Section 417. Street Classifications.

Every street, road, or highway within the township shall be classified by its function as shown on the Functional Classification Map in the most recently adopted Springfield Township Comprehensive Plan, and shall be subject to the requirements for its classification as contained in this Article. These classifications are established by the American Association of State Highway and Transportation Officials (AASHTO), and used by PADOT, and are intended to provide appropriate standards for each road, as well as to coordinate street functions and improvements among neighboring municipalities, the region, and the state. The classifications are as follows:

A. General. The design standards for each road classification are contained in Table 417.1 and standard cross-section diagrams corresponding to each functional class.

B. Expressways. Expressways are multi-lane divided highway with fully controlled access provided only at grade separated interchanges. Expressways serve high volumes of traffic at high speeds while providing high levels of safety and efficiency.

C. Arterials. Arterial roads provide a high degree of mobility in order to better serve trips of longer length. Since access to abutting property is not their major function, access controls are desirable to enhance mobility. They are further classified as follows:

    1. Principal Arterials. Principal arterials move traffic swiftly across the community, and accommodate higher-intensity commercial, residential, and institutional uses. Cartways are for the exclusive use of motorized vehicles. Bicycles and pedestrians should be accommodated with a multi-use side-path separated from traffic by a landscaped verge. Intersections should have high-visibility crosswalks and other pedestrian safety features. To improve safety, curb cuts from adjacent land uses should be consolidated.
    2. Minor Arterials. Minor Arterials move traffic across the community and may include concentrations of higher intensity commercial, residential, and institutional land uses, in addition to low-density residential uses. Additionally, they link communities not connected by a principal arterial and provide key connections between roads of higher classification. Bicycles and pedestrians should be accommodated on sidewalks separated from traffic by a landscaped verge. Intersections should have high-visibility crosswalks and other pedestrian safety features. To improve safety, curb cuts from adjacent land uses should be consolidated. Minor arterials should have parking lanes.

D. Collectors. Collector roads provide a mix of accessibility and mobility. They typically serve trips of up to four miles in length and channel or distribute traffic to or from a road of a higher classification, and should support neighborhood-oriented land uses. These roadways are a crucial component of the bicycle network in the township.

Collectors may accommodate trips within and between neighboring municipalities. Pedestrians should be accommodated on sidewalks, preferably separated from the cartway by a landscaped verge. On-street parking should be permitted where practical.

E. Local Roads. Local roads and streets accommodate vehicles, pedestrians, and bicycles through residential neighborhoods and low-intensity commercial or institutional uses. Pedestrians should be accommodated on sidewalks, preferably separated from the cartway by a landscaped verge. Parking on both sides will be assumed on residential streets unless no driveways take access on them, the development otherwise provides significant off street public parking which is convenient to all proposed uses, or, in the opinion of the Township Engineer, the provision of on-street parking would endanger the safe passage of vehicles, pedestrians, or bicycles.

F. Alleys. Alleys are small service roads which provide a secondary access to lots, buildings, off-street parking and/or loading and unloading facilities. They may not be more than 800' feet in length and shall have a paved cartway of twelve (12') feet with two foot clear stabilized grass or gravel shoulder area.

Table 417.1, Street Design Standards

Functional Classification	Cartway Users			Ultimate Right of Way[1]	Legal Right of Way[2]	Minimum Cartway Width	Number of Travel Lanes	Recommended Minimum Shoulder	Minimum Verge	Minimum Sidewalk Width[3]
	Vehicle	**Bicycle**	**Pedestrian**							
Expressway	Yes			To PennDOT Recommended Standards						
Arterials										
Principal (Four Lane)	Yes			70-80'	70'	48'	4		5	5
Principal (Two Lane)	Yes			70-80'	70'	30'	2	8'	5	5
Minor	Yes	Protected / Buffered Bicycle Lane		80'	60'	38'	2-4	8'	5	5
Collectors	Yes	Buffered Bicycle Lane or Bicycle Lane		60'	50'	30'	2	8'	4	5
Local	Yes	Bicycle Lane or Shared Lane	In some circumstances	50'	50'	Total Paved Width: 28-32'			4	4

[1]-Ultimate right-of-way is an area of land beyond the legal right-of-way, needed to accommodate the future widening of the roadway. This land is owned and maintained by the property owner with the understanding that the public may need to purchase it in the future.

[2]-Legal right-of-way is the land dedicated to the public that can be used by the public for travel or to locate utilities.

[3]-Additional sidewalk width may be required in areas where higher volumes of pedestrian traffic are anticipated.

Alley	Yes	Yes	Yes	N/A	N/A	Total Paved Width: 12‘	2’ Stabilized Grass / Gravel	N/A

Table 417.1 Road Design Standards

[1]The right-of-way may be adjusted to accommodate highly urbanized and laterally restricted areas as well as unrestricted areas.

Functional Classification	Right of Way[1]	Number of Travel Lanes[2]	Travel Lane Width[3]	Left Turn Width	Paved Shoulder Width[4]	Parking Lane Width[5]	Bicycle Lane Width[6]	Border Area	
								Grass Strip	Sidewalk/ Pathways
Arterials								Provided in compliance with Section 425, Sidewalks and Verges	Provided in compliance with Section 425, Sidewalks and Verges
Principal	80'	2-4	12'-14'	11'-12'	8'-10'	8'-10'	5'-6'		
Minor	80'	2-4	11'-14'	11'-12'	8'-10'	8'-10'	5'-6'		
Collectors	60'-80'	2-3	11'-14'	10'-12'	8'-10'	8'-10'	5'-6'		
Local	50'	Total Cartway Width 28 to 32 feet[7]							
Alley	33'	Total Cartway Width 16 Feet						N/A	N/A

[2]The number of lanes vary in order to accommodate the traffic volume, turning movements, and land capacity demand for selected level of service. This number does not include right-turn lanes where needed.

[3]Lane width is based upon minimum and desirable standards as well as other conditions such as being adjacent to a curb or the anticipation of heavy truck traffic. When feasible, a 14-foot lane should be located next to a curb.

Section 418. Street Design

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[4] Shoulder width is based upon minimum and desirable standards as well as other conditions such as highly urbanized and laterally restricted areas, or the anticipation of heavy truck traffic. Wide shoulders may function as bike lanes.

[5] Parking lane width is based upon minimum and desirable standards, as well as other conditions such as lot size, intensity of development, or potential for use as a traffic lane where required by future demand. For principal arterials, parking lanes are only recommended in highly developed areas.

[6] A portion of a roadway that has been designated by striping, signing or pavement markings for the preferential or exclusive use of bicyclists. Width specifications must be in accordance with FHWA / AASHTO standards. Wide shoulders may function as bike lanes.

[7] For local roads, the total cartway width generally includes travel lane, parking lanes, and/or shoulders.

A. Street Alignment. Sight distance, horizontal and vertical curvature, super-elevation, and maximum and minimum street grades shall be in compliance with the standards contained in *A Policy on the Geometric Design of Highways and Streets,* published by the American Association of State Highway Transportation Officials (AASHTO), most recent edition, or PennDOT standards, whichever is more suitable to site conditions as determined by the Township Engineer.

B. Street Intersection Design. All street intersections shall be governed by the standards of this section and the appropriate PennDOT or AASHTO standards.

   a. Number of Intersections. No more than two streets shall intersect at the same point.

   b. Improvements to Existing Intersections. When existing streets intersect at odd angles or have more than four approaches, the applicant shall improve the intersection to bring it into compliance with this Ordinance, as required by the Township Board of Commissioners, based upon advice of the Township Engineer, Planning Commission, and other technical advisors or agencies, as appropriate. For state and county highways, streets, roads and other vehicular access ways, improvements shall comply with the requirements of the appropriate agency having jurisdiction over the road.

      i. The Board of Commissioners may waive the above requirements for improvements to intersections under one or more of the following conditions:

         1. When changes made on the applicant's land will not improve the intersection's deficiencies.
         2. When other road improvements are already planned which would correct the problem without changes required of the applicant.
         3. When not required by PennDOT where the intersections are under their jurisdiction.

   c. Maximum Grade. The maximum grade within any intersection shall not exceed three percent (3%).

   d. Minimum Angle of Intersections. Right angle of intersections shall be used whenever practicable, and there shall be no intersection angle, measured at the center line, of less than sixty-five degrees (65°) minimum.

