

ARTICLE 11.0

SUPPLEMENTARY DEVELOPMENT REGULATIONS

Sections 11.01–11.04 Reserved.

Section 11.05 Natural Resources Protection.

This Section is intended to establish minimum regulations necessary to preserve natural resources on sites subject to development. The preservation of natural resources is essential to maintain the continued character and quality of life for current and future Township residents and visitors. Protection of the natural features of the Township will promote the general public health, safety and welfare, encourage the use of lands in accordance with their character and adaptability, protect the natural environment, and conserve natural resources and energy.

A. Scope.

The standards of this shall apply to all development projects and parcels subject to site plan approval per Article 8.0 (Site Plan Review), condominium site plan approval per Article 9.0 (Condominium Regulations), planned unit development approval per Article 10.0 (Planned Unit Development District), private road approval in accordance with the Township's Private Road Ordinance, or subdivision plat approval in accordance with the Land Division Act and Township subdivision regulations.

B. Watercourses and Wetlands.

No person shall alter, obstruct, fill or otherwise vary the shoreline, area, course, water level or flow, vegetation or natural conditions of any lake, river, stream or other watercourse, wetland or drainage way, except in conformance with this Ordinance and the requirements of outside agencies with jurisdiction.

1. The following setbacks from wetlands and watercourses shall apply:
 - a. A minimum 50-foot open space setback shall be maintained from the ordinary high water mark of any lake, river, stream or other watercourse, provided that development shall be prohibited in the 100-year floodplain.
 - b. A minimum 25-foot open space setback shall be maintained from the edge of any wetland, as defined in Section 19.03 (Definitions).
 - c. A minimum 25-foot open space setback shall be maintained from the boundary of any county drain easement, or a minimum of 50 feet from the centerline of any county drain without a dedicated easement.
2. Detention basins and similar stormwater management facilities may be constructed within a required setback, provided that appropriate replacement plantings are provided and maintained.

C. Floodplains.

Development shall be prohibited within the 100-year floodplain of any existing watercourse or wetland. It shall be the applicant's responsibility to delineate the 100-year floodplain boundaries. Where there is any uncertainty, contradiction, or conflict as to the location of the floodplain boundaries, the final determination of the boundaries

shall be made by the Township Engineer or designated wetlands consultant after referral from the Planning Commission.

D. Steep Slopes and Unusual Topographic Features.

No development shall be permitted in areas where the soil is highly erodible, or in any area with existing steep slopes of twenty five percent (25%) or greater. Land areas with slopes of at least twelve percent (12%) but less than twenty five percent (25%) shall be subject to the following:

1. Where parcels containing such land areas abut rivers and streams, the integrity and profile of such slopes shall be maintained. Buildings may be built into such slopes, subject to compliance with applicable requirements of this Ordinance and the State Construction Code.
2. Cut and fill activities within existing and planned road rights-of-way, and for public utility and other public improvements, shall be limited to the minimum necessary to comply with the applicable engineering standards of the Township and outside agencies with jurisdiction. Retaining walls may be used to maximize preservation of existing slopes.

E. Groundwater Recharge Areas.

The following groundwater recharge area protection standards shall apply to all developments subject to this Section:

1. The development shall be designed to protect groundwater resources.
2. Stormwater management facilities shall be designed to retain the natural retention and storage capacity and function of any wetland, water body or watercourse.
3. Site plans shall delineate the location and extent of any contaminated soils or groundwater on the site or that may affect the proposed development.
4. The applicant shall demonstrate how the proposed site design and layout of uses on the development site will:
 - a. Preserve the groundwater recharge areas and the infiltration capacity of the soils;
 - b. Prevent polluted materials from infiltrating into groundwater;
 - c. Minimize impervious areas through site planning that makes most efficient use of paved, developed space and that maximizes open space areas; and
 - d. Manage stormwater runoff to maximize on-site infiltration and provide adequate pre-treatment and filtering of sediments and other impurities.
5. The Planning Commission may require the use of buffer zones to protect surface vegetation or the installation and use of such other techniques it deems necessary to mitigate or retain stormwater runoff.

F. Woodlands and Landmark Trees.

The following woodlands and landmark tree preservation and mitigation standards shall apply to all developments subject to this Section:

1. **Tree removal.** Except as otherwise provided in this Section, any development subject to this Section shall not:
 - a. Remove, transplant, damage, or destroy any tree or similar woody vegetation of any diameter at breast height (D.B.H.) in a woodland currently existing or that has existed on the subject site within the last five (5) years.
 - b. Remove, transplant, damage or destroy any tree or similar woody vegetation including individual deciduous trees of six (6) inch D.B.H. or larger and individual evergreen trees six (6) feet in height or higher, which are not located in a woodland.
 - c. Conduct any land clearing or grubbing activities within a woodland area.
2. **Requirements.** Except as provided elsewhere within this Section, the developer shall be subject to the following requirements:
 - a. Preserve and leave standing a minimum of thirty-five percent (35%) of the total number of individual deciduous trees of six (6) inch D.B.H. or larger and individual evergreen trees six (6) feet in height or higher within the development that have existed on the subject site within the last five (5) years.
 - b. Where a developer has submitted and obtained approval of a development, as required under this Section, such tree preservation designation, together with any additional terms and conditions attached to the approval, shall satisfy the requirements of this Section.
3. **Tree relocation and replacement.** The intent of this Section is to replace removed species with similar species in appropriate habitats. Whenever the removal of individual deciduous trees of six (6) inch D.B.H. or larger or individual evergreen trees six (6) feet in height or higher is deemed necessary, such trees shall be replaced or relocated in accordance with this Section. If removed trees are to be replaced as provided within this Section, replacement trees may be used to satisfy preservation percentage requirements of this Section, but may not be used to satisfy landscaping requirements of this Ordinance.
4. **Replacement species standards.** Replacement trees shall be of the same species as the removed tree, except where prohibited by Section 11.10H (Prohibited Plant Materials). Species native to Michigan may be substituted for non-native or prohibited species. All replacement tree species shall be suitable for the habitat in which they will be located.
5. **Landmark tree standards.** A landmark tree, as regulated by this Section, shall be considered to be any tree that has a D.B.H. of 24 inches or greater, or that is of a type and D.B.H. equal to or greater than shown on the following list:

Landmark Tree Common Name	Landmark Tree Species	Diameter at Breast Height (D.B.H.)
Basswood	<i>Tilia americana</i>	18 inches
Beech	<i>Fagus grandifolia</i>	18 inches
Buckeye, Ohio	<i>Aesculus glabra</i>	18 inches
Catalpa	<i>Catalpa spp.</i>	18 inches
Cedar of Lebanon	<i>Cedrus spp.</i>	18 inches
Cherry, Black	<i>Prunus serotina</i>	18 inches
Elm, American	<i>Ulmus americana</i>	18 inches
Fir	<i>Abies spp.</i>	18 inches
Fir, Douglas	<i>Pseudotsuga menziesii</i>	18 inches
Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	18 inches
Pine	<i>Pinus spp.</i>	18 inches
Spruce	<i>Picea spp.</i>	18 inches
Sycamore or London Plane	<i>Platanus spp.</i>	18 inches
Tulip-tree	<i>Liriodendron tulipifera</i>	18 inches
Walnut, Black	<i>Juglans nigra</i>	18 inches
Hickory, various	<i>Carya spp.</i>	16 inches
Locust, Honey	<i>Gleditsia triacanthos</i>	16 inches
Maple	<i>Acer spp.</i>	16 inches
Oak	<i>Quercus spp.</i>	16 inches
American Chestnut	<i>Castanea dentata</i>	six (6) inches

6. **Replacement ratio.** Removed trees shall be relocated or replaced in accordance with the following schedule:

Size of Removed Tree	Replacement Ratio (number of replacement trees per removed tree)
Coniferous (height)	
Six (6) to ten (10) feet	one to one
Ten (10) to 14 feet	1.5 to one
More than 14 feet	two to one
Landmark coniferous tree	one per four (4) feet of removed tree height
Deciduous (D.B.H.)	
Six (6) to ten (10) inches	one to one
Ten (10) to 14 inches	1.5 to one
More than 14 inches	two to one
Landmark deciduous tree	one per four (4) inches of removed tree D.B.H.

7. **Replacement tree standards.** Replacement tree plantings shall conform to the requirements of Section 11.10B (General Standards) and the following:
- a. **Location.** The location of replacement trees shall be on the same parcel as the removed tree wherever feasible, as determined by the Township.

- (1) If the tree replacement on the same parcel is not feasible, the Township may designate another planting location for the replacement tree within the Township.
 - (2) If tree relocation or replacement is not feasible either on the parcel or on another approved location within the Township, the Township may allow a deposit into a tree planting fund maintained by the Township in an amount determined to be acceptable by the Township for tree replacement on a per tree basis based upon the current market value for tree replacement that would otherwise be required. These funds shall be utilized for the planting, maintenance, and preservation of trees and woodland areas within the Township.
- b. **Installation and maintenance.** Installation and maintenance of replacement trees shall conform to the requirements of Section 11.10I (Installation and Maintenance).

G. Protection of Natural Features During Construction.

Natural features to be preserved as part of an approved development project shall be protected during construction in accordance with the following:

1. Prior to any development, clearing, or other activity for which a permit is required, temporary construction fences shall be installed in the following locations to restrict access to protected natural features:
 - a. At the limits of soil disturbance adjacent to natural features.
 - b. At the perimeter of the critical root zone of landmark trees which are located within a disturbance area. Where encroachments into the critical root zone are allowed as part of an approved site plan or plat, the fencing must be located at least 10 feet from the trunk of the tree at all points.
 - c. At the edge of the natural features identified to be protected under this regulation and in compliance with the required exterior limits of natural features setbacks as defined within this Ordinance
2. No filling, depositing, excavating, or storage of materials, debris, or equipment shall take place within the protected area.
3. Temporary construction fencing shall be maintained in good condition until all construction activity has been completed for the area or development phase.
4. Any landmark tree that is determined to be dead, dying, or severely damaged due to on-site construction activity during construction or within three (3) years following completion of the development shall be replaced by the developer in the amount specified in the requirements for mitigation of landmark trees. To ensure replacement of trees that are damaged, dead, or dying, the developer may be required by the Township to post a performance guarantee, in accordance with Section 1.11C (Performance Guarantees), in an amount calculated to cover the cost of the total replacement.

H. Inspection.

To ensure compliance with this Section, the Township may perform periodic inspections of subject lots or parcels, at such times determined to be necessary, during all phases of construction and development as well as for up to three (3) calendar years after completion of the development project.

Sections 11.06–11.09 Reserved.**Section 11.10 Landscaping and Screening.**

Screening and land use buffers are necessary to ensure reasonable compatibility between land uses of differing intensity or impacts. Screening elements enhance the visual environment; preserve natural features; protect property values; alleviate the impact of noise, traffic, and more intensive land uses; and minimize visual impacts of parking lots, loading areas and storage areas. The purposes of this Section are to establish minimum standards for the design, installation, and maintenance of screening elements and plant materials; and to establish reasonable standards for screening of specific areas from road rights-of-way and adjacent lots. It is the intent of this Section that required screening and buffering elements shall be immediately effective in achieving the purpose of this Section, and shall maintain that effectiveness as the plant materials mature.

A. Scope.

The standards of this shall apply to all development projects and parcels subject to site plan approval per Article 8.0 (Site Plan Review), condominium site plan approval per Article 9.0 (Condominium Regulations), planned unit development approval per Article 10.0 (Planned Unit Development District), private road approval in accordance with the Township's Private Road Ordinance, or subdivision plat approval in accordance with the Land Division Act and Township subdivision regulations.

