



## CITY of NOVI CITY COUNCIL

**Agenda Item C**  
**June 5, 2017**

**SUBJECT:** Approval of Zoning Ordinance Text Amendment 18.283 to amend the City of Novi Zoning Ordinance at Article 5.5, Landscape Standards within Article 5, Site Standards, to update the landscape ordinance standards and the landscape design manual, in order to promote health of planted materials and the health of non-built open areas, to improve the visibility of buildings, to update the list of invasive species, to clean up inconsistencies, and to bring the ordinance into agreement with other recently amended ordinances.  
SECOND READING.

**SUBMITTING DEPARTMENT:** Community Development Department – Planning *Barb*

**CITY MANAGER APPROVAL:**

**BACKGROUND INFORMATION:**

Section 5.5 of the City of Novi's Zoning Ordinance and the accompanying Landscape Design Manual sets standards for landscaping in all developed areas within the city, including, but not limited to:

- Required plantings quantities by zoning district and application (greenbelts, parking, building foundations, etc),
- Spacing of plantings,
- Allowed species for plantings, and
- Installation and maintenance standards.

Periodically, the City staff reviews ordinance standards to determine the need for updates. The current Landscape ordinance was introduced in 2003 and there have been no significant updates to it since that time. The City's landscape architect, Rick Meader, has reviewed the ordinance over the past two years and has made notes to address concerns he has had in enforcing the ordinance, and that he has heard from the business community, landscape architects and public safety personnel. Revisions are proposed to Section 5.5 of the Zoning Ordinance (Landscape Standards) and the Landscape Design Manual (LDM) with these broad objectives in mind:

- Better survivability of trees in designed landscapes
- Reduction of building screening from rights-of-way
- Better visibility of street addresses from road for emergency vehicles
- Continued screening of parking areas from roads, especially to block headlights
- More uniformity of street tree location along Novi roads
- Reduction of landscape requirements in and around parking areas that are extremely difficult to meet. In most cases, the current ordinance provisions would require overplanting a site, which is detrimental to the trees and is an unnecessary expense to the applicants.
- Reduced need for variances and waivers by developers who propose attractive landscaping that still doesn't conform to all of our standards.
- Greater sensitivity to ecological issues facing our community and others
- Miscellaneous cleanups in ordinances – inconsistencies, errors

The proposed changes have been shared with thirteen landscape architects who frequently work on projects in Novi in order to seek impressions and comments. Ten replies were received and were

provided in the packet for the First Reading. A number of their comments have been incorporated in the revised ordinance and landscape design manual.

The general hope and expectation in making these revisions is that the city will still benefit from well-landscaped sites that are beneficial to our environment and community character while lessening the burden of land owners and developers from unnecessary landscaping costs. In total, the existing landscaping requirements, if strictly enforced, would not be attractive or conducive to healthy landscaping and would create unnecessary blockage of the view of businesses from public roads.

The Planning Commission held a Public Hearing on February 22, and provided a favorable recommendation to the City Council. The First Reading was approved by the City Council on April 24, 2017. Minutes from that meeting are included in this packet. At that meeting, the City Council requested that staff review the landscape ordinance for Phragmites management, and for possible widening of greenbelt buffers with flexibility especially along major thoroughfares. Staff and the City Attorney's Office have prepared modifications to the ordinance to address these two items, as well as the addition of restrictions on indiscriminate tree pruning of required landscaping trees, as provided in the attached draft for the Second Reading.

**RECOMMENDED ACTION:** Approval of Zoning Ordinance Text Amendment 18.283 to amend the City of Novi Zoning Ordinance at Article 5.5, Landscape Standards within Article 5, Site Standards, to update the landscape ordinance standards and the landscape design manual, in order to promote health of planted materials and the health of non-built open areas, to improve the visibility of buildings, to update the list of invasive species, to clean up inconsistencies, and to bring the ordinance into agreement with other recently amended ordinances. SECOND READING.

**CITY COUNCIL MEETING MINUTES  
FIRST READING**

3. Approval of Zoning Ordinance Text Amendment 18.283 to amend the City of Novi Zoning Ordinance at Article 5.5, Landscape Standards within Article 5, Site Standards, to update the landscape ordinance standards and the landscape design manual, in order to promote health of planted materials and the health of non-built open areas, to improve the visibility of buildings, to update the list of invasive species, to clean up inconsistencies, and to bring the ordinance into agreement with other recently amended ordinances. **FIRST READING**

Member Mutch said he would like to thank Landscape Architect, Rick Meader for all of the work he did cleaning this up. It was similar to the Sign Ordinance, it was a sprawling amount of material to work through and across multiple sections of several different ordinances to try to get them into alignment. He appreciated the fact that he reached out to the landscape professionals that have worked in Novi to get their feedback. He expressed that he liked more landscaping, trees, and flowers. The rationale that explains why those changes were made and that they will end up with better landscaping over the long term with some of these changes. He commented he didn't see any discussion regarding invasive species, such as phragmites. He said he reached out to City Staff regarding that and they said between the first and second reading they could look at some language that would address that in the development process. He said it doesn't make sense to remove phragmites on our side of the property line, but not the neighboring property line. He also mentioned another provision that he wanted staff to review in the Subdivision Ordinance. He said the current language regarding the greenbelt setback along major roads requires a 40 foot setback. He said they know they will have to something in the future along those main roads whether it's adding more lanes or otherwise. He said the houses that back up to that will have a significant impact if you have to widen the main road. He said we should have as much buffer in between the right-of-way lines and the new homes the better. He said it would cut down on problems down the road when they have to go to residents and say they have to widen the road. He felt it was important because many are looking at smaller lots which push the house back closer to the property line where they back up to the main road. He suggested that staff look into increases that. He said the Northville Township ordinance actually has 50 foot instead of 40 foot with flexibility in their language that deals with site conditions.

**CM 17-04-065**

**Moved by Mutch, seconded by Burke; MOTION CARRIED: 6-0**

**To approve the Zoning Ordinance Text Amendment 18.283 to amend the City of Novi Zoning Ordinance at Article 5.5, Landscape Standards within Article 5, Site Standards, to update the landscape ordinance standards and the landscape design manual, in order to promote health of planted materials and the health of non-built open areas, to improve the visibility of buildings, to update the list of invasive species, to clean up inconsistencies, and to bring the ordinance into agreement with other recently amended ordinances. FIRST READING.**

Member Markham commended Landscape Architect, Rick Meader on updating this and learning from their experience. She said little things, such as right-of-way tree planting and how many trees can be under a wire. Like the Sign Ordinance, it is important for people driving around to find a business. She said they need to keep it aesthetically pleasing. She commented that he went in a direction to make that easier, but still keeps the beauty they want throughout the City. She also appreciated that he reached out to the landscape architects that work with the City and incorporated their comments which was really good business.

**Roll call vote on CM 17-04-065**                      **Yeas: Mutch, Gatt, Staudt, Burke, Casey, Markham**  
**Nays: None**  
**Absent: Wrobel**

4.        Approval of resolution to authorize Budget Amendment #2017-3.

**CM 17-04-066**                      **Moved by Mutch, seconded by Burke; MOTION CARRIED: 6-0**

**To approve the resolution to authorize Budget Amendment #2017-3.**

**Roll call vote on CM 17-04-066**                      **Yeas: Gatt, Staudt, Burke, Casey, Markham, Mutch,**  
**Nays: None**  
**Absent: Wrobel**

**AUDIENCE COMMENT - None**

**MAYOR AND COUNCIL ISSUES - None**

**CONSENT AGENDA REMOVALS FOR COUNCIL ACTION:** Consent Agenda items which have been removed for discussion and/or action.

**ADJOURNMENT** – There being no further business to come before Council, the meeting was adjourned at 7:34 P.M.

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Cortney Hanson, City Clerk

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Robert J. Gatt, Mayor

\_\_\_\_\_  
Transcribed by Deborah S. Aubry

Date approved: May 8, 2017

**LANDSCAPE ORDINANCE  
SECOND READING**

**STRIKE-THROUGH WITH CHANGES  
FROM FIRST READING**

ORDINANCE NO. \_\_-17

CITY OF NOVI  
OAKLAND COUNTY, MICHIGAN

AN ORDINANCE TO AMEND THE CITY OF NOVI CODE OF ORDINANCES, ORDINANCE 14-271, THE CITY OF NOVI ZONING ORDINANCE, AS AMENDED AT ARTICLE 5.0, "SITE STANDARDS," SECTION 5.5, "LANDSCAPE STANDARDS: OBSCURING EARTH BERMS AND WALLS, RIGHTS-OF-WAY BUFFERS, AND INTERIOR AND EXTERIOR LANDSCAPE PLANTINGS" IN ORDER TO COMPREHENSIVELY REVISE THE LANDSCAPE PLANTINGS AND BUFFERING REQUIREMENTS OF THE ZONING ORDINANCE.

THE CITY OF NOVI ORDAINS:

**PART I.** Ordinance 14-271, the City of Novi Zoning Ordinance, as amended at Section 5.0, "Site Standards," Section 5.5, "Landscape Standards: Obscuring Earth Berms and Walls, Rights-of-Way Buffers, and Interior and Exterior Landscape Plantings," is hereby amended in its entirety to read as follows:

5.5 LANDSCAPE STANDARDS: OBSCURING EARTH BERMS AND WALLS, RIGHTS-OF-WAY BUFFERS, AND INTERIOR AND EXTERIOR LANDSCAPE PLANTINGS

1. **Intent.** The intent of this Section is to achieve landscapes with creative placement and attractive designs that:
  - emphasize the preservation of existing natural resources, the use of native plant materials, and a diversity of plant species;
  - preserve and enhance existing woodlands, wetlands and natural open areas;
  - reduce impervious surfaces, enhance storm water management and prevent soil erosion and soil depletion;
  - provide appealing yet opaque visual and audible buffering between non-compatible land uses; and
  - utilize the best ecological concepts and environmental objectives with preservation and sustainability as a priority,

in order to protect and enhance the well-being of the residents of the City of Novi.

Landscape regulation is intended to establish minimum standards for all property in the City. Property owners and occupants are encouraged to exceed these standards, to

minimize paved areas and other run-off areas, and to maximize the areas devoted to attractively designed and well-maintained landscapes.

2. **Landscape Plan Required.** A landscape plan shall be submitted for any new commercial or residential development, and any addition to an existing building that is equal to or greater than a 25% percent increase in the overall square footage of the building or 400 square feet, whichever is less. With the exception of Section 5.5.5.G, Individual (Non-Subdivision/Non-Site Condominium) Single-Family Street Tree Requirements, an owner of a single-family home-site shall not be required to comply with the provisions of this section. All landscape plans shall be prepared in accordance with the requirements of this Ordinance and the requirements of the City of Novi "Landscaping Design Manual," as adopted by the City Council by resolution and which may similarly be amended by Council resolution from time to time.

3. **Landscape Requirements**

**A. Residential Adjacent to Non-Residential**

- i. Intent. To make provision for a visual buffer strip in each zoning and use classification when a non-residential use abuts or is adjacent to any residential zoning district.
- ii. Requirements for Obscuring Landscaped Earth Berms and Walls. In all locations which abut or are adjacent to any residential district (RA, R-1, 2, 3, 4, RT, RM-1, RM-2, MH and any TC district if developed for residential purposes), an obscuring landscaped earth berm and plantings, as described, shall be proposed, approved, installed and maintained in connection with any development or use identified below. Where TC-1 and RM-2 are adjacent to TC-1 and RM-2, a wall and plantings shall be provided as indicated in the following Berm Requirement Chart.

5.5.3.A.ii Residential Adjacent to Non-Residential Berm Requirement Chart		
Use	Zoning	Berm or Wall Height
Parking	P-1 district Off-Street Parking Area	4 ft. 6 in. to 6 ft. high
Residential/Special Land Use	RM-1, RM-2, and MH districts, churches, schools, nursery schools, day care centers and other uses where special land use approval is required	4 ft. 6 in. to 6 ft. high
Office Service/Tech	OST, OS-1, and OSC districts	4 ft. 6 in. high to 6 ft. high
Commercial	B-1, B-2, B-3, RC, and NCC districts	6 ft. to 8 ft. high
EXPO, EXO district	EXPO district	8 ft. to 10 ft. high
Conference	C district	8 ft. to 10 ft. high



Freeway Service	FS district	8 ft. to 10 ft. high
Town Center	(a.) TC and TC-1 districts	6 ft. high
	(b.) TC-1 and RM-2 districts	6 ft. high wall
Industrial	I-1 district	10-15 ft. ht. berm, 6 ft. crest width, 80% winter/90% summer opacity (See Section 3.14.5.E)
	I-2 district	15 ft. ht. berm, 15 ft. crest width, 80% winter/90% summer opacity (See Section 3.15.2.C)
	Special Land Use	10 ft. ht. berm, 6 ft. crest width, 80% winter/90% summer opacity (See Section 3.14.5.E)
Auto Wash, Drive-In Restaurants, Service Stations, and Planned Commercial Centers and Regional Shopping Centers	Where permitted or approved	10 ft. to 15 ft. high
Hospital-Ambulance and Delivery Areas	Where permitted or approved	6 ft. high
Utility Buildings, Stations, and/or Substations	Where permitted or approved	6 ft. high

- iii. Exceptions. Obscuring landscaped berms and walls are not required to separate identically zoned uses or where uses are separated by a street, road, highway, or freeway.
- iv. Placement. The berm or wall is required to be on the property seeking approval. The berm may be placed upon the adjacent residential property in order to provide continuity with an adjoining berm. In that case, a recorded permanent easement and a maintenance agreement in a form acceptable to the City Attorney will be required from the adjacent property owner.
- v. Berm Requirements. The obscuring berm requirements are as follows:
  - a. The berm height shall be measured as follows:
    - (1) The berm height, as specified in the Residential Adjacent to Non-Residential Berm Requirement Chart (Table 5.5.3.A.ii), shall be analyzed from the following locations, and the final measurement of

the berm shall be made from that location which results in the maximum screening:

- [i] The first floor elevation of the closest adjacent principal structures;
- [ii] The first floor elevation of the uses requiring screening;
- [iii] The elevation of the parking lots closest to the property line when only the parking area requires screening; or
- [iv] The elevation of the nearest property line.

Where a range of height is stated for a use on the Chart, the basic berm height shall be deemed to be the lower measurement, with approving body of the City having the discretion to increase the height up to the higher measurement based upon an application of the following considerations on the non-residential property: intensity of use; noise generation customarily associated with the use; height and aesthetic appearance of buildings and structures; topography; distance of buildings, structures and activities from the common property line; and, the extent of disharmony with the adjoining residential use as a result of other considerations.

- (2) The site plan shall include the first floor elevation of all adjacent principal structures within 200 feet of the subject site's property lines.
- (3) Where the applicant demonstrates, and the Planning Commission finds, that practical difficulties would result from the strict application of berm height standards, as required herein, the Planning Commission may reduce the height of the berm, or eliminate the berm, and may approve an alternate plan which includes landscape treatment or a wall (subject to Section 5.5.3.A.vi below), or a combination of the two, provided that the approved alternate plan achieves adequate noise attenuation and obscuring screening. The Planning Commission may also reduce the height of the berm, or eliminate the berm, where it determines that an alternative design utilizing landscaping or other materials, including a wall subject to Section 5.5.3.A.vi below, provides adequate and effective noise attenuation and screening, or where such alternative design provides a substantial aesthetic or site design benefit while still providing for noise attenuation and screening to the extent reasonably practicable. The intent of this section is not to

encourage and allow elimination or reduction of berm height for the sake of convenience or cost savings, but rather to allow reasonable development while achieving design excellence not otherwise possible under these requirements.

- b. The berm shall be natural in appearance and have overlapping and undulating changes in elevation, both horizontally and vertically, without compromising the minimum height requirement and/or intent of the berm. Where a range of height is stated on the Chart for a use, and the approving body determines berm height based upon the criteria specified in sub-paragraph v.(a), above, the height of the undulations on the berm shall be determined by the approving body as part of site plan approval, taking into consideration the location of improvements and activities to be screened, and the criteria in sub-paragraph v.(a), above.
- c. The obscuring berm shall have no greater than a maximum slope of 33 percent. (3 feet of horizontal plane for each 1 foot of vertical height.) More gradual slopes are strongly encouraged.
- d. Plants shall be specified for any "no mow" areas.
- e. The crest of the obscuring berm shall have a nearly flat horizontal area of at least 5 feet in width. (See the previous Berm Requirement Chart for exceptions.)
- f. The required earth berm shall be located at the lot line, except where such location would interfere with underground utilities or drainage.
- g. Where an existing or proposed parking or vehicular use area abuts an existing berm or wall or other durable landscape barrier on an abutting property, said existing landscaping may be used to satisfy the landscape requirements of this Section 5.5, provided that it meets all applicable noise attenuation and obscuring screening standards of this Section, and provided that the existing berm, wall, or other durable landscape barrier is required to be maintained consistent with the terms of this section of the ordinance and consistent with the approved site plan. Where the existing berm, wall, or other durable landscape barrier is not otherwise required to be maintained in connection with the adjacent property, the applicant shall be responsible for such maintenance and shall obtain and record a permanent easement and maintenance agreement from the adjoining property owner in a form approved by the City Attorney, making provision for such maintenance.

- h. Where a property has already been lawfully developed for one of the uses listed in the Residential Adjacent to Non-Residential Berm Requirement Chart (Table 5.5.3.A.ii), adjacent residential property which subsequently develops shall provide and maintain the necessary berm.
    - i. See Landscape Design Manual for additional requirements.
  - vi. Wall Requirements.
    - a. Freestanding walls shall have all exterior sides constructed of face brick or stone with a suitable cap, and the interior constructed of masonry or reinforced concrete. The Planning Commission may consider materials of equal durability and aesthetic quality.
    - b. Walls shall be designed to resist the pressure of the retained material, including both live and dead loads to which they may be subject. Foundations shall be designed to prevent movement due to frost action and a suitable drainage system shall be provided to assure stability. Walls that are greater than 3½ feet in height shall be designed and sealed by a professional design or structural engineer. Walls shall not cause flooding or impound water at any time and are subject to Final Site Plan review. (See Design and Construction Standards (Chapter 11, Novi Code of Ordinances).
    - c. All other obscuring conditions of this subsection and the Landscape Design Manual must be met.
    - d. Timber, boulder, and interlocking retaining walls are permitted for the purpose of terracing.
  - vii. Waiver of Landscaped Berm or Wall for Preservation of Wooded Area.

The Planning Commission may waive the requirement for an earth berm or obscuring wall adjacent to a residential use district when the proposed development includes the retention of an existing regulated or non-regulated wooded area adjacent to the residential district, or when an existing regulated or non-regulated wooded area is preserved on the adjacent residential property. In either case, the owners of all such area(s), including the owners of the adjacent residential property, shall provide a permanent preservation easement, including requirements for perpetual maintenance and replacement of woodland features, in recordable form acceptable to the City Attorney for such wooded area, and provided all the following conditions are met:

- a. The retained wooded area will provide effective screening consistent with the opacity for visual screening requirements of this Ordinance and intent of this Section.
- b. The retained wooded area shall be of a depth and height equal to or greater than the screening requirement being waived.
- c. The failure to retain the wooded area will have a negative impact on the preservation of woodlands within the City of Novi.
- d. The retained wooded area has been inspected and evaluated by the City relative to the health and desirability of the existing plant material.
- e. The Planning Commission may require, during construction phases, as a condition to the waiver, additional and/or modified plantings and/or the erection of a temporary chain link fence within or adjacent to the preserved wooded area to meet the opacity requirements and/or other objectives of this Section, and, in the event all or part of the retained wooded area is removed, destroyed, diminished, or altered in any manner such that it no longer provides the screening required under this Section, the berm or wall shall be installed at the applicant's (or its successor's) expense or additional screening material may be required by the City to be installed and maintained at the applicant's (or its successor's) expense in order to achieve the screening objective under this Section.

**B. Adjacent to Public Rights-of-Way**

- i. Intent. The intent of the landscape planting buffer requirements along public rights-of-way is to improve the appearance of the rights-of-way including screening off-street parking and vehicular use areas of property abutting public rights-of-way.
- ii. Requirements. Landscape plantings shall be installed and maintained adjacent to existing or proposed public rights-of-way according to the standards set forth on the Right-of-Way Landscape Screening Requirements Chart (Table 5.5.3.B.ii.F), and as otherwise established in this ordinance, including the individual zoning district, and in the Landscape Design Manual.
  - a. There shall be provided adjacent to the abutting right-of-way or private road a landscape area of sufficient width to accommodate a required berm as indicated in the Right-of-Way Landscape Screening Requirements Chart, except in those use districts or development options that require a greater greenbelt, or except as otherwise provided in the TC and TC-1 districts.

- b. Berms shall comply with Section 5.5.3.A.v., with specific requirements as called out in Table 5.5.3.B.ii.f.
- c. The landscape area, if adjacent to parking and vehicular use areas not between the right-of-way and the principal building, shall be planted to achieve a minimum opacity of 90 percent during the summer and 80 percent during the winter. The landscape in this area shall provide a continuous visual obstruction height of 36 inches, plus the required canopy/evergreen or subcanopy trees required per Table 5.5.3.B.ii.f.
- d. All landscape areas between the right-of-way and parking areas that front on the required right-of-way greenbelt shall have a berm meeting the height requirements of the zoning district as specified in the Right-of-Way Landscape Screening Requirements Chart, and shall have a maximum slope of 33% and a crest as specified in the Right-of-Way Landscape Screening Requirements Chart (Table 5.5.3.B.ii.f).
- e. A landscape area shall be planted to provide visual interest and yet allow views into the site. Particular care should be taken in the arrangement of greenbelt plantings to provide a view of the street address from a 20-40 degree angle as you drive toward the building along the primary road frontage.
- f. Parking areas in a Commercial/Office district with parking located between the principal building and right-of-way shall be planted at a reduced rate, per the greenbelt tree and subcanopy requirements called for in Table 5.5.3.B.ii.f (The berm and street tree requirements are the same as if the parking was not between the building and road).
- g. If a wall is provided in accordance with the city standard, a reduction of up to 33 percent of the required greenbelt plantings (not street trees) is allowed in the right-of-way greenbelt in front of the parking. This reduction does not apply in cases where parking is between the right-of-way and the building and required landscaping is already reduced.
- h. For a residential development abutting an arterial or minor arterial roadway, landscape buffers shall be installed and maintained along the entire property line abutting the right-of-way. In a single-family site development, the required landscape buffer shall not be part of a residential unit or lot.
- i. Necessary access ways from public rights-of-way through required landscaped areas shall be permitted. The width of the access way(s) shall be subtracted from the lineal dimension used to determine the

minimum number of trees required for greenbelt landscaping and street trees (see illustration in Table 5.5.3.B.ii.f, Footnote 17 below for points of measurement for each).

