

Please note the Board does not accept dedication of streets between August 31 and April 1.

ARTICLE VII

SITE PLANNING AND DESIGN REQUIREMENTS

701. Application

The requirements for planning and design in this Article shall be used to judge the adequacy of development proposals and shall be considered to be the minimum criteria in achieving the purpose and objectives of this Ordinance. When a proposed project, because of its location, topography, special natural or man-made features, or because of its potential impact upon the Township or its environment is deemed to require more stringent criteria or additional standard and/or regulations, the Planning Department and/or the Planning Commission may recommend or the Board of Supervisors may impose such requirements in order to promote the public's health, safety, or welfare or to assist in achieving the purpose of this and other Township ordinances. Conversely, as set forth in Article XIV and Section 512.1 of the Municipalities Planning Code, 53 Pa.C.S. Section 10101, et seq., variations or modifications to these criteria may be granted by the Township Board of Supervisors provided the Applicant complies with the provisions set forth in Article XIV of this Ordinance.

Where questions should arise regarding the interpretation of these design standards, the determination of the Board of Supervisors shall prevail.

702. General Standards

- a. Land. No land shall be subdivided or developed for any purposes unless reasonable hazards to life, health, or property from flood, fire and disease shall have been eliminated or unless the plans for the project shall provide adequate safeguard against such hazards.
- b. Development. Proposed projects shall be coordinated with existing nearby neighborhoods so that the community as a whole may develop harmoniously and no construction in any development is to occur until a Building Permit is obtained from the Building Permit Officer.
- c. Natural and Historic Features. Reasonable measures shall be taken to insure insofar as possible, the preservation of natural and historic features, areas and structures as identified in the Comprehensive Plan to be worthy of such preservation and to

insure public access to such features, areas and structures where appropriate.

- d. Conformance with Comprehensive Plan. The layout or arrangement of the subdivision or land development shall conform to the South Middleton Township Comprehensive Plan and any regulations or maps adopted in furtherance thereof.

703. Streets

- a. Street Pattern. The proposed street pattern shall be integrated with existing and/or officially planned streets and it shall be related to topography to produce usable lots and reasonable street grades.
- b. Where adjoining areas are undeveloped Residential, Village or Commercial tracts as defined in the Zoning Ordinance, the arrangement of streets in new subdivisions shall make provision for the proper projection of streets to the boundaries of the undeveloped tract. Streets in a new subdivision bordering an existing development shall be coordinated, and be of such widths and grades and in such locations as deemed necessary to accommodate prospective traffic, and facilitate fire protection.
- c. Where a development is to be constructed in phases, the arrangement of streets in each phase shall make provisions for the proper projections of streets to the boundaries of the next phase.
- d. Design and Purpose. Streets shall be designed according to their function and laid out to preserve the integrity of their design in accordance with the following functional classification unless otherwise determined by the Board.

(1) Arterial Roads

This classification includes highways that provide for, develop or may develop substantial volumes of traffic. Design features of Arterial roads must permit operating speeds equal to or greater than 50 miles per hour. An Arterial Road is a roadway upon which mobility is essential and local access is minimized. All Arterial Roads shall have as few access points as are necessary, and in all cases shall be accessed only by other Arterial Roads, Urban and Rural Collector Roads and Rural Roads provided that all other standards, criteria and conditions of this ordinance are satisfied. All access to Arterial Roads shall be accompanied

by appropriate traffic studies and adequate traffic control devices to insure the safe and efficient movement of traffic.

(2) Urban Collector Roads

An Urban Collector Road is a roadway upon which mobility is extremely important and local access is of minor importance. The Urban Collector shall provide mobility from the Local and Rural roadway networks to the Arterial Road. Urban Collectors shall be accessed only by other Collector Roads, Local Roads, Rural Roads and high, medium and low volume commercial driveways, provided conditions and criteria of this Ordinance are satisfied. Urban Collectors shall be designed to accommodate operating speeds between 40 and 50 miles per hour.

(3) Rural Collector Roads

A Rural Collector Road is a roadway upon which mobility and local access are of equal importance. The Rural Collector will provide access from the Local and Rural Road networks to the Urban Collector and Arterial Road networks. Access to Rural Collectors shall be permitted by other Rural Collectors, Local Roads, Rural Roads and low volume commercial and minimum use driveways, provided that all other conditions and criteria of this Ordinance are satisfied. Rural Collectors shall be designed to accommodate operating speeds between 30 and 40 miles per hour.

(4) Local Roads

A Local Road is a roadway upon which mobility and through traffic is minimized and access is of primary importance. Local Roads provide access by commercial businesses and individual residences in urban and suburban areas. Therefore, access to Local Roads shall be permitted only by other Local Roads, Alleys and Service Drives, medium and low volume commercial driveways and minimum use driveways, provided that all other conditions and criteria of this Ordinance are satisfied. Local Roads shall be designed to accommodate operating speeds between 20 and 30 miles per hour.

(5) Rural Roads

A Rural Road is a public roadway that is normally located in an Agricultural or Conservation Area. Neither mobility nor access is of significant concern. Rural Roads experience low volumes of traffic. Rural Roads can be gravel or paved. Access to Rural Roads is permitted only by other Rural Roads, minimum use driveways and Rural Residential Lanes. Rural Roads shall be designed for safe operating speeds of less than or equal to 35 miles per hour.

(6) Alleys and Service Drives

This classification is intended to include Local Roads that provide secondary access to the back or side of properties abutting a street. It is also intended to include access driveways that are parallel to Arterial highways and Collector Roads and provide service access to property fronting on such highways and roadways. Alleys and Service Drives shall be designed for operating speeds of 15 miles per hour or less.

(7) Cul-de-Sacs

Access to Cul-de-sacs is limited to low volume and minimum use driveways. Access to Cul-de-sacs by other public roads is prohibited. Cul-de-sac streets shall be designed for light traffic and speeds under 25 miles per hour.

Cul-de-sac streets with a turn-around area at their termini present a maintenance burden to the Township. As such, although these streets are not prohibited in the Township, their use shall be minimized. Whenever an Applicant proposes a cul-de-sac street as part of a subdivision or land development plan, the Applicant shall provide adequate justification for use of such a street. The Applicant shall bear the burden of proof that other street arrangements are not possible.

(8) Dead End Streets

Dead end streets shall be prohibited.

- e. Streets and Roads shall be laid out according to the following minimum schedule; however, additional road width may be required as determined by the Board to insure public safety and convenience in accordance with the purpose of this Ordinance.

Additional right-of-way may be necessary to accommodate additional width required for turn lanes.

<u>TYPE OF STREETS OR ROAD</u>		<u>STANDARD</u>
(1)	Arterial Streets Standards	Penn DOT
(2)	Urban Collector Streets	
	(a) Right-of-Way	60 feet
	(b) Cartway	40 feet
(3)	Rural Collector Streets	
	(a) Right-of-Way	60 feet
	(b) Cartway	36 feet
(4)	Local Roads	
	(a) Right-of-Way	50 feet
	(b) Cartway	32 feet
(5)	Rural Roads	
	(a) Right-of-Way	40 feet
	(b) Cartway	24 feet
(6)	Alley or Service Drives (To Be Dedicated to the Township)	
	(a) Right-of-Way	33 feet
	(b) Cartway	20 feet

f. Cul-de-sac Streets

- (1) The total number of dwelling units served by a permanent cul-de-sac street shall not exceed fifteen (15).
- (2) All cul-de-sac streets with a turn-around at their termini shall be designed with an area reserved for the Township to push snow during snow removal operations. An easement (Section 705) shall be provided indicating that the Township has the right to use the area for snow removal. A curb cut shall be provided at least twenty (20) feet in width so that snow can be pushed into the easemented area.

- (3) Permanent cul-de-sac streets shall not exceed a centerline distance of seven hundred fifty (750) feet in length nor be less than two hundred fifty (250) feet in length.
- (4) Temporary cul-de-sac streets shall not exceed one thousand (1000) feet in length. Any street that is terminated for access to an adjoining property or because of authorized stage development shall be provided with a temporary, all-weather turnaround paved in accordance with the provisions of this Ordinance. The use of such turnaround shall be guaranteed until such time as the street is extended. All cul-de-sac streets, whether permanently or temporarily designed, shall be provided at the closed end with a fully paved turnaround constructed to the specifications of this ordinance. The developer who extends a street that has been provided with a temporary turnaround shall remove the temporary turnaround and restore the area of the temporary turnaround.
- (5) Unless future extension is clearly impractical or undesirable, the governing body may require that the turnaround right-of-way be placed adjacent to a property line and a right-of-way of the same width as the street shall be carried to the property line in such a way as to permit future extension of the street into the adjoining tract. At such time as such a street may be extended, the coverage created by the turnaround outside the boundaries of the extended street shall revert in ownership to the property owners fronting on the cul-de-sac turnaround. The small triangles of land beyond the cul-de-sac to the tract boundary shall be so deeded that, until the street is continued, maintenance of these corners of land will be the responsibility of the adjoining owners.
- (6) Cul-de-sac streets in residential developments shall be provided at the closed end with a paved turnaround having a minimum radius to the outer pavement edge or curb line of not less than fifty (50) feet and a right-of-way line radius of not less than sixty (60) feet.
- (7) Cul-de-sacs streets in commercial and industrial development shall be provided with a paved turnaround having a minimum radius to the outer pavement edge of sixty (60) feet and a right-of-way line radius of not less than

seventy (70) feet. Commercial and industrial cul-de-sacs shall be reviewed for adequacy by the Township Engineer.