B. General Standards.

The following standards shall apply to all landscaping and screening elements required by provisions of this Ordinance or determined necessary by the Planning Commission as part of site plan approval:

1. **Visibility.** Landscaping and screening materials and layout shall conform to the requirements of Section 3.208 (Corner Clearance Areas), and shall not conflict with visibility for motorists or pedestrian access.
2. **Plantings near utility lines and fire hydrants.** Required plant materials and screening shall be arranged to avoid conflicts with underground and overhead utilities. The anticipated height at maturity of trees planted near overhead utility lines shall be a minimum of ten (10) feet less than the line height above grade.
3. **Protection.** Where pavement and landscape areas interface, curbing or similar measures shall be provided to protect plants from vehicle encroachment.
4. **Plant material standards.** The following shall apply to all plant materials:
 - a. All plant material shall conform to size and description set forth in the current edition of "American Standard for Nursery Stock" sponsored by

the American Association of Nurserymen, Inc. and approved by the American National Standards Institute, Inc.

- b. All plant material shall be true to name in conformance to the current edition of "Standardized Plant Names" established by the American Joint Committee on Horticultural Nomenclature, or other source accepted by the Township.
 - c. All plant material shall be nursery grown; hardy to the climate of Michigan; appropriate for the soil, climatic and environmental conditions; and resistant to disease and insect attack. Artificial plant material shall be prohibited within required screening areas.
 - d. The use of plant materials native to southern Lower Peninsula of Michigan is encouraged.
5. **Groundcovers.** The following shall apply to all groundcover materials:
- a. Lawn areas shall be planted in species of grass normally grown as permanent lawns in Michigan. Grass may be sodded or otherwise planted using techniques suitable to the climate, with adequate measures taken to maximize seed germination and minimize soil erosion. Sod or seed shall be clean and free of weeds and noxious pests or disease.
 - b. The creative use of groundcover alternatives is encouraged; such as native prairie grasses, wildflowers, and similar plantings. Groundcover used in lieu of grass shall be planted to present a finished appearance after one (1) growing season.
 - c. Synthetic materials shall not be used as a permitted groundcover. Use of stone and gravel as a groundcover shall be limited to decorative accents within a planting bed, subject to Planning Commission approval.
6. **Mulch.** Planting beds shall present a finished appearance; with shredded hardwood bark mulch or similar natural material at a minimum depth of three (3) inches. Mulch used around trees and shrubs shall be a minimum of four (4) inches deep, and shall be pulled one (1) inch away from tree trunks. An effective edge treatment shall be provided to contain and prevent migration of the mulch.
7. **Topsoil.** A minimum four (4) inches of topsoil shall be provided for all lawn areas, ground covers and planting beds.

C. Standards for Size and Variety of Plant Materials.

To ensure adequate variety, and to avoid monotony and uniformity within a site, required plant materials shall not include more than thirty percent (30%) of any single plant species, and shall comply with the following:

Screening Materials	Minimum Size at Installation
Deciduous Shade Trees	2½ - 3.0 caliper-inches diameter and 8.0 feet in overall height

Screening Materials	Minimum Size at Installation
Evergreen Trees	5.0 - 6.0 feet in overall height
Deciduous Ornamental Trees	2.0 caliper-inches diameter and 6.0 feet overall height
Shrubs	30 inches in height or 24 inches in spread

D. Methods of Screening.

Required landscaping and screening elements shall be provided by one (1) or more of following methods as best suited to the existing conditions, subject to Planning Commission approval:

1. **Greenbelt buffer.** The purpose of this method is to establish a buffer between adjacent land uses, or between uses and adjacent road rights-of-way. This method is intended to provide a partial visual screen, particularly where the adjacent uses (including uses that are adjacent across a road right-of-way) are less intense than the use of the subject site. Greenbelt buffers shall consist of the following (see illustration at end of Section):
 - a. Greenbelts shall have a minimum width of 20 feet, and may be interrupted only to provide for pedestrian or vehicular access.
 - b. A mixture of deciduous shade trees, ornamental trees, evergreen trees, and shrubs shall be planted along the greenbelt buffer at a minimum concentration of one (1) tree and three (3) shrubs per 15 linear feet of greenbelt length. The Planning Commission may require additional plantings to achieve the screening objectives of this Section.
 - c. Such required plant materials may be placed at uniform intervals, at random or in groupings.
 - d. The greenbelt length shall be measured along the centerline of the greenbelt for its entire length, inclusive of all driveways.

2. **Hedgerow.** The purpose of this method is to visually screen parking lots, adjacent uses, and road rights-of-way. This method is intended to create an effective obscuring screen within a limited land area. This method shall consist of shrubs planted and maintained as a continuous visual screen, subject to the following (see illustration at end of Section):
 - a. The maximum permitted spacing between individual plants shall not exceed three (3) feet on-center, unless a different separation distance is determined by the Township Planner to be more appropriate for the type of shrub proposed.
 - b. Maintained plant height at maturity shall be adequate for the intended screening function.
 - c. Low height shrubs [two (2) to four (4) feet in height] shall be used to provide necessary ground-level screening to block headlight glare or similar low-level impacts.

- d. Larger shrubs [exceeding four (4) feet in height] shall be used to establish a landscaped barrier between land uses of differing intensities, or to provide more complete screening.
3. **Fence.** The purpose of this method is to visually screen parking lots, outdoor storage areas, and similar uses where predominant impacts are at or below eye level. This method shall consist of an ornamental, rail or privacy fence constructed along the lot or district boundary, or around the perimeter of the area to be screened, subject to the following (see illustration at end of Section):
 - a. Required fences shall have a minimum height of three (3) feet, and shall not exceed six (6) feet in height above grade unless a higher fence height is determined by the Planning Commission to be necessary to provide adequate screening.
 - b. The fence materials, height, location, and design shall be consistent with existing fences on adjacent lots, and shall be subject to Planning Commission approval.
 4. **Berm.** The purpose of this method is to effectively screen visual and noise impacts using natural-appearing landforms. This method is intended to provide an obscuring screen to block noise and light from adjacent uses or road rights-of-way, or to create a buffer between developed and undeveloped areas. Berms shall consist of a combination of a sculpted earth mound and plantings, which shall meet the following standards (see illustration at end of Section):
 - a. Berms shall have side slopes no steeper than one (1) foot vertical to four (4) feet horizontal (1:4 ratio).
 - b. Berms shall have a minimum height of three (3) feet above the grade elevation. Overall berm height shall be adequate for the intended screening function. Grade elevation shall be the ground elevation at the nearest lot line adjacent to the proposed berm.
 - c. The interior face of the berm may be constructed as an earthen slope, or may be retained by means of a wall, terrace or similar means acceptable to the Planning Commission.
 - d. The berm shall be designed to blend with existing topography, and sodded, hydro-seeded or planted with appropriate groundcovers.
 - e. The Planning Commission may require greenbelt buffer plantings on the berm in accordance with the requirements of this Section.
 - f. For the purpose of determining any required plant materials, the length of any required berm shall be measured from one toe of the berm (the farthest point at one end of the berm's long dimension where the berm height equals the surrounding grade level) along the berm's centerline to the toe at the opposite end of the berm.
 5. **Evergreen screen.** The purpose of this method is to create a dense obscuring screen that meets the objectives of this Section. This method is intended to establish a year-round screening barrier between land uses of differing

intensities, to effectively block noise and light, or to completely separate developed and undeveloped portions of a site.

This method shall consist of closely spaced evergreen trees with year-round screening characteristics. Such trees shall be planted a maximum of 15 feet apart in at least two (2) staggered rows (see illustration at end of Section).

6. **Masonry wall.** The purpose of this method is to create a solid, year-round barrier and obscuring screen to effectively block noise, light, and other impacts between land uses of differing intensities. Such walls shall be subject to the following (see illustration at end of Section):
 - a. Masonry walls shall have a minimum height of two (2) feet, and shall not exceed six (6) feet in height above grade unless a higher wall height is determined by the Planning Commission to be necessary to provide adequate screening.
 - b. Walls shall be solid in character and capped with stone or concrete.
 - c. Wall materials shall be coordinated with the principal building materials on the site. The Planning Commission may require that decorative masonry (brick, stone, or decorative block) materials be incorporated into the wall design and construction.

E. Parking Lot Landscaping and Perimeter Screening.

Parking lot landscaping and perimeter screening shall be designed and arranged to enhance the appearance of the parking area, improve the level of safety for pedestrians and motorists, guide traffic movement, and define ingress/egress points. Parking lot landscaping and perimeter screening shall be subject to the following:

1. **Perimeter screening.** Parking lots shall be screened from all abutting RURAL USES, RESIDENTIAL USES, residential zoning districts, and road rights-of-way per Section 11.10D (Methods of Screening).
2. **Snow storage area.** Adequate snow storage area shall be provided within the site. Plant materials in snow storage areas shall be hardy, salt-tolerant species characterized by low maintenance requirements.
3. **Landscaping within parking lots.** Landscaped islands shall be provided at the ends of parking rows, and as otherwise required by this Ordinance or the Planning Commission to break up large expanses of pavement and guide traffic flow. Landscaped islands shall be subject to the following (see illustration):
 - a. Planting islands shall have a minimum width of ten (10) feet, and a minimum area of 180 square feet.
 - b. A minimum of two (2) deciduous shade or ornamental trees shall be provided for each planting island. Shrubs and live groundcover plantings shall be used to cover the remaining areas of the island.

- c. All landscaping and perimeter screening, except designated snow storage areas, shall be protected from vehicle encroachment with concrete curbing or similar permanent means.
- d. Rain gardens, bioswales, and similar naturalized stormwater management systems with appropriate plantings may be incorporated into required parking lot landscaping.

F. Loading, Storage, and Service Area Screening.

Loading, storage, and service areas, public utility and essential service uses and structures, ground equipment shelters, ground-mounted transformers, generators, and HVAC units, electric sub-stations, gas regulator stations, and similar facilities shall be screened from road rights-of-way and adjacent uses in accordance with Section 11.10D (Methods of Screening).

G. Detention and Retention Basin Screening.

Where a detention or retention basin, or similar stormwater management facility is required, such facilities shall comply with the following:

- 1. To the extent possible, basin configurations shall be incorporated into the natural topography. Where this is not practical, the basin shall be shaped to emulate a naturally formed or free form depression. The basin edge shall consist of sculptured landforms to filter and soften views of the basin.
- 2. Basins shall be designed to avoid the need for perimeter fencing. Where such fencing is necessary, the location and design shall be subject to Planning Commission approval.
- 3. Basins shall be planted with a mixture of groundcover and wetland-based plantings native to Michigan, such as native grasses or wildflowers.
- 4. A perimeter greenbelt buffer shall be provided in accordance with this Section and the following:
 - a. Plantings shall be clustered around the basin to achieve a variety of plant materials, and to replicate a natural environment. Deciduous shade trees shall be clustered around the south and west sides of the basin to provide shade and minimize solar heating of the water.
 - b. Trees shall be planted above the freeboard line of the basin. Any plantings proposed below the freeboard line shall be tolerant of wet or moist soil conditions. The location of plant materials shall take into consideration the need to provide access for routine basin maintenance.

H. Prohibited Plant Materials.

The following trees have been determined by the Township to be undesirable for the landscaping and screening purposes of this Ordinance, and shall not be used to satisfy the requirements of this Section except in the following limited circumstances:

Species	Common Name
<i>Acer negundo</i>	Box Elder
<i>Ulmus x</i>	Elm varieties; except disease-resistant cultivars, such as 'Regal', 'Pioneer', 'Homestead', 'Jacan' and 'Accolade'
<i>Aesculus x</i>	Horse Chestnut; except for use in greenbelts and transition zones between developed and un-developed areas of a site
<i>Populus x</i>	Poplar varieties
<i>Elaeagnus x</i>	Olive varieties
<i>Salix x</i>	Willow varieties; except in appropriate wetland ecosystems
<i>Catalpa x</i>	Catalpa varieties; except for use in greenbelts and transition zones between developed and un-developed areas of a site
<i>Ailanthus altissima</i>	Tree of Heaven
<i>Ginkgo biloba</i>	Ginkgo (female); male trees are acceptable
<i>Robinia pseudoacacia</i>	Black locust
<i>Morus alba</i>	Mulberry (white)
<i>Acer saccharinum</i>	Silver Maple
<i>Juglans nigra</i>	Black Walnut; except for use in greenbelts and transition zones between developed and un-developed areas of a site
<i>Fraxinus x</i>	Ash varieties

I. Installation and Maintenance.

All screening elements and plant materials shall be installed in a manner consistent with the standards of the American Association of Nurserymen, the approved site plan, and the following:

1. **Deadline for installation.** Installation of required screening elements and plant materials shall be completed within 365 calendar days from the date of site plan approval for the project.
2. **Extension.** The Township Planner or Zoning Administrator may extend the deadline to allow installation of required plant materials by the end of the next planting season, upon determination that weather conditions, development phasing, or other factors would jeopardize required plant materials and prevent their installation by the deadline specified in this Section.
3. **Performance guarantee.** The Township Planner or Zoning Administrator may require submittal of a performance guarantee, per Section 1.11C (Performance Guarantees), to cover the cost of installing required screening elements and plant materials. After installation has been completed, the Township Planner or Zoning Administrator shall conduct an inspection of the plant materials before the guarantee may be released.
4. **Maintenance.** All screening elements and plant materials shall be maintained in accordance with the approved site plan, and the following:
 - a. Maintenance procedures and frequencies to be followed shall be specified on the site plan, along with the manner in which the effectiveness, health, and intended functions of the screening elements and plant materials on the site will be ensured.

