

## **ARTICLE 5**

### **DESIGN AND IMPROVEMENT STANDARDS**

#### **SECTION 501. PURPOSE**

East Pennsboro Township recognizes that the processes involved in community development are complex and require careful review and consideration to ensure quality public improvements which will protect and enhance the public's health safety and welfare. The purpose of Article 5 is to provide reasonable design and improvement standards for public improvements related to land development. This Article combines design and improvement specifications which meet the Township's objectives of sound engineering and design with suitable improvement standards based on function which are responsive to the unique character of the site, as well as local needs and objectives.

#### **SECTION 502. GENERAL**

The applicant shall design and provide all improvements required by this Ordinance and any other applicable State or Federal regulation. The following design principles, standards, specifications and requirements will be applied by the Board of Commissioners, Planning Commission and Township Engineer in their review and evaluation of all land development plan applications. The standards and requirements contained herein shall be considered the minimum for the promotion of the public health, safety, convenience, and general welfare.

- A. Where literal compliance with the standards and requirements contained herein is clearly impractical, the Board of Commissioners may modify the requirements in accordance with the process set forth in Article 11 of this Ordinance
- B. Land development plans shall give due consideration to the Township Comprehensive Plan and other "Official Plans" of the Township or to such parts thereof as may be approved.
- C. Proposed land uses shall conform to standards and requirements of the East Pennsboro Township Zoning Ordinance, as amended.

#### **SECTION 503. SITE DESIGN**

In East Pennsboro Township, the purpose of good Land Development design is to assist in (1) creating functional and attractive developments, (2) minimizing adverse effects and impacts of development and (3) ensuring that the project will become an asset to the community. To promote this overall purpose and meet the goals and objectives of the East Pennsboro Township Comprehensive Plan, Land Development plans in the Township should conform to the following site design guidelines which will result in a well-planned and constructed community. These guidelines and standards are intended to encourage improved site design without adding unnecessarily to development costs.

- A. Land which is unsuitable for development due to hazards to life, safety, health or property shall not be subdivided or developed until such hazards have been eliminated or unless adequate safeguards against such hazards are provided for in the land development plan. Unsuitable characteristics for land development include, but may not be limited to:
  - 1. Land subject to flooding;
  - 2. Land, which if developed, will aggravate a flooding condition upon other land;

3. Land subject to subsidence;
  4. Land subject to underground fires;
  5. Land containing significant slope; and,
  6. Land subject to ground and water pollution.
- B. Before laying out lots and structures on a site, developers are encouraged to make an analysis of the site that addresses issues such as site surrounding, geology and soil, topography, climate, existing vegetation, structures, road networks, visual features, and past and present use of the site.
  - C. The design of the development should take into consideration existing local, county and regional plans for the community.
  - D. Development of the site shall be based on the site analysis. To the maximum extent practicable, development shall be located to preserve natural features of the site; to avoid areas of environmental sensitivity; to minimize negative impacts and alteration of natural features; and to avoid areas unsuitable for development.
  - E. Development and improvements shall be designed to avoid adversely affecting ground water and water recharge; to reduce cut and fill; to avoid unnecessary impervious cover; to prevent flooding; and to provide adequate access to lots and sites.
  - F. Lot and block layout should be designed to permit the safe, efficient, and orderly movement of vehicular and pedestrian traffic into and within the site.
  - G. During site preparation of an approved Land Development, stockpiles of stripped topsoil and/or excavated material shall not be located closer than one hundred (100) feet from any residential zone, use or occupancy boundary. The maximum height of topsoil and excavated material stockpiles shall be not more than ten (10) feet when stockpiles are located between one hundred (100) and one hundred fifty (150) feet from any residential zone, use or occupancy boundary. The maximum height of topsoil and excavated material stockpiles shall be not more than fifteen (15) feet when stockpiles are located more than one hundred fifty (150) feet from any residential zone, use or occupancy boundary. The maximum height of any topsoil or excavated material stockpile in the East Pennsboro Township shall not exceed fifteen (15) feet.

#### **SECTION 504. BLOCKS**

- A. The length, width, shape, and design of blocks shall be based on the site analysis and the intended use proposed for the site.
- B. Blocks shall not exceed one thousand six hundred (1600) feet in length and shall not be less than five hundred (500) feet in length.
- C. Depth of a block shall equal the depth of two approved lots which share the same rear lot line. However, the block depth may vary from the requirement in cases where parallel roads are utilized or where topographic limitations exist.
- D. Interior pedestrian walks shall be required in blocks exceeding six hundred (600) feet in length to provide for pedestrian circulation or access to community facilities and other portions of the development.

## **SECTION 505. LOTS**

### **A. General Standards**

1. The size, shape and orientation of lots shall be appropriate to the type of development, topography, natural features and land use contemplated. "Flag" or "panhandle" lots are not permitted.
2. Lot lines shall be at right angles to straight street lines or radial to curved street lines.
3. Where feasible, lot lines should follow municipal boundaries rather than cross them, in order to avoid jurisdictional problems.
4. If small or substandard remnant parcels of land exist after subdivision, these parcels shall be incorporated into existing or proposed lots, or dedicated for public use, if acceptable to the Township. Agreements for dedicating remnant parcels of land shall be approved by the Township Solicitor prior to acceptance.

### **B. Environmental Self Sufficiency**

Each new lot created in East Pennsboro Township shall be designed in such a manner to be individually self-sufficient for both water supply and sewage disposal, or be connected to available public or private water and sewer facilities.

### **C. Lot Frontage**

1. All lots shall abut an existing or proposed public street.
2. Double or reverse frontage lots shall be avoided except where required to provide separation of residential development from major streets or to overcome specific disadvantages of topography or orientation.
3. No residential lots shall be created which front upon a limited access highway. Furthermore, no lots within a major subdivision shall be created which front upon an arterial street.

### **D. Dimension and Areas of Lots**

The dimensions and areas of lots shall conform to the standards and requirements of the East Pennsboro Township Zoning Ordinance.

### **E. Building Setback Lines**

The minimum setback line shall be in accordance with the East Pennsboro Township Zoning Ordinance and the applicable sections of this Ordinance.

### **F. Lots on Private Streets**

The subdivision of lots with access only to a private street is prohibited.

## **SECTION 506. STREET SYSTEM DESIGN AND CONSTRUCTION**

### **A. General Design Guidelines**

1. The general arrangement, character, extent, and location of all streets proposed shall conform to the Township's Comprehensive Plan and shall be considered in their relation to existing or proposed streets, topographical conditions, the public convenience and safety, and the proposed uses of land to be served by such streets. The arrangement, width, grade and other design standards of streets shall conform to the provisions found herein. Further, proposed streets shall be properly related to County, Regional or State transportation plans as have been prepared and adopted.
2. Proposed street arrangements shall make provisions for the continuation of existing streets in adjoining areas; the proper projection of streets into adjoining undeveloped or unplanned areas; and the continuation of proposed streets to the boundaries of the tract being subdivided.
3. When a new subdivision adjoins unsubdivided land appropriate for subdivision, the new streets shall be carried to the boundaries of the tract to be subdivided.
4. Streets shall be laid out to facilitate the use for which they are intended. Local access streets shall be laid out to discourage their use by through traffic and, where possible, collector and arterial streets shall be designed for use by through traffic.
5. Streets shall be related to the topography so as to establish usable lots and satisfactory street grades.
6. New private streets (streets not offered for dedication) within residential subdivision developments are prohibited.
7. Proposed private service access for purposes of providing a secondary means of access to a lot are permitted as deemed appropriate by the Board of Commissioners and Township Engineer.
8. The design and construction standards stipulated herein are intended primarily for residential development and use. Where industrial, commercial or other uses would generate significant truck traffic or high traffic volumes stricter standards may be required.
9. When the development is in the Highway Access Management District, as defined by the Township Zoning Ordinance, all street and access design shall be in accordance with EXHIBIT 5-2 of this Ordinance.

B. Road/Street Classification

Three (3) functional classifications of streets and roads, as classified by the Township Planning Commission in consultation with the Board of Commissioners and the Pennsylvania Department of Transportation, or as determined in the East Pennsboro Township Comprehensive Plan are established as follows:

1. Arterial (Interstates, Principal Arterial)

This classification includes highways which provide intra-county or inter-municipal traffic of substantial volumes. Generally, these highways should accommodate operating speeds of 55 miles per hour.

2. Minor Arterial (Also referred to as Minimum Arterial)

This classification is intended to include those highways which connect minor streets to arterial highways and generally serve intra-county and intra-municipal traffic. They may serve as traffic corridors connecting residential areas with industrial, shopping and other services. They may penetrate residential areas. Generally, these highways should accommodate operating speeds of 35 to 55 miles per hour or less.

3. Local Roads (Collector, Local Street)

This classification is intended to include streets and roads that provide direct access to abutting land and connections to higher classes of roadways. Traffic volumes will be low and travel distances generally short. These streets and roads should be designed for operating speeds of 25 to 35 miles per hour or less.

C. Street Right-of-Way Widths

1. Minimum street right-of-way and cartway widths shall be required as follows:

RIGHT-OF-WAY, SHOULDER AND CARTWAY WIDTHS

<u>Street Type</u>	<u>Right-of-Way Width</u>	<u>Shoulders</u>	<u>Cartway</u>
<u>Arterial</u>	As determined by the Governing Body and Planning Commission after consultation with the Township Traffic Engineer and Pennsylvania Department of Transportation.		
<u>Minor Arterial</u>	60 feet	16 feet (8' each side)	24 feet (w/shoulders) 36 feet (curbed)
<u>Local Roads</u>	50 feet	10 feet (5' each side)	24 feet (w/shoulders) 34 feet (curbed)
<u>Cul-de-Sac</u>	50 feet in radius	10 feet (5' each side)	24 feet (w/shoulders) 34 feet (curbed)
<u>Turn Around of Cul-de-Sac</u>	50 feet in radius	-----	40 feet radius (to the edge of pavement or face of curb)
<u>Marginal Access</u>	40 feet	8 feet (4' one side)	20 feet (w/shoulders) 26 feet (curbed)

Alley or Service Drive

20 feet

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20 feet

2. Where a proposed subdivision abuts or contains an existing public street or road having a right-of-way width which is less than would be required by this Ordinance, sufficient additional right-of-way width shall be provided and dedicated to meet the current standards
3. In the case of a land development plan fronting on an existing or proposed street, the applicant/developer shall improve the portion of the roadway on which the proposed development fronts to meet the minimum standard as specified in this Ordinance. Road improvements shall include pavement, shoulders, embankments, gutters, berms, sidewalks and/or curbing.
4. Provision for increased street width (right-of-way width) may be required when determined to be necessary by the Board of Commissioners in specific cases for:
  - a. Public safety and convenience;
  - b. Parking in commercial and industrial areas and in areas of high density development;
  - c. Widening of existing streets (right-of-way) where the width does not meet with the requirements of the preceding paragraphs;
  - d. Installation of utilities;
  - e. Ponding of stormwater runoff;
  - f. Storage of plowed snow;
  - g. Emergency parking;
  - h. Temporary roadway adjustments during maintenance or traffic accident situations;
  - i. Future improvements.
5. When a land development is proposed which fronts on an existing Township street, the required additional right-of-way shall be dedicated for only the lots and land development proposed. Right-of-way width dedication shall not be required for the remaining portion of the property, except (1) where the remaining road frontage is less than the required lot width of a lot, and (2) where a traffic impact study warrants additional right-of-way width due to the impacts of the development to that portion of the road system.