- (8) Drainage of cul-de-sacs shall, wherever possible, be in the direction of the open end of the cul-de-sac.
 - (9) No cul-de-sac turnaround shall have a centerline grade exceeding four percent (4%).
 - (10) All street design standards herein that are pertinent to Local roads and cul-de-sacs shall apply.
- g. Where a new subdivision abuts or contains an existing right-of-way of inadequate width, sufficient additional width shall be required to meet the above standards.
 - h. Additional right-of-way and cartway widths may be required by the Board of Supervisors to promote public safety and convenience when special conditions require it and to provide parking space in areas of intensive use.
 - i. Street Grades - The minimum centerline grade for all streets shall be one percent (1%) and the maximum grade shall be as follows:

(1) Arterial Streets	Penn DOT Standards
(2) Collector Streets	Seven (7%) percent
(3) Local Roads	Ten (10%) percent
(4) Rural Roads	Ten (10%) percent
(5) Cul-de-Sacs	Ten (10%) percent
(6) Service Drives/Alleys	Twelve (12%) percent
 - j. Crown - The slope of the crown on all streets shall be one-quarter inch (1/4") per foot.
 - k. Shoulders shall have a slope of one-half inch (1/2") per foot.
 - l. Streets must be constructed to the grades and dimensions drawn on the plans, profiles, and cross-sections submitted by the applicant and approved by the Board of Supervisors. Before

paving the street surface, the applicant must install the required utilities and provide, where necessary, adequate stormwater drainage for the street acceptable to the Supervisors. The pavement base, wearing surface, and shoulders shall be constructed according to the specifications in Table 1, excepting however that for the construction of arterial roads or highways, the subdivider shall consult the Supervisors and be governed by the Pennsylvania Department of Transportation for the method of construction to be used. The Township Engineer will consider alternate paving specifications subject to submission of paving plan supported by site specifications testing and a geotechnical analysis. This plan must be certified by a licensed geotechnical engineer.

m. Driveway Entrances

Driveway entrances or aprons within the street right-of-way shall be surfaced to their full width, and in no case shall be less than ten (10') feet, the type of surface to be the same as specified above. Where sidewalks are installed, the required driveway surfacing shall end at the street side of the sidewalk.

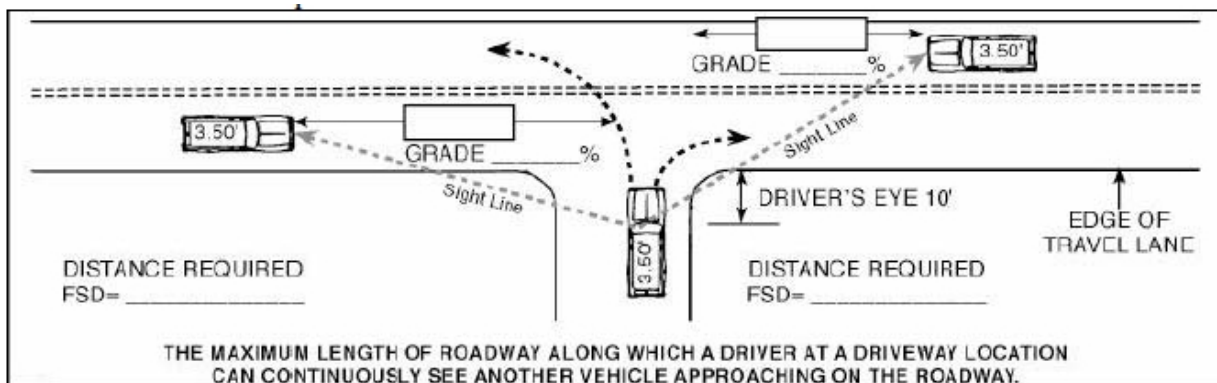
n. Intersections

(1) Intersections involving the junction of more than two (2) streets are prohibited. Right-angle intersections must be used wherever possible; however, in no case shall streets intersect at less than seventy (70) degrees (measured on the centerlines of the streets).

(2) Curb Radii - At intersections of streets, the radius of the curb or edge of shoulder shall not be less than the following:

Intersection	Minimum Simple Curve Radii of Curb or Edge of Shoulder
Arterial with Arterial	Forty-five (45') Feet
Arterial with Collector Street	Forty-five (45') Feet
Collector with Collector Street	Thirty-five (35') Feet
Collector with Local Road	Twenty-five (25') Feet
Local Road with Local Road	Twenty (20') Feet

- (3) Clear Sight Triangle - Proper sight lines must be maintained at all street intersections. Any building or obstruction higher than thirty (30) inches above the grade of the center line of the streets within sight lines of the driver of a vehicle using the intersection is prohibited. The clear sight triangle will consist of an area calculated as per PENNDOT Publication 441 and 282 for driveways, and Pub. 70 for local roads from the driver of the vehicle entering the intersection to the points at which the minimum sight distance is calculated as below:



- (4) Maximum grade within any intersection shall not exceed four (4%) percent in any direction, and approaches to any intersection shall follow a straight course within one hundred (100') feet of the intersection.
- o. Streets Not In Alignment - Offsetting roadways shall not be permitted.
 - p. Sight Distance - Sight distance must be provided with respect to both horizontal and vertical alignment. Passing sight distance and stopping sight distance shall comply with the minimum requirements of Publication 70, based on highway classification and speed limit.
 - q. Curves - (Horizontal)
 - (1) Where connecting street lines deflect from each other at any one point, the lines must be connected with a true, circular curve.
 - (2) Straight portions of the street must be tangent to the beginning or end of curves.

- (3) 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
Collector	300 feet
Local Access	200 feet

- r. Curves - (Vertical) Vertical curves shall be used in changes of grade when the algebraic difference exceeds one (1%) percent, and shall be designed for maximum visibility. Intersections shall be approached on all sides by requirements of Publication 70, based on highway classification and speed limit.
- s. Slope of Banks Along Streets - The slope of banks 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.
- t. Partial and Half-Streets - The dedication of half-streets at the perimeter of new subdivision is prohibited.
- u. Names of Streets - Names of new streets shall not duplicate or approximate existing or platted street names, or approximate such names by the use of suffixes as "lane", "way", "drive", "court", "avenue". In approving the names of streets, cognizance may be given to existing or platted street names within the postal delivery district served by the local post office. New streets shall bear the same name number of any continuation or alignment with an existing or platted street.
- v. Alleys and Service Drives - The following standards shall apply to the design and location of alleys and service drives:
- (1) Alleys shall not be permitted in residential developments except by the permission of the Board of Supervisors. All buildings or other structures adjacent to any alley must comply with the side or rear yard setbacks from the alley right-of-way line as included in the appropriate district regulations in the Zoning Ordinance.

- (2) Alleys or secondary service drives serving commercial and industrial establishments are required unless other provisions for service are provided.
- w. Private Streets - No plan showing new development shall be approved if any such plan shows private streets or right-of-ways as the sole means of ingress or egress to more than one (1) lot, tract, or parcel of land. All private streets or right-of-ways shall be laid out and constructed to Township specifications.
- x. Streets - When streets become passable, they shall be adequately signed and identified, and all houses, places of business, and other such buildings shall be conspicuously numbered for identification purposes, consistent with any applicable ordinances or Township permits. In addition, the owner/developer shall install and maintain any necessary traffic safety devices as he may deem necessary or as may be required by the Township Engineer, until such time as the roads in question are accepted for public dedication.
- y. Snow Plowing - It shall be the responsibility of the developer to properly maintain all roads and keep them reasonably free and clear of snow and ice and other debris until such time as the Township has accepted an offer of public dedication thereon. In the event the developer should at any time fail to reasonably fulfill this responsibility, the Township and its agents in its discretion may enter the premises to properly maintain the road or remove any snow and ice, and the developer shall be held liable for all costs incurred by the Township therefor, including, but not limited to, costs associated with manpower, equipment and any damage that may occur to the Township equipment. In addition, the applicant/developer and/or owner agree to hold the Township harmless in the event of damage to the property or improvements and to indemnify the Township for any loss incurred by the Township. Such actions by the Township shall not in any way be construed to constitute an acceptance of the road for public dedication, or otherwise require the Township to regularly maintain any of the roads.
- z. Subdivision Compliance with Road Access Requirements - No subdivision of land shall be permitted unless it is shown that each proposed lot, tract, or parcel will be able to obtain access to a public street without violating any road access standards specified elsewhere in this or any other ordinance of law.
- aa. Signs - In all new residential developments, the owner/developer shall be responsible for the installation of "Watch Children" signs at

each entrance to the development, and "stop" signs at the intersections of local streets. Residents may request additional signs that, if appropriate, the Township may install at the residents' cost. Installation of street name signs shall also be the responsibility of the owner/developer.

704. Blocks and Lots

- a. General Layout In general, the lengths, depths, and shapes of blocks and lots must be determined with regard to:
 - (1) Provision of adequate building sites suitable to the special needs of the type of use contemplated.
 - (2) Zoning requirements as to lot sizes, dimensions, yards and other open areas.
 - (3) Needs for convenient access, circulation, control and safety of street traffic.
 - (4) Limitations and opportunities of topography.
- b. Blocks shall not exceed twelve hundred (1,200') feet, nor be less than the depth of two approved lots which share the same rear lot line.
- c. Blocks shall be of sufficient depth to permit two (2) tiers of lots, except where reverse frontage lots are necessary or in the case of "cluster" layouts or other site-specific limitations.
- d. In non-residential areas, the block and lot layout must be designed with consideration of site conditions:
 - (1) To permit the most efficient arrangement of space for present use and future expansion.
 - (2) To permit adequate, safe worker and patron access, circulation and parking, as well as loading and unloading.
- e. Lot Size - The minimum lot size shall be as required by the Township's Zoning Ordinance. However, when on-lot sewage disposal systems and/or on-lot water supply systems are proposed, the required lot size shall be large enough to provide for the minimum area required for two (2) absorption fields.