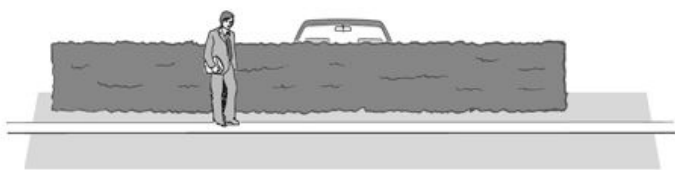
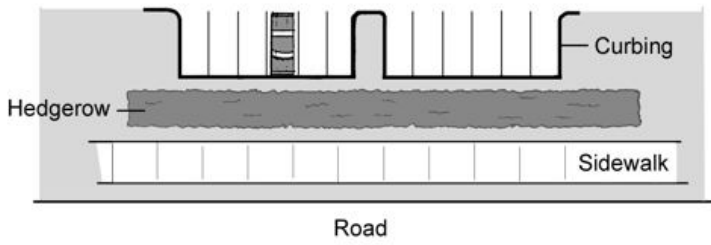
- b. Adequate provisions shall be made to regularly supply water to all required plant materials as necessary to ensure proper growth and development.
- c. Plant materials shall be kept in a neat, orderly and healthy growing condition, free from weeds, debris and refuse. Tree stakes, guy wires and tree wrap shall be removed after one (1) year.
- d. Pruning of plant materials shall be limited to the minimum necessary to ensure proper maturation of plants to achieve their intended purpose.
- e. All required screening elements and plant materials shall be planted and maintained in accordance with an approved site plan. Failure to maintain required screening, including the removal and replacement of dead or diseased plant materials, shall be a violation of this Ordinance.
- f. The replacement or removal of plant materials in a manner not consistent with an approved site plan shall be a violation of this Ordinance.

K. Modifications.

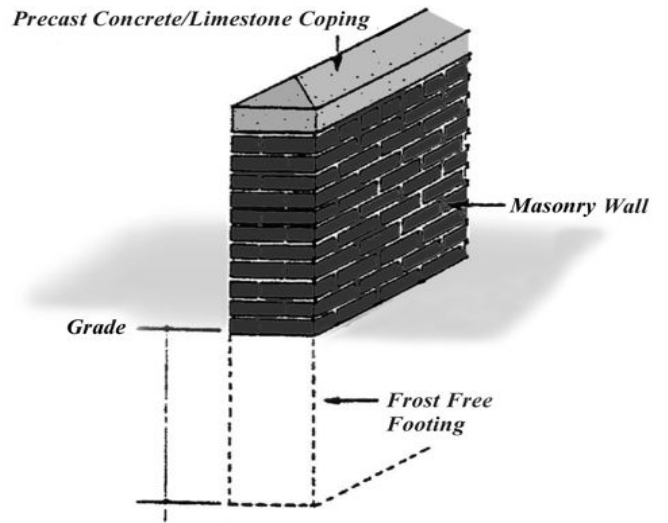
The Planning Commission shall have the authority to approve alternative designs or plant materials as part of final site plan approval upon determination that the alternative landscape designs or plant materials would meet the purpose and objectives of this Section; or the requirements of this Section have been satisfied by existing topography, vegetation or other acceptable means.

Where an existing building is undergoing renovation, expansion, or change in use, required landscaping and screening improvements shall be in reasonable proportion to the size and configuration of the site and the scale of proposed improvements, as determined by the Planning Commission in accordance with the purpose and objectives of this Section.

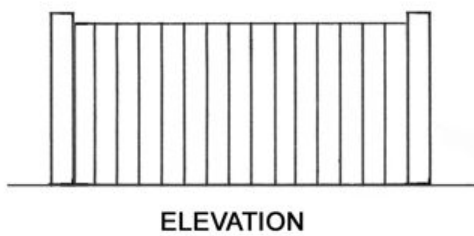
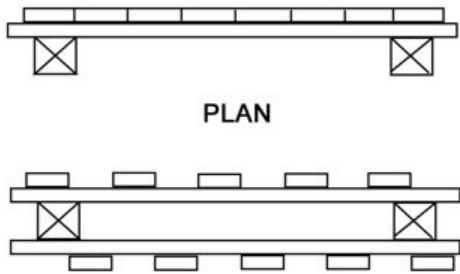
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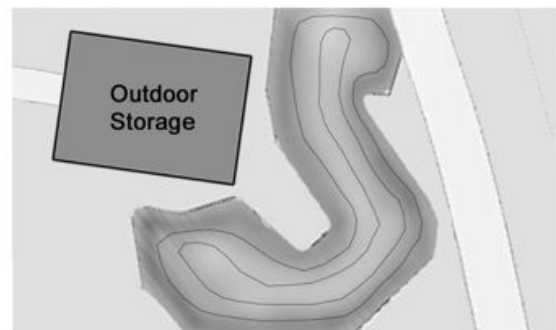
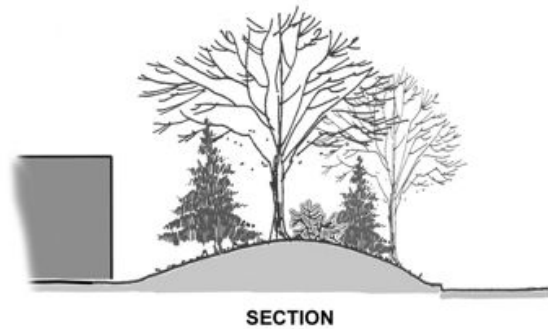
Hedgerow



Screen Wall

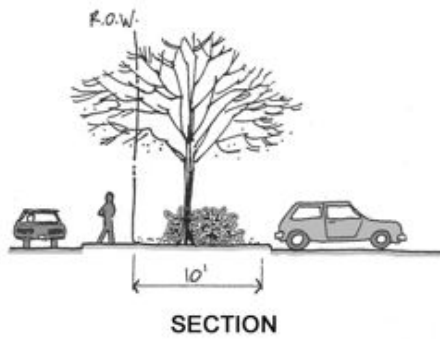
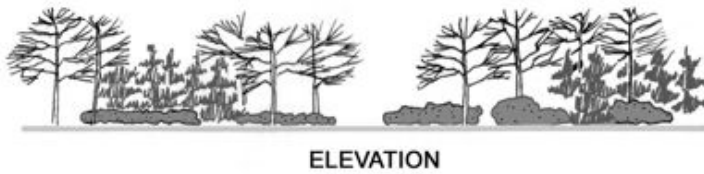
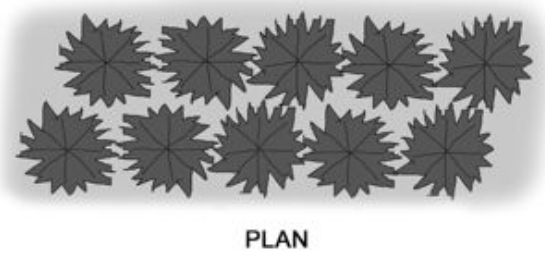
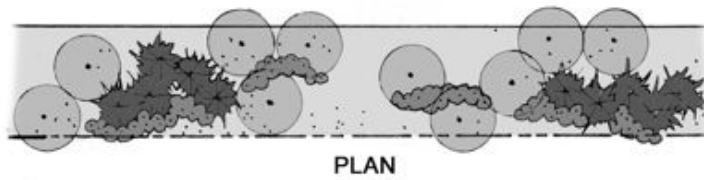


Fence



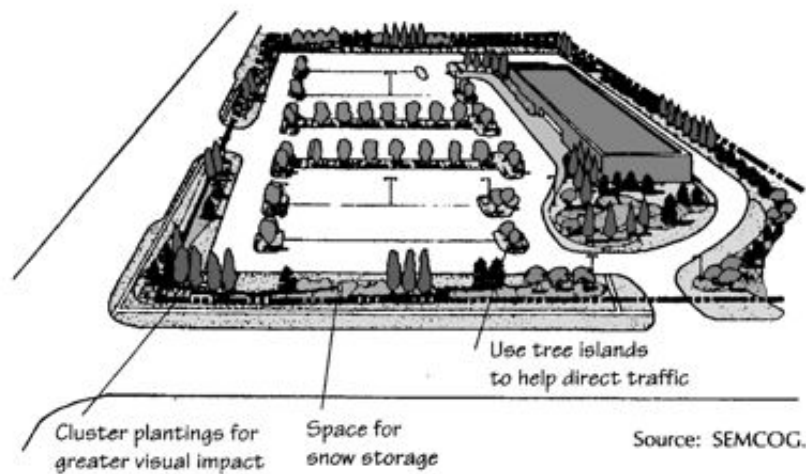
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ILLUSTRATIONS



Greenbelt Buffer

Evergreen Screen



Landscaping Within Parking Lots

Sections 11.11–11.14 Reserved.**Section 11.15 Development Agreement.**

A Development Agreement shall be entered into between the Township and the owner(s)/developer(s) of any property upon which a residential, commercial, industrial, or other land use is to take place following final site plan approval and prior to the commencement of any site work or construction. The cost to prepare and record this Agreement shall be borne by the owner(s)/developer(s). Preparation and approval of a Development Agreement shall be subject to the following:

A. Contents of a Development Agreement.

At a minimum, a Development Agreement shall:

1. Set forth any conditions of development approval to be met by an applicant or developer with respect to an approved project;
2. Provide for any dedication of easements, rights-of-way, and other dedications incorporated into the approved project;
3. Provide for maintenance of any common facilities and open space areas;
4. Identify any covenants, deed restrictions, and other limitations to be imposed upon the uses of the land and structures;
5. Describe the phasing and timing of development activities;
6. Detail the cost of installing all required infrastructure improvements and utilities, and manner for enforcement of any assessments and costs;
7. Describe any required escrow accounts or performance guarantees;
8. Include the approved development plans and any associated development documents as exhibits; and
9. Address other issues that the Township and owner(s)/developer(s) deem appropriate.

B. Approval of a Development Agreement.

The proposed Development Agreement shall be subject to review by the Township Planner, Township Attorney, and other designated officials and consultants; and approval by the Township Board. The owner(s)/developer(s) of the subject property shall be responsible for recording the approved Development Agreement in the Washtenaw County Register of Deeds office, unless the Township Clerk agrees to do so at the owner(s)/developer(s) expense. Proof of recording and two (2) copies of the recorded Agreement and any exhibits shall be provided to the Township Clerk.

Sections 11.16–11.19 Reserved.

Section 11.20 Exterior Lighting.

The purpose of this Section is to promote the preservation of dark skies over the Township, and to preserve the lawful nighttime use and enjoyment of land in the Township through the establishment and enforcement of reasonable and consistent exterior lighting standards. Exterior lighting shall be designed, installed, and maintained to control glare and light trespass; conserve energy; and prevent degradation of the nighttime visual environment. The standards of this Section are intended to protect the general welfare by allowing sufficient but not excessive lighting for parking areas, walkways, driveways, building entrances, loading areas, and common areas; minimize the adverse effects of inappropriate lighting; and provide for the safety and security of people and property in the Township.