- j. The buffering shall not prevent visibility of the main building entry from the public rights-of-way.

5.5.3.B.ii.f Right-of-Way Landscape Screening Requirements									
			Requirements						
Use	Zoning	Berm Located	Greenbelt width (feet)	Min berm crest width (feet)	Min. Berm Height (feet)	3 Foot Wall/ Fence	Deciduous canopy or large evergreen trees: 1 per X linear feet frontage	Deciduous Sub-canopy Trees: 1 per X linear feet frontage	In area between sidewalk and curb: 1 deciduous canopy deciduous tree per X linear feet frontage
Footnotes				(4)	(9)	(5,6,7)	(2,8,9,14, 17)	(3,8,9,14, 17)	(2,9,10, 11,12,15, 17)
Single Family Residential	R-A R-1 R-2 R-3 R-4		34	4	4	(5,6,7)	40	25	35
Two-Family Residential	RT	Adjacent to parking	20	2	3	(4,5,6, 7)	35	25	35
		Not adjacent to parking	30	2	3	(5,6,7)	40	25	35
Multi - Family Residential	RM-1 RM-2 MH	Adjacent to parking	20	2	3	(4,5,6, 7)	35	25	35
		Not adjacent to parking	34	2	3	(5,6,7)	35	25	35
<b>Residential PRO (20)</b>			<b>Avg 50, Min 34</b>	<b>4</b>	<b>4</b>	<b>(5,6,7)</b>	<b>40</b>	<b>25</b>	<b>35</b>

5.5.3.B.ii.f Right-of-Way Landscape Screening Requirements (continued)

			Requirements						
Use	Zoning	Berm Located	Greenbelt width (feet)	Min berm crest width (feet)	Min. Berm Height (feet)	3 Foot Wall/ Fence	Deciduous canopy or large evergreen trees: 1 per X linear feet frontage	Deciduous Sub-canopy Trees: 1 per X linear feet frontage	In area between sidewalk and curb: 1 deciduous canopy deciduous tree per X linear feet frontage
Footnotes				(4)	(9)	(5,6,7)	(1,2,8,9,13,17,18,19)	(1,3,8,9,13,14,17,18,19)	(1,2,9,10,11,15,17,18,19)
Commercial /Office	NCC C OS-1 OSC OST B-1 B-2 B-3	Adjacent to Parking	20	3	3	(4,5,6,7)	35	20	35
		Not adjacent to parking	25	0	0	(5,6,7)	60	40	35
		Parking between ROW and at least 67% of primary building (18)	20	3	3	(4,5,6,7)	75	40 Plus 2 shrubs per 40 lf	35
Industrial (12)	I-1 I-2	Adjacent to Parking	25	3	3	(4,5,6,7)	40	35	45
		Not adjacent to parking	25	—	—	—	60	40	45
Downtown	TC TC-1	Adjacent to Parking	20	—	—	(6,7)	25 (17)	15 (17)	—
		Not adjacent to parking	—	—	—	(6,7)	30 (17)	20 (17)	—
Misc. Large Use	P-1 Expo RC FS	Adjacent to Parking	20	2	3	(5,6)	35	20	45
		Not adjacent to parking	25	3	3	(5,6)	45	30	45



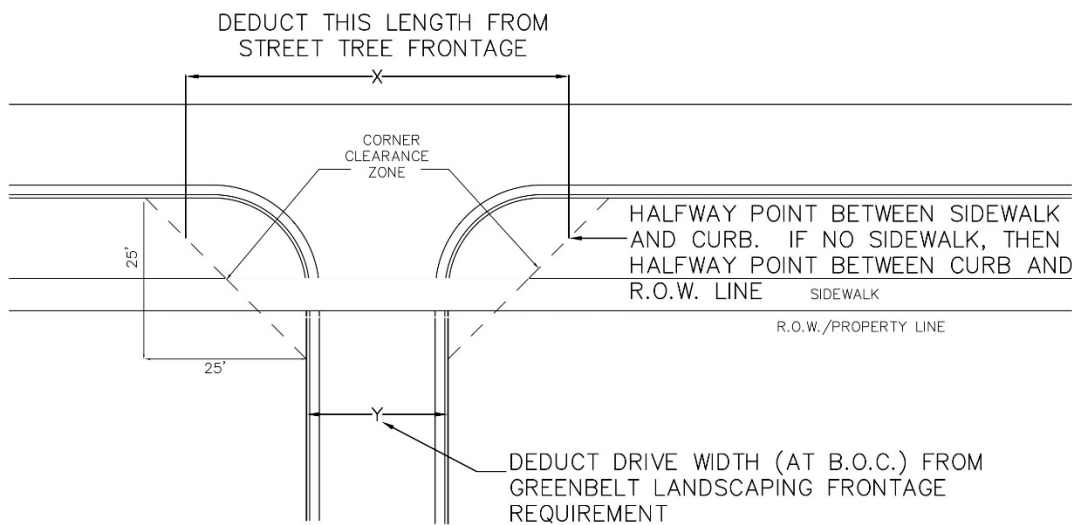
Planned Suburban Low Rise	PSLR	Parking and buildings adjacent to a section line road right-of-way	50	4	3	Not allowed	35	20	35
		Parking adjacent to other right-of-ways	To Front of principal building	4	3	Not allowed	35	20	35

**FOOTNOTES:**

- (1) Round fractions to the nearest whole number for the required number of trees and shrubs.
- (2) Subcanopy trees are to be used under overhead utilities. Use 1.5 subcanopy trees for each one canopy tree requirement. If columnar/fastigiata varieties are used, 2 subcanopy trees per canopy tree must be used. The minimum total mature canopy width of the provided subcanopy trees should equal or exceed 25 feet. Wherever possible, however, deciduous canopy trees are to be used as street trees.
- (3) Subcanopy trees can be in an informal or formal arrangement. Format spacing shall be 10-foot minimum to 15-foot maximum on center.
- (4) Shrubs are to be used to screen parking and vehicular use areas where no berm or wall is provided, and are encouraged to be used in other areas to provide seasonal interest where no parking occurs. Shrubs in front of parking areas must provide minimum screening opacity of 80% in winter and 90% in summer and be maintained at a height of at least 3 feet. The use of shrubs in place of the required berm requires a Planning Commission Waiver (berms are preferred).
- (5) Up to 10% of the required trees or subcanopy trees may be replaced with shrubs at a rate of 8 shrubs per canopy tree or evergreen tree, or 5 shrubs per subcanopy tree. The shrubs must be maintained at a minimum height of 3 feet.
- (6) A wall may be used instead of a berm. If a wall, consistent with footnote (7) below, is provided in front of parking areas, a reduction of up to 33% of the required greenbelt plantings (not street trees) is allowed in the parking greenbelt area. A Planning Commission Waiver is required to use a wall instead of a berm.
- (7) Freestanding walls shall be constructed of masonry or concrete with all exterior sides of face brick with a suitable cap.
- (8) An ornamental fence with shrubs and brick piers may be used instead of a berm if approved by the Planning Commission in Use/Zoning as indicated above. A Planning Commission waiver is required for this substitution.
- (9) View channels into the site are to be used for safety visibility. Please provide sight lines to the building address for approaching vehicles at an approximately 20-40 degree angle.
- (10) Tree spacing requirements are intended to dictate the tree quantity per linear footage along the proposed right-of-way (ROW). They are not intended to dictate

exact placement on the site within the area of the requirement. Creative landscape design is encouraged.

- (11) In situations where sidewalks are not required, the street trees shall be placed midway between the curb line and right-of-way line where possible.
- (12) Street trees shall not be permitted within the 25-foot corner clearance zone (Section 5.9). Roads with Road Commission for Oakland County (RCOC) jurisdiction shall utilize their standards for sight distance in locating street trees. If RCOC or does not approve any or all trees, those trees shall not be planted, with no penalty to the applicant.
- (13) In industrial subdivisions, a mix of shrubs, ornamental grasses, perennials and/or annuals shall be planted in massed groupings to highlight entrances and views of key elements
- (14) The width of access aisles through the greenbelt shall be deducted from the basis of calculation (see illustration in footnote #19 below).
- (15) Subcanopy trees used in foundation landscaping shall also count toward the right-of-way subcanopy requirement if the building is located at the rear of the required greenbelt width.
- (16) The width(s) of the corner clearance zone(s) shall be deducted from the basis of the calculation for street trees for one access way per street frontage (see illustration in footnote #17 below).
- (17) In the Town Center districts, deciduous canopy/large evergreen trees or subcanopy trees are required in the greenbelt, but not both.
- (18) These requirements only pertain to zoning districts B-1, B-2 and B-3
- (19) Linear deductions allowed for street trees and right-of-way greenbelt landscaping:



- (20) When the development fronts on one or more major thoroughfares, the right-of-way greenbelt along that thoroughfare shall be an average of 50 feet width, with a minimum of 34 feet.

- iii. Reduction or Waiver. Except as provided in Section 5.5.3.A.v.a.(3), which governs relief relative to berm height, the Planning Commission may reduce or waive the landscaping screening/buffer right-of-way requirements when it determines that practical difficulties exist due to the parcel size or configuration, or where the design of the site would be enhanced by an alternative design solution while still meeting the intent of this Section. Examples of such situations include, but are not limited to, when:
  - a. Preservation of Regulated Woodlands or Wetlands or existing trees will occur;
  - b. The grade of the site is higher than the road and naturally provides a screen;
  - c. Significant architecture or historic buildings, water features, views of natural resources or vistas will be preserved;

The Commission may, as part of its exercise of such authority, allow the:

- a. Use of a wall instead of a berm; or
- b. Use of a wrought iron decorative fence with brick accents or other material of equal aesthetic quality and durability with plantings instead of a berm

### **C. Parking Area Landscaping Requirements**

- i. Intent. The intent of this subsection is to require curbed landscape islands within parking areas, thereby reducing solid expanses of impervious surfaces, to decrease runoff, to shade parking areas, and to create aesthetically pleasing and environmentally enhanced parking areas.
- ii. General Requirements.
  - a. The design and layout of all parking lots and islands shall be subject to review and approval by the City of Novi.
  - b. Islands are to conform to the general requirements in Section 5.3.12.
  - c. Creative island configuration is encouraged, such as islands between rows of parking in long, wide planting strips.
  - d. The use of pedestrian walkways in parking lot islands is encouraged, if the islands' paths are at least 5 feet wide with no vehicle overhang or 7 feet wide with vehicle overhang and a 10-foot planting area width is maintained.

- e. Landscaped islands are to be installed with 6 inch curbs that are designed to protect landscaping from damage by vehicles (4 inches where vehicles are to overhang the curb). However, periodic openings in curbs, which do not exceed 2 feet in length, shall be permitted for the purpose of conveying storm water run-off.
- f. If more than 1 island is provided in a parking lot, they are to be distributed evenly throughout the lot.
- g. Each parking lot landscape island shall have:
  - (1) A minimum of 200 square feet in area.
  - (2) A minimum of 200 square feet in unpaved area per tree planted in an island.
  - (3) A minimum dimension of 10 feet in width from back of curb to back of curb.
  - (4) A minimum of 3 feet between the back of a curb and a tree trunk.
- h. For any development other than a single one-family or two-family dwelling, the exact square footage of landscape islands required shall be as specified in the Interior Parking Area Landscape Islands and Canopy Tree Chart (Table 5.5.3.C.iii).
- i. Wheel stops or raised curbing shall be installed to prevent vehicles from encroaching more than 2 feet into any parking landscape area. When adjacent 90 degree parking stalls are reduced from 19 to 17 feet in length, the required 6 inch curbs shall be reduced to 4 inches in height. This applies to both landscape and sidewalk overhangs. Where vehicles overhang a sidewalk, the sidewalk shall have a minimum width of 7 feet.
- j. No plantings with a mature height greater than 12 inches shall be within 10 feet of fire hydrants. Plant materials shall not block the visibility of the hydrant and be no taller than 12 inches when below a Fire Department Connection.
- k. Trees are to be located at least 10 feet away from utility structures including catch basins and manholes, and should be at least 5 feet away from underground utility lines whenever possible.
- l. Islands are to have adequate drainage to the nearest catch basin or adequate areas of amended sandy loam soil, as specified on the plan, to achieve proper drainage. Depressed (sunken) islands are allowed if the plantings are salt-tolerant and the islands are designed to provide

drainage adequate for survival of the island plantings and meet all City of Novi engineering standards.

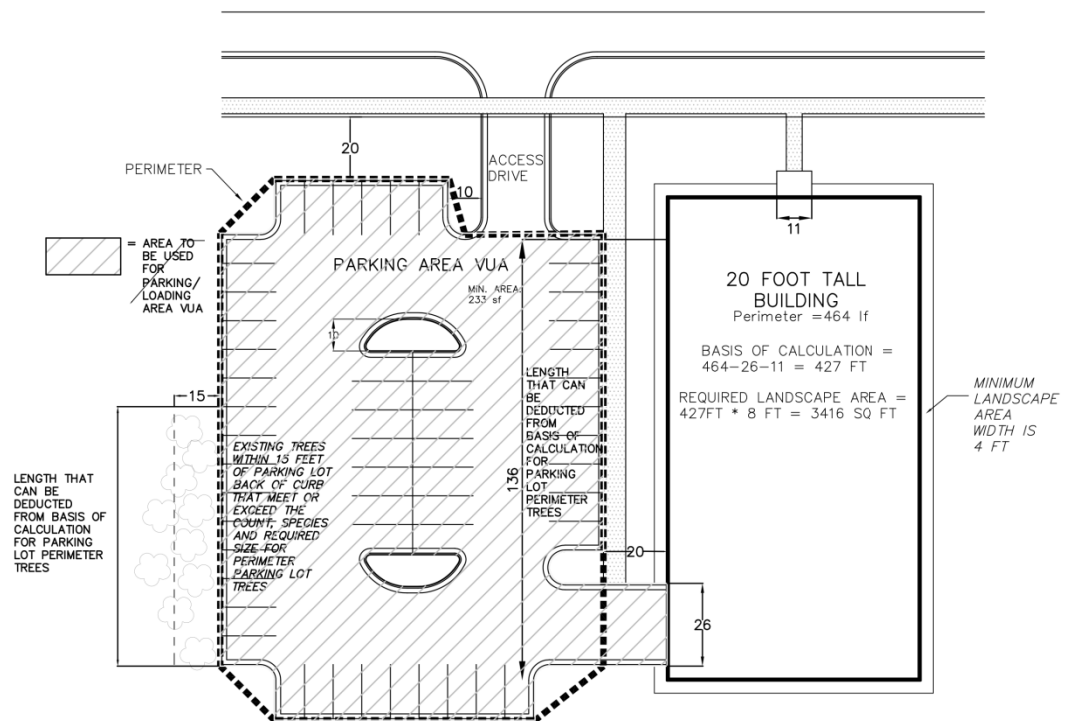
- m. Paint, contrasting brick or concrete pavers may be used to delineate stall lines within parking areas.
  - n. Any area within a parking lot not dedicated to parking use, driveways, or sidewalks exceeding 100 square feet, shall be landscaped with a minimum of lawn or other living ground cover.
  - o. All parking lot landscaped areas required herein shall consist of a mix of plant materials such as canopy deciduous trees, subcanopy trees, shrubs, groundcovers (including lawn), ornamental grasses and/or perennials.
  - p. The total square footage of required interior landscape islands shall be provided as follows:
    - (1) The required square footage shall be provided only within islands that are surrounded by paved parking areas or that project into the parking lot from the perimeter of the parking area, if they meet the requirements of this Section.
    - (2) Areas abutting but not within the interior of the parking area shall not satisfy the requirements of this Section.
    - (3) Within the interior of the parking lot, islands shall be distributed evenly across the paved area so as to distribute the required landscaping throughout the parking area.
    - (4) No bay of parking (defined herein as a single row of side by side parking spaces) greater than 15 parking spaces in length shall be provided.
    - (5) If the use is primarily vehicular storage (ie automobile dealer vehicle inventory areas, vehicle stockpile areas, semi-trailer storage areas), bays of 25 spaces will be allowed but the required interior landscape area must be provided.
    - (6) In order to count toward the total landscape area provided, an island must contain at least 1 deciduous canopy tree.
- iii. Greenspace and Parking Lot Tree Requirements. The following chart is to be used to calculate the square footage of island space and the number of canopy trees required for Parking Area Interior and Perimeter Landscaping.

5.5.3.C.iii Interior Parking Area Landscape Islands and Canopy Tree Chart					
	A	B	C	D	E
Category*	Total square footage of landscaped islands for VUA areas less than or equal to 50,000 square feet equals:	Total square footage of landscaped islands for VUA beyond the initial 50,000 sf (A) equals:	Total square footage required in interior parking lot islands equals:	Total number of interior landscape deciduous canopy trees:	Perimeter Deciduous Canopy Trees required equals:
Footnotes	1,2,3	1,2,3		4,5,7	6,7,8
1	$VUA \times 7.5\%$	$(VUA-50000) \times 1.0\%$	A+B	$(A+B)/200$	Perimeter (LF) / 35
2	$VUA \times 5\%$	$(VUA-50000) \times 0.5\%$	A+B	$(A+B)/200$	Perimeter (LF) / 35
*Category 1 = OS-1, OSC, OST, B-1, B-2, B-3, C, NCC, EXPO, FS, TC, TC-1, RC Districts and Special Land Uses *Category 2 = I-1, I-2					
Footnotes:					
<p>(1) Round fractions of trees to the nearest whole number.</p> <p>(2) Vehicular Use Area (VUA) to be used in this calculation includes parking spaces, loading areas and access aisles. It does not include drives to the Vehicular Use Area. See illustration below.</p> <p>(3) If a vehicular use area is greater than 50,000 sf, the landscape requirement for the first 50,000 sf of VUA is to be calculated per Column A, and the requirement for the remaining VUA is to be calculated per Column B. The landscaping for the total requirement should be spread evenly across the entire VUA</p> <p>As an example, a 65,000 square foot parking area in Category 1 would require <math>50,000 \times 7.5\%</math> plus <math>15,000 \times 1\% = 3750sf + 150 sf = 3900 sf</math> landscape area within the parking lot boundary.</p> <p>(4) Deciduous canopy trees are required for all interior parking trees. In areas with overhead utility lines, subcanopy trees may be approved at a rate of 1.5 subcanopy trees per 1 canopy tree required.</p> <p>(5) Access drives outside of parking areas shall have perimeter trees planted at the rate of 1 per 35 lf of drive length on both sides of the aisle, ending at the right-of-way/property line. The portion of an access way to the parking lot that passes through the right-of-way greenbelt may be subtracted from the basis of calculation if an equivalent number of greenbelt canopy trees are within 15 feet of the drive and fulfill the requirement for 1 tree per 35 lf.</p>					

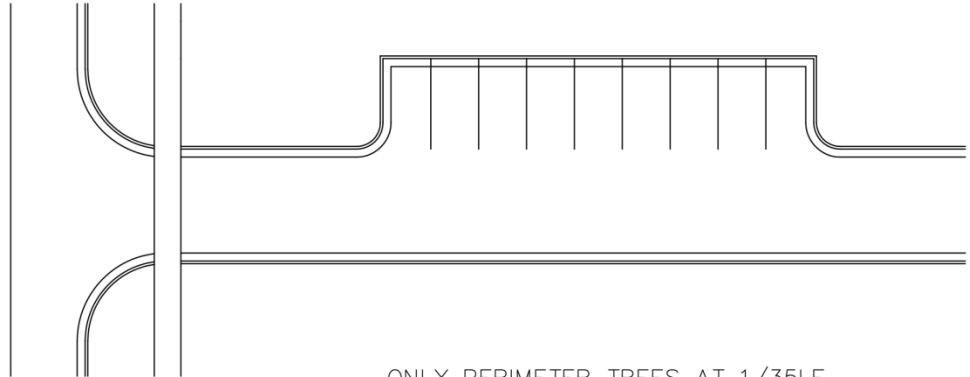
iv. Parking lot perimeter trees

- a. Trees are required for parking areas and access drives to parking areas at a rate of 1 tree per 35 lf of perimeter. See illustration for determination of perimeter length.
- b. Parking lot frontages with existing trees within 15 feet of the parking lot perimeter (as measured to the tree trunk) shall be subtracted from the basis of calculation, as long as the trees provided meet or exceed the requirement of 1 tree per 35 lf.

- c. If the front edge of a parking lot is at the rear edge of the greenbelt buffer, and canopy trees in the greenbelt, existing or proposed, are within 15 feet of the parking lot's back of curb (as measured to the trunk), those trees can be counted toward the perimeter requirement.
- d. In the case of a building in a Commercial/Office district (NCC, C, OS-1, OSC, OST, B-1, B-2 or B-3) where parking is between the right-of-way and at least 67% of the primary building, only 1 tree per 70 lf is required along the front parking lot edge. The same allowance for deduction cited in (2) above can also apply in this case.
- e. Greenbelt canopy trees within 15 feet of the back of curb of an access drive may count toward the access drive perimeter tree requirement.
- f. If a parking lot edge is within 20 feet of a building 20 feet or taller and the building's foundation landscaping has at least 1 subcanopy tree per 35 lf of building frontage along the parking lot, that frontage does not have to have perimeter trees.
- g. As they may assist with screening between properties, large evergreen trees may be used for up to 25% of the required perimeter trees. Sufficient space should be provided between the tree and the curb to allow the evergreens to maintain their branches down to ground level when they mature.



