

ARTICLE VII
PERFORMANCE STANDARDS AND ENVIRONMENTAL PROTECTION

700 Design of Commercial Establishments and Nonresidential Uses

It is the intent of this §700 to provide standards for the design of commercial establishments and nonresidential uses (referred to as *commercial establishments*) to assure the compatibility of the nonresidential development with the surrounding character of the Township. This shall be accomplished by:

- A. Siting buildings, parking areas and other facilities and improvements based upon the particular topography of development site;
- B. Designing buildings with consideration of architectural style and type of construction material in keeping with the surrounding landscape and development pattern using wood or wood-like siding (exposed cinder-block construction shall not be permitted);
- C. Providing safe and convenient access from the public right-of-way based on the existing area-wide traffic circulation pattern and the expected traffic generated by the proposed use;
- D. Designing parking areas to complement patterns of traffic and pedestrian flow and to provide adequate off-street parking for patrons;
- E. Maintaining to the greatest extent possible natural vegetation and provide landscaping as an integral part of the overall design of the proposed use and parking areas;
- F. Considering the impact of storm water, noise, traffic and lighting on surrounding land uses and providing buffers to minimize adverse impacts; and,
- G. Being consistent with any design guidelines adopted by the Township.

700.1 Land Development

Any proposed commercial establishment shall be considered a "land development" as defined by the Pennsylvania Municipalities Planning Code and the Township Subdivision and Land Development Ordinance and shall comply in all respects with all the requirements for plan submission and content for land developments contained therein, as well as the information which follows. The Township may also require any additional information, studies or reports as it deems necessary to meet the intent of this and other Township Ordinances.

- A. Location, widths, and names of all existing or prior platted streets and utility rights-of-way, parks, and other public open spaces, permanent buildings and structures, houses or permanent easements, and zoning and municipal boundary lines, within five hundred (500) feet of the tract;
- B. A traffic and pedestrian flow chart showing circulation patterns from the public right-of-way and within the confines of the shipping center.
- C. Location and dimensions of vehicular drives, entrances, exits, acceleration and deceleration lanes;
- D. Location, arrangement, and dimensions of automobile parking space, width of aisles, width of bays, angle of parking;
- E. Location, arrangement, and dimensions of truck loading and unloading spaces and docks;

- F. Location and dimensions of pedestrian entrances, exits, walks;
- G. Location, height, and materials of walls, fences, screen plantings, and other landscaped areas.
- H. Preliminary architectural drawings for all buildings;
- I. Location, size, height, and orientation of all signs other than signs flat on building facades;

700.2 Site Design Process

The applicant shall demonstrate to the Township by the submission of the necessary land development site plans, that the commercial establishment has been designed as follows:

- A. Mapping of Primary and Secondary Conservation Areas (see §601.4,D,1) to identify all areas of the site which will remain undisturbed, along with noting site development practices which will be used to assure non-disturbance.
- B. Locating the building site.
- C. Locating required buffers.
- D. Laying out street access, parking/loading areas, and other required or proposed improvements.

700.3 Ownership

The site proposed for any multiple occupant commercial establishment shall be held in single ownership or in unified control; and the applicant shall provide to the Township evidence of said ownership and/or control.

701 Performance Standards Applicable to All Uses in All Districts

The intent of this §701 is to regulate the development and operation of all development in the Township and to protect the environment and the public health, safety and general welfare. No land or building shall be used or occupied in such manner which creates any dangerous, injurious, noxious, or otherwise objectionable condition in such amount to adversely affect the surrounding area, and any such activity is hereby declared to be a public nuisance. However, any use permitted by this Ordinance may be undertaken and maintained if it conforms to all applicable requirements of this Ordinance, including the standards in this §701 which are intended to limit nuisance elements. The following performance standards shall apply to all proposed new or expanded nonresidential uses, and residential uses explicitly referenced by a specific section. The standards in this §701 shall not apply to normal agricultural uses unless explicitly referenced by a specific section.

701.1 Yards and Buffers

Unless otherwise regulated by this Ordinance, where a commercial or manufacturing use is proposed contiguous to any existing residential use or any R Residential District the minimum size of the abutting yard shall be increased by fifty (50) percent and a landscaped buffer not less than fifteen (15) feet in width shall be provided in accord with this §701.1. Storage of equipment, supplies, products or any other materials shall not be permitted in any front yard or side yard.

In the case of conditional uses and special exceptions, landscaped buffers may be required by the Township in any yard in order to assure the protection of adjoining uses by providing visual barriers that block the glare of lights; reduce noise; serve as a protective barrier by blocking physical passage to dangerous areas; and reduce air pollution, dust and litter; and, to otherwise maintain and protect the rural character of the District.

- A. In determining the type and extent of the buffer required, the Township shall take into consideration the design of the project structure(s) and site, topographic features which may provide natural buffering, existing natural vegetation, and the relationship of the proposed project to adjoining areas.

- B. The width of the required buffer, as determined by the Township, shall not be less than fifteen (15) feet.
- C. A mix of ground cover and shrubbery vegetation and canopy trees, of such variety compatible with the local climate, may be required so that a dense screen not less than six (6) feet in height will be formed within three (3) years of planting.
- D. Berms and landscaped walls or fences, compatible with the principal building design, may be incorporated in the required buffer. Front yard buffers shall be provided in the same manner to a height of not less than four (4) feet; however, all clear sight triangles shall be maintained.
- E. In any case, special consideration shall be given to existing residential uses and sites where residential uses are likely to be developed. In cases where the adjoining use is a commercial use, or when two or more adjacent properties are developed under a common site plan, the width and density of the buffer may be reduced if the Township shall determine that the proposed use and adjoining use(s) are not incompatible.
- F. Design details of buffers shall be included on the site plan, and buffers shall be considered "improvements" for the purposes of guaranteeing installation in accord with the requirements for "land developments" in the Township Subdivision and Land Development Ordinance. It shall be the responsibility of the property owner to maintain all buffers in good condition and replace any dying or dead plants or deteriorating landscape material.

701.2 Landscaping

A landscaping plan for the proposed project shall be submitted by the developer for review and approval by the Township. Where the project involves landscaping of more than one-half (0.5) acre the plan shall be prepared by a qualified registered landscape architect, professional planner or registered professional engineer. Landscaping shall be considered an improvement for the purposes of regulation by the Township Subdivision and Land Development Ordinance. The landscaping plan shall include the overall design of the landscaping proposed, the type and size of vegetation to be utilized, and details of installation. Landscaping shall be installed to the following minimum standards.

- A. All disturbed areas of the site shall be included in the landscaping plan, and those areas immediately adjacent to buildings and walkways shall be given extra consideration.
- B. Adequate pedestrian walkways shall be provided for access from parking areas and to common use areas and shall be an integral part of the landscaping; and shall be consistent with the architectural type of the project and shall be a minimum of four (4) feet in width.
- C. Plants shall be species native to Pennsylvania and of a type which are proven successful in the Township's climate.
- D. Where landscaping is required to serve as a buffer (e.g., between the project and adjoining properties or between buildings and parking areas) the plants used shall be of the evergreen type and of adequate size to provide an effective buffer within five (5) years of project approval or in accord with the time frame as may be established as a condition of approval for conditional uses, special exceptions or variances.
- E. The variety of landscape materials shall be consistent with building architecture and the surrounding area and plant type shall be appropriate for the size and location of the space it is to occupy.
- F. All areas in and around parking areas shall be landscaped.
- G. Attractive natural features of the site, including mature trees, shall be preserved to the greatest extent possible.

- H. Artificial landscape materials shall not be used in place of live trees, shrubs and vegetative ground cover.
- I. All trees to be planted shall have a trunk diameter of at least one (1) inch as measured one (1) foot above the ground.
- J. Ground cover shall be spaced to allow for complete fill-in within one (1) year of the date of planting.
- K. Adequate soil preparation in accord with accepted landscape industry practices shall be required.
- L. All landscaping shall be maintained in good growing condition by the property owner and free of weeds, debris and brush.

701.3 Operations and Storage

- A. All facilities and operations of any principal use (with the exception of nurseries, agriculture and the display for sales purposes of new or used cars, motorcycles, trucks, trailers, vehicles, or farm equipment, in operative condition or other similar uses) including the storage of raw material, finished products, fuel, machinery and equipment and any other materials or supplies shall be enclosed and carried out within a building; or shall, as required by the Township for conditional uses and special exceptions, be provided with larger setbacks and/or buffers to afford protection to adjoining uses and any public road rights-of-way.
- B. Unenclosed uses and activities shall, in any case, be a minimum of one hundred (100) feet from any existing residential structure or any R Residential, unless a greater setback is required by the Township.
- C. Storage of equipment, supplies, products or any other materials shall not be permitted in any front yard or side yard.
- D. Storage of materials, supplies or products in motor vehicles, truck trailers or other containers normally used to transport materials shall not be permitted. In the C and I District, trailers, painted one color without advertising and maintained in good condition, may be used as accessory structures provided all wheels and axles are removed, the trailers are erected and maintained as structures, and are screened from view from adjoining properties in accord with §701.1 of this Ordinance. Trailers, painted one color without advertising and maintained in good condition, shall be permitted for storage for a temporary period on the site of an on-going construction project. The placement of said trailers shall be for a specified time as stated in the required permit from the Township, shall meet the setback requirements of this Ordinance and shall not be used for the storage of any flammable or hazardous material except in accord with applicable state and federal regulations.

701.4 Fire and Explosion Hazards

All activities involving any manufacturing, production, storage transfer or disposal of, inflammable and explosive materials shall be provided with adequate safety devices against the hazard of fire and explosion and adequate fire-fighting and fire suppression equipment and devices standard in the industry shall be required. Burning of waste materials in open fires is prohibited. The relevant provisions of Federal, State and local laws and regulations shall also apply. Details of the potential hazards and details of planned safety and accident response actions shall be provide by the developer for review by the local fire company(s). In the case of conditional uses and special exceptions, larger setbacks, additional buffer areas or fencing may be required by the Township if the nature of the proposed use as determined by the Township so requires.

701.5 Radioactivity or Electric Disturbance

No activities shall be permitted which emit dangerous radioactivity, electrical disturbance or electromagnetic radiation adversely affecting the operation of any person or any equipment other than that of the creator of such disturbance. All applicable Federal regulations shall apply.