A. Scope.

The standards of this Section shall apply to all exterior lighting sources; all light sources visible from any road right-of-way or adjacent lot; and all projects subject to site plan review per Article 8.0 (Site Plan Review), condominium site plan approval per Article 9.0 (Condominium Regulations), and certificates of zoning compliance approval per Article 1.0 (Administration and Enforcement). The standards of this Section shall also apply to all high intensity and security lighting for RURAL USES and single- and two-family (duplex) dwellings. This Section shall not apply in the following limited circumstances:

1. Incidental decorative light fixtures and low profile exterior lighting for RURAL USES and single- and two-family (duplex) dwellings, such as porchlights and low voltage landscape lighting, shall be exempt from requirements of this Section.
2. Holiday decorations displayed for temporary periods not to exceed 90 calendar days shall be exempt from the requirements of this Section.
3. Lighting for a permitted temporary circus, fair, carnival, or civic use shall be exempt from requirements of this Section, except that the Planning Commission or Zoning Administrator may impose reasonable restrictions on the use of such lighting where necessary to protect the public health, safety and welfare.
4. This Section shall not apply to shielded pedestrian walkway lighting and shielded lighting of flags of the United States of America or State of Michigan.
5. This Section shall not apply to circumstances where federal or state laws take precedence, or where fire, police, emergency, or repair personnel need light for temporary or emergency situations.

B. General Provisions.

The following general standards shall apply to all light sources regulated by this Section:

1. **Fully-shielded.** Exterior lighting shall be fully shielded, using concealed source fixtures directed downward and away from adjacent lots and road rights-of-way. All exterior light fixtures shall utilize full cutoff housings, louvers, glare shields, optics, reflectors or other measures to prevent off-site glare and minimize light pollution (see illustration).
2. **Glare and light trespass.** Exterior lighting shall be designed, constructed, and maintained in a manner that minimizes off-site glare, light trespass on neighboring lots, and traffic hazards for motorists.

3. **Intensity.** The maximum intensity of light within any site shall not exceed the following standards:

Light Intensity	Maximum (footcandles)
At any point within the site	10.0
At any lot boundary or road right-of-way line	0.2

4. **Lamp wattage and energy efficient technologies.** Lamp wattages shall be consistent with the fixture’s style and function. The use of light emitting diode (LED) and other more energy efficient lighting technologies shall be encouraged, provided that light intensity levels shall conform to all requirements of this Section. Fixtures in parking lots and high traffic areas using low or high-pressure sodium, metal halide or similar lamp types shall be limited to a maximum lamp wattage of 250 watts per fixture up to 20 feet in height above grade. A maximum of 400 watts per fixture shall be permitted for fixtures exceeding 20 feet in height above grade.
5. **Alterations of approved exterior lighting.** Exterior light sources and fixtures regulated by this Section shall not be altered or replaced after approval has been granted, except where the Township Planner or Zoning Administrator has verified that the change conforms to the requirements of this Section.
6. **Prohibited lighting.** Exterior lighting sources and fixtures regulated by this Ordinance shall not be of a flashing, moving, animated or intermittent type.

C. Rural and Residential Exterior Lighting.

A certificate of zoning compliance shall not be required to install high intensity and security lighting for RURAL USES and single- and two-family (duplex) dwellings. Such exterior light sources shall conform to the standards of this Section, including that such fixtures shall be fully shielded to prevent off-site glare and minimize light pollution. Homeowners are encouraged to confirm compliance with this Section before installing high intensity and security lighting on their property. New or altered rural and residential exterior lighting found to not conform to the requirements of this Section shall be deemed a violation of this Ordinance.

D. Standards by Type of Fixture.

The following additional standards shall apply to specific types of exterior light fixtures, in addition to the provisions of Section 11.20B (General Standards):

1. **Freestanding pole lighting.** The maximum height of all freestanding, pole-mounted fixtures shall be directly proportional to the fixture’s proximity to the boundary of a lot or parcel in a residential zoning district or occupied by any RURAL USES or RESIDENTIAL USES, as follows:

Fixture Location	Maximum Fixture Height
Less than 50 feet	15 feet
50 feet to 300 feet	20 feet

Fixture Location	Maximum Fixture Height
More than 300 feet	25 feet

2. **Architectural lighting.** Exterior illumination of building facades shall be limited to fully shielded fixtures directed towards the facade. All light from such fixtures shall be concentrated on the wall surface. Unshielded luminous tube (neon) or fluorescent lighting shall be prohibited as an architectural detail on the exterior of any structure; including but not limited to cornices, windows, and doorways.

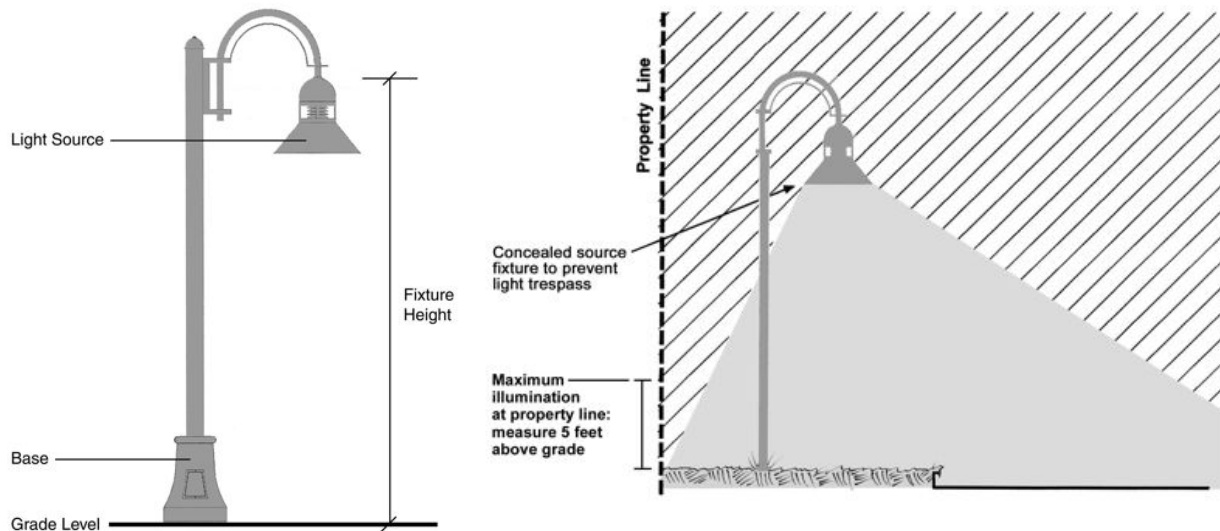
3. **Window lighting.** For all non-residential land uses, interior light fixtures visible through a window from a road right-of-way or abutting lot shall be shielded to prevent glare impacts at the lot boundary or within the right-of-way. Unshielded luminous tube (neon) and fluorescent light fixtures shall be prohibited where the light source would be visible from an abutting lot or road right-of-way.

4. **Decorative lighting.** For all non-residential land uses, decorative light fixtures shall be permitted as an alternative to fully shielded fixtures where such fixtures would enhance the aesthetics of the site without causing off-site glare or light trespass, as determined by the Zoning Administrator or Planning Commission.

E. Measurements.

Exterior lighting intensity levels shall be measured on the horizontal plane at grade level within the site; and on the vertical plane of the lot or road right-of-way boundaries at a height of five (5) feet above grade. Fixture height shall be measured from grade level to the highest point of the light source (see illustration).

ILLUSTRATIONS



Light Fixture Height

Lighting Fixture Orientation and Shielding

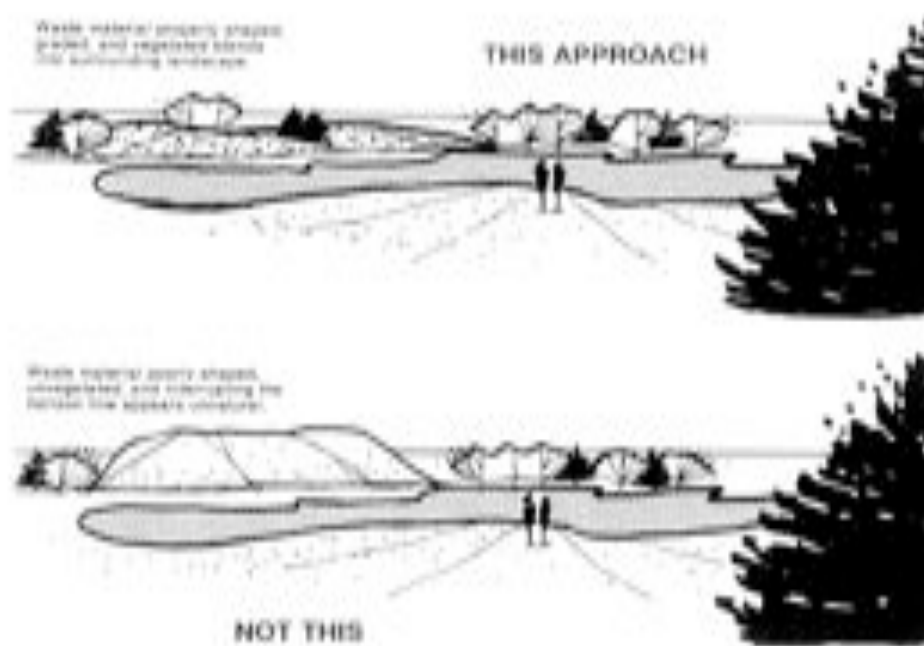
Sections 11.21–11.27 Reserved.

Section 11.28 Ponds.

Private residential ponds shall be permitted in the Rural Districts and Residential Districts, and agricultural/farm ponds shall be permitted in the Rural Districts, subject to the following:

1. A certificate of zoning compliance shall be required for the construction or enlargement of all private residential and agricultural/farm ponds. Special use permit approval shall be required for any pond in which excavated materials in excess of 1,000 cubic yards are to be hauled off-site, in accordance with the requirements of Article 7.0 (Special Land Uses).
2. Applications for private residential or agricultural/farm ponds shall be accompanied by a review fee as established by resolution of the Township Board.
3. If requested by the zoning administrator, the applicant shall submit written verification from the Michigan Department of Environmental Quality that the proposed pond will not impact a regulated wetland.
4. Prior to issuance of a certificate of zoning compliance, the applicant shall be required to post a performance guarantee, per Section 1.11C (Performance Guarantees), to ensure restoration of disturbed areas.
5. Private residential ponds shall be limited to lots of one (1) acre or more, and shall be limited to a maximum surface area equal to twenty five percent (25%) of the total lot area.
6. A minimum setback of 100 feet shall be maintained between the edge of any pond excavation to any property line, and to any septic tank or septic drain field. A minimum setback of 25 feet shall be maintained from the edge of excavation to the nearest point of any single-family home or any accessory building.
7. There shall be no slope in excess of four feet horizontal to one foot vertical (4:1) until the pond reaches a depth of seven (7) feet at the low water mark on all sides of the pond.
8. Commercial use of any private residential pond or agricultural/farm pond for swimming, fishing, boating or similar activities shall be prohibited.
9. On-site dispersal of excavated material shall be in accordance with the following:
 - a. Excavated materials shall be contoured or used to create berms with a maximum slope of three feet horizontal to one foot vertical (3:1).
 - b. Where excavated materials are bermed, the materials shall be contoured to avoid interruption of the horizon with the top layer of the redistributed materials (see illustration).
 - c. All excavated material shall be suitably graded and seeded or otherwise covered with grass or other groundcover to prevent erosion and to visually incorporate the excavated materials into the landscape.