- h. If a parking bay abuts a drive but no other parking, only perimeter trees along the drive and parking are required (no interior parking). See illustration below:



ONLY PERIMETER TREES AT 1/35LF  
REQUIRED IN THIS SITUATION

- v. Waiver. Based upon a sufficiently documented demonstration by the applicant, the Planning Commission may reduce or waive the parking lot landscape requirements when it determines that practical difficulties exist due to parcel shape or configuration or where the design of the site would be enhanced by an alternative design solution while still meeting the intent of this Section. Such action by the Commission may be taken when any or all of the following conditions will be met:
  - a. Preservation of Regulated Woodlands or Wetlands or existing trees will occur;
  - b. Storm water runoff impacts will be lessened;
  - c. Traffic circulation will be substantially improved;
  - d. Vehicular and pedestrian safety will be enhanced.

#### **D. Building Foundation Landscape Requirements**

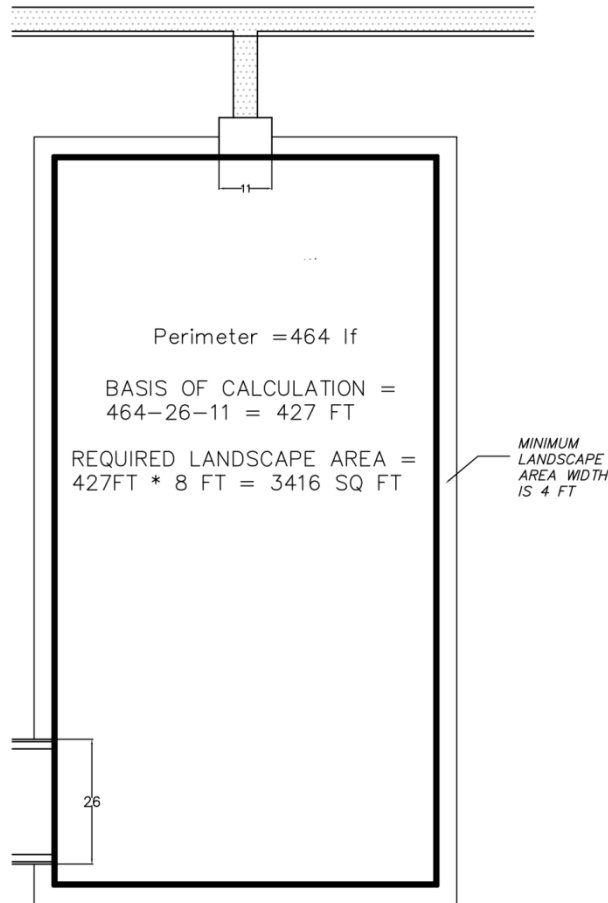
- i. Intent. The intent of this subsection is to provide living landscape space around buildings in order to help integrate buildings into the surrounding landscape and to improve the aesthetic appearance of the site.
- ii. Requirements. For all buildings or accessory buildings requiring site plan review, the following shall apply:
  - a. There shall be, as a minimum, interior site landscaping square footage equal to the quantity calculated by multiplying the entire perimeter of the building, less the paved access points including walkways to the building



(but not including those walkways immediately along the building) and vehicular entrance ways to the building interior (i.e. garage doors) by eight feet. See the diagram below.

- b. Landscaped planting beds shall be placed immediately adjacent to the building on at least 75% of the building foundation and have a minimum width dimension of four feet. Lawn areas shall not be considered toward the required greenspace. Creativity of the physical configuration of the landscape planting bed shape and dimension is strongly encouraged. Applicant is encouraged to provide additional greenspace adjacent to the building wherever possible.
- c. All foundation landscaping areas shall be labeled as such on the landscape plan, with the area in square feet of that area.
- d. For the front and any other facades visible from a public street, a minimum of 60% of the exterior building perimeter shall be greenspace planted with a mix of trees, shrubs and groundcovers, perennials, grasses, annuals and bulbs. Deciduous canopy and/or large evergreen trees and subcanopy trees may also be included around the building if separated from the building by the appropriate distances.
- e. Also see zoning district Development Standard and Selected References as applicable.
- f. If the front of the building is at the rear line of the required right-of-way greenbelt, trees included in the foundation plantings for the front of the building may also count toward the required greenbelt plantings.
- g. With respect to projects within the TC and TC-1 districts, the Planning Commission may waive the 8 foot width calculation requirements if significant additional planting and/or decorative paving or amenities are added adjacent to the building.
- h. The loading/unloading spaces, entry doors, and drive through aisles are exceptions from having the greenspace adjacent to the building. The length of those elements can be subtracted from the perimeter per the illustration below.
- i. There shall be greenspace adjacent to patios.
- j. In instances where the building has a first floor overhang greater than 2 feet, the landscaping required under this subsection shall begin at the outside edge of the overhang in order to ensure the landscaping receives sufficient sun and water.

- k. In situations where the building use does not allow landscaping immediately adjacent to the building, alternate placements of required foundation landscaping may be proposed elsewhere on the property. In that case, the alternative area(s) should be clearly labeled as foundation landscaping, with its area in square feet. A Planning Commission waiver is required for the alternate positioning.



- iii. Waiver Procedure. The Planning Commission may reduce or waive the building foundation landscaping requirements when it determines that the applicant has established that practical difficulties exist due to parcel size or configuration or where the design of the site would be enhanced by an alternative design solution while still meeting the intent of this Section. Such action will be taken by the Planning Commission when:
- Particular pedestrian circulation safety concerns inhibit the application of this requirement; or
  - Elements or activities that are ancillary to the primary building's function inhibit the application of this requirement; or

- c. Landscaping has been proposed in other areas on the site that offset the loss.

#### **E. Detention/Retention/Sedimentation Basin Landscape Requirements.**

All detention basins shall be planted with the minimum requirements as set forth in the Landscape Design Manual and shall be designed to have a natural appearance, utilizing natural looking contours and native plant materials whenever possible. Detention basin maintenance shall be provided (see Ordinance Chapter 12, Storm Water Management).

#### **F. Subdivision Planting Requirements**

##### i. Single-Family Platted Subdivisions or Residential Site Condominiums

- a. Intent. The intent of this subsection is to create visually appealing single-family residential areas that integrate existing natural resources into the overall landscape design.

- b. Requirements Adjacent to Major Thoroughfares.

- (1) That portion of the lots abutting major thoroughfares shall include an approved screen planting and raised berm per Section 5.5.3.B, contained in a non-access greenbelt easement, labeled as such on the plans, and having a minimum width of 40 feet.
- (2) Said non-access greenbelt easement shall be part of the development open space, not part of a lot or residential unit.
- (3) The screening plantings shall be installed at the time of construction of the subdivision.

- c. Street Trees and Boulevard Planting

- (1) Street trees shall be provided in front of each lot in accordance with the standards set forth in the Landscape Design Manual.
- (2) A Street Tree Financial Guarantee will be collected at a rate of four-hundred (400) dollars per street tree required prior to the Full Pre-Construction meeting, per Ordinance Chapter 26.5 – Financial Guarantees. There will be no issuance of any Temporary or Final Certificate of Occupancy in the development until this financial guarantee and the Street Tree Maintenance Fee has been paid. No Final Certificate of Occupancy will be granted until the trees have been planted by the developer and inspected and accepted by the City.

- (3) Trees shall be guaranteed by the developer for two (2) growing seasons after installation. All unhealthy and dead plant material shall be replaced by the developer within three (3) months following notice, or the next appropriate planting period, whichever occurs first. The Street Tree Financial Guarantee will not be reduced and no Final Certificate of Occupancy will be granted until the trees have been planted and approved.
- (4) The developer shall submit a landscape plan for all of the street trees to be provided within the development, which shall be reviewed by the City.

d. Island and Boulevard Planting

- (1) All islands, boulevards and easements shall be landscaped and irrigated. Islands within a cul-de-sac shall not have any plant materials that may obscure vision across the island between heights of 3 feet to 6 feet as measured from the established street grade. See Landscape Design Manual for additional requirements regarding the type and size of plantings.
- (2) Island and boulevard plantings do not count toward the required street tree totals.
- (3) If an island's or entry's landscaping is to be revised by the subdivision association, a landscape plan shall be submitted to the City for administrative approval prior to planting.

ii. Multi-Family/Attached Dwelling Units

- a. Intent. The intent of this subsection is to create visually appealing multi-family residential areas that integrate existing natural resources into the overall landscape design.
- b. Requirements. For all multiple-family or other development with attached dwelling units (other than a single RT dwelling on an individual lot) the following shall apply:
  - (1) 3 deciduous canopy trees or large evergreen trees for each dwelling unit on the first floor shall be provided. Evergreens shall be no closer than 20 feet from the roadway.
  - (2) In addition, there shall be one deciduous canopy tree along interior roads for every 35 feet of lineal interior roadway, along each side of the roadway, excluding driveways, interior roads

adjacent to public rights-of-way and parking entry drives. The spacing of the deciduous canopy trees shall be a minimum of 25 feet and a maximum of 35 feet. In case of overhead utility lines, deciduous subcanopy trees can be substituted for deciduous canopy trees at a rate of 1.5 subcanopy tree for each 1 canopy tree. (See Single- Family Platted Subdivisions or Residential Site Condominiums Sections for specific requirements.)

- (3) A mixture of shrubs, subcanopy trees, groundcovers, perennials, annuals, and/or ornamental grasses shall be provided as foundation plantings at the front of each ground floor unit covering at least 35% percent of the front building facade.

iii. Non-Residential Subdivisions

- a. Intent. The intent of this subsection is to create visually appealing non-residential areas that integrate existing natural resources into the overall landscape design.
- b. Requirements. For all non-residential subdivisions or non-residential site condominiums, the following landscape requirements shall apply:
  - 1. Areas abutting the Public Rights-of-Way of major roadways shall be landscaped according to Section 5.5.3.B.ii and provided prior to lot development.
  - 2. Required Landscape Screening, where adjacent to residential, Section 5.5.3.A.ii, is to be installed at the time of and as a part of construction prior to development of any lots.
  - 3. Building Foundation Landscape Requirements per Section 5.5.3.D shall apply.
  - 4. Screening of outdoor storage, motor vehicles, off street parking, and areas used to [for] vehicle repair, deliveries, unloading, loading or transport is to be accomplished per Sections 3.14, 3.15, 4.55, 4.56 and Section 5.5.
  - 5. See the Landscape Design Manual for additional requirements for individual lots.

**G. Individual (non-subdivision/non-site condominium) single-family requirements**

- i. Street trees shall be provided in front of each single-family parcel, in accordance with the standards set forth in the Landscape Design Manual for lots within single-family platted subdivisions.
- ii. The developer/builder or homeowner shall depict the street trees on the plot plan, which shall be reviewed by the City.
- iii. A Street Tree Financial Guarantee will be collected at a rate of \$400 per street tree required prior to the issuance of a building permit, in accordance with the provisions of Chapter 26.5 of the Novi Code of Ordinances.
- iv. No Final Certificate of Occupancy will be granted until the street trees have been planted by the developer/builder or homeowner and inspected by the City. Once the trees have been inspected, the Financial Guarantee will be reduced to a Maintenance Bond equal to 25% of the material cost of the trees per the Community Development standard costs, or a minimum of \$1000, whichever is higher. The Street Tree Financial Guarantee will not be reduced until the trees have been planted and accepted by the City.
- v. Trees shall be guaranteed by the developer/builder or homeowner for two (2) growing seasons after installation. All unhealthy and dead trees shall be replaced by the developer/builder or homeowner within three (3) months following notice, or the next appropriate planting period, whichever occurs first.
- vi. All replacement trees shall be guaranteed by the developer/builder or homeowner for an additional two (2) years, after which time a final inspection will be conducted at the request of the developer/builder or homeowner. At that time, the Maintenance Bond will be returned to the payer. If required, the maintenance bond will be used to replace any trees not replaced by the developer/builder or homeowner.

#### **4. Landscape Plan Review Standards.**

The landscape plan shall be reviewed relative to:

- A. The intent of the overall design of the site and the design of the proposed landscape materials to achieve unique, attractive and significant landscaping on the site as a whole;
- B. The proper type, spacing, height, placement and location of plant materials in order to insure that the intent of this ordinance is met;
- C. The choice and selection of plant materials so as to insure that root systems will not interfere with public utilities and so that fruit and other debris, except leaves, will not constitute a nuisance within public rights-of-way or to abutting property owners;

- D. The choice and selection of plant materials so as to insure that the type of plantings selected will be of a type that will survive and thrive in the area in which they are to be located;
- E. The proper relationship between deciduous and evergreen plant materials exists so as to assure that the desired obscuring effect will be accomplished; and
- F. All requirements of this Section and of the Landscape Design Manual.

## 5. Installation Specifications.

- A. **Approved Planting Plan.** Wherever in this Ordinance landscape plantings are required or permitted, they shall be planted in accordance with the approved final stamped landscape plan.
- B. **Time of Planting.** All plant materials shall be installed between March 15 and November 15. All installed landscapes including plant materials, mulch, staking, irrigation, and sodding, must be installed and inspected by the City prior to issuance of a Temporary Certificate of Occupancy. At that time, a financial guarantee of 1.2 times the cost of any deficiencies will be held until inspection occurs for a Final Certificate of Occupancy. In order to receive a Final Certificate of Occupancy, the deficiencies must be addressed within 30 days during the March 15 to November 15 planting season. Under extraordinary circumstances related to the inability to plant during the approved installation period, a financial guarantee of one 1.2 times the cost of any deficiencies will be held until the inspection for a Final Certificate of Occupancy. If the deficiencies are not addressed in the time period outlined above, the City will cash in the amount being held for the outstanding items and remedy those items. **Note:** For street trees, the financial guarantee is 100% of the \$400 per tree.
- C. **Inspections.** A City representative will perform landscape inspections following a request from the developer. The inspection time period is from April 15 to November 15 (actual inspection scheduling depends on plants being in condition to inspect early in the spring or late in fall). If an inspection is requested between November 16 and April 15, a financial guarantee is to be provided based on 1.2 times the material cost of incomplete items for a Temporary Certificate of Occupancy as outlined above. Beginning April 15, the Applicant then has 30 days to complete items or the City will cash in the amount being held and finish the job with the financial guarantee funds.
- D. **Establishment Period.** The establishment period for the plant material guarantee will begin at the Final Certificate of Occupancy inspection approval and continue to 2 years from that date. All plantings shall be properly planted and be in a healthy, growing condition at commencement of the establishment period. At the end of the

establishment period, any plantings which are 20% dead or disfigured shall be replaced.

#### **E. Notice of Installation/Minor changes**

- i. The owner or developer must notify the City of the installation schedule. The City may reject any material which is defective or in generally poor condition.
- ii. Minor changes regarding plant materials per the approved and stamped landscape plan may be altered upon written notification to, and written sign-off by, the City Landscape Architect of species, size, change, and location. The proposed changes must be in the form of a marked-up or revised approved landscape plan. If only limited areas are impacted, the entire plan does not need to be submitted.
- iii. Minor changes due to seasonal planting problems and lack of plant availability may be approved in writing by the City Landscape Architect when there is no reduction in the quality of plant materials, no significant change in size or location of plant material, the new plant material is compatible with the area and is the same general type (deciduous/evergreen), exhibiting same design characteristics (mature height, crown), as the material being replaced. If the applicant purchases and/or installs unapproved material, they do so at the risk that they may need to be removed if the change is not approved.
- iv. If these criteria are not fulfilled or changes from the approved plan are significant in terms of number of plantings changed or in planting layout, such that the provided plan is not predominately representative of the actual installed plantings, a revised or as-built plan and an additional review fee will be required.

#### **6. Maintenance**

- A. Maintenance of required plantings by the owner shall be carried out so as to present a healthy, neat and orderly appearance, free from dead plants, weeds, refuse, and debris. **Trees shall be trimmed or pruned in a natural and proportionate manner per the species/cultivar's natural appearance, in accordance with best management practices of the landscape industry. It shall be unlawful to intentionally abuse or injure any tree on public or private property. If severe or aggressive trimming or pruning of a tree that was required to be planted as part of a development plan occurs such that the ordinance's intent for the trees is compromised, the property shall be considered in non-conformity with this ordinance, and the Director of Community Development or the City's Forester may require the removal and replacement of such tree in accordance with this Chapter.**



- B. To insure proper maintenance and as a condition of Final Site Plan approval, City shall require the property owner to enter into and record with the office of the Oakland County Register of Deeds a Landscape Maintenance Agreement, or include such provisions as part of subdivision restrictions or condominium master deed, each of which shall be approved by the City Attorney. Such instrument shall identify the minimum plan of maintenance, the person or entity responsible for maintenance, and shall provide the procedure, authority and finance for City cure of breaches by the responsible entity. Such instrument shall also include provisions that:
- i. All unhealthy and dead material shall be replaced within three (3) months, or the next appropriate planting period, whichever occurs first;
  - ii. All landscaped areas shall be provided with a method of providing water for the landscaping during establishment. A permanent irrigation system must be installed if plantings that require a consistent source of water for survival are part of the landscape;
  - iii. Tree stakes, guy wires and tree wrap are to be removed after one winter season;
  - iv. Plantings shall be guaranteed for 2 growing seasons after the date of the acceptance of the installation; and
  - v. If grass or weeds exceed the height specified in Chapter 21 of the Novi Code of Ordinances, or if shrubs are allowed to obstruct vision across any portion of parking or boulevard islands, or within corner clearance vision zones, and the responsible party is unwilling to rectify the problem, the City will abate such violations and shall assess the cost of such abatement measures in the manner proposed by the developer and approved by the City in such instrument.

### C. *Phragmites* Control

- i. If *Phragmites australis* (commonly known as Giant Reed) is found on the property, all populations of it shall be treated for removal by a licensed pesticide applicator, using MDEQ-approved means, at the time of site preparation, or the soonest appropriate time after that, and follow-up treatments shall be performed as necessary. The City's Landscape Architect shall determine the extent to which such treatment is required, given the size and condition and other factors related to the property.
- ii. The *Phragmites* population(s) will be inspected by the City's Landscape Architect at the time of the landscape inspection for approval of the installed landscape. If the *Phragmites* was treated prior to such inspection, a copy of the invoice from the vendor who performed the work shall be provided to the

City. If it is to be treated after the inspection, the invoice shall be sent to the City when the work is complete.

- iii. Follow-up treatments during the 2-year maintenance period may be necessary to completely eradicate regrowth. Such treatments must be completed as necessary.
- iv. A follow-up inspection of the status of the *Phragmites* removal will be done as part of the 2-year landscape maintenance inspection. If further treatment to remove the *Phragmites* is determined to be required, such removal shall be done by a licensed pesticide applicator at the appropriate time (per MDEQ recommendations). The 2-year landscape maintenance bond required by this Section will be held until proof of any required follow-up treatment in the form of an invoice for the treatments is provided to the City's Landscape Architect or other approved official.
- v. Following the 2-year inspection, the landowner is expected to maintain the property in a *Phragmites*-free condition to the extent reasonably practical.

7. **Responsibility and Certificates of Occupancy.** The owner of the property subject to the requirements of this Section shall be responsible for installing and maintaining landscaping per the approved final landscape plan as specified in this Section. Where the property is occupied by a person other than the owner, the occupant shall also be responsible for maintenance.

All landscaping work required pursuant to this Section shall be treated as a site improvement for purposes of Sections 7.7.8 and 7.7.9.

**PART II. Severability.** Should any section, subdivision, clause, or phrase of this Ordinance be declared by the courts to be invalid, the validity of the Ordinance as a whole, or in part, shall not be affected other than the part invalidated.

**PART III. Savings Clause.** The amendment of the Novi Code of Ordinances set forth in this Ordinance does not affect or impair any act done, offense committed, or right accruing, accrued, or acquired or liability, penalty, forfeiture or punishment, pending or incurred prior to the amendment of the Novi Code of Ordinances set forth in this Ordinance.

**PART IV. Repealer.** All other Ordinances or parts of Ordinances in conflict herewith are hereby repealed only to the extent necessary to give this Ordinance full force and effect.

**PART V. Effective Date: Publication.** Public hearing having been held hereon pursuant to the provisions of Section 102 of Act 110 of the Public Acts of 2006, as amended, the provisions of this Ordinance shall be published within fifteen (15) days of its adoption by publication of a brief notice in a newspaper circulated in the City of Novi stating the date of enactment and effective date, a brief statement as to its regulatory effect and that a complete copy of the Ordinance is available for public purchase, use and inspection at the office of the City Clerk

during the hours of 8:00 a.m. to 5:00 p.m., local time. The provisions of this Ordinance shall become effective seven (7) days after its publication.

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Robert J. Gatt, Mayor

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Cortney Hanson, City Clerk

**Certificate of Adoption**

I hereby certify that the foregoing is a true and complete copy of the ordinance adopted at the regular meeting of the Novi City Council held on the \_\_\_\_ day of \_\_\_\_\_, 2017.

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Cortney Hanson, City Clerk

**LANDSCAPE ORDINANCE  
SECOND READING**

**CLEAN VERSION**

ORDINANCE NO. \_\_-17

CITY OF NOVI  
OAKLAND COUNTY, MICHIGAN

AN ORDINANCE TO AMEND THE CITY OF NOVI CODE OF ORDINANCES, ORDINANCE 14-271, THE CITY OF NOVI ZONING ORDINANCE, AS AMENDED AT ARTICLE 5.0, "SITE STANDARDS," SECTION 5.5, "LANDSCAPE STANDARDS: OBSCURING EARTH BERMS AND WALLS, RIGHTS-OF-WAY BUFFERS, AND INTERIOR AND EXTERIOR LANDSCAPE PLANTINGS" IN ORDER TO COMPREHENSIVELY REVISE THE LANDSCAPE PLANTINGS AND BUFFERING REQUIREMENTS OF THE ZONING ORDINANCE.