701.6 Noise

The maximum sound pressure level radiated by any use or facility at any lot line shall not exceed the values in the designated octave bands listed in Table 1, after applying the corrections shown in Table 2. The sound pressure level shall be measured with a Sound Level Meter and associated Octave Band Analyzer conforming to standards prescribed by the American Standards Association, Inc., as designated by the Board of Supervisors.

TABLE 1	
Frequency Band (cycles/second)	Sound Pressure Level (decibels re 0.0002 dyne/cm)
20-75	69
76-150	60
151-300	56
301-600	51
601-1,200	42
1,201-2,400	40
2,401-4,800	38
4,801-10,000	35

TABLE 2	
Type of Operation OR Character of Noise	Correction in Decibels
Day time operation only	+ 5
Noise source operation less than: a. 20% of any one-hour period b.. 5% of any one-hour period c.. 1% of any one-hour period	a. + 5* b. +10* c. +15*
Noise of impulsive character (hammering, etc.)	-5
Noise of periodic character (hum, scream, screech, etc.)	-5
* Apply only one of these corrections.	

- A. Maximum Levels - Maximum permissible sound pressure levels at the lot line for noise radiated continuously from any facility or activity between the hours of 9:00 p.m. and 7:00 a.m. shall be as listed in Table 1.
- B. Corrections - If the noise is not smooth and continuous, and is not radiated between the hours of 9:00 p.m. and 7:00 a.m., one (1) or more of the corrections in Table 2 shall be applied to the decibel levels in Table 1.
- C. Exemptions - The maximum permissible sound levels of this §701.6 shall not apply to any of the following noise sources:
 - 1. Sound needed to alert people about an emergency or building, equipment, or facility security alarms.
 - 2. Repair or construction work to provide electricity, water or other public utilities between the hours of 7:00 a.m. and 9:00 p.m., except for emergency repairs which shall not be restricted by time.
 - 3. Household power tools and lawn mowers between the hours of 7:00 a.m. and 9:00 p.m.
 - 4. Construction operations (including occasional blasting in construction) and repairs of public facilities between the hours of 7:00 a.m. and 9:00 p.m., except for emergency repairs which shall not be restricted by time.
 - 5. Agricultural activities, but not exempting kennels.
 - 6. Motor vehicles when used on public streets in accord with state regulations.
 - 7. Railroads and aircraft during daylight hours.
 - 8. Public celebrations, specifically authorized by the Township, the County, state or federal government body or agency.
 - 9. Unamplified human voices.
 - 10. Routine ringing of bells or chimes by a place of worship or municipal clock.
- D. Professional Studies and Costs - If it is determined that professional analysis is required to enforce this §701.6 for a particular situation, the owner shall reimburse the Township for such reasonable costs of such

analysis. In addition, the Zoning Officer may base a determination under this §701.6 on a written study prepared and certified by a qualified professional and submitted by an affected party. Any such study shall state the methods used and the credentials of the involved professional(s).

701.7 Vibration

No vibration shall be permitted which is detectable without instruments at or beyond the property line; and no use shall generate any vibration which is capable of causing damage to buildings, structures, equipment alignment, or structural soundness. This requirement shall not apply to occasional blasting conducted in accord with applicable regulations that may be necessary during construction of streets, structure and utilities.

701.8 Lighting and Glare

The standards of this §701.8 shall apply to all uses including residential and agricultural.

A. Purpose - This section sets minimum standards for outdoor lighting to:

1. Provide lighting in outdoor public places where public health, safety and welfare are potential concerns.
2. Protect drivers and pedestrians from the glare of non-vehicular light sources that shine into their eyes and thereby impair safe traverse.
3. Protect the privacy of property owners by limiting the potential for glare and light trespass from poorly aimed, placed, applied, maintained or shielded outdoor lighting installations located on adjacent properties and roadways.
4. Set forth outdoor lighting requirements which are consistent with lighting industry standards and practices, available technologies, and the lighting sciences.

B. Application - Outdoor lighting shall be required for safety and personal security in areas of public assembly and traverse, including, but not limited to: multi-family dwellings, commercial, industrial, public recreational, and institutional use. The Township may require lighting to be incorporated for other uses or locations, as it deems necessary. The glare control requirements in this section apply to lighting in all of the above mentioned uses as well as sign, architectural, landscaping, and residential lighting. Lighting shall be controlled in both height and intensity to maintain community character; and lighting designs shall be an inherent part of the project design. The standards of the Illuminating Engineering Society (IES) shall be used as a guideline for the said design. The applicant shall provide the specifications of the proposed lighting and its arrangement on the site; and, all required lighting shall be considered improvements for the purpose of regulation by the Borough's Subdivision and Land Development Ordinance.

C. Definitions

Candela: Unit of luminous intensity, describing the intensity of a light source in a specific direction.

Candela Distribution: A curve, often on polar coordinates, illustrating the variation of luminous intensity of a lamp or luminaire in a plane through the light center.

Candlepower: Luminous intensity expressed in candelas. A measure of luminous intensity of a light source in a specific direction, measured in candelas.

Cutoff: A light distribution where a negligible amount of light is permitted at a horizontal plane located at the bottom of a luminaire. Light above the horizontal plane at the bottom of a luminaire is not limited; but, cutoff luminaires usually have very little light above the luminaire.

Full Cutoff: A light distribution where no light is permitted at or above a horizontal plane located at the bottom of a luminaire. There will be little or no light at the angles that are usually associated with glare.

Semicutoff: A light distribution where slightly more light is permitted at a horizontal plane located at the bottom of a luminaire than the cutoff distribution. Like *cutoff*, light above the horizontal plane at the bottom of a luminaire is not limited; but, the amount of light above the luminaire is relatively small.

Noncutoff: A light distribution that can produce considerable light above the horizontal plane located at the bottom of a luminaire.

Cut off angle of a luminaire: The angle, measured up from the nadir (i.e., straight down), between the vertical axis and the first line of sight at which the bare source (the bulb or lamp) is not visible.

Floodlight: A fixture designed to "flood" a well-defined area with light.

Footcandle: A unit of illuminance. The English measurement unit of illuminance (or light level) on a surface. One lumen is equal to one footcandle per square foot. A unit of light intensity stated in lumens per square foot and measurable with an illuminance meter, a/k/a footcandle or light meter. One footcandle is equal to 10.76 lux; and, one lux is equal to 0.093 footcandles.

Fully Shielded Light Fixture: A light fixture constructed in such a manner that all light emitted by the fixture, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the luminaire, is projected below the horizon.

Glare: Light that hinders or bothers the human eye. The sensation produced by luminances within the visual field that is sufficiently greater than the luminance to which the eyes are adapted to cause annoyance, discomfort, or loss in visual performance or visibility. The degree of glare is described as follows:

- A. Blinding Glare: Glare that is so intense that for an appreciable length of time after it has been removed, no object can be seen.
- B. Direct Glare: Glare resulting from high luminances or insufficiently shielded light sources in the field of view.
- C. Disability Glare: The effects of stray light in the eye whereby visibility and visual performance is significant enough to keep a person from seeing adequately.
- D. Discomfort Glare: Glare that produces discomfort. It does not necessarily interfere with visual performance or visibility.
- E. Reflected Glare: Glare resulting from reflections of high luminances in polished or glossy surfaces in the field of view.

Illuminance: The quantity of light measured in footcandles or lux. A term that quantifies light striking a surface or a plane point. It is expressed either in lumens per square foot (footcandles/the English unit) or lumens per square meter (lux/the metric unit). The areal density of the luminous flux incident at a point on a surface. One footcandle is equal to 10.76 lux; and, one Lux is equal to 0.093 footcandle.

Illumination: An alternative term for illuminance. Commonly used in a qualitative or general sense to designate the act of illuminating or the state of being illuminated.

Lamp: A generic term for a man-made source of light.

Light: Radiant energy that is capable of exciting the retina and producing a visual sensation. The visible portion of the electromagnetic spectrum extends from about 380 to 770 nanometers.

Light Trespass: Light emitted by a lighting installation which extends beyond the boundaries of the property on which the installation is sited. Spill light. Obtrusive light. Undesirable illumination, including the following examples:

1. The classic *light shining in a window*.
2. Unwanted light on an adjacent property.
3. Excessive brightness in the normal field of vision (discomfort glare).

Lumen: Units of measurement of luminous flux representing the quantity of light being produced by a lamp or emitted from a luminaire.

Luminaire: A complete lighting unit consisting of one or more lamps (light sources) together with the parts designed to control the light distribution, and other mechanical and electrical components.

Luminance: A term that quantifies directional brightness of a light source (e.g., a lamp, luminaire, reflecting material) or of a surface that is illuminated and reflects light. The emitted or reflected light from a surface; relates directly to perceived "brightness." The unit of luminance is the candela per square meter (cd/M²). Measurable with a luminance meter.

Lux: A unit of light intensity stated in lumens per square meter. There are approximately 10.76 lux per footcandle.

Nadir: The point directly below the luminaire when the luminaire is pointed down (0-degree angle).

Nighttime: The hours between the end of evening civil twilight and the beginning of morning civil twilight. Civil twilight ends in the evening when the center of the sun's disk is six (6) degrees below the horizon, and begins in the morning when the center of the sun's disk is six (6) degrees below the horizon.

Spotlight: A fixture designed to light only a small, well-defined area.

D. Criteria

1. Illumination Levels for Nonresidential Uses - Illumination of nonresidential uses, where required by this Ordinance, shall have intensities and uniformity ratios in accordance with the most current recommended practices of the Illuminating Engineering Society of North America (IES NA) Lighting Handbook.
2. Outdoor Light Standards for All Uses
 - a. Any lamp over 2000 initial lumens, installed, shall be fully shielded such that the lamp itself is not directly visible from any other residential property.
 - b. The use of more than one luminaire or lamp of 2000 initial lumens for the purpose of illuminating the same area shall not be permitted.
 - c. Examples of lamp types of 2000 lumens and below are: 100 Watt Standard Incandescent; 15 Watt Cool White Fluorescent; 15 Watt Compact Fluorescent; and 18 Watt Low Pressure Sodium .

