evergreen shrubs (4’ min. ht.)  
4 ornamental trees (1 1/2” min. caliper) or  
3 canopy trees (2-2 1/2” min. caliper)  
-or-  
an alternative planting design that will result in at least an equivalent degree of visual screening to one of the above screening buffers.

Limited Area/Buffer**:  
1 upright evergreen shrub per three (3’) feet (4’ min. ht.)  
-or-  
4-6 foot solid fence or wall

*A screening buffer must be adequate to visually screen the proposed land use or development from off-site view. Several different planting options could be used to create an effective buffer. Grading treatments and architectural fea-
tures, such as walls, fences and/or naturally undulating berms may be required in addition to the minimum planting quantities in order to effectively provide a visual screen.

**The limited area buffer can be used in older developed areas where space for planting is severely restricted. The planting screen would be equivalent to an evergreen hedge planting. Alternative planting arrangements, such as shade or flowering trees with deciduous shrubs, could be considered in conjunction with a fence or wall, at the discretion of municipality.**

F. Mitigation of Visual Impacts.

1. The use of a screening buffer planting shall be required to mitigate the adverse visual impacts that the proposed land uses or site elements have on the subject tract, adjoining properties and the community in general. In addition to the requirements for buffer plantings as listed in figure , the following proposed land uses and site elements shall be screened from off-site with a screening buffer planting:
   a. Dumpsters, trash disposal, recycling areas, and mechanical equipment.
   b. Service and loading docks.
   c. Outdoor storage areas.
   d. Sewage treatment plants and pump stations.

2. Existing topographic conditions, such as embankments or berms, in conjunction with existing vegetation, may be substituted for part or all of the required buffers at the discretion of the governing body. The minimum visual effect shall be equal to or exceed that of the required buffer or screen.

3. Constructed berms or other architectural elements such as walls or fencing may be substituted for part of the landscape buffering requirements.

Section 435. Parking Lot Landscaping

Parking lots should be effectively landscaped with trees and shrubs to reduce the visual impact of glare from headlights, and parking lot lights; to delineate driving lanes; and define rows of parking. Furthermore, parking lots should be adequately landscaped to provide shade in order to reduce the amount of reflected heat and to improve the aesthetics of parking lots.

A. Planting Regulations. All parking lots shall be landscaped according to the following regulations:
1. Parking Stall Rows
   a. One planting island shall be provided for every fifteen parking stalls. There shall be no more than fifteen contiguous parking stalls in a row without a planting island.
   
   b. As an alternative to the previous planting island requirement (planting islands located every fifteen contiguous parking spaces) the applicant may provide one canopy tree for every ten parking spaces in other planting island areas and in perimeter parking planting areas at the discretion of the governing body.

2. The ends of all parking rows shall be divided from drives by planting islands.

3. In residential developments, large parking lots shall be divided by planting strips into smaller parking areas of no more than forty (40) stalls.

4. In nonresidential developments, large parking lots shall be divided by planting strips into smaller parking areas of no more than one-hundred (100) stalls.

5. Planting islands shall be the dimensions of one parking stall or a nine (9') feet by eighteen (18') feet area whichever is greater, underlain by soil and shall be protected from vehicle traffic with curbing, wheel stops, or bollards. Each planting island shall contain one shade tree plus low-growing shrubs and/or groundcover over the entire area.

6. All planting strips shall be a minimum of fifteen (15') feet wide. Strips shall run the length of the parking row, underlain by soil, and shall be protected with curbs, wheel stops, or bollards. Planting strips shall contain plantings of one canopy tree every twenty-five (25') feet, plus shrubs and/or groundcover to cover the entire area at maturity.

7. The placement of light standards shall be coordinated with the landscape plan to avoid a conflict with the effectiveness of light fixtures.

8. Plant materials shall comply with the requirements of Section 617, herein and shall be selected from the List of Recommended Plant Material.

C. Screening Requirement. All parking lots shall be screened from public roads and from adjacent properties according to the following:

1. The perimeter of all parking lots shall be planted with a filtering buffer as per Section 434.
2. The perimeter planting area around all parking lots shall be a minimum of ten (10') feet in width.

**Section 436. Additional Plantings.**

A. All proposed non-residential structures shall incorporate the following minimum plant materials in the landscaping areas adjacent to the proposed structure:

1. One canopy tree (2-2 1/2” minimum caliper) or two understory trees (8’ minimum height) shall be planted for every fifty (50') feet of proposed building façade facing a public street.

2. Five (5) deciduous or evergreen shrubs (18” minimum height) shall be planted for every twenty (20') feet of proposed building façade facing a public street.

3. Planting areas shall be a minimum of 150 square feet with a minimum 10-foot width.

4. A minimum of twenty-five (25%) percent of the area between the building façade and the property frontage shall consist of pervious planting areas.

B. All proposed residential lots shall plant at least one canopy tree per 10,000 square foot, or a portion thereof, of lot area. Existing trees to remain may satisfy part or all of this planting requirement.

C. A canopy tree shall be planted for every two dwelling units of an attached residential house.

D. At the discretion of the governing body, if sufficient planting space is not available immediately adjacent to the proposed structure, required building façade plantings may be located on the other areas of the tract.

**Section 437. Stormwater Basin and Natural Areas Planting.**

Landscaping shall be required in and around all stormwater management basins and natural areas according to the following:

A. All areas of stormwater management 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.

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

2. 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 and meet the following requirements:
   a. The plantings provide a satisfactory continuous cover for all areas of the basin.
   b. The plantings do not interfere with the safe and efficient function of the basin as determined by the [municipality] Engineer.

3. Lawn grass areas may be sodded or hydro-seeded to minimize erosion during the establishment period. Once established, these turfgrass areas shall be maintained at a height of not more than six (6”) inches.

4. Stormwater basins shall be screened from adjacent properties using the buffer plantings standards according to Section 434.

B. Additional vegetation shall be planted in natural resource protection areas including riparian corridors wherever existing trees do not meet the minimum tree planting requirements.

1. Existing trees within natural resource areas shall be preserved and retained. Existing tree cover should be surveyed and inventoried to assess the need for any new plantings. Existing tree species included on the noxious/invasive plant species list, Appendix B, should be removed where conditions warrant.

2. Planting Requirements.
   a. New trees shall be planted at a minimum rate of fifteen (15’) feet on center or one tree per 225 square feet in staggered rows or an equivalent informal arrangement within the riparian area.
   b. New trees shall be a variety of sizes ranging from a minimum four (4’) to five (5’) foot branched whip to an approximate one and a half inch (1 ½”) balled and burlapped planting stock.
   c. New tree plantings shall be composed of native riparian tree species.
   d. Tree plantings in riparian areas shall be located along the streambank to provide shade for the stream, soil erosion control and stormwater benefits, according to accepted stream bank restoration practices.
   e. Trees planted in natural areas inventory sites should conform to the man-
Section 438. General Landscape Design Criteria.
A. Plantings shall be placed in arrangements and locations to best mitigate the adverse impacts of the proposed site development. The required plant material shall be distributed over the entire length and width of any required buffer area.

B. Plantings shall be spaced to comply with the visual mitigation requirements with consideration given to the provision for the future growth habits and mature sizes of selected plant species.

C. Plant species selection shall be based on the following considerations:
   1. Existing site conditions and their suitability for the selected plants based on the site's soils, hydrology and microclimate.
   2. Specific functional objectives of the plantings which may include but not be limited to visual screening, noise abatement, energy conservation, wildlife habitat, erosion control, stormwater management, and aesthetic value.
   3. Maintenance and replacement considerations such as hardiness, resistance to insects and disease, longevity, availability, and cost of plant materials.
   4. A minimum variety of tree species is required as follows:

<table>
<thead>
<tr>
<th>NUMBER OF TREES</th>
<th>MINIMUM NUMBER OF TREE SPECIES</th>
<th>MAXIMUM % OF ANY ONE SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td>6-15</td>
<td>2</td>
<td>50%</td>
</tr>
<tr>
<td>16-30</td>
<td>3</td>
<td>40%</td>
</tr>
<tr>
<td>31-50</td>
<td>4</td>
<td>30%</td>
</tr>
<tr>
<td>51+</td>
<td>6</td>
<td>20%</td>
</tr>
</tbody>
</table>

A. Existing healthy trees, shrubs, or woodlands may be substituted for part or all of the required plant material at the discretion of the municipal governing body. The minimum quantities and/or visual effect of the existing vegetation shall be equal to or exceed that of the required buffer. In order for existing vegetation to qualify for required buffer plantings, proof must be provided to demonstrate that adequate protection measures, particularly in the plant's root zone, are incorporated into the plan.

B. Plant materials shall meet the specifications of Section 617.
ARTICLE FIVE
MOBILE HOME PARK STANDARDS

Section 500. General Applicability
A. Individual Mobile Homes. Individual mobile homes or manufactured housing, as defined in Section 201, may be erected on any lot where the use is permitted in compliance with the [municipality] Zoning Ordinance, all sections of this Ordinance which apply to subdivisions and development of single-family detached dwellings, and applicable local or federal building codes.

B. Mobile Home Parks. The provisions of this Article shall be followed in the construction or alteration of all mobile home parks, as defined in Section 201. These provisions are in addition to other applicable regulations of this Ordinance. Compliance with the [municipality] Zoning Ordinance is also required.

Section 501. Site Design
The following site design standards shall apply to mobile home parks:
A. Arrangement of Structures and Facilities. The tract, including mobile home stands, patios, other dwellings and structures, and all tract improvements, shall be organized in relation to topography, the shape of the property, and common facilities. Special attention shall be given to new mobile home designs and to common appurtenances that are available.

B. Adaptation to Property Assets. Each mobile home unit or other dwelling or structure shall be fitted to the terrain with a minimum disturbance of the land and a minimum elevation difference between the floor level of the unit and the ground elevation under it. Existing trees and shrubs, rock formations, streams, floodplains, steep slopes, and other natural features of the property shall be preserved to the maximum extent practical.

C. Courts and Spaces. Groups or clusters of units shall be placed to create interior spaces and courtyards.

D. Orientation. Mobile homes shall be arranged in a variety of orientations so that many units face the street with their long sides rather than their ends, in order to provide variety and interest.

E. Street Layout. Street patterns should relate to the topography.

F. Roadways.

Commentary
Section 501 of the Municipalities Planning Code requires each municipality with a SALDO to establish provisions regulating mobile home parks within a separate and distinct article. This may have been done because of the unique nature of the mobile home or manufactured home—its small size, consistent dimensions and the types of residents who occupy these units. Throughout this section, mobile home is the term used, though, manufactured home is the term used to describe complete housing units built off site under federal standards enacted in 1976. These types of units should not be confused with modular housing which is assembled on site under local building codes from pre-manufactured elements.
1. Standards. All municipal standards for the construction of streets contained in this Ordinance shall be adhered to for all public streets in and abutting a mobile home park. In those parks where streets are to be maintained by the mobile home park owner or owned and maintained in common by the residents/owners of the individual lots, the following standards shall apply:

a. Right-of-Way. There shall be an equivalent right-of-way (as defined under street rights-of-way in Section 201) reserved along streets which are designed to function as major or minor collector streets, and which connect exterior roadways, form major internal loops, traverse the majority of the development, or provide access to adjoining parcels of land. No equivalent rights-of-way are required on other streets. On those streets where an equivalent right-of-way is required, parallel parking may be permitted, but perpendicular or angled parking is not permitted.

b. Pavement. Pavement or cartway width of all residential streets serving as access to mobile home lots shall be not less than twenty-six (26’) feet. Pavement may be reduced to no be less than twenty (20’) feet on a street serving as access to not greater than ten (10) mobile home lots where parking is prohibited along the road and off-street visitor parking is provided in common areas within at least 300 feet of all dwelling units. One off-street parking space is required for each three (3) mobile homes.

c. Grades. Gradients on all residential streets shall not exceed ten (10%) percent.

d. Cul-de-Sac Streets. A paved turnaround area with a minimum radius of forty (40) feet shall be provided at the closed end of any cul-de-sac street serving as a sole access to four (4) or more mobile home lots. No permanently-closed cul-de-sac street shall exceed six-hundred (600) feet in length or serve as the only access to more than twenty (20) mobile home lots.

2. Access Limitations. Mobile home lots may have direct access only onto streets internal to the development. Direct access from a mobile home lot shall not be permitted onto the streets surrounding the mobile home park.

3. Conversions. Any road built as a private road, and later proposed for conversion to a public road, shall be brought up to the applicable standards for public streets prior to being dedicated as a public way, unless this requirement is waived by the [municipal governing body] subsequent to determining that compliance with the requirement would have a negative effect on the mobile home park.

G. Pedestrian Circulation.
1. General Requirements. All mobile home parks shall provide safe, convenient, all-season pedestrian walkways of adequate width for intended use, durable, and convenient by connecting individual mobile homes, other mobile home park features, all community facilities provided for the residents, and offsite facilities, such as schools, bus stops, commercial centers, etc. These pedestrian walkways may parallel vehicular roadways, where they shall be required on one side, or they may form a separate but coordinated system away from streets. Walkways must be provided wherever pedestrian traffic is concentrated and where school children congregate, but may be waived elsewhere if the applicant successfully demonstrates a lack of need.

2. Common Walk System. Where a common walk system is provided and maintained between locations, such common walks shall have a minimum width of four (4) feet. Where these walks parallel roadways they shall be separated from the road pavement by a distance of at least four (4) feet.

3. Individual Walks. Walkways from all dwellings shall be connected to common walkways, or to streets, or to driveways or parking spaces connecting to a paved street. Such individual walks shall have a minimum width of two (2') feet.

H. Parking

1. Spaces Required. Two (2) paved off-street parking spaces shall be provided for each dwelling on the same lot. Parking for any commercial or other non-residential use shall follow the requirements otherwise applicable for such uses.

2. Common Parking Areas. All common parking areas shall conform with the dimensional requirements in Section 423.

Section 502. Common Open Space

In addition to any requirements of the [municipality] Zoning Ordinance, the following regulations shall also apply:

A. Open Space System

1. Arrangement. The common space shall be designed as a contiguous area unless the applicant demonstrates to the satisfaction of the [municipal governing body] that two or more separate areas would be preferable. The open space shall also have easily identifiable pedestrian and visual accessibility for all residents of the mobile home park, although all units do not have to abut the common open space.

2. Recreation. Recreation areas and facilities shall be provided to meet the anticipated needs of the residents of the mobile home park. Not less than twenty-five (25%) percent of the required open space area exclusive of lands within the
required buffers, shall be devoted to recreation use. Recreation areas should be of a size, shape, and topography that is conducive to active and passive recreation, in compliance with applicable zoning requirements.

B. Buffers

1. General Requirements. A permanent buffer shall be provided along all exterior property boundary lines.

2. Existing Buffers. In cases where the property line of a mobile home park occurs along natural features which function as buffers, including but not limited to mature vegetation, significant grade changes or stream valleys which are likely to be permanently preserved, buffering may be waived along that property line with approval of the [municipal governing body] based upon recommendation of the [municipality] Planning Commission.

3. Buffer Landscape Plan. A landscaping plan shall be submitted in accordance with the provisions of Section 434 of this Ordinance.

Section 503. Common Elements

A. Ownership. Common open space and roadways shall be offered for dedication to the [municipality] or open for public use through easements or other appropriate means in any mobile home park where all lots will be sold, or where the [municipal governing body] determines those areas to be key elements in the open space and/or circulation systems of the [municipality]. In all other cases, these and other common elements may be retained in private ownership, or may be owned jointly by the residents of the development.

B. Maintenance. Prior to development plan approval, provisions acceptable to the [municipal governing body] and [municipality] Solicitor for the maintenance of all common elements which will not be owned and maintained by a governmental agency shall be established.

C. Service Building. The structure or structures containing the management office and other common facilities shall be conveniently located for the use intended.

Section 504. Utilities

A. Water Supply

1. General Requirements. An adequate water supply for domestic, auxiliary, and fire fighting uses shall be provided throughout the mobile home park, including service buildings and accessory facilities, in accordance with the [municipality] Zoning Ordinance.
2. Water Distribution System. All water piping, fixtures, and other equipment shall be constructed and maintained in accordance with state and local regulations as well as those of the servicing utility.

3. Individual Water-Riser Pipes and Connection.
   a. Individual water-riser pipes shall be located within the confined areas of the mobile home stand at a point where the water connection will approximate a vertical position, thereby insuring the shortest water connection possible and decreasing susceptibility to water pipe freezing.
   b. The water-riser pipe shall have a minimum inside diameter consistent with the standards of the servicing public utility, or in lack thereof, of the [municipality] Engineer, and terminate at least four (4”) inches above the ground surface. The water outlet shall be provided with a cap when a mobile home does not occupy the lot.
   c. Adequate provisions shall be made to prevent freezing of service lines, valves, and riser pipes and to protect risers from heaving and thawing actions of ground during freezing weather. Surface drainage shall be diverted from the location of the riser pipe.

4. Fire Protection. All mobile home parks shall be provided with fire hydrants to meet the specifications of the National Fire Protection Association. In addition, those hydrants shall be in sufficient numbers to be within six-hundred (600) feet of all existing and proposed mobile homes and other dwellings and structures, measured by way of accessible streets or common areas.

B. Sewage Disposal

1. General Requirements. An adequate and safe sewerage system shall be provided throughout the mobile home park for conveying and disposing of sewage from dwellings, service buildings, and accessory facilities in accordance with the state requirements.

2. Sewer System. All sewer lines shall be located in trenches of sufficient depth to be free of breakage from traffic or other movements and shall be separated from the water supply system. The system shall be constructed and maintained in accordance with all state regulations, as well as those of the servicing utility.

3. Individual Connections.
   a. Each mobile home shall be have a sewer riser pipe consistent with the standards or the servicing utility or [municipality] Plumbing Code. The sewer riser pipe shall be located on each stand to connect vertically with the mo-
b. The connection shall have an insider diameter and slope as required by the servicing utility or [municipality] Plumbing Code. All joints shall be water-tight.

c. All material used for sewer connections shall be semi-rigid, corrosive resistant, nonabsorbent, and durable. The inner surface shall be smooth.

d. Provision shall be made for plugging the sewer riser pipe when a mobile home does not occupy the lot. Surface drainage shall be diverted away from the riser. The rim of the riser pipe shall extend at least half inch above ground elevation.

C. Underground Utilities. All electric, natural gas, telephone, cable television and any other utility lines shall be placed underground in all mobile home parks and each shall have the necessary shut-off valves and other safety requirements normally associated with safe operations. All utility connections shall be appropriately capped for safety purposes whenever a mobile home stand is not occupied.

Section 505. Permits, Licenses, Fees and Inspections

A. Permits Required

1. Lots for Sale. In those mobile home parks wherein some or all of the mobile home lots will be sold individually (whether totally fee simple, fee simple with a homeowners association, condominium, or cooperative), no lot to be conveyed shall be developed or a mobile home or other structure placed or constructed thereon until the subdivision and/or land development plan has been properly approved and the proper building and construction permits have been issued to the lot in accordance with standard procedures for any building activity in the [municipality]. No mobile home or other structure shall be occupied until a valid occupancy permit has been issued by the [municipality].