THE CITY OF NOVI ORDAINS:

**PART I.** Ordinance 14-271, the City of Novi Zoning Ordinance, as amended at Section 5.0, "Site Standards," Section 5.5, "Landscape Standards: Obscuring Earth Berms and Walls, Rights-of-Way Buffers, and Interior and Exterior Landscape Plantings," is hereby amended in its entirety to read as follows:

5.5 LANDSCAPE STANDARDS: OBSCURING EARTH BERMS AND WALLS, RIGHTS-OF-WAY BUFFERS, AND INTERIOR AND EXTERIOR LANDSCAPE PLANTINGS

1. **Intent.** The intent of this Section is to achieve landscapes with creative placement and attractive designs that:
  - emphasize the preservation of existing natural resources, the use of native plant materials, and a diversity of plant species;
  - preserve and enhance existing woodlands, wetlands and natural open areas;
  - reduce impervious surfaces, enhance storm water management and prevent soil erosion and soil depletion;
  - provide appealing yet opaque visual and audible buffering between non-compatible land uses; and
  - utilize the best ecological concepts and environmental objectives with preservation and sustainability as a priority,

in order to protect and enhance the well-being of the residents of the City of Novi.

Landscape regulation is intended to establish minimum standards for all property in the City. Property owners and occupants are encouraged to exceed these standards, to

minimize paved areas and other run-off areas, and to maximize the areas devoted to attractively designed and well-maintained landscapes.

2. **Landscape Plan Required.** A landscape plan shall be submitted for any new commercial or residential development, and any addition to an existing building that is equal to or greater than a 25% percent increase in the overall square footage of the building or 400 square feet, whichever is less. With the exception of Section 5.5.5.G, Individual (Non-Subdivision/Non-Site Condominium) Single-Family Street Tree Requirements, an owner of a single-family home-site shall not be required to comply with the provisions of this section. All landscape plans shall be prepared in accordance with the requirements of this Ordinance and the requirements of the City of Novi "Landscaping Design Manual," as adopted by the City Council by resolution and which may similarly be amended by Council resolution from time to time.

3. **Landscape Requirements**

**A. Residential Adjacent to Non-Residential**

- i. Intent. To make provision for a visual buffer strip in each zoning and use classification when a non-residential use abuts or is adjacent to any residential zoning district.
- ii. Requirements for Obscuring Landscaped Earth Berms and Walls. In all locations which abut or are adjacent to any residential district (RA, R-1, 2, 3, 4, RT, RM-1, RM-2, MH and any TC district if developed for residential purposes), an obscuring landscaped earth berm and plantings, as described, shall be proposed, approved, installed and maintained in connection with any development or use identified below. Where TC-1 and RM-2 are adjacent to TC-1 and RM-2, a wall and plantings shall be provided as indicated in the following Berm Requirement Chart.

5.5.3.A.ii Residential Adjacent to Non-Residential Berm Requirement Chart		
Use	Zoning	Berm or Wall Height
Parking	P-1 district Off-Street Parking Area	4 ft. 6 in. to 6 ft. high
Residential/Special Land Use	RM-1, RM-2, and MH districts, churches, schools, nursery schools, day care centers and other uses where special land use approval is required	4 ft. 6 in. to 6 ft. high
Office Service/Tech	OST, OS-1, and OSC districts	4 ft. 6 in. high to 6 ft. high
Commercial	B-1, B-2, B-3, RC, and NCC districts	6 ft. to 8 ft. high
EXPO, EXO district	EXPO district	8 ft. to 10 ft. high
Conference	C district	8 ft. to 10 ft. high

Freeway Service	FS district	8 ft. to 10 ft. high
Town Center	(a.) TC and TC-1 districts	6 ft. high
	(b.) TC-1 and RM-2 districts	6 ft. high wall
Industrial	I-1 district	10-15 ft. ht. berm, 6 ft. crest width, 80% winter/90% summer opacity (See Section 3.14.5.E)
	I-2 district	15 ft. ht. berm, 15 ft. crest width, 80% winter/90% summer opacity (See Section 3.15.2.C)
	Special Land Use	10 ft. ht. berm, 6 ft. crest width, 80% winter/90% summer opacity (See Section 3.14.5.E)
Auto Wash, Drive-In Restaurants, Service Stations, and Planned Commercial Centers and Regional Shopping Centers	Where permitted or approved	10 ft. to 15 ft. high
Hospital-Ambulance and Delivery Areas	Where permitted or approved	6 ft. high
Utility Buildings, Stations, and/or Substations	Where permitted or approved	6 ft. high

- iii. Exceptions. Obscuring landscaped berms and walls are not required to separate identically zoned uses or where uses are separated by a street, road, highway, or freeway.
- iv. Placement. The berm or wall is required to be on the property seeking approval. The berm may be placed upon the adjacent residential property in order to provide continuity with an adjoining berm. In that case, a recorded permanent easement and a maintenance agreement in a form acceptable to the City Attorney will be required from the adjacent property owner.
- v. Berm Requirements. The obscuring berm requirements are as follows:
  - a. The berm height shall be measured as follows:
    - (1) The berm height, as specified in the Residential Adjacent to Non-Residential Berm Requirement Chart (Table 5.5.3.A.ii), shall be analyzed from the following locations, and the final measurement of

the berm shall be made from that location which results in the maximum screening:

- [i] The first floor elevation of the closest adjacent principal structures;
- [ii] The first floor elevation of the uses requiring screening;
- [iii] The elevation of the parking lots closest to the property line when only the parking area requires screening; or
- [iv] The elevation of the nearest property line.

Where a range of height is stated for a use on the Chart, the basic berm height shall be deemed to be the lower measurement, with approving body of the City having the discretion to increase the height up to the higher measurement based upon an application of the following considerations on the non-residential property: intensity of use; noise generation customarily associated with the use; height and aesthetic appearance of buildings and structures; topography; distance of buildings, structures and activities from the common property line; and, the extent of disharmony with the adjoining residential use as a result of other considerations.

- (2) The site plan shall include the first floor elevation of all adjacent principal structures within 200 feet of the subject site's property lines.
- (3) Where the applicant demonstrates, and the Planning Commission finds, that practical difficulties would result from the strict application of berm height standards, as required herein, the Planning Commission may reduce the height of the berm, or eliminate the berm, and may approve an alternate plan which includes landscape treatment or a wall (subject to Section 5.5.3.A.vi below), or a combination of the two, provided that the approved alternate plan achieves adequate noise attenuation and obscuring screening. The Planning Commission may also reduce the height of the berm, or eliminate the berm, where it determines that an alternative design utilizing landscaping or other materials, including a wall subject to Section 5.5.3.A.vi below, provides adequate and effective noise attenuation and screening, or where such alternative design provides a substantial aesthetic or site design benefit while still providing for noise attenuation and screening to the extent reasonably practicable. The intent of this section is not to



encourage and allow elimination or reduction of berm height for the sake of convenience or cost savings, but rather to allow reasonable development while achieving design excellence not otherwise possible under these requirements.

- b. The berm shall be natural in appearance and have overlapping and undulating changes in elevation, both horizontally and vertically, without compromising the minimum height requirement and/or intent of the berm. Where a range of height is stated on the Chart for a use, and the approving body determines berm height based upon the criteria specified in sub-paragraph v.(a), above, the height of the undulations on the berm shall be determined by the approving body as part of site plan approval, taking into consideration the location of improvements and activities to be screened, and the criteria in sub-paragraph v.(a), above.
- c. The obscuring berm shall have no greater than a maximum slope of 33 percent. (3 feet of horizontal plane for each 1 foot of vertical height.) More gradual slopes are strongly encouraged.
- d. Plants shall be specified for any "no mow" areas.
- e. The crest of the obscuring berm shall have a nearly flat horizontal area of at least 5 feet in width. (See the previous Berm Requirement Chart for exceptions.)
- f. The required earth berm shall be located at the lot line, except where such location would interfere with underground utilities or drainage.
- g. Where an existing or proposed parking or vehicular use area abuts an existing berm or wall or other durable landscape barrier on an abutting property, said existing landscaping may be used to satisfy the landscape requirements of this Section 5.5, provided that it meets all applicable noise attenuation and obscuring screening standards of this Section, and provided that the existing berm, wall, or other durable landscape barrier is required to be maintained consistent with the terms of this section of the ordinance and consistent with the approved site plan. Where the existing berm, wall, or other durable landscape barrier is not otherwise required to be maintained in connection with the adjacent property, the applicant shall be responsible for such maintenance and shall obtain and record a permanent easement and maintenance agreement from the adjoining property owner in a form approved by the City Attorney, making provision for such maintenance.

- h. Where a property has already been lawfully developed for one of the uses listed in the Residential Adjacent to Non-Residential Berm Requirement Chart (Table 5.5.3.A.ii), adjacent residential property which subsequently develops shall provide and maintain the necessary berm.
- i. See Landscape Design Manual for additional requirements.

vi. Wall Requirements.

- a. Freestanding walls shall have all exterior sides constructed of face brick or stone with a suitable cap, and the interior constructed of masonry or reinforced concrete. The Planning Commission may consider materials of equal durability and aesthetic quality.
- b. Walls shall be designed to resist the pressure of the retained material, including both live and dead loads to which they may be subject. Foundations shall be designed to prevent movement due to frost action and a suitable drainage system shall be provided to assure stability. Walls that are greater than 3½ feet in height shall be designed and sealed by a professional design or structural engineer. Walls shall not cause flooding or impound water at any time and are subject to Final Site Plan review. (See Design and Construction Standards (Chapter 11, Novi Code of Ordinances).
- c. All other obscuring conditions of this subsection and the Landscape Design Manual must be met.
- d. Timber, boulder, and interlocking retaining walls are permitted for the purpose of terracing.

vii. Waiver of Landscaped Berm or Wall for Preservation of Wooded Area.

The Planning Commission may waive the requirement for an earth berm or obscuring wall adjacent to a residential use district when the proposed development includes the retention of an existing regulated or non-regulated wooded area adjacent to the residential district, or when an existing regulated or non-regulated wooded area is preserved on the adjacent residential property. In either case, the owners of all such area(s), including the owners of the adjacent residential property, shall provide a permanent preservation easement, including requirements for perpetual maintenance and replacement of woodland features, in recordable form acceptable to the City Attorney for such wooded area, and provided all the following conditions are met:

- a. The retained wooded area will provide effective screening consistent with the opacity for visual screening requirements of this Ordinance and intent of this Section.
- b. The retained wooded area shall be of a depth and height equal to or greater than the screening requirement being waived.
- c. The failure to retain the wooded area will have a negative impact on the preservation of woodlands within the City of Novi.
- d. The retained wooded area has been inspected and evaluated by the City relative to the health and desirability of the existing plant material.
- e. The Planning Commission may require, during construction phases, as a condition to the waiver, additional and/or modified plantings and/or the erection of a temporary chain link fence within or adjacent to the preserved wooded area to meet the opacity requirements and/or other objectives of this Section, and, in the event all or part of the retained wooded area is removed, destroyed, diminished, or altered in any manner such that it no longer provides the screening required under this Section, the berm or wall shall be installed at the applicant's (or its successor's) expense or additional screening material may be required by the City to be installed and maintained at the applicant's (or its successor's) expense in order to achieve the screening objective under this Section.

**B. Adjacent to Public Rights-of-Way**

- i. Intent. The intent of the landscape planting buffer requirements along public rights-of-way is to improve the appearance of the rights-of-way including screening off-street parking and vehicular use areas of property abutting public rights-of-way.
- ii. Requirements. Landscape plantings shall be installed and maintained adjacent to existing or proposed public rights-of-way according to the standards set forth on the Right-of-Way Landscape Screening Requirements Chart (Table 5.5.3.B.ii.F), and as otherwise established in this ordinance, including the individual zoning district, and in the Landscape Design Manual.
  - a. There shall be provided adjacent to the abutting right-of-way or private road a landscape area of sufficient width to accommodate a required berm as indicated in the Right-of-Way Landscape Screening Requirements Chart, except in those use districts or development options that require a greater greenbelt, or except as otherwise provided in the TC and TC-1 districts.

- b. Berms shall comply with Section 5.5.3.A.v., with specific requirements as called out in Table 5.5.3.B.ii.f.
- c. The landscape area, if adjacent to parking and vehicular use areas not between the right-of-way and the principal building, shall be planted to achieve a minimum opacity of 90 percent during the summer and 80 percent during the winter. The landscape in this area shall provide a continuous visual obstruction height of 36 inches, plus the required canopy/evergreen or subcanopy trees required per Table 5.5.3.B.ii.f.
- d. All landscape areas between the right-of-way and parking areas that front on the required right-of-way greenbelt shall have a berm meeting the height requirements of the zoning district as specified in the Right-of-Way Landscape Screening Requirements Chart, and shall have a maximum slope of 33% and a crest as specified in the Right-of-Way Landscape Screening Requirements Chart (Table 5.5.3.B.ii.f).
- e. A landscape area shall be planted to provide visual interest and yet allow views into the site. Particular care should be taken in the arrangement of greenbelt plantings to provide a view of the street address from a 20-40 degree angle as you drive toward the building along the primary road frontage.
- f. Parking areas in a Commercial/Office district with parking located between the principal building and right-of-way shall be planted at a reduced rate, per the greenbelt tree and subcanopy requirements called for in Table 5.5.3.B.ii.f (The berm and street tree requirements are the same as if the parking was not between the building and road).
- g. If a wall is provided in accordance with the city standard, a reduction of up to 33 percent of the required greenbelt plantings (not street trees) is allowed in the right-of-way greenbelt in front of the parking. This reduction does not apply in cases where parking is between the right-of-way and the building and required landscaping is already reduced.
- h. For a residential development abutting an arterial or minor arterial roadway, landscape buffers shall be installed and maintained along the entire property line abutting the right-of-way. In a single-family site development, the required landscape buffer shall not be part of a residential unit or lot.
- i. Necessary access ways from public rights-of-way through required landscaped areas shall be permitted. The width of the access way(s) shall be subtracted from the lineal dimension used to determine the

minimum number of trees required for greenbelt landscaping and street trees (see illustration in Table 5.5.3.B.ii.f, Footnote 17 below for points of measurement for each).

- j. The buffering shall not prevent visibility of the main building entry from the public rights-of-way.

5.5.3.B.ii.f Right-of-Way Landscape Screening Requirements									
			Requirements						
Use	Zoning	Berm Located	Greenbelt width (feet)	Min berm crest width (feet)	Min. Berm Height (feet)	3 Foot Wall/ Fence	Deciduous canopy or large evergreen trees: 1 per X linear feet frontage	Deciduous Sub-canopy Trees: 1 per X linear feet frontage	In area between sidewalk and curb: 1 deciduous canopy deciduous tree per X linear feet frontage
Footnotes				(4)	(9)	(5,6,7)	(2,8,9,14, 17)	(3,8,9,14, 17)	(2,9,10, 11,12,15, 17)
Single Family Residential	R-A R-1 R-2 R-3 R-4		34	4	4	(5,6,7)	40	25	35
Two-Family Residential	RT	Adjacent to parking	20	2	3	(4,5,6, 7)	35	25	35
		Not adjacent to parking	30	2	3	(5,6,7)	40	25	35
Multi - Family Residential	RM-1 RM-2 MH	Adjacent to parking	20	2	3	(4,5,6, 7)	35	25	35
		Not adjacent to parking	34	2	3	(5,6,7)	35	25	35
Residential PRO (20)			Avg 50, Min 34	4	4	(5,6,7)	40	25	35

5.5.3.B.ii.f Right-of-Way Landscape Screening Requirements (continued)

			Requirements						
Use	Zoning	Berm Located	Greenbelt width (feet)	Min berm crest width (feet)	Min. Berm Height (feet)	3 Foot Wall/ Fence	Deciduous canopy or large evergreen trees: 1 per X linear feet frontage	Deciduous Sub-canopy Trees: 1 per X linear feet frontage	In area between sidewalk and curb: 1 deciduous canopy deciduous tree per X linear feet frontage
Footnotes				(4)	(9)	(5,6,7)	(1,2,8,9,13,17,18,19)	(1,3,8,9,13,14,17,18,19)	(1,2,9,10,11,15,17,18,19)
Commercial /Office	NCC C OS-1 OSC OST B-1 B-2 B-3	Adjacent to Parking	20	3	3	(4,5,6,7)	35	20	35
		Not adjacent to parking	25	0	0	(5,6,7)	60	40	35
		Parking between ROW and at least 67% of primary building (18)	20	3	3	(4,5,6,7)	75	40 Plus 2 shrubs per 40 lf	35
Industrial (12)	I-1 I-2	Adjacent to Parking	25	3	3	(4,5,6,7)	40	35	45
		Not adjacent to parking	25	—	—	—	60	40	45
Downtown	TC TC-1	Adjacent to Parking	20	—	—	(6,7)	25 (17)	15 (17)	—
		Not adjacent to parking	—	—	—	(6,7)	30 (17)	20 (17)	—
Misc. Large Use	P-1 Expo RC FS	Adjacent to Parking	20	2	3	(5,6)	35	20	45
		Not adjacent to parking	25	3	3	(5,6)	45	30	45

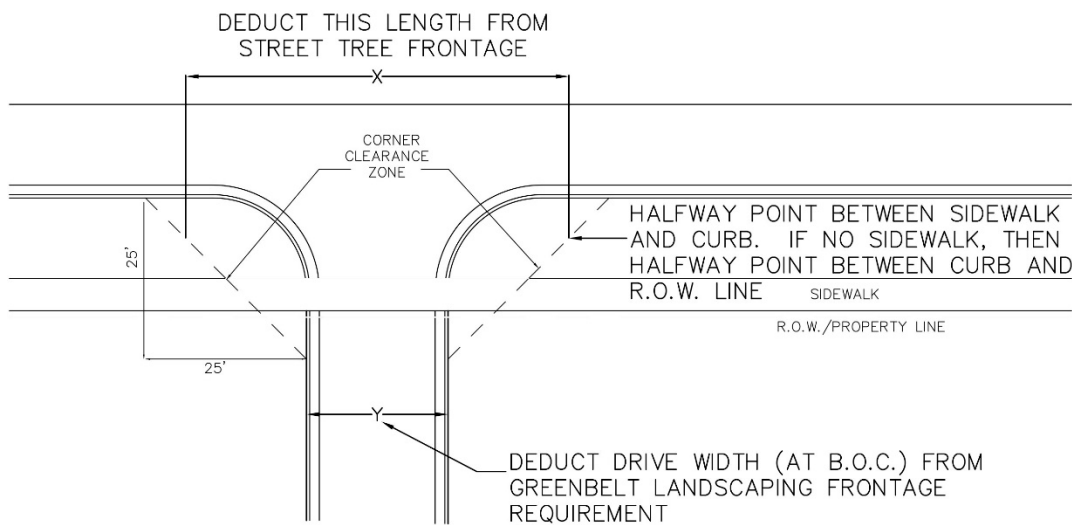
Planned Suburban Low Rise	PSLR	Parking and buildings adjacent to a section line road right-of-way	50	4	3	Not allowed	35	20	35
		Parking adjacent to other right-of-ways	To Front of principal building	4	3	Not allowed	35	20	35

**FOOTNOTES:**

- (1) Round fractions to the nearest whole number for the required number of trees and shrubs.
- (2) Subcanopy trees are to be used under overhead utilities. Use 1.5 subcanopy trees for each one canopy tree requirement. If columnar/fastigiata varieties are used, 2 subcanopy trees per canopy tree must be used. The minimum total mature canopy width of the provided subcanopy trees should equal or exceed 25 feet. Wherever possible, however, deciduous canopy trees are to be used as street trees.
- (3) Subcanopy trees can be in an informal or formal arrangement. Format spacing shall be 10-foot minimum to 15-foot maximum on center.
- (4) Shrubs are to be used to screen parking and vehicular use areas where no berm or wall is provided, and are encouraged to be used in other areas to provide seasonal interest where no parking occurs. Shrubs in front of parking areas must provide minimum screening opacity of 80% in winter and 90% in summer and be maintained at a height of at least 3 feet. The use of shrubs in place of the required berm requires a Planning Commission Waiver (berms are preferred).
- (5) Up to 10% of the required trees or subcanopy trees may be replaced with shrubs at a rate of 8 shrubs per canopy tree or evergreen tree, or 5 shrubs per subcanopy tree. The shrubs must be maintained at a minimum height of 3 feet.
- (6) A wall may be used instead of a berm. If a wall, consistent with footnote (7) below, is provided in front of parking areas, a reduction of up to 33% of the required greenbelt plantings (not street trees) is allowed in the parking greenbelt area. A Planning Commission Waiver is required to use a wall instead of a berm.
- (7) Freestanding walls shall be constructed of masonry or concrete with all exterior sides of face brick with a suitable cap.
- (8) An ornamental fence with shrubs and brick piers may be used instead of a berm if approved by the Planning Commission in Use/Zoning as indicated above. A Planning Commission waiver is required for this substitution.
- (9) View channels into the site are to be used for safety visibility. Please provide sight lines to the building address for approaching vehicles at an approximately 20-40 degree angle.
- (10) Tree spacing requirements are intended to dictate the tree quantity per linear footage along the proposed right-of-way (ROW). They are not intended to dictate

exact placement on the site within the area of the requirement. Creative landscape design is encouraged.

- (11) In situations where sidewalks are not required, the street trees shall be placed midway between the curb line and right-of-way line where possible.
- (12) Street trees shall not be permitted within the 25-foot corner clearance zone (Section 5.9). Roads with Road Commission for Oakland County (RCOC) jurisdiction shall utilize their standards for sight distance in locating street trees. If RCOC or does not approve any or all trees, those trees shall not be planted, with no penalty to the applicant.
- (13) In industrial subdivisions, a mix of shrubs, ornamental grasses, perennials and/or annuals shall be planted in massed groupings to highlight entrances and views of key elements
- (14) The width of access aisles through the greenbelt shall be deducted from the basis of calculation (see illustration in footnote #19 below).
- (15) Subcanopy trees used in foundation landscaping shall also count toward the right-of-way subcanopy requirement if the building is located at the rear of the required greenbelt width.
- (16) The width(s) of the corner clearance zone(s) shall be deducted from the basis of the calculation for street trees for one access way per street frontage (see illustration in footnote #17 below).
- (17) In the Town Center districts, deciduous canopy/large evergreen trees or subcanopy trees are required in the greenbelt, but not both.
- (18) These requirements only pertain to zoning districts B-1, B-2 and B-3
- (19) Linear deductions allowed for street trees and right-of-way greenbelt landscaping:



- (20) When the development fronts on one or more major thoroughfares, the right-of-way greenbelt along that thoroughfare shall be an average of 50 feet width, with a minimum of 34 feet.