E. Lighting Fixture Design

1. Fixtures shall be of a type and design appropriate to the lighting application.
2. For lighting horizontal tasks such as roadways, sidewalks, entrances and parking areas, fixtures shall meet full cutoff criteria (i.e., no light output emitted above 90 degrees at any lateral angle around the fixture).
3. Fixtures shall be equipped with or be modified to incorporate light directing and/or shielding devices such as shields, visors, skirts or hoods to redirect offending light distribution and/or reduce direct or reflected glare.

F. Control of Nuisance and Disabling Glare

1. All outdoor lighting shall be aimed, located, designed, fitted and maintained so as not to present a hazard to drivers or pedestrians by impairing their ability to safely traverse and so as not to create a nuisance by projecting or reflecting objectionable light onto a neighboring use or property.
2. All outdoor lighting fixtures shall be fully shielded in such a manner that no light is emitted above a horizontal plane passing through the lowest point of the light emitting element, so that direct light emitted above the horizontal plane is eliminated.
3. Floodlights and spotlights shall be so installed or aimed that they do not project their output into the windows of neighboring residences, adjacent uses, skyward or onto a public roadway. Floodlights or spotlights must be aimed no higher than forty-five (45) degrees above straight down (i.e., half-way between straight down and straight to the side) when the source is visible from any off-site residential property or public roadway. The use of searchlights or laser source lights for advertising or entertainment purposes is prohibited.
4. Automatic switching devices such as time clocks or combination motion detectors and photocells to control outdoor lighting fixtures are preferable to mitigate nuisance glare and sky-lighting.
5. All illumination for advertising signs, buildings and/or surrounding landscapes for decorative, advertising or esthetic purposes is prohibited between 11:00 p.m. and dawn, except that such lighting situated on the premises of a commercial establishment may remain illuminated while the establishment is actually open for business, and until one hour after closing.
6. Illumination for flagpole lighting may not exceed 10,000 lumens.
7. Vegetation screens shall not be employed to serve as the primary means for controlling glare. Rather, glare control shall be achieved primarily through the use of such means as cutoff fixtures, shields and baffles, and appropriate application of fixture mounting height, wattage, aiming angle and fixture placement.
8. Externally illuminated signs and billboards shall use only fixtures mounted at the top of the sign and aimed downward shall light. Such fixtures shall be automatically extinguished between the hours of 11:00 p.m. and dawn, except as specifically approved by appropriate officers or agents of the Borough.
9. Directional fixtures for such applications as facade, fountain, feature and landscape illumination shall be aimed downward so as not to project their output beyond the objects intended to be illuminated. Additionally, they shall be extinguished between the hours of 11:00 p.m. and dawn.
10. The use of white strobe lighting, flashing, flickering or pulsating for tall structures such as smokestacks, chimneys and radio/communications/television towers is prohibited during nighttime hours, except as may

be required by the Federal Aviation Administration or other governmental agency.

E. Nonconforming Lighting - Unless minor corrective action is deemed by the Borough to be an acceptable alternative, a nonconforming lighting fixture or lighting installation shall be made to conform with the applicable requirements of this Ordinance when:

1. It is deemed by the Borough to create a safety hazard.
2. It is replaced, abandoned or relocated.

H. Exemptions

1. Emergency lighting, used by police, firefighting, or medical personnel, or at their direction, is exempt from all requirements of this Ordinance for as long as the emergency exists.
2. Temporary lighting installations, which include, but are not limited to, seasonal or holiday displays, carnivals, community fairs, and traveling circuses, may be employed on a temporary basis not to exceed thirty (30) days in duration.

701.9 Smoke

No emission of smoke shall be permitted from any chimney or otherwise, except in full compliance with PA Department of Environmental Protection requirements.

701.10 Odors

No emission shall be permitted of odorous gases or other odorous matter except in full compliance with PA Department of Environmental Protection requirements. Because the Township is a rural/agricultural area with many farms, the spreading of manure shall not be considered an offensive odor and shall be exempt from this §701.10; however, this exemption shall not apply to sewage sludge or concentrated animal feeding operations.

701.11 Other Forms of Air Pollution

No emission of fly ash, dust, fumes, vapors, gases and other forms of air pollution shall be permitted except in full compliance with PA Department of Environmental Protection requirements.

701.12 Surface and Ground Water Protection

All activities, including residential and agricultural, involving the possible contamination of surface or ground water shall be managed and shall be provided with adequate safety devices to prevent such contamination. In cases where any earth disturbance will result in the excavation of bedrock, the Township may require the applicant to submit a report from a qualified engineer or geologist detailing the geologic structure of the area proposed to be disturbed and identifying the probable impacts on groundwater supply and quality. Details of the potential hazards (including the groundwater characteristics of the area in which the use is proposed) and details of planned safety devices and contamination response actions shall be provided by the developer. The Township may require a plan to be submitted for review and approval and may require security for insuring contamination response. Monitoring wells and water quality testing may also be required by the Township. The developer shall also provide details about the use of ground water and any processes that could result in the depletion of ground water supplies. No use shall be permitted which would result in the depletion of ground water supplies. In cases where the use is of such a nature that large volumes of ground water are required the developer shall provide appropriate hydro-geologic studies which clearly establish that the proposed use will not cause a reduction in the quantity or the quality of ground water supplies available to other properties located within one-thousand (1,000) feet of any portion of the property where the proposed use will be located.

701.13 Storm Water Management and Soil Erosion Control

A storm water management plan and soil erosion control plan shall be required for review and approval. Said plan shall be prepared and implemented pursuant to the standards contained in the Township Subdivision Ordinance or

other applicable Township regulations and County Conservation District standards, and shall be based on generally accepted engineering principles appropriate for the proposed use. The protection of the quality of ground water and surface water shall be an integral part of all proposed storm water management practices; and all storm water management plans shall include an element specifically addressing water quality. The plan shall provide for the minimization of the discharge of "first flush" sediments off the project site or directly to infiltration structures. Containment of "first flush" sediments shall be accomplished by accepted and proven engineering design and practice, including but not limited to the use of grass buffer/filter strips, grass swales, detention basins, sediment traps, and special inlet devices. In any area of the Township where a storm water management plan has been prepared and adopted in accord with the Pennsylvania Storm Water Management Act, the provisions of any applicable storm water control ordinance shall apply.

701.14 Waste Materials

No liquid, solid, toxic or hazardous waste shall be stored or disposed in any commercial area, either above or below ground level, except for the temporary storage thereof pending removal from the premises. Such temporary storage and handling of waste shall be in a designated area and shall be conducted in compliance with all applicable state and federal regulations in order to prevent any water, soil or air contamination and shall be screened from view of adjoining properties and any public road right-of-way by fencing or other buffers. In addition, no waste discharge is permitted into any reservoir, sewage or storm water disposal system, stream, open body of water or onto the ground.

All waste materials shall be disposed of only in accord with all applicable state and federal regulations and applications for any use which results in waste materials regulated by the state or federal government shall include a list of all such wastes and the method of temporary storage, handling and disposal.

701.15 Handicapped Access

Handicapped access to all uses shall be provided in accord with all applicable state and federal requirements.

701.16 Settling and/or Storage Ponds and Reservoirs

All ponds, reservoirs or other such storage facilities which are associated with any manufacturing or industrial process, or any sewage or waste disposal process shall be fenced or shall otherwise be physically controlled to prevent access by the public. Said fence shall be not less than four (4) feet high and of a design to restrict access to the area to be controlled. Any such facility which contains any material which is poisonous, toxic or caustic, shall be considered a conditional use, and the Board of Supervisors shall, at a minimum, require that such structure be enclosed by a chain link fence not less than eight (8) feet high.

701.17 Security

In cases where deemed necessary by the Township (detention facilities and drug treatment centers, for example), the applicant shall provide a plan addressing security needs to protect the health and safety of the public as well as the occupants of the proposed facility. Such plan shall include a description of the specific services to be offered, type of patients and/or residents, to be served, and the staff to be employed for this purpose. The plan shall identify the forms of security normally required with care of the type to be offered and detail the specific measures to be taken in the construction, development and operation of the facility so as to provide appropriate security. The plan shall, at a minimum, reasonably restrict unauthorized entry and/or exit to and from the property and provide for effective separation from adjoining residences by means of fencing, signs or a combination thereof. The plan shall also address measures to ensure that lighting and noise is controlled, particularly with respect to loudspeakers or other amplification devices and floodlights.

701.18 Water Supply

All uses shall be provided with an adequate and safe water supply, as demonstrated by evidence to be provided by the applicant, documenting that the siting, density, and design of all proposed residential, commercial, industrial and other developments or uses will assure the availability of reliable, safe and adequate water supplies to support the proposed land use(s) within the capacity of available water resources.

701.19 Sewage Disposal

Sewage disposal shall be provided by a system meeting the needs of the proposed use and the requirements of the Township and the Pennsylvania Department of Environmental Protection. Discharge to such system shall be limited to normal, domestic and human bodily wastes unless the treatment system has been specifically designed to handle other wastes or the wastes are pre-treated in accord with Pennsylvania Department of Environmental Protection or local sewer authority requirements. No discharge of wastes, by-products or materials in any way associated with a production process, health care or veterinary facility medical wastes, funeral home wastes, or other commercial wastes shall be permitted to any subsurface, land application or other soil based sewage disposal system.

701.20 Fire Fighting -- Adequate and Reliable Water Source

Each land development shall provide an adequate and reliable water source for fire fighting purposes. The provisions for an adequate and reliable water source shall be submitted as part of the application. Such plans and installations shall be inspected by the Fire Department and shall be approved by the Township. The developer may elect to provide this water source through the establishment of a pressurized water system, static water source or combination thereof. When utilizing an off-site water source, the developer shall secure a permanent contract with the source owner to provide said water. Water sources shall conform to the requirements set forth in this §701.20.