- f. Lot Width - The minimum lot width shall be as required by the Township Zoning Ordinance.
- g. Lot Frontage - The minimum lot frontage shall be as required by the Township Zoning Ordinance.
- h. Double Frontage Lots - Double frontage lots shall be discouraged, except where desired along limited access highways, or required due to the limitations of a specific site. Reverse frontage lots adjacent to limited access highways must face on an interior street, and back on such thoroughfares. Where a lot is permitted to have reverse frontage, a landscaped screen shall be provided between the lot and the limited access highway. Access to all other double frontage lots shall be limited to the street of lower classification.
- i. Lot lines - Lot lines shall be approximately at right angles or radial to street lines so long as reasonably shaped lots result.
- j. Lot Access - Every lot shall have an access off a street that shall be properly designed, improved, and constructed as required by this Ordinance. Lots in a subdivision or land development that are proposed to front upon an existing Township or State road which is not improved to the standards set forth herein, shall as a minimum comply with the right-of-way requirements of Section 703.
- k. Street Address - Address numbers when applicable shall be assigned to each lot by the postal authority.

705. Easements

Easements for sanitary sewer facilities, stormwater drainage facilities, public utilities, or pedestrian access shall meet the following standards:

- a. To the fullest extent possible, easements shall be adjacent to property lines.
- b. Nothing shall be built, placed, planted, set, or put within the area of an easement that would adversely affect the function of the easement.
- c. The Plan and easement agreement shall clearly identify the entity having the right-of-access and responsibility for maintenance of the easemented area.
- d. Pedestrian easements shall have a minimum width of ten (10) feet.

- e. Sanitary sewer and water supply easements shall have a minimum width of fifteen (15) feet for a single utility, and a minimum width of twenty (20) feet for shared utilities. In the case of a shared utility easement, a ten foot horizontal separation between sanitary sewer and water lines shall be maintained; and, sufficient area shall be provided to allow a minimum of five (5) feet between the centerline of each utility and the edge of the right-of-way.
- f. Stormwater easements shall have a minimum width of twenty (20) feet and shall be adequately designed to provide area for (a) the collection and discharge of water, (b) the maintenance, repair, and reconstruction of the drainage facilities, and (c) the passage of machinery for such work.
- g. Where any electric or telephone transmission or petroleum product transmission line traverses a property, the applicant shall confer with the applicable transmission or distribution company to determine the minimum distance which shall be required between each structure and the centerline of such petroleum or petroleum product transmission line. At a minimum, a one hundred (100) foot easement shall be required for petroleum and HV electric lines. All applications shall include a copy of the recorded agreement or a letter from the owner of the transmission line stating any conditions on the use of the tract and the right-of-way width.
- h. Where a subdivision is traversed by a water course, drainage way, channel or stream, there shall be provided a drainage easement conforming substantially with the line of such water course, drainage way, channel or stream, and of such width as will be adequate to preserve the unimpeded flow of natural drainage as required by Articles IX or X herein (whichever governs), or for the purpose of widening, deepening, relocating, improving or protecting such drainage facilities, or for the purpose of installing a stormwater sewer.
- i. Restrictions shall be placed in each deed for properties affected by easements. These restrictions shall be worded in deeds so as to contain the requirements of this Section.
- j. All natural gas lines must be installed in compliance with the ASA Code B31, 80 1958, as amended.

706. Vehicular Parking Facilities

- a. Parking Areas - Off-street vehicular parking facilities for commercial, industrial, residential and other uses shall be in accordance with the provisions set forth on the Township Zoning Ordinance.
- b. All off-street parking areas which provide more than five (5) parking spaces shall be screened from any abutting property zoned residential or used for residential purposes in accordance with Section 711 b.(2)(i). Further, any parking lot perpendicular to and within 100' of a public street or intersection shall be screened with a hedge, berm or other measure to prevent distraction or confusion from parking car's headlights.
- c. Screenings may be accomplished by the placement of adequate buildings, a solid fence high enough to provide screening, and/or the provision, and maintenance, or solid planting in the form of contiguous evergreen shrubs. Evergreen trees or shrubs shall be at least four (4') feet in height at the time of planting and set back at least ten (10') feet from any property line.
- d. No parking lot shall be located closer to a building than ten (10') feet to allow adequate room for landscaping.
- e. Parking facilities shall not be permitted within ten (10') feet of a side or rear property line, unless formal arrangements, satisfactory to the Board of Supervisors, have been made for the establishment of a common parking facility.
- f. For any land use where the total number of parking spaces exceeds 50 (fifty) stalls, islands shall be provided between every ten (10) parking spaces or at the end of each parking row, whichever is less, for traffic flow control, and shall be the length of the parking spaces in the row and at least ten (10) feet in width.
- g. For any land use where the total number of parking spaces exceeds 100 stalls, the parking area shall be divided by continuous islands perpendicular to the spaces every 122 feet (122 feet assumes four (4) rows of parking at 18 feet in length and two (2) aisles at 25 feet in width). These divider islands shall be a minimum of ten (10) feet wide.
- h. For any land use where the total number of parking spaces exceeds 100 stalls, the parking area shall be divided by continuous islands perpendicular to the spaces every 130 feet (130 feet

assumes four (4) rows of parking at 20 feet in length and two (2) aisles at 25 feet in width). These divider islands shall be a minimum of ten (10) feet wide.

- i. Vehicular parking facilities shall be provided where land uses other than single-family detached residences are proposed. Parking facilities shall be designed according to the following provisions:
 - (1) Buffer planting shall be provided where parking compounds are adjacent to residential uses or zoning districts. The buffer planting shall be at least fifteen (15') feet wide and be installed in accordance with the provisions of Section 1203 of this Ordinance.
 - (2) Horizontal curves in a parking area shall have a minimum radius of four (4') feet.
 - (3) All dead end parking lots shall be designed to provide a sufficient back-up area for end stalls.
 - (4) Painted lines, arrows and dividers shall be provided and maintained to control parking and, when necessary, to control vehicular circulation.
 - (5) Parking areas, main entrances and exits that are open to the public shall be lighted so as to provide for safe ingress and egress without unnecessary glare. Lighting shall be designed to prohibit illumination from reaching adjacent properties.
 - (6) Parking areas shall be provided with drainage facilities in accordance with the provisions of this Ordinance.
 - (7) Parking areas shall provide ample room to allow for snow removal.

- j. Access Drives - Whenever required and/or provided under the provisions of this Ordinance or the Township Zoning Ordinance, all access drives shall be designed according to the following standards:
 - (1) The number and spacing of access drives and driveways shall be subject to the standards, requirements and criteria set forth in Section 716 of this Ordinance. In the event that the requirements of this Section are inconsistent with the

criteria, regulations and standards of Section 716, Section 716 hereof shall be deemed controlling.

- (2) The general layout shall be such that there will be no need for motorists to back into public rights-of-way of collector or arterial streets.
- (3) Driveway entrances or aprons within the street right-of-way shall be surfaced to their full width, and in no case shall be less than ten (10') feet, the type of surface to be the same as the street to which it provides access. Where sidewalks are installed, the required driveway surfacing shall end at the street side of the sidewalk.
- (4) Access drives for commercial and industrial uses shall be paved and shall not be less than twenty-four (24') feet in width nor exceed thirty-five (35') feet in width within twelve (12') feet of the street right-of-way line, excepting as increased by the curb radii.
- (5) Access drives shall not cross the street right-of-way lines:
 - (a) Within ten (10') feet of a fire hydrant, catch basin or drain inlet.
 - (b) Within three (3') feet of a property line.
- (6) Common, or shared access drives shall be prohibited for residential uses.
- (7) Access to the public highway or street shall be controlled in the interest of public safety. Off-street parking, loading, and service areas on all properties used for purposes other than single-family residences shall be physically separated from the highway or street by a curb, pipe rail, or fence and a planting strip.
- (8) General Safety Requirement - Sight Distance - Driveways shall be located in safe relationship to sight distance and barriers to vision, and shall not exceed a slope of seven (7) percent within twelve (12') feet of the street right-of-way line. When drives enter an embankment through a cut, unless a retaining wall is used, the side slopes of the cut shall be graded to not more than one (1') foot vertical to two (2') feet horizontal within ten (10') feet of the point the drive intersects with the right-of-way line.

- (9) All driveways shall be designed so that vehicles can turn around on the lot and head directly onto the collector/arterial street or road.
- (10) Whenever a driveway accesses a corner lot in residential use, the driveway shall be located off the minor street.
- (11) All driveways shall be designed as to not impede the surface water flow along public right-of-way.
- (12) A single driveway to a residential use with access to any street or road in the Township shall not exceed a width of 20 feet or a radius of 10 feet at the curb.

707. Standards for Sidewalks

- a. Sidewalks shall be provided for all subdivisions and land developments in the RM, RH, V, N and C zoning districts. Sidewalks shall be provided for all subdivisions developed according to Growth Boundary provisions.
- b. Installation
 - (1) Sidewalks shall be located within the right-of-way of the street, shall be five (5) feet in width and terminate at the right-of-way line.
 - (2) Sidewalks shall be located within the dedicated street right-of-way.
- c. If construction of sidewalks will be the responsibility of the subsequent landowner, homeowner or tenant, such obligation of the landowner, homeowner or tenant shall be set forth in the deed, lease or any other similar document. A copy of the proposed deed must be submitted in accordance with Section 502 I.

708. Standards for Curbs and Gutters

Construction of curbs and gutters within the Township shall conform to the following requirements:

- a. When Required - Curbs and gutters shall be provided for all subdivisions and land developments in the RM, RH, V, N, C and I

zoning districts. Curbs and gutters shall be provided for all subdivisions developed according to Growth Boundary provisions.