D. Street and Intersection Design

1. Horizontal Curves and Vertical Curves

In order to provide adequate sight distance and ensure proper alignment of streets, horizontal and vertical curve design shall be in accordance with the

Pennsylvania Department of Transportation, Guidelines for Design of Local Roads and Streets -Publication No. 70M, as revised.

- a. Vertical Curves shall be used at all changes of grade and shall be designed for maximum visibility. All intersections and streets shall be designed to provide adequate sight distance with regard to both horizontal and vertical alignment in accordance with A Policy on Geometric Design of Highways and Streets. AASHTO, current edition.
- b. Where tangent street lines deflect from each other at any one point, lines must be connected with a true, circular curve. The minimum radius of the center line for the curve must be as follows:

<u>Type of Street</u>	<u>Minimum Radius</u>
Arterial	500 feet
Minor Arterial (Major Collectors)	300 feet
Local Roads	150 feet

- c. Straight portions of the street must be tangent to the beginning or end of curves. Except for Local Roads, there must be a tangent of at least one hundred (100) feet between curves.

2. Extensions

Short extensions of existing streets with lesser right-of-way and/or cartway widths than above may be permitted by the Board of Commissioners, provided that no section of the new right-of-way shall be permitted which is less than forty (40) feet in width.

3. Grades

The grades of streets shall not be less than the minimum or more than the maximum requirements listed below:

**MINIMUM AND MAXIMUM GRADES**

<u>Type of Street</u>	<u>Minimum Grade</u>	<u>Maximum Grade</u>
Arterial	As determined by the Governing Body and Planning Commission after consultation with the Township Traffic Engineer and Pennsylvania Department of Transportation.	
Minor Arterial	1 %	7%
Local Roads	1 %	10%
Alleys	1 %	12%
Other	1%	10%

4. Intersection Design

a. Intersection Angle.

Intersections must be nearly right angles wherever possible. However, no street shall intersect another at an angle of less than seventy-five (75) degrees.

b. Intersection Leveling Area and Grades.

Intersections shall be approached on all sides by a straight leveling area. Such leveling area shall have a minimum of fifty (50) feet (measured from the intersection of the center lines) within which no grade shall exceed a maximum of four (4) percent.

c. Intersection Separation Distance

Any street terminating at an existing or proposed street will do so in one of the two following ways: (1) directly across from the pre-existing or other newly proposed street as to create a four-way intersection, or (2) at least one hundred fifty (150) feet from any other intersection, existing or proposed. Offset intersections shall not be created by new streets.

Intersections with an Arterial street shall be located not less than six hundred (600) feet apart, measured from centerline to centerline, along the centerline of the street.

d. Multiple Intersections.

Intersections involving the junction of more than two (2) streets are prohibited.

e. Intersection Curb Radii.

At intersection of streets the curbs or edge of pavement radii shall not be less than the following:

**MINIMUM SIMPLE CURVE RADII**

**Intersection of Curb or Edge of**

**Paving**

Arterial with Minor Arterial	35'
Minor Arterial with Local Road	25'
Local Road with Local Road	15'

Radius corners or diagonal cutoffs must be provided on the property lines substantially concentric with, or parallel to, the chord of the curb radius corners.

f. Intersection Sight Distance and Clear Sight Triangles

(1) Proper sight lines must be maintained at all street intersections. Adequate sight distances shall be provided at all intersections of streets, and for driveways intersecting a street. Site distance must be provided with

respect to both horizontal and vertical alignment. Site distance shall be measured along the center line three and one-half (3.5) feet above grade, and ten (10) feet back from the edge of the pavement for driveways in accordance with the following:

**MINIMUM CLEAR SIGHT TRIANGLES**

<u>Street Type</u>	<u>Clear Sight Triangle</u>
Arterial	150'
Minor Arterial, Local, Other	75'
Driveway	10'

(See EXHIBIT 5-1)

- (2) No building or obstruction higher than thirty (30) inches above the centerline grade of the street shall be permitted in the site triangle. No signs other than traffic control signs and devices shall be permitted in the clear sight triangle.
- (3) The Township Engineer reserves the right to use posted speed limits or actual speed, determined by traffic study, and road grades to modify the calculation of the required sight triangles.

E. Street Construction

1. General Requirements

All street materials, construction procedures and testing requirements shall conform to the current editions of PennDOT Publication 408/2003; Publication 213; Publication 72M, Standards for Roadway Construction, Series RC-1M to 100M; Publication 111M, Standards for Traffic Control Signing, Series 7700 and 7800 current edition, including all supplemental specifications, circular letters and amendments. All streets and related features shall be constructed to the line, grade and dimension shown on the plans, profiles and cross sections and typical sections as approved on the final land development plan.

2. Stake Out

- a. Prior to rough cut, all streets shall be laid out in accordance with the approved design plans using hubs and stakes set at fifty (50) foot intervals to provide both horizontal and vertical control.
- b. All existing property pins or monuments will be clearly marked four (4) foot high stakes before the beginning of construction.

3. Excavation

- a. This work shall include excavation for roadways, shoulders, ditches, drainage structures and stream channels.

- b. All suitable excavated materials, as determined by the Township Engineer, may be used for the construction and preparation of roadway embankments, subgrades, shoulders, driveway approaches, ditches, structures, stream channels and required backfilling.
- c. During construction, excavation shall be graded to drain in accordance with the approved Erosion and Sediment Pollution Control Plan.
- d. During site preparation of an approved Land Development, stockpiles of stripped topsoil and/or excavated material shall not be located closer than one hundred (100) feet from any residential zone, use or occupancy boundary. The maximum height of topsoil and excavated material stockpiles shall be not more than ten (10) feet when stockpiles are located between one hundred (100) and one hundred fifty (150) feet from any residential zone, use or occupancy boundary. The maximum height of topsoil and excavated material stockpiles shall be not more than fifteen (15) feet when stockpiles are located more than one hundred fifty (150) feet from any residential zone, use or occupancy boundary. The maximum height of any topsoil or excavated material stockpile in the East Pennsboro Township shall not exceed fifteen (15) feet.

4. Embankment and Slopes Adjacent to Streets

- a. Material for the construction of embankment shall consist of all excavation on the project except such materials as may be determined to be unsuitable under PennDOT Publication 408/2003, current edition, and when required will include borrowed excavation.
- b. Placement of embankment shall be in layers not to exceed 8 inches prior to compaction.
- c. Slope of embankment(s) along streets measured perpendicular to the street center line shall be no steeper than the following:
  - (1) One (1) foot of vertical measurement for three (3) feet of horizontal measurement for fills.
  - (2) One (1) foot of vertical measurement for two (2) feet of horizontal measurement for cuts.

5. Street Construction and Pavement

Local streets shall be designed in accordance with this Article and shall be surfaced to the grades and dimensions drawn on the plans, profiles, and cross-sections submitted by the Applicant and approved by the Board of Commissioners. Before paving the street surface, the Applicant shall install the required utilities and provide adequate underdrains and stormwater drainage for the streets, as deemed acceptable to the Board of Commissioners and Township Engineer. The pavement base and wearing surface must be constructed according to the following specifications.

a. Subgrade

- (1) Prior to the preparation of the subgrade, all required underground utilities and stormwater management facilities to be placed beneath the cartway shall be installed.
- (2) No subgrade shall be prepared on wet, frozen or unsuitable material. Damaged areas or unsuitable material, as defined in the Pennsylvania Department of Transportation, Publication 408 as amended (ie. sod, stumps, spongy soil, excess rock, etc.), shall be promptly and satisfactorily reshaped and recompactd or removed and replaced with suitable material. Underdrains shall be placed and installed in accordance with Section 506.E.5.g.
- (3) Subgrade disturbed by trenching and other low areas shall be backfilled with material acceptable to the Township Engineer and compacted in layers a maximum depth of eight inches (8). Unsuitable material in subgrade shall be removed and replaced with material acceptable to the Township Engineer.
- (4) The moisture content at the time of compaction and density of the finished subgrade shall be in accordance with the specifications as set forth in the Pennsylvania Department of Transportation, Publication 408/2003, as amended.
- (5) Any springs or spongy areas shall be removed and replaced with 2A Modified or other suitable backfill and/or suitable geotextile fabric design acceptable to the Township Engineer.
- (6) Subgrade shall be inspected by the Township Engineer and/or his designated agent prior to the placement of the sub-base course.

b. Subbase Course

- (1) The subbase course shall consist of compacted stone (2A (Modified) Aggregate) and constructed in accordance with the specifications as set forth in the Pennsylvania Department of Transportation, Publication 408/2003, as amended. The 2A Modified Aggregate shall be a hard durable stone meeting the gradation requirement of PennDOT 2A aggregate, except that a maximum of 25% fines will be permitted. Minimum compacted depth of the subbase course shall be six (6) inches.
- (2) The subbase shall be compacted with a vibrating tamper or vibrating roller.
- (3) Subbase course shall be inspected by the Township Engineer or his designated agent prior to the placing of the base course.