- A. Pressurized System - When electing to use a pressurized water distribution system, the developer may use a gravity, direct pumping, or combination system. Regardless of the type of pressurized system installed, the system shall be installed in compliance with NFPA 24, unless the Township imposes other specific requirements.
1. The flow capacity of the system shall such that it will maintain a delivery rate of one thousand (1,000) gallons per minute and forty (40) pounds per square inch residual pressure for a two-hour duration. No piping shall be used which is less than six (6) inches in diameter.
 2. Hydrants shall be of the dry barrel type with two (2), two and one-half- inch *nst* male discharges an one (1), four and one-half-inch male *nst* discharge. All discharges shall have caps installed. Hydrants shall not be set more than ten (10) feet from the road edge and shall have the four and one-half-inch connection facing the roadway. Each hydrant shall be equipped with a curb stop to allow for isolation of the hydrant. Fire hydrants shall be installed with a maximum spacing not to exceed eight hundred (800) feet. The Developer shall provide the Fire Department with a key to operate the curb stops. Hydrant bodies shall be painted bright yellow, with the bonnet and caps painted bright green.
 3. When pumps are used as part of the distribution system, a reserve power source shall be provided. This power source shall be designed to automatically start when primary power is lost. The Developer shall be responsible to provide monthly maintenance and testing of the power system.
- B. Static Water Sources - When electing to use a static water source, the Developer shall ensure that access to the water source is provided within two thousand (2,000) feet road distance (not point to point) of any buildable point within the subdivision. This may be met either through the use of ponds, cisterns or a combination thereof. Regardless of the type of static source provided, the system shall be installed in compliance with NFPA 1231, unless the Township imposes other specific requirements.
1. Static water sources shall be of sufficient capacity to provide an uninterrupted flow of at least one thousand five hundred (1,500) gallons per minute for a two-hour duration. Dry hydrants shall be installed in static water sources and located as required to meet the two thousand-foot requirement.
 2. The dry hydrant shall be capable of supplying a one thousand five hundred- gallons per minute pumper operating at one hundred (100) percent capacity at one hundred and fifty (150) pounds per square inch through ten (10) feet of six-inch suction hose. Dry hydrants shall be terminated with a forty-five-degree dry hydrant head a with six-inch male *nst* treads and a cap. The centerline of the head shall be

three (3) feet from the ground. All piping used in the dry hydrant shall be *schedule 80 PVC*, with a minimum diameter of eight (8) inches. All exposed above ground components shall be primed with a PVC primer to prevent deterioration. The hydrant head shall be connected to the piping with a tapered coupling.

3. The piping for the dry hydrant shall be installed a minimum of three (3) feet below the frost line and average ice depth of the water source. The strainer shall be located below the surface of the water a depth that is greater than three (3) feet below the average ice depth of the water (and the water surface) and no less than two (2) feet from the bottom of the water source. The strainer shall have a clean-out cap installed for maintenance. The vertical distance from the water surface to the centerline of the hydrant head shall not exceed ten (10) feet
4. The access road to the dry hydrant shall meet the requirements for minor roads contained in this Ordinance.

701.21 Other Regulations

The Zoning Officer, Planning Commission, Board of Supervisors or the Zoning Hearing Board, as the case may be may require documentation from the Applicant demonstrating that the project complies with all other applicable local, state and federal regulations, and said proposal has obtained all required permits, certifications and authorizations, including but not limited to the PA Department of Transportation, the PA Department of Environmental Protection the PA Department of Labor and Industry, the Federal Emergency Management Agency and the U.S. Environmental Protection Agency.

702 Placement and Screening of Waste Containers

702.1 Screening

All trash dumpsters shall be screened on three (3) of four (4) sides (not including the side it is to be emptied from) as needed to screen the dumpster from view from public streets or dwellings on abutting lots. A solid wooden fence, brick wall, evergreen plants or structure designed to be architecturally compatible with the principal building shall be used for such screening.

702.2 Setback from Dwellings

Any solid waste container with a capacity over fifteen (15) cubic feet shall be kept a minimum of fifteen (15) feet from any property line.

702.3 Food Sales

Any use that involves the sale of ready-to-eat food for consumption outside of a building shall provide at least one (1) outdoor solid waste receptacle for customer use at a convenient location outside of the main exit door of the property. The operator of such use shall be responsible for regular emptying and maintenance of such receptacle.

702.4 Enclosed Containers

Solid waste receptacles stored outdoors shall be adequately enclosed and covered to control the attraction of rodent and insects.

703 Environmental Impact Statement

The intent of this §703 is to provide the identification of environmental and community impacts and means of mitigation of impacts of development projects in the Township. The Board of Supervisors, Planning Commission, or Zoning Hearing Board, as the case may be, may, based upon the nature of a project and potential impacts on the Township, require the developer to prepare and submit to the Township an environmental impact statement (EIS) for the following types of developments and uses:

1. Industrial parks

2. Light manufacturing or manufacturing or industrial uses
3. Junkyards
4. Mineral extraction
5. Mineral processing
6. Agricultural products processing
7. Solid waste facilities and staging areas
8. Warehouses and trucking terminals
9. Race tracks
10. Concentrated animal feeding operations
11. Wind farms
11. Any use involving the initial or cumulative disturbance of 87,120 or more square feet of soil surface areas, but not including agricultural uses and forestry enterprises
12. Any use involving the initial or cumulative construction, installation and/or placement of 43,560 square feet or more of buildings, structures or other impervious surface areas
13. Any use involving development in any flood plain area

The requirements of this §703 may be applied to any other proposed conditional use or special exception, which for reasons of location, design, existing traffic or other community or environmental considerations, as determined by the Township, warrants the application of the study required contained herein in order to determine what conditions should be required to mitigate any adverse effects of the proposed use. The Board of Supervisors, Planning Commission, or Zoning Hearing Board, as the case may be, may waive certain components of the EIS should such components be deemed unnecessary for certain uses.

703.1 Purpose of EIS

The purpose of this EIS is to disclose the environmental consequences of a proposed action for consideration by the Township for the determination of approval or denial of the project, and, if the project is approved, for the establishment of conditions of approval. This requirement is made in order to protect the natural environment with respect to water quality, water supply, soil erosion, pollution of all kinds, flooding and waste disposal and to preserve trees and vegetation, to protect water courses, air resources and aquifers.

703.2 Contents of EIS

An Environmental Impact Statement shall include a description of the proposed use including location relationship to other projects or proposals with adequate data and detail for the Township to assess the environmental impact. The EIS shall also include a comprehensive description of the existing environment and the probable future effects of the proposal. The description shall focus on the elements of the environment most likely to be affected as well as potential regional effects and ecological interrelationships.

At a minimum, the EIS shall include an analysis of the items listed below regarding the impact of the proposed use and the mitigation of any such impacts; and said proposal shall comply with all other standards included in this Ordinance and other Township Ordinances:

A. Soil Types

1. U.S.D.A. Soil Types (show on map)
2. Permeability of soil on the site.
3. Rate of percolation of water through the soil for each five acres.

B. Surface Waters

1. Distance of site from nearest surface water and head waters of streams.
2. Sources of runoff water.
3. Rate of runoff from the site.

4. Destination of runoff water and method of controlling down stream effects.
5. Chemical additives to runoff water on the site.
6. Submission of an erosion and sediment control plan meeting the requirements of the PA DEP and the County Conservation District.
7. Said information shall be set forth in a storm water management plan meeting the requirements of the Township Subdivision Ordinance.

C. Ground Cover Including Vegetation and Animal Life

1. Extent of existing impervious ground cover on the site.
2. Extent of proposed impervious ground cover on the site.
3. Type and extent of existing vegetative cover on the site.
4. Extent of proposed vegetative cover on the site.
5. Type of animal life and effect on habitat.

D. Topographic and Geologic

1. Maximum existing elevation of site.
2. Minimum existing elevation of site.
3. Maximum proposed elevation of site.
4. Minimum proposed elevation of site.
5. Description of the topography of the site and any special topographic features, and any proposed changes in topography.
6. Surface and subsurface geology

E. Ground Water

1. Average depth to seasonal high water table.
2. Minimum depth to water table on site.
3. Maximum depth to water table on site.
4. Quality

F. Water Supply

1. The source and adequacy of water to be provided to the site.
2. The expected water requirements (g.p.d.) for the site.
3. The uses to which water will be put.

G. Sewage Disposal

1. Sewage disposal system (description and location on the site, of system).
2. Expected content of the sewage effluent (human waste, pesticides, detergents, oils, heavy metals, other chemical).
3. Expected daily volumes of sewage.
4. Affected sewage treatment plant's present capacity and authorized capacity.

H. Solid Waste

1. Estimated quantity of solid waste to be developed on the site during and after construction.
2. Method of disposal solid waste during and after construction.
3. Plans for recycling of solid waste during and after construction.

I. Air Quality

1. Expected changes in air quality due to activities at the site during and after construction.
2. Plans for control of emissions affecting air quality.

J. Noise

1. Noise levels, above existing levels, expected to be generated at the site, (source and magnitude), during and after construction.
2. Proposed method for control of additional noise on site during and after construction.

K. Land and Water Surface Use and Community Character

1. Past and present use of the site with particular attention to storage or disposal of toxic or hazardous waste.
2. Adjoining land uses and character of the area.
3. Type and concentration of existing water craft uses.

L. Critical Impact Areas - Any area, condition, or feature which is environmentally sensitive, or which if disturbed during construction would adversely affect the environment. Critical impact areas include, but are not limited to, stream corridors, streams, wetlands, slopes greater than 15%, highly acid or highly erodible soils, areas of high water table, and mature stands of native vegetation and aquifer recharge and discharge areasM. Historic Resources - Identification of structures or sites of historic significance and probable effect of project.N. Transportation Network - Existing network traffic volumes and capacities and need for improvements required by the project. In the case of PennDOT roads a copy of the traffic study required by PennDOT shall be submitted and in the case of Township roads, the study shall be conducted in accord with PennDOT requirements.O. Law Enforcement - Existing law enforcement capabilities of the Township and State; and assess the impact of the proposed development on said law enforcement agencies along with actions proposed to mitigate any burdens created by the development.P. Community Facilities and Services - Existing community facilities and services (including emergency services) and how the proposed use will effect those facilities and services, including projected needs for additional facilities and services.Q. Additional Requirements - In addition to the above requirements the Planning Commission and/or Township Board of Supervisors or the Zoning Hearing Board may require such other information as may be reasonably necessary for the Township to evaluate the proposed use for its effect on the community.703.3 Additional Considerations - The following shall also be addressed:

- A. A description of alternatives to the proposed use.
- B. A statement of any adverse impacts which cannot be avoided.
- C. Environmental protection measures, procedures and schedules to minimize damage to critical impact areas during and after construction.