   e. Sight Distance. All intersections shall provide clear sight distance in compliance with AASHTO and PennDOT standards.

      i. The applicant shall demonstrate to the satisfaction of the Township Engineer that any proposed objects or plantings within site triangles will not obstruct sight lines.

      ii. If required sight distance cannot be achieved, the Township may require restricted movements or other intersection controls to ensure safety.

f. Radii of Pavement and Right-of-Way at Intersections. Street intersections shall be rounded with tangential arcs at pavement edge (curbline) with a minimum radius of fifteen (15) feet unless otherwise required by the Township Engineer and right-of-way lines with a minimum radius of ten (10) feet.

i. Minimum radii specified herein must be increased if large trucks, fire trucks, or other emergency vehicles would have difficulty with ingress or egress as determined by the Township Fire Marshall.

g. Intersection Spacing. Street intersection spacing shall be in compliance with the regulations contained in this section, measured from centerline to centerline.

i. The applicant shall prepare a Vehicular Access Analysis for all street intersections proposed along Arterial and Collector streets.

ii. The intersection of two streets shall not be located within one hundred and fifty (150) feet of an existing intersection. Where greater spacing is required in compliance with AASHTO or PennDOT standards, the greater spacing distances shall be required ~~applied~~, as determined by the Township Engineer.

iii. Offset Intersections. In any case where the centerlines of street intersections are, or would be, within one hundred and fifty (150) feet of each other, they shall be made to coincide by relocating the street within the applicant's land, unless additional problems of sight distance or other safety-related problems would be created. As an alternative, relocation further away from the offset intersection may be done in compliance with the Intersection Spacing requirements contained herein, when approved by the Board of Commissioners.

C. Single Access Street Standards. Any street which is served by only one (1) intersection with a through-street shall be considered a single-access street, regardless of the street's configuration within the proposed subdivision or land development. New singleaccess streets shall be permitted only where and as expressly approved by the Board.

Single-access streets shall be maintained to the following standards.

a. Single-access loop streets shall be subject to the requirements for their street classification and the following additional requirements.

i. Shall not serve more than three hundred (300) average daily trips.

ii. In addition to required sidewalks, shall be served by an appropriately located pedestrian access when required by the Board of Commissioners to connect surrounding neighborhoods and pedestrian destinations.

iii. Shall not exceed two thousand (2000) feet in length.

b. Cul-de-Sac streets.

i. Cul-de-sac streets shall be identified by a standard warning sign stating "No Outlet" when deemed appropriate by the Board of Commissioners to help avoid mistaken turning movements.

ii. All cul-de-sac streets shall have a cartway width of twenty-four (24) feet. Cul-de-sac streets shall have a minimum right-of-way width of fifty (50) feet, and additional width shall be provided when required by the Township.

iii. The turnaround at the end of the cul-de-sac shall have a pavement/curb radius of fifty (50) feet and a right-of-way radius of sixty (60) feet. The turnaround radius shall be centered on the proposed road center line.

iv. A cul-de-sac shall not be permitted to extend from a single-access loop street.

v. The length of cul-de-sac shall not be less than two hundred fifty (250) feet and not more than six hundred (600) feet from the near right-of-way line of the intersecting street to the back of the right-of-way of the turnaround.

vi. No more than five lots shall have frontage on the circular turnaround portion of a cul-de-sac street, and no more than five (5) driveways shall have access to the circular turnaround portion unless an expanded radius and island is incorporated into the turn around.

vii. The Township may require the developer to provide a permanent easement for snow removal at the cul-de-sac bulb. The easement shall have a minimum length along the right-of-way line of forty (40) feet and a depth of fifteen (15) feet. When curbing is required, a curb depression shall also be placed in this easement area. No shrubbery, fence, mail box, or any other obstruction shall be placed within the easement to hinder the placement of the snow.

viii. If a developer proposes a new roadway, it shall tie into an existing temporary cul-de-sac or right of way located on adjacent parcels, whether improved or not. It shall be the responsibility of the applicant to complete all roadway improvements at their expense within the existing rights-of-way of adjacent parcels.

ix. Cul-de-sac streets shall be served by an appropriately located and constructed emergency access way when required by the Board of Commissioners using the following standards:

1. Minimum cartway width shall be ten (10') feet.
2. Pavement shall satisfy the standards of the Township Engineer.
3. Emergency access ways shall be maintained through properly recorded easements or deed restrictions which at a minimum

prohibit the planting of any vegetation except grass within the access way.

4. Shall ~~May~~ be made available for pedestrian and bicycle access.

x. Landscaped cul-de-sac islands are encouraged and shall conform to the following standards.

1. Shall be located within the bulb of a cul-de-sac and be concave for use as part of the stormwater management infrastructure. Efforts should be made to retain the existing vegetation on the site within these islands.
2. Shall have a maximum radius of twenty-four (24') feet and be surrounded by paving on all sides.
3. Shall be designed to allow for emergency vehicle access into the cul-de-sac.
4. In the event that right-of-way grading will not permit the retention of existing vegetation in a cul-de-sac, the landscaping proposed for the island shall be of low-maintenance varieties as approved by the Board of Commissioners. The landscaping plan shall specifically describe the maintenance required for any landscaping proposed on the landscape island.

~~Section 418. Street Alignment~~

~~Sight distance, horizontal, and vertical curvature, super-elevation, and maximum and minimum street grades shall be determined by the Township Engineer in compliance with the standards contained in A Policy on Geometric Design of Highways and Streets, published by the American Association of State Highway Transportation Officials (AASHTO), most recent edition, or PennDOT standards, whichever is more suitable to site conditions. In addition, the following standards and guidelines shall be complied with:~~

~~A. Minimum horizontal and vertical curvature for all local access streets shall conform with the standards in Table 1. Street Alignment and Intersection Standards.~~

~~B. Long radius, gentle curves shall be used rather than shorter radius curves connected by tangents particularly where truck traffic is anticipated.~~

~~C. Curve-tangent relationships shall follow accepted engineering guidelines for safety and efficiency. For example, minimum radius curves shall not be used at the ends of long tangents.~~

~~D. Street grades shall be measured along the centerline in accordance with the following:~~

~~1. Minimum grade for all streets shall be one (1%) percent.~~

~~2. Maximum grades for arterials and collectors shall be five (5%) percent and for residential streets shall be ten (10%) percent.~~

3. Curve-grade combinations shall follow accepted engineering guidelines for safety and efficiency. For example, minimum-radius horizontal curves will not be permitted in combination with maximum grades.
4. At all approaches to intersections, street grades shall not exceed four (4%) percent for a minimum distance of fifty (50') feet from the intersection of curblines or the edges of cartways.

Table 1. Street Alignment and Intersection Standards

Functional Classification	Intersection Spacing	Clear Site Triangle	Corner Curb Radius	Vertical Curve Length		Horizontal Curve Radius (centerline)
				Crest 3%/5%/7%	Sag 3%/5%/7%	
Principal Arterial	400	125	30	N/A	N/A	N/A
Minor Arterial	400	125	25	N/A	N/A	N/A
Major Collector	300	100	20	130/220/310	190/320/450	565
Local Residential	125	75	15	90/145/205	145/245/345	420
Local Nonresidential	125	75	20	90/145/205	145/245/345	420

Section 419. Street Intersection Design

All street intersections shall be governed by the standards of this section and the appropriate PennDOT or AASHTO Standards.

A. Number of Streets. Not more than two streets shall intersect at the same point.

B. Three-Way/Four-Way Intersections. Three-way or "T" intersections should be used instead of four-way intersections involving local streets intersecting arterial or collector streets unless the four-way intersection would promote necessary and desirable traffic movements or where traffic signals or four way stop signs are proposed. C. Angle of Intersections.

1. All intersection approaches shall be designed at ninety (90) degree angles for a minimum of fifty (50') feet from the edge of the cartway.
2. Where angled intersections are used they should be no less than sixty-five (65°) degrees and designed so that the heavier traffic flow will make the obliquely angled turn rather than the acutely angled turn.

D. Improvements to Existing Intersections. When existing streets intersect at odd angles or have more than four approaches, the applicant shall improve the intersection, to bring it into compliance with this Ordinance, as required by the Board of Commissioners, based upon advice of the Township Engineer, Planning Commission and other technical

advisors or agencies, as appropriate. For state and county highways, improvements shall comply with the requirements of the appropriate agency having jurisdiction over the road.