2. Lots for Lease. In those mobile home parks wherein some or all of the mobile home lots will be leased, the following regulations shall apply to the entire development exclusive of the lots being sold individually:

a. Initial Permits. It shall be unlawful for any person or group to construct, alter, extend, or operate a mobile home park unless and until that person or group obtain:

1) valid permit(s) authorizing construction or initial occupancy issued by the [municipality] Code Enforcement Officer in the name of the operator. All permits for water supply and sewage systems shall have been obtained.

2) compliance with all other requirements contained herein.

The mobile home structure is permitted under appropriate state and federal statute. The local municipality should be responsible for appropriate utility connections to it and the overall foundation or pad that it sits on.
3) final approval of the application by the [municipal governing body].

b. Annual Licenses. In addition to the initial permits, the operator of a mobile home park with lots for lease shall apply to the [municipal Code Enforcement Officer] on or before the first day of each year for an annual license to continue operation of the mobile home park. The [Code Enforcement Officer] shall issue the annual license upon satisfactory proof that the mobile home park continues to meet the standards prescribed by the state agencies having jurisdiction and the standards of this Article and other applicable ordinances. The license so issued shall be valid for one year from the date of issuance.

B. Fees

1. Fees for the initial application and preliminary and final approvals of any mobile home park shall be set by the [municipal governing body].

2. The fee for the annual license required for mobile home parks having lots for lease shall be prescribed by regulations of the [municipal governing body] and shall be submitted to the [Code Enforcement Officer] with the application for the annual license.

C. Inspection

1. Upon notification to the licensee, manager or person in charge of a mobile home park with lots for lease, the [municipality] Code Enforcement Officer may inspect a mobile home park after due notice to determine compliance with this Article.

2. Upon receipt of the application for annual license and before issuing such annual license, the [municipality] Code Enforcement Officer shall make an inspection of the mobile home park to determine compliance with this Article and other applicable ordinances. The [municipality] Code Enforcement Officer shall there-after notify the licensee of any instances of non-compliance and shall not issue the annual license until the licensee has corrected all such violations.

D. Mobile Home Inspections. The applicant or developer shall inform the [municipality] when mobile homes are connected to water supply, sewer, and electrical service to schedule inspection of these connections and to determine that the mobile home is anchored and located in accordance with this Ordinance. The [municipal employee] will not inspect the mobile home unit but shall determine if it bears a label indicating that it complies with the appropriate federal safety standards promulgated by the US Department of Housing and Urban Development and Pennsylvania regulations issued under the “Manufactured Housing Construction and Safety Act.”


Section 506. Additional Requirements

A. Mobile Home Stands. A concrete mobile home pad shall be properly graded, placed, and compacted so as to be durable and adequate for the support of the maximum anticipated loads during all seasons.

B. Anchoring. Every mobile home placed within a mobile home park shall be anchored to the mobile home stand where it is located prior to the unit being occupied or used in any other way, or the expiration of seven (7) days from the date that it was delivered to the site, whichever occurs first. The anchoring system shall be designed to resist a minimum wind velocity of 90 miles per hour.

C. Stability. All mobile homes placed within a mobile home park shall, prior to occupancy or other use, be affixed to their mobile home stands in such a way so as to prevent tilting of the unit. No mobile home shall permanently rest on the wheels used to transport the unit.

D. Skirts. All mobile homes placed within a mobile home park shall, prior to occupancy or other use, have skirts installed for protection of the utility connections.

E. Hitch. The hitch or tow bar attached to a mobile home for transport purposes shall be removed and remain removed from the mobile home when it is placed on its mobile home stand.
ARTICLE SIX
ENGINEERING AND CONSTRUCTION
STANDARDS

Section 600. Purpose and Contents
This Article contains the construction and engineering standards for required improvements, utilities, grading and erosion control, survey detail, stormwater drainage, paving, curbing, pathways and sidewalks, emergency access, bridges, signage and markings, lighting, solid waste storage, street names, and easements.

Section 601. Asphalt Roadway Improvements
A. All adjacent structures and areas disturbed or damaged during construction shall be properly repaired, restored, or replaced to the satisfaction of the [municipality] by the party causing the damage.

B. All trees, roots, stumps, brush, down timber, wood, rubbish and any objectionable material shall be removed from the full legal right-of-way, or as approved by the [municipality] engineer. Efforts shall be made during construction of roadways to preserve any vegetation, specifically for preservation as identified in the landscaping plan.

C. Paving. The pavement of all streets and all commercial, industrial, and multifamily parking areas and driveways into and out of parking areas shall be installed as shown on the Final Plan and in accordance with the following standards:

1. General. All paving shall be constructed both as to materials and methods, generally in conformance with applicable portions of PADOT Specifications Publication 408.

2. Pavement Design. Pavement construction shall conform to the minimum standards for different types of streets and parking areas as indicated in Figure 6-1.

3. Paving Cross-Section. All pavements, except where super elevated for curves, shall conform with typical roadway cross sections on Figure 6-2.

4. Alternative Paving. Alternative paving specifications may be approved for roads, driveways, and parking lots not intended for dedication to the [municipality], in commercial, industrial, rural, multifamily and mobile home park areas.

5. Aggregates, coarse and fine, for binder coarse shall be made from stone, gravel, or other recycled aggregate or glass, and shall meet the quality requirements for Type A stone and Type A gravel. Fine aggregate shall be natural sand, manufactured sand or fine recycled glass cullet composed of free hard,
durable, uncoated particles and free of from lumps of clay and organic material. Fine sand shall meet the gradation requirements in Table A, Section 703, Penn DOT Publication 408, latest revision. The coarse aggregates shall meet the grading requirements indicated above.

D. Pavement Cross Slopes. The typical pavement cross slope on proposed streets shall not be less than one fourth (1/4") inch per foot and not more than one half (1/2")-inch per foot. The typical slope of the shoulder areas shall not be less than three fourth (3/4")-inch per foot and not more than one (1")-inch per foot.

Section 602. Concrete Sidewalk Improvements
Concrete sidewalks shall be constructed as follows:
A. Sidewalk construction shall conform with standards developed under the Americans with Disabilities Act
B. Sidewalks shall be four (4") inches thick and made with four-thousand (4,000) psi compression strength concrete, placed upon a minimum four (4") inch layer of AASHTO #57 stone bedding.
C. The sidewalk shall be built as to discharge drainage to the street, the grade of which shall be one-fourth \((1/4")\) inch per foot. The finished grade between the outside of the sidewalk to the curb line (edge of the cartway) shall never exceed a total vertical elevation change of one \((1")\) foot.

D. Expansion joints shall be placed every thirty \((30')\) feet, with contraction joints every five \((5')\) feet at a minimum of one \((1")\) inch in depth. Additional expansion materials shall be placed between any curb and driveway apron and in the sidewalk at driveway limits. A contraction joint shall be cut between the sidewalk and apron.

E. All sidewalks shall receive a broom finish unless otherwise approved by the [municipality].

F. An access ramp for physically disabled persons shall be placed at all sidewalk intersections with roads.

Section 604 Crosswalk Improvements
A. Marked crosswalks shall be provided in cartways where sidewalks intersect with roads.
B. Raised speed table crosswalk shall be three (3") inches or less in height, extend twenty-two (22') feet in length and have a flat surface stripped for a crosswalk ten (10') in width.

Section 605. Pathways and Trails
A. Asphalt Trails shall be developed in accordance with the following standards.
   1. Pathways shall be six (6') to eight (8') feet wide and consist of two (2") inches of ID-2 wearing course over a six (6") inch layer of AASHTO #57 stone.
   2. Multi-use trails shall be twelve (12') feet wide and consist of two (2") inches of ID-2 wearing course over a six (6") inch layer of AASHTO #57 stone. Minimum shoulder width shall be two (2') feet.
   3. Where the edge of the trail is above the surrounding grade, bituminous pavement shall be feathered.

B. Crushed Stone Trails shall be developed with the following standards.
   1. The base course should be comprised of four (4") inches of 2A modified gravel.
   2. The wearing surface should be a two (2") inch mixture of quarry fines and clay material laid flat and rolled.
   3. Generally vertical slopes shall be less than five (5%) percent.

C. The vertical clearance above the trail shall be maintained at a minimum ten (10') foot height.

D. The trail should be laid out in such a manner that trail users are visible to other trail users and vehicles on intersecting roads. Sharp curves and excessive grade change should also be avoided.

Section 605. Bicycle Parking Facilities

Bicycle parking facilities for non-residential structures should include a secure device to which the bicycle frame and one (1) wheel of the bicycle can be attached with a cable or locking device. The device should be suitable to keep bicycles erect when they are locked to it.

Section 606. Driveways
A. Driveway Apron. The apron in the driveway area shall be six (6") inches thick concrete 4000 psi compression strength concrete reinforced with wire six (6") inches by six (6") inches, ten (10) gauge wire (minimum). The wire shall be installed so that it
is not closer than two (2") inches from the top or bottom surfaces of the driveway. Six (6") inches crushed stone shall be used as a bedding under the driveway apron.

B. Driveways normally used by not more than twenty five (25) vehicles per day shall comply with the standards contained in the Pennsylvania Code, Title 67, Transportation, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads, Section 441.8, (i), (5), Grade Requirements Where Curbs and Sidewalks are Present. Driveways normally used by more than twenty five (25) vehicles per day shall comply with standards appropriate for their anticipated traffic volumes in conformance with accepted engineering standards and practices.

C. Maximum Grades for Driveways.
1. Residential driveways shall not exceed ten (10%) percent grade.
2. All other driveways shall not exceed seven (7%) percent grade.

D. All driveways shall be provided with a stopping area within which the grade shall not exceed four (4%) percent. The stopping area shall be measured as follows:
1. The length of stopping area shall be a minimum of twenty (20') feet, or the length of the longest vehicles anticipated to use the driveway, whichever is greater.
2. Stopping areas shall be measured from the ultimate right-of-way line for all streets.

E. Maximum grade requirements shall not be waived unless extremely difficult circumstances exist and cannot be mitigated by alternative locations, designs, or lotting, in which case a safe, practical alternative may be permitted by the [municipal governing body], upon recommendation of the [municipality] Engineer.

Section 607 Curb Construction
A. Curb Construction. All curbing shall be constructed both as to materials and methods, generally in conformance with applicable portions of PADOT Specifications Publication 408, current edition. Curbs shall be vertical profile with a minimum of eighteen (18") inch structure height, with a six (6") inch reveal. Expansion joints shall be placed every thirty (30') feet, at structures and at the end of the day's work. Contraction joints shall be saw cut every ten (10') feet at a minimum of two (2") inches. Concrete shall be a minimum 4000 psi in compression strength. Intersections where sidewalks are to be provided at some point in the future shall have depressions for wheel chair use at each corner and opposite each corner on "T" intersections.
B. Alternative Curb Construction with granite blocks shall be permitted along roads and parking lots not being dedicated to the [municipality].

Section 608. Drainage and Stormwater Management

B. All storm drains and drainage facilities such as gutters, catch basins, bridges, inlets, and culverts shall be installed and the land graded for adequate drainage as shown on the grading plan submitted and approved with the Final Plan. Construction of these facilities shall conform with the PennDot Specifications Publication 408, latest version.

1. Location. Wherever practicable, storm sewers shall be located within the right-of-way of the street. They shall be protected by a cover of at least eighteen (18”) inches.

2. Size and Grade. Storm sewers shall be adequate for the anticipated runoff when the area is fully developed as permitted by zoning, and capable of carrying a ten year design storm. They shall have a minimum internal diameter of fifteen (15”) inches and a minimum grade of one-half (½%) percent unless otherwise approved by the [municipality] engineer. Maximum internal pipe diameter shall be sixty (60”) inches. Special box culverts or open channels shall be used when a sixty (60”) inch pipe is not capable of carrying the design storm.

a. Storm Drainage Pipe Materials. All storm drainage pipes up to but not including forty two (42”) inches in equivalent diameter shall be constructed of the following materials

b. Reinforced concrete, rubber gasketed conforming to AASHTO M170, M198 and M207.

c. Reinforced concrete, tongue and groove conforming to AASHTO M170 and M207.

d. Corrugated polyethylene (PE) N12 smooth interior only conforming to ASTM D1248, ASTM D2412, AASHTO M252 and 294. A PE pipe shall be placed on a minimum of six (6”) inches of AASHTO #57 stone and backfilled with same to a foot above the crown of the pipe.

e. Corrugated polyethylene (PE) perforated underdrain shall conform to AASHTO M252.

Municipalities that use other types of curbing should add these specifications. Alternate curbing materials include: granite, asphalt, and cobblestone. Concrete curbs can also be rolled or flat in addition to the traditional vertical curb.
3. All storm drainage pipe and/or culverts forty-two (42") inches in equivalent diameter and above shall be constructed of either of the following materials:
   a. Reinforced concrete tongue and groove conforming to AASHTO M170 and M207.
   b. Reinforced concrete piping, rubber gasketed, shall conform to AASHTO M170, M198 and M207.
   c. Precast reinforced concrete box sections in accordance with AASHTO M259.
   d. Cement concrete cast in place, mix design strength of 4,000 pounds per square inch (psi).

4. Manholes. Manholes shall be constructed at all changes in horizontal or vertical alignment; spaced not more than 300' feet apart on pipe of twenty-four (24") inches internal diameter or less, and not more than 450' feet apart where larger sizes are installed. Inlets may be substituted for manholes where they will serve a useful purpose. Manhole frames and covers shall be good quality cast iron; covers shall be marked "STORM" and have a minimum weight of two hundred and twenty (220) pounds.

5. Inlets. Inlet spacing shall be so arranged that ninety-five (95%) percent of the gutter flow will be captured. No inlet smaller than PADOT Type 4 Foot Special Inlet shall be used. Double four (4) foot or six (6) foot inlets separated by twenty (20') linear feet of pipe shall be required if adequate efficiency is not realized with the PADOT Type 4 Foot Special Inlet. Inlets at street intersections shall be placed on the tangent and not on the curved portions. The gutter adjacent to and immediately upgrade from the inlet shall be so warped as to direct the water into the inlet. Inlets shall have a metal marking with the message: “Don’t dump, drains to the river.”

6. Castings. Manhole and inlet castings, together with their covers or gratings shall conform to PADOT or [municipality] Standards, as may be in effect at the time the design of the sewer is submitted. Castings should indicate “storm.”

7. Unnatural Drainage. Wherever construction stops or concentrates the natural flow of storm drainage in such a way to affect adjoining properties, approval of the owners shall be obtained in writing and a copy filed with the [municipality]. Approval of plans by the [municipality] does not authorize or sanction drainage affecting adjoining properties.

8. Drainage from Non-Natural Sources. Water originating from other than natural sources, such as air conditioning units, sump pumps, or other dry weather flow, wherever practicable, shall be discharged into natural watercourses on the
property. The discharge of water under the sidewalk through the curb into the gutter, is prohibited.

9. Design Criteria

a. Permissible channel velocities, slopes, and cover shall be in accordance with the NRCS Engineering Field Manual, Chapter 7, “Grassed Waterways and Outlets.”

b. Existing stream channels shall be maintained in their natural state. Only under unusual circumstances will a developer be permitted to line, straighten, or relocate an existing stream, with approval of the Department of Environmental Protection (DEP) and the Montgomery County Conservation District.

c. Acceptable energy dissipation devices shall be installed to bring discharge velocities down to limits specified in the SCS Engineering Field Manual, Chapter 7. Rip rap, natural stabilization structures, and/or gabions may be required by the [municipality] Engineer where erosion potential is great.


Widths and locations of easements and rights-of-way shall be determined by the [municipality] Engineer or the appropriate authority or utility company for all utilities, including stormwater facilities. The location and design of the utilities shall be governed by the requirements herein.

A. General Standards.

1. Easements and required front, side or rear yards may occupy the same land. As utilities.

2. Nothing shall be permitted to be placed, planted, set or put within the areas of an easement unless it is a portable or removable object. The area shall be kept as lawn.

3. The owner of any lot, upon written request by the [municipality] and at the owner's sole expense, shall remove anything placed, planted, set or put, (with or without knowledge of these regulations) within the area of any easement.

4. To the fullest extent possible, easements shall be adjacent to rear or side lot lines, and occupying only a portion of one (1) lot (not centered on 2 lots).

B. No right-of-way or easement for any purpose whatsoever shall be recited or described in any deed unless the same has been shown on the approved plan. Any error found in a deed shall be immediately corrected and re-recorded in the Office.
of the Recorder of Deeds for Montgomery County at Norristown, Pennsylvania, at
the sole expense of the applicant.

C. Utility Easements. A minimum width of twenty (20') feet shall be provided for com-
mon utilities and drainage when provided in undedicated land for one use. Multiple
utility uses within one easement require additional easement width.

D. Public Utilities. All water, sewer, and gas mains and other underground facilities
shall be installed prior to street paving at locations approved by the [municipality]
Engineer.

E. Underground Utilities. All water, sewer, and gas mains shall be installed under-
ground. All electric, telephone and communication services, both main and service
lines, shall be provided by underground cables, installed in accordance with the
prevailing standards and practices of the utility or other companies providing such
services, except where it is demonstrated to the satisfaction of the [municipal gov-
erning body] that underground installations herein required are not feasible because
of physical conditions of the lands involved. All main underground cables which are
within the right-of-way of a street shall be located as specified by the utility com-
pany, subject to approval by the [municipal governing body], upon recommendation
of the [municipality] Engineer.

1. In order to promote and facilitate the underground installation of utility distribu-
tion lines, a letter of endorsement shall be required from the suppliers of utility
service (not limited to electrical, telephone, or cable television) of the devel-
oper’s choice wherein the applicant acknowledges that underground utilities are
feasible and shall be consummated as part of the improvement plan.

2. A statement relative to the intent of the developer to provide underground utility
service shall be placed on the Final Plan requisite to final approval of the plan.

3. The provisions in this ordinance shall not be construed as to limit or interfere
with the construction, installation, operation, and maintenance of public utility
structures or facilities which may hereafter be located within public easements
or rights-of-way designated for such purposes.

4. Light Standards are to be placed as required by Ordinance. Power source for
such standards shall be placed underground as required.

5. Along arterial and collector roads, all new electrical service should be placed
underground.

Section 610. Domestic Wastewater Facilities
A. Sewage Facilities Design. The design and installation of domestic sewage facilities shall be done in accordance with the Pennsylvania Domestic Wastewater Facilities Manual prepared by the Department of Environmental Protection.

B. On-site Sewage Facilities Design. The design and installation of on-lot subsurface disposal systems shall be done in accordance with PA Title 25 Chapter 73 regulations and the Technical Manual for Sewage Enforcement Officers.

1. The Sewage Enforcement Officer shall require percolation and deep hole tests, as required by DEP, in order to determine the size, extent, and nature of disposal facilities. Such tests shall be conducted for each lot proposed for building.