- (4) All foreign material shall be removed from the subbase course prior to placing the bituminous concrete base course (BCBC).
- (5) The subbase shall have a bituminous concrete base course (BCBC) applied as soon as possible to avoid damage.

c. Base Course

- (1) The bituminous concrete base course (BCBC) and the binder course shall be constructed in accordance with the applicable requirements of the Pennsylvania Department of Transportation, Publication 408/2003, as amended. Minimum compacted depth of the BCBC shall be four (4) inches and the minimum compacted depth of the binder course shall be two (2) inches.
- (2) The BCBC and binder course shall be compacted with a vibrating tamper or vibrating roller.
- (3) The BCBC and binder course shall be inspected separately by the Township Engineer or his designated agent prior to the placing of the wearing course.

d. Wearing Course

- (1) The wearing course shall be constructed in accordance with the specifications as set forth in the Pennsylvania Department of Transportation, Publication 408/2003, as amended. Minimum compacted depth of the wearing course shall be one and one-half (1 1/2) inches.
- (2) The surface course shall be sealed using AC-20 wherever it comes in contact with another structure (i.e. curb, manhole, inlet, etc.). This work shall be done in accordance with the specifications as set forth in the Pennsylvania Department of Transportation, Publication 408/2003, as amended.
- (3) In the case of an existing road, a bituminous tack coat shall be provided as required and in accordance with the specifications as set forth in the Pennsylvania Department of Transportation, Publication 408/2003, as amended.
- (4) Paving notches shall conform to PennDOT RC-28M.
- (5) The wearing course shall be inspected by the Township Engineer or his designated agent after completion of all work.

e. Shoulders

Shoulders shall be provided where curbing is not required and shall conform to PennDOT Type 6 Shoulders as shown on PennDOT RC-25M.

f. Curbs

- (1) Curbs shall be installed in all land developments in order to control stormwater runoff, prevent erosion, prevent the deterioration of public streets and provide a contained area for vehicular movements.
- (2) Curbs shall be constructed on both sides of the interior streets and on the side of any street that bounds the development.
- (3) Curbs shall be constructed of concrete and designed as vertical or slant type. The height of vertical curbs shall be eighteen (18) inches. The width of vertical curbs shall be eight (8) inches. The height of slant curbs shall be twelve (12) inches at the face and sixteen (16) inches at the back of the curb. The width of slant curbs shall not be less than fourteen (14) inches.
- (4) Curbs shall be inspected by the Township Engineer after the forms or grade pins and string lines for slip forming have been placed, and after completion of all work.
- (5) Terminal concrete curb ends shall have an exposed face of two inches (2) and be tapered two feet (2).
- (6) Backfill must be placed within forty-eight (48) hours after slip forming or removal of curb forms and the backfill shall be compacted in place along the rear face of the curb within six (6) of the top of the curb.
- (7) When curbing is to be removed to construct a driveway or access drive, the length of curbing to be removed shall be carried to the nearest expansion joint or saw cut if the joint is located less than five feet (5) from the end of the curb removal.
- (8) Vertical curb height at driveway entrances may be reduced to a minimum of one and one half (1 1/2) inches for driveway entrances along streets where curbs are required.
- (9) No partial breakout of the curb shall be permitted. No cutting of the curb shall be permitted without approval by the Township Engineer.
- (10) Curb ramps must be installed in accordance with ADA requirements.

g. Underdrains

- (1) Underdrains shall be required in low points on the street at a distance equal to the length of the vertical curve, and as necessary to address springs, spring like conditions or spongy areas under the road. Underdrains required shall

be constructed in accordance with the specifications as set forth in the Pennsylvania Department of Transportation, Publication 408/2003, as amended, and as detailed on the Roadway Construction Standard Drawings (RC-30).

- (2) Combination storm sewer, clear water and underdrains shall be constructed in accordance with the specifications as set forth in the Pennsylvania Department of Transportation, Publication 408/2003, as amended, and as detailed on the Roadway Construction Standard Drawings (RC-30).
- (3) Where required, underdrains shall be constructed prior to base course construction.
- (4) Underdrain shall be inspected by the Township Engineer or his designated agent after completion of all work, just prior to the base course application.

F. Street Trees

- 1. No trees shall be permitted within the public right-of-way of any street.
- 2. Trees shall be set back five (5) feet from the public right-of-way line at the time of planting.
- 3. All trees with branches overhanging sidewalks and/or streets shall be kept trimmed to a height of eight (8) feet over sidewalks and to a height of twelve (12) feet over streets from curb to curb or between edges of pavement. (See Township Ordinance 387-80, part 2, subsection 206.)
- 4. The planting strip area between the curb and sidewalk shall be seeded. Street trees, where approved, of a caliper of not less than one and one-half (1 ½) inches shall be provided and planted. The spacing of trees shall be determined from the anticipated crown width of the tree at maturity. Trees shall be planted between the street right-of-way line.
- 5. Plans for new street trees and/or replacement of existing street trees shall be submitted to the Township Environmental Advisory Council and the Township Planning Commission for review, comment and recommendations to the Township Board of Commissioners. Viable alternative plans not meeting these standards for street trees may be considered. Acceptable street trees included but are not limited to the following list:

- |   |                                      |
|---|--------------------------------------|
| Acer compestre 'Evelyn'                     | Queen Elizabeth Hedge Maple          |
| Acer nigrum 'Greencolumn'                   | Greencolumn Black Maple              |
| Acer rubrum 'Karpick'                       | Karpick Red Maple                    |
| Acer rubrum 'Northwood'                     | Northwood Red Maple                  |
| Acer rubrum 'Franksred'                     | Red Sunset Red Maple                 |
| Acer saccharam 'Goldspine'                  | Goldspine Sugar Maple                |
| Acer saccharam 'Legacy'                     | Legacy Sugar Maple                   |
| Acer x freemanii 'Celzan'                   | Celebration Freeman Maple            |
| Acer truncatum x A.platanoides 'Warren Red' | Pacific Sunset Shantung Hybrid Maple |
| Cercis Canadensis Tree Form                 | Eastern Redbud                       |
| Cladrastis kentukea (lutea)                 | Yellowwood                           |
| Fraxinus Americanna 'Autumn Applause'       | Autumn Applause White Ash            |
| Fraximus pennsylvanica 'Patmore'            | Patmore Green Ash                    |
| Metasequoia glyptostroboides                | Dawn Redwood                         |
| Nyssa sylvatica                             | Black Gum or Black Tupelo            |
| Quercus acutissima                          | Sawtooth Oak                         |

Quercus palustris  
Syringa neticulata 'Summer Snow' Tree Form  
Taxodium distichum  
Tilia cordata

Pin Oak  
Summer Snow Japanese Tree Lilac  
Bald Cypress  
Littleleaf Linden

## **SECTION 507. SIDEWALKS**

Sidewalks shall be required in all land developments on both sides of all proposed streets and shall be designed and constructed in accordance with the additional following requirements:

- A. Sidewalks shall be located within the right-of-way of the street and shall extend in width from the right-of-way line toward the curb line
- B. Sidewalks must be at least four (4) feet wide. In the vicinity of shopping centers, schools, recreation areas and other high pedestrian traffic areas, sidewalks must be at least five (5) feet wide.
- C. Sidewalks must be constructed in accordance with the Township's "Standard Material and Construction Specifications for Public Improvements."
- D. In order to provide for the drainage of surface water, sidewalks shall slope from the right-of-way line toward the curb. Such slope shall be one fourth (1/4) inch per foot.
- E. Sidewalks shall be boxed out around light standards, fire hydrants, signs, etc., with a pre-molded expansion joint, one quarter (1/4) inch in thickness.
- F. Where a sidewalk abuts a curb, wall, building or any other structure, a pre-molded expansion joint of one-quarter (1/4) inch of thickness, shall be placed between the sidewalk and said structure for the full length of said structure.
- G. Sidewalks shall be inspected by the Township Engineer or his designated agent after the forms have been placed, just prior to the pouring of concrete and after completion of all work.
- H. Any stabilized pedestrian walks proposed in addition to required sidewalks shall be approved by the Township Engineer. Interior pedestrian walks within blocks shall be located in easements not less than ten (10) feet in width, or as required by Section 518.E.

## **SECTION 508. OTHER STREET DESIGNS AND STANDARDS**

- A. Dead End Streets and Temporary Cui-de-Sacs

Dead end streets shall be prohibited, except when the developer designs and constructs temporary cul-de-sac streets on the developer's own land in order to permit future street extensions into adjoining properties. Temporary cul-de-sacs, upon approval of the Township Engineer, may be constructed without asphalt base or wearing course. The developer may be exempt from providing curbing at the terminus of temporary cul-de-sacs, unless curbs are required for drainage control. A temporary cul-de-sac shall be removed by the developer and replaced with the permanent street upon extension of the existing street.

B. Cul-de-Sacs

1. A cul-de-sac shall not be approved wherever a through street or loop is practicable, except where the cul-de-sac is clearly the only practical design for the land development.
2. Permanent cul-de-sacs shall not exceed one thousand (1000) feet in length.
3. The minimum cul-de-sac length shall be two hundred fifty (250) feet.
4. Where the turnaround right-of-way of a cul-de-sac street approaches or abuts the tract boundary, a fifty (50) foot right-of-way shall be extended to the adjacent property to permit future extension of the street at full width, unless future extension is not possible.
5. Cul-de-sac streets, whether permanently or temporarily designed as such, shall be provided with a snow removal easement with a width of twenty (20) feet located at the terminus of the cul-de-sac street for plowed snow during the winter months.
6. Drainage of cul-de-sac streets shall preferably be towards the open end. If drainage is toward the closed end it shall be conducted away in an underground storm sewer.
7. Turnaround radius at the end of cul-de-sacs shall comply with Section 506.C.1 of this Ordinance.

C. Partial and Half Streets

1. New half or partial streets shall not be permitted, except where the Applicant justifies to the Township that it is essential to the reasonable subdivision of a tract in conformance with the other requirements and standards of these regulations, and where, in addition, satisfactory assurance for dedication of the remaining part of the street can be obtained.
2. Whenever there is an existing half street adjacent to a parcel to be developed, then the other half of the street shall be platted and dedicated within such parcel, unless otherwise determined by the Board of Commissioners.

**SECTION 509. STREET SIGNS, NAMES AND NUMBERING**

- A. Where signs are required in conjunction with a land development plan, it shall be the responsibility of the applicant/developer to provide street name signs and traffic control signs for the development in accordance with the approved signage plan and the Township's specifications.
- B. Names of new streets shall not duplicate existing or planned street names, or approximate such names by the use of suffixes such as "lane", "way", "drive", "court", "avenue". In approving the names of streets, cognizance should be given to existing or planned street names within the postal delivery district served by the local post office. New streets shall bear the same name or number of any continuation of alignment with an existing or planned street.

- C. In order to ensure efficient identification and location of homes and residences by emergency response units, a systematic approach to residence numbering is desired. Building Numbers for residential and commercial subdivisions on existing and future Township streets shall be coordinated with existing residence address ranges where possible.

### **SECTION 510. STREET LIGHTS**

For the safety, convenience, and attractiveness of land developments with six (6) or more lots, on-site or public street lights shall be installed. The applicant shall indicate the proposed design for street lighting in the Street Lighting Plan submitted with the Final Plan. Installation of the Street lights shall meet the following requirements:

- A. Where electric service is supplied by underground methods, the developer shall provide and install conduits where necessary to accommodate the installation of street lighting systems, prior to the installation of streets, curbs, sidewalks, and driveways.
- B. Installation and location of conduits shall comply with the specifications of the appropriate public utility.