E. Radii of Pavement and Right-of-Way at Intersections. Street intersections shall be rounded with tangential arcs at pavement edge (curbline) and right-of-way lines as indicated in Figure 4.3.

F. All radii specified herein must be increased if large trucks, fire trucks, or other emergency vehicles would have difficulty with ingress or egress as determined by the Township Fire Marshall.

G. Waiver of Improvements. The Board of Commissioners may waive the above requirements for improvements to intersections under one or more of the following conditions:

1. When changes made on the applicant's land will not improve the intersections deficiencies.
2. When other road improvements are already planned which would correct the problem without changes required of the applicant.
3. When not required by PennDOT where the intersections are under their jurisdiction.

H. Single-access Street Intersections.

1. Single access streets shall be established beginning at a three-way intersection perpendicular to a through street.
2. Four-way intersections may be created using two permanent single access streets intersecting directly opposite one another along a through street, when the through street is a local street.

I. All intersections shall provide clear sight distance in compliance with AASHTO and PennDOT standards.

J. Street intersection spacing shall be in compliance with the regulations contained in this section, measured from centerline to centerline.

1. The applicant shall prepare a Vehicular Access Analysis, for all street intersections proposed along Arterial and Collector streets.
2. The spacings listed Figure 4.3 shall be considered minimum spacing. Where greater spacing is required in compliance with AASHTO or PennDOT standards, the greater spacing distances shall be applied, as determined by the Township Engineer.
3. Offset Intersections. In any case where the centerlines of street intersections are, or would be, within 150 feet of each other, they shall be made to coincide by relocating the street within the applicant's land, unless additional problems of sight distance or other safety-related problems would be created. As an alternative, relocation further away from the offset intersection may be done in

compliance with the Intersection Spacing requirements contained herein, when approved by the Board of Commissioners.

Section 420. Single-access Street Standards

Any street which is served by only one (1) intersection with a through-street shall be considered a single-access street, regardless of the street's configuration within the proposed subdivision or land development.

A. Single-access streets shall be classified as one of the following:
   1. Single-access loop streets.
   2. Cul-de-sac street.
   3. Stub streets.

B. Single-access loop streets shall be subject to the requirements for their street classification and the following additional requirements.
   1. Shall not serve more than 300 average daily trips.
   2. In addition to required sidewalks, shall be served by an appropriately located pedestrian access when required by the Board of Commissioners to connect surrounding neighborhoods and pedestrian destinations.
   3. Shall not exceed 2,000' feet in length, measured from the intersection with the through street, along the entire centerline around to its intersection with itself.

C. Cul-de-Sac Streets.
   1. Shall be permanently closed to vehicular traffic at one end.
   2. Shall be identified by a standard warning sign stating "No Outlet" when deemed appropriate by the Board of Commissioners to help avoid mistaken turning movements.
   3. Shall not be permitted when a through street is possible for the tract under consideration. All cul-de-sac streets must be approved by the Board of Commissioners, with the Township reserving the right to reject any and all culde-sac streets proposed. The following shall be used to determine the necessity of the cul-de-sac:
      a. Adverse topography such as steep slopes, floodplain, streams, etc.
      b. The shape of the tract does not lend itself to a through street.
   4. Shall be a minimum 250' feet but not exceed 800' feet in length. Measurement of the length shall be made from the centerline of the abutting through road or point of intersection with another cul-de-sac to the centerline of the turnaround, measured along the cul-de-sac street's centerline.
   5. Shall be provided with a vehicular turnaround at the closed end with a right-of way radius of at least fifty (50') feet, and a paved radius of at least forty (40') feet. Alternative vehicular turnaround designs are encouraged to improve traffic flow and overall design of the subdivision. If an off-set bulb turnaround is used, the bulb should be configured to the left of the approaching road center line. In

addition, parking may be prohibited on the cul-de-sac by order of the Fire Marshall.

6. No more than five lots shall have frontage on the circular turnaround portion of a cul-de-sac street, and no more than five (5) driveways shall have access to the circular turnaround portion unless an expanded radius and island is incorporated into the turn around.
7. A permanent easement for snow removal may be required at the cul-de-sac bulb. The easement shall have a minimum length along the right-of-way line of forty (40') feet and a depth of fifteen (15') feet. When curbing is required, a curb depression shall also be placed in this easement area. No shrubbery, fence, mail box, or any other obstruction shall be placed within the easement to hinder the placement of the snow.
8. Shall not extend from a single-access loop street.
9. Existing temporary cul-de-sac streets, stub streets, and rights-of-way located on adjacent parcels, whether improved or not, shall be used by the applicant to connect with their proposed roadway system. It shall be the responsibility of the applicant to complete all roadway improvements at their expense within the existing rights-of-way of adjacent parcels.
10. Shall be served by an appropriately located and constructed emergency access way when required by the Board of Commissioners using the following standards:
    a. Minimum cartway width shall be ten (10') feet.
    b. Pavement shall satisfy the standards of the Township Engineer.
    c. Emergency access ways shall be maintained through properly recorded easements or deed restrictions which at a minimum prohibit the planting of any vegetation except grass within the access way.
    d. May be made available for pedestrian access.
11. Landscaped cul-de-sac islands are encouraged and shall conform to the following standards.
    a. Shall be located within the bulb of a cul-de-sac and be concave for use as part of the stormwater management infrastructure. Efforts should be made to retain the existing vegetation on the site within these islands.
    b. Shall have a maximum radius of twenty-four (24') feet and be surrounded by paving on all sides.
    c. Shall be designed to allow for emergency vehicle access into the cul-de-sac.
    d. In the event that right-of-way grading will not permit the retention of existing vegetation in a cul-de-sac, the landscaping proposed for the island shall be of low-maintenance varieties as approved by the Board of Commissioners. The landscaping plan shall specifically describe the

~~maintenance required for any landscaping proposed on the landscape island.~~

~~D. Stub Streets or temporary cul-de-sacs~~

~~1. Shall be provided in appropriate locations for vehicular access to abutting undeveloped lands when required by the Board of Commissioners, upon advice of the Township Planning Commission and Engineer.~~

~~a. The length shall be designed in accordance with cul-de-sac street standards.~~

~~b. The width and other road improvements of temporary stub streets or temporary cul-de-sacs shall generally conform with the future functional classification of the roadway once it is fully connected.~~

~~2. Shall be provided with a vehicular turnaround that meets cul-de-sac standards.~~

~~3. Shall be constructed to the property line in accordance with the standards of this Ordinance applicable to the classification of streets it will be upon extension.~~

Section 419. Driveway Access

~~A. The term "driveway" as used here refers to every entrance or exit used by vehicular traffic to or from properties abutting a township, county, or state road. The term includes proposed private streets, lanes, alleys, courts, and other ways.~~

~~B. Driveways with the following characteristics will be reviewed in the manner prescribed below:~~

~~1. When any residential dwelling driveways will access an existing Arterial or Collector street.~~

~~2. For all non-residential proposals which require a new driveway or upgrading of an existing driveway.~~

~~3. For all proposals where driveways would generate twenty-five (25) or more vehicular trips per day, based on I.T.E. trip generation standards.~~

~~C. Following evaluation by the Township, the applicant may submit plans to the state, county, or township for formal review and, as appropriate, approval and issuance of permits.~~

~~D.~~ Any new driveway proposed to be installed, change of use/driveway classification, or any driveway proposed to be widened or enlarged must comply with the requirements for driveways in this section and must be constructed in accordance with Township standards.

~~E.~~ Approval of any driveway location, classification, or design shall not be considered final by the Township unless highway occupancy, right-of-way permits, or access permits have been granted by the state, county, and/or township and Preliminary Plan approval has been granted by the Board of Commissioners for the subdivision and/or land development which the driveway(s) will serve.

~~F.~~ Access driveways shall be provided in such a manner that driveway intersections with streets:

1. Shall provide adequate sight distance in compliance with the standards established by PennDOT.
2. Shall be designed and constructed in compliance with Title 67, Chapter 441 of the Pennsylvania Code unless township standards are more restrictive.
3. Shall be located as far from street intersections as is reasonably possible.
4. Shall not cause or contribute to:
    a. Hazards to the free movement of vehicle, bicycle, and pedestrian ~~normal street~~ traffic.
    b. Areas of undue traffic congestion on the street.
    c. Interference with the design, maintenance, and/or drainage of the street.