- D. A list of all licenses, permits and other approvals required by municipal, county or state law and the status of each.
- E. A listing of steps proposed to minimize environmental damage to the site and region during and after construction.

703.4 Qualifications

The EIS shall be prepared by a professional architect, landscape architect, planner, engineer or other qualified individual whose qualifications have been previously approved by the Board of Supervisors or the Zoning Hearing Board as the case may be.

703.5 Procedures for Evaluating the Environmental Impact Statement Shall be as Follows

- A. Upon receipt of the application the Township shall forward the EIS to the Township Engineer and any other agency or firm which the Township may desire for consultation.
- B. The above mentioned Agencies shall review the applicant's EIS and shall report its comments to the Planning Commission and Board of Supervisors or Zoning Hearing Board.
- C. The Planning Commission and/or Board of Supervisors or Zoning Hearing Board may require the opinion of experts in their review of the EIS. Such experts shall be a professional architect, landscape architect, planner, engineer or other qualified individual whose qualifications have been previously approved by the Board of Supervisors or the Zoning Hearing Board as the case may be.
- D. Fees for the costs of such consultation as described in §§A and §§C above shall be paid by the applicant.
- E. Copies of the EIS shall be on file and available for inspection in the Township office.
- F. The Planning Commission shall evaluate the proposed project and the EIS and recommend action on same to the Board of Supervisors or Zoning Hearing Board.

704 Special Conservation Standards

All uses permitted by this Ordinance shall be subject to the following special conservation performance standards. The procedures and standards are as follows:

704.1 Steep Slope Areas

Steep slopes shall be defined as slopes in excess of twenty-five percent (25%) grade as determined by the Zoning Officer, from United States Geological Survey topographic maps or USDA NRCS maps. In cases where the slope cannot be specifically determined by said means, the Zoning Officer may require the applicant to provide certification from a Professional Engineer or Registered Land Surveyor of the slope in question. Slope shall be measured at the points where any earth will be disturbed or where structures or other improvements are proposed. Any use or development of such steep slope areas shall be considered a conditional use, and in reviewing applications for use of sites partially or wholly included within an area identified as steep-sloped, the Board of Supervisors and Planning Commission shall be satisfied that the following performance standards have been or will be met:

- A. An accurate map prepared by a Registered Surveyor in the Commonwealth of Pennsylvania has been submitted showing property boundaries, building and drive locations, contours at two (2) foot intervals and any areas to be graded. The proposed location of other factors shall also be shown including streams, wetlands, areas subject to landslides and extent of vegetative cover.
- B. A grading and drainage plan has been prepared showing existing and proposed ground surfaces, plans for drainage devices, plans for walls or cribbing, etc., map of the drainage area affected, computation of the

amount of runoff expected, an erosion control plan and schedule for completion of work.

- C. The total amount of impervious surface that may be installed or maintained on steep slopes shall not exceed fifty (50) percent of the maximum amount of impervious surface permitted for such use on any lot in the underlying zoning district. Provision shall be made and approved by the Township Engineer for control of runoff from impervious surfaces to prevent erosion and stormwater damage to downstream properties.
- D. No finished grade where fill is used shall exceed a fifty (50) percent slope.
- E. Where fill is used to later support structures, a minimum compaction of ninety (90) percent of maximum density shall be achieved.
- F. At least fifty (50) percent of the area to be used for any building or construction purposes shall be less than fifteen (15) percent slope.
- G. Soils characterized by the Soil Conservation Service as highly susceptible to erosion shall be avoided.
- H. Roads and utilities shall be installed along existing contours to the greatest extent possible.
- I. Any steep slope areas also characterized by seasonal high water tables shall be avoided.
- J. Removal of, or disturbance to, existing vegetation on the site shall be minimized. The proposed impacts on existing vegetation shall be evaluated in terms of the potentially detrimental effects on slope stability, erosion potential, transpiration and recharge of stormwater, aesthetic and traditional characteristics of the landscape, and existing drainage patterns. Mitigation measures may be required by the Board as it deems appropriate.
- K. In cases where structures are proposed, the applicant shall submit plans to the Zoning Officer detailing how the limitations of slope will be mitigated by the design of the structure(s).

704.2 Buffers for Wetlands and Vernal Pools

- A. If the Township determines that wetlands or vernal pools may be present or may be impacted by the proposed development, the Township may require wetlands, as defined and regulated by the Pennsylvania Department of Environmental Protection, the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service, and vernal pools to be delineated on any application proposing a new use or expanded use of land.
- B. The applicant shall be responsible for said delineation and shall warrant that said wetlands and vernal pools have been properly delineated
- C. A buffer of one hundred fifty (150) feet in width (comprised of a fifty-foot inner buffer and a one hundred-foot out buffer) shall be maintained for all wetlands and vernal pools.
 - 1. Inner Buffer - Measured perpendicular to and horizontally from the edge of the delineated wetland or vernal pool for a distance of fifty (50) feet.
 - a. Unpaved trails and non-clear cut forestry enterprises (e.g., selective regeneration harvest) shall be permitted in accord with this Zoning Ordinance shall be permitted.
 - b. Vegetation shall not otherwise be disturbed except for buffer maintenance and restoration, or the correction of hazardous conditions.

- c. No other earth disturbance, grading, filling, buildings, structures, new construction, or development shall be permitted.
 2. Outer Buffer - Measured perpendicular to and horizontally from the edge of the inner buffer for a distance of one hundred (100) feet. The same inner buffer limitations shall apply to the outer buffer. However, up to twenty (20) percent of the outer buffer may be disturbed for development as a conditional use provided the applicant can document that the project cannot otherwise be completed in accord with the other requirements of this Ordinance.
- D. If no wetlands or vernal pools are present, the applicant shall provide a certified statement to that effect. No development shall be undertaken by the applicant except in accord with all State and Federal wetland regulations; and the applicant shall provide to the Township evidence of such compliance.
- E. No zoning approval granted by the Township shall in any manner be construed to be an approval of compliance by the applicant with any State or Federal wetland regulations; and the Township shall have no liability or responsibility to the applicant or any other person for compliance with said regulations.

704.3 Water Body Buffer

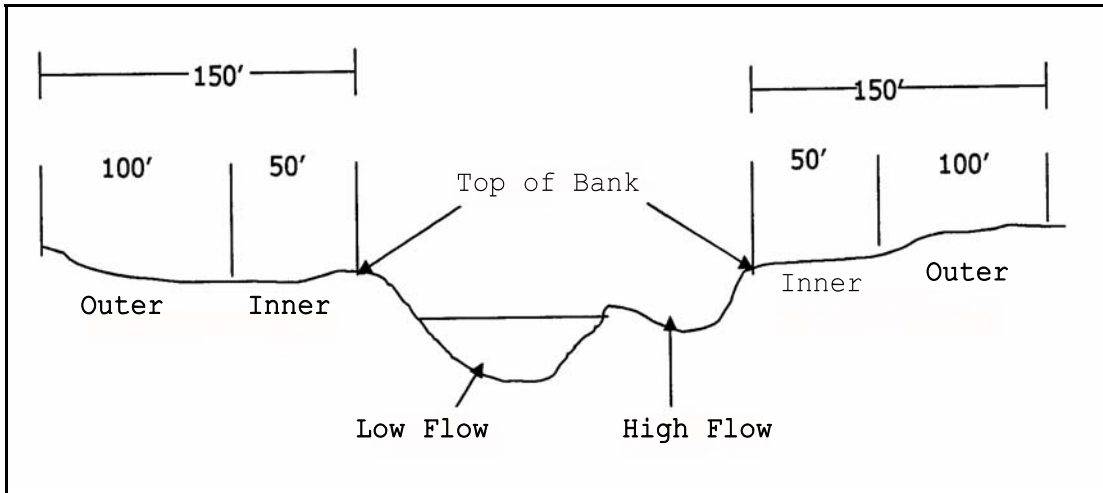
A buffer of fifty (50) feet in width, measured perpendicular to and horizontally from the edge of the water body, shall be maintained from the edge of all water bodies.

- A. Unpaved trails and stormwater conveyance facilities required by the Township shall be permitted.
- B. Vegetation shall not otherwise be disturbed except for buffer maintenance and restoration, or the correction of hazardous conditions.
- C. Residential accessory structures, boat docks and accesses, and tree trimming for lake front views shall be permitted provided that no more than thirty-five (35) percent of the buffer area is affected.
- D. No other earth disturbance, grading, filling, buildings, structures, new construction, or development shall be permitted.

704.4 Stream Buffer

A buffer of one hundred fifty (150) feet in width (comprised of a fifty-foot inner buffer and a one hundred-foot out buffer) shall be maintained along all streams. (See *Stream Buffer Diagram*.)

- A. Inner Buffer - Measured perpendicular to and horizontally from the edge of the stream for a distance of fifty (50) feet.
 1. Encroachments and obstructions as defined and approved by DEP, stormwater conveyance facilities required by the Township, and unpaved trails shall be permitted.
 2. Vegetation shall not otherwise be disturbed except for buffer maintenance and restoration, or the correction of hazardous conditions.
 3. No other earth disturbance, grading, filling, buildings, structures, new construction, or development shall be permitted except as permitted by the Township Floodplain Ordinance.



Stream Buffer Diagram

- B. Outer Buffer - Measured perpendicular to and horizontally from the edge of the inner buffer for a distance of one hundred (100) feet.
1. Encroachments and obstructions as defined and approved by DEP, stormwater conveyance facilities required by the Township, and unpaved trails shall be permitted.
 2. In areas of the outer buffer which are not wetlands, vernal pools or slopes of more than fifteen (15) percent, stormwater management facilities which improve the quality of the stormwater discharge shall be permitted unless prohibited by other Township or state requirements.
 3. Crop production and non-clear cut forestry enterprises (e.g., selective regeneration harvest) shall be permitted in accord with this Zoning Ordinance.
 4. Vegetation shall not otherwise be disturbed except for buffer maintenance and restoration, or the correction of hazardous conditions.
 5. No other earth disturbance, grading, filling, buildings, structures, new construction, or development shall be permitted except as permitted by the Township Floodplain Ordinance.