### **SECTION 511. DRIVEWAYS AND SERVICE DRIVES**

The following standards shall apply to driveway construction within the public right-of-way in any land development:

- A. Private driveways on corner lots shall be located at least forty (40) feet from the point of intersection of the nearest street right-of-way lines. Private driveways shall be setback a minimum of two (2) feet from side property lines.
- B. In order to provide a safe and convenient means of access, grades on private driveways shall be so designed to allow for the unimpeded flow of storm water runoff. In addition, driveways must be stabilized to their full width to prevent erosion. Entrances shall be rounded at a minimum radius of ten (10) feet, or shall have a flare construction that is equivalent to the radius at the point of intersection with the cartway edge (curb line). The maximum width of a residential driveway shall not be more than twenty-five (25) feet measured at the cartway edge or curb line. (Refer to Pennsylvania Department of Transportation, Guidelines for Design of Local Roads and Streets - Publication No. 70M, as revised.)
- C. All driveways shall be located, designed and constructed in such a manner as not to interfere or be inconsistent with the design and maintenance and drainage of streets or the safe and convenient passage of traffic.
- D. All driveways on a State Highway must have a valid highway occupancy permit from the PA Department of Transportation.
- E. Direct access from residential lots to an arterial or minor arterial shall be avoided. Where such direct access cannot be avoided, adequate maneuvering and turnaround space shall be provided behind the right-of-way line.
- F. The grades on service drives or driveways shall not be less than 0.5% and shall not exceed the following:

1. Eight (8) percent when access is to a Collector Street;
2. Ten (10) percent when access is to a Local Street.

G. Driveway Entrances

1. Driveway entrances or aprons within the street right-of-way shall be surfaced to their full width. In no case shall the driveway entrance be more than ten (10) feet wider than the driveway. The type of surface may be either concrete or asphalt, constructed following the specifications in PennDOT Publication RC-25M Type 6 Shoulder (asphalt) or Type 2 Shoulder (concrete). Where sidewalks are installed, the required driveway surfacing shall end at the street side of the sidewalk.
2. Driveway entrances along streets where curbs are not required, shall be constructed to provide proper drainage along the streets and from the streets by the continuation of gutters, swales or ditches. Such continuation may be provided by having an approved pipe of not less than eighteen (18) inches in diameter across such driveway entrances.
3. Driveway entrances along streets, where curbs are not required, shall be constructed so that the driveway meets the edge of the cartway as a continuation of at least the slope from the crown of the street for not less than five (5) feet.
4. Sidewalks across driveway entrances, where required, shall be constructed in accordance with the requirements in Section 507 herein.
5. Driveways serving single family residences shall intersect streets at angles of no less than sixty (60) degrees. All other driveways or service drives shall intersect streets at right angles, where possible, and in no instance shall such intersection be less than seventy-five (75) degrees.

H. Sight Distance

1. The clear sight distance for driveways shall be in accordance with section 506.D.4.f and EXHIBIT 5-1.

**Section 512. MONUMENTS AND MARKERS**

- A. Monuments and markers must be placed by a Registered Professional Engineer or Professional Land Surveyor so that the scored or marked point coincides exactly with the point of intersection of the lines being monumented. They must be set so that the top of the monument or marker is level with the finished grade of the surrounding ground. Monuments must be marked on top with a copper or brass plate or dowel set in the concrete.
- B. Location of Monuments
  1. At least two (2) corners of the boundary of the original tract of the development or subdivision shall be monumented.

2. A minimum of two (2) monuments shall be set on the street right-of-way lines of each street. Monuments shall be set on the same street right-of-way line.
3. On the street right-of-way lines, monuments may be set at the following locations:
  - a. At the intersection of street right-of-way lines.
  - b. At the intersection of a street right-of-way line and the side line of an interior lot.
  - c. At either or both ends of curved street right-of-way lines.
  - d. at such other points along the street right-of-way lines as may be determined by the Township Engineer so that any street may be readily defined in the future.
4. A monument shall be set at the Primary Control Point determined for the development or subdivision.

C. Construction of Monuments and Markers

Monuments and markers shall be the following sizes and made of the following materials:

1. Monuments shall be six (6) inches square or four (4) inches in diameter and shall be thirty (30) inches long. Monuments shall be made of concrete, stone or by setting a four (4) inch cast iron or steel pipe filled with concrete.
2. Markers shall be three quarters (3/4) of an inch square or three quarters (3/4) of an inch in diameter and twenty-four (24) inches long. Markers shall be made of iron pipes or iron or steel bars.

D. Bonding and Inspection

Monuments required by this Ordinance to be set at locations shown on the approved Final Plan shall be bonded in accordance with Article 4 herein at the rate determined by an Engineering estimate but at a minimum of two hundred fifty (250) dollars per monument to be set. Monument placement shall be inspected by the Township Engineer prior to releasing the bond.

E. Replacement

Any monuments or markers that are discovered to have been removed must be replaced by a Professional Land Surveyor at the expense of the Developer and/or Owner.

**SECTION 513. WATER SUPPLY**

Each new dwelling created in East Pennsboro Township shall be individually self-sufficient for water supply and the water supply system. The Applicant shall provide an adequate and potable water supply and distribution system to service the proposed land development which shall be: (1) individual, (2) public, or (3) private community and maintained and operated in accordance with the PA Department of Environmental Protection. The purpose of these provisions are to ensure that each dwelling unit and each commercial and industrial building in all subdivisions hereafter granted approval shall have an adequate supply of potable water for domestic use and for fire protection.

A. Hydrogeologic/Water Facilities Study

1. Where required by Article 3, Section 307 and Section 309 of this Ordinance, a Hydrogeologic/Water Facilities Study describing the availability and/or adaptability of water facilities in or near a proposed land development shall be prepared and submitted to the Township.
2. The Hydrogeologic/Water Feasibility Study shall be prepared by a Professional Engineer or Hydrogeologist experienced in the field and procedures involved. Two (2) copies of the report shall be submitted in conjunction with Preliminary and Final Plans for review by the Township Engineer.
3. The Hydrogeologic/ Water Facilities Study shall be prepared as a written report and shall include the following basic data in textual and tabular form:
  - a. A project narrative describing the overall project.
  - b. Study Area - The Study shall focus on the development site and an area of 1/4 mile buffer surrounding the site.
  - c. Study shall consist of an examination of the possible use of on-site water supply systems and the impact of such systems on ground water supply, connection to an existing water supply system or the construction of a central community system.
  - d. The study shall include a complete geologic profile and plan and a discussion of the effect of the proposed development and construction activity on the ground water supply.
  - e. The study shall also include a statement and justifiable analysis by the professional firm as to the sufficiency of the subsurface aquifers to support on-lot water systems for the proposed development, verified by well testing and other appropriate means, as well as analyzing the impact on existing sources.
  - f. The study shall describe the distance from the nearest public water supply system and the capacity of the system to accommodate the proposed land development.
  - g. Where a central community water system is proposed, the report shall provide evidence that the system will have an adequate supply of potable water for domestic or other proposed use and that each unit or building will have adequate supply for the purpose of fire protection.

B. On-lot Water Supply

1. Where there is no existing public water supply and the Hydrogeologic/Water Facilities Study indicates that connection to a public water supply system or central community system is not feasible, each lot in the development must be provided with an individual on-lot water supply system in accordance with the standards required by the Pennsylvania Department of Environmental Protection. The Board of

Commissioners shall approve the use of individual on-lot water supply systems (wells) when:

- a. The Hydrogeologic/ Water Feasibility Study indicates that justification of the project necessitates the use of this type of water supply;
- b. The anticipated water supply yield is adequate for the type of development proposed;
- c. The installation of an on-lot system(s) will not endanger or decrease the groundwater supplies to adjacent properties.

2. Construction of wells for individual small water supplies shall conform to DEP's Construction Standards for Individual Water Supplies, as revised.

C. Public Water Supply

Where there is an existing public water supply system within one-thousand (1000) feet from a proposed development and such system has adequate planned capacity and is willing to serve that land development, a complete water supply system connected to the existing water supply system must be provided and fire hydrants shall be installed in accordance with Section 515 of this Ordinance.

1. Where plans approved by a public water supplier provide for the installation of such public water supply system within four (4) years, the developer shall provide a complete water system for connection to the planned water main supply system.
2. Where connection to a public water supply is possible or feasible, the plan for the installation of such water supply system must be prepared for the development with cooperation of the appropriate water utility company and reviewed by the Township Engineer.
3. Where a public water supply system is not feasible for the proposed development as evidenced in the Hydrogeologic/Water Facilities Study, developer shall provide information related to the construction and installation of a central community water supply system.

D. Central Community Water Supply System

The design and installation of a central community water supply system shall be subject to the approval of the Board of Commissioners and the PA Department of Environmental Protection (DEP).

1. Standards and materials for the construction of any central community water supply system shall meet or exceed those requirements described in the Public Water Supply Manual of the Pennsylvania Department of Environmental Protection (DEP) and shall be subject to approval by the Township Engineer. Where a permit is required by DEP, it shall be presented as evidence of such review and approval before construction of the system will commence.
2. Where the central community water supply system occurs under the jurisdiction of the Pennsylvania Public Utilities Commission (P.U.C.), the water supply study shall also incorporate those items of information required by the P.U.C.

3. The central community water system shall be designed to furnish an adequate supply of water to each lot, with adequate water main sizes and fire hydrant locations to meet the specifications of the Middle States Department Association of Fire Underwriters. A technical study shall be submitted to the Township for review by the Township Engineer and Fire Marshal. Fire hydrants shall be placed and constructed in accordance with Section 515 of this Ordinance.
4. All suitable agreements, including financial guarantees shall be established for the ownership and maintenance of the system. Ownership and maintenance of the central community water system shall be the responsibility of an organization formed and operated in accordance with Section 516 of this Ordinance. Such a system shall be designed and constructed in a manner that would permit adequate connection to a public water supply system in the future.
5. All water systems located in flood-prone areas, whether public or private, shall be flood proofed to a point one and one-half (1-1/2) feet above the one hundred (100) year flood elevation.
6. Ground Water for Central Community Water Systems

Ground water for community water systems must conform with the Pennsylvania Department of Environmental Protection requirements and standards. A minimum of two (2) sources of ground water must be provided for each community water system. Each ground water source shall be capable of supplying the average daily demand of the proposed dwelling units.

#### **SECTION 514. SEWAGE SERVICE FACILITIES**

- A. Each new dwelling created in the Township shall be self-sufficient for sewage disposal and the sewage disposal system shall be public, community or individually owned, maintained and operated.
- B. As specified in Article 3, all plan submissions must be accompanied by the appropriate Sewage Facilities Planning Module for land development provided by the PA Department of Environmental Protection (DEP). All planning module reviews shall conform to the Pennsylvania Sewage Facilities Act of 1965, P.L. 1535, No. 537, as amended; DEP's Chapter 71 regulations, Administration of Sewage Facilities; the Township's Act 537 Plan; and this and any other Township Ordinances.
- C. Individual (On-lot) Sewage Disposal
  1. Where public sanitary sewers are not feasible, the use of on-lot sewage disposal systems shall be permitted. The use of such on-lot systems is governed by regulations of the PA Department of Environmental Protection (DEP) and enforced by the Township Sewage Enforcement Officer (SEO).
  2. Prior to approval of any plan depicting on-lot sewage disposal systems, the developer shall have had soils testing performed on each lot to determine the suitability for such systems, and shall have secured the approval of the Township SEO and/or PA DEP through the use of a Planning Module for Land Development. Each on-lot sewage disposal system must be approved by the Township SEO and/or PA DEP.

3. An individual sewage disposal system shall be located on the lot which it serves, or within adjacent open space that is designated for that purpose.