G. In order to facilitate safe and efficient access between streets and driveways, the number of driveways permitted to serve individual parcels of land shall be kept to the minimum needed to adequately serve the parcel in question. Shared access between adjoining lots should be considered first.
    1. Properties with frontages of 100 feet or less shall ~~may~~ be permitted a maximum of ~~not more than~~ one driveway intersection with a street. Exceptions may be made when adjacent property owners share parking, or when the need is determined in a transportation impact ~~traffic~~ study prepared by a qualified traffic engineer.
    2. No ~~Not~~ more than two (2) driveway intersections with the same street may be permitted for a single ~~any~~ parcel of land unless anticipated traffic volumes warrant more driveway intersections ~~than two (2)~~, and then only when supported by a traffic study prepared by a qualified engineer. ~~warrants more than two driveway intersections.~~

H. Alternative Vehicular Access. Driveway intersections serving individual parcels of land may be prohibited by the Board of Commissioners where such intersections would create congestion, interference, and/or hazards to traffic flow and safety by reason of street grades, land forms, vegetation, frequency of driveway intersections, limited sight distances, and/or high speed traffic flow.
    1. In such cases, the Board of Commissioners may permit reasonable alternative forms of vehicular access to the parcel of land by means of marginal access streets or driveways, reverse frontage lotting, or other means which are legally and technically suitable in the opinions of the Township Solicitor and Engineer.
    2. Where driveway intersections are prohibited by the Board of Commissioners and alternative forms of vehicular access would cause an undue burden upon an applicant, the Board of Commissioners may permit an alternative interim access solution in compliance with the following:
        a. It is the safest feasible alternative, acceptable to the Township Engineer and/or PennDOT.

b. Suitable provisions are made for a preferable permanent access solution, consistent with this section ~~Section 421-G~~, including legal agreements to enable implementation of the permanent solution.

I. ~~Distance from Street Intersections. Driveways shall be located as far from street intersections as is reasonably possible.~~

J. Choice of Streets. If a lot has frontage on more than one street of different classifications, the driveway shall take access from the street of the lowest classification. This requirement may be waived by the Board of Commissioners for reasons of sight distance, incompatibility of traffic, grading, drainage, or other major reasons. ~~When a lot adjoins streets of different classes, the driveway shall provide access to the street of lesser classification unless this requirement is waived by the Board of Commissioners for reasons of sight distance, incompatibility of traffic, grading, drainage, or other major reasons.~~

K. Stopping Areas. A portion of the driveway measuring the greater of the length of the longest vehicle anticipated to use the driveway or twenty (20) feet behind the right-ofway line shall be provided, within which the grade shall not exceed five percent (5%). This space shall provide a waiting area for vehicles to watch for oncoming traffic that is not on a steep grade.

L. ~~Stopping Areas. Regardless of the driveway classification, all driveways shall be provided with a stopping area within which the grade shall not exceed six (6%) percent. The stopping area shall be measured as follows:~~

~~1. The length of stopping area shall be a minimum of twenty (20') feet, or the length of the longest vehicles anticipated to use the driveway, whichever is greater.~~

~~2. Stopping areas shall be measured from the cartway line for all streets.~~ M. Maximum Grades for Driveways.

1. Residential driveways shall not exceed fifteen (15%) percent grade.
2. All other driveways shall not exceed ten (10%) percent grade.

N. Sight Distance Determinations. Determination of sight distances at intersections of new driveways and streets with existing township roads shall be in accordance with the following provisions.

1. Access driveways shall be located at a point within the property frontage limits which provides at least the minimum safe stopping sight distance (SSSD), as determined by the standards within PA Chapter 441 (Access to and Occupancy of Highways by Driveways and Local Roads) Title 67 of the Pennsylvania Code.
2. The calculated minimum SSSD shall be measured from a point ten (10') feet back of the pavement edge and three and one half (3.5') above the road surface.
3. If the minimum required SSSD's cannot be achieved, the Township may exercise one (1) or more of the following options:
    a. Prohibit left turns by exiting vehicles.

b. Restrict turning movements to right turns into ~~in and out of~~ a driveway.
c. Require installation of a right turn acceleration lane and/or deceleration lane.
d. Require installation of a separate left turn standby lane.
e. Alter the horizontal or vertical geometry of the roadway.
f. Deny access to the road.

Section 420. Bridges and Culverts

A. Bridges and culverts shall be designed to meet current AASHTO or PennDOT Standards to support expected loads and to pass design stormwater flows. They shall be constructed to the full width of the planned cartway. Allowance for safe pedestrian crossing must also be made.
B. Where County or PennDOT owned roads or bridges are involved, the County Assets and Infrastructure Department or PennDOT, as applicable, must review and approve all proposals.
C. It is unlawful to construct any bridge, culvert, or other water obstruction, or to make any change in or addition to, any existing water obstruction, or in any manner change or diminish the course, current, or cross-section of any stream or body of water, without first having made written application to and obtained a permit or consent in writing from PADEP.
D. The following information is required on submitted plans when a bridge is to be constructed:
    1. Drawings to include:
        a. Location plan;
        b. Cross-section of present bridge if one exists;
        c. Profile of stream for a reasonable distance above and below bridge site, showing slopes of bed, normal water surface and flood water surface.
    2. The total drainage area above the bridge site;
    3. Description of watershed;
    4. Length of stream from source to bridge site and to the mouth;
    5. Character of stream bed and banks;
    6. Extent and depth of overflow during floods;
    7. Effect of previous floods upon bridges, their span and clearance;
    8. Whether bridge will be within backwater influence of the stream.
E. A complete set of structural computations and drawings shall be submitted with plans involving construction of bridges and culverts.

Section 421. Parking and Related Internal Driveways

Parking and related internal driveways shall be governed by the following regulations.

A. Purpose. The specific purposes to be served by these requirements are:

1. To add visual character and improve the appearance of parking areas by reducing their massiveness into smaller units.
2. To integrate parking areas into the pedestrian circulation system.
3. To provide shade for parked cars and reduce heat islands, stormwater runoff, and air pollution.
4. To reduce random vehicular flow across parking areas.
5. To permit a high level of visibility for those uses for which visibility is an important factor.
6. To facilitate snow removal and storm drainage, and to conserve energy in construction and resurfacing operations, by laying out the paving surface with minimal obstructions. B. General.

1. Off-street parking facilities shall be provided in compliance with the parking requirements of the Springfield Township Zoning Ordinance and the regulations contained herein.
2. Parking spaces designed for the exclusive use by disabled persons shall be installed in all parking lots as close and convenient to building entrances as is reasonable. The specific number, size, and locations of handicapped stalls shall be in conformance with the Americans with Disabilities Act (ADA).
3. Provisions for pedestrian safety within a parking lot shall be required by providing sidewalks, delineated crosswalks, traffic calming devices, and other measures.
4. ~~Innovative~~ Stormwater management controls that encourage infiltration of stormwater runoff on-site such as rain gardens and porous pavement shall be incorporated into ~~used in~~ parking lot design.
5. The allowance and configuration of on-street parking on Township roads shall be as permitted by the Board of Commissioners as recommended by the Director of Public Works. ~~Parallel parking shall be used along roads where needed. Angled parking may be permitted along public or private streets or within parking lots, when it is specifically designed to address potential safety issues associated with vehicles using the parking. Perpendicular parking shall not be permitted along public or private streets though angled parking may be used in select locations.~~
6. ~~Stormwater storage/infiltration facilities, such as vegetated swales, infiltration galleries, or seepage beds beneath parking areas should be used. These facilities avoid the generally negative visual impacts of surface detention or retention facilities, and enhance groundwater recharge, with the attendant positive effects on stream flows and quality.~~ C. All Parking Lots.

1. Parking shall not be permitted along driveways which serve as the entrance(s) or exit(s) to parking areas with a capacity of fifty (50) vehicles or more. A minimum driveway length of fifty (50') feet shall be provided between the road ultimate

right-of-way line and the first parking space or internal driveway intersection in parking lots with fifty (50) vehicles or more.