- iii. Reduction or Waiver. Except as provided in Section 5.5.3.A.v.a.(3), which governs relief relative to berm height, the Planning Commission may reduce or waive the landscaping screening/buffer right-of-way requirements when it determines that practical difficulties exist due to the parcel size or configuration, or where the design of the site would be enhanced by an alternative design solution while still meeting the intent of this Section. Examples of such situations include, but are not limited to, when:
  - a. Preservation of Regulated Woodlands or Wetlands or existing trees will occur;
  - b. The grade of the site is higher than the road and naturally provides a screen;
  - c. Significant architecture or historic buildings, water features, views of natural resources or vistas will be preserved;

The Commission may, as part of its exercise of such authority, allow the:

- a. Use of a wall instead of a berm; or
- b. Use of a wrought iron decorative fence with brick accents or other material of equal aesthetic quality and durability with plantings instead of a berm

### **C. Parking Area Landscaping Requirements**

- i. Intent. The intent of this subsection is to require curbed landscape islands within parking areas, thereby reducing solid expanses of impervious surfaces, to decrease runoff, to shade parking areas, and to create aesthetically pleasing and environmentally enhanced parking areas.
- ii. General Requirements.
  - a. The design and layout of all parking lots and islands shall be subject to review and approval by the City of Novi.
  - b. Islands are to conform to the general requirements in Section 5.3.12.
  - c. Creative island configuration is encouraged, such as islands between rows of parking in long, wide planting strips.
  - d. The use of pedestrian walkways in parking lot islands is encouraged, if the islands' paths are at least 5 feet wide with no vehicle overhang or 7 feet wide with vehicle overhang and a 10-foot planting area width is maintained.

- e. Landscaped islands are to be installed with 6 inch curbs that are designed to protect landscaping from damage by vehicles (4 inches where vehicles are to overhang the curb). However, periodic openings in curbs, which do not exceed 2 feet in length, shall be permitted for the purpose of conveying storm water run-off.
- f. If more than 1 island is provided in a parking lot, they are to be distributed evenly throughout the lot.
- g. Each parking lot landscape island shall have:
  - (1) A minimum of 200 square feet in area.
  - (2) A minimum of 200 square feet in unpaved area per tree planted in an island.
  - (3) A minimum dimension of 10 feet in width from back of curb to back of curb.
  - (4) A minimum of 3 feet between the back of a curb and a tree trunk.
- h. For any development other than a single one-family or two-family dwelling, the exact square footage of landscape islands required shall be as specified in the Interior Parking Area Landscape Islands and Canopy Tree Chart (Table 5.5.3.C.iii).
- i. Wheel stops or raised curbing shall be installed to prevent vehicles from encroaching more than 2 feet into any parking landscape area. When adjacent 90 degree parking stalls are reduced from 19 to 17 feet in length, the required 6 inch curbs shall be reduced to 4 inches in height. This applies to both landscape and sidewalk overhangs. Where vehicles overhang a sidewalk, the sidewalk shall have a minimum width of 7 feet.
- j. No plantings with a mature height greater than 12 inches shall be within 10 feet of fire hydrants. Plant materials shall not block the visibility of the hydrant and be no taller than 12 inches when below a Fire Department Connection.
- k. Trees are to be located at least 10 feet away from utility structures including catch basins and manholes, and should be at least 5 feet away from underground utility lines whenever possible.
- l. Islands are to have adequate drainage to the nearest catch basin or adequate areas of amended sandy loam soil, as specified on the plan, to achieve proper drainage. Depressed (sunken) islands are allowed if the plantings are salt-tolerant and the islands are designed to provide

drainage adequate for survival of the island plantings and meet all City of Novi engineering standards.

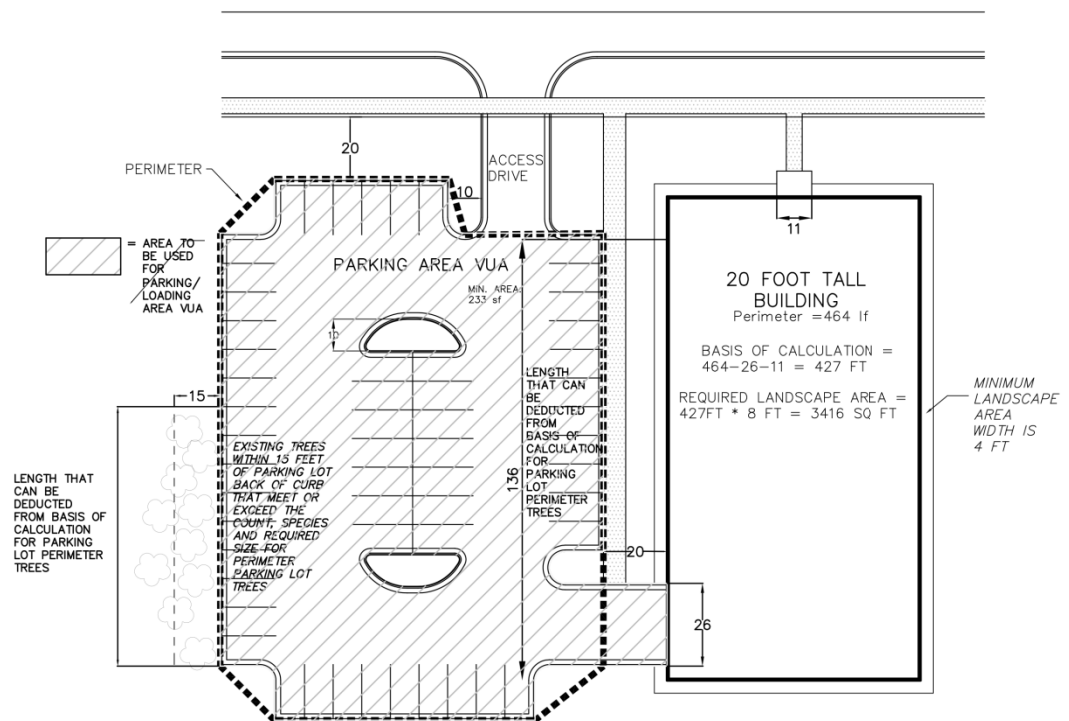
- m. Paint, contrasting brick or concrete pavers may be used to delineate stall lines within parking areas.
  - n. Any area within a parking lot not dedicated to parking use, driveways, or sidewalks exceeding 100 square feet, shall be landscaped with a minimum of lawn or other living ground cover.
  - o. All parking lot landscaped areas required herein shall consist of a mix of plant materials such as canopy deciduous trees, subcanopy trees, shrubs, groundcovers (including lawn), ornamental grasses and/or perennials.
  - p. The total square footage of required interior landscape islands shall be provided as follows:
    - (1) The required square footage shall be provided only within islands that are surrounded by paved parking areas or that project into the parking lot from the perimeter of the parking area, if they meet the requirements of this Section.
    - (2) Areas abutting but not within the interior of the parking area shall not satisfy the requirements of this Section.
    - (3) Within the interior of the parking lot, islands shall be distributed evenly across the paved area so as to distribute the required landscaping throughout the parking area.
    - (4) No bay of parking (defined herein as a single row of side by side parking spaces) greater than 15 parking spaces in length shall be provided.
    - (5) If the use is primarily vehicular storage (ie automobile dealer vehicle inventory areas, vehicle stockpile areas, semi-trailer storage areas), bays of 25 spaces will be allowed but the required interior landscape area must be provided.
    - (6) In order to count toward the total landscape area provided, an island must contain at least 1 deciduous canopy tree.
- iii. Greenspace and Parking Lot Tree Requirements. The following chart is to be used to calculate the square footage of island space and the number of canopy trees required for Parking Area Interior and Perimeter Landscaping.

5.5.3.C.iii Interior Parking Area Landscape Islands and Canopy Tree Chart					
	A	B	C	D	E
Category*	Total square footage of landscaped islands for VUA areas less than or equal to 50,000 square feet equals:	Total square footage of landscaped islands for VUA beyond the initial 50,000 sf (A) equals:	Total square footage required in interior parking lot islands equals:	Total number of interior landscape deciduous canopy trees:	Perimeter Deciduous Canopy Trees required equals:
Footnotes	1,2,3	1,2,3		4,5,7	6,7,8
1	$VUA \times 7.5\%$	$(VUA-50000) \times 1.0\%$	A+B	$(A+B)/200$	Perimeter (LF) / 35
2	$VUA \times 5\%$	$(VUA-50000) \times 0.5\%$	A+B	$(A+B)/200$	Perimeter (LF) / 35
*Category 1 = OS-1, OSC, OST, B-1, B-2, B-3, C, NCC, EXPO, FS, TC, TC-1, RC Districts and Special Land Uses *Category 2 = I-1, I-2					
Footnotes:					
<p>(1) Round fractions of trees to the nearest whole number.</p> <p>(2) Vehicular Use Area (VUA) to be used in this calculation includes parking spaces, loading areas and access aisles. It does not include drives to the Vehicular Use Area. See illustration below.</p> <p>(3) If a vehicular use area is greater than 50,000 sf, the landscape requirement for the first 50,000 sf of VUA is to be calculated per Column A, and the requirement for the remaining VUA is to be calculated per Column B. The landscaping for the total requirement should be spread evenly across the entire VUA</p> <p>As an example, a 65,000 square foot parking area in Category 1 would require <math>50,000 \times 7.5\%</math> plus <math>15,000 \times 1\% = 3750sf + 150 sf = 3900 sf</math> landscape area within the parking lot boundary.</p> <p>(4) Deciduous canopy trees are required for all interior parking trees. In areas with overhead utility lines, subcanopy trees may be approved at a rate of 1.5 subcanopy trees per 1 canopy tree required.</p> <p>(5) Access drives outside of parking areas shall have perimeter trees planted at the rate of 1 per 35 lf of drive length on both sides of the aisle, ending at the right-of-way/property line. The portion of an access way to the parking lot that passes through the right-of-way greenbelt may be subtracted from the basis of calculation if an equivalent number of greenbelt canopy trees are within 15 feet of the drive and fulfill the requirement for 1 tree per 35 lf.</p>					

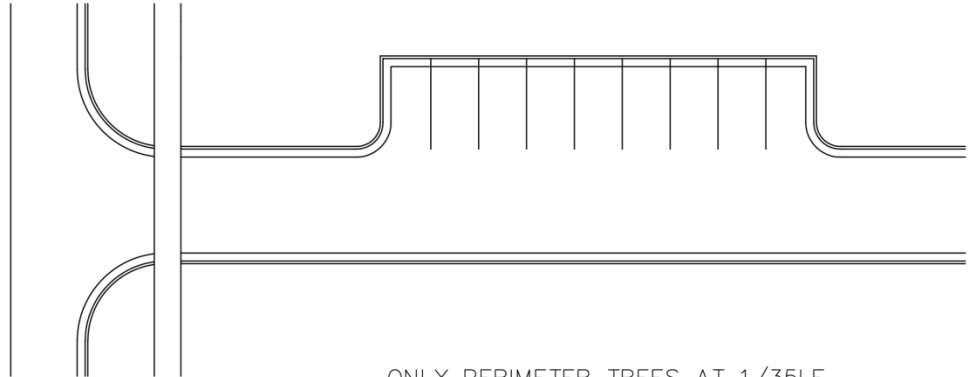
iv. Parking lot perimeter trees

- a. Trees are required for parking areas and access drives to parking areas at a rate of 1 tree per 35 lf of perimeter. See illustration for determination of perimeter length.
- b. Parking lot frontages with existing trees within 15 feet of the parking lot perimeter (as measured to the tree trunk) shall be subtracted from the basis of calculation, as long as the trees provided meet or exceed the requirement of 1 tree per 35 lf.

- c. If the front edge of a parking lot is at the rear edge of the greenbelt buffer, and canopy trees in the greenbelt, existing or proposed, are within 15 feet of the parking lot's back of curb (as measured to the trunk), those trees can be counted toward the perimeter requirement.
- d. In the case of a building in a Commercial/Office district (NCC, C, OS-1, OSC, OST, B-1, B-2 or B-3) where parking is between the right-of-way and at least 67% of the primary building, only 1 tree per 70 lf is required along the front parking lot edge. The same allowance for deduction cited in (2) above can also apply in this case.
- e. Greenbelt canopy trees within 15 feet of the back of curb of an access drive may count toward the access drive perimeter tree requirement.
- f. If a parking lot edge is within 20 feet of a building 20 feet or taller and the building's foundation landscaping has at least 1 subcanopy tree per 35 lf of building frontage along the parking lot, that frontage does not have to have perimeter trees.
- g. As they may assist with screening between properties, large evergreen trees may be used for up to 25% of the required perimeter trees. Sufficient space should be provided between the tree and the curb to allow the evergreens to maintain their branches down to ground level when they mature.



- h. If a parking bay abuts a drive but no other parking, only perimeter trees along the drive and parking are required (no interior parking). See illustration below:



ONLY PERIMETER TREES AT 1/35LF  
REQUIRED IN THIS SITUATION

- v. Waiver. Based upon a sufficiently documented demonstration by the applicant, the Planning Commission may reduce or waive the parking lot landscape requirements when it determines that practical difficulties exist due to parcel shape or configuration or where the design of the site would be enhanced by an alternative design solution while still meeting the intent of this Section. Such action by the Commission may be taken when any or all of the following conditions will be met:
  - a. Preservation of Regulated Woodlands or Wetlands or existing trees will occur;
  - b. Storm water runoff impacts will be lessened;
  - c. Traffic circulation will be substantially improved;
  - d. Vehicular and pedestrian safety will be enhanced.

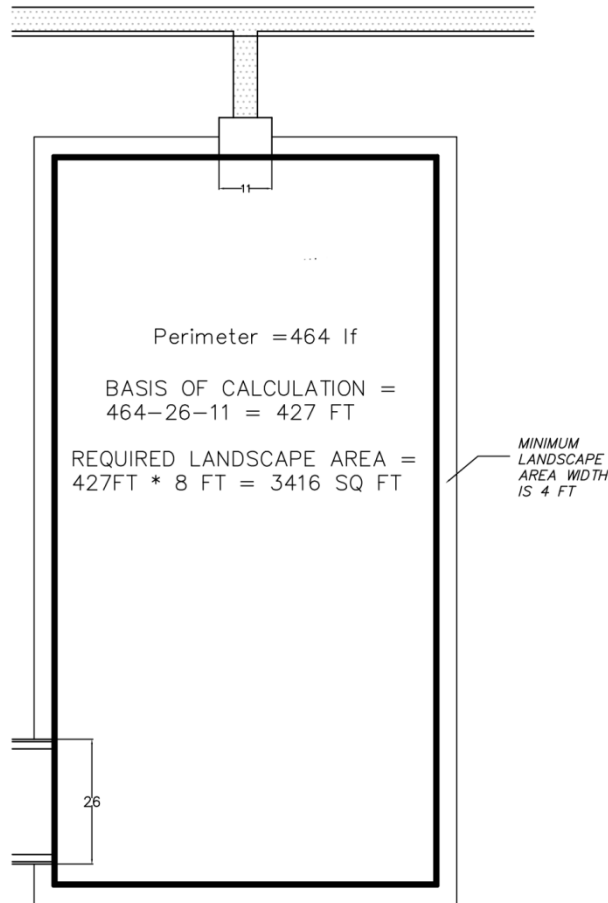
#### **D. Building Foundation Landscape Requirements**

- i. Intent. The intent of this subsection is to provide living landscape space around buildings in order to help integrate buildings into the surrounding landscape and to improve the aesthetic appearance of the site.
- ii. Requirements. For all buildings or accessory buildings requiring site plan review, the following shall apply:
  - a. There shall be, as a minimum, interior site landscaping square footage equal to the quantity calculated by multiplying the entire perimeter of the building, less the paved access points including walkways to the building

(but not including those walkways immediately along the building) and vehicular entrance ways to the building interior (i.e. garage doors) by eight feet. See the diagram below.

- b. Landscaped planting beds shall be placed immediately adjacent to the building on at least 75% of the building foundation and have a minimum width dimension of four feet. Lawn areas shall not be considered toward the required greenspace. Creativity of the physical configuration of the landscape planting bed shape and dimension is strongly encouraged. Applicant is encouraged to provide additional greenspace adjacent to the building wherever possible.
- c. All foundation landscaping areas shall be labeled as such on the landscape plan, with the area in square feet of that area.
- d. For the front and any other facades visible from a public street, a minimum of 60% of the exterior building perimeter shall be greenspace planted with a mix of trees, shrubs and groundcovers, perennials, grasses, annuals and bulbs. Deciduous canopy and/or large evergreen trees and subcanopy trees may also be included around the building if separated from the building by the appropriate distances.
- e. Also see zoning district Development Standard and Selected References as applicable.
- f. If the front of the building is at the rear line of the required right-of-way greenbelt, trees included in the foundation plantings for the front of the building may also count toward the required greenbelt plantings.
- g. With respect to projects within the TC and TC-1 districts, the Planning Commission may waive the 8 foot width calculation requirements if significant additional planting and/or decorative paving or amenities are added adjacent to the building.
- h. The loading/unloading spaces, entry doors, and drive through aisles are exceptions from having the greenspace adjacent to the building. The length of those elements can be subtracted from the perimeter per the illustration below.
- i. There shall be greenspace adjacent to patios.
- j. In instances where the building has a first floor overhang greater than 2 feet, the landscaping required under this subsection shall begin at the outside edge of the overhang in order to ensure the landscaping receives sufficient sun and water.

- k. In situations where the building use does not allow landscaping immediately adjacent to the building, alternate placements of required foundation landscaping may be proposed elsewhere on the property. In that case, the alternative area(s) should be clearly labeled as foundation landscaping, with its area in square feet. A Planning Commission waiver is required for the alternate positioning.



- iii. Waiver Procedure. The Planning Commission may reduce or waive the building foundation landscaping requirements when it determines that the applicant has established that practical difficulties exist due to parcel size or configuration or where the design of the site would be enhanced by an alternative design solution while still meeting the intent of this Section. Such action will be taken by the Planning Commission when:
- Particular pedestrian circulation safety concerns inhibit the application of this requirement; or
  - Elements or activities that are ancillary to the primary building's function inhibit the application of this requirement; or



- c. Landscaping has been proposed in other areas on the site that offset the loss.

#### **E. Detention/Retention/Sedimentation Basin Landscape Requirements.**

All detention basins shall be planted with the minimum requirements as set forth in the Landscape Design Manual and shall be designed to have a natural appearance, utilizing natural looking contours and native plant materials whenever possible. Detention basin maintenance shall be provided (see Ordinance Chapter 12, Storm Water Management).

#### **F. Subdivision Planting Requirements**

##### **i. Single-Family Platted Subdivisions or Residential Site Condominiums**

- a. Intent. The intent of this subsection is to create visually appealing single-family residential areas that integrate existing natural resources into the overall landscape design.

- b. Requirements Adjacent to Major Thoroughfares.

- (1) That portion of the lots abutting major thoroughfares shall include an approved screen planting and raised berm per Section 5.5.3.B, contained in a non-access greenbelt easement, labeled as such on the plans, and having a minimum width of 40 feet.
- (2) Said non-access greenbelt easement shall be part of the development open space, not part of a lot or residential unit.
- (3) The screening plantings shall be installed at the time of construction of the subdivision.

- c. Street Trees and Boulevard Planting

- (1) Street trees shall be provided in front of each lot in accordance with the standards set forth in the Landscape Design Manual.
- (2) A Street Tree Financial Guarantee will be collected at a rate of four-hundred (400) dollars per street tree required prior to the Full Pre-Construction meeting, per Ordinance Chapter 26.5 – Financial Guarantees. There will be no issuance of any Temporary or Final Certificate of Occupancy in the development until this financial guarantee and the Street Tree Maintenance Fee has been paid. No Final Certificate of Occupancy will be granted until the trees have been planted by the developer and inspected and accepted by the City.

- (3) Trees shall be guaranteed by the developer for two (2) growing seasons after installation. All unhealthy and dead plant material shall be replaced by the developer within three (3) months following notice, or the next appropriate planting period, whichever occurs first. The Street Tree Financial Guarantee will not be reduced and no Final Certificate of Occupancy will be granted until the trees have been planted and approved.
- (4) The developer shall submit a landscape plan for all of the street trees to be provided within the development, which shall be reviewed by the City.

d. Island and Boulevard Planting

- (1) All islands, boulevards and easements shall be landscaped and irrigated. Islands within a cul-de-sac shall not have any plant materials that may obscure vision across the island between heights of 3 feet to 6 feet as measured from the established street grade. See Landscape Design Manual for additional requirements regarding the type and size of plantings.
- (2) Island and boulevard plantings do not count toward the required street tree totals.
- (3) If an island's or entry's landscaping is to be revised by the subdivision association, a landscape plan shall be submitted to the City for administrative approval prior to planting.

ii. Multi-Family/Attached Dwelling Units

- a. Intent. The intent of this subsection is to create visually appealing multi-family residential areas that integrate existing natural resources into the overall landscape design.
- b. Requirements. For all multiple-family or other development with attached dwelling units (other than a single RT dwelling on an individual lot) the following shall apply:
  - (1) 3 deciduous canopy trees or large evergreen trees for each dwelling unit on the first floor shall be provided. Evergreens shall be no closer than 20 feet from the roadway.
  - (2) In addition, there shall be one deciduous canopy tree along interior roads for every 35 feet of lineal interior roadway, along each side of the roadway, excluding driveways, interior roads

adjacent to public rights-of-way and parking entry drives. The spacing of the deciduous canopy trees shall be a minimum of 25 feet and a maximum of 35 feet. In case of overhead utility lines, deciduous subcanopy trees can be substituted for deciduous canopy trees at a rate of 1.5 subcanopy tree for each 1 canopy tree. (See Single- Family Platted Subdivisions or Residential Site Condominiums Sections for specific requirements.)