D. Public Sewage Systems

1. Where a public sanitary sewage system exists within one thousand (1,000) feet of the development site, the Applicant must install a complete sanitary sewerage system within the development as required to connect the site to the available sanitary sewage system.
2. Where a public sanitary sewage system does not currently exist within one thousand feet (1,000) of the development site, but in the opinion of the Board of Commissioners will become available within five (5) years, the Applicant shall install a complete sanitary sewage collection system in accordance with the following requirements:
  - a. a collector main installed in the street or approved right-of-way;
  - b. lateral installations to the right-of-way lines of streets, lot or parcel property lines or sewer easement right-of-way lines, whichever pertains to the individual situation;
  - c. All termini shall be capped in a manner that will insure that all collector mains, laterals, and house connections shall be watertight pending connections with the public sanitary sewage system.

3. Design and Construction

- a. The construction of the system, including all service connections, pumping stations and interceptors shall be constructed at the developer's expense and shall not commence until application has been made to, and written authorization to proceed with construction has been obtained from the Township and DEP.
- b. The system shall be designed by a Registered Professional Engineer and approved by the Township Engineer.
- c. When a public sanitary sewage system is installed and capped by the Applicant, the Applicant may also install on-site sewage disposal facilities provided that the system is designed to provide connection to the public sewer when it becomes operable.
- d. Sanitary sewers and sewage disposal systems shall not be combined with storm water sewers, and shall not be constructed to receive effluent from any storm water collection system.
- e. Pipe sizes for sanitary sewer mains and sewer laterals and locations for manholes shall meet the Township's "Standard Material and Construction Specifications for Public Improvements." The Township shall inspect the sewer line before it is backfilled.

- E. Central Community Sanitary Sewage Facilities
1. A central community sanitary sewage facility shall be permitted if it can be shown that such an approach would provide more reliable and effective treatment of waste than individual on-lot systems or if a central community system is required as part of cluster or open space development.
  2. The design and installation of a central community sanitary sewage facility shall be subject to the approval of the Board of Commissioners and the PA DEP.
  3. The system shall be designed by a Registered Professional Engineer and approved by the Township Engineer. The construction of the system, including all pumping stations, interceptors, drainage fields and treatment plants, shall be at the developer's own expense.
  4. All suitable agreements, including financial guarantees, shall be established for the ownership and maintenance of the system. Ownership and maintenance of the central community sanitary sewage system shall be the responsibility of an organization formed and operated in accordance with Section 516 of this Ordinance.
  5. Central community sanitary sewage facilities shall be located on a separate lot under the ownership of an organization approved by the Township. The lot shall be used solely for the central community sanitary sewage facility. The area of the lot shall be of sufficient size to accommodate the system, the required area for a complete alternate or replacement system, and all required setbacks.
  6. The Township shall have the right to inspect and test community service systems at any time. The Township may require the owner to provide the results of regular professional testing of the system when the Township deems necessary. The cost of inspections and testing shall be the responsibility of the owner.

#### **SECTION 515. FIRE HYDRANTS**

- A. Where public and central community water systems are provided for land development, fire hydrants suitable for coupling with fire equipment serving the Township shall be installed as specified by the Insurance Services Offices of Pennsylvania. The fire protection system shall be designed by a Registered Professional Engineer and approved by the Township Engineer. The construction of the system shall be at the developer's own expense.
- B. The location performance standards for fire hydrants shall meet the following standards and shall be approved by the Township Board of Commissioners upon review and recommendation by the Township Engineer and Township Fire Marshal:
  1. All fire hydrants will be located on an eight (8) inch line or a looped six (6) inch line. Where a dead end line is required to contain a fire hydrant, the portion of the line between the main loop and the hydrant shall have a minimum diameter of eight (8) inches.

2. Fire hydrants shall be spaced in a development so that all proposed buildings will be no more than four hundred (400) feet from the hydrant measured along traveled ways.
3. All central community water systems must provide a minimum of 500 GPM at a residential pressure of 20psi for a two (2) hour period.

## **SECTION 516. COMMON FACILITIES**

### **A. Ownership Standards**

Facilities to be held in common, such as central community water supply, storm water management facilities or community sewage service systems, shall be held using one of the following methods of ownership, subject to the approval of the Board of Commissioners.

1. Homeowners Association - The facilities may be held in common ownership by a Homeowners Association which is formed and operated in accordance with the provisions of Section 516.B of this Ordinance.
2. Condominium. The facilities may be held as common element under a condominium agreement. Such agreement shall be in conformance with the Pennsylvania Uniform Condominium Act, as amended.

### **B. Homeowners Association**

Homeowners Associations will be governed in accordance with any applicable laws of the Commonwealth of Pennsylvania. Where required, the organizational framework of the homeowners association shall be described in a report forwarded to the Township for review by the Township Board of Commissioners and Township Solicitor. At a minimum, the following information and standards shall be met prior to final approval of the subdivision or land development:

1. By-laws describing the formation and duties of the association, including the responsibilities for maintenance of common open space areas, shall be defined and presented to the Township for review and approval as part of the final plan submission.
2. Membership shall be mandatory by all residents served by the common facilities. Membership and voting rights shall be defined.
3. Rights and duties of the Township and members of the association, in the event of a breach of covenants and restrictions, shall be defined.
4. The By-laws shall include a statement which grants to the Association the legal authority to place liens on the properties of members who are delinquent in the payment of their dues. The By-laws shall also grant the Township such power, but not the duty, to maintain the common facilities, and to assess the cost of the same as provided in the PA Municipalities Planning Code, Act 247.

### **C. Maintenance Standards**

1. The common facility (ie. Sanitary and storm sewage system, detention pond, community water systems, swimming pools, ponds, common

ground, playgrounds, etc.) shall be operated and maintained by a professional organization specializing in the required services and approved by the Board of Commissioners. The agreement between the Association or Condominium and the professional organization shall be subject to review by the Township Solicitor and approved by the Board of Commissioners.

2. The Township shall, upon request, be given access to all records of the Association or Condominium and all records of the professional organization relating to the common facility or facilities.

3. Delinquency

In the event that the Association or Condominium established to own and maintain the common facility, or any successor organization, shall at any time after the establishment of the common facility, fail to maintain said facility or facilities in reasonable working order and condition in accordance with established standards, guidelines and agreements, the Board of Commissioners may serve written notice upon the Association or Condominium and/or the residents served by the common facility stating:

- a. The manner in which the Association or Condominium has failed to maintain the common facility in reasonable condition.
- b. A demand that such deficiencies of maintenance be corrected within thirty (30) days.
- c. The date and place of a public hearing which shall be held within forty-five (45) days of public notice.

4. Public Hearing

At the said public hearing scheduled in accordance with Section 516.C.3.c, the Board of Commissioners may amend the terms of the original notice concerning the deficiencies and may give an extension of time within which they shall be corrected. If the deficiencies or any modifications thereof were not corrected within thirty (30) days of the notice of deficiencies or within any extension, the Township may enter upon the common facility and maintain the same for a period of one (1) year. The said maintenance by the Township shall not constitute a taking of said common facility, nor vest the public any rights to use the same. Maintenance of common facilities shall include all activities related to the operation of the facility, including, but not limited to, administration, assessing and collecting of fees, testing, and necessary improvements.

5. Burden of Proof

Before the expiration of said year, the Township shall, upon its initiative or upon request of the Homeowners Association or Condominium call a public hearing upon notice to the Association or Condominium and to the residents served by the facility. At the hearing, the Association or Condominium or the residents shall show cause as to why such maintenance by the Township shall not, at the option of the Township, continue for a succeeding year. If the Board of Commissioners shall determine the Association or Condominium is prepared, willing and able

to maintain such common facility in reasonable working order and condition, the Township shall cease to maintain said common facility at the end of said year. If the Board of Commissioners shall determine that the Association or Condominium is not prepared, willing or able to maintain said common facility in a reasonable and working order and condition, the Township may, at its discretion, continue to maintain said common facility during the next succeeding year and, subject to a similar hearing and determination, in each year thereafter.

6. Cost Reimbursement

Any and all costs the Township incurred as a result of maintenance of common facility and any additional penalties or fees set by the Township shall be paid by the Association or Condominium and the residents served by the facility. Any invoices from the Township for such costs which remain unpaid following a period of forty-five (45) days shall be subject to an increase of 1.5% a month (18% annually) and a lien which shall be filed against the premises of the owner or resident in the same manner as other municipal claims.

**SECTION 517. UTILITIES**

- A. Telephone, electric, TV cable and such other utilities shall be installed underground and shall be provided with easements to be dedicated for such utilities and in accordance with plans approved by the Board of Commissioners and the applicable utility company.
- B. Lots which abut existing easements or public rights-of-way where above ground utility lines have been previously installed may be supplied with electric and telephone service from those overhead lines, but service connections from the utilities' overhead lines shall be installed underground.
- C. Where road widening and other conditions resulting from land development necessitate replacement or relocation of overhead utility lines, new facilities shall be installed underground. Costs of any relocation of public utilities shall be the responsibility of the developer.
- D. Underground installation of the utility distribution and service lines shall meet the prevailing standards and practices of the company providing the service and shall be completed prior to street paving and gutter, curbing and sidewalk installation.
- E. Where overhead lines are permitted as the exception, the placement and alignment of poles shall be designed to lessen their visual impact.
- F. Underground Utility Notifications

In accordance with the provisions of PA Act 38, as amended, the applicant shall contact all applicable utilities and accurately determine and show the location and depths of all underground utilities within the boundaries of the tract proposed for development and in the vicinity of any proposed off-site improvement, prior to excavation.

**SECTION 518. EASEMENTS (Utility, Stormwater/Sanitary Sewer, Drainage, Conservation, Pedestrian)**

A. Utilities

Easements shall be provided for poles, wires, conduits, storm and sanitary sewer lines, gas, water and heat mains, and other utilities intended to serve the abutting lots and for access to facilities. The minimum width of utility easements shall be thirty (30) feet. Wherever possible such easements shall be centered on the side or rear lot lines, or along the front lot lines.

B. Storm Water, Sanitary Sewage and Clear Water Collection Systems

Where a land development is traversed by storm water, sanitary sewage or clear water collection system facilities, a utility easement shall be provided. In no case shall the easement be less than thirty (30) feet in width. Additional width may be required by the Board of Commissioners depending on the purpose and use of the easements. All stormwater easements are to be dedicated to private property owners unless the easement is designed to carry stormwater away from stormwater infrastructure already owned by the Township.

C. Stream, Watercourse, Drainage Channel, Stream, Pond or Lake.

Where a land development is traversed by a watercourse, drainage way, channel or stream, there shall be provided a drainage easement conforming substantially with its location for the purpose of widening, deepening, relocating, improving or protecting such watercourses, provide proper maintenance, or for the purpose of installing a storm water or clear water system. The following standards shall apply:

1. Perennial Streams - Fifteen (15) feet from the stream bank.
2. Intermittent stream, drainage way, channel or swale - Fifteen (15) feet from the center line of the watercourse.
3. An access easement shall be provided to the drainage easement. The width of such access points shall not be less than thirty (30) feet.