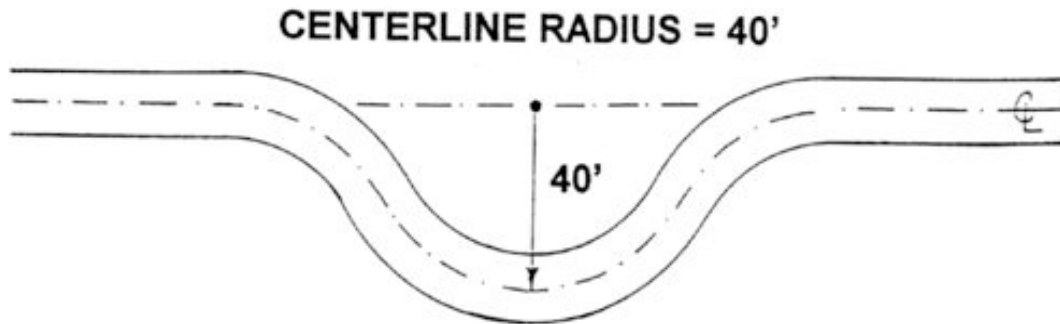
ILLUSTRATION



Section 11.29 Residential Driveway Standards.

To improve response time and ensure adequate emergency vehicle access, the following standards shall apply to all private driveways for all principal uses in all zoning districts where the rear of the principal building is more than one hundred 100 feet from the road right-of-way:

1. All trees and brush shall be kept cleared for a minimum width of 14 feet for the full length of all private drives.
2. Topsoil, stumps, and unstable soils shall be removed, backfilled with appropriate base material, and surfaced with gravel, crushed limestone or similar material to a minimum width of twelve (12) feet for the full length of the driveway.
3. The surface of the driveway shall be graded and maintained to ensure adequate surface water drainage, so that water damage and frost heave will not impede access by emergency vehicles.
4. Through all curved sections of the driveway, a minimum centerline radius of 40 feet and a minimum clear width of 18 feet on-center shall be provided (see illustration).

ILLUSTRATION**Sections 11.30–11.32 Reserved.****Section 11.33 Building Form and Composition.**

The composition, orientation, and form of new construction and new buildings occupied or intended to be occupied by OFFICE, SERVICE, AND COMMUNITY USES and COMMERCIAL USES in the Township shall be subject to the following:

A. Purpose.

The quality of building design, placement, and composition is essential to provide a comfortable, human-scale environment in the Township, and maintain the Township's attractiveness and economic vitality. Accordingly, it is the purpose of this Article to:

1. Maintain the visual environment, protect the general welfare, and ensure that the Township's property values, appearance, character, and economic well-being are preserved through minimum composition and placement standards;
2. Encourage creativity, imagination, innovation, and variety in architectural design and building composition; and
3. Reinforce and support a compact development pattern in the Bridgewater Hamlet area through complementary and appropriate use of scale, massing, and architectural details.

B. Scope.

This Section is not intended to supercede or supplant established building and fire code regulations, nor to regulate the quality, durability, maintenance, performance, load capacity, fire resistance characteristics or workmanship of building materials. The provisions of this Section shall apply to new construction and new buildings occupied or intended to be occupied by OFFICE, SERVICE, AND COMMUNITY USES and COMMERCIAL USES subject to review per Article 8.0 (Site Plan Review).

C. Requirements.

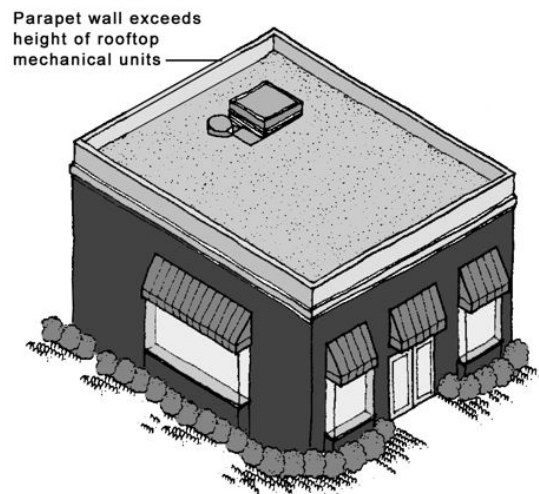
Building construction and other work subject to the provisions of this Section shall comply with the following general requirements:

1. **Façade variation.** Building façade walls exceeding 100 feet in length shall be subdivided into bays through the location and arrangement of architectural features and design variations; including but are not limited to projections, bays, recesses, enhanced façade materials and architectural detailing, and variations in building height, roof forms, and window patterns (see illustration).
2. **Composition.** All sides of a building shall be complementary in design, details, and materials. Side and rear facades shall include building materials and architectural features similar to those present on the front facade of the building.
3. **Public entrances.** Buildings shall have at least one (1) public entrance facing a road right-of-way. Additional public entrances shall be permitted on the rear or side facade, including primary access to other uses in a multi-tenant building.
4. **Rooftop equipment screening.** Roof-top mechanical equipment, HVAC systems, exhaust stacks, elevator housings, and other equipment shall be screened from public rights-of-way and adjacent uses by a parapet wall or similar device that exceeds the height of the roof-top equipment and extends around all sides of the building (see illustration).
5. **Security and safety equipment.** Exterior security gates or roll-down security doors shall be prohibited. Link or grill type security devices shall be permitted only if installed on the interior of the building, within the window or doorframes. Such security equipment shall be recessed and completely concealed during regular business hours, and shall be predominantly transparent to allow maximum visibility of the interior.

ILLUSTRATIONS



Facade Variation



Roof Design

Sections 11.34–11.36 Reserved.

Section 11.37 Private Roads.

Unobstructed, safe and continuous access to parcels is necessary to protect the health, safety, and welfare of Township residents. Such access is necessary to ensure that police, fire, and ambulance services can safely and quickly enter and exit private property at all times. Private roads shall be designed, built and maintained in conformance with all applicable requirements of this Ordinance and the Township's Private Road and Lot Split ordinances. Private roads are only permitted within multiple-family residential developments, manufactured housing parks, and residential developments approved as part of a Planned Unit Development (PUD).

1. All private roads require site plan approval per Article 8.0 (Site Plan Review).
2. All private roads shall also be reviewed and approved in accordance with the provisions of the Township's Private Road and Lot Split ordinances prior to commencement of any land development activity associated with the proposed private road or any use(s) that the proposed private road will serve.
3. Parcel or lot splits which are proposed in conjunction with, or require access to, a private road shall not be approved by the Township until the private road has been reviewed and approved in conformance with this Ordinance and the Township's Private Road and Lot Split ordinances.
4. All private roads shall be inspected in conformance with the provisions of the Private Road Ordinance. Construction of the road shall be certified by the Township Engineer as being in conformance with the approved plans for the road prior to issuance of a certificate of zoning compliance or building permit for any proposed structure on a parcel to be served by the private road.

Section 11.38 Wireless Communication Facilities.

Wireless communications systems, facilities, towers, and antennae in the Township shall be subject to the following:

A. Purpose.

The purpose of this Section is to carry out the will of the United States Congress by permitting facilities within the Township that are necessary for the operation of wireless communications systems, and facilitating adequate and efficient provisions for wireless communications facility sites. It is the intent of this Section to:

1. Permit the location of wireless communication facilities within given geographical areas of the Township, while protecting the safety and character of nearby residential areas and the Township as a whole;
2. Require collocation of transmission and receiving apparatus and antennae on existing towers, unless it can be reasonably demonstrated that such collocation is not technically feasible;
3. Require new and replacement wireless communication towers to include provisions for collocation wherever technically feasible;
4. Limit adverse visual impacts through careful design, siting, landscaping and screening elements, and innovative camouflaging techniques;

5. Prevent potential damage to adjacent properties from tower failure, and promote the timely removal of facilities upon the discontinuance of use;
6. Establish consistent review procedures and information requirements for construction, alteration or enlargement of a wireless communication tower and installation of a new antenna on an existing building in accordance with Section 502 and Section 504 of the Michigan Zoning Enabling Act; and
7. Permit administrative review and approval of certain types of projects that have a limited scope and impact, such as collocation of additional antennae on an existing, approved wireless communications tower.

B. Application Information.

The following information shall be provided with any application for approval of a wireless communications facility:

1. **Applicant information.** The name, address and telephone numbers for the applicant, property owner, tower operator and installation contractor; and the address, parcel identification number or location of the property on which the facility is to be located.
2. **Facility inventory.** If the application includes a new wireless communication tower, the applicant shall provide an inventory of all existing towers located in the Township or within one (1) mile of the Township's boundaries. Sharing of this inventory with future applicants shall not constitute a representation or warrant by the Township that such sites are available or suitable. At a minimum, the inventory shall include the following:
 - a. Identification of the owner or operator, location, height, type, and design of each tower.
 - b. A description and assessment of the suitability of the use of existing towers, other structures or alternative technology not requiring the use of towers or structures to provide the proposed wireless communication services.
 - c. An assessment and illustration of feasible location(s) of future towers or antennae in the Township under the requirements of this Ordinance, based on the location of the proposed tower and existing physical, engineering, technological, and geographical limitations.
 - d. An environmental impact statement disclosing any anticipated impacts on local wetlands, floodplains, wildlife corridors, natural habitat areas, and other environmental considerations.
3. **Location map.** A location map for the proposed wireless communications facility, showing adjacent public roads, intersections, and other significant landmarks. If a new tower is proposed, the location map shall show the setback distance(s) from the nearest tower(s) included in the facility inventory.

4. **Service area coverage maps.** A map of the area served by the provider's existing wireless communications facilities shall be provided, along with a second map of the same area also showing the proposed service area coverage.
5. **Site plan.** A scaled site plan that indicates the type of wireless communications facility, as defined in this Ordinance, and includes the following:
 - a. A parcel survey, with easements, setback dimensions and the location of all existing and proposed structures and facilities on the subject parcel.
 - b. Zoning district classifications and existing land uses for the subject parcel and all adjacent parcels, including across road rights-of-way.
 - c. A description of the type and design of the proposed wireless communication facility.
 - d. Legal description of the subject parcel and any leased area, if applicable.
 - e. Setback distances between any proposed tower(s) and the nearest boundaries of any residential zoning district or lot occupied by a dwelling.
 - f. Proposed means of access and other proposed site improvements.
 - g. Details of proposed landscaping and screening materials; including species, size, and amounts, and a detailed maintenance plan.
 - h. Details of proposed fencing, lighting, and security elements and materials; including color and type of materials, and method of illumination and fixture specifications for all light sources.
 - i. Any other information deemed necessary by the Planning Commission to assess compliance with this Section.
6. **Elevation drawings.** Elevation drawings of the proposed wireless communication facility, ground equipment enclosure(s), and associated structures. The drawings shall identify:
 - a. The type, design, materials, and height for the proposed wireless communications facility, enclosure(s), and associated structures.
 - b. The name and location of the tower manufacturer, if applicable.
7. **Compliance with applicable laws and regulations.** The applicant shall provide documentation of proper licensing as a wireless communication services provider, and compliance with applicable federal and state standards relative to the environmental effects of radio frequency emissions.
8. **Permission to locate.** The applicant shall submit copies of an executed lease or purchase agreement or similar proof of permission to locate a wireless communications facility on the site.
9. **Collocation agreement.** The applicant for a new tower shall submit a signed and notarized agreement, transferable to all successors and assigns, stating that the tower operator shall make space available on the tower for collocation.

Proposed future antenna and equipment locations shall be indicated on the site plan and elevation drawings.

10. **Insurance certificate.** The applicant shall submit a valid certificate of insurance, to be renewed annually, listing the Township as the certificate holder and naming the Township, its past, present and future elected officials, representatives, employees, boards, commissions, consultants, and agents as additional named insured.
 - a. The certificate shall also state that if any of the described policies are to be canceled before the expiration date thereof, the issuing company will mail 30 days written notice to the Township as certificate holder.
 - b. The Township may require the applicant to supply a \$1,000.00 cash bond to the Township, which shall be used to reimburse administrative expenses in the event the certificate is allowed to lapse.
11. **Maintenance agreement.** The applicant shall submit a plan for the long-term, continuous maintenance of the facility. The plan shall identify who will be responsible for maintenance of the facility, including access, landscaping, screening, and security improvements.
12. **Removal agreement and guarantee.** The applicant shall submit a signed and notarized removal agreement and a performance guarantee for the future removal of the facility, subject to the following:
 - a. The agreement shall be in accordance with the requirements of Section 11.38O (Removal of Wireless Communications Facilities).
 - b. The applicant shall submit an estimate of the cost of removal of the facility and restoration of the site, certified by a licensed engineer.
 - c. The performance guarantee shall be in accordance with Section 1.11C (Performance Guarantees), and shall be sufficient to ensure removal of the wireless communication facility, restoration of the site, and reimbursement of associated administrative costs incurred by the Township in the event that the applicant, property owner or their successors fail to remove the facility in a timely manner.
13. **Tax-related information.** The applicant shall supply to the Township Assessor all tax-related information as requested for appraisal purposes. Upon receipt of requested information, the Assessor shall provide notice to the Zoning Administrator that this condition has been satisfied.
14. **Backhaul network information.** Identification of the entities providing the backhaul network for the wireless communication facility described in the application and other sites owned or operated by the applicant in the township.
15. **Franchise information.** Written documentation shall be provided to certify that all franchises required by law for the construction and operation of the wireless communication facility have been obtained. A copy of all such franchises shall be filed with the Township.