2. Parking areas shall be set back from tract boundary lines and ultimate right-ofway lines in compliance with the requirements of the Zoning Ordinance. In any case not regulated by the Township Zoning Ordinance, parking areas shall not be located closer than fifteen (15') feet from any tract boundary line unless it is along a street.
3. Where the edge of an existing parking area is located close to a street~~, driveway, or other parking area and the property is proposed for subdivision and/or land development,~~ a minimum separation of ten (10') feet shall be provided between these features ~~unless a shared parking or cross access arrangement is proposed~~. This spacing shall consist of a landscaped area with planting in conformance with Section [433.5], herein.
4. When the edge of an existing parking area is located close to a driveway or other parking area and the property is proposed for subdivision and/or land development, a minimum separation of ten (10') feet shall be provided between these features unless a shared parking or cross access agreement is proposed. This spacing shall consist of a landscaped area with planting in conformance with Section [433.5], herein.
5. Dead-end parking areas are discouraged and shall not be used when the required parking capacity can be accommodated in a layout that permits more convenient vehicular movements. Up to thirty (30) parking spaces may be located in a dead-ended parking area if a suitable turnaround area is provided at the closed end. ~~However, extraneous through-traffic flow should be avoided.~~
    ~~a. Up to thirty (30) parking spaces may also be located in a dead-ended parking area if there is no more desirable alternative feasible, and sufficient back-up areas are provided for the end stalls.~~
    ~~b. More than thirty (30) parking spaces may be located in a dead-ended parking area only if a turnaround area is provided at the closed end, suitable for passenger car turning. The turnaround area may be circular, "T" or "Y" shaped, or other configuration acceptable to the Board of Commissioners.~~
6. ~~Parking spaces designed for the exclusive use by disabled persons shall be installed in all parking lots as close and convenient to building entrances as is reasonable. The specific number and locations of handicapped stalls shall be in conformance with the Americans with Disabilities Act (ADA).~~
7. ~~Provisions for pedestrian safety within a parking lot shall be required by providing sidewalks, delineated crosswalks, traffic calming devices, and other measures.~~

8. ~~Innovative stormwater management controls such as rain gardens and porous pavement shall be used in parking lot design.~~

~~D. Planting islands shall be constructed within all parking lots with more than twelve (12) spaces based on the following standards:~~

~~1. One planting island shall be provided for every fifteen (15) parking stalls. There shall be no more than fifteen (15) continuous parking stalls in a row without a planting island.~~

~~2. Alternative planting islands (without planting islands located every fifteen parking stalls) must provide one (1) canopy tree for every ten (10) parking stalls in planting island areas and perimeter parking planting areas at the discretion of the Board of Commissioners.~~

~~3. The ends of all parking rows shall be divided from driving lanes by planting islands.~~

~~4. Planting islands shall be a minimum of nine (9') feet by eighteen (18') feet in area. Unless designed to function as part of the stormwater management system, planting islands shall be underlain by soil mounded up to six (6") inches minimum above the paved parking or drive area and shall be protected by curbs or wheel stops.~~

~~5. Parking lots with more than fifteen (15) stalls shall require planting strips around the entire perimeter of the parking lot except where buildings, driveways, and walkways are located.~~

~~6. Unless otherwise described in this ordinance, where required, all planting strips shall be a minimum of fifteen (15') feet wide and run the length of the parking row. Unless designed to function as part of the stormwater management system, planting strips shall be underlain by soil mounded up to six (6") inches above the paved parking or drive area and shall be protected by curbs, wheel stops, or bollards.~~

~~E.~~ Parking Area Dimensions.

Table 421.1. Parking Space and Drive Aisle Sizing

	Parking Space		Parking Drive Aisle Width	
Angle of Parking (degrees)	Depth (feet)	Width (feet)	One Way Aisle (feet)	2-Way Aisle (feet)
90	18	10	22	22
75	19.5	10	20	--
60	19	10	14	--
45	17	10	11	--
Parallel	22	9	--	--

1. The minimum size of all parking stalls and aisles shall be no less than those listed in Table 2. In case of any conflict with the Zoning Ordinance, the Zoning Ordinance shall prevail.
2. ~~Parallel parking stalls shall have minimum dimensions of nine (9') feet width by twenty-two (22') feet length.~~
3. ~~Perpendicular parking stalls shall have minimum dimensions of (9') feet width by eighteen (18') feet length with a twenty-two (22') feet aisle.~~
4. At the discretion of the Board of Commissioners, the minimum length of parking stalls may be reduced by two (2') feet ~~one (1') feet~~ if stalls are designed to allow vehicles to overhang an area of grass or other pervious surface. Wheel ~~Bumper~~ stops shall be provided which allow the parked vehicle to extend at least two (2') feet ~~one (1') feet~~ over the edge of the pavement.
5. Where parking stalls abut sidewalks, parked vehicles shall not overhang the sidewalks unless the sidewalk is widened by two (2') feet. Wheel stops are required in order to allow for full pedestrian use of the sidewalks.
6. Parking spaces for physically disabled persons shall be thirteen (13') feet wide and equal in depth to the spaces abutting them in accordance with standards developed under the Americans with Disabilities Act (ADA).
7. ~~Long-Term Parking Areas. In parking lots which service the parking needs of commuters or employees and have limited turnover of vehicles or where vehicles are stored such as auto dealers, parking stalls may have minimum dimension of eight and one-half (8 1/2') feet width by seventeen (17') feet length with a twenty-two (22') feet aisle. The Board of Commissioners may allow a twenty (20') feet aisle under one of the following conditions.~~
    - ~~a. The parking area will be used by smaller vehicles;~~
    - ~~b. The parking area lot serves less than twenty (20) vehicles;~~
    - ~~c. The parking aisles intersect driveways on both sides;~~
    - ~~d. The parking lot serves as vehicle storage or valet parking; or~~
    - ~~e. Elevated or underground parking is used.~~
8. ~~Short-Term Parking Areas. In parking lots that service retail areas with high turn over or where shoppers are loading merchandise into vehicles, stalls shall have a minimum dimension of ten (10') feet width by twenty (20') feet length with a twenty-two (22') foot aisle.~~
9. ~~Angled parking shall have the same width dimensions as 90 degree parking and the following depth and aisle dimensions:~~
    - ~~a.For 75° (degree) parking—the length measured at right angles to the edge of parking shall be nineteen and one-half (19½) feet with an aisle dimension of twenty (20') feet.~~

b. For 60° (degree) parking– the length measured at right angles to the edge of parking shall be nineteen (19') feet with an aisle dimension of fourteen (14') feet.

c. For 45° (degree) parking– the length measured at right angles to the edge of parking shall be seventeen (17') feet with an aisle dimension of eleven (11') feet. F. Residential Parking Lots.

1. Parallel rows of parking spaces, which are not separated by a driveway, shall be separated by a planting strip.
2. A single row of parking spaces located parallel to and between two driveways, shall be separated from one of the driveways by a planting strip, a minimum of eight (8') feet wide.
3. Large parking lots shall be divided into smaller parking areas of no more than forty (40) stalls by planting strips.
4. No less than twenty (20') feet of open area shall be provided between the curb line of any parking area and the outside wall of the dwelling unit. G. Non-Residential Parking Lots.

1. Parking lots with a capacity of from fifty (50) to one hundred (100) cars shall require a planting strip around the perimeter and one planting island for every ten spaces within the perimeter of the lot. Parking lots for more than one hundred (100) cars shall be divided into sections no greater than one hundred (100) stalls each by planting strips.
    a. These planting strips shall be located parallel to the rows of parking, to serve the following purposes:
        1) To separate main access (entrance-exit) driveways from rows of parking spaces.
        2) To separate other major driveways (service drives, general internal circulation) from rows of parking spaces.
        3) To separate large parking areas into smaller units at intervals of not more than four (4) rows of parking stalls.
    b. For parking areas with an ultimate capacity greater than four hundred (400) cars, the requirements may be modified by the Board of Commissioners to provide separation into units at intervals of six (6) rows of parking stalls, with each unit capacity no greater than one hundred (100) cars.
    c. The applicant may request the Township to permit an alternative design which achieves the purposes of these parking area requirements as well or better than the requirements herein. The final decision to permit an alternative design shall be made by the Board of Commissioners, with the advice of the Township Planning Commission and Engineer.