- b. Where curbs are installed, the pavement shall extend from curb to curb and shall not be less than as specified in Section 1202.
- c. Slant curbs shall only be allowed with the permission of the Board of Supervisors.

709. Street Lights and Illumination

A street lighting system shall be installed where required by the Board of Supervisors. Any such required system shall be designed and constructed as approved by the Board of Supervisors and the applicable utility company. On-site illumination or floodlighting shall conform to the requirements of the South Middleton Township Zoning Ordinance.

710. Reserved for future use.

711. Site Grading and Landscaping Requirements

- a. Grading - In order to provide more suitable sites for building and other uses, improve surface drainage, and control erosion, the following requirements shall be met:
 - (1) Grading Plans
 - (a) A Grading Plan shall be required for each subdivision or land development plan at both the Preliminary and Final Plan submittal
 - (b) Grading Plans shall be required to show proposed grading for each individual lot within all subdivisions and land developments.
 - (c) Final Grading Plans shall be used by individual lot owners for lot plans to be submitted with individual building permit applications.
 - (2) All lots, tracts, or parcels shall be graded to provide proper drainage away from buildings and prevent any surface runoff from ponding.
 - (3) All land within a development shall be graded to drain and prevent any surface runoff from ponding, except where other arrangements are approved by the Board of Supervisors.

- (4) All drainage provisions shall be designed to adequately handle the surface runoff and carry it to the nearest suitable outlet such as a curbed street, storm drain, or natural watercourse.
- (5) Where drainage swales are used to divert surface waters away from buildings, they shall be paved, sodded or planted and shall be of such slope, shape and size as to conform with the requirements of the Township.
- (6) Concentration of surface water runoff shall only be permitted in swales or watercourses that lead to a natural watercourse or drainage structure.
- (7) Grading will not be done in such a way so as to divert water onto the property of another landowner without the expressed consent of the Township and the affected landowner.
- (8) During grading operations, necessary measures for dust control will be exercised.
- (9) All subdivision plans shall contain provisions for maintaining native topsoil conditions. No topsoil shall be removed from a site or used as spoil or fill. Topsoil moved during the course of construction, shall be redistributed so as to provide at least six (6) inches of cover to all areas of the subdivision and shall be stabilized by seeding and planting. The only exceptions to this requirement are for topsoil's that are unsuitable because of contamination that could cause a human health or environmental hazard.
- (10) Tree guards during construction and grading, and limitations as to cuts and fills, both temporary and permanent near trees shall be provided as necessary to give reasonable assurance of their continued healthy growth.
- (11) Grading equipment shall not be allowed to cross live streams. Provision shall be made for the installation of culverts or bridges. Emergency crossings may be permitted through permission of Pennsylvania Department of Environmental Protection.
- (12) Excavations and Fills

- (a) Cut and fill slopes shall not be steeper than 2:1 unless stabilized by a retaining wall or cribbing except as approved by the Township Engineer when handled under special conditions.
- (b) Adequate provisions shall be made to prevent surface water from damaging the cut face of excavations or the sloping surfaces of fills.
- (c) Cut and fills shall not endanger adjoining property.
- (d) Fill shall be placed and compacted so as to minimize sliding or erosion of the soil.
- (e) Fill shall not encroach on natural watercourses or construction channels.
- (f) Fills placed adjacent to natural watercourses or constructed channels shall have suitable protection against erosion during periods of flooding.

b. Landscaping

- (1) Purpose - The intent of these landscaping requirements is to promote practical and attractive development within the South Middleton Township by:
 - (a) Minimizing erosion and sedimentation, and stimulating groundwater recharge.
 - (b) Minimizing glare and heat on proposed hard surfaces, and reducing noise pollution.
 - (c) Stimulating air purification and oxygen regeneration.
 - (d) Maintaining existing, healthy vegetation.
 - (e) Providing harmonious development or properties adjacent to incongruous zoning districts or uses by providing minimum landscaping requirements.
- (2) Scope and Requirements - A Landscape Plan shall be required for each subdivision or land development plan at both the Preliminary and Final Plan submittal. In addition to other Plan requirements set forth in this Ordinance, the following is required for submission:

- (a) Any part or portion of a site which is not used for buildings or other structures, loading and parking spaces and aisles, sidewalks and designated storage areas shall be planted and maintained with landscaping.
- (b) Except for single-family detached, single-family semi-detached and two- family detached dwellings, any part or portion of a site which is not used for buildings or other structures, loading and parking spaces and aisles, sidewalks and designated storage areas shall be landscaped according to an overall plan, prepared and approved as part of the Land Development Plan. A replacement program for non-surviving plants should be included.
- (c) The locations, dimensions and spacing of required plantings should be adequate for their proper growth and maintenance, taking into account the sizes of such plantings at maturity and their present and future environmental requirements, such as wind, moisture and sunlight.
- (d) The type(s) of plantings shall be limited or carefully selected for locations where they will not be disturbed or contribute to conditions hazardous to the public safety. Such locations include, but shall not be limited to public rights-of-way; underground and aboveground utilities; and sight triangle areas required for unobstructed views at street intersections.
- (e) No bushes or shrubs exceeding thirty (30) inches in height, or at such lesser height which due to ground elevations would obstruct the vision of motorists, shall be permitted within ten (10) feet of the right-of-way line adjacent to access drives; and all street trees shall be kept free of branches and foliage from the ground level to a height of at least six (6) feet.
- (f) All plant materials used shall, at the time of planting, meet minimum size requirements as stated in Section 1210.
- (g) Street Trees -

- (i) Street trees shall be planted for any subdivision or land development where suitable street trees do not exist, as part of the design and construction of:
 - 1. New streets.
 - 2. New sidewalks or pedestrian ways.
 - 3. Existing streets, sidewalks, pedestrian ways, highways, bicycle trails or pathways when they abut or lie within the subdivision or land development.
 - 4. Access driveways to residential developments serving more than four (4) dwelling units.
- (ii) Street trees shall be planted no closer than forty (40) feet on center for each side of the street. The number of street trees to be provided shall be based on providing at least one tree for every eighty (80') feet of distance along the right-of-way line.
- (iii) Street trees shall be planted a minimum distance of five (5') feet outside and parallel to the right-of-way line, unless otherwise approved by the Board of Supervisors. Trees located at intersections shall respect the clear sight triangles.
- (iv) Existing trees along a street which would be suitable as street trees and can be counted toward the street tree requirement shall be over six (6) inches in caliper and shall be within 25 feet of the curb or road edge.
- (v) All street trees shall be a minimum of fifteen (15') feet in height when planted. Street trees shall be selected and planted so that at maturity they will provide adequate shade during the summer along the public street(s).

- (h) Existing Trees - Existing trees shall be protected to prevent unnecessary destruction.
 - (i) At least fifteen (15%) percent of the number of trees (minimum trunk caliper of twelve (12) inches at six (6) inches above the ground) that exist at the time of plan submission shall be maintained or replaced immediately following construction. Replacement trees shall be a minimum trunk caliper of two and one-half (2.5) inches at a height of six (6) inches above finished grade and located within unbuildable sections of the site (i.e. floodplain, steep slope, and setback areas).
 - (ii) Existing trees as described below shall not be removed without the express approval of the Board of Supervisors, after proof of good and necessitous cause for removal, and upon recommendation of the Township Planning Commission:
 1. All trees having a diameter of thirty (30) inches or greater, or any tree identified as a national, state or county "champion tree" by the Pennsylvania Forestry Association - designated as "outstanding trees".
 2. Trees, shrubs or plants identified on the list of rare, threatened and endangered species of the U.S. Fish and Wildlife Service - designated as "rare, threatened and endangered species".
 3. Trees that are part of an historic site or associated with a historic structure - designated as "trees of historic significance".
 - (iii) Where on-lot sewage disposal systems are proposed, trees shall not be placed over top of the primary nor the replacement areas where the proposed septic tank and drain-field are to be constructed.

- (i) Screen Buffer

- (i) Screen buffers are required, but not limited to, the following conditions:
1. Where a proposed commercial, industrial, or institutional use abuts an existing residential use or residential district.
 2. Where any proposed multi-family residential use abuts an existing single-family detached, single-family semi-detached, or two-family detached dwelling.
 3. Where residential uses abut any railroad or limited access highway, or any other arterial highway in the case of reverse frontage or where marginal or rear access is provided.
 4. Around all open sides of any common utility yard and outdoor equipment or refuse storage area in group residential developments.
 5. All service, delivery, loading and outdoor storage and trash disposal areas shall be screened from all residential districts, public streets, parking lots and pedestrian walkways. These areas shall be totally screened from the above listed places by the use of fences, walls, berms, evergreen plant material, or a combination of these, not less than six (6') feet in height.
 6. All mechanical equipment not enclosed in a structure shall be fully and completely screened in a manner compatible with the architectural and landscaping style of the remainder of the lot. Such screening shall be subject to Land Development Plan and architectural review by the Board of Supervisors.

7. Water towers, storage tanks, processing equipment, fans, skylights, cooling towers, vents and any other structure or equipment which rise above the roof line shall be architecturally compatible or effectively shielded from view from any public or private dedicated street by an architecturally sound method which shall be approved, in writing, by the Township before construction or erection of said structures or equipment.
 8. Elsewhere when required by Ordinance or as deemed necessary by the Planning Commission and/or Board of Supervisors.
- (ii) Whenever natural screening is being provided to meet a screening requirement of the Township Zoning Ordinance, the following landscape requirements must be adhered to:
1. The entire perimeter of the tract undergoing development shall be provided with a minimum of twenty (20') foot wide planting strip, forty (40') foot wide if adjacent to a residential use or district, which will act as an effective screen separating uses.
 2. Vegetative screening shall include a variety of deciduous and evergreen species that are indigenous to the area so as to provide a year round visual buffer. Trees and shrubs used for screening shall consist of at least fifty percent (50%) evergreen trees and shrubs and shall be so arranged as to provide an immediate visual screen of fifty percent (50%). Evergreen trees shall be at least six (6) feet in height at the time of planting.
 3. Vegetative screening shall incorporate earthen mounds or berms, wherever

possible, to improve sound as well as visual buffering, and shall be broken at points of vehicular or pedestrian access.