In no case shall any drainage easement be less than thirty (30) feet in width. Any such easement shall be dedicated, if deemed appropriate by the Township Board of Commissioners, to private property owners or other third parties.

D. Conservation

Where environmental protection and flood plain overlay zones exist, a conservation easement shall be depicted on the plan within the overlay area.

In all land developments, a fifteen (15) foot conservation easement shall be provided around all delineated wetland areas to ensure minimal disturbance and encroachment in these areas.

E. Pedestrian

Where necessary for access to private, public or common lands, a pedestrian easement shall be provided with a width of no less than ten (10) feet. Additional

width, fencing and/or planting may be required by the Board of Commissioners depending on the purpose and use of the easement.

## **SECTION 519. NATURAL FEATURES PROTECTION**

### **A. General Standards**

The design and development of all land development plans shall preserve, whenever possible, natural features which will aid in providing open space for recreation and conditions generally favorable to the health, safety and welfare of the residents of the Township. These natural features include the natural terrain of the site, woodland areas, large trees, natural watercourses and bodies of water, wetlands, rock outcroppings and scenic views.

### **B. Tree Preservation**

Trees, with a caliper of six (6) inches or more as measured at a height of four and one-half (4 1/2) feet above existing grade, shall not be removed unless they are located within the proposed cartway, driveway, or sidewalk portion of the street right-of-way, or within fifteen (15) feet of the foundation area of a proposed building, or as required by the Sewage Enforcement Officer for installation of an on-lot septic system. In areas where trees are retained, the original grade level shall be maintained, if possible, so as not to disturb the trees.

### **C. Stream Frontage and Wetland Preservation**

Stream frontage and designated wetland areas shall be preserved as open space whenever possible.

### **D. Topography**

The existing natural terrain of the proposed development tract shall be retained whenever possible. Cut and fill operations shall be kept to a minimum.

### **E. Topsoil Preservation**

Topsoil removal shall be minimized and, if at all possible, restricted to only the building, driveway and public improvement areas of the lot. All of the topsoil from areas where cuts and fills have been made should be stockpiled and redistributed uniformly after grading.

### **F. Landscaping**

That portion of a lot not covered with impervious material and not required to be otherwise developed as part of the stormwater management facilities required by this Ordinance shall be planted and maintained by the land owner with vegetative material.

For all multi-family dwelling, office, commercial and industrial land developments, a landscaping plan shall be provided and shall propose plantings in the open space areas, which include; planting strips, perimeter screenings, formal gardens, shade trees and natural barriers.

**Section 520. CONTRIBUTION FOR RECREATION PURPOSES**

- A. It is the policy of the Township to provide recreational facilities for all the residents of the Township. Centralized facilities are preferred over local neighborhood facilities. New and additional facilities at the centralized location are required in direct proportion to increases in the population of the Township. Developers causing increases in the population of the Township by adding new residential dwelling units must share in the cost of providing additional recreation facilities.
- B. A contribution for recreational purposes shall be made at the rate set or amended by resolution of the Board of Commissioners from time to time, payable upon and as a condition of making application for a building permit pursuant to the ordinances of this Township.
- C. The requirements of Section 520.B shall be noted upon the Final Land Development Plan which notation shall be deemed not to constitute a lien or encumbrance on the title of the land.
- D. All fees paid to the Township for this purpose shall be deposited in a capital reserve fund established as provided by law. Fees in such fund may be combined for investment purposes, if permitted by law, but shall be used only for the acquisition of land or capital improvements for open space, park and recreation purposes.

**Section 521. TIME LIMITATIONS**

All improvements shall be installed according to the time schedule which has been approved by the Board of Commissioners.

**Section 522. HISTORIC PRESERVATION**

Measures to mitigate the impact of the proposed development upon archeological and historic resources, agreed to with the Pennsylvania Historic and Museum Commission, shall be reviewed by the Township during the planning process, shall meet the requirements of any Township Ordinance and shall be subject to review and approval by the Board of Commissioners.

**EXHIBIT 5-1**  
**CLEAR-SIGHT TRIANGLES**

## EXHIBIT 5-2

### HIGHWAY ACCESS MANAGEMENT OVERLAY STANDARDS

#### Tier I - Access Management Techniques for Individual Parcels

##### A. Driveways

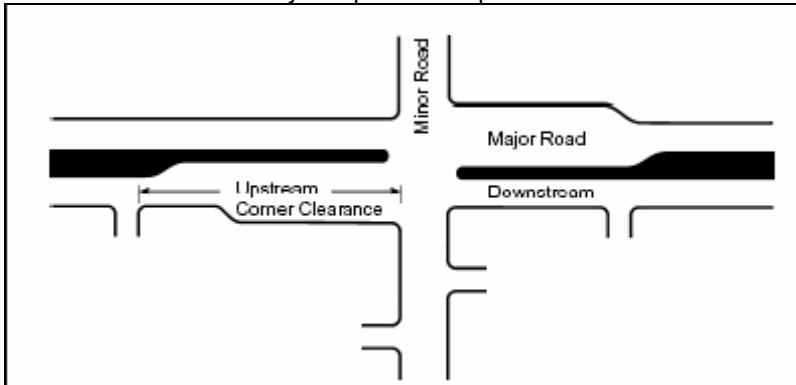
###### 1) Number of Driveways

- a) Only one access shall be permitted for a property.
- b) An additional access or accesses shall be permitted if the applicant demonstrates that an additional access or additional accesses are necessary to accommodate traffic to and from the site and it can be achieved in a safe and efficient manner.
- c) Access shall be restricted to right turn only ingress and egress or to another state maintained road or local road if safe and efficient movements cannot be accommodated.
- d) For a property that abuts two or more roadways, access shall be restricted to only that roadway which can more safely and efficiently accommodate traffic.
- e) If a property is proposed to be subdivided and that subdivision may result in an unacceptable number or arrangement of driveways, or both, the property owner shall be required to enter into an access covenant to restrict future access.

###### 2) Corner Clearance

- a) Corner clearance shall meet the following driveway spacing standards for arterial and major collector roads:
  - i) Principal arterial: 600 feet
  - ii) Minor arterial: 400 feet
  - iii) Major Collector: 200 feet
- b) Access shall be provided to the roadway where corner clearance requirements can be achieved.
- c) If the minimum driveway spacing standards cannot be achieved due to constraints, the following shall apply in all cases:
  - i) There shall be a minimum ten foot tangent distance between the end of the intersecting roadway radius and the beginning radius of a permitted driveway.
  - ii) The distance from the nearest edge of cartway of an intersecting roadway to the beginning radius of a permitted driveway shall be a minimum of 30 feet.
- d) If no other reasonable access to the property is available, and no reasonable alternative is identified, the driveway shall be located the farthest possible distance from the intersecting roadway. In such cases, directional connections (i.e., right in/right out only, right in only or right out only) may be required.

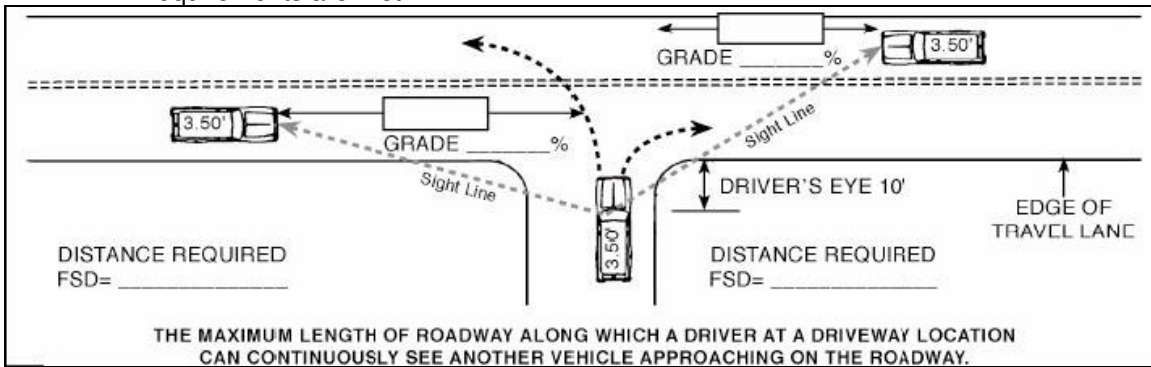
- e) Restrictions at the driveway shall be required if the municipal engineer determines that the location of the driveway and particular ingress or egress movements will create safety or operational problems.

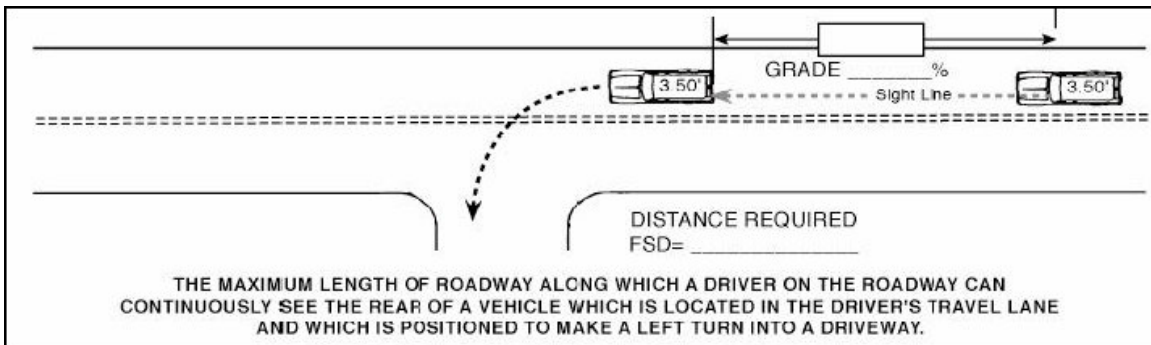
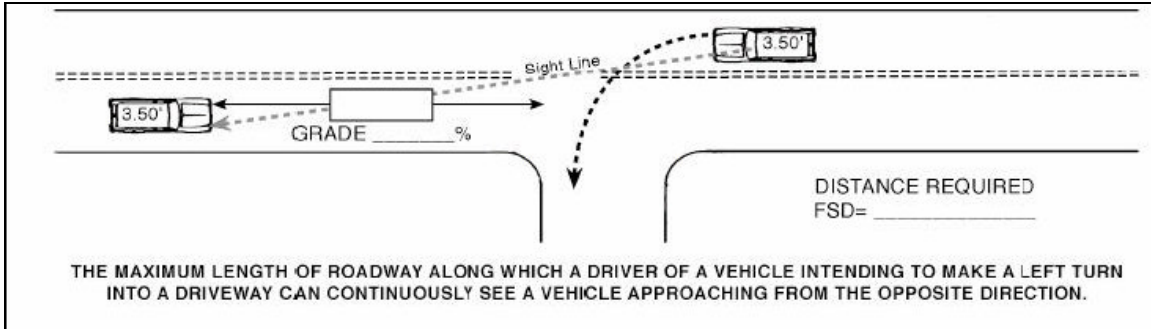


**Upstream Corner Clearance**

**3) Safe Sight Distance**

- a) Safe sight distance shall be available for all permitted turning movements at all driveway intersections.
- b) PennDOT's Pub. 441 and Pub. 282 for driveways or Pub. 70 for local roads shall be referenced to determine minimum driveway and roadway intersection safe sight distance requirements.
- c) All driveways and intersecting roadways shall be designed and located so that the sight distance is optimized to the degree possible without jeopardizing other requirements such as intersection spacing and at least minimum sight distance requirements are met.