2. Existing on-lot sewage disposal systems that will remain in use shall be inspected and certified as to their satisfactory functioning, in accord with current industry, DEP standards, and the Montgomery County Health Department rules and regulations. Malfunctioning systems shall be replaced with systems designed and constructed to current standards.

3. After assuring that all requirements have been met, the Sewage Enforcement Officer shall issue a certificate of approval to the [municipality] as a requirement for Final Plan approval.

4. In no instance shall an on-lot septic system be located nearer to a drilled well than one hundred (100’) feet.

C. Community Sewage Facilities. Sewage disposal for more than one lot on a shared basis, by means of community sewage facilities may be permitted in compliance with DEP regulations and [municipality] Sewage Facilities Plan.

D. Sewage Collection System. All elements of the sewage facilities collection system including laterals, sewer mains, manholes, force mains, and pump stations should be designed in accordance with the following requirements.

1. One lateral made of schedule SDR-35 PVC or cast iron shall be installed from the building to the septic tank or sewer main.

2. Connection to the sewer main shall be made at a previously installed Wye connection point or the existing sewer main shall be tapped in accordance with [municipality] requirements.

3. Sewer mains
4. Manholes
5. Force mains
6. Pump Stations

Sewer pipe specifications should reflect municipal authority requirements if connection to a public sewer system is being proposed.
Section 611. Water Supply
A. Public water service, community water system service, or and individual well should be installed for each inhabitable building.

B. Individual Wells. All individual wells shall be installed in accordance with the Montgomery County Health Department. A circular area with a hundred (100’) foot radius conforming to the rules and regulations of the Department of Environmental Protection and Montgomery County Health Department shall be shown around each well to denote clear space in which no on-lot sewage system is to be located.

C. Public Water Supply Facilities Design. The design for all community and public water supply facilities shall be in accordance with the DEP Water Supply Manual.

D. Fire hydrants shall be located at accessible points throughout the subdivision when centralized water supply is available, and shall be located according to the [municipality] Engineer [or municipality fire marshal, authority, or water company]. As a general rule, hydrants should be located at each street intersection and at intermediate points as recommended by the State Insurance Services Office. Generally hydrant spacing may range from 600’– 1000’ feet apart.

Section 612. Bridges and Culverts.
A. Bridges and culverts shall be designed to meet current Pennsylvania Department of Transportation Standards to support expected loads and to pass design stormwater flows. They shall be constructed to the full width of the planned cartway. Allowance for sidewalk must also be made, if required by the [municipality].

B. Where County-owned roads or bridges are involved, the County Engineer shall review and approve all proposals.

C. A permit from the Pennsylvania Department of Environmental Protection shall be obtained to make any change in or addition to, any existing water obstruction, or in any manner change or diminish the course, current, or cross-section of any stream or body of water.

D. Drawings to include location plan; cross-section of present bridge if one exists; profile of stream for a reasonable distance above and below bridge site, showing slopes of bed, normal water surface and flood water surface. If the bridge is on a skew, give the angle of the center line of the bridge with the direction of the line of flow. In addition, the following information is required for new bridge construction: the total drainage area above the bridge site; description of watershed; length of stream from source to bridge site and to the mouth; character of stream bed and banks; extent and depth of overflow during floods; effect of previous floods upon

The locations and spacing of fire hydrants are dependent upon the fire equipment that will service the proposed development area. The advice of the fire chief should be sought in establishing the appropriate standards.
bridges, their span and clearance; whether bridge will be within backwater influence of parent stream.

Section 613. Survey Monuments.

A. Permanent monuments shall be indicated on the record plan. All monuments shall be constructed of precast concrete or durable stone with metal insert(s), and be four (4") inches square with at least twenty (20") inches extending below ground level, or an alternate design approved by the [municipal governing body]. Street right-of-way reference monuments shall be located on the right-of-way lines at corners, angle points, beginning and end of curves, and as otherwise required by the [municipality] Engineer for all new and existing streets. They shall be placed after a new street and/or lot grading has been completed. The centerline of all new streets shall be marked with spikes (P.K. nails) and referenced to permanent monuments or structures. Certified copies of this reference information shall be given to both the [municipality] Engineer and the [municipality] Office. When final lot grading has been completed and before the issuance of occupancy permits, permanent monuments shall be set by the applicant at all lot corners and angle points, and at all street intersections and intermediate points as may be required.

B. Lot Pin Requirements. All lots upon which construction is planned shall be temporarily staked or pinned, or permanently monumented and certified to such by a registered surveyor for the owner, applicant, builder, or developer, before issuance of a building permit. A signed certificate of compliance must be submitted with a building permit application. Temporary stakes or pins with a surveyor’s ribbon attached may be acceptable on existing lots where construction of an accessory building or an addition to the primary structure is proposed, only if construction is begun within thirty (30) days of the certificate of compliance date. Temporary stakes or pins shall remain in place until witnessed and accepted by the [municipality] Building Inspector. Prior to final approval of a new subdivision plan, all new lot corner markers shall be marked with a minimum 5/8 inch diameter metal pin extending at least twenty four (24") inches into the ground and at least one inch revealed above the ground surface, or an equivalent metal marker, approved by the [municipality] Engineer. Upon completion of construction and final grading, pins shall be replaced with permanent monuments as described in 613 (A).

C. Original Monuments. In situations where they may be of legal or historical importance, the original monuments and marks must not be destroyed, defaced, hidden, or possibly confused by creating new monuments and marks unless absolutely necessary, eg: the originals are decayed, destroyed, or unsafe. In some cases, to be determined by the [municipality] Engineer, new monuments should be set as a reference or witness to the original monument to avoid disturbing the original. When in the opinion of the [municipality] Engineer, the angle point falls in a location that is
not appropriate to set a concrete monument, a written request for a waiver shall be submitted for consideration by the [municipal governing body].

D. Bench Marks. The [municipality] elevations are based on the USGS Datum. Location and elevation is available to all Engineers and Surveyors upon request to the [municipality] Engineer’s Office. All contours and elevations shown on the plan must be based on this system.

Section 614. Emergency Accessways.
A. Minimum cartway width for the emergency access shall be twelve (12’) feet.
B. When paved, pavement shall conform to Section 601 (C), Pavement Design.
C. When not paved, the cartway shall be constructed of crushed stone of appropriate size, depth, and compaction to support the largest emergency response vehicle in the vicinity of the site under all weather conditions. The emergency access may also be constructed from fiber reinforced polyethylene or concrete grass pavers. All void areas shall be filled with topsoil and seeded with an appropriate grass mix.
D. Markings or the appropriate form of identification shall be placed at the entrance to the emergency access way. If necessary, breakaway bollards shall be installed at each end of the emergency access way.
E. Emergency access ways shall be maintained through properly recorded easements or deed restrictions which at a minimum prohibit the planting of any vegetation except grass within the access way and a buffer area of five (5’) feet on either side.

Section 615. Outdoor Lighting.
A. Illumination Levels
1. Lighting, where required by this Ordinance or otherwise required by the [Governing Body] shall have intensities and uniformity ratios in accordance with the recommended practices of the Illuminating Engineering Society of North America (IESNA) Lighting Handbook, 9th edition, Chapters 21 & 22. (i.e. Minimum Average = 0.5 fc; Minimum = 0.1 fc; Uniformity = 6:1)
2. Future amendments to said Lighting Handbook and Recommended Practices shall become a part of this Ordinance without further action by the municipality.
B. Lighting Fixture Design
1. Street lighting supplied with unmetered electric service shall meet the specifications of the electric utility.
2. Building entrances, sidewalks, paths, site entrances and parking areas, fixtures shall be aimed straight down and shall be full cutoff or fully shielded. For the use of reflector lamps, a maximum of 14,000 center-beam-candlepower (CBCP) shall be permitted.

3. For the lighting of non-horizontal surfaces such as, but not limited to, facades, landscaping, signs, fountains, displays, flags and statuary, the use of lighting fixtures that are not full cutoff or fully shielded, shall be permitted only with the approval of the municipal governing body, based upon acceptable shielding and other glare control. At a minimum, shielding shall render the light source not visible from neighboring properties.

4. “Barn lights,” (fixtures which are not full-cutoff, or cutoff, but which have a diffuser which transmits the light at angles above full-cutoff or cutoff angles) shall not be permitted where they are visible from other uses unless fitted with a reflector or other device to render them fully shielded or full cutoff.

C. Control of Nuisance and Disabling Glare (Excessive Brightness in the Field of View)

1. All lighting shall be aimed, located, designed, fitted and maintained so as not to present a hazard to drivers or pedestrians by impairing their ability to safely traverse and so as not to create a nuisance by projecting or reflecting objectionable light onto a neighboring use or property.

2. Floodlights and spotlights that are not full-cutoff or fully shielded, where specifically approved by the municipality, shall be so installed and aimed that they do not project their output into the windows of neighboring properties, adjacent uses, past the object being illuminated, skyward or onto a public roadway. Authorities having jurisdiction shall take specific care to ensure this criterion by requiring submission of photometric plots of the illuminated surface and its surroundings.

3. Unless otherwise permitted by the municipality, e.g., for safety or security or all-night commercial/industrial operations, lighting for commercial, industrial, public recreational and institutional applications shall be controlled by programmable timers that accommodate seasonal and annual variations and battery or mechanical (e.g., spring-wound) backup, to permit extinguishing sources between 11 p.m. and dawn or within 1 hour of the close of business, which ever is earlier, to conserve energy and to mitigate nuisance glare and sky-lighting consequences.

4. Security lighting proposed for use after 11 p.m. or after the normal hours of operation for commercial, industrial, institutional or municipal applications, shall be accomplished using no more than 25% of the number of fixtures used during normal business hours, from then until the start of business in the morning.
Alternatively, where reduced but continued activity requires even illumination, the use of dimming circuitry to reduce illumination levels by 75% after 11:00 p.m. or after normal business hours, shall be permitted.

5. Glare control shall be achieved primarily through the use of such means as cutoff fixtures, shields and baffles, and appropriate application of fixture mounting height, wattage, aiming angle and fixture placement. Vegetation screens shall not be employed to serve as the primary means for controlling glare, except that the use of dense evergreen hedges, such as yew or juniper, to shield ground-mounted floodlights may be used with signs up to 15 feet in height, provided such planting is maintained in a manner that shields the fixture from view of traffic and pedestrians at an angle below 45 degrees above horizontal.

6. The level of illumination projected onto a residential use from another property shall not exceed 0.1 initial horizontal footcandle, at the property line. The level of illumination projected onto a non-residential use shall not exceed 1.0 initial horizontal footcandle at the property line.

7. Directional fixtures for such applications as façade, fountain, feature and landscape illumination shall be aimed so as not to project their output beyond the objects intended to be illuminated, shall meet requirements stated above with respect to light trespass, shall be extinguished between the hours of 11 p.m. and dawn and shall not be in conflict with the principles stated throughout this Ordinance.

8. Only the United States and the state flag shall be permitted to be illuminated from dusk till dawn and each flag shall be illuminated by a source or sources with a beam spread no greater than necessary to illuminate the flag. Flag lighting sources shall not exceed 7,000 lumens per flagpole.

9. The use of white strobe lighting for tall structures such as smokestacks, chimneys and radio/communications/television towers is prohibited during hours of darkness, except as specifically required by FAA.

10. Canopy lighting, for such applications as gas/service stations, bank, drugstore and fast-food drive-thru, shall be accomplished using flat-lens full-cutoff fixtures aimed straight down and shielded in such a manner that the lowest opaque edge of the fixture shall be level with or below the light source.

11. Temporary residential holiday lighting is exempt from the requirements of this Section except as it creates a hazard or nuisance.

D. Recreational Uses
1. When facilities for such outdoor recreational activities as baseball, tennis, football, miniature golf or any other recreational use permitted under the [municipality’s] Zoning Ordinance, are specifically permitted by the municipality for operation during hours of darkness, the following requirements shall apply:

a. Lighting shall be accomplished only through the use of fixtures conforming to IESNA criteria, or as otherwise approved by the municipality based on suitable control of glare and light trespass. Flood-lighting for sports or recreational facilities shall not be aimed above a beam-center angle of 45 degrees from vertical, nor shall the level of illumination on neighboring properties exceed the limits specified in Section 6, article C.6, above.

b. For new recreational facilities and existing recreational facilities wishing to change their hours of operation during hours of darkness, sporting events shall be timed so that all lighting in the sports facility, other than lighting for safe exit of patrons, shall be extinguished by 11:00 p.m., regardless of such occurrences as extra innings or overtimes.

c. Trap shooting facilities, golf driving ranges and race tracks shall not be illuminated unless it can be demonstrated that such lighting will not create a nuisance, shine on or into any nearby residential properties or be visible to traffic on any nearby streets, roadways, or institutional or commercial parking lots. In any case, if lighting is permitted at these facilities, it shall not be accomplished by using any horizontally aimed fixtures or floodlights nor shall these fixtures be aimed at a beam-center angle greater than 45 degrees from vertical.

d. The outdoor recreational activities listed in e., below shall not be illuminated if located within any residential district or sited on a nonresidential property located within 1200 feet of a residential use.

e. Maximum mounting heights for recreational lighting shall be in accordance with the following:

(Regulations apply to non-tournament recreational uses. Tournament and high school facilities may require increased heights. For tournament and high school level applications use the standards contained in the Illuminating Engineering Society of North America (IESNA) Lighting Handbook, 9th edition, Chapters 21 & 22, and relevant IESNA Recommended Practices.)
1. Basketball 30' 10 fc
2. Football 70' 20 fc
3. Soccer 70' 20 fc
4. Baseball 70' 20 fc infield; 15 fc outfield
5. Youth Baseball
   i) 200' Radius 60' 20 fc infield; 15 fc outfield
   ii) 300' Radius 70' 20 fc infield; 15 fc outfield
6. Miniature Golf 15' 10 fc
7. Tennis 30' 20 fc
8. Track 30' 15 fc
9. Swimming pool 20' 10 fc

E. Street and Parking Lot Lighting for Residential Applications
1. For residential developments where lot sizes are or average less than 20,000 square feet, street lighting shall be provided as follows:
   a. At the intersection of public roads with entrance roads to the development
   b. At the intersection of roads within the development
   c. At cul-de-sac bulb radii
   d. At terminal ends of center median islands having concrete structure curbing, trees, signs or other fixed objects, and at cul-de-sac center islands with curbing
   e. At defined pedestrian crossings located within the development
   f. At other locations along the street as deemed necessary by the [governing body].
   g. Where lot sizes permit the parking of less than two (2) vehicles on the lot, thereby necessitating on-street parking, street lighting shall be provided along the length of the street, in accordance with the illuminance requirements contained in Section 615 (A) 1, above.
   h. In multi-family developments, common parking areas shall be illuminated in accordance with the luminance requirements contained in Section 6.15 (A)1, above.
2. In residential developments with lots of less than twenty thousand (20,000) square feet, where six (6) or more contiguous parking spaces are proposed, such spaces shall be illuminated in accordance with the illuminance requirements contained in Section 615 (A) 1, above.

3. Lighting fixtures for parking lots and roadways in residential developments shall be mounted not more than fourteen feet (14') above finished grade.

F. Signs and Billboards

1. For the lighting of billboards and externally illuminated signs, fixtures shall be designed, fitted and aimed to limit the light pattern to the sign or billboard, so as not to project their output into the windows of neighboring residences, adjacent uses, past the face of the billboard or sign, skyward or onto a public roadway.

2. Billboards and externally illuminated signs shall be lighted by fixtures mounted at the top of the billboard or sign and aimed downward. Non-billboard business and similar use signs may utilize ground-mounted fixtures if shielded by evergreen plantings as described in Section 615 (C) 5, above, or such devices as masonry enclosures providing equivalent shielding. Fixture type, application, and mounting shall meet the requirements of Section 615 (B), herein.

3. Billboards and signs, whether on or off premises, shall be automatically extinguished by 11:00 p.m. except that signs for businesses that remain open past 11:00 p.m. shall be allowed to be automatically extinguished no more than ½ hour past the close of business.

4. The maximum initial illumination on the face of an externally illuminated billboard or sign shall not exceed 30 vertical footcandles and shall have a maximum to minimum uniformity ratio not to exceed 6:1. Internally-illuminated signs shall have an admittance not more than 30 footlamberts.

5. The illumination of billboards shall be limited to commercial and industrial zoning districts.

6. The illumination of billboards within 400’ of a residential zone or use shall not be permitted.

7. Rotating, flashing, pulsing, “marching” or oscillating light sources, lasers, beacons or strobe lighting shall not be permitted.

8. Internal LED light sources for signage shall be permitted only in commercial districts, shall be static and shall not be allowed to operate past 11:00 p.m. when located where visible from a residential district or use. Admittance levels shall be limited to that listed in subparagraph 4., above.
9. The use of highly reflective signage that creates nuisance glare or a safety hazard shall not be permitted.

10. The lighting or relighting of signs or billboards shall require a Building Permit, which shall be granted only when the municipality is satisfied that excessive illumination, light pollution, glare and light trespass have been mitigated to the extent possible.

11. Applications for the lighting or relighting of signs and billboards shall be accompanied by a point-by-point plot of initial vertical illuminance on the sign or billboard face, catalog cuts of proposed fixtures and any glare reduction devices and a description of lamps, mounting locations, aiming angles and proposed hours of operation and method for automatically extinguishing the lighting by the required hour.

G. Installation

1. Pole-mounted fixtures for roadways, pedestrian walkways, parking lots, and similar uses shall be aimed straight down.

2. Mounting Heights - The following maximum fixture mounting heights shall prevail:
   a. Full-cutoff fixtures with 44,000 lumen lamps maximum, in parking lots: 20’ AFG
   b. Full-cutoff fixtures with 115,000 lumen lamps maximum, shall be permitted only in large (100 spaces or more) commercial, institutional and industrial parking lots except when the facility as adjacent to a residential district or use or an environmentally sensitive area: not less that 25’ or more than 30’ AFG. Mounting heights of 25’ – 30’ shall not be permitted when located less than 100’ from a residential district or use.
   c. Decorative –cutoff or fully shielded fixtures with 17,500 lumen lamps maximum: 16’ AFG
   d. Fully-shielded bollard fixtures with 6200 lumen lamps maximum: 42” AFG
   e. Recreational Uses– See Section D above.

H. Post-Installation Inspection

1. The [municipality] reserves the right to conduct post-installation nighttime inspections to verify compliance with the requirements of this Ordinance and approved plans, and if appropriate, to require remedial action at no expense to the municipality.

Section 616. Street Names.

A. Street Signs. The developer shall erect a street sign or street signs at every intersection. At intersections where streets cross, there shall be at least two such street signs and at the intersections where one street ends or joins another street, there shall be at least one sign. Street signs shall be erected when the first dwelling on the street is occupied or when
streets are paved with their base course which ever comes first. Temporary street signs may be erected with the permission of the [municipal governing body]. Any temporary signs will be replaced prior to roadway dedication.