704.5 Floodplain

Floodplain shall be governed by the floodplain regulations contained in the Township Floodplain Ordinance.

704.6 Bedrock Disturbance

See §701.12 and §705.

704.7 Highly Permeable Soils and High Water Table Soils

Highly permeable soils shall be defined as those soils classified as *Hydrologic Soil Group A* by the *Soil Survey of Lackawanna and Wyoming Counties*. High water tables soils shall be those soils which possess a seasonal high water table, as defined by the *Soil Survey of Lackawanna and Wyoming Counties* less than three (3) feet from the surface of the soil. Development on such soils shall be avoided. If development on such soils is proposed the following standards shall apply:

- A. The site plan shall show the areas of highly permeable soils and high water table soils which will be affected.

- B. A grading and drainage plan shall be provided showing existing and proposed ground surfaces, plans for drainage devices, plans for walls or cribbing, etc., map of the drainage area affected, an erosion control plan and schedule for completion of work.
- C. Details of how groundwater will be protected shall be provided.
- D. In cases where structures are proposed, the applicant shall submit plans to the Zoning Officer detailing how the limitations will be mitigated by the design of the structure(s).

705 Earth - Bedrock Disturbance

In addition to all other applicable requirements of this Zoning Ordinance the following shall apply to earth and bedrock disturbance.

705.1 Intent

The intent of this §705 is to regulate earth disturbance, minimize storm water runoff and protect soil resources and water quality. This §705 shall not apply to agricultural uses or forestry enterprises with an approved soil erosion and sedimentation control plan meeting the requirements of the County Conservation District and PA DEP.

705.2 Permit

Any activity, except in cases where zoning or subdivision and land development approval has been otherwise granted, which will result in the earth disturbance of more than 5,000 square feet of land area shall require a zoning permit.

705.3 Plan

The Applicant shall include with the application for a zoning permit a plan setting forth the details of the earth disturbance and including any additional information deemed necessary by the Township to determine compliance.

705.4 Soil Erosion and Sedimentation and Storm Water Control

Any earth disturbance shall comply with §701.13 of this Ordinance .

705.5 Bedrock Disturbance - Aquifer Protection

In cases where any earth disturbance will result in the excavation of bedrock, the Township may require the applicant to submit a report from a qualified engineer or geologist detailing the geologic structure of the area proposed to be disturbed and identifying the probable impacts on groundwater supply and quality and how such impacts will be mitigated. (See §701.12.)

705.6 Revegetation/Reforestation

The plan shall include provisions for the revegetation, stabilization, and/or reforestation of any disturbed areas.

706 Property Line Buffer Areas

It is the intent of this section to preserve the rural character of the Township by requiring the conservation of trees and other vegetation, especially during the land development process, and by requiring property line buffers. This effort will also minimize the detrimental effects of soil erosion and sedimentation and storm water run-off. The Township's agricultural and other open land are vital to the rural character of the Township, which is the keystone of the local economy, and the preservation of that character will protect and promote the public welfare. This section is not intended to prescribe specific cutting practices; or to prevent or hinder any landowner from realizing financial return from the sale of trees; or to prevent or hinder commercial tree harvesters from operating in the Township. (Note: This §706 shall not apply to agricultural uses and lands owned by the Commonwealth of Pennsylvania or the Pennsylvania Game Commission.)

706.1 Natural Vegetation

In order to minimize soil erosion and storm water run-off, and to preserve the rural character of the Township, natural vegetation shall be maintained to the greatest extent possible.

- A. Clearing of vegetation shall be limited to those areas of the site needed for proposed and required improvements.
- B. Any part of a site where existing vegetation has been disturbed and which is not used for buildings, structures, loading or parking spaces and aisles, sidewalks, designated storage areas or other improvements, shall be provided with an all-season ground cover and shall be landscaped.
- C. In the case of conditional uses and special exceptions, additional landscaping, screening and/or buffers may be required by the Township where the same are determined by the Township as necessary to protect adjoining uses.

706.2. Buffer Areas

In addition to the requirements of §706.1, the following requirements shall apply to all parcels in C and I Districts:

- A. A buffer of not less than seventy-five (75) feet in width shall be maintained along all property lines and any road right-of-way. Existing vegetation in this buffer area shall not be disturbed except that trees may be harvested to the extent that the basal area of trees in the seventy-five foot buffer area shall not be reduced below fifty (50) percent of the basal area present before cutting or below sixty-five (65) square feet per acre, whichever is higher. Basal area is the area in square feet per acre occupied by tree stems at four and one-half (4.5) feet above the ground, normally measured by a calibrated prism or angle gauge. This buffer shall be maintained until such time as a development plan is approved for the parcel in accord with this Zoning Ordinance.
- B. Clearing of vegetation and landscaping for a development project shall be in accord with an overall plan to be submitted with the zoning and land development plan application. Such clearing shall not be initiated until the application is approved by the Township. For the purposes of installation, landscaping shall be considered an improvement in accord with the Township Subdivision and Land Development Ordinance. The clearing and landscaping plan shall show the type and extent of existing vegetation, the area proposed for clearing and proposed landscaping.

707 Wellhead Protection

707.1 Findings

The Board of Supervisors finds that:

- A. The ground water underlying the Township is a major source of its existing and future water supply, including drinking water.
- B. The ground water aquifers are integrally connected with, are recharged by, and flow into the surface waters, lakes and streams which constitute a major source of drinking water for the region.
- C. Accidental spills and discharges of toxic and hazardous material may threaten the quality of such ground water supplies and related water sources in the Township posing potential health and safety hazards.
- D. Unless preventive measures are adopted to control the discharge and storage of toxic and hazardous materials within the Township, spills and discharges of such materials will predictably occur and with greater frequency and degree of hazard by reason of increasing construction, commercial and industrial development, population and vehicular traffic in the Township.

707.2 Purpose

The purpose of this §707 is to protect the public health, safety and welfare through the preservation of the municipalities major ground water resources to ensure a future supply of safe and healthful drinking water for the

Township, local residents and employees, and the general public. The designation of Wellhead Protection Zones 1, 2, and 3 and careful regulation of land use, physical facilities and other activities within these Zones can reduce the potential for ground water contamination.

707.3 Regulatory Reasonableness

The degree of protection of groundwater quality sought by the provisions of this §707 is considered reasonable for regulatory purposes. Groundwater contamination and pollution are still possible. This §707 does not imply groundwater will remain free of contamination for all Township residents.

707.4 Wellhead Protection Zones

For the purpose of this Ordinance, the following Wellhead Protection Zones are established:

- A. Wellhead Protection Zone 1 - Shall include all land within four hundred (400) feet of any public water supply wells regulated under the Safe Drinking Water Act, as amended.
- B. Wellhead Protection Zone 2 - Shall include all land within one-half (½) mile of public water supply wells regulated under the Safe Drinking Water Act, as amended, and within fifty (50) feet of any 100-year floodplain, wetland or natural water body.
- C. Well Head Protection Zone 3 - Shall include all land within the borders of Falls Township.

707.5 Potential for Contamination

The land uses, physical facilities and activities listed below have the potential to contaminate surface soils, surface water bodies, and groundwater, and are regulated by this §707.

- A. Agricultural operations
- B. Commercial facilities
- C. Light manufacturing and manufacturing and industry
- D. Sewage disposal
- E. Bulk storage tanks
- F. Solid waste disposal facilities and staging areas
- G. Injection wells
- H. Sewage sludge land application
- I. Hazardous material storage, treatment and recycling
- J. Limited residential activities
- K. Subdivisions
- L. Land developments

707.6 Other Regulations

Permits and approvals issued pursuant to this §707 do not relieve the applicant of the responsibility to secure the required permits or approvals for activities regulated by any other applicable code, rule, act or ordinance. If more stringent requirements concerning regulation of water supply wells are contained in any other code, rule, act or ordinance, the more stringent regulation shall apply.

707.7 Regulated Uses

Land uses within Wellhead Protection Zones 1, 2 and 3 shall be regulated in accord with the following *Schedule of Regulated Land Uses*. Land uses shall be prohibited, governed by the underlying zoning district (zon dist), or permitted only by special exception (spec excep) in accord with the Schedule.

SCHEDULE OF REGULATED LAND USES			
USE	Zone 1 (400 feet)	Zone 2 (½ mile)	Zone 3 (Township)
Agricultural operations	prohibited	spec excep	zon dist
Agricultural products processing	prohibited	spec excep	zon dist
Airports and heliports	prohibited	spec excep	zon dist
Bus terminals	prohibited	spec excep	zon dist
Car and truck washes	prohibited	spec excep	zon dist
Cemeteries	prohibited	spec excep	zon dist
Chemical and petroleum storage and sales	prohibited	spec excep	zon dist
Concentrated animal feeding operations	prohibited	prohibited	zon dist
Crematoria	prohibited	spec excep	zon dist
Dry cleaning establishments	prohibited	spec excep	zon dist
Educational, medical and engineering laboratories	prohibited	spec excep	zon dist
Ground source heat pumps	spec excep	spec excep	spec excep
Herbicide, pesticide and fertilizer dealer/distributor	prohibited	prohibited	zon dist
Junk yards	prohibited	prohibited	zon dist
Land application of sewage sludge	prohibited	prohibited	zon dist
Large volume subsurface sewage disposal systems	prohibited	prohibited	zon dist
Large volume spray irrigation sewage disposal systems	prohibited	prohibited	zon dist
Livestock operations	prohibited	spec excep	zon dist
Manufacturing and industry	prohibited	spec excep	zon dist
Manufacturing, light	prohibited	spec excep	zon dist
Mineral extraction	prohibited	spec excep	zon dist
Mineral processing	prohibited	spec excep	zon dist
Personal services: laundry, pest control, photo finishing, funeral parlors	prohibited	spec excep	zon dist
Recycling units and collection and processing facilities	prohibited	spec excep	zon dist
Regulated substances, bulk storage of	prohibited	prohibited	zon dist
Regulated substances, generation, treatment or disposal of	prohibited	prohibited	zon dist
Repair services: furniture, welding, septage services	prohibited	spec excep	zon dist
Road deicing material storage	prohibited	spec excep	zon dist
Sawmills	prohibited	spec excep	zon dist

SCHEDULE OF REGULATED LAND USES			
USE	Zone 1 (400 feet)	Zone 2 (½ mile)	Zone 3 (Township)
Sewage disposal facilities	prohibited	spec excep	zon dist
Slaughter houses	prohibited	spec excep	zon dist
Solid waste facilities and staging areas	prohibited	prohibited	zon dist
Storage tanks, aboveground*	prohibited	prohibited	zon dist
Storage tanks, underground	prohibited	prohibited	zon dist
Storm water retention facilities	prohibited	zon dist	zon dist
Storm water detention facilities, unlined	prohibited	zon dist	zon dist
Truck terminals	prohibited	spec excep	zon dist
Underground injection wells	prohibited	prohibited	spec excep
Vehicle repair, sales or rental operations and related parking	prohibited	spec excep	zon dist
*Above ground fuel tanks with capacity of 200 gallons or less required for the operation of equipment associated with safe wellhead operation are permitted, provided adequate secondary containment measures are installed.			