H. Shared Access. When required by the Board of Commissioners upon recommendation of the Township Planning Commission, applicants shall create agreements for shared vehicular access as the preferred means of reducing the total number of curb cuts for traffic safety and congestion reasons. ~~Nonresidential lots shall provide cross-access easements for parking areas and driveways guaranteeing access to adjacent lots. Interconnections shall be logically placed and easily identifiable to ensure convenient traffic flow in accordance with Section 421.~~

1. Non-residential lots shall provide cross-access easements for parking areas and driveways guaranteeing access to adjacent lots. Interconnections shall be logically placed and easily identifiable to ensure convenient traffic flow.
2. When two (2) or more abutting lots share an access driveway, the driveway should be designed as the main access to those lots, and one or more existing access driveways should then be closed.
3. Where development of three or more adjoining parcels consolidates vehicular access into one shared driveway, that driveway may be upgraded into a medium volume driveway according to PennDOT standards.
4. Shared access may be located entirely on one lot or be split among a common lot line.
5. Access easement and maintenance agreements or other suitable legal mechanisms shall be provided, in a form acceptable to the Board of Commissioners in consultation with the Township Solicitor.
6. Liability safeguards for all property owners and lessees served by the shared access shall be guaranteed to the satisfaction of the Board of Commissioners in consultation with the Township Solicitor.

I. Drive Aisles ~~Driveways~~ Within Sites Proposed for Non-residential Development. The following requirements apply to all driveways within all sites proposed for nonresidential land development.

1. A smooth transition shall be provided between the driveway section required for access to a public street and other driveway(s) required for internal site circulation.
2. Main access driveways (entrance-exit) and service driveways handling large trucks shall be a minimum paved width of thirty (30') feet, with one lane in each direction, unless otherwise required by PennDOT standards governing the volume of traffic anticipated.
3. Access driveways for cars and other small vehicles which are clearly secondary in importance may be reduced to twenty (20') feet in paved width, unless otherwise required by PennDOT standards governing the volume of traffic anticipated.

4. Interior storefront driveways in shopping centers shall be a minimum paved width of twenty-eight (28') feet, to allow one lane in each direction and a dropoff/pick-up lane along the sidewalks.
5. Driveways along other non-residential buildings shall be a minimum paved width of twenty-two (22') feet, except where a drop-off/pick-up lane is proposed.
6. ~~Parking Aisles shall be a minimum twenty-two (22') feet wide with two-way traffic flow for convenience and efficiency except where one-way traffic is used to access angled or parallel parking.~~
7. Wherever feasible, internal circulation driveways shall extend from access drives in locations which permit and encourage entering traffic to turn and enter the parking aisles without first travelling along a building-front driveway. This feature is intended to reduce the volume of vehicular traffic along building-front driveways to make it safer for pedestrian traffic.

J. Electric Vehicle Charging Stations (EVCS)
   1. For any new development or redevelopment with at least ten parking spaces serving residential uses, at least 10% shall be served by a Level 1 or Level 2 EVCS connection.
   2. Any new development of any size that includes the new construction of a garage or structured parking shall be constructed to include appropriate wiring such that an EVCS can be installed in the future.
      a. It is strongly encouraged, but not required, that all expanded and reconstructed single-family dwelling garages provide an EVCS-capable outlet.
   3. Where EVCS equipment is provided within an adjacent pedestrian circulation area, such as a sidewalk or accessible route to the building entrance, the charging equipment shall be located so as not to interfere with accessibility requirements or pedestrian circulation.
   4. EVCS cords shall be retractable or have a place to hang the cord and connector above the pedestrian surface. Any cords connecting the charger to a vehicle shall be configured so that they do not cross a driveway, sidewalk, or passenger unloading area.
   5. A Maintenance & Operation Plan for Electric Vehicle Parking and Charging stations shall be submitted for the review and approval of the Township Engineer.

Section 422. Curbing

A. Curbing shall be installed along all existing and proposed public and private streets, common driveways, and common parking areas.
B. When utilizing an approved stormwater management technique, the Township may waive curbing requirements in full or partially. Grass swales and infiltration trenches

along streets are encouraged in appropriate locations in the Township provided that pedestrian safety and traffic circulation is addressed.

C. The Township may waive the installation of sections of curbing when adjoining sections of the road do not have curbing and in the opinion of the engineer it would be better to install the curbing at the same time that curbing is installed along the adjoining sections of the road way. In these cases, payments shall be required to fund the installation of the curbing at a future time when other sections of curbing along the roadway are installed.

D. Handicap accessible curb cuts that meet the requirements of the American Disabilities Act shall be installed at all intersections where sidewalks are provided or proposed, or where indicated by the Township Engineer.

Section 423. Sidewalks and Verges

A. General.

1. Sidewalks and verges shall be required ~~installed~~ along both sides of all existing and proposed public and private streets within the ultimate right of way. ~~, common driveways, and common parking areas.~~
2. The Township may waive or alter the sidewalk requirements if an alternative pedestrian circulation system can be shown to be more desirable, especially when using open space areas, provided that appropriate connections are provided between the open space walkways and the surrounding pedestrian origins and destinations or when it is determined that sidewalks are only necessary on one side of the street.
3. Additional sidewalks or paved trails shall be required where deemed necessary by the Board of Commissioners to provide access to schools, religious institutions, parks, community facilities, trails, commercial or employment centers, and to provide necessary pedestrian circulation within land developments and/or subdivisions.
    a. Sidewalks or walkways interior to a development shall have a minimum width of four (4) feet and shall connect to the Township sidewalk system.
4. Trails shall be installed if they are indicated on the parcels proposed for subdivision or land development as shown on the Springfield Township Master Trail Plan or the Montgomery County Primary Trail Network.
5. If for any reason an interim waiver of these requirements is made, a sufficient guaranty shall be posted for the eventual installation of sidewalks or trails subject to approval of the Township, upon approval of the Township Engineer and Solicitor. ~~The Township may waive the installation of sections of sidewalks when adjoining sections of the road do not have sidewalks and in the opinion of the engineer it would be better to install the sidewalks at the same time sidewalks are installed in adjoining sections of the road. In these cases, payments shall be required to fund the installation of the sidewalks at a future time when other sections of sidewalks along the roadway are installed.~~
6. ~~Installation of sidewalks, subject to approval by the Township upon recommendation of the Municipal Engineer and Solicitor, in accordance with Section 605 of this Ordinance.~~

B. Design and Layout

1. Sidewalks and verges shall be provided in appropriate locations to provide safe and efficient pedestrian access between parking areas, buildings, and other pedestrian destinations.
2. Sidewalk and verge widths are required to follow the width guidelines set forth in Table 417.1, according to the functional classification of roadways as laid out in the most recently adopted Springfield Township Comprehensive Plan.
3. A verge shall exist between the curb line or edge of cartway and the sidewalk, according to the following standards:
    a. Verges shall be maintained as a landscaped ~~grass~~ strip between the sidewalk and the curb. If landscaping ~~grass~~ is impractical at the site, brick pavers or similar surface may be used at the discretion of the Board of Commissioners upon the recommendation of the Springfield Planning Commission and Township Engineer. ~~In this case, a wider sidewalk may be necessary in place of a border area to create a safer pedestrian environment. Border areas can also be used for stormwater management structures such as rain gardens.~~
    b. Verges may contain street trees required in [Section 433], provided that the verge is at least four feet wide. Verges can also be used for stormwater management features such as rain gardens.
    c. Verges between a sidewalk and the curb may contain street lights, benches, trash cans, mailboxes, bicycle racks, or newspaper boxes. No obstacle in the verge may reduce the required sidewalk width for use by pedestrians.
    d. Verges may not be used as a part of the required sidewalk width.
    e. ~~Border areas shall be at least three (3') feet wide~~.
4. The Township may require additional sidewalk width in areas where higher volumes of pedestrian traffic are anticipated. In no case shall sidewalk width be less than four (4') feet.

Section 418, Street Design - ALIGNMENT

Proposed Section to be reviewed by Township Engineer first, rather than Planning Commission.

Section 418, Street Design – GRADES

Proposed Section to be reviewed by Township Engineer first, rather than Planning Commission.

Section 418, Street Design - INTERSECTION DESIGN

Proposed Section to be reviewed by Township Engineer first, rather than Planning Commission.