4. Plant materials used in the screen planting shall be at least six (6') feet in height when planted and be of a species which will produce a complete visual screen or at least eight (8') feet in height at maturity.
5. When additional height is deemed necessary, a row of trees planted at intervals of not more than forty (40) feet on center shall be provided.
6. No plantings shall be placed with their center closer than five (5') feet from the property line of the tract.
7. All existing trees within the required planting strip above three (3") inches in caliper and/or eight (8') feet in height shall be preserved wherever possible.
8. Screening shall be designed so the clear-sight triangles at intersections are not obstructed.
9. Screening design, including the type of plant materials used, spacing of plant materials, and the use and location of earthen berms, shall be subject to review and approval by the Board of Supervisors upon the recommendation of the Planning Commission.
10. Vegetative screens shall be perpetually maintained during the period the principal use causing the need for screening is in operation. Any plant material that does not survive shall be replaced within six (6) months.
11. Walls, ornamental structures, fences and berms, or a combination of these,

not less than five (5') feet in height may be used in combination with appropriate plant material subject to the specific land use areas involved and as approved by the Board of Supervisors.

12. Innovative means of screening are encouraged; however, as a guideline to quantity of materials required, there shall be a minimum of one (1) tree for each twelve (12) lineal feet of property line. Straight rows are strongly discouraged.

(j) Individual Lot/Building Area Requirements

- (i) In addition to the landscape requirements for street trees, buffers, off-street parking areas, detention basins and service areas, each new building lot shall provide one deciduous or evergreen tree per every two thousand (2,000) square feet of gross floor area of building.
- (ii) Any area on the development site not used for buildings, paved areas, or buffer plantings (excluding natural woodlands), shall be planted with an all-season ground cover or lawn and other landscape materials.
- (iii) When designing the landscape for an individual lot or building area, due consideration shall be given to the location and selection of plantings and other landscape features to:
 1. Provide visual interest.
 2. Define outdoor spaces.
 3. Complement proposed architectural styles.
 4. Group materials according to specific needs and objectives on the site and as appropriate to the overall site design.

(k) Off Street Parking Areas

- (i) Landscaping shall be required for any parking area which provides more than ten (10) parking spaces to reduce wind and air turbulence, heat and noise, and the glare of vehicle lights; to reduce the level of carbon dioxide; to provide shade; to improve stormwater drainage problems; to replenish the groundwater table; and to provide for a more attractive setting.
- (ii) A minimum of ten (10) percent of any parking lot facility over 2,000 square feet in gross area (measured from the outside edge of paving to outside edge of paving) shall be devoted to landscaping. This landscaping shall include a minimum of one tree per twenty (20) parking spaces and all planting beds within a parking lot shall be surfaced in lawn or ground cover planting.
- (iii) The interior of each parking lot shall have at least one (1) three-inch (3") caliper deciduous shade tree for every five- (5) parking spaces, if there are no existing shade trees to satisfy this requirement. Shrubs and other plant materials are encouraged to be used to complement the trees, but shall not be the sole contribution to the landscaping. These trees shall be in addition to those required as an effective screen.
- (iv) The landscaping and planting areas shall be reasonably dispersed throughout the parking lot, except where there are more than twenty (20) spaces in which the following shall apply:
 - 1. Landscaped areas at least ten (10') feet wide shall be provided around the periphery of parking areas. Such areas shall, at a minimum, extend the full length and width of the parking areas, except for necessary access ways, to prevent the encroachment of moving vehicles in parking areas.

2. All traffic control islands shall be landscaped.

(l) Windbreaks - The use of planting rows to serve as windbreaks to control the drifting of snow across public and private thoroughfares as well as for general comfort is recommended.

712. Sewers and Water

- a. Where a proposed subdivision public sanitary sewer system is within the area defined as a future public sewer service area in the Township's Official Sewage Facilities Plan, the subdivider shall provide the subdivision with a complete sanitary sewer system as follows:
- (1) Where the proposed subdivision is within said service area and within one thousand (1,000') feet of existing public sanitary sewer facilities, the subdivider or owner shall construct the necessary facilities to connect to the existing public sanitary sewer system during the first phase of construction.
 - (2) Where the proposed subdivision is within said service area and greater than one thousand (1,000') feet from existing public sanitary sewer facilities, the subdivider or owner shall construct capped sewers within the proposed subdivision.
 - (3) The design and installation of all public sanitary sewer systems shall be subject to the approval of the South Middleton Township Municipal Authority.
- b. Where the installation of a public sanitary sewer system is not required, or where capped sewers are constructed, the subdivider or owner shall provide a private sewage disposal system for each lot, in accordance with the Township's Individual and Community Sewage System Management Ordinance.
- c. Where a water main supply system is within one-thousand (1,000') feet of, or where plans approved by the Township provide for the installation of such public water facilities, the subdivider shall provide the subdivision with a complete water main supply system to be connected to the existing or proposed water main supply system. The design and installation shall be subject to the approval

of the agency or entity having jurisdiction as a condition of Township approval.

- d. Where installation of a public water main supply system is not required, the subdivider or owner of the lot shall provide for each lot, at the time improvements are erected thereon, an individual water supply in accordance with the Township Well Ordinance as to source, installation, and quality of water, and approved, when applicable, by the Pennsylvania Department of Environmental Protection.
- e. Where a private, community water system is proposed, such system shall be subject to the applicable approval of the Pennsylvania Department of Environmental Protection before approval by the Township. All private, community water systems shall be owned and maintained by a perpetual entity and such ownership and maintenance responsibility shall be clearly established as a condition of Final Plan approval.

713. Traffic Impact Studies

- a. The purpose of this requirement is to provide the Board of Supervisors with an opportunity:
 - (1) To identify traffic and transportation problems associated with the adequacy of the existing transportation network and facilities to provide access to and from and through the site in light of the character and volume of traffic expected to be generated by the proposed subdivision and/or land development.
 - (2) To delineate solutions to such problems, or facilities including the prescription of improvements to be provided by or at the expense of Applicant.
- b. By Whom Prepared
 - (1) The study shall be prepared by a qualified traffic engineer and/or transportation planner who shall be mutually agreed upon by the developer and the Township. The study preparer shall have sufficient, documented prior traffic study experience to qualify him to perform the study and render any opinions and recommendations set forth therein.

- (2) The cost to prepare the study will be borne entirely by the developer.

c. Contents

The study shall contain information, analyses and conclusions regarding the following:

- (1) General Site Description

The site description shall include the size, location, proposed land uses, construction staging and completion date of the proposed land development. If the development is residential, types of dwelling units and number of bedrooms shall also be included. The general site description shall also include probable socio-economic characteristics of potential site uses to the extent that they may affect the transportation needs of the site (e.g. number of senior citizens).

- (2) Transportation Facilities Description

- (a) Proposed Internal Transportation System

This description shall show proposed vehicular, bicycle and pedestrian circulation, all proposed ingress and egress location, all existing or proposed internal roadway including the widths of paved cartways and rights-of-way, parking conditions, traffic channelization and any other traffic signals or other intersection control devices, within or near the site of the subdivision or land development.

- (b) External Transportation System

This report shall describe the entire external roadway system within the study area of the proposed subdivision or land development.

- (i) Major intersections in the study area shall be identified and sketched.
- (ii) All existing and proposed public transportation services and facilities within a one-mile radius of the site shall also be documented.

- (iii) All future highway improvements, including proposed construction and traffic signalization, shall be noted. This information shall be obtained from the Pennsylvania Department of Transportation.
- (iv) Any proposed roadway improvements resulting from proposed surrounding developments shall also be recorded.

(c) Existing Traffic Conditions

This analysis will determine the adequacy of the existing roadway system to serve the current traffic demand.

- (i) Existing traffic conditions shall be measured and documented for all roadways and intersections in the study area.
- (ii) Existing traffic volumes for average daily traffic, peak highway hour(s) traffic, and peak development-generated hour(s) traffic shall be recorded.
- (iii) Manual traffic counts at major intersections in the study area shall be conducted, encompassing the peak highway and development-generated hour(s) and documentation shall be included in the report.
- (iv) A volume capacity analysis based upon existing volumes shall be performed during the peak highway hour(s) and the peak development-generated hour(s) for all roadways and major intersections in the study area.
- (v) Levels of service shall be determined for each location.

(d) Transportation Impact

- (i) Notwithstanding anything in this Ordinance or this section to the contrary, whenever there are alternative or multiple methods of investigation

or calculation, each traffic impact study shall include an analysis using each alternative or method. A detailed analysis, of why each alternative should or should not be accepted by the Board of Supervisors, shall also be submitted. The decision as to which alternative or method is accepted shall be entirely at the discretion of the Board of Supervisors.

The analysis shall examine, but not be limited, to the following:

1. Proposed trip generation rates.

a) Independent variables used to generate trips, including, but not limited to: number of employees; square foot basis of gross, leasable, or rentable area; number of servicing stalls; beds/occupied beds; wash stalls; drive-in windows, etc., shall be considered. Such independent variables shall be examined whenever a defined use has more than one calculation method.

b) The calculation method used, including, but not limited to: regression equations, by average trip rate, by average trip rate by adjacent street traffic, by average trip rate of generator, shall be considered.