707.8 Special Exception Requirements

In addition to the special exception requirements contained in §1208, the requirements in this §707.8 shall apply to the specified uses. In approving any special exception, the Zoning Hearing Board shall attach all necessary conditions to ensure the protection of groundwater and otherwise accomplish the purpose of this §707. Should the Zoning Hearing Board find that the proposed use presents the potential for groundwater contamination which cannot reasonably be mitigated by conditions of approval the use shall be denied.

- A. Hazardous Material - Facilities which generate, store, treat or dispose of hazardous material are required to file with the Township a current Pollution Incident Prevention (PIP), Spill Prevention Control and Countermeasure (SPCC), Preparedness, Prevention and Contingency (PPC), Spill Prevention Response (SPR) plan, as required by either the Pennsylvania Department of Environmental Protection or the United States Environmental Protection Agency, and a current Hazardous Substance Survey Form, Environmental Hazard Survey Form and SARA Title III Tier I and Tier II Report.
- B. Herbicide, Pesticide and Fertilizer - Herbicide, pesticide and fertilizer dealers and distributors are required to file with the Township a Pollution Incident Prevention (PIP) plan, or equivalent, and a current Hazardous Substance Survey Form, Environmental Hazard Survey Form and SARA Title III Tier I and Tier II.
- C. Underground Injection Wells - Underground injection well operators must submit to the Township a copy of a current registration with the Environmental Protection Agency.
- D. Storage tanks - Aboveground and underground storage tank owners must submit to the Township a copy of a current registration from the Pennsylvania Department of Environmental Protection and demonstrate compliance with all regulations enacted to enforce the Storage Tank and Spill Prevention Act of 1989, as amended.
- E. Solid Waste - Solid waste disposal facilities and staging areas must file with the Township a copy of a current permit from the Pennsylvania Department of Environmental Protection, a copy of any required

Preparedness, Prevention and Contingency (PPC) plan and copies of any required water quality monitoring reports and water pollution abatement plans.

- F. Sewage Sludge - Sewage sludge land application operators must file with the Township a copy of a current permit from the Pennsylvania Department of Environmental Protection, copies of any sewage sludge test results and any required water quality monitoring reports with the township.
- G. Agriculture - Agricultural operations and livestock operations must submit a copy of a current Conservation Plan prepared in accordance with Chapter 102 of Pennsylvania Department of Environmental Protection regulations, and must include a Pesticide Management Plan and a Nutrient Management Plan.
- H. Sewage Disposal - Sewage disposal facilities must be operated and maintained to prevent discharge of untreated or partially treated sewage to surface or ground waters. Operators of any sewage treatment plants shall file with the Township a current permit from the Pennsylvania Department of Environmental Protection and copies of all required monitoring reports. On-lot sewage disposal systems shall be inspected by a technician certified by the Pennsylvania Sewage Management Association and any necessary repairs or maintenance must be performed prior to the expansion or conversion of the land use served by the system. A copy of that inspection report must be submitted to the Township Sewage Enforcement Officer.
- I. Ground Source Heat Pumps - Ground source heat pumps shall comply with the following:
 - 1. Ground source heat pumps shall not have any formal connections to any on-lot sewage disposal system.
 - 2. Horizontal closed loop ground source heat pumps must be a minimum of twenty-five (25) feet from any existing or permitted on-lot sewage disposal system.
 - 3. Vertical closed loop ground source heat pumps must be a minimum of one hundred (100) feet from any existing or permitted on-lot sewage disposal system, unless the entire borehole around the annulus of the loop is grouted with bentonite slurry.
 - 4. Closed loop ground source heat pumps that treat extracted water in any way, or involve circulation of toxic refrigerants below the surface, are prohibited.
 - 5. Water treatment associated with open loop ground source heat pumps is prohibited.
 - 6. Applicants for open loop ground source heat pumps that discharge to the surface must either obtain a National Pollutant Discharge Elimination System (NPDES) permit from the Pennsylvania Department of Environmental Protection, or demonstrate that such permit is not required.
 - 7. Applicants for ground source heat pumps with separate return wells must provide documentation that the return well is capable of handling the volume of water that passes through the heat pump.

707.9 Subdivisions and Land Developments - Subdivisions and land developments regulated by the Township Subdivision and Land Development Ordinance shall be designed consistent with the following:

- A. Storm Water - Storm water retention and/or unlined detention basins shall be prohibited within Wellhead Protection Zone 1.
- B. Subsurface Sewage Disposal - Subdivision and land developments proposed with subsurface sewage disposal shall provide a tested and suitable primary absorption area and a tested and suitable secondary absorption area on each lot.

707.10 Reports and Information for Regulated Uses

The owner or operator of any Regulated Land Use in the Township shall submit to the Zoning Officer the following reports and information in the manner prescribed:

- A. Copies of all federal, state and county operational approvals, certificates, permits and applications, on-going environmental reports and monitoring results, relating to environmental, pollution control, hazardous substance and drinking water laws and regulations pertaining to such lot or tract of land, as and when required to be submitted to federal, state and county governmental authorities;
- B. In the event that any contaminants and/or substances regulated under federal, state or state environmental, pollution control, hazardous substance and drinking water laws and regulations are released on or from any lot or tract of land within the Township, copies of any and all notices, reports and documents which such owner filed, or caused to be filed, with any federal, state and/or county governmental authorities which provide notice of or relate to such release, as and when such notices, reports and documents are required to be filed with such governmental authorities; and
- C. Copies of all notices, orders, rules, decisions, recommendations, enforcement actions and similar documentation, as and when received by or on behalf of such record owner or the occupant of any such lot or tract of land from any federal, state or county governmental authority in connection with the enforcement of environmental, pollution control, hazardous substance and drinking water laws and regulations.

707.11 Exemptions

The following activities are specifically excluded from regulation under this §707:

- A. Transportation - The transportation of any regulated material through Wellhead Protection Zones 1 or 2, provided that the transporting vehicle is in transit through the Wellhead Protection Zones and further provided that such transportation is conducted in compliance with all applicable federal and state laws and regulations.
- B. Household Use - Use and/or storage of fuels, hazardous chemicals, pesticides, fertilizers, flammable liquids and gases, and toxic and regulated substances by owners and/or occupiers of lots and tracts of land which are primarily utilized for the purpose of single-, two- or multi-family residential dwellings in such quantities and in such manner as is associated with normal consumer, household use.

707.12 Definitions

For the purposes of this §707, the following definitions supplement the definitions in Article III of this Ordinance.

Ground Source Heat Pump - Any geothermal, earth-coupled, geo-exchange, water-coupled, groundwater, ground-coupled, closed-loop, coiled, open, or water source heat pump system used for heating and/or cooling which utilizes groundwater extracted from a well.

Large Volume Subsurface Sewage Disposal System - A sewage disposal facility which is designed to discharge directly to the soil profile, whether natural or enhanced, and which has a design capacity in excess of 10,000 gallons per day.

Large Volume Spray Irrigation Sewage Disposal System - A sewage disposal facility which is designed to treat wastewater with ultimate disposal of effluent being to the land surface via a spray mechanism and which is designed for more than 2,000 gallons per day.

Nutrient Management Plan - A document applicable to agricultural properties which describes the storage, handling and application of fertilizers, including manure, related to agricultural production.

Pesticide Management Plan - A document applicable to agricultural properties, which describes the storage, handling and application of products to control pests and undesirable vegetation, related to agricultural production.

Pollution Incident Prevention (PIP) Plan - An environmental emergency response document authorized by Chapter 101 of the Pennsylvania Department of Environmental Protection Rules and Regulations which is applicable to facilities which handle materials with the potential for accidental pollution of the waters of the Commonwealth. Specific requirements for a PIP plan are contain in "Guidelines for the Development and Implementation of Environmental Emergency Response Plans," PA DEP, September, 1990.

Preparedness, Prevention and Contingency (PPC) Plan - An environmental emergency response document required by the Federal Resource Conservation and Recovery Act (as amended by the Hazardous and Solid Waste Amendments of 1984), the Pennsylvania Solid Waste Management Act and the Pennsylvania Department of Environmental Protection Hazardous Waste Regulations (Chapters 260-270) applicable to facilities which generate, store, treat or dispose of hazardous wastes. Hazardous wastes are those defined with the Pennsylvania Department of Environmental Protection regulations or other wastes which meet specific characteristic tests.

Private Water Supply Well - any well used or intended to be used as a groundwater supply well that is not regulated by the Pennsylvania Department of Environmental Protection.

Public Water Supply Well - any well used or intended to be used as a groundwater supply well that is regulated by the Pennsylvania Department of Environmental Protection.