B. Street Names. Street names shall be determined in consultation with the [municipality]. Street names should bear a reasonable relationship to significant natural features or the history of the community. Efforts should be made to reduce the occurrence of similar names or similar sounding names within the [municipality] or postal delivery area.

Section 617. Plant Materials Specifications.
A. General Requirements.

1. Tree species shall be selected from the tree listing in the appendix.

2. The location, dimensions, and spacing of required plantings should be adequate for their proper growth and maintenance taking into account the sizes of such plantings at maturity and their present and future environmental requirements and tolerances including wind, moisture, and sunlight.

3. Plantings should be selected and located where they will not contribute to conditions hazardous to public safety. Such conditions include, but are not limited to, public street rights-of-way, underground and above ground utilities, and sight triangle areas required for unobstructed views at street intersections.

B. Plant Specifications.

1. All plants shall meet the minimum standards for health, form, and root condition as outlined in the American Association of Nurserymen AAN Standards.

2. All plant material shall be hardy and within the USDA hardiness Zone 6 applicable to Montgomery County, Pennsylvania.

3. Canopy trees or shade trees, shall reach a minimum height and spread of thirty (30') feet at maturity as determined by the AAN Standards and shall be deciduous. New trees shall have a minimum caliper of two and a half (2 1/2") inches at planting. Larger size trees may be required as street trees in commercial areas.

4. Ornamental trees or large shrubs shall reach a typical minimum height of fifteen (15') feet at maturity, based upon AAN Standards. Trees and shrubs may be deciduous or evergreen and shall have a distinctive ornamental characteristic such as prominent flowers, fruit, habitat, foliage or bark. New ornamental trees shall have a minimum height of six (6') feet or one and a half (1 1/2") inch caliper at the time of planting. New large shrubs shall have a minimum height of two and a half (2 1/2") feet at the time of planting.
5. Small shrubs may be evergreen or deciduous and shall have a minimum height at maturity of four (4') feet based upon AAN Standards. New shrubs shall have a minimum height of eighteen (18") inches at the time of planting.

6. Evergreen trees shall reach a typical minimum height of twenty (20') feet at maturity based upon AAN standards for that species and shall remain evergreen throughout the year. New evergreens shall have a minimum height of seven (7') feet at the time of planting.

C. Maintenance.

1. Safety. All sight triangles shall remain clear, and any plant materials that could endanger safety such as unstable limbs shall be removed and the plant materials shall be replaced if necessary. It shall be the responsibility of all property owners to maintain all plantings and architectural elements to insure a safe environment.

2. Maintenance guidelines for the plantings should be developed by the planting plan designer to be used by grounds maintenance personnel.

Section 618. Solid Waste Storage Facilities

A. All trash collection equipment should be placed within enclosures. Enclosures should be at least large enough to adequately contain all trash and recyclable material containers. Generally the sizing and type of storage containers will depend upon the amount of trash and recyclables expected to be generated in the buildings they service.

B. Enclosures should be six (6') feet high or at least one (1') foot higher than the proposed collection container.

C. Enclosures should be made of durable material including masonry blocks or steel reinforced wood fencing. In most cases, garden type fencing or landscaping is not durable enough.

D. The entrance to the enclosure should be at least ten (10') feet wide to accommodate front loading trucks. Gates placed on the entrance should be durable and equipped with piston type bolts to secure gates in both a closed and open position.

E. The trash storage area should be placed on a concrete pad. The dimensions of the pad are dependent on the number and size of proposed containers. The pad should extend six (6') to ten (10') feet in front of where the proposed container is to be placed to support the front wheels of the trash truck servicing the site. The area above the container should be free of obstructions for at least fifteen (15') foot clearance above the storage area is sufficient.
ARTICLE SEVEN
IMPROVEMENT CONSTRUCTION REQUIREMENTS

Section 700. Applicability.
Before the Final Plan is signed and made ready for recording or prior to the issuance of any permits needed for construction or occupancy of any subdivision or land development, all applicants are required to complete to the satisfaction of [municipal governing body] or ensure the completion of all required public improvements in manner set forth in this Article.

Section 701. Completion or Guarantee of Required Improvements.
The applicant shall comply with the public improvement construction requirements in the following ways:
A. Complete all of the improvements required by [municipal governing body] for Final Plan Approval, in compliance with the requirements of this Ordinance; or
B. Provide proper financial security in a manner acceptable to the [municipality] to ensure the completion of all improvements, as required by this Article, in compliance with the Pennsylvania Municipalities Planning Code.
   1. The work completed or guaranteed shall be in strict accordance with the conditionally-approved plans and the requirements of this Ordinance.
   2. No lot in a subdivision may be sold, and no permit to erect, alter, or repair any building upon land in a subdivision or land development will be issued unless and until a subdivision and/or land development plan has been approved, and where required, recorded, and until the required improvements in connection therewith have either been completed or guaranteed for completion as required herein.
   3. The applicant shall also guarantee that no lot will be sold or building constructed in any floodplain area except in compliance with the floodplain management requirements of this Ordinance, the Zoning Ordinance, and the [municipality] Building Code.
   4. The [municipal governing body] may defer at the time of Final Plan approval, subject to appropriate conditions, the provision of any or all required improvements, as in its judgment, are not requisite in the interests of public health, safety and welfare, or which are inappropriate due to the inadequacy or non-existence of connecting facilities. A separate public improvement agreement may be executed by [municipal governing body] guaranteeing completion of any deferred improvement at some later date.

Commentary
Generally this Article reflects the requirements in Sections 509, 510, and 511 of the MPC.

Financial Guarantee can be achieved through a variety of means including: cash escrow, irrevocable letter of credit, or some form of performance bond with the municipality as the stated beneficiary.
Financial Guarantees

The three main forms of financial security are escrow accounts, letter of credit and performance bonds. All three can be effective in ensuring that the required improvements are made in accordance with the final plan approval. Each form of security requires different steps in establishing and maintaining it. There are differences in how the security is used in the event that the developer fails to make the improvements or defaults in some manner.

The simplest form of security is a **cash escrow**. A cash escrow can either be held by a financial institution or directly by the municipality. The role of the financial institution is to hold the money and make releases when directed by the municipality. It is important that the escrow agreement is established with specific instructions about the release of funds to guide the financial institution to prevent disputes between the developer and municipality.

Financial institutions are not required to make improvements if the developer defaults. Cash escrows are generally used in smaller development projects, since most developers do not want to tie up cash for long periods of time in an escrow account. Any interest made on escrowed money would be returned to the developer.

When a cash escrow is set up by the municipality, the municipality has the fiduciary responsibility to maintain the account. It is important that these funds remain separate and are not co-mingled with other municipal accounts.

A **performance bond** is a surety bond issued by an insurance company or a bank to guarantee satisfactory completion of a project by the developer. Performance bonds are guarantees underwritten by large bonding companies licensed to work in Pennsylvania. A bond will establish provisions for rectifying a problem resulting from the default of a developer. Typically, the bonding company will have the option to cure the problems themselves prior to paying municipalities to make improvements.

In setting up bonds, it is important to specify deadlines for various actions that are triggered by default such as the review time of the bonding company when default is declared and the time when a municipality can proceed to have the work completed on its behalf.

The **letter or credit** is a document issued mostly by a financial institution which provides an irrevocable payment undertaking. Almost all letters of credit are irrevocable, i.e., cannot be amended or cancelled without prior agreement of the beneficiary (municipality) and the issuing bank. The developer has no direct control over the line of credit once it is established. It is important to understand that letters of credit are issued for a specific period of time. When they expire, they no longer serve as security for a developer’s improvements. Therefore it is very important to constantly monitor out standing letters of credit to ensure that they remain current and are renewed in the appropriate time frame. Initially the letter of credit should be established for at least a month past the deadline for the completion of all work. If work is delayed, the letter of credit should be extended.

A. In lieu of the completion of improvements required for Final Plan approval, financial security, in an amount required, shall be guaranteed to the [municipality] in compliance with the applicable requirements of the Pennsylvania Municipalities Planning Code. Such financial security shall assure the complete installation of all the required improvements to be completed on or before the date fixed in the conditional plan approval, subdivision agreement, and/or development agreement for completion of such improvements.

B. The amount of such security to be posted for the completion of required improvements shall be equal to 110% of the cost of completion estimated as of ninety (90) days following the date scheduled for completion by the developer. Annually, the [municipality] may adjust the amount of the required financial security by comparing the actual cost of improvements which have been completed and the estimated cost for the completion of the remaining improvements as of the expiration of the 90th day after the original scheduled date for completion or a rescheduled completion date.

C. Determination of the cost of the completion of improvements used for setting the amount of financial security shall be based upon an estimate of the cost of completion of required improvements submitted by the applicant or developer, and prepared by a professional engineer and certified to be fair and reasonable. The [municipality] under recommendation of the [municipality] Engineer may refuse to accept the estimate for good reasons provided to the applicant. If the applicant or developer and the [municipality] are unable to agree upon an estimate, then the estimate shall be recalculated and recertified by another professional engineer which is mutually chosen by the [municipality] and the applicant. The estimate certified by the third engineer shall be presumed to be fair and reasonable and shall be the final estimate.

D. When requested by the applicant in order to facilitate financing, the [municipal governing body] shall furnish the applicant with a signed copy of a resolution indicating approval of the Final Plan contingent upon the applicant obtaining a satisfactory financial security. Final Plans will not be signed or recorded until the financial improvements agreement is executed. The resolution of contingent approval shall expire and be deemed to be revoked if the financial security agreement is not executed within ninety (90) days, unless a written extension is granted by [municipal governing body].

E. The [municipality] at its option, may accept financial security in the form of cash escrow placed with the municipality, irrevocable letter of credit, escrow account, or surety bond with a bonding company or chartered lending institution chosen by the [municipality].

The 10% addition on the estimated cost is to account for construction cost increases that might occur in a given year. It is important that municipalities reexamine the cost figures on an annual basis to keep their amount of financial security in line with projected improvement costs.

Typically improvement costs are determined through a quote from the general contractor or company doing the site preparation work. Costs for construction improvements on Penn-Dot roads and improvements pertaining to infrastructure to be dedicated to utilities other than the municipality may not be included in the financial security guaranteed to the municipality.

Section 702 D of the ordinance includes text from Section 509 (b) of the MPC to address large projects that have significant financial capital needs. This can be used to secure bank financing required to establish security required as a condition of final approval.
party posting financial security provided said institution or company is authorized to
direct such business in the Commonwealth of Pennsylvania.

The [municipal governing body] may release all or parts of the posted financial security
as completion of improvements proceeds, in compliance with the applicable require-
ments of the Pennsylvania Municipalities Planning Code.

A. Partial Release of Security. As the work of the installation of the required public im-
provements proceeds, the party posting the financial security may request the
[municipality] to release or authorize the release, from time to time, such portions of
the financial security necessary for the payment of the contractor or contractors per-
forming the work. Any such request shall be done in writing addressed to the mu-
nicipality. Upon receipt of the request for release of a portion of the improvement
security, the municipality shall within forty-five (45) days allow the [municipality] En-
geineer to certify, in writing, that such portion of the public improvements has been
completed in accordance with the approved plan at which time the [municipality]
shall authorize the release to the applicant or his designee by the bond company or
lending institution of an amount of funds that the [municipality] Engineer feels fairly
represents the value of the work completed. If the municipality fails to act upon a
request for release of security within forty-five (45) days, the [municipality] shall be
deemed to have approved the full release of security as requested.

B. Incomplete Improvements. If the required improvements are not completely in-
stalled within the period fixed or extended by [municipal governing body], [municipal
governing body] may take one or more of the following actions:

1. Declare the financial security in default and require that all improvements be
installed regardless of the of the extent of the building development at the time
the agreement is declared in default;

2. Suspend Final Plan approval until the development improvements are com-
pleted and record a document to that effect for the purpose of public notice;

3. Obtain funds under the security and complete improvements;

4. Assign the right to receive funds under the security to any third party, including
a subsequent owner of the property wherein improvements were not completed
in exchange for that subsequent owner’s promise to complete improvements;

5. Exercise any other available rights under the Pennsylvania Municipalities Plan-
ning Code.

Section 510 of the MPC addresses re-
lease of financial security. Partial re-
leases are addressed in Section 509
(j) of the MPC.

Public improvements in a proposed de-
velopment are necessary not only for
the health, safety, and welfare of new
residents or occupants, but are also vi-
tal for the community as a whole. In
some cases, other developments may
be depending upon the construction of
improvements by the developer. If a
development company becomes unable
to make improvements that are re-
quired, the municipality may be required
to take whatever action is necessary to
have the improvements installed. This is
an important process that may be re-
quired in the event that the development
becomes insolvent during the property
development.
C. Post-Completion Security. The applicant shall be responsible for maintenance of all improvements for a period of eighteen (18) months after final acceptance and certification of project completion.

D. Landscaping Security. The applicant shall be responsible for the full replacement of all dead or diseased trees or shrubs for eighteen (18) months after final acceptance and certification of project completion. Final inspection of landscaping shall be performed while trees are fully leafed out—typically May 1 through November 1.

Section 704. Inspection of Work and Materials.
A. Notice. The [municipality] Engineer shall be notified forty-eight (48) hours in advance of the commencement of any construction or installation operation, to schedule an inspection by the [municipality]. Construction and installation operations shall also be subject to inspection by the [municipality] during the progress of the work. The applicant, developer, or builder shall pay the reasonable and necessary expenses for inspections in accordance with the fee schedule established by resolution of [municipal governing body].

B. Improvement Specifications. All required road improvements should be constructed in accordance with the applicable provisions of the PADOT, Form 408, current edition, including the latest revisions and other applicable regulations. All other required improvements shall be constructed in accordance with approved specifications found in Articles Four, Five, and Six of this Ordinance. If the appropriate standards are not provided in this Ordinance, the following procedures shall be used.

1. Specifications. The specifications will be furnished to the applicant by the [municipality]. If any of the specifications are unavailable at the [municipality] office, the [municipality] Engineer shall provide the applicable specifications.

2. Sample of Materials. During or after construction of any required improvement, if the [municipality] requires a sample of materials, said sample shall be furnished by the appropriate contractor, in a form specified by the [municipality] Engineer.

C. Delivery Slips. Copies of all delivery slips for materials used in the construction of any storm sewers, sanitary sewers, roads, curbs, sidewalks, or any other facility within a [municipality] right-of-way or easement or in areas proposed for future dedication to the [municipality] shall be supplied to the [municipality].

Section 705. Off-Site Improvements.
Certain improvements beyond the geographical boundaries of a site to be subdivided and/or developed, including but not limited to road improvements, may be requested by the [municipality] where it can clearly be demonstrated that such improvements have

Applicants are required to pay reasonable inspection fees. If there is a dispute about the fees, Section 510 (g) of the MPC prescribes a resolution process.

In Pennsylvania, municipalities have limited powers to require developers to make off-site improvements. See in particular the definition of on-site improvements. Before making such improvements, developers must consider the impacts on neighboring properties and public infrastructure and consult with local authorities to determine the feasibility and requirements for on-site and off-site projects. The ordinance outlines procedures for notification, inspection, and compliance to ensure that all improvements comply with the applicable regulations and standards.
been made necessary solely through the additional burden imposed by the subdivision and/or development of the site. All such improvements or contributions for future off-site improvements shall be considered voluntary and will not be refunded to the developer. The developer may also be requested to cover certain costs which must be incurred by the [municipality] or other governmental jurisdiction in order to make these improvements feasible. The legal and financial arrangements to cover costs of the off-site improvements shall be the same as those prescribed in Section 702.

Section 706. Conditions of Acceptance.
A. Conditions. The [municipality] shall have no obligation to accept dedication of any street or other improvement unless:
1. The required improvements, utility mains and laterals, and monuments, shown on the approved plan or plans have been constructed to meet all requirements, and are free of defects or deterioration.
2. It is established to the satisfaction of [municipal governing body] that there is a need for the dedication of improvements.

B. Acceptance. The [municipality] shall have no responsibility with respect to any street or other improvement, not withstanding the use of the same by the public, unless the street or other improvement is accepted by the [municipality] through the passage of an ordinance [or resolution] adopted by [municipal governing body].

C. Offer of Dedication
1. The applicant shall submit a written offer of dedication to the [municipality] for the streets or other improvements, including the following:
   a. A Deed of Dedication covering the improvements.
   b. A copy of a title insurance policy establishing the applicant's clear title to the property.
2. The items required in 706 (C) 1, above, shall be submitted to the [municipality] Engineer and Solicitor for their review and recommendations.
3. [municipal governing body] may accept dedication of the streets or other improvements by passing an ordinance (or resolution) to that effect.

Section 707. Guarantee of Completed Improvements.
When the [municipal governing body] accepts dedication of required improvements following their completion or certifies project completion, the [municipal governing body] may require posting of financial security by the applicant to secure the structural integ-

The MPC addresses the dedication of municipal streets in Section 503 (3) noting that municipalities can set standards for street dedication.
rity and functioning of these improvements in accordance with the design and specifica-
tions as depicted on the approved Final Plan.
A. Said financial security shall be of the same type as otherwise required by Section
702, herein.
B. The amount of financial security shall be fifteen (15%) percent of the actual cost of
installation of the improvements.
C. The term of the guarantee shall be eighteen (18) months from the date of accep-
tance of dedication or certification of project completion.

Section 708. Private Maintenance of Improvements.
Where the maintenance of improvements is to be the responsibility of individual lot
owners, a homeowners' association or similar entity, or an organization capable of car-
rying out maintenance responsibilities, the [municipal governing body] shall require that
maintenance responsibilities be set forth in perpetual covenants or deed restrictions
binding on the landowners' successors in interest, and may further require that an initial
maintenance fund be established in a reasonable manner.

Section 709. Required Contracts.
Before the [municipal governing body] shall cause its approval to be endorsed upon the
Final Plans of any subdivision or land development (except in the case of minor subdi-
visions wherein [municipal governing body] may impose no condition or conditions for
the approval of the plan), and as a requirement for the approval thereof, the owners
shall enter into a written agreement with the [municipality] in the manner and form set
forth by the [municipality] Solicitor which shall include but not be limited to the following:
A. To construct or cause to be constructed or installed, at the owners' expense, all
streets, curbs, sidewalks, fire hydrants, street lights, stormwater facilities, water and
sewer facilities, street signs, monuments, capped sewers, parks, landscaping, line
painting, and other improvements shown the Final Plan when required to do so by
[municipal governing body] in accordance with the standards and specifications of
the [municipality].
B. To maintain at the owners' expense all streets, curbs, sidewalks, stormwater facili-
ties, water and sewer facilities, street signs, parks, monuments, fire hydrants, street
lights, capped sewers, line painting, landscaping, and other improvements, until the
same are accepted or condemned by the [municipality] for public use, and for a pe-
riod of eighteen (18) months thereafter to repair and reconstruct the same of any
part of one of them when such repair or reconstruction shall be specified by
[municipal governing body] as necessary by reason of faulty construction, work-
manship, or materials, or the structural integrity or functionality of the improvements
are not satisfactory as determined by the [municipality] or [municipal] engineer.