- (3) A mixture of shrubs, subcanopy trees, groundcovers, perennials, annuals, and/or ornamental grasses shall be provided as foundation plantings at the front of each ground floor unit covering at least 35% percent of the front building facade.

iii. Non-Residential Subdivisions

- a. Intent. The intent of this subsection is to create visually appealing non-residential areas that integrate existing natural resources into the overall landscape design.
- b. Requirements. For all non-residential subdivisions or non-residential site condominiums, the following landscape requirements shall apply:
  1. Areas abutting the Public Rights-of-Way of major roadways shall be landscaped according to Section 5.5.3.B.ii and provided prior to lot development.
  2. Required Landscape Screening, where adjacent to residential, Section 5.5.3.A.ii, is to be installed at the time of and as a part of construction prior to development of any lots.
  3. Building Foundation Landscape Requirements per Section 5.5.3.D shall apply.
  4. Screening of outdoor storage, motor vehicles, off street parking, and areas used to [for] vehicle repair, deliveries, unloading, loading or transport is to be accomplished per Sections 3.14, 3.15, 4.55, 4.56 and Section 5.5.
  5. See the Landscape Design Manual for additional requirements for individual lots.

**G. Individual (non-subdivision/non-site condominium) single-family requirements**

- i. Street trees shall be provided in front of each single-family parcel, in accordance with the standards set forth in the Landscape Design Manual for lots within single-family platted subdivisions.
- ii. The developer/builder or homeowner shall depict the street trees on the plot plan, which shall be reviewed by the City.
- iii. A Street Tree Financial Guarantee will be collected at a rate of \$400 per street tree required prior to the issuance of a building permit, in accordance with the provisions of Chapter 26.5 of the Novi Code of Ordinances.
- iv. No Final Certificate of Occupancy will be granted until the street trees have been planted by the developer/builder or homeowner and inspected by the City. Once the trees have been inspected, the Financial Guarantee will be reduced to a Maintenance Bond equal to 25% of the material cost of the trees per the Community Development standard costs, or a minimum of \$1000, whichever is higher. The Street Tree Financial Guarantee will not be reduced until the trees have been planted and accepted by the City.
- v. Trees shall be guaranteed by the developer/builder or homeowner for two (2) growing seasons after installation. All unhealthy and dead trees shall be replaced by the developer/builder or homeowner within three (3) months following notice, or the next appropriate planting period, whichever occurs first.
- vi. All replacement trees shall be guaranteed by the developer/builder or homeowner for an additional two (2) years, after which time a final inspection will be conducted at the request of the developer/builder or homeowner. At that time, the Maintenance Bond will be returned to the payer. If required, the maintenance bond will be used to replace any trees not replaced by the developer/builder or homeowner.

#### **4. Landscape Plan Review Standards.**

The landscape plan shall be reviewed relative to:

- A. The intent of the overall design of the site and the design of the proposed landscape materials to achieve unique, attractive and significant landscaping on the site as a whole;
- B. The proper type, spacing, height, placement and location of plant materials in order to insure that the intent of this ordinance is met;
- C. The choice and selection of plant materials so as to insure that root systems will not interfere with public utilities and so that fruit and other debris, except leaves, will not constitute a nuisance within public rights-of-way or to abutting property owners;

- D. The choice and selection of plant materials so as to insure that the type of plantings selected will be of a type that will survive and thrive in the area in which they are to be located;
- E. The proper relationship between deciduous and evergreen plant materials exists so as to assure that the desired obscuring effect will be accomplished; and
- F. All requirements of this Section and of the Landscape Design Manual.

## 5. Installation Specifications.

- A. **Approved Planting Plan.** Wherever in this Ordinance landscape plantings are required or permitted, they shall be planted in accordance with the approved final stamped landscape plan.
- B. **Time of Planting.** All plant materials shall be installed between March 15 and November 15. All installed landscapes including plant materials, mulch, staking, irrigation, and sodding, must be installed and inspected by the City prior to issuance of a Temporary Certificate of Occupancy. At that time, a financial guarantee of 1.2 times the cost of any deficiencies will be held until inspection occurs for a Final Certificate of Occupancy. In order to receive a Final Certificate of Occupancy, the deficiencies must be addressed within 30 days during the March 15 to November 15 planting season. Under extraordinary circumstances related to the inability to plant during the approved installation period, a financial guarantee of one 1.2 times the cost of any deficiencies will be held until the inspection for a Final Certificate of Occupancy. If the deficiencies are not addressed in the time period outlined above, the City will cash in the amount being held for the outstanding items and remedy those items. **Note:** For street trees, the financial guarantee is 100% of the \$400 per tree.
- C. **Inspections.** A City representative will perform landscape inspections following a request from the developer. The inspection time period is from April 15 to November 15 (actual inspection scheduling depends on plants being in condition to inspect early in the spring or late in fall). If an inspection is requested between November 16 and April 15, a financial guarantee is to be provided based on 1.2 times the material cost of incomplete items for a Temporary Certificate of Occupancy as outlined above. Beginning April 15, the Applicant then has 30 days to complete items or the City will cash in the amount being held and finish the job with the financial guarantee funds.
- D. **Establishment Period.** The establishment period for the plant material guarantee will begin at the Final Certificate of Occupancy inspection approval and continue to 2 years from that date. All plantings shall be properly planted and be in a healthy, growing condition at commencement of the establishment period. At the end of the

establishment period, any plantings which are 20% dead or disfigured shall be replaced.

#### **E. Notice of Installation/Minor changes**

- i. The owner or developer must notify the City of the installation schedule. The City may reject any material which is defective or in generally poor condition.
- ii. Minor changes regarding plant materials per the approved and stamped landscape plan may be altered upon written notification to, and written sign-off by, the City Landscape Architect of species, size, change, and location. The proposed changes must be in the form of a marked-up or revised approved landscape plan. If only limited areas are impacted, the entire plan does not need to be submitted.
- iii. Minor changes due to seasonal planting problems and lack of plant availability may be approved in writing by the City Landscape Architect when there is no reduction in the quality of plant materials, no significant change in size or location of plant material, the new plant material is compatible with the area and is the same general type (deciduous/evergreen), exhibiting same design characteristics (mature height, crown), as the material being replaced. If the applicant purchases and/or installs unapproved material, they do so at the risk that they may need to be removed if the change is not approved.
- iv. If these criteria are not fulfilled or changes from the approved plan are significant in terms of number of plantings changed or in planting layout, such that the provided plan is not predominately representative of the actual installed plantings, a revised or as-built plan and an additional review fee will be required.

#### **6. Maintenance**

- A. Maintenance of required plantings by the owner shall be carried out so as to present a healthy, neat and orderly appearance, free from dead plants, weeds, refuse, and debris. Trees shall be trimmed or pruned in a natural and proportionate manner per the species/cultivar's natural appearance, in accordance with best management practices of the landscape industry. It shall be unlawful to intentionally abuse or injure any tree on public or private property. If severe or aggressive trimming or pruning of a tree that was required to be planted as part of a development plan occurs such that the ordinance's intent for the trees is compromised, the property shall be considered in non-conformity with this ordinance, and the Director of Community Development or the City's Forester may require the removal and replacement of such tree in accordance with this Chapter.

- B. To insure proper maintenance and as a condition of Final Site Plan approval, City shall require the property owner to enter into and record with the office of the Oakland County Register of Deeds a Landscape Maintenance Agreement, or include such provisions as part of subdivision restrictions or condominium master deed, each of which shall be approved by the City Attorney. Such instrument shall identify the minimum plan of maintenance, the person or entity responsible for maintenance, and shall provide the procedure, authority and finance for City cure of breaches by the responsible entity. Such instrument shall also include provisions that:
- i. All unhealthy and dead material shall be replaced within three (3) months, or the next appropriate planting period, whichever occurs first;
  - ii. All landscaped areas shall be provided with a method of providing water for the landscaping during establishment. A permanent irrigation system must be installed if plantings that require a consistent source of water for survival are part of the landscape;
  - iii. Tree stakes, guy wires and tree wrap are to be removed after one winter season;
  - iv. Plantings shall be guaranteed for 2 growing seasons after the date of the acceptance of the installation; and
  - v. If grass or weeds exceed the height specified in Chapter 21 of the Novi Code of Ordinances, or if shrubs are allowed to obstruct vision across any portion of parking or boulevard islands, or within corner clearance vision zones, and the responsible party is unwilling to rectify the problem, the City will abate such violations and shall assess the cost of such abatement measures in the manner proposed by the developer and approved by the City in such instrument.

C. *Phragmites* Control

- i. If *Phragmites australis* (commonly known as *Giant Reed*) is found on the property, all populations of it shall be treated for removal by a licensed pesticide applicator, using MDEQ-approved means, at the time of site preparation, or the soonest appropriate time after that, and follow-up treatments shall be performed as necessary. The City's Landscape Architect shall determine the extent to which such treatment is required, given the size and condition and other factors related to the property.
- ii. The *Phragmites* population(s) will be inspected by the City's Landscape Architect at the time of the landscape inspection for approval of the installed landscape. If the *Phragmites* was treated prior to such inspection, a copy of the invoice from the vendor who performed the work shall be provided to the

City. If it is to be treated after the inspection, the invoice shall be sent to the City when the work is complete.

- iii. Follow-up treatments during the 2-year maintenance period may be necessary to completely eradicate regrowth. Such treatments must be completed as necessary.
  - iv. A follow-up inspection of the status of the *Phragmites* removal will be done as part of the 2-year landscape maintenance inspection. If further treatment to remove the *Phragmites* is determined to be required, such removal shall be done by a licensed pesticide applicator at the appropriate time (per MDEQ recommendations). The 2-year landscape maintenance bond required by this Section will be held until proof of any required follow-up treatment in the form of an invoice for the treatments is provided to the City's Landscape Architect or other approved official.
  - v. Following the 2-year inspection, the landowner is expected to maintain the property in a *Phragmites*-free condition to the extent reasonably practical.
7. **Responsibility and Certificates of Occupancy.** The owner of the property subject to the requirements of this Section shall be responsible for installing and maintaining landscaping per the approved final landscape plan as specified in this Section. Where the property is occupied by a person other than the owner, the occupant shall also be responsible for maintenance.

All landscaping work required pursuant to this Section shall be treated as a site improvement for purposes of Sections 7.7.8 and 7.7.9.

**PART II. Severability.** Should any section, subdivision, clause, or phrase of this Ordinance be declared by the courts to be invalid, the validity of the Ordinance as a whole, or in part, shall not be affected other than the part invalidated.

**PART III. Savings Clause.** The amendment of the Novi Code of Ordinances set forth in this Ordinance does not affect or impair any act done, offense committed, or right accruing, accrued, or acquired or liability, penalty, forfeiture or punishment, pending or incurred prior to the amendment of the Novi Code of Ordinances set forth in this Ordinance.

**PART IV. Repealer.** All other Ordinances or parts of Ordinances in conflict herewith are hereby repealed only to the extent necessary to give this Ordinance full force and effect.

**PART V. Effective Date: Publication.** Public hearing having been held hereon pursuant to the provisions of Section 102 of Act 110 of the Public Acts of 2006, as amended, the provisions of this Ordinance shall be published within fifteen (15) days of its adoption by publication of a brief notice in a newspaper circulated in the City of Novi stating the date of enactment and effective date, a brief statement as to its regulatory effect and that a complete copy of the Ordinance is available for public purchase, use and inspection at the office of the City Clerk



during the hours of 8:00 a.m. to 5:00 p.m., local time. The provisions of this Ordinance shall become effective seven (7) days after its publication.

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Robert J. Gatt, Mayor

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Cortney Hanson, City Clerk

**Certificate of Adoption**

I hereby certify that the foregoing is a true and complete copy of the ordinance adopted at the regular meeting of the Novi City Council held on the \_\_\_\_ day of \_\_\_\_\_, 2017.

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Cortney Hanson, City Clerk

**LANDSCAPE ORDINANCE  
SECOND READING  
LANDSCAPE DESIGN MANUAL**

# **CITY OF NOVI**

## **LANDSCAPE DESIGN MANUAL**

**(Adopted by City Council Resolution dated 8-25-03) – revised Feb 2017**

## TABLE OF CONTENTS

Part I.	Supplemental Requirements and Procedures
Part II	Screening Opacity Diagrams
Part III.	Standard Planting Details
Part IV.	Street Tree List
Part V.	Suggested Plant Material List

### NOTE:

In addition to this Landscape Design Manual and Section 5.5 of the Zoning Ordinance, issues related to landscaping are also addressed in the following sections of the Novi Code of Ordinances. Please consult these for other possible impacts on a project.

**(Note: the following list is provided as an aid and does not guarantee that other ordinances may not have an impact on landscaping):**

### ZONING ORDINANCE:

<u>Ordinance Section #</u>	<u>Title/Relevant Section</u>
3.6	Notes to District Standards
3.6.M:	Wetland/Watercourse setback
3.9.7	MH-Mobile Home district buffer
3.11:	GE Gateway East District – particularly section 6
3.12:	Special Development Option (SDO) for the GE District
3.14.4, 3.14.5.B&E:	I-1
3.15.1.B, 3.15.2:	I-2
3.19.3&7.D:	OST Retail Service Overlay
3.20.2.A&C:	OST Required Conditions
3.21.2.A.iii&iv:	PSLR Overlay
3.22	P-1
3.23.1.vi	Conference District
3.27.1. C,D,F	TC and TC-1 Required Conditions
3.28.6&10	One Family Clustering Option
3.29.2	RUD buffering
4.12.1	Day Care screening
4.13.2	Recreation Areas/Centers

4.19.2.F	Accessory Uses – Refuse Bin
4.37.4	Drive-in businesses
4.40.2.F	Fast food restaurants
4.55	Outdoor Storage Yards
4.58	Junkyards
4.74	Parking for Sale of Motor Vehicles in P-1 District
4.80.1.B & 2.B	Open Air Businesses
4.86.H	Other Uses not Included in a District – Towers
5.2	Off-Street Parking
5.3	Off-Street Stacking, Parking Lot Layout Standards
5.9	Corner clearance
5.11	Fences

### **CODE OF ORDINANCES**

<u>Ordinance Section #</u>	<u>Title/Relevant Section</u>
11-143	Design Considerations – drainage/slopes
12 Article V, 12-275	Wetland and Watercourse Protection
29	Soil – including Sedimentation Control
36	Waterways
37	Woodlands Protection

## **SUPPLEMENTAL REQUIREMENTS AND PROCEDURES**

The following Supplemental Requirements and Procedures shall apply to any landscape plan required under Section 5.5 of the City of Novi Zoning Ordinance. In the event of inconsistency between the provisions of that ordinance, or any other ordinance of the City, and these supplemental requirements and procedures, the ordinance provisions shall prevail.

### **1. Landscape Screening/Buffer Requirements**

#### **a. Residential Adjacent to Non-Residential**

##### **(1) Berm Requirements.**

- (a) The berm shall be landscaped and maintained in a clean, orderly, and growing condition, considering seasonal circumstances.
- (b) The berm must be planted with a combination of trees, shrubs, sod or other evergreen ground covers.
- (c) A minimum opacity shall be provided and maintained at 80% winter opacity and 90% summer opacity at the required height within 2 years of installation. This level of opacity shall be provided wherever screening is called for in this ordinance. Opacity includes an intermittent visual obstruction height of 20 feet, as well as the required screening capacity. (See Obscuring Earth Berm Diagrams in this section for examples of landscaping layouts that provide the required opacity.) The intermittent screening does not have to provide 80-90% opacity above 6 feet, but it should have at least 50% summer opacity.
- (d) Landscaping shall provide the required opacity primarily by using a dense planting of evergreen trees or shrubs. Spacing of the plant materials shall be in accordance with the Plant Material Spacing Chart below and the attached illustrations. Groupings of canopy deciduous trees, subcanopy trees and/or shrubs that provide similar opacity as the illustrations may also be used to provide screening, especially for the intermittent obstruction. As an example, densely-branched deciduous plant material two (2) or more layers deep and/or evergreen plant material may be used to achieve the required opacity.
- (e) The berm and landscaping materials shall be irrigated with an underground watering system or have an operational hose bibb within 100 feet of the landscaping.
- (f) The required minimum and maximum distances between proposed plant materials within this Section for screening and landscape purposes are as follows or as determined by the City Landscape Architect or City Forester based upon accepted principles not specified in the chart:

(Recommended distances are dependent on species' mature sizes and their size within 2 years of planting to attain opacity requirements. Recommended maximum spacing distances do not apply to other landscape requirements such as street tree spacing, greenbelt buffering, woodland replacement trees or foundation plantings).

**Table 1.a.(1)(f): Plant Material Spacing Relationship Chart for Landscape Purposes**

Plant Material Types Spacing (on-center)		TO					
		Large Evergreen Tree	Narrow Upright Evergreen	Deciduous Canopy Tree*	Deciduous Subcanopy Tree*	Large Shrub	Small Shrub
FROM	Large Evergreen Tree	Min. 15 ft Max. 25 ft	Min. 12 ft	Min. 20 ft	Min. 15 ft	Min. 15 ft	Min. 10 ft
	Narrow Upright Evergreen	Min. 10 ft Max. 15 ft	Min. 2.5 ft Max. 10 ft	Min. 15 ft	Min. 10 ft	Min. 5 ft	Min. 3-5 ft
	Deciduous Canopy Tree*	Min. 20 ft	Min. 15 ft.	Min. 20 ft	Min. 15 ft	Min. 5-7 ft	Min. 3-5 ft
	Deciduous Subcanopy Tree*	Min. 15 ft	Min. 10 ft	Min. 15 ft	Min. 10 ft	Min. 5-7 ft	Min. 3-5 ft
	Large Shrub (6-15+' tall)	Min. 15 ft	Min. 5-7 ft	Min. 5-7 ft	Min. 5-7 ft	Min. 5 ft Max. 10 ft	Min. 3 ft Max. 6 ft
	Small Shrub (0-5.9' tall)	Min. 10 ft	Min. 3-5 ft	Min. 3-5 ft	Min. 3-5 ft.	Min. 3-5 ft	Min. 3 ft Max. 6 ft

\* Fastigate/columnar trees may require closer spacing to achieve required opacity.

- (g) Berms shall be constructed of loam soils with a 6" top layer of topsoil and shall be free of construction materials and debris. Where possible, they shall be undulating in height, and they shall always maintain at least the minimum height required in Zoning Section 5.5.3.A.ii.
- b. Developments Adjacent to Public Rights of Way
- (1) Berm Requirements
    - (a) Berms are to vary in height and width
    - (b) The minimum height specified in Zoning Section 5.5.3.B.ii.f should always be met by the berm, with variations in height taller than the minimum.

- (2) Plant Material Location Spacing
  - (a) In order to assist emergency vehicle location of a property, create view channels to business address at a 20-40 degree angle for approaching vehicles from both directions of traffic
  - (b) The base of any permitted display platform must be totally screened by shrubs at least 2 feet in height.
  - (c) Shopping Centers and sites adjacent to freeways or other major corridors are highly visible. Therefore, a strong emphasis shall be placed on the design of landscaping that achieves substantial aesthetic enhancement, and a diminution of paving and parking views along these corridors.

**2. Subdivision Planting Requirements**

- a. Single-family platted subdivisions or residential site condominiums.
  - (1) Street Tree Spacing. Trees shall be provided in front of each residential lot in the area between the sidewalk and the curb as described in the Charts below:
    - i. Minimum planting area widths:

**Table 3.a.(1) Recommended Tree Sizes for ROW areas**

<b>Tree Species Type</b>	<b>Lawn width (curb to sidewalk)</b>
Small Tree (Deciduous Subcanopy)	4-6 feet
Medium Tree (Deciduous Subcanopy and Canopy)	6-8 feet
Large Tree (Deciduous Canopy)	>8 feet

- ii. Minimum planting area widths:

**Table 3.a.(2) Recommended Tree Spacing for ROW areas**

<b>Tree Species Type</b>	<b>Tree Height</b>	<b>Distance between trees (on average)</b>
Small Tree (Deciduous Subcanopy)	Up to 20'	Min. 20'
Medium Tree (Deciduous Canopy and Subcanopy)	20-40'	Min.30'
Large Tree (Deciduous Canopy)	>40	Min. 35'

- (2) Street Tree Location. Large street trees shall be planted in front of each lot in the right-of-way in accordance with the following standards for large deciduous canopy trees (smaller trees should use the maximum distance guidelines in the table above to calculate the number of trees required):

**Table 3.a.(3) Street Tree Requirements for Single Family Residential Lots**



<b>Lineal Frontage</b>	<b>Trees Required*</b>
<70 feet	1 tree
> or =70 feet	2 trees
> or =105 feet	3 trees
> or =140 feet	4 trees
> or =175 feet	5 trees

\* If space allows, more than the minimum may be planted on a lot.

- (a) Corner lots shall have trees planted along both streets in accordance with the above requirements for each frontage, provided that trees are not planted within the 25 foot corner clearance zone (Section 5.9)
- (b) Trees shall not be planted closer than 10 feet from any driveway.
- (c) Distances between trees and curbs or sidewalks shall be:
  - 1. At least (4) feet for deciduous canopy and subcanopy trees.
  - 2. At least 5 feet for shrubs behind curbs with angled or perpendicular parking
- (d) If subcanopy trees are to be used as street trees for tight plantings areas and under utility lines, only use species/varieties which can be attractively pruned per city standards (a minimum ground clearance of 14 feet on the street side and 10 feet on the non-street side).
- (e) No deciduous canopy tree, subcanopy tree or evergreen tree shall be planted closer than 15 lateral feet from any overhead utility wire, or closer than 10 lateral feet from any fire hydrant, catch basin or manhole. Effort should also be made to keep all trees at least 5 feet away from underground utility lines.

(3) Island and Boulevard Planting.