Section 418, Street Design - SINGLE ACCESS STREET STANDARDS

Existing	• Adjoining streets. The highway system shall take into consideration present streets and roads of adjoining tracts already laid out and of adjoining tracts not yet subdivided. Circles, islands, culs-de-sac or circular segments shall be permitted only where and as expressly approved by the Board. • Dead-ends. Streets and roads shall not end in dead ends, except where they will connect with streets or roads provided for on the Township's official plans of streets and roads or where specifically approved by the Board.
Model	Single-access streets shall be classified as one of the following: • Single-access loop streets • Cul-de-sac street • Stub Street Single-access loop streets shall be subject to the requirements for their street classification and the following additional requirements • No more than 300 average daily trips (approx. 30 single family homes) • Served by a pedestrian access when required by the BoC to connect surrounding neighborhoods and pedestrian destinations • Shall not exceed 2000 feet in length Cul-de-sac streets • Not be permitted when a through street is possible for the tract under consideration. The following factors shall be used to determine necessity: o Adverse topography such as steep slopes, floodplain, streams, etc o The shape of the tract not lending itself to a through street • Existing streets shall be used by the applicant to connect with their proposed roadway system. Applicant shall complete improvements at their expense. • Length o Minimum 250 feet, maximum 800 feet • Bulb o 50 foot ROW radius, 40 foot paved cartway o If bulb is off-center, configured to the left of the approaching road center line. o No more than 5 lots or driveways on the bulb unless the radius is expanded and an island is included • Emergency Access o 10 foot cartway o Easement or deed restrictions

	o May be paved to township engineer standards o May be available for pedestrians • Landscaped cul-de-sac islands are encouraged o Maximum radius of 24 feet o Designed to allow emergency vehicle access o Within the bulb of the cul-de-sac, concave for use as stormwater management infrastructure. o Should attempt to retain existing vegetation within islands o If existing vegetation cannot be maintained, new landscaping shall be lowmaintenance varieties Stub Streets • Allow future vehicular access to undeveloped abutting lands • Length o Cul-de-sac standards • Width and other road improvements o Conform with future functional classification • Shall have a turnaround consistent with cul-de-sac standards • Shall be constructed to the property line
Cheltenham	Cul-de-sac streets • Not be permitted when a through street is possible for the tract under consideration. The following factors shall be used to determine necessity: o The distance to the nearest street with which to intersect is greater than 300 feet from a proposed cul-de-sac • Bulb o 60 foot ROW radius, 50 foot paved cartway • Emergency Access o 12 foot cartway • Landscaped cul-de-sac islands o Encouraged on private streets, not accepted for dedication o Maximum radius of 12 feet
Whitemarsh	Cul-de-sac streets • Length o Minimum 250 feet, maximum 800 feet • Bulb o 50 foot ROW radius, 40 foot paved cartway • Shall not serve more than 20 dwelling units • Grades across culs-de-sac shall not exceed 3%

L Merion	Only allows single-access loop streets. Culs-de-sac are forbidden. Single-access loop streets • Length o Maximum 2000 feet • In Open Space Overlay District, minimum ROW is 45 feet; cartway is 20 • Elsewhere, minimum ROW is 50 feet, cartway is 27 • The two corner lots at the intersection of a proposed single-access street with the existing street are counted, whether or not they use the single-access street for access.

Section 419, Driveway Access

Proposed Section to be reviewed by Township Engineer first, rather than Planning Commission.

Section 420, Bridges and Culverts

Proposed Section to be reviewed by Township Engineer first, rather than Planning Commission.

Section 421, Parking and Related Internal Driveways

Existing	Parking. Provision shall be made for garage structures or open spaces suitably located and adapted for parking for automobiles and trucks, wherever and to the extent deemed desirable by the Board. ZO - Design requirements. • All parking lots and loading areas shall be provided with a perimeter screening buffer a minimum of 10 feet in width along all property boundaries, as specified in [Landscaping Portion of SALDO]. • Any off-street parking area designed for 10 or more cars shall be provided with internal landscaping in accordance with the requirements of [Landscaping Portion of SALDO]. Parking Area Landscaping • Buffers along front yard, in addition to side and rear yards • For each 10 spaces, 500 ft^2 will be a landscaped island containing o 2 Canopy Trees o 1 Understory Tree o 6 Shrubs o 100% mulch or ground cover • Islands will be 200+ ft^2 , minimum width of 6 ft • Trees should be drawn from Table 1 • Landscape material will be protected by concrete curbs, berms, wheel stops, etc

Model	General • Parallel parking shall be used along roads as needed. Angled parking may be permitted on streets or within parking lots when specifically designed. Perpendicular parking shall not be permitted along public streets. • Stormwater management facilities should be used, such as vegetated swales, infiltration galleries, or seepage beds beneath parking areas. All Parking Lots • Parking not permitted along entry aisles for lots of 50+ spaces. • Driveway length of 50+ feet provided between ROW and first parking space in lot of 50+ spaces. • In cases not regulated by Zoning, parking shall be set back 15 feet from adjoining parcels

- When existing parking area is located close to existing street, driveway, lot and property is up for land development, a landscaped buffer of 10 feet or a shared parking arrangement shall be required.
- Dead end parking areas can only be used when no other layout is possible. o Up to 30 cars can be in a dead end if sufficient backup is provided for end stalls
    - 30+ cars can be in a dead end if a turnaround area is provided.
- Handicap spaces shall be provided in accordance with the ADA
- Pedestrian safety measures such as sidewalks, crosswalks, and traffic control devices shall be required.

Planting Islands

- Planting Islands shall be provided for lots of 12+ spaces based on the following o 1 island for each 15 stalls. No more than 15 continuous stalls without an island.
    - Alternative island arrangements shall provide 1 canopy tree for each 10 stalls at BoC discretion o End of all parking rows shall have a island o Islands shall be at least 9x18
    - Islands shall be underlain by soil mounded 6 inches above pavement unless used as stormwater management.
- Lots of 15+ stalls shall require planting strips around the entire perimeter except where buildings, driveways, and walkways are located.
- Planting strips shall be at least 15 feet wide and a similar height to islands.

Residential Parking Lots

- Parallel rows of spaces shall be separated by a planting strip.
- A single row of parking spaces shall be separated by a strip of minimum 8 feet
- Large parking lots shall be divided into smaller parking areas of at most 40 stalls by planting strips
- No less than 20 feet of open space between the curb of the parking area and the outside wall of the dwelling unit

Non-Residential Parking Lots

- Lots with 50-100 stalls shall require a planting strip around the perimeter, and one planting island for every 10 spaces in the lot.
- Lots of more than 100 stalls shall be divided into sections no greater than 100 by planting strips.
    - Planting strips shall parallel the rows of parking to separate major driveways from parking spaces and to separate large parking areas into smaller units at intervals of not more than 4 rows of stalls
- For lots of 400+ cars, BoC may modify the requirements to separate into units of six rows of stalls with each unit capacity no greater than 100 stalls.
- Applicant may request the municipality to allow an alternative design

Shared Access

	• When required by BoC on recommendation of the PC, applicants shall create shared vehicular access agreements to reduce curb cuts. o Nonresidential lots shall provide cross-access easements for parking areas and driveways guaranteeing access to adjacent lots. o When 2+ abutting lots share an access driveway, that shared driveway should be designated as the main access and one or more existing access driveways should then be closed. o Where development of 3+ parcels consolidates vehicle access, driveway may be upgraded to medium volume driveway to PennDOT standards. o Access easement and maintenance agreements shall be provided in a form acceptable to BoC and Solicitor
Cheltenham	Construction materials for one and two family dwelling parking areas do not include grass or gravel. All Parking Lots • Two parking spaces dedicated to alternative fuel vehicles, including electric vehicle charging stations, are required for every 50 new spaces constructed. Residential Parking Lots section removed. Non-Residential Parking Lots section removed. Pedestrian Circulation and Facilities • Requirements shall apply to lots with 10+ spaces • Pedestrian circulation to buildings from public sidewalks, the street, and cars shall take precedence. • Pedestrian access shall be delineated by crosswalks and sidewalks. • Defined paths of travel for pedestrians from off-site shall consist of not more than 25% crosswalk or other painted not grade-separates walkways. • Where pedestrian circulation crossed vehicular routes, a crosswalk with a different paving material, ladder striping, speed tables, or signage shall be provided. • Walkways in public areas shall be barrier free and a minimum of five feet wide. • At least one pedestrian route shall be provided and aligned with the main entry of a building.

Whitemarsh	Standards primarily kept in Zoning, not SALDO. Parking Lot Standards for Village Commercial Districts • Divide into sections of no more than 20 spaces • Parking areas beside or behind individual buildings • Access drives shall provide for pedestrian and vehicular circulation, as well as vehicular parking for lots less than 40 spaces • Shared access agreements – same as the model

	○ Impervious cover limits may be increased by 10% on each parcel that is party to a shared access agreement. • Surface parking lots shall be located between, behind, or to the side of principal buildings. ○ If visible from the street frontage, the a fence, wall, or plantings shall be provided to maintain the street edge and buffer views of the parked cars. ○ In no case shall surface parking occupy more than ¼ of the parcel's frontage.