Section 509 K of the MPC, enables municipalities to require financial secur-
ity over the period of 18 months to en-
sure the structural integrity and func-
tioning of public improvements ac-
cepted by the governing body.

For other public improvements not dedi-
cated, the municipality needs to assure
that they will be successfully main-
tained. When they are not maintained,
the problem often comes back to the
municipality. Specific standards for
homeowners associations may be es-
tablished and used by municipalities in
reviewing homeowner association docu-
ments.

This is the outline of elements to be
included in a developers agreement.
Though not fully described in the MPC,
the developers agreement concept is
acknowledged. Generally it provides a
clean way to formally state conditions
of approval or offers made voluntarily
by the applicant. As one document, it
can be easily referenced and if neces-
sary could be recorded. Complex de-
velopments can take several years to
complete and may extend beyond the
tenure of key municipal elected officials
and staff. Likewise, the project may be
C. To pay all costs, charges, or rates, of the utility furnishing electric service for the lighting of the streets on or abutting said subdivision, from the lights installed by the owner, until such time as the streets shown on the subdivision plans shall be accepted as public streets of the [municipality] by ordinance (or resolution), and to indemnify and hold harmless the [municipality] from and against all suit, actions, claims, and demands for electric service to the streets shown on said plans, or any part thereof, to the time that said streets shall be accepted as public streets of the [municipality] in the manner hereinabove set forth.

D. Pay the inspection fees required by the [municipality].

E. To obtain the easements and releases required when any street, drainage facility or other improvement wherein a subdivision abuts or traverses land of persons other than the person holding legal title to the lands of the subdivision at his own cost, and obtain from the owner of the lands so abutted or traversed full releases from all damages which may change in grade, construction, or otherwise, of the street, drainage facility or other improvements and such releases shall insure to the benefit not only of the owner of the subdivision but to the [municipality] as well.

F. To promptly remove or cause to be removed snow from the streets as may be required for safe traverse of the streets prior to dedication.

G. To promptly reimburse to the [municipality] reasonable Solicitor’s and Engineers’ fees.

H. To provide in a timely manner, all construction and shop drawings and plans including a full set of “as built” plans in paper and in appropriate electronic format as specified by the [municipality] Engineer.

I. Such other provision(s) as deemed necessary or desired by [municipal governing body].
A developers agreement can contain several items including the following:

- **Preamble containing all dates, party names, plan dates, approvals, and other actions taken by the governing body.**
- **Time frame of improvements**
- **Listing of improvements and accepted values**
- **Inspection process**
- **Indemnification of municipality from design defects**
- **Form of financial security, responsibilities of the developer to maintain the security, and the process for the release, or partial release of security.**
- **All documents to be completed and recorded prior to building permit issuance**
- **Responsibilities of the developer to maintain the streets, including snow removal, or any other improvements prior to dedication.**
- **Required covenants for stormwater facilities**
- **Phasing requirements if any**
- **What happens to the development site in the event of default**
- **Dedication of improvements including documentation requirements**
- **Non assignment of developers agreement**
- **Developers heirs or assigns bound by the agreement**
- **Certification of insurance**
- **Notarized statement of responsible person to serve as the official contact**
- **Time schedule of all important activities.**
ARTICLE EIGHT
SPECIAL STUDIES AND REPORTS

Section 800. Applicability
The following special studies or reports to be developed by qualified professionals may be required to support and justify subdivision and land development proposals as required by this Ordinance and the Zoning Ordinance.

Section 801 Traffic Impact Study
A. Purpose. The Traffic Impact Study will enable the [municipality] to assess the impact of the proposed development on the transportation system, both highways and public transportation, in the [municipality]. The purpose of the impact study is to ensure that proposed developments do not adversely affect the transportation network and to identify any traffic problems associated with access between the site and the existing transportation network. The study’s purpose is also to delineate solutions to potential problems and to present improvements to be incorporated into the proposed development. The study shall assist in the protection of air quality, conservation of energy, and encouragement of public transportation use.

B. A Traffic Impact Study shall be prepared by a qualified traffic engineer and/or transportation planner with previous traffic study experience. Procedures and standards for a Traffic Impact Study are as set forth herein. The applicant may provide funds to the [municipality] to enable the [municipality] to hire a traffic engineer of its choice to conduct the study, if this procedure is deemed appropriate and approved by the [municipality].

C. A Traffic Impact Study prepared in accordance with the guidelines of the Pennsylvania Department of Transportation as part of an application for a state highway occupancy permit should be submitted to the [municipality] in fulfillment of this requirement.

D. Applicability. A Traffic Impact Study shall be submitted as part of all subdivision, land development, and conditional use applications for all residential subdivisions that meet the following:
   1. Generate 3,000 average trips per day;
   2. Generate 100 or more vehicle trips entering or exiting in any hour;
   3. Generate 100 or more additional vehicle trips in a redevelopment site; or

Commentary
The intent of this Article of the model subdivision and land development ordinance is to provide the minimum standards for impact studies that may be conducted for proposed plans.

Traffic impact studies measure the roadway congestion and overall traffic circulation impact of new developments. These studies are frequently performed by traffic engineering firms. The Pennsylvania Department of Transportation “Policies and Procedures for Transportation Impact Studies” is used for state highway occupancy permits and can generally serve as the guide for assessing transportation impacts when state roads are not involved. Where a traffic impact study is required by the PADOT, the applicant should submit that study to the municipality.

Triggering criteria for traffic studies are generally consistent with the PADOT manual.
4. Sites that do not meet the three criteria, but in the opinion of [municipal governing body] may have a significant impact on traffic flow and safety.

E. An application which requires a Traffic Impact Study shall not be considered complete until the Traffic Impact Study is submitted to the [municipality] in accordance with the provisions of this section.

F. Definitions.

1. Public Transportation. Transportation service for the general public provided by a common carrier of passengers generally on a regular route basis or a private operator offering service to the public.

2. Study Area. This area will extend approximately one-half (1/2) mile along the adjacent roadways in all directions from all access points or the first major intersection along these roadways. Where doubt exists, the traffic engineer shall seek guidance from the [municipality] Engineer prior to the submission of the Traffic Impact Study.

3. Major Intersection. Any intersection where traffic generated by the proposal will have significant impact and/or any other intersection involving an arterial road. Where doubt exists, the traffic engineer shall seek guidance from the [municipality] Engineer prior to the submission of the Traffic Impact Study.

4. Volume/Capacity Analysis. This procedure compares the volume of a roadway or intersection approach to its capacity (maximum number of vehicles that can pass a given point during a given time period.) The procedures described in the latest version of the Highway Capacity Manual published by the Transportation Research Board shall be followed.

5. Trip Generation Rates. The total number of vehicles to and from a study site per unit of land use as measured by parameters such as dwelling units, acres, etc.

6. Queue Analysis. This procedure includes the average queue and maximum queue of vehicles which will be observed in each traffic stream and intersection approach, measured in both feet and vehicles. Various statistical and/or computer models may be applied.

7. Warrants for Traffic Signal Installation. The minimum traffic or pedestrian volumes or other criteria necessary for the installation of a traffic signal. These warrants are contained in the Manual on Uniform Traffic Control Devices for Streets and Highways, U.S. Department of Transportation, Federal Highway Administration, 2003, as amended, or the most recent version, whichever is later.

It is important that the traffic impact study is submitted at the same time as the preliminary plan. It should be reviewed by the municipal engineer or other appropriate professionals immediately. If a PennDot road is involved, coordination with the state should commence as soon as possible. If access points or critical road changes are required, they could have a significant impact on the overall site design potentially altering the placement of buildings, open space, and other important features of the development.

Definitions relating to traffic impact studies are provided here. These could also be placed within Article Two.
G. General Requirements and Standards. A Traffic Impact Study shall contain the following information:

1. General Site Description. The site description shall include the size, location, proposed land uses, construction staging and completion date of the proposed subdivision or land development. If the development is residential, types of dwelling units shall also be included. A brief description of other major existing and proposed developments within the study area shall be provided. The general site description shall also include probable socio-economic characteristics of potential site users to the extent that they may affect the transportation needs of the site (i.e., number of senior citizens).

2. Transportation Facilities Description. The description shall contain a full documentation of the proposed internal and existing external transportation system. This description shall include proposed internal vehicular, bicycle, and pedestrian circulation, all proposed ingress and egress locations, all internal roadway widths and rights-of-way, parking conditions, traffic channelization and any traffic signals or other intersection control devices at all intersections within the site. Data provided in the report should adequately document the following:

   a. Traffic volume counts
   b. Land use context
   c. Sight distance and site access
   d. Photographs
   e. Crash data
   f. Pedestrian, bike, and transit facilities

3. Existing Conditions Scenario. Full documentation shall be provided to adequately describe traffic conditions throughout the study area including, but not limited to, traffic volume, capacity and level of service analysis, and crash analysis.

4. Background Traffic. Projections of traffic volumes at the project opening year and design horizon shall be made by applying a growth factor to existing base traffic volumes. Planned and permitted developments that will impact the study area shall be evaluated for addition to future traffic volume.

5. Traffic Characteristics of the Proposed Development. The following characteristics of traffic generated by a proposed development shall be estimated based upon reasonable sources as agreed upon by the [municipality], PennDot, and the applicant.

The elements of the traffic impact study are taken from the “Policies and Procedures for Traffic Impact Studies” prepared by PennDot. More details regard the procedures to be used in addressing each element is contained within that report which is available online.
a. Trip generation—total volume of traffic arriving at and departing from a site.
b. Modal split—the form or type of transportation used to reach or depart from a site.
c. Trip distribution—the arrival and departure pattern of traffic at a site.
d. Traffic assignment—typical routes used to arrive at or depart from a site.

6. Future Analysis. Future traffic volumes for the study area at the project opening year and design horizon year shall be projected in at least two scenarios: with and without the proposed development.

7. Level of Service Requirements. The impact of development on the level of service at key intersections shall be evaluated.

8. Mitigation Analysis. If level of service requirements are not realized, the study shall outline mitigation measures and demonstrate any changes to the level of service achieved by these measures. Any alternatives or suggested phasing of improvements shall be described. The mitigation measures may include recommendations such as roadway widening, turning lanes, deceleration lanes/tapers, changes to signalization, use of access management techniques, or a reduction in the proposed intensity of the use. The responsibility and timing of all recommended roadway improvements shall be described within the traffic impact study.

H. Time of Submission. The Traffic Impact Study shall be submitted to the [municipality] with the preliminary plan submission. Revisions to preliminary plans may constitute the need for re-submission of the traffic impact study for the revised conditions. The applicant shall coordinate the submission of plans and highway occupancy permit applications to PennDot with the [municipality] review process.

I. Implementation. The [municipal governing body] shall review the Traffic Impact Study to analyze its adequacy in solving any traffic problems that will occur due to the land development or subdivision. The [municipal governing body] may determine that certain improvements on and/or adjacent to the site are necessary requirements for land development or subdivision plan approval and may attach these as conditions to the approval. If the [municipal governing body] determines that such additional improvements are necessary, the developer shall have the opportunity to submit alternative improvement designs to obtain plan approval. When PennDot or the Montgomery County Roads and Bridges Division maintain the road upon which access from a development is sought, the [municipality] and applicant shall coordinate with the appropriate entity.

J. Emergency Response Organizations. The [municipality] shall submit all land development plans to the fire department, police department, and any other emergency...
Many major land developments or subdivisions will require access to roads owned by PennDot. A highway occupancy permit from PennDot is required to ensure that the location and design of roads and driveways are safe and will not adversely impact area traffic. In cases where significant traffic volumes are anticipated from a new project, PennDot may require the submission of a traffic impact study. The review of this study and decisions made regarding the location of access and proposed transportation system improvements should be closely coordinated between the municipality and PennDot.

The Municipalities Planning Code in Section 508 (5) requires that before final plan approval can be given, the property owner should have a highway occupancy permit or the plan shall contain a notice stating that the permit is required. In all cases except for very minor subdivisions, a permit should be required.

### Suggested Process HOP Coordination Time Line

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<thead>
<tr>
<th>Highway Occupancy Permit Process</th>
<th>Start Date</th>
<th>Land Development Process</th>
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<tbody>
<tr>
<td>TIS / HOP Scoping Submittal</td>
<td>Sketch Plan Submitted</td>
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<tr>
<td>TIS / HOP Scoping Meeting</td>
<td>Sketch Plan Public Meetings</td>
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<tr>
<td>Prepare TIS</td>
<td>Preliminary Land Development Submission</td>
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<tr>
<td>Mitigation Plan / Alternative Transportation Plan Submitted</td>
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<tr>
<td>TIS and Mitigation Plan / Alternative Transportation Plan Review Period</td>
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<tr>
<td>TIS and Mitigation Plan / Alternate Transportation Plan Approved</td>
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<tr>
<td>Professional Review Period</td>
<td>Preliminary Land Development Hearings</td>
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<td>Professional / Public Review Period</td>
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<tr>
<td>Preliminary Land Development Approval</td>
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<tr>
<td>Prepare Construction Plans</td>
<td>Prepare and Submit Final Land Development Plan</td>
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<td>Construction Plan Review Period</td>
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<tr>
<td>Construction Plans Approval</td>
<td>Final Land Development Approval</td>
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<tr>
<td>HOP Approved</td>
<td>Building Permit Issued</td>
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**Note:** Statutory and regulatory review times hold, however, preparation and review times vary.

Source: Policies and Procedures for Transportation Impact Studies—PennDot
response organization having jurisdiction within the area of the proposed development for review and comment." If requested by them, the [municipal governing body] may require the developer of a land development to provide emergency signal preemption for any traffic signals located within or immediately adjacent to the development.

Section 802. Stormwater Management Reports and Hydrologic Calculations.

A. The stormwater management report shall be a self-contained report with all calculations and design elements. All plans showing the proposed storm sewer construction must be accompanied by a complete design prepared by a registered engineer. The report shall contain the following elements:

1. Design for Stormwater Control Structures
2. Design of Stormwater Conveyance System
3. Design to Address Stormwater Quality Controls
4. Proposed Stormwater System Management Requirements

B. Design of Stormwater Control Structures

1. Calculation. The quantity of runoff shall be computed using the following methods for stormwater control structures:
   a. NRCS Soil Cover Complex Method (TR–55 or TR-20 or commercial equivalent) for drainage areas up to 100 acres
   b. NRCS Soil Cover Complex Method (TR-20 or commercial equivalent) or one of the hydrologic methods implemented in HEC-HMS or HEC-1 for drainage areas over 100 acres.
   c. A rational hydrograph method (Modified Rational or Universal Rational) may be used for any site equal to or less than 2 acres.
   d. Other methods as approved by the [municipality] engineer.

2. Assumptions. The following assumptions shall be used in the appropriate stormwater computational method.
   a. Design runoff hydrographs shall be based upon the most current PennDot regional twenty-four (24) hour rainfall depths or NOAA Atlas 14 data.
   b. NRCS Type II distribution shall be used to establish the rainfall distribution for stormwater management hydrologic analysis.
   c. The NRCS dimensionless unit hydrograph “k” factor of 484 shall be used for both pre– and post– development stormwater analysis unless a different
value is found to be more appropriate based upon watershed analysis.

3. Stormwater Volume Control design shall be based upon a two (2) year, 24 hour storm event.

4. Stormwater Peak Runoff Control design shall be based upon the one (1), two (2), ten (10) and one-hundred (100) year 24 hour storm events.

C. Water Quality Control
   a. Demonstration that the design capture volume is completely removed and 90% of the disturbed area in a site is drained through a water quality BMP; or
   b. Computationally demonstrate compliance with the water quality standard by estimating pollutant loadings for the proposed development and pollutant load reductions by selected BMPs
   c. Post development pollutant loadings shall be computed based upon the land cover classifications and loading rates in the Pennsylvania Stormwater Design Manual or other sources provided by the [municipality] engineer.

D. Stormwater Conveyance Design. The storm drainage system consisting of storm sewer pipes, swales, and open channels shall be based upon the following design standards:

1. Design Frequency. All stormwater facilities shall be designed to transport a ten (10)-year frequency storm. Provision must also be made to transport a 50-year frequency storm so that surface waters will not damage property or flood roads, and that the 50-year frequency storm shall be transported to the appropriate stormwater management facility.

2. The quantity of runoff in conveyance systems shall be computed using the following methods for stormwater control structures:
   a. Rational Method for drainage areas up to 200 acres in size.
   b. HEC-1, PSRM, or TR-20 for drainage areas between 200 acres and one-and-one-half (1.5) square miles.
   c. Over one and-one-half (1.5) square miles PSU– IV or equivalent.
   d. Other methods as approved by the [municipality] engineer.

3. Rain fall intensities in the most recent edition of the Pennsylvania Highway Design Manual Part 2 shall be used (PennDot)

4. Rational Method Coefficients shall be based upon the Pennsylvania Highway Design Manual Part 2 or the recommendation of the [municipal] engineer.

Section 803. Groundwater Study

A. Purpose. Groundwater studies are intended to determine if there is an adequate supply of water for a proposed use and to estimate the impact of additional water withdrawals on existing nearby wells, underlying aquifers, and streams.

B. Applicability

1. Since the [municipality] is located within the Southeastern Pennsylvania Groundwater Protection Area of the Delaware River Basin Commission (DRBC), all projects with wells withdrawing 10,000 gallons per day (gpd) or greater of groundwater or surface water or a combination of these two sources are required to obtain a permit from the DRBC. These projects are not required to submit groundwater impact study; however, copies of all submissions by the applicant to DRBC must be sent to the [municipality]. Additionally, copies of all submissions to the Pennsylvania Department of Environmental Protection (DEP) and all correspondence received by the applicant from DEP shall be forwarded to the [municipality].

2. Groundwater studies are required for projects that not subject to permit or docket approval from DRBC and which fall into one of the following three categories:

   a. Subdivisions that contain five or more dwelling units and have an overall gross density greater than one house per two acres, excluding residual agricultural lots.

   b. All land developments intended for nonresidential use (i.e. industrial, commercial, and institutional) unless waived by the [municipal governing body].

   c. Subdivisions or land developments taking place in an area with known groundwater contamination or groundwater supply problems as identified in the [municipality] Comprehensive Plan or by another study approved by the [governing body], or by the Department of Environmental Protection.
C. Study. The [municipality] will not approve any subdivision or land development where the groundwater impact study shows that the proposed water system:

1. Does not provide an adequate supply of water for the proposed use, considering both quality and quantity.
2. Adversely affects nearby wells and streams.
3. Does not provide for adequate groundwater recharge, considering other withdrawals.
4. Does not provide safe drinking water, taking into account reasonable treatment options.