2. Trip distribution. All assumptions used in the distribution of traffic shall be documented and examined. If trips are distributed based upon existing traffic patterns, provide explanation of which existing peak hour was used as the pattern and percentage analysis of existing traffic patterns.

3. Warrant analysis: If more than one warrant can be used, an explanation of the warrant selection shall be included.

(ii) Estimation of vehicular trips to result from the proposal shall be completed for the average

daily peak highway hour(s) and peak development-generated hour(s).

- (iii) Vehicular trip generation rates to be used for this calculation shall be obtained from Trip Generation Rates Table found in the latest edition of the Institute of Transportation Engineers Trip Generation Manual.
 - (iv) Development-generated traffic volumes shall be provided for the in-bound and out-bound traffic movements as estimated, and the reference source(s) and methodology followed shall be documented.
 - (v) All turning movements shall be calculated. These generated volumes shall be distributed to the study area and assigned to the existing roadways and intersections throughout the study area.
 - (vi) Documentation of all assumptions used in the distribution and assignment phase shall be provided.
 - (vii) Traffic volumes shall be assigned to individual access points.
 - (viii) Pedestrian volumes shall also be calculated, if applicable.
 - (ix) If school crossings are to be used, pedestrian volumes shall be assigned to each crossing.
 - (x) Any characteristics of the site that will cause particular trip generation problems shall be noted.
- (e) Conclusions and Recommended Improvements
- (i) Levels of service for all roadways and intersections shall be listed.
 - (ii) All roadways and/or intersections showing a level of service below D for signalized intersections and below E for unsignalized

intersections shall be considered deficient and specific recommendations for the elimination of these problems shall be listed.

- (iii) This listing of recommended improvements shall include, but not be limited to, the following elements:
 1. internal circulation design,
 2. site access location and design,
 3. external roadway and intersection design and improvements,
 4. traffic signal installation and operation, including signal timing,
 5. transit design improvements.
- (iv) All physical roadway improvements shall be shown on the preliminary plan.
- (v) Existing and/or future public transportation service shall also be addressed. A listing of all actions to be undertaken to increase present public transportation usage and improve service, if applicable, shall be included. An analysis based on the guidelines contained in studies by the Cumberland County Planning Commission and the Tri-County Planning Commission (Harrisburg Area Transportation Study) shall be undertaken to indicate whether or not future public transportation service should be provided to the development.
- (vi) The listing of recommended improvements for both roadways and transit shall include, for each improvements, the party responsible for the improvement, the cost and funding of the improvement, and the completion date for the improvement.

(3) Modified Study

Whenever a study is required solely because of the findings of the Planning Commission or Board of Supervisors as provided in subsection a. (4) above, or if the Board of Supervisors shall conclude that certain of the required information, analyses or conclusions are unnecessary for an identification of the traffic problems or finding solutions therefor, the Board of Supervisors shall delineate the scope and contents of the study so as to include only those matters it deems appropriate to aid in the identification and solutions of the problems envisioned.

714. Environmental Impact Assessment Report

- a. In order to more effectively evaluate subdivision and/or land development proposals, the applicant shall be required to disclose the environmental consequences or effects of such proposals through the submission of an Environmental Impact Assessment (EIA) report.
- b. The EIA report shall contain text, tables, maps and analyses that document the probable impact resulting from the proposed subdivision and/or land development in accordance with the format and content outline specified below.
- c. By Whom Prepared - The study shall be prepared by a qualified consultant who shall be mutually agreed upon by the developer and the Township. The study Preparer shall have sufficient, documented prior environmental study experience to qualify him/her to perform the study and render any opinions and recommendations set forth therein. The cost to prepare the study will be borne entirely by the developer. The EIA report shall be certified as correct by a registered engineer, land surveyor, architect or landscape architect.
- d. Six (6) copies of the EIA report shall be submitted in accordance with the format and content specified below. Within the EIA report, specific emphasis shall be directed toward the proposed project's effects on and relationship to applicable site, neighborhood (including areas in adjacent townships where applicable) and township-wide resources, conditions or characteristics. The EIA report shall include text, tables, maps and analyses for the purpose of describing the project site, proposed use(s), environmental characteristics and the environmental effects of the proposal. At a minimum, it shall include the following:

- (1) An identification of the site location and area through the use of a location map drawn at a scale of not more than two thousand (2000') feet to the inch. The location map shall depict all streets, adjoining properties, zoning district boundaries and municipal boundaries within three thousand (3000') feet of any part of the tract. In the case of development of a section of the entire tract, the location map shall also show the relationship of the section to the entire tract.
- (2) An identification of the site character and appearance through the presentation of black and white photographs or copies thereof. Such photographs shall provide a representation of what the site looks like from the ground. Photographs should be properly identified or captioned and shall be keyed to a map of the site.
- (3) An identification of the nature of the proposals through the presentation of the following:
 - (a) A site development plan including notes pertaining to the number and type of lots or units, the square footage and/or acreage of the tract and a depiction of the features which are proposed such as streets, driveways, parking areas, buildings and other structures, and all impervious surfaces. The plan shall be drawn at a scale of not more than one hundred (100') feet to the inch may be submitted as an attachment to the report. The plan shall reflect all the information required for a Preliminary Plan.
 - (b) Plans and elevations depicting the proposed size, square footage, height, number of rooms (where applicable) of buildings and/or other structures.
 - (c) A statement indicating the existing and proposed ownership of the tract and where applicable, the type of ownership, operation and maintenance proposed for areas devoted to open space or otherwise not under the control of a single lot owner.
 - (d) A statement indicating the proposed staging or phasing of the project and a map depicting the boundaries of each stage or phase of the project. Such boundaries shall be superimposed on a version of the site development plan.

- (4) An identification of physical resources associated with the natural environment of the tract including such features as geology, topography, soils, hydrology and the like. The identification of physical resources shall include a narrative description of the qualitative and quantitative aspects of each of the resources mentioned above. In addition, these resources shall be mapped at a scale of not more than one hundred (100') feet to the inch as specified below and may be either incorporated into the EIA report or submitted as attachments to the report.
- (a) A map depicting the geological characteristics of the tract. Such map shall define the location and boundaries of the rock formations at or influencing the tract and features such as faults and/or fractures.
 - (b) A map depicting the topographical characteristics of the tract. Such map shall contain contours with at least two (2) foot intervals; and, shall depict slopes from zero to four (0 - 4) percent, four to ten (4 - 10) percent, ten to fifteen (10 - 15) percent, fifteen to twenty-five (15 - 25) percent, and greater than twenty-five (25) percent.
 - (c) A map depicting the soil characteristics of the tract. Such map shall depict all soil types and shall include a table identifying soil characteristics pertinent to the proposed subdivision and/or development such as depth of bedrock, depth of water table, flood hazard potential, and limitations for septic tank filter fields.
 - (d) A map depicting the hydrological characteristics of the tract. Such map shall depict: surface water resources, their drainage characteristics, watersheds and flood plains, and groundwater resources. Surface water resources include features such as creeks, runs and other streams, ponds, other natural bodies of water, springs, wetlands, and any man-made impoundments. Groundwater resources include features such as aquifers and aquifer recharge areas.
- (5) An identification of biological resources associated with the natural environment of the tract including such features as vegetation and wildlife. The identification of biological resources shall include a narrative description of these

resources. In addition, these resources shall be mapped at a scale of not more than one hundred (100') feet to the inch, as specified below; and, may be either incorporated into the EIA report or submitted as attachments to the report.

- (a) A map depicting the vegetation characteristics of the tract. Such map shall define the locations and boundaries of the wooded areas of the tract and shall note the types of vegetation associations that exist in terms of their species types and sizes. In addition, all trees twelve (12) inches in caliper or greater, shall be accurately located on the map either as free standing trees or as tree masses. In addition, the following types of vegetation shall be accurately located on the map:
 - (i) All trees having a diameter of thirty (30) inches or greater, or any tree identified as a national, state or county "champion tree" by the Pennsylvania Forestry Association - designated as "outstanding trees".
 - (ii) Trees, shrubs or plants identified on the list of rare, threatened and endangered species of the U.S. Fish and Wildlife Service - designated as "rare, threatened and endangered species".
 - (iii) Trees that are part of an historic site or associated with a historic structure - designated as "trees of historic significance".
 - (b) A map depicting characteristics associated with wildlife habitats. Such map may draw upon the vegetation, hydrology and soil maps in order to express habitat characteristics associated with terrestrial and aquatic wildlife on the tract and the relationship of the overall habitat(s).
- (6) An identification of the land use conditions and characteristics associated with the tract such as: current and past use, land cover, and encumbrances; and the relationship of these to adjacent tracts. The identification of land use conditions and characteristics shall include a narrative description of the above. In addition, the following maps drawn at a scale of not more than one hundred (100') feet to the inch, unless otherwise noted, shall be

incorporated into the EIA report of submitted as attachments to it:

- (a) Maps depicting the land cover characteristics of the tract. Such a map shall define existing features including: paved or other impervious surfaces, wooded areas, cultivated areas, pasture, old fields, lawns and landscaped areas and the like.
 - (b) A map depicting any encumbrances to the tract. Such map shall define easements and other areas where certain use privileges exist.
 - (c) A map depicting the land uses adjacent to the proposed tract. Such map may be at the same scale as the location map.
- (7) An identification of the historic resources associated with the tract such as areas, structures and/or routes and trails that are significant. Areas, structures and/or routes and trails included on the National Register of Historic Places, the Pennsylvania Inventory of Historic Places and the Historic American Building Survey, and those identified in the Comprehensive Plan shall be identified. The identification of historic resources shall include a narrative description of the above. In addition, a map drawn at a scale of not more than one hundred (100') feet to the inch depicting historic resources shall be incorporated into the EIA report or submitted as an attachment to the report.
- (8) An identification of the visual resources associated with the tract such as areas that have a particular amenity value and areas that offer interest in viewing the tract. The identification of visual resources shall include a narrative description of the above. In addition, a map drawn at a scale of not more than one hundred (100') feet to the inch depicting visual resources shall be incorporated into the EIA report or submitted as an attachment to the report.
- (9) An identification of the community facility needs associated with the user and/or resident of the proposed subdivision and/or land development. The community facility needs assessment shall indicate in narrative form the type of services that will be in demand. Where applicable, community facilities (such as schools, park and recreation areas, libraries, hospitals, and other health care facilities, fire

protection, police protection, ambulance, and rescue service and postal services) shall be discussed in terms of the ability of existing facilities and services to accommodate the demands of future users and/or residents of the lots and/or tract and the need for additional or expanded community facilities.