Regulated Substances - Any nuclear or radioactive materials or wastes and all hazardous substances and hazardous wastes listed in the following federal regulations:

1. Superfund Amendments and Reauthorization Act (SARA) of 1986, Section 302 Extremely Hazardous Substances List (40 C.F.R. 300, App. A and B);
2. Comprehensive Environmental Response Compensation and Liability Act Superfund (CERCLA) of 1980, Hazardous Substance List (40 C.F.R. 302, Table 302.4);
3. SARA of 1986, Section 313, Toxic Chemicals List (40 C.F.R. Section 372.45); and
4. Resource Conservation and Recovery Act (RCRA) of 1976 and 1984 Amendments, Hazardous Waste Lists (P and U Categories)(40 C.F.R. 261.33(e) and (f)).
5. Clean Water Act, Sections 311 and 307, Hazardous Substances and Toxic Materials.

Retention Pond - A basin designed to retard stormwater runoff, by temporarily storing the runoff, which does not have a defined outlet structure and which empties through a combination of evaporation, transpiration and infiltration.

SARA Title III Off-Site Plan - A document required by the Federal Superfund Amendment and Reauthorization Act (SARA) which apply to employers who have extremely hazardous substances in the workplace. The document identifies the transportation routes of extremely hazardous substances, a description of the workplace and a risk analysis of the operation to the surrounding community.

SARA Title III Tier I and Tier II Reports - Documents required by the Federal Superfund Amendments and Reauthorization Act (SARA) which apply to employers who have extremely hazardous substances in the workplace. The Tier I document lists the amounts and locations within the workplace of extremely hazardous substances by type of hazard (e.g. fire, explosion, acute health hazard). The Tier II document provides a listing of each specific extremely hazardous substance in the workplace and each specific hazardous substance exceeding 10,000 pounds on site at any one time.

Spill Prevention Control and Countermeasure (SPCC) Plan - An environmental emergency response document required by the Federal Clean Water Act for facilities which handle hazardous substances as defined in the Clean Water Act. The plan requirements are virtually the same as for a PIP Plan.

Spill Prevention Response (SPR) Plan - An environmental emergency response document required by the Pennsylvania Storage Tank and Spill Prevention Act (STSPA) for facilities with an aboveground storage tank exceeding a volume of 21,000 gallons. The plan requirements are specified in Sections 902 and 903 of the STSPA. A downstream notification requirement applies to regulated tanks adjacent to surface waters.

Underground Injection Well - A bored, drilled, driven or dug well for the emplacement of fluids into the ground (except drilling muds and similar materials used in well construction).

708 Traffic Impact Study (TIS)

Traffic impact studies are required for certain activities to enable the Township to assess the effect on the transportation system in and around the Township and to:

- A. Ensure that proposed uses do not adversely affect the transportation network.
- B. Identify any traffic problems associated with site access.
- C. Determine traffic problems on private, Township, County or State roads in the project traffic study area.
- D. Assist in the protection of the safety of the motoring public, air quality, and energy conservation.

708.1 TIS Requirement.

- A. Thresholds - A TIS shall be required for all proposals that are projected to generate one hundred fifty (150) or more trip-ends per project peak hour or one thousand five hundred (1,500) trip-ends or more per day based on the latest edition of *Trip Generation* published by the Institute of Transportation Engineers. A TIS shall also be required for additions to a use, changes of use and replacements of nonconforming uses that increase the total traffic (i.e., existing plus new traffic) above the peak hour or daily thresholds.
- B. Other Projects - The Board of Supervisors, Planning Commission, or Zoning Hearing Board, as the case may be, may also, based upon the nature of a project and potential impacts on the Township, require the developer to prepare and submit to the Township a TIS for the following types of developments and uses:
 1. Industrial parks
 2. Light manufacturing or manufacturing or industrial uses
 3. Junkyards
 4. Mineral extraction
 5. Mineral processing
 6. Agricultural products processing
 7. Solid waste facilities and staging areas
 8. Warehouses and trucking terminals
 9. Race tracks
 10. Concentrated animal feeding operations
 11. Any use involving the initial or cumulative disturbance of 87,120 or more square feet of soil surface areas
 12. Any use involving the initial or cumulative construction, installation and/or placement of 43,560 square feet or more of buildings, structures or other impervious surface areas
 13. Any use involving development in any flood plain area

The requirements of this §708 may be applied to any other proposed conditional use or special exception, which for reasons of location, design, existing traffic or other community or environmental considerations, as determined by the Township, warrants the application of the study required contained herein in order to

determine what conditions should be required to mitigate any adverse effects of the proposed use. The Board of Supervisors, Planning Commission, or Zoning Hearing Board, as the case may be, may waive certain components of the TIS should such components be deemed unnecessary for certain uses.

708.2 Professional Requirements

The TIS shall be prepared by a registered professional traffic engineer or transportation planner with verifiable experience in preparing such studies.

708.3 Study Methodology and Area

- A. Methodology - The TIS shall be in accord with the Institute of Transportation Engineers recommended Methodology and Pennsylvania Department of Transportation Guidelines.
- B. Study Area - The study area for the traffic study shall be based on engineering criteria and an understanding of existing traffic conditions at the site. It shall represent that area likely to be affected by the development, where highway users are likely to experience a change in the existing level of service. The study limits shall be initially agreed upon by the developer, his engineer and the Township's Engineer. The study area shall be specifically subject to the approval of the Township with the advice of the Township Engineer and/or a qualified traffic engineer.

708.4 Study Contents

The TIS shall contain the following elements:

- A. The study area boundary and identification of the roadways included within the study area.
- B. A general site description, including:
 - 1. Size, location, existing and proposed land uses and dwelling types, construction staging, and completion date for the proposed project.
 - 2. Existing land uses, approved and recorded subdivision and land developments, and subdivisions and land developments proposed but not yet approved and recorded in the study area that are agreed upon by the developer, his traffic engineer, and the Township's Engineer, as having bearing on the development's likely impact.
 - 3. Within the study area, a description of existing roadways and intersections (geometrics and traffic signal control) as well as improvements contemplated by government agencies or private parties.
- C. An analysis of existing conditions, including:
 - 1. Daily and Peak Hour(s) Traffic Volumes - Schematic diagrams depicting daily and peak hour(s) traffic volumes shall be presented for roadways within the study area. Turning movement and mainline volumes shall be presented for the three (3) peak hour conditions (AM, PM and site generated). However, only mainline volumes are required to reflect daily traffic volumes. The source and/or method of computation for all traffic volumes shall be included.
 - 2. Level of Service at Critical Points - Levels of service (A through F) for each lane group (not overall average) shall be computed and presented along with a description of typical operating conditions at each level of service.
 - 3. Accident Locations - A tabulation of accident locations during the most recent three-year period.

- D. An analysis of future conditions without the proposed development. The future year(s) for which projections are made will be specified by the Township and will be dependent on the timing of the proposed development. The following information shall be included:
1. Daily and Peak Hour(s) Traffic Volumes - This section shall clearly indicate the method and assumptions used to forecast future traffic volumes. Regardless of the methods and other assumptions used, no TIS shall assume less than two (2) percent per year growth in traffic levels without the proposed development unless there are particular limitations applicable to a given highway that prevent such growth from being realized (e.g., a dead-end road with no room for further development). Schematic diagrams depicting projected future daily and peak hour(s) traffic volumes shall be presented for the roadways within the study area. Projected turning movement and mainline volumes shall be presented for the three (3) peak hour conditions (AM, PM and site generated). The source and/or method of computation for all projected traffic volumes shall be included.
 2. Levels of Service at Critical Points - Levels of service (A through F) for each lane group (not overall average) shall be computed and presented along with a description of typical operating conditions at each level of service.
- E. Trip Generation - The amount of traffic generated by the site shall be presented in this section for daily and the three (3) peak hour conditions (AM, PM and site generated). The trip generation rates used in this phase of the analysis shall be justified and documented to the satisfaction of the Township. Trip Generation (latest edition) published by the Institute of Transportation Engineers shall be used unless the Township approves other studies.
- F. Trip Distribution - The direction of approach for site generated traffic shall be presented in this section for the appropriate time periods. As with all technical analysis steps, the basic method and assumptions used in this work shall be clearly stated in order that the Township can replicate these results.
- G. Traffic Assignment - This section shall describe the utilization of study area roadways by site generated traffic. The proposed traffic volumes shall then be combined with the projected future traffic volumes without the project to describe mainline and turning movement volumes for future conditions with the site developed as the applicant proposed.
- H. Analysis of Future Conditions with Development - This section shall describe the adequacy of the roadway system to accommodate future traffic with development of the site. Any unique characteristics of the site or within the study (i.e., holiday shopping) affecting traffic shall be considered. If staging of the proposed development is anticipated, analysis for each stage of completion shall be made. The following information shall be included:
1. Daily and Peak Hour(s) Traffic Volumes - Mainline and turning movement volumes shall be presented for the highway network in the study area as well as driveways for the appropriate time periods.
 2. Levels of Service at Critical Points - Levels of service (A through F) for each lane group (not overall average) shall be computed and presented along with a description of typical operating conditions at each level of service.
 3. Effect on Highway Structure - The probable effect on the structure of the highway network shall be presented, particularly any effects associated with heavy vehicles.
- I. Recommended Improvements - If the analysis indicates that unsatisfactory levels of service (levels of service D, E or F) as described in Highway Capacity Manual (Transportation Research Board *Special Report 209* - 2000 or latest edition) will occur on study area roadways, a description of proposed

improvements to remedy deficiencies shall be included in this section. Such proposals shall not include committed projects by the Township and State that have been described and analyzed as required above. The following information shall be included:

1. Proposed Recommended Improvements - Describe the location, nature and extent of proposed improvements to ensure sufficient roadway capacity. Accompanying this list of improvements shall be preliminary cost estimates.
 2. Signs - Specific recommendations shall be included for the placement of traffic control signs (e.g., stop signs, speed limit signs, no parking signs, etc.) conforming to state and Township regulations.
 3. Levels of Service at Critical Points - Levels of service (A through F) for each lane group (not overall average) shall be computed and presented along with a description of typical operating conditions at each level of service for the highway system with improvements.
 4. Highway Structure Improvements - Describe the location, nature and extent of proposed improvements to ensure the structural integrity of the roadway. Accompanying this list of improvements shall be preliminary cost estimates.
- J. Conclusion - The last section of the report shall include a clear concise description of the study findings.
- K. Implementation - All traffic improvements or improved levels of service shall be incorporated into the subdivision plan and/or land development plan and implemented and installed at applicant's expense as permitted by law.