D. General Requirements and Standards for a Groundwater Impact Study. All groundwater impact studies must meet the following requirements:

1. The study shall be prepared by a professional hydrologist, geologist, or engineer qualified to conduct groundwater investigations.
2. A Phase I study shall be conducted for all projects required to do a groundwater study. The Phase I study shall be based upon available literature and appropriate professional judgment and shall include the following information:
   a. Calculations of the projected water needs using the criteria set forth in the following references:
      2) Guide to Determination of Required Fire Flow by the Insurance Service Office (ISO) as modified.
      3) Standards and Manuals for the American Water Works Association, Denver, Colorado.
   b. A geologic map of the area within a 1.0-mile radius of the site boundary.
   c. The location of all faults, lineaments, and fracture traces within a quarter-mile of the site boundary.
   d. The locations of all existing and proposed wells within a quarter mile of the site boundary, and all large withdrawal wells (10,000+ gpd) within 1.0-mile of the site.
   e. The location of all existing and proposed on-lot septic systems within a quarter mile of the site boundary.
   f. The location of all streams, perennial, and intermittent, within a quarter mile
of the site boundary.

g. A discussion of the aquifers underlying the site and their long-term drought recharge capability based on accepted published data or detailed site specific investigation for both the pre- and post- development condition.

h. Based on the drought recharge capability of the underlying aquifer and the calculated daily groundwater withdrawals of the project, a hydrologic budget shall be calculated for the site and for the area within a quarter mile of the site boundary.

i. Based on the results of the hydrologic budget, a determination shall be made about adverse affects on the groundwater to be caused by the project. This determination should include analysis of the total recharge water volume lost to the site as a result of the creation of new impervious surface or modified ground cover found on site. Pumping of groundwater and waste water disposal must also be evaluated within the hydrologic budget.

j. Water quality information for area groundwater based from tests of area wells and special groundwater quality issues.

k. Potential sources of water quality impact such as wastewater treatment systems, industrial sites, landfills, underground storage facilities, surface water infiltration agriculture chemicals or solid waste disposal facilities existing within a quarter mile of the site boundary should be analyzed. All potential source impacts should include pollutant loading analysis using an accepted methodology to address metals/ inorganic compounds, hydrocarbons, suspended sediments, nutrients, biological chemical oxygen demand, volatile organics, and fecal coliform.

l. An estimation of the effects upon base flow of nearby streams, with special attention given to critical low flow periods.

m. Average rainfall and storm patterns

n. The study shall include a brief statement of the qualifications of the person (s) preparing the study.

o. The study shall consider data and conclusions within the following studies:

1) Special Groundwater Study of the Delaware River Basin Study Area II (Delaware River Basin Commission, 1982).


4) Previous reports prepared by other developers in the [municipality] which are determined to be relevant by the [municipality].

p. Technical Criteria. A Phase I study shall be prepared and submitted by the applicant, at the expense of the applicant, in compliance with the following criteria:

1) The text of studies shall contain pertinent data, analyses, and methods used to arrive at the report's conclusions. Appendices shall contain raw and summary data.

2) All figures contained within studies shall contain complete legends, titles, and scales.

3) All numerical parameters within studies shall be presented with appropriate units, and all data shall be referenced by sources, data, location, and time, where appropriate.

q. The Phase I Study should be certified by the licensed hydro-geologist/geologist or sealed by a professional engineer; whoever prepared the study.

3. A Phase II Groundwater Impact Study shall be conducted when the results of the Phase I study identify potential water supply problems. The Phase II study shall develop conclusions regarding groundwater impact based upon site investigations. Specific requirements for a Phase II study shall include:

a. A pump test shall be conducted in the following manner:

1) A step draw down test shall be conducted in accordance with AWWA Standard A100, latest revision. Upon completion of the step draw down test, a 48-hour continuous pump test shall be conducted in accordance with DEP and AWWA A100 standards.

2) The test shall be conducted during a period of when no significant recharge has occurred, unless the influence of recharge can be factored out.

3) The test shall include one pumping well (roughly centered on-site) and at least two observation wells. The pumping and observation wells should be located on the same fracture based upon a fracture trace analysis conducted at the site.
4) Analyses shall include all pumping and recovery calculations of hydraulic conductivity (directional) and specific yield, specific capacity and long-term sustainable well yield (tabulated).

5) The test shall be conducted with a pumping rate of 20 percent greater than the proposed peak rate of groundwater use.

6) One pumping test (done separately) shall be required for each 160 acres of the proposed subdivision.

7) Residents of properties within one-half (½) mile of the site boundary shall be canvassed to determine if there are any adverse impacts on their wells caused by the pump test.

b. Samples of water shall be drawn from all test wells on site prior to the termination of the pump test and shall be tested for all parameters required for DEP for the new sources in conformance with their publication “Water Supply Manual” in addition to odor, bacteria-total plate count, total coliform per one-hundred (100) millimeters, and hardness. An analysis of the above listed parameters shall be performed on the samples by a laboratory certified by the DEP. Lab analysis should be performed in accordance with “Standard Methods for the Examination of Water and Wastewater,” latest edition.

c. The Phase II study shall be prepared and submitted to the [municipality] at the applicants expense. In addition to the information required for the Phase I study, the Phase II study should include the following:

1) Samples and records as required by DEP in the Public Water Supply Manual Part II, Chapter 3.

2) The static water level immediately prior to yield testing.

3) A hydrography of the depth to water surface during test pumping and recovery period at the test well or wells showing corresponding pump. Based on the drought recharge capability of the underlying aquifer and the calculated daily groundwater withdrawals of the project, a hydrologic budget shall be calculated for the site property itself, and for the area within a quarter mile of the site boundary.

4) A log of depth to water surfaces of existing and monitoring wells during the pump test period showing the times readings were taken.

5) A map illustrating the draw-down effects upon off-site wells and springs located within one-half (½) mile distance from the site boundary, indicat-
ing draw-downs of one foot or more, occurring during a year with a natural recharge rate of one-year-in-ten frequency.

6) An analysis and interpretation of the impact of the proposed water supply and distribution system on the groundwater supply and existing wells.

Section 804 Historic and Cultural Resources

A. Projects affecting or potentially affecting historical or archeological sites may be subject to the review and approval of the Pennsylvania Historical and Museum Commission– Bureau of Historic Preservation (BHP) under the Provisions of Section 106 of the National Historic Preservation Act and Section 10 of the Pennsylvania Historic Preservation Act. The BHP will review any site for potential archeological or historical site impact and may recommend one of the following actions:

1. Phase I Survey
2. Phase II Survey
3. Phase III Mitigation

B. Application for Demolition of an Historic Structure. As part of the request for a demolition permit, the applicant shall file a report prepared by a qualified historic preservation professional knowledgeable in the historic period of the structure. To support the demolition of the property the report should clearly demonstrate the following:

1. That the current use of the building is no longer feasible.
2. That other possible uses have been denied or have been deemed infeasible due to the requirements of the current Zoning Ordinance or building code.
3. That potential adaptive reuses of the building are infeasible due to the constraints related to the building, structure or property.
4. That the building, its permitted uses, and adaptive reuse potential does not provide a reasonable rate of return, based on a reasonable initial investment.
5. That the applicant has not contributed to existing conditions, either through neglect or prior renovation, conversion, alternation, or similar actions.
6. That a proposed new building or use of the property will not adversely affect the character of the neighborhood.
7. That the building is structurally unsound.

Historic and Cultural Resources may be studied and documented when proposed development would remove or alter them.
C. If a demolition permit is granted for the historic building, the applicant shall prepare an historic structure report with the following information:

1. Physical description including a site and written description of the setting of the historic buildings.
2. Historic narrative of building describing its historical significance and including a bibliography.
3. Chain of title.
4. Photographic documentation including general site conditions, and details of the building, both exterior and interior.
5. Measured drawings labeled for cross reference to the photographs.
6. Appendices should include copies of the deeds and relevant wills, maps and other supporting materials.

This could be tied into any demolition permit requirements that the municipality might have in place. In some cases, local historic groups may be involved as the depository of the documentation and artifacts from demolished buildings.
ARTICLE NINE
ADMINISTRATION, FEES, AND ENFORCEMENT

Section 900. General Administration.
All provisions of this ordinance shall be administered by [municipal governing body] or their officially designated representatives. All matters relating to this ordinance shall be submitted to the [municipality] [manager/secretary] who will handle the matter in accordance with current [municipality] policies, procedures, and guidelines established by [municipal governing body].

Section 901. Records.
The [municipality] shall keep a public record of its correspondence, findings, recommendations, and actions relating to plans filed for review, in accordance with the policies, procedures, and guidelines established by the [municipal governing body] and Planning Commission.

Section 902. Fees and Costs.
A. No application for preliminary or final plan approval shall be filed and processed until the fees and/or escrow deposit, as set forth below, shall have been paid.
B. [municipal governing body] shall adopt and amend by resolution a schedule of fees, payable by the applicant to the [municipality] for the filing of preliminary and final plans.
C. [municipal governing body] shall adopt and amend by resolution a schedule of escrow deposits to be paid by the applicant to the [municipality] at the time of the filing of an application, sufficient to pay all [municipality] expenditures anticipated in the course of its review and disposition of plans.
   1. Costs incurred by the [municipality] in excess of the escrowed amount shall be paid by the applicant prior to the granting of approvals or permits.
   2. If costs incurred by the [municipality] are less than the escrowed amount, the difference shall be refunded to the applicant following disposition of the plans.
D. [municipality] expenditures subject to escrow as in Section 902 (C), above, include but are not limited to the following:
   1. Engineering and other technical services performed by landscape architects, geologists, planners, and other professionals during the plan review.
   2. Construction inspection and the testing of materials.
   3. Services of the [municipality] Solicitor in reviewing and/or preparing documents related to the plan reviews.

Commentary

In Section 207 of Municipalities Planning Code, planning commissions are required to keep records and file annual report.

An appropriate schedule of fees can be set by resolution of the governing body from time to time. It should be based upon the actual costs of conducting reviews and inspections of proposed developments.

Amendments to the MPC in 2004 clarified the professional consultants which the municipality can use for the review process. The definition of professional consultants includes but are not limited to the following: engineers, attorneys, certified public accountants, planners, landscape architects, architects, land surveyors, and geologists.
4. Actual costs of recording

5. An administrative charge of fifteen (15%) percent of the total costs described in the previous four subsections.

E. Escrow accounts for fees to conduct the necessary inspection and review services provided by the [municipality] during the construction of improvements approved in the final plan shall be established as part of the developers agreement required in Section 709.

F. Disputes. In the event that the applicant disputes the amount of any such review fee, the applicant shall, within forty-five (45) days of the billing date or the notice of withdrawal by the [municipality] of an amount held in escrow, notify the [municipality] and their consultant that the fees are disputed. In such case the [municipality] shall not delay or disapprove a subdivision or land development due to the applicant's request regarding disputed fees. The applicant shall within thirty (30) days after the transmittal date of a bill for inspection services or forty-five (45) days of the date of transmittal of a final bill for inspection services, notify the [municipality] and their professional consultant that the fees are disputed. The fee dispute process established in the Pennsylvania Municipalities Code generally includes following steps:

1. In the event that the [municipality] and the applicant cannot agree on the amount of any review fees which are reasonable and necessary, then the [municipality] and applicant shall jointly by mutual agreement, appoint another professional consultant serving as arbitrator to examine the disputed review fees and make a determination as to the amount thereof which are fair and reasonable within fifty (50) days.

2. Appropriate payments or reimbursements shall be made within 60 days following the decision by the arbitrator.

3. If the [municipality] and applicant cannot agree on an independent professional consultant to serve as arbitrator within twenty (20) days of the billing date, then upon application of either party, the President Judge of the Court of Common Pleas of the judicial district in which the municipality is located shall appoint an engineer who shall be neither the [municipality] engineer or any professional engineer who has been retained by, or performed services for the [municipality] or applicant within the preceding five (5) years.

4. The fee of the appointed arbitrator shall be paid by the applicant if the amount of payment required in the decision is equal to or greater than the original bill. If the amount of payment is less than the original bill by $5,000 or more, the arbitrator may require part of full payment from the applicant or professional con-

The dispute resolution protocol is taken from Section 503 (1) of the MPC. Also see Section 510. Section 503 pertains to review fees incurred during the plan review phase. Section 510 addresses the fee dispute process during the construction inspection phase of the development. Generally the process is similar, though there are some unique differences between them that should be realized. For example, the applicant has 45 days from the receipt of a bill for plan review costs to file an objection, though the MPC only gives the applicant 30 days to file an objection to a bill for inspection work during construction.
sultant. In all other cases, the consultant and [municipality] should each pay one half of the fees of the professional engineer.

Section 903. Waiver of Requirements.
Upon review and recommendation by the [municipality] Planning Commission, the [municipal governing body] may grant a modification of the requirements of one or more provisions of this ordinance, if the literal enforcement of them would exact undue hardship because of peculiar conditions pertaining to the land in question, provided that such modification(s) will not be contrary to the public interest and that the purpose and intent of this ordinance is observed. All requests for modification(s) shall:
A. Be in writing and part of an application for subdivision and/or land development;
B. State the grounds and facts of unreasonableness or hardship on which the request is based or the public benefit of an alternative design standard;
C. List the provision(s) of the Ordinance involved; and
D. State the minimum modification necessary.

Section 904. Enforcement.
A. Preventative Remedies.
   1. In addition to other remedies, the [municipality] may institute and maintain appropriate actions by law or in equity to restrain, to correct or abate violations, to prevent unlawful construction, to recover damages and to prevent illegal occupancy of a building.
   2. The [municipality] may refuse to issue any permit or grant any approval necessary to further improve any real property which has been developed or has resulted from a subdivision in violation to this Ordinance. As an additional condition for the issuance of any permit or approval, the [municipality] may require compliance with the conditions that would have been applicable to the property at which time the applicant acquired it.
B. Any person, partnership, or corporation who or which has violated the provisions of this Subdivision and Land Development Ordinance shall, upon being found liable therefore in a civil enforcement proceeding commenced by the [municipality], pay a judgment of not more than $500 plus all court costs, including the reasonable attorney fees incurred by the [municipality] as a result thereof.
C. No judgment shall commence or be imposed, levied, or be payable until the date of the determination of a violation by the district justice.

Waiver Requirements (the MPC refers to them as Modifications in Section 512.1) are also addressed in Section 106 of the Model Ordinance. In acting upon waivers the governing body should ensure that changes in design will not adversely impact the community.

Enforcement is derived from Sections 515 and 516 of the Municipalities Planning Code addressing enforcement and penalties.
D. If the defendant neither pays nor timely appeals the judgment, the [municipality] may enforce the judgment pursuant to the applicable rules of civil procedure.

E. Each day that a violation continues shall constitute a separate violation, unless the district justice determining that there has been a violation further determines that there was a good faith basis for the person, partnership, or corporation violating the Ordinance to have believed that there was no such violation, in which event there shall be deemed to have been only one such violation until the fifth day following the date of the determination of a violation by the district justice and thereafter each day that a violation continues shall constitute a separate violation.

F. All fines collected for such violations shall be paid to the [municipality].
ARTICLE TEN
AMENDMENTS, VALIDITY, AND REPEALER

Section 1000. Amendment Procedure.  
The [municipal governing body] may, from time to time, amend, supplement, change, modify, or repeal this ordinance by proceeding in accordance with the Pennsylvania Municipalities Planning Code. The [municipal governing body] shall, by resolution adopted at a regular or special meeting, fix the time and place of a public hearing on the proposed amendment and cause public notice thereof to be given as follows:  
A. By publishing a notice thereof once each week for two successive weeks in a newspaper of general circulation within the [municipality]. The first notice shall not be more than thirty (30) days or less than seven (7) days from the date of the hearing.  
B. The notice shall state the time and place of the hearing, the general nature of the proposed amendment and that full opportunity to be heard will be given to any citizen and all parties with an interest in attending such hearing.  
C. Whenever a proposed amendment affects a particular property, there shall be posted upon said property or premises at such place or places as the [municipal governing body] may direct, notice of said proposed amendment.  

Section 1001. Referral to Planning Commission.  
All proposed amendments before adoption shall be referred to the [municipality] Planning Commission and Montgomery County Planning Commission at least thirty (30) days prior to the public hearing, for recommendation and report, which shall be advisory.  

Section 1002. Validity.  
Should any section of this Ordinance be declared to be invalid by a court of competent jurisdiction, such decision shall not affect the validity of the Ordinance as a whole or any other part thereof.  

Section 1003. Repealer.  
All Ordinances and parts of Ordinances inconsistent herewith are repealed upon the legally effective date of this Ordinance.

Commentary

This Article generally recapitulates Sections 505 and 506 of the MPC with regard to the ordinance amendment process.

This is common ordinance language which attempts to limit the impact of future court challenges regarding portions of it.
Appendix A: Bibliography of Key Reference Material

PENNSYLVANIA LAND USE CONTROLS

Center for Local Government Services Planning Series:

Local Land Use Controls
The Planning Commission
The Comprehensive Plan
Zoning
The Zoning Hearing Board
Special Exceptions, Conditional Uses, and Variances
Subdivision and Land Development
The Zoning Officer
Reducing Land Use Barriers to Affordable Housing
Technical Information on Floodplain Management

Each Planning Series guidebook provides an overview of important planning activities and legal powers established through the Municipalities Planning Code. They are posted on line at the DCED web site.


As part of the implementation of the 2005 Montgomery County Comprehensive Plan, Design Guidelines have been provided to create a framework for zoning and subdivision and land development ordinances to be developed by local municipalities.


This handbook provides a vast array of critical information on the environment, design, legal, and practical aspects of growth management for local municipalities in Pennsylvania. It is a guide to good community development under existing laws with the use of currently available tools.
The Hammer Center produced this comprehensive resource guide to the development of residential subdivisions and land developments. It addresses site considerations and provides detailed design guidelines for residential streets, pedestrian and bicycle circulation, parking, stormwater facilities, wastewater facilities, potable water systems, and other utilities.


This book uses various case studies to explain a 4-step subdivision process that can produce developments that are built upon conservation and open space considerations.


Though originally written as a manual for development within Florida, this well illustrated guide provides simple straightforward design principles that could be applied to development projects in Pennsylvania. This book is particularly handy as a guide for large scale development.


This handbook provides an overall description of various elements commonly addressed in subdivision and land development codes. It also includes a model subdivision and land development code.


Twenty-two basic design principles are fully described in this volume. Case studies, references, cost data, and effectiveness are described for each principle.
Mandatory dedication is an effective way to acquire parkland if done correctly. This book provides legal and practical guidance for mandatory dedication.

STREETS


This edition of the “green book” is a universal engineering reference on a variety of highway design elements.


This third edition takes a practical approach to planning and designing streets that is cost effective and enhances the livability of subdivisions and new urbanist communities. It offers a fresh look at street widths, geometrics, traffic flow, and other design considerations, as well as intersections, drainage systems, and pavement.


Performance Streets presents a unique approach to establishing roadway standards that are derived from expected usage.


This design manual addresses all elements of road design and construction.


The Handbook focuses on traffic calming measures that are used to ad-
dress speeding and cut-through traffic volumes, and includes information on various issues such as legal authority, liability, funding, and impacts on emergency services.