- (10) An identification of the utility needs associated with the user and/or resident of the proposed subdivision and/or land development. The utility needs assessment shall indicate in narrative form the type of installations which will be in demand. Utilities (such as those used for water supply, sewage disposal, refuse disposal, storm drainage, communications and electrical transmission) shall be discussed in terms of: the ability of existing utility installations to accommodate the demands of the future users and/or residents of the lots and/or tract; the need for additional or expanded utility installations; the ability to achieve an adequate, potable quantity of water whenever wells are proposed; the ability to achieve an adequate system for on-site sewage disposal whenever such a system is proposed; and the ability to achieve an adequate system for storm drainage and stormwater management.
- (11) An identification of the relationship of the transportation and circulation system needs of the proposed subdivision and/or land development to the existing street or highway network. A discussion of this relationship shall be in narrative form and shall indicate factors such as methods to be used for traffic control within the tract and at points of ingress to and egress from it; and, expected traffic volumes generated from the subdivision and/or land development including their relationship to existing traffic volumes on existing streets for both peak-hour and non-peak-hour traffic conditions. In addition, there shall be a discussion of the physical condition of existing streets that will service the proposed subdivision and/or land development and what improvements are proposed to remedy any physical deficiencies.
- (12) An identification of the social and demographic characteristics related to the proposed subdivision and/or land development. The characteristics, which shall be presented in narrative form, shall include a profile of the future users and/or residents of the lot and/or tract including information such as the number of people expected. Such

information shall be related to initial and completed subdivision and/or land development conditions.

- (13) An identification of the economic and fiscal characteristics related to the proposed subdivision and/or land development. The characteristics, which shall be presented in narrative form, shall include a profile of the township, county, and school district revenues that the proposal may generate versus the township, county, and school district costs it may create. Such information shall be related to initial and completed subdivision and land development conditions.
- (14) An identification of characteristics and conditions associated with existing, construction related, and future air and water quality and noise levels, vibration, toxic materials, electrical interference, odor, glare and heat, fire and explosion, smoke, dust, fumes, vapors and gases and/or radioactive materials.
- (15) The implications of the proposed subdivision and land development in terms of: the type of beneficial or adverse effects which may result from it; and, the duration of these effects in terms of their short-term or long-term nature. To indicate such effects, there shall be a discussion of the implications of the proposed subdivision and/or land development to the proposed subdivision and/or land development to the resources, conditions and characteristics described in subsections (4) through (14) above. In addition to a narrative presentation of implications, the applicant shall display where the subdivision and/or land development adversely affects the tract's resources, conditions or characteristics through the use of a map drawn at a scale of not more than one hundred (100') feet to the inch, wherein the areas adversely affected from proposed development are highlighted. Such map may be either incorporated into the EIA report or submitted as an attachment to the report. Further, the applicant must demonstrate and specify in the EIA report how and where the findings in the EIA report and its attachments are reflected in the subdivision and/or land development plan.
- (16) Alternatives to the proposed subdivision and/or land development. To indicate such alternatives, the applicant shall submit exhibits or diagrams which will depict the type of alternatives described in narrative form. The applicant shall comment on how alternatives such as: revised location,

redesign, layout or siting of buildings, roads and other structures, alternate methods for sewage disposal and water supply, reduction in the size of proposed structures or number of structures, and the like would preclude, reduce or lessen potential adverse impact or produce beneficial effects.

- (17) Probable adverse effects which cannot be precluded. In indicating such effects a discussion shall be presented regarding whether they will have primary or secondary implications, that is, whether the adverse effects will have direct or indirect influence on a particular resource, condition or characteristic.
- (18) Measures to mitigate adverse effects. To indicate such measures, the applicant shall submit exhibits or diagrams which will depict the type of remedial, protective and mitigative measures described in narrative form. These resources shall include those required through existing procedures and standards, and those unique to a specific project, as follows:
 - (a) Mitigation measures which pertain to existing procedures and standards are those related to current requirements of the state, county and/or township for remedial or protective action such as: sedimentation and erosion control, stormwater runoff control, water quality control, air quality control, and the like.
 - (b) Mitigation measures related to impacts which may be unique to a specific subdivision and/or land development are those related to efforts such as: revegetation, screening, fencing, emission control, traffic control, noise control, relocation of people and/or businesses, land acquisition, and the like.
- (19) Any irreversible environmental changes which would occur due to the proposed subdivision and/or land development should it be implemented. To indicate such changes, the use of non-renewable resources during the initial and continued phases of the subdivision and/or land development shall be discussed. Further, the loss of environmental resources shall be indicated through a presentation of the quantity of loss and related qualitative effects.

- e. In making its evaluation, the Board of Supervisors and/or the Planning Commission may request any additional information it deems necessary to adequately assess potential environmental impacts. Further, whenever any information requested in subsection c. above is not applicable to the proposed subdivision and/or land development, the Board of Supervisors may waive any or all of the requirements to address such information upon finding of such inapplicability. A written request for a waiver shall be made by the applicant and shall be submitted at the time when an application for subdivision and/or land development is made.
- f. In addition to other rights, the Board of Supervisors may reject a plan, for cause, based on information provided pursuant to this Section.

715. Steep Slope Areas

In all cases where the proposed subdivision contains any topography with greater than fifteen percent (15%) slopes, the applicable terms, conditions, criteria, standards and requirements of the Steep Slope Conservation District as set forth in the applicable South Middleton Township Zoning Ordinance, shall be made applicable to the proposed subdivision. The applicant shall be required to identify all such steep slopes in the preliminary plan submission.

716. Road Access Control

a. General Requirements

The regulations prescribed herein are the result of the recommendations of the Strategic Task Force of South Middleton Township, whose responsibility is to develop a Planning Strategy for South Middleton Township. The Task Force has identified the need for Access Management Standards in order to maintain safe and efficient mobility of traffic, and manage new access points. In response to the Recommendations of the Task Force, the Township Board of Supervisors commissioned a study of the Township's existing and future road network. The regulations, standards and criteria contained herein attempt to reasonably implement the results of the aforesaid study.

In the event of inconsistencies between the regulations, standards and criteria set forth herein and provisions contained elsewhere in the Subdivision and Land Development Ordinance, Zoning Ordinance or amendments thereto, terms and conditions of this Section shall be deemed controlling.

Safety and convenience of the general public passing through the Township must be taken into consideration when planning a new development - safety as it relates to a reduction of the potential number of accidents at driveway intersections and convenience as it relates to removing the potential for interference within the traffic stream.

Access onto State and township roadways shall be controlled in a manner that is intended for the safe operation of vehicles on and along public streets and highway facilities. The functional classification and speed limit of a roadway will determine the location, number, and spacing between access points allowed onto the Roadway. Functional classification can be determined from the Official Roadway Hierarchy and Functional Classification Map of South Middleton Township, as described in Section 717 of this Ordinance.

Unless otherwise indicated herein, proposed location and spacing of new access drives/driveways accessing roadways must first comply with access spacing distances indicated in Table 716-1, which is incorporated herein and made a part of the Subdivision and Land Development Ordinance. Spacing shall be measured from centerline of intersection to centerline of intersection. When this requirement has been satisfied, access locations must be checked to assure compliance with desirable sight distance criteria indicated in Table 716-2, which is incorporated herein and made a part of the Subdivision and Land Development Ordinance. Said safe sight distance must be measured in accordance with Pennsylvania Department of Transportation Publication 201, Engineering and Traffic Studies. If desirable sight distance cannot be provided at a location along the site frontage, access shall not be permitted unless this Ordinance specifically allows the use of minimum safe stopping sight distance criteria as per Table 716-3, which is incorporated herein and made a part of the Subdivision and Land Development Ordinance, as a substitute requirement for desirable sight distances. In these cases, however, the Design Engineer must provide the Township Engineer with supporting documentation and data proving that desirable sight distance cannot be obtained. In all cases, the absolute minimum spacing between road access points must be in accordance with Table 716-1.