16. **Engineering certification.** Written certification shall be provided from a professional engineer licensed by the State of Michigan demonstrating:
- a. The manner in which the structure will fall in the event of accident, damage or failure, and that the setback area will accommodate the facility and provide an adequate buffer from adjacent parcels;
 - b. That the facility is designed in accordance with applicable dead load and wind pressure standards; and
 - c. That the facility is designed to conform with the State Construction Code and all other applicable building, electrical, and fire codes.

C. Type of Review Required.

Wireless communications facilities shall be reviewed in accordance with the following:

Type of Wireless Communications Facility	Required Review and Approval		
	Planning Commission	Zoning Administrator	Exempt
NEW TOWERS AND ANTENNAE			
Construction, alteration or enlargement of a wireless communication tower.	●		
Antenna(e) installation on an existing principal building or accessory structure that includes use of a ground equipment enclosure area outside of the existing building or structure.	●		
Antenna(e) installation on an existing principal building or accessory structure where all accessory equipment is installed within the existing building or structure.		●	
EXISTING TOWERS			
Alteration or enlargement of a wireless communication tower conforming to maximum height requirements that includes an increase in the overall tower height by more than 20 feet or 10% of its original height, whichever is greater. Also see Section 60.26F (Special Provisions for Review of Certain Alterations and Collocations).	●		
Alteration or enlargement of a wireless communication tower conforming to maximum height requirements and without increasing the overall tower height by more than 20 feet or 10% of its original height, whichever is greater.		●	
Expansion of a previously approved ground equipment enclosure to a total area greater than 2,500 square feet. Also see Section 60.26F (Special Provisions for Review of Certain Alterations and Collocations).	●		
Expansion of a previously approved ground equipment enclosure area to a total area less than or equal to 2,500 square feet.		●	
Construction or expansion of equipment building(s) within an approved ground equipment enclosure.		●	

Type of Wireless Communications Facility	Required Review and Approval		
	Planning Commission	Zoning Administrator	Exempt
Collocation of new antennae on an existing tower conforming to maximum height requirements that includes an increase in the overall tower height by more than 20 feet or 10% of its original height, whichever is greater. Also see Section 60.26F (Special Provisions for Review of Certain Alterations and Collocations)	●		
Collocation of new antennae on an existing tower conforming to maximum height requirements and without increasing the overall tower height by more than 20 feet or 10% of its original height, whichever is greater.		●	
Installation of new ground equipment within an approved ground equipment building or enclosure.		●	
SATELLITE DISH ANTENNAE			
Installation of a satellite dish antenna with a diameter of less than 1.5 meters.			●
Installation of a satellite dish antenna with a diameter 1.5 meters or larger.		●	
AMATEUR RADIO ANTENNAE AND SIMILAR FACILITIES			
Installation of an amateur radio transmission or reception antenna or antenna structure up to a maximum height of 65.0 feet.		●	
Installation of any amateur radio transmission or reception antenna or antenna structure, short wave facility, contractor's business antenna structure, television reception antenna, wireless Internet antenna or similar facility that exceeds 65.0 feet in height.	●		
Installation of a citizen band radio base station antenna structure, short wave facility, contractor's business antenna structure, television reception antenna, wireless Internet antenna or similar facility exceeding 14 feet in height, up to a maximum height of 65.0 feet.		●	
Installation of a citizen band radio base station antenna structure, short wave facilities, contractor's business antenna structure, amateur radio reception-only antenna, television reception antenna, wireless Internet antenna or similar facility up to a maximum height of 14 feet.			●
Installation of municipal and other facilities subject to federal or state preemption of local authority.			●
OTHER PROJECTS			
Repair, service or maintenance of an existing wireless communications facility, provided that all work is in compliance with approved plans, permits and applicable codes.			●
Telecommunication facilities as defined by the METRO Act (P.A. 48 of 2002, as amended).			●

[as amended 10/6/2016, Ord. No. 67-2]

D. Exempt Facilities.

Nothing in this Section shall be construed in such a manner to conflict with the regulatory process established for telecommunication facilities as defined and regulated by the METRO Act (P.A. 48 of 2002, as amended). Facilities listed as exempt from review in Section 11.38C (Type of Review Required) shall be permitted by right, subject to the applicable federal and state regulations.

E. Facilities Subject to Zoning Administrator Approval.

Facilities requiring Zoning Administrator approval per Section 11.38C (Type of Review Required) shall be subject to review and approval of a certificate of zoning compliance in accordance with the applicable standards of this Section and Article 1.0 (Administration and Enforcement).

F. Special Provisions for Review of Certain Alterations and Collocations.

In accordance with Section 3514 of the Michigan Zoning Enabling Act, Township review of proposed alterations to existing wireless communication towers or ground equipment enclosures subject to conditional use approval per Section 11.38C (Type of Review Required) and referencing this subsection shall be modified as follows:

1. **60-day time limit on Planning Commission action.** The Planning Commission shall complete its review and take final action on the application in accordance with Section 11.38H (Planning Commission Action) within 60 calendar days after the date that the application is considered to be administratively complete. The application shall be deemed approved if the Planning Commission takes no final action within this 60 calendar day period.
2. **Limitation on conditions of approval.** Planning Commission authority, per Section 11.38H.4.d. (Approval Subject to Conditions), to impose conditions on any approval of an application subject to the additional requirements of this subsection shall be limited to conditions intended to:
 - a. Verify compliance with the applicable requirements of this Ordinance; or
 - b. Ensure that the wireless communication facility meets the requirements of federal and state laws and other Township ordinances before the facility begins operation.

G. Conditional Use Permits for Wireless Communication Facilities.

Wireless communications facilities subject to conditional use approval per Section 11.38C (Type of Review Required) shall require review and approval of a Conditional Use Permit by the Planning Commission, subject to the standards of this Section.

1. **Special provisions.** In accordance with Section 3514 of the Michigan Zoning Enabling Act, Township review of any application for a Conditional Use Permit per Section 11.38C (Type of Review Required) shall be modified as follows:
 - a. **Limitation on review fees.** A fee required to accompany an application for a Conditional Use Permit under this Section shall not exceed the Township's actual, reasonable costs to review and process the application or \$1,000.00, whichever is less.

- b. **14-day time limit to determine eligibility and completeness.** After an application for a Conditional Use Permit under this Section is filed in accordance with this Section, the Clerk shall immediately transmit a copy of the application materials and plans to the Township Planner to determine whether the application is administratively complete per Section 11.38B (Application Information).
 - (1) The Township Planner shall transmit a written response to the Clerk and the applicant within 14 business days stating either that the application is administratively complete or listing the specific information needed for a complete application.
 - (2) The application shall be deemed administratively complete if no written response is transmitted to the Clerk and applicant within the 14 business day period.
2. **90-day time limit on Planning Commission action.** For any Conditional Use Permit application not subject to the additional requirements of Section 11.38F (Special Provisions for Review of Certain Alterations and Collocations), the Planning Commission shall complete its review and take final action per Section 11.38H (Planning Commission Action) within 90 calendar days after the date that the application is considered to be administratively complete. The application shall be deemed approved if the Planning Commission takes no final action within this 90 calendar day period.
3. **Modifications to an approved Conditional Use Permit.** Alteration or enlargement of an existing wireless communication tower or expansion of an approved ground equipment enclosure area shall be subject to review and approval as a modification to a previously approved Conditional Use Permit.
4. **New Conditional Use Permit required.** All other wireless communication facilities subject to Conditional Use Permit approval shall require review and approval of a new Permit by the Planning Commission.

H. **Planning Commission Action.**

After a complete and accurate application has been received by the Township in accordance with the requirements of Section 11.38B (Application Information), wireless communications facilities subject to Planning Commission approval per Section 11.38C (Type of Review Required) shall be reviewed in accordance with the following:

1. **Technical review.** Prior to Planning Commission consideration, copies of the application shall be distributed to designated Township officials, the Township Planner, and other designated Township consultants for review and comment.
 - a. The Township may retain the services of wireless communications and engineering experts, at the applicant's expense, to review data provided by the applicant.
 - b. The Zoning Administrator or Planning Commission may also request comments from outside agencies with jurisdiction.

2. **Public hearing.** A public hearing shall be held for all wireless communications facilities subject to Planning Commission approval in accordance with Section 1.14 (Public Hearing Procedures).
3. **Planning Commission consideration.** Subsequent to the hearing, the Planning Commission shall review the proposed wireless communications facility, together with any reports and recommendations from Township officials, the Township Planner, other designated Township consultants, local agencies or departments with jurisdiction, and any public comments.
 - a. The Planning Commission shall verify whether all required information has been provided per Section 11.38B (Application Information).
 - b. The Planning Commission shall verify whether the facility is in compliance with all applicable requirements of this Section and Ordinance.
4. **Planning Commission action.** The Planning Commission is authorized to table, approve, approve subject to conditions or deny the proposed wireless communications facility as follows:
 - a. **Postponement.** Upon determination by the Planning Commission that the application is incomplete or inaccurate, failure of the applicant to attend the meeting, or upon request by the applicant, the Planning Commission may postpone consideration until a later meeting.
 - b. **Denial.** Upon determination that the application is not in compliance with all applicable standards of this Section for the type of wireless communication facility, or would require extensive modifications to comply with such standards, the application shall be denied. If the application is denied, a written record shall be provided to the applicant listing the findings of fact and conclusions or reasons for such denial. Failure of the applicant to attend two (2) or more meetings shall be grounds for the Planning Commission to deny the application.
 - c. **Approval.** The proposed wireless communications facility may be approved by the Planning Commission upon determination that it is in compliance with all applicable standards of this Section.
 - d. **Approval subject to conditions.** The Planning Commission may approve a proposed wireless communications facility subject to reasonable conditions:
 - (1) Designed to protect natural resources, the health, safety, welfare, and social and economic well-being of users or patrons of the use under consideration, residents and landowners immediately adjacent to the proposed use, or the community as a whole;
 - (2) Related to the valid exercise of the police power, and the impacts of the proposed use; or
 - (3) Necessary to meet the intent and purposes of this Section and Ordinance, related to the standards established in this Section, and necessary for compliance with those standards.

Conditions of approval shall remain unchanged except upon mutual consent of the Planning Commission and the landowner. Any such changes shall be entered into Township records and recorded in the minutes of the Planning Commission meeting at which the action occurred.

5. **Recording of Planning Commission action.** Planning Commission action on the application shall be recorded in the Planning Commission meeting minutes, stating the description and location of the proposed wireless communications facility, address and tax identification number of the parcel, the findings of fact and conclusions or grounds for the Planning Commission's action, and any conditions of approval. The Secretary or Chair shall file one (1) copy of the written record with the Township Clerk for the permanent Township record, and shall forward one (1) copy to the applicant as evidence of approval.
6. **Effect of action.** Approval of the wireless communications facility by the Planning Commission shall allow the Zoning Administrator to issue a certificate of zoning compliance for the work associated with the application.
 - a. No work may take place on the site except in accordance with an approved certificate of zoning compliance and the plans approved by the Planning Commission.
 - b. If the Planning Commission denies the wireless communications facility, the applicant may submit a new wireless communications facility application that corrects any deficiencies in the denied application materials, facility design or location.
7. **Expiration of approval.** Approval of a wireless communications facility shall expire 365 days after the date of approval, unless a certificate of zoning compliance has been issued or construction has commenced. Upon written request received by the Township prior to the expiration date, the Planning Commission may grant an extension of up to 180 days, provided that site conditions have not changed in a way that would affect the character, design or use of the site, and that the approved wireless communications facility plans remains in conformance with the purpose and provisions of this Section.