TRAILS AND PATHWAYS


This guidebook provides guidance to municipalities in establishing a trail system through the development process. Specific examples of promoting trails in comprehensive plans, zoning ordinances, official maps, and subdivision and land development ordinances are discussed.


This guide provides information to help accommodate bicycle traffic in most riding environments. Though it is not intended to set forth strict standards, it presents sound guidelines that will be valuable in attaining good design that is sensitive to the needs of both bicyclists and other highway users. However, in some sections of this guide, design criteria include suggested minimum guidelines.


Guidelines in this manual are for projects developed or funded by Montgomery County. Other funding sources and references are provided in this guideline publication.

STORMWATER MANAGEMENT


The purpose of the Pennsylvania Stormwater Best Management Practices (BMP) Manual is to provide guidance, options, and tools that can be used to protect water quality, enhance water availability, and reduce flooding potential through effective stormwater management. This manual presents design standards and planning concepts for use by local
authorities, planners, land developers, engineers, contractors, and others involved with planning, designing, reviewing, approving, and constructing land development projects.

NATURAL AREAS PRESERVATION

Department of Environmental Resources. 1986. A Streambank Stabilization and Management Guide.

This guidebook provides a description of several stream bank stabilization techniques suitable for use in Pennsylvania. In addition, the book discusses river and stream dynamics.


This handbook describes wetlands and their value. Wetland protection techniques including local land use controls, local planning, and acquisition are discussed. A thorough appendix which includes wetland identification and permitting information is also included in the handbook.


Specific conservation techniques for special protection waters, high quality waters, and exceptional value waters are addressed in this handbook. The handbook discusses stormwater management techniques, land use planning, erosion control, waste disposal techniques as well as specific procedures for designating Special Protection Waters.


This publication provides a model riparian corridor ordinance with text explaining how the ordinance was developed.


This report discusses the value of trees in our communities and the vari-

The guidelines and other MCPC publications are available at http://www.montcopa.org/planning
ous legal aspects involved in tree preservation. It also provides guidance in the preparation of a tree conservation ordinance.


Recently reissued, this book has served as the essential source book to environmental planners for many years. Design with Nature first introduced the concept of planning and growth management based upon a rigorous evaluation of natural conditions and the carrying capacity of land.

The Pennsylvania Municipal Planning Educational Institute formed through a partnership between the Pennsylvania Chapter of the American Planning Association, Penn State University, the Commonwealth of Pennsylvania and the Boroughs Association provides an excellent training course in subdivision and land development for municipal officials.

INTERNET SITES:

www.planning.org is the American Planning Association site with various resources including publications listings.

www.generalcode.com provides online codes for several communities in Pennsylvania and surrounding states. A search engine within the sites allows you to get specific citations based upon key words

www.legis.state.pa.us contains information about the activities of the general assembly including an online bill room with copies of all legislation under consideration.

www.dep.state.pa.us is the Department of Environmental Protection site complete with information on all Pennsylvania environmental programs, regulations, and policies.

www.dcnr.state.pa.us is the Department of Conservation and Natural Resources site which contains open space grant information

http://www.dced.state.pa.us/PA_Exec/DCED/government/land-use.htm is the PA Center for Local Government Services site. They provide planning grants and technical assistance.
http://www.pabulletin.com the online version of the Pennsylvania Bulletin listing all proposed state regulations, policies and actions.

http://www.pacode.com an online version of the PA Code (all the enacted laws)
All preliminary and final subdivision and land development proposals in [municipality] shall be submitted to the [municipality] secretary during normal business hours and shall contain the following:

- Completed and signed [municipality] and [county] application form.
- Full payment of all required [municipality] and [county] application fees.
- [#] sets of plans prepared in accordance with the standards established in Section _____ of the subdivision and land development ordinance.
- Copy of the property deed, agreement of sale, lease or other legal agreement through which the applicant has rights or authorization to develop or subdivide the property.
- Signed authorization allowing the [municipality] officials or their representatives to conduct an inspection of the property.
- Proof that the property has been posted in accordance with Section _____ of the subdivision and land development ordinance.
- All reports, plans, or studies required by the subdivision and land development ordinance.
- Request for waivers or modifications from the standards in the subdivision and land development ordinance if needed.
- Any other information required by the subdivision and land development ordinance.

The above items shall be submitted at the same time in complete form to avoid any delays in the review process. Your application will not be considered to be officially filed, and will not be accepted until you have submitted all required items.

In the future, if you revise your plans, please be aware that any revisions must be submitted directly to the [municipality] secretary and shall be accompanied by the [municipality] reapplication form.
INTRODUCTION

The [municipality] Subdivision and Land Development Ordinance of [date] (SALDO) establishes practices and procedures for the submission and processing of subdivision and land development plans for properties within the [municipality]. These procedures are consistent with the requirements of the Pennsylvania Municipalities Planning Code and are intended to encourage a productive review process leading to the approval of land development and subdivision plans that enhance the [municipality].

The SALDO incorporates a three-step process for plan submission and review, including 1) an optional sketch plan; 2) a preliminary plan; and 3) a final plan. A more detailed description of the process provided below is intended as a general outline of each step. This should not be construed as a substitution for any specific provision of the SALDO or guidelines established by the [governing body]. Applicants should review the SALDO for specific plan filing requirements, deadlines, and for information relating to the number of copies to be provided for review.

Applicants are encouraged at all points in the plan review process to consult with the [municipality] planning commission regarding specific aspects of the plan review.

A. SKETCH PLAN

The submission of a Sketch Plan is optional. It is encouraged since it provides an opportunity for applicants to present their ideas informally for the subdivision or land development of a tract prior to the expenditure of significant engineering and design costs. Requirements for submission will depend upon the scope and scale of the proposed development. Sketch Plans are not subject to a formal approval process and no formal action is taken on these submissions. The [municipality] will consider the execution of an agreement with the applicant defining the terms of the sketch review process.

The planning commission and municipal staff may elect to conduct a site visit as part of the sketch plan review process. This step would be for fact finding purposes and no deliberation or recommendations would be made during the site visit.
B. PRELIMINARY PLAN

The formal plan submission process begins with the filing of the Preliminary Plan in accordance with Section _____ of the SALDO. The Preliminary Plan process is governed by the Pennsylvania Municipalities Planning Code which requires that the plan be reviewed and acted upon, i.e. approved or denied, by the [municipality] within ninety (90) days of acceptance of the plan by the planning commission after plan filing. An extension of time granted by the applicant may be required to complete the review process. Plans are also reviewed by the Montgomery County Planning Commission and other agencies, depending upon the individual requirements of the development. Applicants should be aware that Preliminary Plans are to be fully engineered plans that cannot be properly filed unless they are complete. During the review of the plan, the [municipality] planning commission members and the [municipality] engineer, and other [municipality] officials, as necessary, will evaluate the plan by meeting with the applicant and performing site visits.

C. FINAL PLAN

Following the approval of a Preliminary Plan by the [governing body], and the acceptance of all conditions by the applicant, the applicant shall submit the Final Plan in accordance with Section ____ of the SALDO. No plans can be recorded, lots conveyed, or building permits issued until the final plan has been approved by the [governing body], the applicant has accepted all conditions of approval, all agreements including a developer's agreement have been fully executed, proper funds for inspection and performance guarantee have been established, and the plans have been properly recorded. The applicant may apply for grading permits or other permits in order to conduct some site development improvements following preliminary plan approval.

D. MINOR PLAN SUBMISSIONS

Under Section ____ of the SALDO, certain plans may proceed under a "minor plan" review process. These are limited to a lot line adjustment, simple conveyance, minor subdivision, mortgage subdivision, and minor land development as defined in the ordinance. Each of these plans is specifically outlined in Section ____ and will be strictly applied.

Conducting a site visit makes a lot of sense for most projects. This should be encouraged whenever possible. Permission should be obtained from the land owner prior to the site visit.
**E. RESUBMISSION**

Only one set of plans for each site will be under review at any time. If the revisions are made to preliminary or final plans filed with the [municipality], resubmissions must be made in the manner outlined in Section _____. A fully completed and executed application form should accompany any resubmission.

**F. WAIVER PROCESS**

Any request for a waiver or modification from any provision of the SALDO as addressed in Section ____ of the SALDO and must be submitted in writing with the application stating the following: grounds and facts of unreasonableness or hardship; provisions of the ordinance from which waivers are sought; and the minimum modification necessary being requested. Applicants should be aware that the planning commission is not obligated to recommend, nor the [governing body] obligated to approve waiver requests. Waivers or modifications will only be granted if they are supported by the facts and arguments made by the applicant and are shown to be in the best interest of the public.

Resubmissions should be handled very carefully to avoid the review of multiple versions of the same plans.

It is important to formalize the waiver process so that there is documentation of all of the modifications or waivers granted.
Appendix D: Sample Subdivision and Land Development Filing Check List

Subdivision and Land Development Plan Filing Check List

Sketch Plan

☐ The entire tract boundary, total acreage, and acreage of each lot.
☐ Location of existing and proposed streets, lots, buildings, and appropriate building envelopes.
☐ Significant physical features such as floodplain, steep slopes, woodlands, and existing structures.
☐ Contour lines.
☐ Approximate locations for stormwater facilities.
☐ Location plan showing the relationship of the subject site to surrounding road network and physical features.
☐ The general location and extent of open space, preserved land, and trail system.
☐ Name, address, email, and phone number of the applicant.
☐ Name, address, email, and phone number of engineer, surveyor, or architect.

Preliminary Plan

Basic Information.

☐ Name of the subdivision or land development.
☐ Name, address, email, and phone number of applicant.
☐ Name, address, email, and phone number of the firm which prepared the plan and professional seal of the individual certifying its accuracy and compliance with applicable standards.
☐ Date of preparation of the plan and a descriptive list of revisions to the plan, and the revision dates.
☐ North point and scale displayed in graphic and written form.
☐ Location plan showing the relationship of the subject tract to the surrounding road network and major physical features.
☐ The entire tract boundary with bearings and distances and total tract acreage.
☐ A list of the basic dimensional and density requirements of the applicable zoning district, compared to the applicant's proposal.
☐ Zoning classification(s) of all lands abutting the proposal.
☐ Names of all current owners of immediately adjacent lands.
☐ Number of acres (net and gross acreage should be indicated in accordance with the
- Number of lots and/or dwelling units and total building area.
- Description of any deed restrictions, including conservation and environmental, or other covenants affecting development of the tract.
- The requirements of any other local ordinance which may affect the proposal.
- Legend sufficient to indicate clearly between existing and proposed conditions.
- Name and address of the owner of record if different from the applicant.
- Tax parcel number(s) of all parcels being subdivided or developed.
- Deed book and page numbers for all parcels being subdivided or developed.
- A note shall be shown on the plan which states “Preliminary Plan - Not to be Recorded.”
- Streets bordering or crossing the tract.
- Water resources.
- Existing well locations - in use, capped, and abandoned
- Flood prone or floodplain areas.
- Sanitary sewers.
- Storm sewers.
- Other existing stormwater and/or erosion control facilities.
- Other natural features.
- Soil types.
- Contour information.
- Other man-made features, including existing buildings and utilities.
- Proposed subdivision and/or land development layout.
- Proposed streets, alleys, driveways, and parking areas, including all dimensions.
- Layout and dimensions of all lots, including the net and lot area as defined within the zoning ordinance.
- All building setback lines.
- All parking setback lines where applicable.
- Proposed sidewalk or other walkway locations.
- Proposed building locations.
- Open space and recreation areas.
- Parking, driveway, or road areas when privately owned for common use.
- Walkways or pathways.
- Areas for future uses.
- Impervious coverage area calculations.
- Proposed landscaping plan.
- Proposed outdoor lighting plan.
- Grading and drainage plan.
- Stormwater management and erosion control and sedimentation facilities.
- Infrastructure plan.
- Sanitary sewer line locations.
- Water supply facilities.
- Finished floor elevations of proposed buildings.
- Municipal waste disposal facilities.
- Cross sections, profiles, and preliminary structural designs.
- Additional Plans. Other plans as required to comply with [municipality] Zoning Ordinance.

**Final Plan**
- Construction Plan with required preliminary plan information.
- The location and size of sanitary sewers and lateral connections, and water mains with distances between manholes, gas, electric and other utility pipes or conduits and stormwater control systems.
- Cross sections.
- Construction detail drawings.
- Additional Information.
- All required local, state, and federal permits shall be submitted.
- All engineering calculations which support the proposed improvements.
- Certification of inspection and satisfactory functioning of any on-lot sewage disposal system which will remain in use, in accord with current industry, PADEP, or County Health Department standards.
- Developments utilizing public water or sewer facilities should provide proof that those services will be provided.
- Sewage facilities plan approval from PADEP.
- Approval of the erosion and sediment control plan from the Conservation District.
- Courses and distances sufficient for the legal description of all the lines shown on the plan.
- Names or identification of abutting owners.
- All dimensional and technical descriptions of roads.
square Easements.
square Rights-of-way.
square Open space, recreation, and/or other common use areas.
square Evidence that the plans are in conformance with the zoning ordinance and other applicable [municipality] ordinances and regulations.
square The location, material, and size of all existing and proposed monuments or pins with reference to them.
square Building setback lines with distances from the ultimate right-of-way line and property lines.
square Appropriate notes and conditions governing the use or development of the proposed property.
square The signature and seal of the registered Engineer and Surveyor certifying that the plan represents his/her work; that the monuments shown thereon exist as located; that the dimensional and geodetic details are correct and that the survey has been prepared in accordance with the "Pennsylvania Engineers Registration Law," PL 913, No. 367.
square The signature of the applicant certifying his adoption of the plan.
square Spaces for the signatures of [municipal governing body] whose signatures are required.
square Space for the signature of the [municipality] engineer and chairman of the [municipality] planning commission.

square Stamp and seal format for Montgomery County Planning Commission, located along the right-hand edge of the plan, measuring 3 1/2 inches wide and 2 1/2 inches tall.
Appendix E: Subdivision and Land Development Approval Resolution

[municipality]
[Pre|Final] Plan Approval Resolution # [number]
[development name]

WHEREAS, [applicant name] is proposing a [subdivision/land development] in [municipality] known as [development name] on a certain [#]-acre property located at [address] and identified as tax parcel [#]; and

WHEREAS, the [general type of development] proposal is intended to be [subdivided/developed] into [#] [lots/square feet of development] with various physical improvements; and

WHEREAS, the applicant filed a [preliminary/final] plan for the [development name] which was accepted by the [municipality] Planning Commission on [date] in accordance with the [municipality] Subdivision and Land Development Ordinance and the Pennsylvania Municipalities Planning Code [note any other extensions of the 90-day review date]; and

WHEREAS, on [date], the [municipality] Planning Commission recommended approval of the plan with conditions.

NOW THEREFORE BE IT RESOLVED, the [preliminary/final] [subdivision/land development] plan known as [development name] and prepared by [engineer or surveyor preparing the plan] on [date] containing sheets [number range] as described above is hereby approved subject to the conditions set forth below:

[condition]
[condition]

THEREFORE BE IT FURTHER RESOLVED, the following modifications are accepted by the [governing body] based upon the applicant’s request having determined from the materials presented that the requested modifications are consistent with the purpose of subdivision and land development ordinance [also refer to relevant plans or studies] and will not result in a negative impact to the overall health, safety, and general welfare of [municipality]:

[waiver]
[waiver]

THEREFORE BE IT FURTHER RESOLVED, that this approval action becomes effective on the date upon which the conditions in this resolution are accepted by the applicant in writing. Upon failure of the applicant to accept these conditions within 10 days of passage of this resolution, all actions approving the application and accepting modifications contained in this resolution are rescinded and the application shall be denied.

Clear documentation should be established at any stage of plan approval. One approach is to act upon a written resolution which recites certain key facts and enumerates any conditions of the approval action including waivers or modifications. Once adopted, the resolution should be signed and dated for the record. The resolution can be sent to the applicant to obtain acceptance of conditions.

Acceptance of modifications or waivers is done at final plan only.
DATE:__________  
[municipality]  
[address]  
ATTN: [Manager]  
RE: _____________________________________  
[development name and municipal review #]

Gentlemen:

Please be advised that I am herewith submitting an amended/ revised subdivi-

sion/ land development plan dated ________ for the above referenced develop-

ment.  

By this letter, I withdraw any previous plans for the property and do hereby re-

place all previous plans with these amended plans.  

Any application or escrow fees that have been paid to the [municipality] to date shall apply to this revised plan.  Additional fees or escrow funds needed for this revised plan shall be provided as required.  

I understand that in accordance with this request, the 90-review period estab-

lished in the Pennsylvania Municipalities Planning Code Section 508 will start anew as of the next regularly scheduled planning commission meeting occurring at least 7 days after this revised plan has been duly filed with the [municipality] in accordance with the established guidelines for plan acceptance.  

_____________________________                  ________________________  
(applicant’s name)     (applicant’s signature)  

To be filled out by the municipality  
Date received by the [municipality]: ____________  
Date of Plans: ____________________  
90-day deadline: ____________________
Appendix G: Sample Planning Commission Meeting Agenda

Agenda

[municipality] Planning Commission
[date] [time]

[municipality] Building
[address]

7:30 P.M. 1. Call to Order by the Chairman/ Pledge of Allegiance

7:35 P.M. 2. Public Comment

7:45 P.M. 3. Approval of the Agenda

7:50 P.M. 4. Approval of the September 12, 2002 Meeting Minutes

7:55 P.M. 5. Acceptance of Plans

Subdivision 5
Subdivision 6
Land development 5

8:10 P.M. 6. Preliminary Plans

Subdivision 1 (02-005: 11/7/02)
Subdivision 2 (02-004: 12/4/02)

9:15 P.M. 7. Final Plans

Subdivision 3 (02-001: 11/7/02)

9:30 P.M. 8. Planning Modules- Act 537

Land Development 2

In many cases, the review of subdivisions and land developments takes up a majority of the planning commission’s time at meetings. In rapidly growing municipalities, several proposals are being reviewed at the same time. To work efficiently in performing a thorough review, it is important to carefully manage the planning commission meeting. One technique for this is to draft an organized agenda. Placing estimated times on agenda items is a good way to budget time. Also, it is important to list all projects grouped by stage of planning submission. The first group, acceptance of plans, is basically an acknowledgement that the plans have been received and that the review time clock starts. The only limited discussion here might be in regard to how the review will proceed and if there are unique things that need to be looked at in any particular project. Preliminary plans often involve the longest discussion including a brief presentation by the applicant. This discussion should be carefully managed by the chair and, if necessary, detailed review could be delegated to staff. Final plans, including action on waivers, are usually more straightforward and can be handled at the end of the meeting. This agenda does not show other important things that the planning commission should be doing periodically such as comprehensive planning and the drafting of appropriate ordinances. Leave plenty of time for these important functions.
THIS AGREEMENT is made as of the ______ day of __________, 200_ by and between ________________________________________________________ (“Developer”) and ___________________________________________________, a political subdivision of the Commonwealth of Pennsylvania (“Municipality”).