- (a) A mixture of shrubs, groundcover, perennials, and/or ornamental grasses, as well as canopy and sub-canopy trees, is to be provided.
- (b) Maintenance of such areas shall be the responsibility of the subdivision association.
- (c) At least 75% of the area shall be landscaped with a combination of canopy and subcanopy trees, shrubs, groundcovers, perennials, annuals, and/or bulbs. The remaining 25% of area can be lawn if desired.
- (d) Refer to Zoning Ordinance Section 5.9 for corner clearance requirements for boulevards.

b. Non-Residential Subdivisions

Interior streets to the Industrial Subdivision shall be landscaped per each lot as they are built upon as follows (Note: These planting requirements are in place of those in Zoning Section 5.5.3.B except for along public rights-of-way):

- (1) 1 deciduous canopy or one large evergreen tree per 35 linear feet of street frontage is required. Evergreen trees shall be no closer than 20 feet from the street. At least 1 tree per 50 linear feet shall be planted as a street tree.
- (2) 1 subcanopy tree and 2 shrubs per 40 feet of total linear frontage along the street are required (these shrubs are in addition to the parking lot screening requirement).
- (3) Massing of ornamental grasses, perennials, and/or annuals and bulbs is required for 10% of total linear footage adjacent to the street. Use of them is especially encouraged at entry points or to highlight significant design. (Also reference Section 5.9 corner clearance).
- (4) In addition to the above, evergreen shrubs are required to provide screening of parking areas only. Shrubs are to be at least 30" in height at planting, 3 feet tall at maturity and/or maintained at a minimum height of 3 feet. A minimum opacity shall be provided and maintained at 80% during winter and 90% percent during summer within 2 years of acceptance by the city. This applies to all sections of parking visible from the street(s).
- (5) An undulating berm with a minimum height of 36" may be used in place of the evergreen hedge to screen the parking lot. However, if the berm is found to be lower than 36", an evergreen hedge will be required to provide the required screening.
- (6) The width of the access drive can be deducted from the frontage in calculating the above landscape requirements.

### **3. Detention and Retention Basin Landscaping Requirements**

- a. Clusters of large native shrubs in a dense planting shall be planted at and above the high water elevation of the basin. Clusters shall cover 70-75% of the basin rim area at the high water elevation.
- b. At least three different native shrub species shall be used. Shrubs are to have a dense structure from top to bottom. Straight species are preferred. Dwarf cultivars with mature heights less than 5 feet do not fulfill the size requirement.
- c. The bottom and sides of the basin(s) below the above-mentioned shrubs shall be planted with a mix of native grasses, sedges and wildflowers. Allow grass to grow to 10 to 14" tall along sides and bottom of basin to discourage use by waterfowl. The application of fertilizer and pesticides on grass areas in the basin shall be limited to the initial establishment of the groundcover.
- d. Grass species that go dormant in winter are suggested.
- e. Contact the City's wetland consultant when specifying basin seed mix. The seed mix(es)' species composition and cover crop(s) should be included on the landscape plan, as well as clear indications of where each mix should be applied. A plan for the successful establishment and maintenance of the groundcover should also be included on the landscape plan.

- f. Utilize anti-waterfowl devices while establishing plantings, such as string matrix or string edge or other approved method.

**4. Tree species diversity (includes canopy, subcanopy and evergreen trees).**

In order to avoid landscape disasters like the Dutch elm disease and Emerald Ash Borer infestations, where overplanting of a single type of tree (elm, ash) resulted in large scale tree replacements, a diversity of tree species is to be used for all projects requiring site plan approval.

- a. If there are less than 200 trees proposed, not more than 25% of the proposed tree plantings shall be of one genus and not more than 15% shall be of a single species.
- b. If there are 200 or more trees proposed, not more than 15% percent of the tree plantings shall be of one genus and not more than 10% shall be of a single species.
- c. Variations from these percentages shall be at the discretion of the City Forester or Landscape Architect. (See Novi Street Tree List).
- d. The breakdown of the species and genera used shall be added to the plant list in a format similar to that shown in the table below:

**Table 5.d: Sample Species Breakdowns**

Symbol	Scientific Name	Common Name	Size	Qty	Genus %	Species %
AL	Amelanchier laevis	Serviceberry	6-7' ht	20	12%	12%
AR	Acer rubrum	Red Maple	2.5" cal.	25	15%	15%
CA	Cornus alternifolia	Pagoda Dogwood	6-7' ht	20	18%	12%
CF	Cornus florida	Flowering Dogwood	1.75" cal.	10		6%
MS	Malus 'Snowdrift'	Snowdrift Flowering Crabapple	1.75" cal.	5	3%	3%
PO	Platanus occidentalis	Sycamore	2.5" cal.	25	15%	15%
PS	Pinus strobus	Eastern White Pine	6-7' ht	10	6%	6%
QB	Quercus bicolor	Swamp White Oak	2.5" cal.	10	21%	6%
QR	Quercus rubra	Red Oak	2.5" cal.	25		15%
UA	Ulmus americana 'Princeton'	Princeton American Elm	2.5" cal.	15	9%	9%
<b>Total</b>				<b>165</b>	<b>100%</b>	<b>100%</b>

- e. Woodland tree replacement species shall have roughly the same percentage of composition as the native trees removed in order to maintain some semblance of the impacted woodland (except in the cases of elm, ash or other species which are known to have major survivability issues due to environmental factors). Native maples may be used as substitutes for boxelders, and varieties of native elm species shown to have better resistance to Dutch elm disease than the straight species are allowed as replacements for elms.

The counts of woodland replacement trees should not be included in the breakdown described above (items a-d).

- f. While shrubs are not subject to the requirements above, efforts toward using a diversity of shrub species should also be used for the same reasons described above.

## **5. Parking Area Landscaping Requirements**

- a. Landscape designs shall utilize native plant materials which enhance infiltration of storm water. Designs to lessen runoff are preferred. Wherever possible, designs should utilize vegetated swales, weirs and basins within and around the parking areas to create an attractive storm water system that promotes storm water infiltration.
- b. Parking area landscaping materials within parking lot islands shall be maintained to not exceed 3 feet in height above adjacent paving for clear sight distance within the parking islands.
- c. Evergreen trees are not allowed in any parking islands unless the applicant can demonstrate that all clear sight distances shall be maintained and a note in a form approved by the City Attorney is added on the final approved site plan stating that the City of Novi is not responsible for any accidents caused by the lack of clear sight distance
- d. All landscaping shall be maintained in a green and growing condition, seasonal conditions considered.
- e. Salt-tolerant plants material native to the state of Michigan are preferred, where applicable.
- f. Name, type and number of groundcover plants (including seed or sod) proposed on islands are to be specified on the landscape plan.
- g. Parking area islands may not utilize mulch as the only groundcover. It is only allowed in association with trees or shrubs planted within an island (the ring of mulch around a tree, or within and around shrub beds).

## **6. Transformers/Utility Boxes/Irrigation Control Boxes**

All transformer and utility boxes shall be screened from public view in an attractive manner, but shall allow safe access to said facilities.

- a. Size of plant materials at installation shall be of a height equal to the transformer, utility box or irrigation control box.
- b. Screening plant material shall be evergreen or densely-branched deciduous shrubs.
- c. A minimum of 2 feet separation is required between the structure and the full growth potential of plant material at maturity.
- d. Groundcover is allowed up to the transformer pad, if it is kept below 4" in height.
- e. Doors of transformers must be accessible. No plant materials are to be placed within 8 feet of the front of the doors but the doors shall be screened from view.
- f. A detail of transformer screen plantings and locations of all transformers must be provided with the landscape plans.

- g. Safety is the first priority when screening transformers and utility boxes. If plantings are above 2 feet in height, they cannot be placed in the corner clearance (refer to Section 5.9).
- h. A solid fence may be approved if warranted by safety or site limitations.

7. **Dumpsters/Trash Containers** – Required screening for Dumpsters/Trash Containers is described in Chapter 21-145 and Zoning Ordinance Section 4.19.2.f. No additional landscaping is required.

## 8. **Landscape Plan Requirements**

A landscape plan shall be submitted for any new commercial or residential development and any addition to an existing building that is equal or greater than a 25% increase in the overall square footage of the building or 400 square feet, whichever is less. An owner of a single-family home site shall not be required to comply with the provisions of this section.

The landscape plan shall contain the following information:

- a. Name, address and telephone number of the owner and developer or association.
- b. Name, address and telephone number of the Registered or Licensed Landscape Architect who created the design or is responsible for its accuracy and adherence to city standards.
- c. A legal description or boundary line survey of the site on which the work is to be performed.
- d. Project Name and address.
- e. A plan of the site at a scale that matches other plans and is legible with proper north indication. In addition, for reviewing purposes, the landscape plan shall be submitted in a scale not to exceed 1"=20' for detailed areas, 1"=60' for large areas. Variations from this scale requirement may be approved by the City Landscape Architect as long as the different scale provides sufficient detail, legibility and ease of use for evaluation. This plan should include:
  - (1) Proposed topography at a maximum of 2 foot contour intervals, extending at least 50 feet beyond the site boundary. For berm, wall areas and steep topography, contour intervals shall be shown at 1 foot.
  - (2) Location, type and size of all existing plant materials showing those materials to be saved, to be moved and to be removed.
    - (a) If there is no existing vegetation, the plan shall so state in a note on the plan.
    - (b) If the site includes regulated woodlands or wetlands, the plan shall so state and identify the locations of regulated natural resources with the appropriate boundary determinations, the regulated trees 8" d.b.h. and greater in all identified locations and the tree protection fence locations. (Tree protection fence locations should also be provided on Removal/Demolition and Grading Plans)

- (c) Trees in woodlands or other areas at least 50 feet away from construction that will not be impacted do not need to be identified individuals, but the cover of those areas should be generally noted (e.g. dense woodland, open, scrub/shrub, wetland). All trees 8" dbh or greater within 50 feet of construction should be included in the tree survey.
- (d) See Woodlands Protection Ordinance, Chapter 37 and Wetlands Protection Ordinance, Chapter 12 for additional plan requirements.
- (3) Location, type and size of all proposed plant materials. For Preliminary and Final Site Plan submittals, plants shall be indicated with actual plant material names or symbols linked to a plant list.
- (4) Locations of all existing and proposed buildings, easements, parking spaces, vehicular use areas, proposed ground sign locations, flagpole locations, public rights-of-way, existing and proposed overhead and underground utilities, including the locations of hydrants, utility boxes and trash receptacles. Dimensions shall be shown from overhead utility poles.
- (5) Corner Clearance Zones at driveways and road intersections. (See Section 5.9).
- (6) An indication of area(s) clear of trees or shrubs for snow depositing areas in winter.
- (7) All plantings shall have unique labeling to indicate the requirement they are intended to satisfy (i.e. interior parking, parking perimeter, woodland replacement, right-of-way greenbelt, street trees, foundation planting, etc.)
- f. Parking lot landscaping calculations, including interior and perimeter requirements, should include the amount required and the amount provided – include labels in square feet for all landscape areas intended to satisfy landscape requirements.
- g. Right-of-way greenbelt, street tree, foundation and other landscaping calculation requirements, including the amount required and the amount provided – include labels in square feet for all landscape areas intended to satisfy landscape requirements.
- h. Zoning districts of the proposed site and adjacent properties.
- i. The seal of a Registered or Licensed Landscape Architect responsible for the plans (on Final Site Plans and Stamping Sets).
- j. Miss Dig contact information on all sheets.
- k. A planting schedule for all proposed landscape materials showing the quantity of materials for each species, botanical and common names of plant materials, caliper sizes or container sizes, height of material where applicable, root type balled and burlapped or potted), type and amount of mulch.
- l. Planting details for evergreen trees, deciduous trees, multi-stem trees, tree guys, shrubs, and perennials/ground covers, as applicable to the plan. (See typical City of Novi Tree Planting Details).
- m. When berms are included on the plans, a representative berm cross-section including slope, height and width, construction of loam with 6" top layer of topsoil, type of ground cover, and labeled contour lines. Show where overhead utility lines exist or

- are planned, and the required setback of 15 feet from the edge of the utility or 20 feet from the closest pole for canopy trees. (See Berm Cross-Section Diagram).
- n. Wall detail(s), when applicable, with notes indicating materials, height and type of construction and footings. Wall calculations for any walls greater than 3 ½ feet in height must be provided by a design or structural engineer.
  - o. Fencing details
  - p. A note indicating the proposed estimated planting dates (should be between March 15 and November 15).
  - q. A statement of intent to install and guarantee the plant materials for 2 years from the date of acceptance and maintain all such landscaped areas in accordance with the requirements of this ordinance.
  - r. A note indicating that the plants should be Upper Midwest/Great Lakes grown.
  - s. The soil type(s) on site as determined by the Soils Survey of Oakland County, Michigan published by the United States Department of Agriculture Soils Conservation Service. This may be included on other sheets in the set, but in that case a note indicating where they information can be found should be included on the Landscape Plan.
  - t. If an area is landscaped with plant species that do not require irrigation, no permanent irrigation system is required, but the plants must be watered as necessary until they are established with a temporary system, hose(s) or portable water tanks. The property's landscape must be maintained per the approved final site plan in perpetuity, per Zoning Ordinance Section 5.5.7, including replacement of all dead or failing plant material within three (3) months of its discovery, or the next appropriate growing period, whichever comes first.
  - u. An itemized cost estimate for all new plantings, mulch, seed and sod contained on the planting plan should be part of the Final Site Plans. The costs for this compilation should use the Community Development Fees standard costs on the Community Development website, not estimates, unless there is no comparable standard cost, in which case estimates are acceptable.
  - v. A plan for the successful establishment and maintenance of any native seed mixes.
  - w. Other information or data as may be required in other sections of this ordinance, and additional information or data as reasonably required by the Planning Commission.

## **9. Plant Material Requirements**

- a. General Conditions / Plant Requirements.

Wherever in this Ordinance landscaping plantings are required, such landscape plantings shall be subject to the following conditions:

- (1) For all plant materials, native plants are to be the first choice. The source should be local or of the North Midwest America/Great Lakes region.
- (2) All plant materials shall be northern nursery grown, No. 1 grade, and installed according to accepted planting procedures. All plant materials shall meet current American Association of Nurserymen Standards. They shall be planted

according to City of Novi Planting Details and specifications. The City shall have the right to inspect the plant materials prior to planting and to reject any plant materials deemed not to meet the standards of this ordinance.

- (3) The selection, spacing, and sizing of plant materials shall depend on the use to which the plantings are to be placed. A mixture of plant materials (evergreen and deciduous trees and shrubs) and plant species is required in all landscape plans as a protective measure against disease and insect infestation. Plant materials used together in groupings for screening shall meet the on-center spacing requirements as set forth in this Section 1.f.
- (4) Plant materials, except lawn, ground covers or creeping vine type plantings, shall be located at least 4 feet from the property line, as measured to the trunk of deciduous canopy or subcanopy trees, or to the mature dripline of shrubs and evergreens.
- (5) Where plant materials are placed in 2 or more rows for screening, plantings shall be staggered from row to row.
- (6) All trees shall have a central leader and a radial branching structure. Park grade trees are not acceptable. All trees shall be balled and burlapped (B & B).
- (7) Any deciduous canopy trees with branches that might tend to develop into "V" crotches shall be subordinated so as not to become dominant branches.
- (8) Miss Dig must be notified to locate all underground utilities before planting begins.

b. Plant Materials.

For suggested plant materials and information by categories of Native, Interest, Woodlands Replacement, Canopy, Street Tree, Growing Conditions, and Nurseries, see separate Suggested Plant Materials List (Part VI). This list is not to be considered all inclusive of acceptable plant materials and may be amended periodically.

(1) Existing Plant Material

- (a) Existing plant material is to be preserved as a first priority. Refer to Chapter 37, Woodlands Preservation Ordinance or Chapter 12, Wetlands and Watercourse Ordinance, for specific standards regarding preservation of these natural resources.
- (b) In instances where existing healthy plant material is proposed to be saved on a site prior to its development and is *not* regulated by Chapter 37, Woodlands Preservation Ordinance, or Chapter 12, Wetlands and Watercourse Ordinance, the applicant may apply to adjust the application of the landscape standards to allow such plant material to substitute for planting if such an adjustment is in keeping with, and will preserve, the intent of this Section.
- (c) For approval of substitution, the existing preserved plant material shall be of high quality as determined by the City. Trees listed as Prohibited Plantings, and materials required to be preserved under Chapter 12, Article



V, and under Chapter 37 of the Ordinance Code, will not receive credit under this provision.

- (d) All removals shall be clearly marked as to be removed with an X or R on the tree symbol on the plan view, and on the accompanying tree chart/list (show as Saved or Removed). The tree labels for existing trees 8 inches dbh and larger to remain should appear on the Landscape Plan (plan view).
- (e) Protective fencing and preservation techniques will be required for all vegetation to be saved where there is a chance that construction activities could damage it. The location of tree protection fencing and the City Protection Fencing Detail are to be shown on the Demolition/Removal Plan and Grading plans. Large masses of protected vegetation should be labeled “To be saved” on the Landscape Plan and on the Demolition/Removal Plan and Grading Plan.
- (f) Landscape credit for preserved canopy trees, which do not fall within a regulated Wetland or Woodland may be used to fulfill woodland replacement credits that may be required. These replacements shall be at the following rate:

**Table 7.b.(1)(f): Landscape Tree Credit Chart**

Diameter of Trunk of Preserved Tree*	= Number of Tree Credits
36” or greater caliper	7 trees
>29 to 36” caliper	6 trees
>23 to 29” caliper	5 trees
>17 to 23” caliper	4 trees
>12 to 17” caliper	3 trees
>7 to 12” caliper	2 trees
3 to 7” caliper	1 tree

\* The tree trunk diameter measurement shall be rounded off to the nearest whole inch at a height of four and one-half (4.5) feet above the natural grade. (Diameter at Breast Height, D.B.H.)

- (g) Existing trees may also be used to fulfill some or all of the required street tree, greenbelt or parking lot perimeter plantings, at a 1 for 1 basis. In cases such as these, a tree may be used to fulfill both this requirement and the Landscape Tree Credit shown above.

(2) Proposed Plant Material

(a) Plant Sizes.

i. The minimum sizes are as follows:

**Table 7.b.(2)(a).i – Minimum plant sizes by application**

Planted Material Types	Canopy Deciduous Trees	Large Evergreen Trees	Subcanopy Deciduous Trees (4)	Upright Evergreens	Large Shrubs (5)	Small Shrubs (6)	Perennials, Ornamental Grasses
R-O-W Plantings (4)	2.5" cal.	8' ht.	2" cal.	6' ht.	36-42" ht.	18-24" ht.	1 gal. cont.
Street Trees (4)	2.5" cal.	n/a	2" cal.	n/a	n/a	n/a	n/a
Woodland Replacement Trees (2)	2.5" cal.	6' @ 3:2 Ratio	(3)	(3)	(3)	(3)	(3)
All other	3" cal.	7' ht.	2.5" cal.	6' ht.	36" ht.	24" ht.	1 gal. cont.

Footnotes:

- (1) The City Landscape Architect may permit smaller sizes upon receipt and review of sufficient documentation that required minimum sizes are not readily available.
- (2) Refer to Chapter 37-8 for acceptable species.
- (3) Refer to Chapter 37-8.c for use of this plant type for replacement credits.
- (4) Shall also apply to private road easements or other equivalent.
- (5) Multi-stem trees are to be eight to ten (8-10) foot minimum height.
- (6) Spreading or horizontal shrubs are to be eighteen (18) inch width minimum.

**n/a: not allowed**

ii. To encourage a mixture of sizes, additional landscape credit can be given for larger sized canopy trees, deciduous and evergreen as follows for Right-of-Way Greenbelt trees and Parking Lot Perimeter trees. Upsizing credit is not allowed for woodland replacement trees, street trees or interior parking lot trees.

Size	Total Tree Credits *
<b>Large Evergreen Trees</b>	
8' height	1.0
> 8' to 10' height	1.25
>10' to 12' height	1.5
>12' to 14' height	2.0
>14' height	2.5
<b>Canopy Deciduous Trees</b>	
3" caliper	1.0
>3" to 3.5" caliper	1.25
>3.5" to 4.5" caliper	1.5

>4.5” to 5” caliper	1.75
>5” caliper	2.0

\* Where greater than minimum size listed in chart above (7.b.(2)(a).i).

Example: a 4” caliper deciduous canopy tree would count as 1.5 required landscape trees. A 13’ high evergreen canopy tree would count as 2 required landscape trees.

The total number of trees required may be reduced through the use of these credits by a maximum of 33% (per category) (i.e. the total number of trees provided must be at least 67% of the total number of trees required based on the standard tree size, per category)

c. Prohibited Plants.