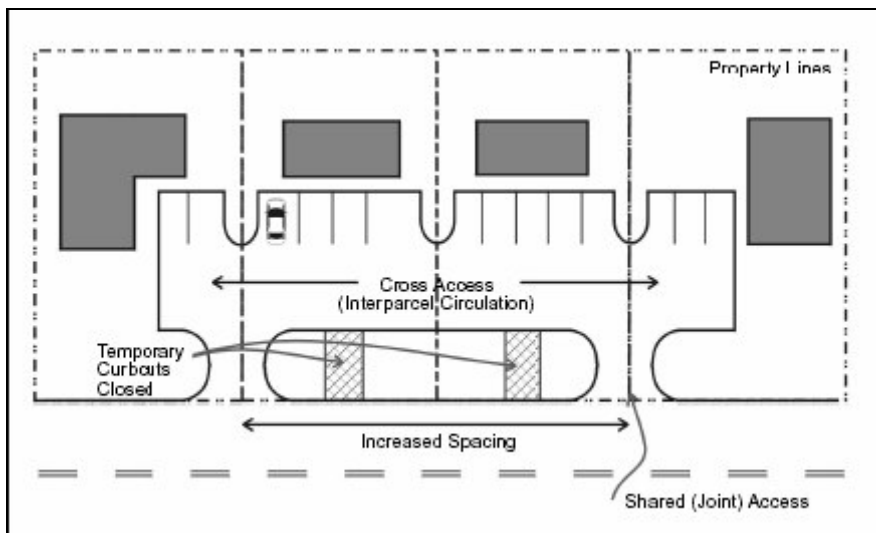
#### 4) Driveway Channelization

- a) For high and medium volume driveways, channelization islands and medians shall be used to separate conflicting traffic movements into specified lanes to facilitate orderly movements for vehicles and pedestrians.
- b) Where it is found to be necessary to restrict particular turning movements at a driveway, due to the potential disruption to the orderly flow of traffic or a result of sight distance constraints, a raised channelization island may be required.
- c) Raised channelization islands shall be designed to prevent unwanted movements using criteria consistent with the latest AASHTO publication entitled *A Policy on Geometric Design of Highways and Streets*.

#### 5) Joint and Cross Access

- a) A joint driveway may be required in order to achieve the following driveway spacing standards that are desirable for arterial and major collector roads:
  - i) Principal arterial: 600 feet
  - ii) Minor arterial: 400 feet
  - iii) Major Collector: 200 feet
- b) Adjacent non residential properties shall provide a joint or cross access driveway to allow circulation between sites wherever feasible along roadways classified as major collectors or arterials in accord with the functional classification contained in the Comprehensive Plan. The following shall apply to joint and cross access driveways:

- i) The driveway shall have a design speed of 10 mph and have sufficient width to accommodate two-way traffic including the largest vehicle expected to frequently access the properties.
  - ii) A circulation plan that may include coordinated or shared parking shall be required.
  - iii) Features shall be included in the design to make it visually obvious that abutting properties are tied in to provide cross access.
- c) The property owners along a joint or cross access driveway shall:
- i) Record an easement with the deed allowing cross access to and from other properties served by the driveway.
  - ii) Record an agreement with the Township guaranteeing that future access rights along the driveway will be granted at the direction of the Township with the design approved by the Township engineer.
  - iii) Record a joint agreement with the deed defining the maintenance responsibilities of each of the property owners located along the driveway.

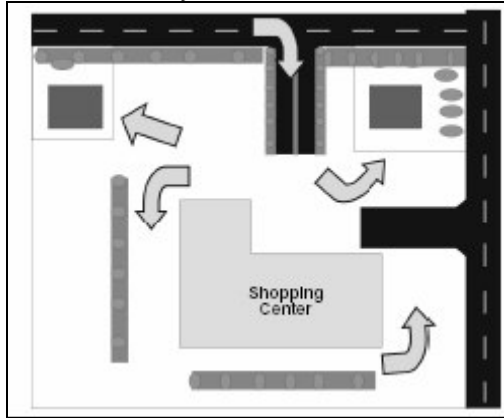


### **Joint Driveways and Cross Access**

#### **6) Access to Outparcels**

- a) For commercial and office developments under the same ownership and consolidated for the purposes of development or phased developments comprised of more than one building site, the municipality shall require that the development be served by an internal road that is separated from the main roadway.
- b) All access to outparcels shall be internalized using the internal roadway.
- c) The driveways for outparcels shall be designed to allow safe and efficient ingress and egress movements from the internal road.

- d) The internal circulation roads shall be designed to avoid excessive queuing across parking aisles.
- e) The design of the internal road shall be in accordance with the Land Development Ordinance.
- f) All necessary easements and agreements required under Section A.5.c shall be met.
- g) The Township may require an access covenant to restrict an outparcel to internal access only.

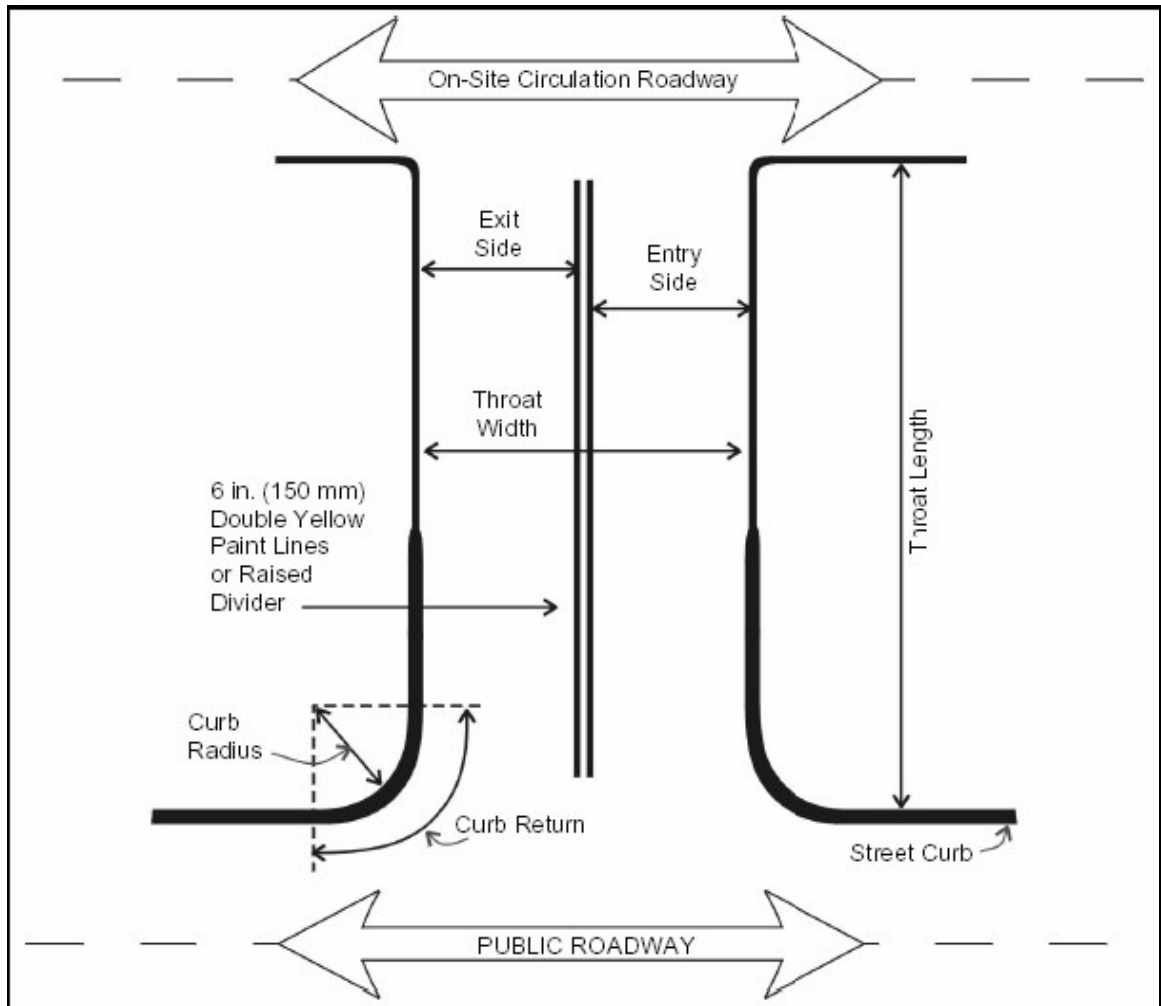


#### **Internal Access to Outparcels**

### **B. Driveway Design Elements**

#### **1) Driveway Throat Length**

- a) For minimum use driveways, the throat length shall be a minimum of 25 feet.
- b) For low volume driveways, the throat length shall be a minimum of 50 feet or as determined by queuing analysis.
- c) For medium volume driveways, the throat length shall be a minimum of 120 feet or as determined by a queuing analysis.
- d) For high volume driveways, the throat length shall be a minimum of 150 feet or as determined by a queuing analysis provided by the applicant and reviewed by the Township.



**Diagram Displaying Driveway Throat Length, Width and Radius**

## 2) Driveway Throat Width

- a) For driveways without curb:
  - i) A minimum use driveway shall have a minimum width of ten (10) feet.
  - ii) Low and medium volume driveways shall have a minimum width of ten feet for one-way operation and a minimum width of twenty (20) feet for two-way operation.
  - iii) The design of high volume driveways shall be based on analyses to determine the number of required lanes.
- b) For driveways with curb, two (2) feet should be added to the widths contained in Section B.2.a.i and a.ii above.
- c) The Township may require additional driveway width to provide turning lanes for adequate traffic flow and safety.

- d) The Township may require that the driveway design include a median to control turning movements. Where medians are required or permitted, the minimum width of the median shall be four feet to provide adequate clearance for signs.