STATEMENT OF PURPOSE
The purpose of this Agreement is to encourage beneficial, open-minded discussion and dialogue between the Developer and the Municipality prior to the formal submission of any development plans or zoning requests. More specifically, the intent is (1) to encourage the Developer to submit a pre-submission sketch plan to the municipality, so as to provide to opportunity to the municipality to provide planning and conceptual design input prior to Developer having expended the extensive time and effort, as well as the considerable expense, that goes into the development of preliminary plans, (2) to provide an opportunity for the Developer to consider such input at an early stage prior to positions being solidified, while eliminating the concern that the operative provisions of the subdivision and land development ordinance and zoning ordinance might change while such discussion is ongoing, and (3) to allow an opportunity for achievement of a more innovative project concept or design that may provide greater benefits to the municipality, the developer, residents and the surrounding community, and future residents or occupants of the proposed development than would otherwise be possible.

The Municipality, as an inducement to Developer to file a sketch plan, and participate in such discussions, has agreed that upon filing of a sketch plan accompanied by a copy of this Agreement executed by Developer, the Zoning Ordinance and Subdivision and Land Development Ordinance which will apply to Developer’s proposed development of the Property will be the ordinances which are in effect as of the date of the filing of the sketch plan.

This Agreement is entered into to confirm the agreement of the parties.

TERMS OF AGREEMENT
1. Developer voluntarily agrees to participate in the Municipality’s pre-submission sketch plan review process (“Sketch Plan Review Process”) for a period of up to six (6) months (“Review Period”) from the date ________________, 200_, the date Developer offered to enter into this Agreement (“Commencement Date”). For purposes of this Agreement, the term “Sketch Plan Review Process” shall mean the process during which Developer will participate in meetings with personnel designated by the Municipality to meet with Developer for the purpose of critiquing sketch plans with the objective
of developing a plan which will be satisfactory to both Developer and the Municipality. Developer and Municipality further agree to invite the County Planning Commission to participate in the Sketch Plan Review Process.

2. In consideration of Developer’s agreement to participate in the Sketch Plan Review Process, the Municipality agrees during the Review Period and for a period of six (6) months following the expiration of the Review Period (the total time frame being hereinafter referred to as “Protection Period”), the Zoning Ordinance and Subdivision and Land Development Ordinance which will be applicable to any preliminary subdivision and/or land development plans for the Property filed by Developer within the Protection Period shall be those ordinances in effect as of the Commencement Date and Developer shall be afforded the protections provided under Section 508(4) of the Municipalities Planning Code as of the Commencement Date.

3. If, for any reason at any time during the Review Period, either party deems that such discussions are not being productive, and that continued discussion would not be worthwhile, either the Municipality or the Developer may terminate this agreement by sending written notice to cancel the agreement to the other party via certified mail, with such termination effective forty-five (45) days following the date of the notice. The Review Period shall end at the expiration of such forty-five (45) day period.

4. In the event Developer fails to file a preliminary subdivision and land development plan within the Protection Period, Developer acknowledges and agrees that the review of any later filed subdivision and/or land development plans will be subject to any amendments to the zoning ordinance and/or subdivision and land development ordinance enacted subsequent to the Commencement Date.

5. Developer acknowledges that Municipality is under no obligation to make any formal decision with respect to any pre-submission sketch plan submitted pursuant to this Agreement and, further, acknowledges and agrees that Developer shall not obtain any vested rights pursuant to Section 508 of the Municipalities Planning Code by failure of Municipality to render a decision with regard to a pre-submission sketch plan. It is specifically acknowledged by both parties that any plan submitted pursuant to this agreement will not be considered to be a Preliminary Plan or Final Plan in accordance with municipal ordinances and the Municipalities Planning Code.

6. In order to provide a meaningful review, Developer and Municipality agree that a pre-submission sketch plan shall include the following information:

   a. The plan shall be drawn at a scale of 1” = 50 feet or 1” = 100’;
   b. Tax map parcel number of property involved;

In paragraph 2 the municipality agrees not to revise or amend the ordinances that would impact the property during the sketch plan review period and shortly after it.

Item 5 in the agreement is important in distinguishing the sketch plan process from the preliminary or final plan process. Failure of the governing body to act on a sketch plan under this agreement will not result in a deemed approval.
c. Tract boundaries and total acreage;
d. Location map;
e. North point;
f. Streets on and adjacent to the tract;
g. Significant topographical, geological, and physical features including but not limited to flood plains, steep slopes, boulders, wetlands, etc., which may impact or limit the proposed use of the property;
h. Existing road/utility and other easements and rights-of-way;
i. General location, size and configuration of existing buildings
j. Proposed general layout of streets, circulation drives and common parking areas; and
k. Proposed general lot layout or location of buildings when individual lots are not proposed, including location of open space and other preservation areas.

7. Developer and Municipality each acknowledge and agree that the provisions of this Agreement are intended and shall be construed as superseding any inconsistent provisions of the Municipalities Planning Code, 53 P.S. §10101 et seq.

8. If the Municipality incurs any direct costs as a result of its review and discussions with Developer during the Review Period pursuant to this Agreement, such as costs to pay for its solicitor, engineer or planning consultant, Developer agrees to reimburse Municipality for such reasonable costs in accordance with the current schedule established by the Municipality for review fees in accordance with Section 503(1) of the Municipalities Planning Code.

IN WITNESS WHEREOF, Developer and Municipality have set their hands and seals to this Agreement as of the date set forth above, with intent to be legally bound.

DEVELOPER: ___________________________
Attest: ___________________________    By: __________________________

THE MUNICIPALITY:_____________________
Attest: ___________________________    By: __________________________
Appendix I: Subdivision and Land Development Application Form

SUBDIVISION AND LAND DEVELOPMENT APPLICATION

Part I (to be completed by Municipality)
Date Application Received ________ Received by (initials) _____ Twp. Identification No. ____________
Application for: Preliminary Plan Review ________ Final Plan Review ________
Type of Plan: Minor Subdivision ________ Major Subdivision ________
Land Development ________
Fees Paid: Submission $__________
Escrow $__________
Date of planning commission acceptance ________________

Part II (to be completed by Applicant)
1. Applicant: Name ______________________ Telephone No. __________
Fax No.________________________ Email Address ______________________
Address _____________________________________________________________
2. Owner of Record (if corporation, list corporation’s name and address, and names of two officers):
   Name ______________________ Telephone No. __________
   Fax No.________________________ Email Address ______________________
   Address _____________________________________________________________
   Name ______________________ Telephone No. __________
   Fax No.________________________ Email Address ______________________
   Address _____________________________________________________________
3. Agent or Attorney: Name ______________________ Telephone No. __________
   Fax No.________________________ Email Address ______________________
   Address _____________________________________________________________
4. Engineer or Surveyor: Name ______________________ Telephone No. __________
   Fax No.________________________ Email Address ______________________
   Address _____________________________________________________________
5. To whom should official notices pertaining this submission be sent? __________________________
6. To whom should billing invoices be sent? __________________________

Application forms are important as both an administrative source of information and a legal document. As an administrative form, key contact information is required upfront. Other administrative information pertaining to the proposed action and the size of the project are instrumental in computing appropriate fees. The application form should also contain appropriate disclosures, waivers, and permissions which are agreed to by the applicant. The original signed application form is an important legal document that should be carefully maintained by the municipality.
7. If property was previously subdivided please provide the following information:

   Plan Title: ___________________________ Date of Plan ________________

8. Tax Parcel No(s), ____________________ County Deed Book No. _______ Page No.____

   County Plan Book and Page No. ______ (Note: A copy of the deed or agreement of sale shall be
   submitted with this app.)

9. If the applicant is an equity owner of the property, list date at which the option for the property
   expires.______________ (attach a copy of the agreement deleting as necessary any financial terms)

10. Proposed Use (check applicable use/s):

    Single Family Residential ______ Multi-Family Residential _____ Retail Use ______

    Industrial Use _____ Institutional _____ Mixed Uses ______ Other ______

    Describe proposed use of the property ________________________________

11. Development Statistics

    a) Residential: Number of Lots or Units _______

    or

    b) Non-Residential: Number of Lots, Units, or Leaseholds; Lots______ Units____

       Leaseholds____

    c) Proposed New Building Area ___________ sq. ft.

    d) Proposed existing building conversion area ________________ sq ft.

    e) Proposed Density (units per acre) _________

    f) Total Area to be developed or subdivided (acres) ________________

12. Utilities

    Water Supply

       _____ Public - (Identify System)

       _____ Individual On-Site (refer to the county well construction ordinance)

    Sanitary Sewage Disposal (check one):

       _____ *Public - identify system ______________________________

       **Individual on-site

       *Planning Modules or “Exemption Request” (Attachment A – part A) must be submitted.

       **Planning Modules MUST be submitted whether or not an “Exception Request” (Attachment A –
       part B) is submitted.
The undersigned represents that to the best of his or her knowledge, all of the above statements are true, correct and complete. I/We hereby authorize members of [municipality] boards, commissions and staff to enter the lands proposed for subdivision or land development for site inspections, if necessary. Further, I/we and my/our successor in this application agree to reimburse the [municipality] for such fees and expenses as said [municipality] may incur for engineering, legal services, and administrative fees in reviewing and advising the [governing body] and planning commission with respect to this application. Further, I/we agree to provide all filing fees and escrow deposits as established by Resolution of the [governing body].

______________________________
Date Signature of Owner of Record/Applicant/Agent
Appendix J: Public Meeting Participation Guidelines

The primary purpose of public participation before the [elected body/ planning commission] is to hear citizen views on important issues facing our community. To this end, we welcome your comments and insight and will give all your opinions proper consideration.

There are three ways for the public to be heard at the [elected body/ planning commission] meeting.

**New Business:** The most effective way to raise a new issue is to have your request placed on the agenda by the [board chairperson/ municipal secretary]. This can be done by making your request in writing in advance of the meeting. Requests received prior to the setting of an agenda which is usually done 4 working days prior to the meeting will be considered for inclusion on the agenda. By posting the item on the agenda it will allow staff and board members time to research and gather information on your item of interest. In this way, everyone can participate in informed discussion on the topic at hand. You will be notified if the topic is placed on the agenda.

**Comment on a Specific Issue Listed on the Agenda:** An opportunity for the public to comment will be provided during the discussion of various agenda items prior to action taken on them. If you know in advance of the meeting that you wish to make a comment on an agenda item, inform the [municipal manager, chairperson, or secretary] of your interest. Otherwise raise your hand when the chairperson asks for public comment on the agenda item that you are concerned about. You may speak when acknowledged by the chairperson.

**General Public Comment:** There will be a general public comment period at the beginning of all public meetings, where the public will have an opportunity to voice an opinion on any topic. Please bear in mind that this is not intended for a back-and-forth discussion time, but primarily a means to inform the [elected body/ planning commission] of items of interest and/or consideration.

Public participation through any of these options is subject to the limitations and requirements listed below:

**Purpose:** The purpose of public comment is to provide information and the speaker’s views for consideration by the [elected body/ planning commission]. The [elected body/ planning commission] or their staff may or may not answer questions raised by the speaker during the public meeting. Questions may be addressed, as appropriate, by the [elected body/ planning commission] or municipal staff at a latter time, unless immediate action is warranted by an emergency situation.

**Time Limit:** [elected body/ planning commission] meetings follow a standard agenda. In order to conduct business in an orderly fashion, it is important that you limit your presen-
tation to two minutes or less. The chairperson may grant additional time if warranted. If there are many persons who would wish to express the same viewpoint, it is requested that a spokesperson for the group is designated to clearly state common opinions. If there are a large number of speakers to be heard, the [elected body/planning commission] reserves the right to limit the time or the number of speakers. Speakers will be asked to state their name and address for the [municipal secretary] to record in the meeting minutes.

**Board Questions and Comments:** Board members may ask questions or make comments in response to any speaker's statements.

**Rebuttal Comment:** At the discretion of the chair, the public speaker may be permitted to briefly answer board member questions or rebut their comments.

**Addressing the Chairperson:** All comments should be addressed through the chairperson. Questions may be posed to other board members, staff, or other presenters for an agenda item, after being recognized by the chairperson. Except when answering a direct question from an [elected body/planning commission] member, all remarks will be addressed to the chairperson, and not to individual members of the board.

**Decorum:** Proper decorum must be observed by speakers and the audience during public comments. The chairperson shall keep control of the meeting and require the speakers and audience to refrain from abusive or profane remarks, disruptive outbursts, applause, protests, or other conduct which disrupts or interferes with the orderly conduct of the business of the meeting. Personal attacks on municipal officials, staff, or other members of the public are not allowed. It is inappropriate to utilize the public meeting for purposes of making political speeches, including threats of political action. Failure to exercise proper decorum will be grounds for immediately ending a speaker's comment time or for removal of any disruptive person from the meeting room, at the direction of the chairperson.

**Deferral of Comment:** The chairperson may defer all or portions of the public comment to another time if there is not sufficient time to hear all speakers or when general meeting decorum has made it impossible to allow further comments.

**Recording of Meetings:** Members of the public may record or videotape all portions of [elected body/planning commission] meetings that are open to the public provided that: the sign-in sheet indicates their intention to record or video tape the proceedings; their actions do not disturb or interrupt the proceedings; and the recording or videotaping is conducted from the participant's seat in full view of the attendees, unless the [elected body/planning commission] specifically permits otherwise. At the beginning of the meeting, the chairperson may announce the name of the person recording the meeting.

We thank you for your participation, and welcome your attendance in the future!
Appendix K: Planning Commission Meetings Rules of Thumb

☑ All members should consistently attend meetings.
☑ Materials for the meetings should be sent out in advance and be reviewed by planning commission members prior to the meeting.
☑ Meetings should begin on time in an authoritative way.
☑ Agendas should be available and followed at all times.
☑ Ground rules for meetings should be established and followed at each meeting.
☑ All members of the planning commission and public should be respectful of everyone’s opinion and time.
☑ All participants should be involved effectively throughout the meeting.
☑ All discussions and presentations should be focused on the important issues.
☑ Meaningful public comments and participation should be welcomed.
☑ Members should always work toward attaining consensus.
☑ Members should clearly state all recommendations and motions.
☑ Members need to constantly focus on the well being of the community as a whole and not the impact of decisions on them alone.

The chairman should:
☑ Maintain rules and by-laws.
☑ Ensure that all members are engaged in the discussion.
☑ Focus discussion toward consensuses.
☑ Take action and make clear decisions.
☑ Manage time.
☑ Delegate responsibilities.

Some of the best planning decisions are made as a result of informed public discussion at meetings. At the same time, many planning commission meetings can be unproductive and long if not carefully managed. Every participant in a meeting has a role to play and should be respectful of others. Meeting organization is also important in structuring the discussion and decision making process. The tips listed here are examples. There are many excellent guides to group dynamics and meeting management that should be consulted as well. In addition, planning commission members should be familiar with Roberts Rule of Order.
Appendix L: Understanding Slopes

Here are some common slope references:

1% slope- Is a good minimum slope for most paved areas to ensure proper run-off. It is generally used as the minimum slope for storm sewer and sanitary sewer pipes.

2% slope- is a good minimum slope for grassed areas and drainage ditches. It generally is the point where the slope becomes readily apparent to the eye.

3% slope- is a good general minimum drainage slope to maintain around buildings. It is sufficient to quickly move water away from the structure while providing a functional grade around the buildings.

5% slope- is generally a good maximum for walkways and sidewalks.

7% slope- is the maximum grade recommended by ASHTO for public roads.

12-15% slope- is generally the maximum slope to build upon without special design features. Steep slope ordinances use this range as a threshold.

25% slope- is often considered very steep for development and may warrant significant restrictions.

33% slope- commonly referred to as the 3:1 slope is the maximum slope for grassed areas in a development.

The impact of grades may be altered by soil, vegetation, and groundwater conditions at the site.
Landforms are represented graphically by contour lines. A contour line denotes areas of a site with the same vertical elevation, usually expressed in the elevation above mean sea level. As you move from the contour line, the elevation either increases or decreases dependent upon the elevation found at the next contour line. The differences in the elevation between contour lines are referred to as the contour interval. Many plans have a one to two-foot contour interval. On these plans, particularly where there is significant slope, there will be numerous contour lines depicted. Other common maps such as the USGS 7.5-minute quad sheets or small scale maps depicting a whole municipality may use a 10-foot contour interval.

Here are helpful rules of thumb to use in understanding topography from contour lines:

- Contour lines never cross each other (technically this could happen in an overhanging cliff, but that is an odd exception).
- Contour lines never split.
- Closed loop contour lines describe hills.
- Closed loop contour lines with perpendicular line segments attached describe depressions or quarries.
- Rising land is indicated when the contour line elevations get larger.
- Falling land is indicated when the contour line elevations get smaller.
- Steepness is indicated when parallel contour lines get closer together.
- Flat areas have very few contour lines.
- A uniform slope is indicated with evenly spaced contour lines.
- Contour lines point up stream valleys.
- Drainage occurs perpendicular to contour lines.

Reading and understanding contour lines is often the key to visualizing site conditions on a plan. The rules of thumb might help a new planner get a better sense of what contour lines on a plan are expressing.
The plan should meet the requirements of both the zoning and subdivision and land development ordinances.

The plan should conform to the recommendations in the municipal comprehensive plan.

Lot layout should:
- build residential neighborhoods;
- provide access and visibility non-residential developments;
- create logically configured parcels that meet the needs of the proposed use and buildings without impacting natural resources;
- consider future subdivisions and other development proposals.

Flag lots and other awkwardly shaped lots can destroy neighborhoods.

Standards should be uniform despite ownership.

Design for the average situation- but recognize the possibility for extreme events.

Look at long-term impact and durability of plants in the landscaping plan considering objectives such as aesthetics, buffering, shading, maintenance, and mitigating lost habitat.

Develop an interconnected street system offering mobility choice.

Cul-de-sacs should be used sparingly.

Open space should be interconnected and of sufficient size, location, topography, and shape to achieve it’s purpose

Stormwater control systems should reflect the unique qualities and opportunities of the site.

The design of stormwater systems and other forms of infrastructure shall take maintenance into account.

Easements and other land restrictions should be understandable to the public.

Logical and safe vehicular circulation should be built upon the existing municipal transportation system.

Expressing good design can be complex. In many cases, good design depends upon site conditions and surrounding development. Yet, there may be a few inherent principles or rules of thumb that are important to consider in trying to identify good design in any development proposal. Other key design points are contained within the model ordinance guidebook.
☑ Don’t over look grading; it impacts stormwater, usability of land, and view sheds.

☑ Sidewalks and pathways are essential infrastructure.

☑ Impact on natural resources and historic structures should be avoided and if not avoided at least mitigated.

☑ Use natural resources as site amenities.

☑ Sufficiency of off-site infrastructure (particularly roads) should be evaluated.

☑ Assess the impact of the subdivision or land development with respect to the health, safety, and general welfare of the community.