- b. Access Standards for Street Intersections, Driveways, and Access Drive Intersections
 - (1) Arterial Roads
 - (a) An Arterial Road shall have a minimum of street intersections along its route. Arterial Roads shall only be intersected by other Arterials, Urban Collectors and Rural Collectors. New driveways shall not be permitted to directly access and Arterial Road.
 - (b) Spacing between streets intersecting an Arterial Road shall not be less than the spacing distances set forth in Table 716-1A for a 50 mph speed limit, regardless of the actual posted speed limit, unless said posted speed limit is greater than 50 mph, in which case the higher posted speed limit shall control. Spacing between streets intersecting an Arterial shall also be subject to the sight distance requirements of Table 716-2B. In the event that the sight distance requirements are greater than the spacing set forth in Table 716-1A, the sight distance requirements shall control. The spacing requirements for streets intersecting an arterial road shall apply to all intersections whether they may be on the same or the opposite side.
 - (2) Urban Collector Roads
 - (a) An Urban Collector Road shall only be intersected by other Urban Collectors, Rural Collectors, Local Roads and Rural Roads.
 - (b) High volume, medium volume, low volume and minimum use driveways shall be allowed to intersect an Urban Collector Road.
 - (c) Spacing between existing access points (streets or driveways) and all new access points (streets or driveways) intersecting an Urban Collector road shall, at a minimum, be in accordance with the requirements set forth in Table 716-1B. Spacing between access points intersecting an Urban Collector road shall also be subject to the sight distance requirements of Table 716-2B. In the event that the sight distance requirements are greater than

the spacing set forth in Table 716-1B, the sight distance requirements shall control. The spacing requirements for access points intersecting an Urban Collector road shall apply to all intersections whether they may be on the same or the opposite side.

(3) Rural Collector Roads

- (a) A Rural Collector Road shall only be intersected by other Rural Collectors, Local Roads and Rural Roads.
- (b) Only medium volume, low volume and minimum use driveways shall be allowed to intersect an Rural Collector Road.
- (c) Spacing between existing access points (streets or driveways) and all new access points (streets or driveways) intersecting a Rural Collector Road shall, at a minimum, be in accordance with the requirements set forth in Table 716-1C. Spacing between existing access points (streets or driveways) and all new access points (streets or driveways) intersecting a Rural Collector Road shall also be subject to the sight distance requirements of Table 716-2A. In the event that the sight distance requirements are greater than the spacing set forth in Table 716-1C, the sight distance requirements shall control. In the event that the sight distance requirements contained in Table 716-2A cannot be attained, the Board of Supervisors may at its sole discretion, permit spacing distances as set forth in Table 716-3.

(4) Local Roads

- (a) A Local Road shall only be intersected by other Local Roads and Rural Roads.
- (b) In areas of the Township that are zoned Commercial, only medium volume, low volume and minimum use driveways shall be allowed to intersect a Local Road.
- (c) In areas of the Township that are zoned Industrial, high volume, medium volume, low volume and minimum use driveways shall be allowed to intersect a Local Road.

- (d) Spacing between existing access points (streets or driveways) and all new access points (streets or driveways) on the same side of the street shall not be less than three hundred (300) feet. Spacing between existing access points (streets or driveways) and all new access points (streets or driveways) on opposite sides of the street shall not be less than one hundred fifty (150) feet.
- (5) Rural Roads
- (a) A Rural Road shall only be intersected by other Rural Roads and Local Roads.
 - (b) Only low volume and minimum use driveways shall be allowed to intersect a Rural Road.
 - (c) Spacing between existing access points (streets or driveways) and all new access points (streets or driveways) on the same side of the road shall not be less than five hundred eighty five (585) feet. Spacing between existing access points (streets or driveways) and all new access points (streets or driveways) on opposite sides of the street shall not be less than three hundred sixty (360) feet.
- (6) The governing body recognizes that in certain situations limited subdivision of building lots may be desirable, and that compliance with the standards and criteria set forth in Section 716 may be difficult to such an extent that limited subdivision becomes cost prohibitive. Therefore, in an attempt to address the needs of all Township residents while still preserving the goals and purposes of this Section, and Road Access Control in general, the governing body establishes the following:
- (a) Any lot, together with all contiguous lands of the owner, applicant or developer, fronting a public road in the Township and existing on January 1, 1999, and having limited road frontage to the extent that the criteria of Table 716-1 cannot be attained, will be allowed a single access, provided that the requirements of Table 716-2 can be met. The Board of Supervisors may, at its sole discretion, consider the sight distance requirements of Table 716-3 if the

requirements of Table 716-2 cannot be attained. In all cases, information supporting non-compliance with the higher standard must be submitted to the Township for review. An access shall not be permitted if the criteria of Table 716-3 cannot be attained.

- (b) Any constructed driveway access to a public road existing on January 1, 1999 shall be considered a permitted access point for the property, together with all contiguous lands of the owner, as it relates to the existing use and any future subdivision of said property. Where an existing property has multiple driveway access points the additional accesses shall be abandoned as part of a proposed subdivision plan.

- (7) Where a development/subdivision proposes access of new streets onto an existing Township Road, the developer shall upgrade the existing road to the standards applicable to a new Township Roads, as required by the South Middleton Township Subdivision and Land Development Ordinance, including all necessary stormwater collection and conveyance facilities.

TABLE 716-1 - ACCESS SPACING

1A. Arterial Roads

POSTED SPEED LIMIT (MPH)*	ACCESS SPACING (FEET)
50 or less	1140
55	1575

1B. Urban Collector Roads

POSTED SPEED LIMIT (MPH)*	ACCESS SPACING (FEET)
40 or less	585
45	825
50	1140
55	1575

1C. Rural Collector and Rural Roads

POSTED SPEED LIMIT (MPH)*	ACCESS SPACING (FEET)
35 or less	360
40	585
45	825
55	1575

* Where no speed limit is posted for a road segment, the posted speed limit shall be assumed to be 55 miles per hour.

TABLE 716 -2
DESIREABLE SAFE SITE DISTANCE CRITERIA

2A. Safe sight distance for all residential, low and medium volume driveways, as well as Rural Collector Road, Local Road and Rural Road intersections.

Posted Speed (mph)	Safe Site Distance Left (ft.)	Safe Site Distance Right (ft.)
25 or less	250	195
30 to 35	440	350
40 to 45	635	570
50 and over	845	875

2B. Safe sight distance for all commercial and high volume driveways, as well as Arterial Road and Urban Collector Road intersections.

Posted Speed (mph)	Safe Site Distance Left (ft.)	Safe Site Distance Right (ft.)
25 or less	400	300
30 to 35	675	625
40 to 45	1225	1225
50 and over	2050	2050

717. Official Roadway Hierarchy and Functional Classification Map

- a. A map is attached to the Subdivision and Land Development Ordinance, entitled "Official Roadway Hierarchy and Functional Classification Map of South Middleton Township." Said map shall be used in conjunction with the Road Access Control regulations as prescribed herein in order to determine roadway classification within the Township and appropriate locations of road access points. Said Official Roadway Hierarchy and Functional

Classification Map of South Middleton Township is hereby incorporated and made a part of this Ordinance.

- b. Such classifications are designed to reflect current and anticipated use of the roads and are based on factors including, but not limited to current speed limits, average running speed, zoning classification of adjacent parcels, type and extent of current and potential adjacent developments, and roadway characteristics, including width, shoulders, alignment, clear roadside areas, and volumes. Such classification shall in no way impose an affirmative obligation on the Township to improve a road.
- c. Roadway classification of new roads shall be determined by the Board of Supervisors.

718. Wellhead Protection District

The Planning and Design Requirements of the South Middleton Township Wellhead Protection District as established in the South Middleton Township Wellhead Protection Ordinance shall be incorporated herein and made part of by reference. Where any inconsistent requirements exist, the more stringent shall apply.

719. Fire Protection

Fire Protection Standards shall be incorporated into the design of all subdivision and land development proposals. The design standards of International Fire Code, as amended from time to time by the Uniform Construction Code, shall be incorporated herein and made part of the ordinance by reference. Where any inconsistent standards exist, the requirements of the Subdivision and Land Development Ordinance shall apply.

TABLE 716-3

Speed Limit	15	20	25	30	35	40	45	50	55	60	65
Grade											
10	73.9	106.8	144	185.3	230.7	280.3	334.1	392.1	454.2	520.5	591
9	74.4	107.7	145.3	187.2	233.3	283.8	338.5	397.4	460.7	528.2	600
8	74.9	108.6	146.7	189.2	236.1	287.4	343	403	467.5	536.3	609.5
7	75.4	109.5	148.2	191.3	239	291.1	347.8	409	474.6	544.8	619.5
6	76	110.5	149.7	193.6	242.1	295.1	352.9	415.2	482.2	553	630.1
5	76.6	111.6	151.4	196	245.3	299.4	358.2	421.8	490.2	563.4	641.3
4	77.2	112.7	153.1	198.5	248.7	303.9	363.9	428.8	498.7	573.4	653.1
3	77.9	113.9	155	201.2	252.4	308.6	369.9	436.3	507.7	584.1	665.6
2	78.6	115.2	157	204	256.2	313.7	376.3	444.2	517.2	595.5	679
1	79.3	116.5	159.1	207	260.3	319	383.1	452.6	527.4	607.6	693.2
0	80.1	117.9	161.3	210.3	264.7	324.8	390.4	461.5	538.2	620.5	708.3
-1	81	119.5	163.7	213.7	269.4	330.9	398.1	471.1	549.8	634.3	724.5
-2	81.9	121.1	166.3	217.4	274.5	337.5	406.4	481.4	562.2	649.1	741.9
-3	82.9	122.9	169	221.4	279.9	344.5	415.4	492.4	575.6	664.9	760.5
-4	84	124.8	172	225.6	285.7	352.1	425	504.3	589.9	682	780.5
-5	85.1	126.8	175.2	230.3	292	360.3	435.4	517.1	605.5	700.5	802.2
-6	86.4	129.1	178.7	235.3	298.8	369.2	446.6	531	622.3	720.5	825.7
-7	87.7	131.5	182.5	240.7	306.2	378.9	458.9	546.1	640.5	742.2	851.2
-8	89.2	134.1	186.6	246.6	314.2	389.4	472.2	562.5	660.5	766	879
-9	90.8	137	191.1	253.1	323.1	401	486.8	580.6	682.3	791.9	909.5
-10	92.6	140.2	196	260.3	332.8	413.7	502.9	600.4	706.3	820.5	943