I. Standards for Wireless Communications Towers.

The following shall apply to all wireless communications towers, microwave transmission towers, AM antenna arrays, and similar tower structures:

1. **Availability of suitable existing towers, other structures or alternative technology.** No new tower shall be permitted unless the applicant demonstrates to the Planning Commission's satisfaction that:
 - a. No existing towers or structures located within the geographic area meet the applicant's engineering or operating requirements;
 - b. Existing towers or structures do not have sufficient structural strength to support the applicant's proposed antenna(e) and equipment;
 - c. The applicant's proposed antenna(e) would cause electromagnetic interference with antenna(e) on an existing tower, or vice versa;

- d. The fees, costs or contractual provisions required by the owner to share an existing tower or structure, or to adapt an existing tower or structure for sharing, are unreasonable. Costs exceeding new tower development are presumed to be unreasonable;
 - e. Other limiting factors render existing towers or structures unsuitable; and
 - f. There is no suitable alternative technology available which would not require the use of towers or structures (such as a cable microcell network using multiple low-powered transmitters/receivers attached to a wireline system). Costs of alternative technology that exceed new facility development shall not be presumed to render the technology unsuitable.
2. **Permitted locations.** Permitted wireless communications tower locations shall be limited to the following:
- a. Wireless communications towers shall only be permitted on parcels in the AG (Agricultural), LI (Light Industrial), and PSP (Public/Semi-Public Services) Districts with sufficient lot area to accommodate the setback requirements of this Section.
 - b. No tower shall be located within one (1) mile of another wireless communication tower, irrespective of municipal and county jurisdictional boundaries. The Planning Commission may waive this restriction upon determination that there is a demonstrated need for an additional tower, based on the facility's technical requirements, service needs of Township residents or other acceptable factors.
 - c. No tower shall be located closer than 800 feet from the boundary of any residential zoning district, and any PUD incorporating residential uses.
3. **Maximum height.** Towers shall not exceed 200 feet in height as measured from certified grade to the highest point of the tower, including antennae attached to the tower. The Planning Commission may approve a taller tower upon determination that the additional tower height:
- a. Will result in improved access to wireless services for Township residents, beyond what could be achieved by a shorter tower;
 - b. Will expand opportunities for collocation of additional antennae beyond the capacity of a shorter tower, which may lessen the number of future towers needed to serve Township residents; and
 - a. Will not adversely impact abutting lots and uses to an extent greater than a tower that conforms to the maximum permitted height standard.
4. **Minimum setbacks.** A tower shall be set back from all parcel boundaries a minimum distance equal to one hundred percent (100%) of the height of the tower. Anchoring cables, equipment enclosures and accessory structures shall satisfy minimum zoning district setback requirements, with a minimum required setback of 50 feet.

5. **Ground equipment enclosure.** All wireless communications towers, accessory structures and equipment enclosures shall be completely enclosed by an eight (8) foot high fence with a lockable gate to prevent unauthorized access. The wireless communications tower shall also be protected by anti-climbing devices, and anchor points for guy wires supporting the tower shall be secured to prevent unauthorized access.
6. **Screening.** A dense evergreen screen shall be provided on all sides of the ground equipment enclosure per Section 11.10D (Methods of Screening). Existing site vegetation and landforms shall be preserved to the maximum extent feasible. The Planning Commission may waive screening requirements upon determining that existing site vegetation or landforms provide a sufficient buffer.
7. **Collocation.** Wireless communications towers shall be designed, constructed, and maintained in a manner that accommodates collocation of multiple antennae on a single tower.
8. **Access.** Unobstructed permanent access to the tower and ground equipment enclosure shall be provided for emergency vehicles. Access may be provided by an easement. Upon Township request, the tower owner shall install and maintain a "Knox Box" or other acceptable means of emergency access.
9. **Design.** All new towers shall conform to the following design standards:
 - a. The tower and associated antennae shall not be illuminated, unless required by the FAA or Michigan Aeronautics Commission. Any required lighting shall be the minimum necessary for the purpose, and shall be shielded from ground level visibility to the maximum extent feasible. Fixtures with red or other highly saturated color filters or light sources shall be utilized to minimize off-site glare.
 - b. The tower and associated antennae shall be painted white. The Planning Commission may waive this requirement upon finding that other colors or treatments would better minimize off-site visibility.
 - c. Advertising, signs, and identification of any kind visible from the ground or abutting parcels or road rights-of-way shall be prohibited, except as required by agencies with jurisdiction for identification purposes.
 - d. All new towers shall be of a monopole design, and constructed of or treated with corrosive resistant materials. The base of the tower shall occupy no more than 500 square feet.
10. **Land division.** The division of property for the purpose of locating a wireless communication tower shall be prohibited unless all requirements of this Ordinance and other Township ordinances have been met.
11. **Employees.** No employees shall be located on-site on a permanent basis. Employee access shall be limit to temporary repair and service activities.
12. **Tower address.** Each wireless communications tower shall be designated with a specific and unique street address.

J. Standards for Antennae Located on Structures.

Antennae located on principal or accessory structures shall be permitted in any zoning district, subject to approval per Section 11.38C (Type of Review Required) and the following standards:

1. Such antennae shall be limited to structures in any zoning district that have a minimum height of 50 feet.
2. The antenna and support structure shall be permanently secured to the structure, and shall not exceed the structure height by more than 10 feet.
3. The antennae shall be designed and arranged to minimize visibility and to blend with the primary building materials and colors.
4. The antenna and support structure shall not be illuminated, unless required by the FAA, Michigan Aeronautics Commission or other agency with jurisdiction.

K. Standards for Satellite Dish Antennae:

Satellite dish antennae shall be permitted in any zoning district, subject to approval per Section 11.38C (Type of Review Required) and the following standards:

1. Such antennae shall be accessory to a principal building on the same lot, and shall be located in the rear yard area.
2. Satellite dish antennae shall be limited to lots with adequate lot area to accommodate the minimum requirements setback of this subsection.
3. One (1) satellite dish antenna with a diameter 1.5 meters or larger shall be permitted per lot. The antenna shall conform to the minimum yard setbacks of the zoning district where it is located.
4. Construction and placement of satellite dish antennae shall meet manufacturers' specifications, and shall conform to the State Construction Code and all applicable electrical and fire codes.
5. Satellite dish antennae with a diameter of 1.5 meters or larger and located within 100 feet of a road right-of-way or the boundary of a lot occupied by a dwelling shall be screened by a wall, fence, berm, evergreen plantings, or combination of these elements so as not to be visible from the neighboring residence or road. If the antenna is a mesh type, screening need not exceed six (6) feet in height.

L. Standards for Amateur Radio Antennae and Similar Facilities:

Amateur radio antennae, short wave facilities, citizen band radio base station antennae, contractor's business antennae, television reception antennae, wireless Internet antennae, and similar facilities shall be permitted in any zoning district, subject to approval per Section 11.38C (Type of Review Required) and the following standards:

1. Such antennae shall be accessory to a principal building or land use on the same lot, shall be located outside of any required yard setback area, and shall be limited to lots with adequate lot area to accommodate the minimum requirements of this subsection.

2. A minimum setback from all lot boundaries shall be required equal to one hundred percent (100%) of the overall height of the facility. For retractable, telescoping, or tilt-down antennae, the height and minimum required setback distance shall be established by the height of the antenna structure in the "down" or retracted position. Such antennae shall be maintained in the "down" or retracted position when not in use. [as amended 10/6/2016, Ord. No. 67-2]

M. Existing Wireless Communications Facilities.

Wireless communications facilities existing prior to the effective date of this Ordinance shall be allowed to continue, provided that such facilities are maintained in accordance with applicable federal, state, and county laws and regulations, and all approved plans, permits, and conditions of approval.

N. Rescinding Approval of Wireless Communications Facilities.

Failure of the owner, operator or leaseholder of an approved wireless communications facility to renew or replace any required bonds or insurance certificates, provide information to the Township about the facility as required by this Section or maintain and operate the facility in compliance with the provisions of this Section shall be grounds for the Township to rescind any previous approval to construct or operate the facility. Such action shall be subject to the following:

1. **Public hearing.** Such action may be taken only after a public hearing has been held by the Planning Commission in accordance with Section 1.14 (Public Hearing Procedures), at which time the owner, operator or leaseholder of the wireless communications facility shall be given an opportunity to present evidence in opposition to rescission.
2. **Determination.** Subsequent to the hearing, the decision of the Planning Commission with regard to the rescinding of approval shall be made and written notification provided to said owner, operator or designated agent.

O. Removal of Wireless Communications Facilities.

The owner or operator shall remove a wireless communications facility for which approval has been rescinded, that has ceased operation for more than 365 consecutive days, or that has been determined by the Township to be abandoned, as follows:

1. Such facilities shall be removed within 90 calendar days of receipt of notice from the Township requesting such removal. Failure of the owner or operator to respond within 90 calendar days of such a request shall be grounds for the Township to rescind any previous approval to construct or operate the facility.
2. Failure by the owner to remove such facilities in accordance with this Section or an approved removal agreement shall be grounds for the Township to remove the facility at the owner's expense, and to make use of any performance guarantee or other security provided for that purpose.
3. Removal of the tower shall include removal of any structures in the ground, including concrete footings, support structures, or other appurtenances such as ground radial systems. In-ground structures and appurtenances shall be removed to a depth of 48 inches, and the land re-graded and restored to the original grade prior to the removal.

4. The Township reserves the right to require submittal of evidence of ongoing operation at any time after construction or installation of an approved facility.
5. If there are two (2) or more antennae on a single tower, this subsection shall not take effect until all users cease using the tower.
6. Any wireless communication facility that is not operated for a continuous period of 365 calendar days shall be deemed abandoned.

Section 11.39 Reserved.

Section 11.40 Wind Energy Conversion Systems.

The location, construction, operation, and maintenance of wind energy conversion systems (WECS) in the Township shall be subject to the following requirements:

A. Intent.

The intent of this Section is to permit the effective and efficient use of wind energy conversion systems (WECS) in a manner that protects the public health, safety, and welfare of neighboring property owners and the residents of the Township. This Section is further intended to:

1. Reduce dependency on fossil fuels by providing a means by which residents, farmers, and businesses in certain zoning districts may use WECS to satisfy a portion of their electricity needs.
2. Promote a healthy agricultural economy by providing an opportunity for farmers to diversify their income sources and/or reduce energy costs.
3. Limit the potential impacts of WECS units through setback, height, and other restrictions.

The standards of this Section have been determined to be the minimum necessary to meet the intent and purposes of this Section and Ordinance.

B. Permitted Locations.

Wind energy conversion systems (WECS) shall only be permitted in the zoning districts as specified in the following table and shall be prohibited in all other zoning districts. WECS shall be subject to review and approval in accordance with the following:

Type of Wind Energy Conversion System (WECS) Installation or Alteration on a Single Lot	Zoning District						Applicable WECS Standards in Section 11.40
	AG	SF	R-1	C	LI	PSP	
One (1) Agricultural WECS up to 100.0 feet in height	Z	Z					Subsections C - E
One (1) Agricultural WECS greater than 100.0 feet in height	S	S					Subsections C - E
Two (2) or more Agricultural WECS of any height	S	S					Subsections C - E

Type of Wind Energy Conversion System (WECS) Installation or Alteration on a Single Lot	Zoning District						Applicable WECS Standards in Section 11.40
	AG	SF	R-1	C	LI	PSP	
One (1) Private WECS up to 100.0 feet in height	Z	Z	S			Z	Subsections C - D, G
Two (2) or more Private WECS up to 100.0 feet in height	S	S				S	Subsections C - D, G
One (1) or more Attached WECS units on a building or accessory structure	S	S	S	S	S	S	Subsections C - D, F
One (1) or More Commercial WECS of any height	S						Subsections C - D, G, H
	Symbol		Approval Required				
	Z		Zoning Administrator Approval				
	S		Special Use Permit Approval				
			Prohibited in this Zoning District				

1. **Zoning Administrator approval.** Facilities requiring Zoning Administrator approval shall be subject to review and approval of a certificate of zoning compliance in accordance with the applicable standards of this Section and Article 1.0 (Administration and Enforcement).
2. **Special use approval.** Facilities requiring special use approval shall be subject to review and approval in accordance with the requirements of this Section and Article 7.0 (Special Land Uses).
3. **Planned Unit Development (PUD) District.** A WECS may be permitted as part of a Planned Unit Development (PUD) project, subject to the standards of Article 10.0 (Planned Unit Development District). A separate special use approval shall not be required for a WECS approved as part of a PUD Area Plan, provided that all other standards of this Section shall apply.
4. **Other permits and approvals.** WECS units shall conform to all applicable federal, state, and local regulations and permitting requirements, including compliance with the State Construction Code and other applicable building and electrical codes. Copies of all applicable outside agency permits and approvals shall be submitted to the Township, prior to the start of construction.