L Merion	All Parking Lots • Construction materials for off-street parking lots o Materials which reduce embodied carbon, use life-cycle analysis, or are pervious are acceptable with Twp Engineer approval. • Provisions for pedestrian safety shall be required by providing sidewalks, delineated crosswalks, traffic calming devices, signage and/or other measures. • Dead End Parking Areas are discouraged. Up to 30 spaces may be located in a dead end only if a turnaround area is provided at the closed end. Shared parking agreements – same as model. Residential Parking Lots section removed. Non-Residential Parking Lots section removed. Pedestrian Pathways and Crosswalks • Pedestrian access to each building on site shall be physically delineated and provided through installation of sidewalks and defined crosswalks. • Pathways shall be clearly separated from vehicular use areas via sidewalks, landscaping, a change in grade or a change in paving material. • Pedestrian pathways shall be barrier-free and a minimum of 5 feet wide • At least one pedestrian route shall be provided that enables access to the main entry of the building. Electric Vehicle Charging Stations (EVCS) • For any new development or redevelopment providing 25+ add'l parking spaces, at least 20% of the additional parking spaces will be supplied with electric circuits capable of supporting Level 2 EVCS. • For any parking structure, all spaces shall be made EVCS capable • All new single-family and multi-family dwellings with garages shall be constructed to include a branch circuit capable of supporting Level 2 EVCS. • It is strongly encouraged that new, expanded, and reconstructed single-family dwelling garages provide an outlet capable of support Level 2 EVCS. • EV Parking Capacity o For any development with at least 10 spaces serving residential uses, at least 10% shall be served by an EVCS
	o For any development requiring 25 add'l parking spaces, at least 5% shall be served by a Level 2 EVCS. At least 1 parking space or 10% of the parking spaces served by charging, whichever is greater, shall be available to the public. • For any development requiring 250+ parking spaces, at least 1% shall be served by a Level 3 EVCS, in addition to the Level 1 and Level 2 connection requirements. The required Level 3 EVCS shall be available for public use.

Section 421.D and F, Parking and Related Internal Driveways - PARKING DIMENSIONS / DRIVE AISLES WITHIN SITES PROPOSED FOR NON-RESIDENTIAL DEVELOPMENT

Proposed Section to be reviewed by the Township Engineer first, rather than the Planning Commission.

Section 422, Curbing

Existing	Curbing. All curbing at street and road intersections shall be circular curves with radius of not less than 15 feet, and larger for sharp corners.
Model	Curbing shall be required along all existing and proposed public and private streets, common driveways, and common parking areas. • Waivable Circumstances o Using an approved SWM technique. ▪ Grass swales and infiltration trenches are encouraged. ▪ Pedestrian safety and traffic circulation should be addressed. o Adjoining sections of road do not have curbing ▪ Township Engineer's opinion that it would be better to install curbing at once. ▪ Payment shall be required to fund the future installation. Handicap accessible curb cuts that meet the requirements of the American Disabilities Act shall be installed at all intersections where sidewalks are provided or proposed.
Cheltenham	No changes from model.
Whitemarsh	Curbs shall be provided in all subdivisions and land developments. When the sole purpose of the curb is to protect the pavement edge, thickened-edge pavements or cement concrete headers may be utilized, subject to the approval of the Township Engineer.
L Merion	Waivable circumstances • Adjoining section of road do not have curbing o Director of Building and Planning's opinion that curbing would detract from established character • Demonstrable that the intent of the Open Space Overlay District will be furthered for developments in that district • Director of Public Works deems curbing unnecessary

Section 423, Sidewalks and Verges

Existing	Sidewalks. Concrete sidewalks, not less than four feet wide each, shall be provided on any street or road which is residential or commercial in character, except where otherwise permitted by the Board.

<table>
<tr>
<td>Model</td>
<td>
Sidewalks shall be installed along all existing and proposed public and private streets, common driveways, and common parking areas.

Waivable Circumstances
• Alternative pedestrian circulation system is shown more desirable o Provided appropriate connections are made
• When it is determined sidewalks are only necessary on one side of the street
• Adjoining sections of roadway do not have sidewalks o Township Engineer's opinion that it would be better to install sidewalks at once o Payment shall be required to fund the future installation

Widths
<table>
<tr><td>Functional Class</td><td>Grass Strip</td><td>Sidewalk</td></tr>
<tr><td>All Arterials</td><td>5</td><td>5-8</td></tr>
<tr><td>Collectors</td><td>4</td><td>5-8</td></tr>
<tr><td>Local Roads</td><td>4</td><td>4-8</td></tr>
</table>

Verge
• Grass strip between the cartway and the sidewalk.
• May contain street lights, trees, benches, trashcans, mailboxes, or newspaper boxes
• No obstacle may reduce the required pedestrian sidewalk width
• If grass is impractical, brick pavers or similar surface may be used at the discretion of the PC + Engineer.
• Can also be used for stormwater management structures.
• Verges shall be at least 3 feet.

BoC may require additional sidewalk width in areas of heavy pedestrian traffic. Sidewalks shall not be less than 4 feet.
</td>
</tr>
<tr>
<td>Cheltenham</td>
<td>
Sidewalks and verges shall be required on both sides of the street in the ultimate ROW.

Payment shall be provided for future installation when any waiver of sidewalk installation is granted.

Widths
<table>
<tr><td>Zoning District</td><td>Verge</td><td>Sidewalk</td></tr>
<tr><td>Single-family residential (R1-R4)</td><td>3</td><td>5-6</td></tr>
<tr><td>All other base districts</td><td>4</td><td>5-8</td></tr>
</table>

Verge standards
</td>
</tr>
</table>

	• Does not include stormwater management as an option. Sidewalks • Additional sidewalks or paved trails shall be required where deemed necessary by the Board of Commissioners to provide pedestrian access to destinations or within subdivisions where sidewalks would not provide sufficient access • If the provision of sidewalks requires the destruction or removal of mature trees, the Township Shade Tree Advisory Commission (STAC) shall make a recommendation on the impact of removal of said trees. • Conflicts arising from the placement of street trees, utilities, and verges should be discussed with the STAC and Planning Commission and Engineer to determine appropriate placement and alignment. • Proposed sidewalks shall maintain the width, pattern, material, and style of the Township's sidewalk network. Where proposed sidewalks meet existing sidewalks which have a different width, a tapered transition shall be constructed.
Whitemarsh	Sidewalks shall be provided, located in a public ROW, easement or common open space. The minimum width shall be 5 feet. In areas of higher pedestrian density, the minimum width shall be 8 feet. • Curb cuts shall be provided at street crossings. • Sidewalks shall be adequately lighted, as required by BoS. • Grades shall be continuous across driveways. • Sidewalks shall be laterally pitched at ¼ inch per foot or more to provide drainage. • Grades shall not exceed 7%. Steps or steps and ramps shall be used to maintain the maximum grade where necessary. When grades exceed 5%, a nonslip texture shall be used. • Sidewalks adjacent to angle parking shall be set back a minimum of five feet.
L Merion	Where proposed sidewalks meet existing sidewalks which have a different width, a tapered transition shall be constructed. Waivable Circumstances • Subject property is not generally consistent with the sidewalk implementation criteria from the township Comprehensive Plan • Alternative pedestrian circulation system is shown more desirable, meeting the following criteria o Connections are provided from the off-road path and pedestrian origins and destinations on abutting properties o Path shall be paved with asphalt of minimum 2.5" thickness with aggregate subbase of 4" or more or an alternative material is approved by the Township Engineer o Off-road path is maintained by the property owner o Easement guaranteeing public access is provided • Within open space preservation developments, when furthering the intent of the Open Space Overlay District

	• When sidewalks are deemed unnecessary by the Director of Building and Planning, though alternative methods of pedestrian circulation should be provided. Verges • Alternating landscape and hardscape is encouraged, especially if on-street parking is present adjacent to the verge • Verges may contain Shade Trees, Large Canopy Trees, and other landscaping. Verges can be used for stormwater management, provided that a maintenance agreement is signed between the property owner and the township. • If benches are provided in the verge, they must be at least 3 feet from the curb. Otherwise, benches must be placed at the back of the sidewalk. Otherwise, same as model.