### **3) Driveway Radius**

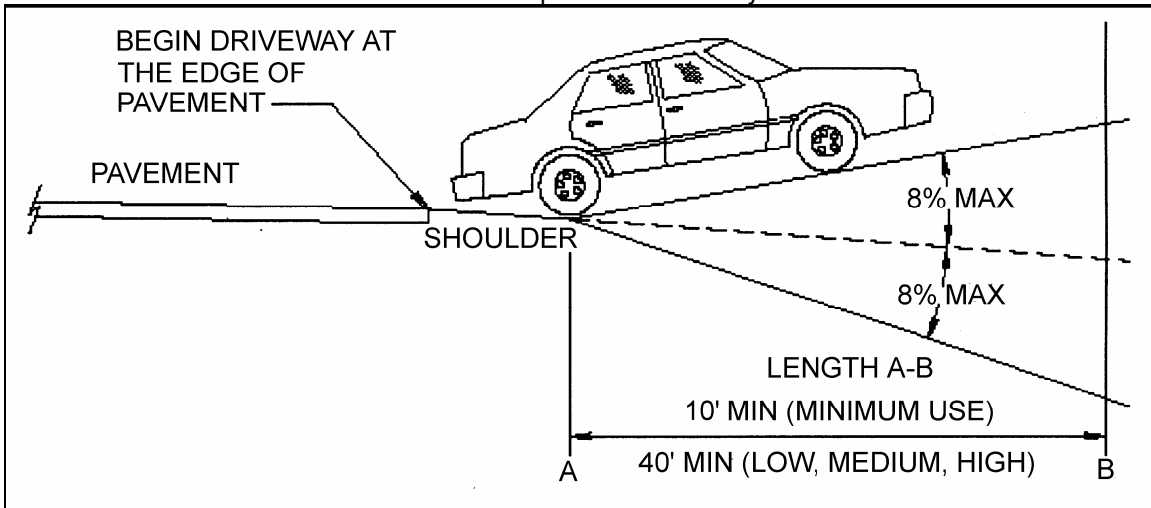
- a) The following criteria shall apply to driveway radii:
  - i) For minimum use driveways, the radii shall be a minimum of 15 feet.
  - ii) For low volume driveways, the radii shall be a minimum of 25 feet curbed.
  - iii) For medium volume driveways, the radii shall be a minimum of 25 feet curbed.
  - iv) For high volume driveways, the design should be reviewed by the Township engineer on Township roadways and PennDOT on state maintained roadways.
- b) For all driveways, the radii shall be designed to accommodate the largest vehicle expected to frequently use the driveway.
- c) Except for joint driveways, no portion of a driveway radius may be located on or along the frontage of an adjacent property.

### **4) Driveway Profile**

- a) Driveway grade requirements where curb is not present on the intersecting street:
  - i) Shoulder slopes vary from four percent to six percent. When shoulders are present, the existing shoulder slope shall be maintained across the full shoulder width.
  - ii) The change in grade between the cross slope of the connecting roadway or shoulder and the driveway shall not exceed eight percent.
  - iii) The driveway grade shall not exceed eight percent within ten feet of the edge of travel lane for minimum use driveways and within 40 feet for low, medium and high volume driveways.
  - iv) A 40-foot minimum vertical curve should be used for a high volume driveway.
- b) Driveway grade requirements where curbs and sidewalks are present:
  - i) The difference between the cross slope of the roadway and the grade of the driveway apron may not exceed eight percent.
  - ii) The driveway grade shall not exceed eight percent within ten feet of the edge of travel lane for minimum use driveways and within 40 feet for low, medium and high volume driveways.
  - iii) If a planted area exists between the sidewalk and curb, the following shall apply:
    - (1) The grade of the planted area shall not exceed eight percent.

- (2) If the driveway grade would exceed eight percent in the area between the curb and the sidewalk, the outer edge (street side) of the sidewalk may be depressed to enable the driveway grade to stay within eight percent. A maximum sidewalk cross slope of eight percent must be maintained.
- (3) If the sidewalk cross slope exceeds two percent, the entire sidewalk may be depressed. The longitudinal grade of the sidewalk may not exceed six percent.

c) Although site conditions may not allow strict adherence to these guidelines in this ordinance, every effort should be made to design and construct the safest and most efficient access onto the Township or state roadway.



**Driveway Profile**

## **Tier II - Access Management Techniques for Roadways**

### **A. Auxiliary Lanes**

Auxiliary lanes separate turning vehicles from through traffic, thus they increase capacity and improve operations at intersections. They reduce the potential for rear-end crashes and interference or disruption of the flow of through traffic.

#### **1) Right Turn Lane/Deceleration Lane**

- a) Unsignalized intersections.
  - i) A right turn lane shall be considered on the major road (not stop controlled) at an unsignalized intersection when any one or a combination of the following conditions exists:
    - (1) Forty or more right turns in the peak hour.
    - (2) 3% or more downgrade with 20 or more right turns in the peak hour.
    - (3) 85<sup>th</sup> percentile speed in excess of 40 mph.
    - (4) High average daily traffic on the through road (5000 vpd or more).
  - ii) A right turn lane shall be required on the minor road or driveway (stop controlled) approach if a capacity analysis shows an unacceptable LOS for the approach, and the installation of a right turn lane will improve operations.
- b) Signalized intersections.
  - i) A right turn lane shall be required when a capacity analysis shows unacceptable LOS, and the operation of the intersection can be improved by the installation of one or more right turn lanes. Level of Service F shall be considered unacceptable in the overlay district.
- c) Design Criteria
  - i) The desirable width for a right turn lane is 14 feet with curb and 12 feet without curb. The minimum width of right turn lanes shall be 13 feet with curb and 11 feet without curb. If not curbed, shoulders shall be designed in accordance with PennDOT 3R criteria found in PennDOT Publication 13M: Design Manual Part II.
  - ii) The required lengths of right turn lanes shall consider the following components as may be applicable:
    - (1) Storage bay length:
      - (a) Shall accommodate the 95<sup>th</sup> percentile queue length for signalized intersections.
      - (b) The stop controlled approach of an unsignalized intersection, shall

accommodate the number of turning vehicles likely to arrive in an average two minute period during the peak hour.

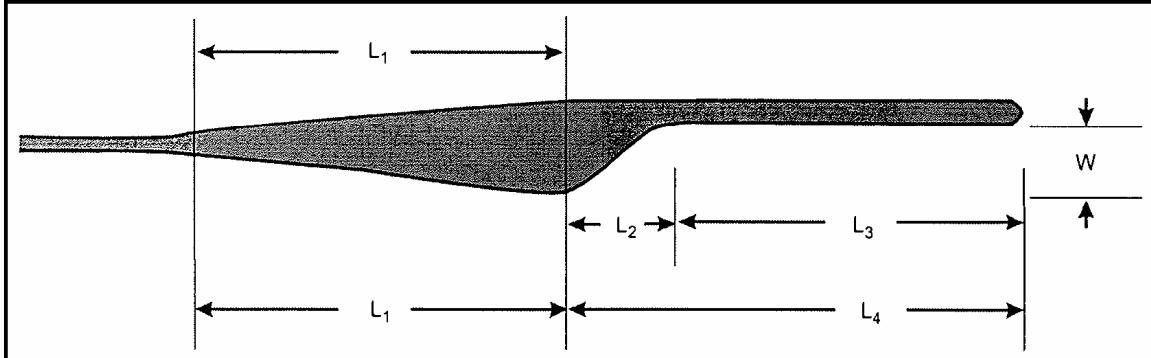
- (2) Deceleration distance in accordance with AASHTO publication A Policy on Geometric Design of Highways and Streets.
- (3) Taper length in accordance with AASHTO publication A Policy on Geometric Design of Highways and Streets.
- (4) The right turn or deceleration lane shall be designed based on an analysis that projects traffic volumes for a ten year period from the anticipated opening of the proposed development.
- (5) The 85th percentile speed shall be used for the retrofit of existing deceleration or right turn lanes. The design speed of the roadway shall be used for the design of auxiliary lanes for new roads.

## 2) Left Turn Lane

- a) Unsignalized Intersections.
  - i) For the major street, Highway Research Record 211 (HRR 211) provides warrants for requiring a left turn lane.
  - ii) A left turn lane shall be required when the appropriate HRR 211 nomograph indicates that the warrant for a 100 foot long left turn lane is met for the anticipated completion date of the development.
  - iii) A left turn lane shall be required if the visibility of the rear of a vehicle stopped to turn left into the proposed access does not meet minimum stopping sight distance requirements and no alternative is available.
- b) Signalized Intersections.
  - i) A left turn lane shall be required when a capacity analysis indicates that the operation of an intersection, approach, or movement will operate at unacceptable levels of service and the operation of the intersection, approach, or movement can be improved with the installation of one or more left turn lanes. Level of Service F shall be considered unacceptable in the overlay district.
- c) Design Criteria
  - i) The desirable width for left turn lanes is 12 feet. The minimum width shall be 10 feet, unless the percent of trucks using the lane will exceed 5%, then 11 feet shall be the minimum width.
  - ii) The length of a left turn lane shall consider the following components as may be applicable:
    - (1) Storage bay length.
      - (a) Shall accommodate the 95<sup>th</sup> percentile queue length for signalized intersections.
      - (b) Shall be determined from the appropriate nomograph in HRR 211 for the uncontrolled approach of an unsignalized intersection.

(2) Deceleration length in accordance with AASHTO publication A Policy on Geometric Design of Highways and Streets.

(3) Taper length in accordance with AASHTO publication A Policy on Geometric Design of Highways and Streets.



L1 = lane shift taper length,  
L2 = taper length,  
L3 = full-width segment length, and  
L4 = turn bay length (L2 + L3).

### Isolated Left-turn Lane Length

### 3) Acceleration Lane

- a) May be required on arterial highways where operating speeds are in excess of 40 mph and where access points are located a sufficient distance apart to permit the installation of acceleration lanes.
- b) The design length and width shall follow criteria found in the latest edition of A Policy on Geometric Design of Highways and Streets and shall conform to PennDOT requirements on State maintained highways.

## B. Driveway Spacing Requirements

### 1) Driveway Spacing

- a) Driveway spacing is measured from the end of one driveway radius to the beginning of the next driveway radius.
- b) The following driveway spacing standards are required for arterial highways and major collector roads:
  - i) Principal arterial: 600 feet
  - ii) Minor arterial: 400 feet
  - iii) Major Collector: 200 feet
- c) Driveways shall be aligned with other driveways and roadways on the opposite side of the intersecting roadway on arterials and major collector roads in order to meet spacing requirements.

- d) If these driveway spacing standards cannot be met, a system of joint or cross access driveways, frontage roads or service roads may be required.

## **2) Signalized Intersection Spacing**

- a) Uncoordinated traffic signals shall be located a distance from adjacent signalized intersections as established by PennDOT.
- b) The progression speed shall be determined by the municipal engineer and PennDOT.
- c) Warrants for the signalization of an intersection must be met and may be found in the Manual on Uniform Traffic Control Devices (MUTCD).
- d) If a driveway or local road requires signalization and will be located within an existing coordinated traffic signal system, the traffic signal must be incorporated in the system.

## **3) Driveway Clearance From Interchange Ramps**

- a) A driveway shall not be permitted on or within an interchange ramp.
- b) A driveway shall not be permitted within 300 feet from either the end of a ramp radius or the intersecting edge of the pavement of the ramp speed change lane to the beginning of the access radius.