C. Required Application Information.

The following information shall be submitted with any application for WECS approval:

1. Documentation of any potential interference that the proposed WECS may cause with microwave transmissions, residential television reception or radio reception.
2. Documentation of compliance with applicable federal and state regulations for the installation.
3. A plan for the long-term, continuous maintenance of the facility, including who will be responsible for maintenance of the facility, including access, landscaping, screening, and security improvements.

4. Elevation drawings of the proposed WECS and any associated facilities. The drawings shall identify the type, design, materials, and height for the proposed WECS and associated facilities; and the name and location of the WECS manufacturer, if applicable.
5. Written certification shall be provided from an Authorized Factory Representative or Professional Engineer registered in the State of Michigan demonstrating:
 - a. The manner in which the structure will fall in the event of accident, damage or failure, and that the setback area will accommodate the facility and provide an adequate buffer from adjacent parcels.
 - b. That the facility is designed in accordance with applicable dead load, dynamic load, and wind pressure standards.
 - c. That the facility is designed to conform to the State Construction Code and all other applicable building, electrical, and fire codes.
 - d. For WECS subject to special use approval, a Professional Engineer registered in the State of Michigan shall only provide this written certification.
6. The applicant shall submit an agreement for the future removal of the facility upon cessation of operation, signed and notarized by the property owner and WECS owner/operator. This agreement shall be binding on all owners, operators, successors, and assigns.

D. General WECS Standards.

All WECS units shall be designed, constructed, operated, and maintained to be harmonious with the existing or intended character of the area in which it is located, and shall conform to the following standards:

1. **Minimum lot area.** The minimum of two (2) acres of gross lot area shall be required for a WECS in any zoning district.
2. **Schedule of regulations.** All WECS projects shall conform to the following:

Type of Wind Energy Conversion System (WECS) Installation or Alteration on a Single Lot	Maximum Noise Level [dB(A)]	Minimum Yard Setback (percentage of WECS height)	Maximum WECS Height (feet)
One (1) Agricultural WECS up to 100.0 feet in height	45	150%	100.0
One (1) Agricultural WECS greater than 100.0 feet in height	45	200%	none
Two (2) or more Agricultural WECS of any height	45	150%	none
One (1) Private WECS up to 100.0 feet in height	40	150%	100.0
Two (2) or more Private WECS up to 100.0 feet in height	40	150%	100.0

Type of Wind Energy Conversion System (WECS) Installation or Alteration on a Single Lot	Maximum Noise Level [dB(A)]	Minimum Yard Setback (percentage of WECS height)	Maximum WECS Height (feet)
One (1) or more Attached WECS units on a building or accessory structure	45	Same as yard setbacks for the district	15.0 feet above the building or structure height
One (1) or More Commercial WECS of any height	45	200%	none

- a. Height shall be measured from grade to the top of the tower or blade tip in a vertical position, whichever is higher.
 - b. Yard setbacks shall be measured in a straight and level line from the vertical plane of all lot boundaries and road rights-of-way to the base of the tower or blade tip in a horizontal position, whichever is nearer.
 - c. Noise levels shall be measured from a point no closer to the WECS than a lot boundary abutting the subject lot upon which the WECS is located.
 - d. WECS height is further subject to the following:
 - (1) All WECS projects shall conform to the requirements of the Airport Zoning Act (P.A. 23 of 1950, as amended), Tall Structures Act (P.A. 259 of 1959, as amended), airport approach plan(s) adopted by the Michigan Aeronautics Commission, and applicable Federal Aviation Administration (FAA) regulations.
 - (2) Where no maximum WECS height is specified in the above table, the proposed height shall be subject to a Planning Commission determination of compliance with Section 7.05 (Standards for Special Use Approval).
3. **Ground clearance.** No WECS shall be installed with any moving part less than 15 feet above grade.
 4. **Climb prevention.** All WECS towers shall be secured against unauthorized access by perimeter fencing, siting within the interior of large parcels, use of anti-climbing devices, and/or similar security methods.
 5. **Nuisances, signage, and lighting prohibited.** A WECS shall not cause interference with microwave transmissions, residential television reception or radio reception. Advertising, signs, and identification of any kind intended to be visible from the ground or other structures shall be prohibited, except as required for emergency purposes. Structures shall not be illuminated, unless required by federal or state regulation.
 6. **Shadow flicker.** The property owner and WECS owner/operator shall be responsible for any off-site impacts from the visible shadow flicker effect when rotating blades cast a repeating pattern of light and shadow on the ground and nearby structures during daylight hours:

- a. WECS units shall be located within the subject parcel so as to prevent shadow flicker from passing over any off-site road right-of-way, occupied dwelling or other principal building during daylight hours from one (1) hour after sunrise to one (1) hour before sunset.
 - b. A letter from the WECS owner/operator or installation contractor verifying compliance with this subsection shall be included with any application for approval under this Section and Ordinance.
 - c. Three (3) or more documented complaints of shadow flicker passing over any off-site road right-of-way, occupied dwelling or other principal building received and verified by the Zoning Administrator within any 365 calendar day period shall be grounds for the Township to require that the WECS unit be shut down and secured against movement during the hours when such off-site impacts have occurred.
7. **Design safety certification.** An Authorized Factory Representative or Professional Engineer registered in the State of Michigan shall certify the safety of the design of all WECS units. The standard for certification shall be included with the permit application.
 8. **Controls and brakes.** All WECS units shall be equipped with manual and automatic controls to limit rotation of blades to a speed below the designed limits of the WECS. The Authorized Factory Representative or Professional Engineer shall certify that the rotor and overspeed control design and fabrication conform to applicable design standards. No changes or alterations from the certified design shall be permitted.
 9. **Installation certification.** The Authorized Factory Representative or Professional Engineer shall certify that the construction and installation of the WECS project meets or exceeds the manufacturer's construction and installation standards.

E. Agricultural WECS Standards.

The following additional standards shall apply to Agricultural WECS in the Township:

1. Agricultural WECS shall be accessory to a permitted farm or agricultural operation in the zoning district.
2. The number of Agricultural WECS units on a single lot shall be limited so that the total generating capacity of such units primarily serves the needs of the farm or agricultural operation and associated farm dwelling(s).

F. Attached WECS Standards.

WECS units may be attached to principal buildings occupied by non-residential uses, and to buildings and structures accessory to a farm or agricultural operation. Attached WECS units shall be prohibited on dwellings and residential accessory structures.

The number and location of Attached WECS units on a building or structure shall be subject to a Planning Commission determination of compliance with Section 7.05 (Standards for Special Use Approval).

G. Private and Commercial WECS Standards.

The following additional standards shall apply to Private and Commercial WECS:

1. **Subdivisions and site condominiums.** Private WECS shall be prohibited within an approved residential subdivision plat or site condominium development, except as part of an approved Planned Unit Development (PUD).
2. **Color.** Private and Commercial WECS shall be painted a neutral color that minimizes off-site visibility, or as otherwise required by law.
3. **Waste.** All solid wastes, whether generated from supplies, equipment parts, packaging, operation or maintenance of the WECS, including old parts and equipment, shall be removed from the site immediately and disposed of in an appropriate manner. All hazardous waste generated by the operation and maintenance of the WECS, including but not limited to lubricating materials, shall be removed from the site immediately and disposed of in a manner consistent with all local, state, and federal rules and regulations.
4. **Liability insurance.** The property owner or WECS owner/operator shall maintain a current insurance policy with a bond rating acceptable to the Township to cover installation and operation of the WECS project. For a Private WECS accessory to a dwelling, proof of homeowner's insurance with specific coverage for the WECS shall satisfy this requirement.
5. **Additional conditions.** To minimize off-site impacts from any WESC unit(s) subject to special use approval, the Planning Commission may impose conditions on the approval consistent with Section 7.04 (Conditions of Approval); such as limiting hours of WECS operation or requiring a dense evergreen screen to be planted along the lot boundaries or abutting road rights-of-way to reduce noise or shadow flicker impacts.

H. Additional Standards for Commercial WECS Projects.

The following additional standards shall apply to all Commercial WECS in the Township:

1. **Shadow casting study.** A shadow casting study by a qualified professional, including maps or a computer animation in a format compatible with Township computer systems, shall be submitted with the application for special use approval. The study shall identify the projected shadow arcs and all areas anticipated to be impacted by shadow flicker from the proposed WECS over one (1) calendar year, including:
 - a. All land areas anticipated to be impacted during daylight hours from one (1) hour after sunrise to one (1) hour before sunset.
 - b. Additional land areas anticipated to be impacted during the first one (1) hour after sunrise and the last one (1) hour before sunset.
 - c. Approximate locations of all dwellings and other principal buildings within the shadow flicker impact areas.
2. **Migratory bird study.** An avian study by a qualified professional to determine any potential impacts the commercial WECS project may present to migratory

birds shall be submitted with the application for special use approval. Recommended mitigation measures or other alternatives to eliminate such impacts shall be provided with the study.

3. **Decommissioning plan and escrow.** Commercial WECS projects shall include a decommissioning plan to ensure it is properly decommissioned upon the end of the project life or facility abandonment. Decommissioning shall include removal of all structures (including transmission equipment and fencing) and debris to a depth of four (4) feet, restoration of the soil, and restoration of vegetation within 180 calendar days of the end of project life or facility abandonment. The decommissioning plan shall also include an agreement between the applicant and the Township with the following:
 - a. The decommissioning plan shall include how the facility will be decommissioned, a Professional Engineer's estimate of decommissioning costs, the financial resources to be used to accomplish decommissioning, and the escrow agent with which the resources shall be deposited.
 - b. The financial resources for decommissioning shall be in the form of a cash bond, irrevocable letter of credit, or other surety deemed acceptable by the Township Board in an amount equal to the Professional Engineer's estimated cost of decommissioning.
 - c. The Township shall have access to these financial resources for the expressed purpose of completing decommissioning if decommissioning is not completed by the applicant within 180 calendar days of the end of project life or facility abandonment.
 - d. The Township is granted the right of entry onto the site, pursuant to reasonable notice, to effect or complete decommissioning.
 - e. The Township is granted the right to seek injunctive relief to effect or complete decommissioning, as well as the Township's right to seek reimbursement from the property owner, WECS owner/operator or successor for decommissioning costs in excess of the amount deposited in escrow and to file a lien against any real estate owned by the property owner, WECS owner/operator or successor, or in which they have an interest, for the amount of the excess, and to take all steps allowed by law to enforce said lien. Financial provisions shall not be so onerous as to make wind power projects unfeasible.
4. **Warnings.** A visible warning of high voltage may be required by the Township to be placed at the base of all Commercial WECS projects. Such signs shall be located a maximum of 300 feet apart and at all points of site ingress and egress.
5. **Annual safety inspection.** Commercial WECS units shall be inspected at least annually by an Authorized Factory Representative or Professional Engineer to certify that it is in good working condition and not a hazard to the public. Such records shall be submitted to the Zoning Administrator and considered a part of the continuing special use approval.