In order to promote native plant species diversity and to prevent the loss of habitat due to the spread of naturalized non-native plant species, the following species will be prohibited in planting plans:

**Table 7.c – Prohibited Plants**

<b>Botanical Name</b>	<b>Common Name</b>	<b>Plant Type</b>
<i>Acer negundo</i>	Boxelder	Deciduous Subcanopy Tree
<i>Acer platanoides</i>	Norway Maple	Deciduous Canopy Tree
<i>Acer saccharinum</i> **	Silver Maple	Deciduous Canopy Tree
<i>Ailanthus altissima</i>	Tree-Of-Heaven	Deciduous Canopy Tree
<i>Alnus glutinosa</i>	Black Alder	Deciduous Canopy Tree
<i>Berberis spp.</i>	Barberry	Small shrub
<i>Celastrus orbiculatus</i>	Round-Leaved Bittersweet	Vine
<i>Coronilla varia</i>	Crown Vetch	Perennial / Grass
<i>Echinochloa crus-galli</i>	Barnyard Grass	Perennial / Grass
<i>Elaeagnus umbellata</i>	Autumn Olive	Large Shrub
<i>Ginkgo biloba</i> (female)	Ginkgo (female)	Deciduous Canopy Tree
<i>Gypsophila paniculata</i>	Baby's Breath	Perennial / Grass
<i>Hypericum perforatum</i>	Common St. Johns-Wort	Small Shrub
<i>Iris pseudacorus</i>	Water Flag	Perennial / Grass
<i>Ligustrum spp.</i>	Privet	Small shrub
<i>Lonicera japonica</i>	Japanese Honeysuckle	Large Shrub
<i>Lonicera maackii</i>	Amur Honeysuckle	Large Shrub
<i>Lonicera tatarica</i>	Tartarian Honeysuckle	Large Shrub
<i>Lythrum salicaria</i>	Purple Loosestrife	Perennial / Grass
<i>Melilotus alba</i>	White Sweet Clover	Perennial / Grass
<i>Melilotus officinalis</i>	Yellow Sweet Clover	Perennial / Grass

<i>Morus alba</i>	White Mulberry	Deciduous Canopy Tree
<i>Polygonum persicaria</i>	Spotted Lady's Thumb	Perennial / Grass
<i>Populus alba</i>	White Poplar	Deciduous Canopy Tree
<i>Populus deltoides</i>	Eastern Cottonwood	Deciduous Canopy Tree
<i>Populus nigra</i>	Black Poplar	Deciduous Canopy Tree
<i>Populus tremuloides</i>	Quaking Aspen	Deciduous Canopy Tree
<i>Pyrus calleryana</i>	Flowering Pear	Deciduous Canopy Tree
<i>Rhamnus cathartica</i>	Common Buckthorn	Large Shrub
<i>Rhamnus frangula</i>	Glossy Buckthorn	Large Shrub
<i>Rhamnus frangula angustifolia</i>	Narrow-Leaved Glossy Buckthorn	Large Shrub
<i>Ribes americanum</i>	Wild Black Current	Small Shrub
<i>Robinia pseudoacacia</i>	Black Locust	Deciduous Subcanopy Tree
<i>Rosa multiflora</i>	Japanese Rose	Large Shrub
<i>Salix alba</i> **	White Willow	Deciduous Canopy Tree
<i>Salix babylonica</i> **	Weeping Willow	Deciduous Canopy Tree
<i>Salix nigra</i> **	Black Willow	Deciduous Canopy Tree
<i>Ulmus americana</i> *	American Elm	Canopy Deciduous Tree
<i>Ulmus pumila</i>	Siberian Elm	Canopy Deciduous Tree
<i>Vinca minor</i>	Common Periwinkle	Groundcover

\* Disease resistant cultivars are acceptable

\*\* Allowed under special circumstances

d. Recommended Trees for Planting Under Overhead Utilities:

**Table 7.d – Trees for Under and Near Overhead Utility lines**

<b>Botanical Name</b>	<b>Common Name</b>
<i>Acer campestre</i>	Hedge Maple
<i>Acer ginnala</i>	Amur Maple
<i>Acer griseum</i>	Paper Bark Maple
<i>Amelanchier sp.</i>	Serviceberry
<i>Carpinus caroliniana</i>	Musclewood
<i>Cercidiphyllum japonicum</i>	Katsura Tree
<i>Cercis canadensis</i>	Eastern Redbud
<i>Cornus alternifolia</i>	Alternate Leaf Dogwood
<i>Cornus florida</i>	Flowering Dogwood
<i>Cornus kousa</i>	Japanese Dogwood
<i>Cornus mas</i>	Cornelian Cherry Dogwood
<i>Crataegus sp.(thornless)</i>	Hawthorn sp. (thornless)

<i>Magnolia soulangiana</i>	Saucer Magnolia
<i>Malus hybrids</i>	Flowering Crabapple
<i>Syringa reticulata</i>	Japanese Tree Lilac
<i>Viburnum lentago</i>	Nannyberry
<i>Viburnum prunifolium</i>	Blackhaw Viburnum

*(Choose varieties with mature heights less than lowest power line if directly below lines)*

e. Collected or Transplanted Trees

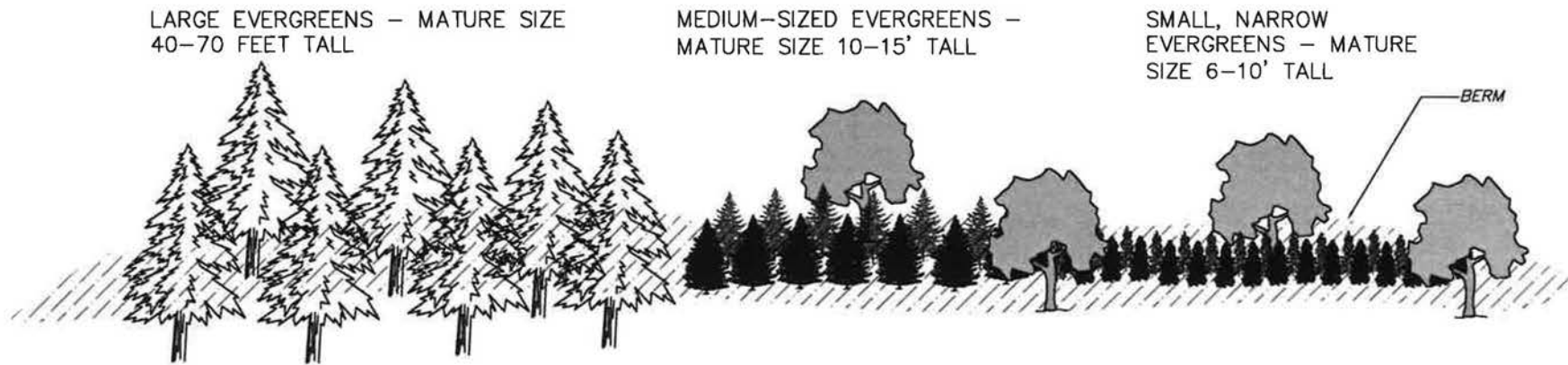
- (1) All collected trees shall be from on site and inspected by the City. Trees may be rejected for reasons of insect infestation, disease or standards set forth in this ordinance. Such plant material may be rejected either in full or in part.
- (2) All transplanted trees shall conform to standards set forth in Section 9.
- (3) The root ball of any transplanted tree shall measure 1 foot for each inch of trunk diameter measured 12” above the root flare or graft collar.
- (4) If trees are to be stored, they shall be burlapped and heeled in with mulch in a pre-determined area approved by the City.
- (5) The trees shall be provided with a working irrigation system approved by the City to ensure their viability during storage.

**10. Nonliving Durable Material**

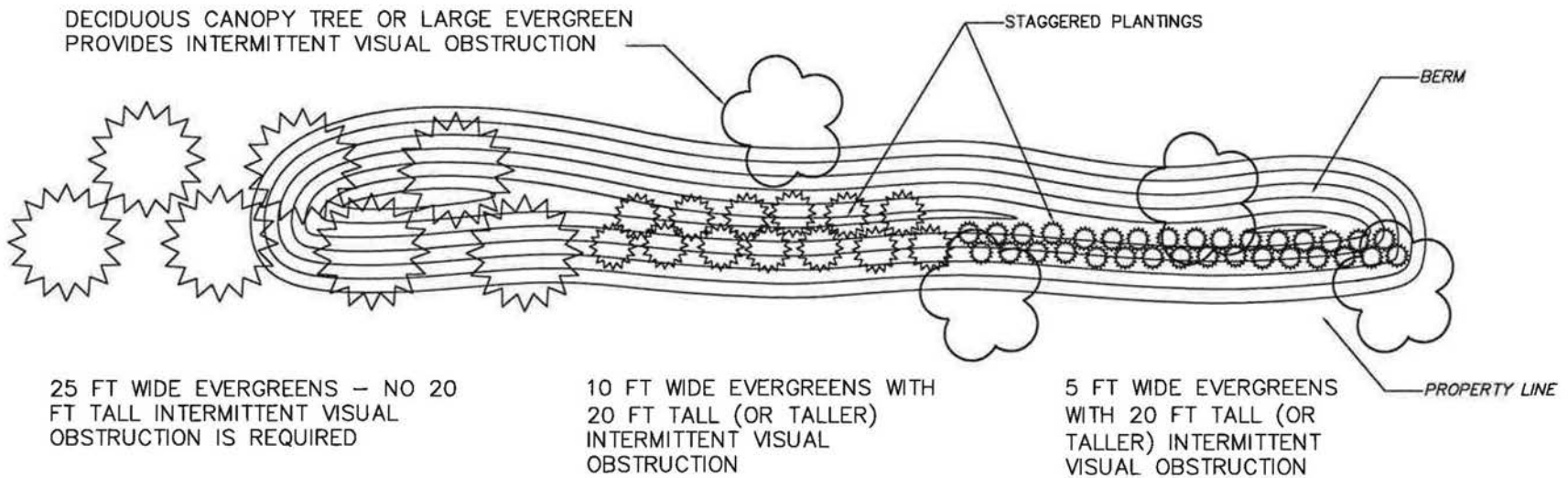
- a. Mulch for all plantings shall be premium shredded hardwood and shall not be artificially colored. No cypress wood mulch or rubber mulch is to be used.
- b. Trees shall be mulched to a 3 inches overall depth at planting.
- c. Shrubs, groundcovers and perennials shall be mulched to a 2 inches overall depth at planting.
- d. All lawn trees shall be planted with a 4 foot diameter circle of the shredded hardwood bark mulch.
- e. Mulch shall be pulled back 3 inches from the tree trunk in a circle down to the root ball dirt to expose the root collar to air. No “volcano” mulching is allowed at planting or in future applications of mulch.
- f. If a rootball’s dirt is piled up on the trunk, it should be removed to expose the root flare.
- g. For fire safety, shredded hardwood bark is not to be installed adjacent to or within 4 feet of buildings that are constructed of combustible materials. Plantings adjacent to combustible buildings shall be mulched with a non-combustible material typically marketed as landscape mulch. The color of such materials shall be natural and compatible with the building.

- h. Gravel type mulches are not permitted within or immediately adjacent to paved parking lots or roadways. Approval of type, depth and specific location for gravel mulch is to be approved by the City.
- i. Sphagnum peat/bog peat is harvested from functioning wetlands so it shall not be used for landscape purposes. Compost may be used as an alternative.
- j. Plastic or other artificial replicas of plant material are prohibited.

ELEVATION – FROM RESIDENTIAL PROPERTY

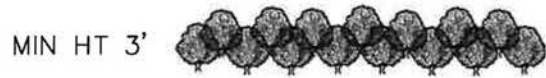


PLAN VIEW



OPACITY OBSCURING DIAGRAM – BERM

ELEVATION – FROM RIGHT-OF-WAY

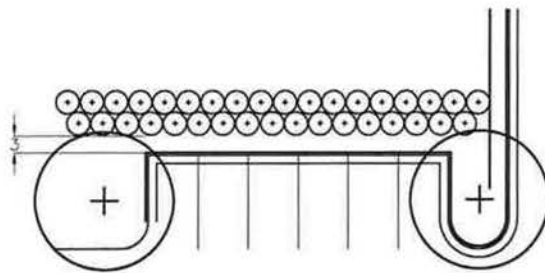


DENSELY-BRANCHED DECIDUOUS SHRUB

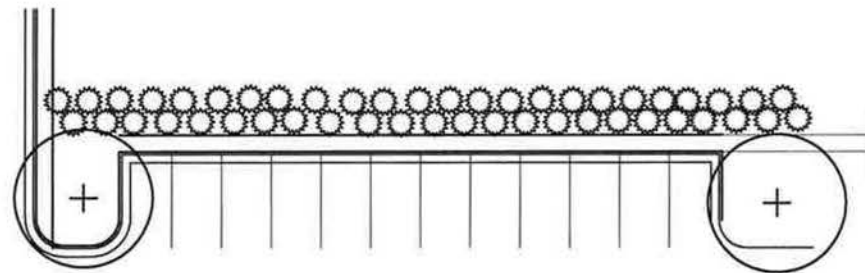


EVERGREEN SHRUB

PLAN VIEW



DENSELY-BRANCHED DECIDUOUS  
SHRUB – MIN HT 3'



EVERGREEN SHRUB – MIN HT 3'

OPACITY OBSCURING DIAGRAM – PARKING, NO BERM

*(NOTE: DIAGRAM DOES NOT INCLUDE RIGHT-OF-WAY GREENBELT LANDSCAPING WHICH IS REQUIRED IN ADDITION TO SHRUB SCREENING)*



Part III. Standard Planting Details

NOTE:  
GUY DECIDUOUS TREES ABOVE  
3" CAL. STAKE DECIDUOUS TREES  
BELOW 3" CAL.

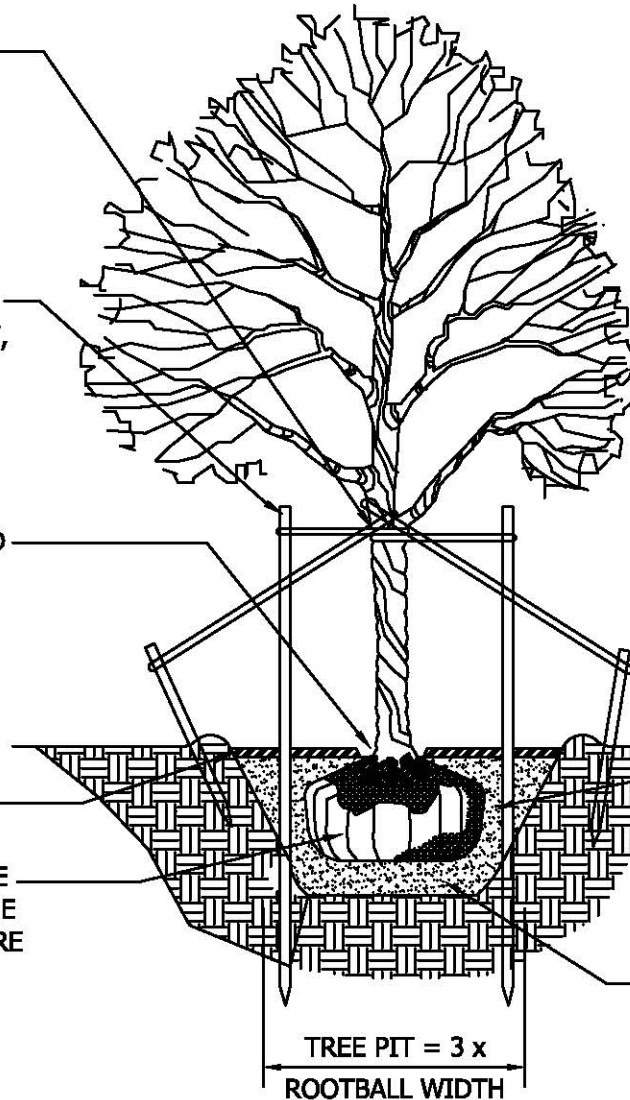
STAKE TREES AT FIRST BRANCH  
USING 2"-3" WIDE BELT-LIKE  
NYLON OR PLASTIC STRAPS.  
ALLOW FOR SOME MINIMAL  
FLEXING OF THE TREE.  
REMOVE AFTER ONE YEAR.

2" X 2" HARDWOOD STAKES, MIN.  
36" ABOVE GROUND FOR UPRIGHT,  
18" IF ANGLED. DRIVE STAKES A  
MIN. 18" INTO UNDISTURBED  
GROUND OUTSIDE ROOTBALL.  
REMOVE AFTER ONE YEAR.

MULCH 3" DEPTH WITH SHREDDED  
HARDWOOD BARK. NATURAL IN  
COLOR. LEAVE 3" CIRCLE OF BARE  
SOIL AT BASE OF TREE TRUNK TO  
EXPOSE ROOT FLARE.

MOUND EARTH TO FORM SAUCER

REMOVE ALL NON-BIODEGRADABLE  
MATERIALS COMPLETELY FROM THE  
ROOTBALL. CUT AND REMOVE WIRE  
BASKET AND BURLAP FROM TOP  
HALF OF THE ROOTBALL.



NOTE:  
TREE SHALL BEAR SAME RELATION  
TO FINISH GRADE AS IT BORE  
ORIGINALLY OR SLIGHTLY HIGHER  
THAN FINISH GRADE UP TO 6"  
ABOVE GRADE, IF DIRECTED BY  
LANDSCAPE ARCHITECT FOR HEAVY  
CLAY SOIL AREAS.

DO NOT PRUNE TERMINAL LEADER.  
PRUNE ONLY DEAD OR BROKEN  
BRANCHES.

REMOVE ALL TAGS, STRING,  
PLASTICS AND OTHER MATERIALS  
THAT ARE UNSIGHTLY OR COULD  
CAUSE GIRDLING.

PLANT TREE SO ROOT  
FLARE IS AT OR ABOVE  
SURROUNDING GRADE.  
REMOVE ROOT BALL  
DIRT TO EXPOSE FLARE  
IF NECESSARY AND CUT  
ANY GIRDLING ROOTS.

PLANTING MIXTURE:  
AMEND SOILS PER SITE  
CONDITIONS AND  
REQUIREMENTS OF THE  
PLANT MATERIAL.

SCARIFY PLANTING PIT  
SIDES ONLY.  
RECOMPACT BASE TO  
4" DEPTH.

## DECIDUOUS TREE PLANTING DETAIL

Not to scale

NOTE:  
GUY EVERGREEN TREES ABOVE 12'  
HEIGHT. STAKE EVERGREEN TREE  
BELOW 12' HEIGHT.

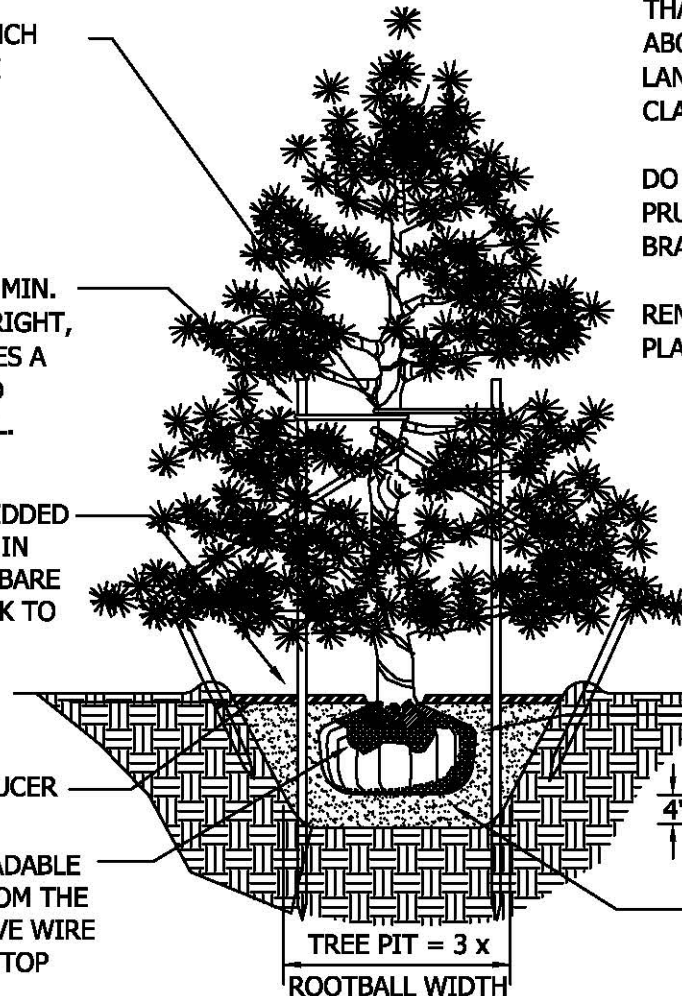
STAKE TREES AT FIRST BRANCH  
USING 2"-3" WIDE BELT-LIKE  
NYLON OR PLASTIC STRAPS.  
ALLOW FOR SOME MINIMAL  
FLEXING OF THE TREE.  
REMOVE AFTER ONE YEAR.

2" X 2" HARDWOOD STAKES, MIN.  
36" ABOVE GROUND FOR UPRIGHT,  
18" IF ANGLED. DRIVE STAKES A  
MIN. 18" INTO UNDISTURBED  
GROUND OUTSIDE ROOTBALL.  
REMOVE AFTER ONE YEAR.

MULCH 3" DEPTH WITH SHREDDED  
HARDWOOD BARK. NATURAL IN  
COLOR. LEAVE 3" CIRCLE OF BARE  
SOIL AT BASE OF TREE TRUNK TO  
EXPOSE ROOT FLARE.

MOUND EARTH TO FORM SAUCER

REMOVE ALL NON-BIODEGRADABLE  
MATERIALS COMPLETELY FROM THE  
ROOTBALL. CUT AND REMOVE WIRE  
BASKET AND BURLAP FROM TOP  
HALF OF THE ROOTBALL.



NOTE:  
TREE SHALL BEAR SAME RELATION  
TO FINISH GRADE AS IT BORE  
ORIGINALLY OR SLIGHTLY HIGHER  
THAN FINISH GRADE UP TO 6"  
ABOVE GRADE, IF DIRECTED BY  
LANDSCAPE ARCHITECT FOR HEAVY  
CLAY SOIL AREAS.

DO NOT PRUNE TERMINAL LEADER.  
PRUNE ONLY DEAD OR BROKEN  
BRANCHES.

REMOVE ALL TAGS, STRING,  
PLASTICS ETC.

PLANT TREE SO ROOT  
FLARE IS AT OR ABOVE  
SURROUNDING GRADE.  
REMOVE ROOT BALL  
DIRT TO EXPOSE FLARE  
IF NECESSARY AND CUT  
ANY GIRDLING ROOTS.

PLANTING MIXTURE:  
AMEND SOILS PER SITE  
CONDITIONS AND  
REQUIREMENTS OF THE  
PLANT MATERIAL.

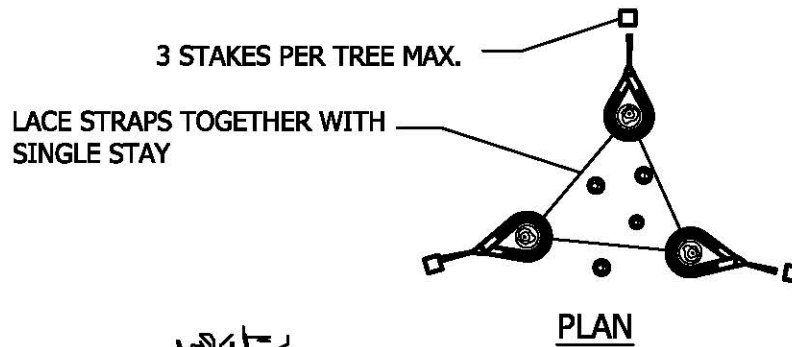
SCARIFY PLANTING PIT  
SIDES. RECOMPACT  
BASE TO 4" DEPTH.

## EVERGREEN TREE PLANTING DETAIL

Not to scale

**NOTES:**

PRUNE AS SPECIFIED  
STAKE 3 LARGEST STEMS, IF TREE  
HAS MORE THAN 3 LEADERS  
SET TREE STAKES VERTICAL AND  
AT SAME HEIGHT.



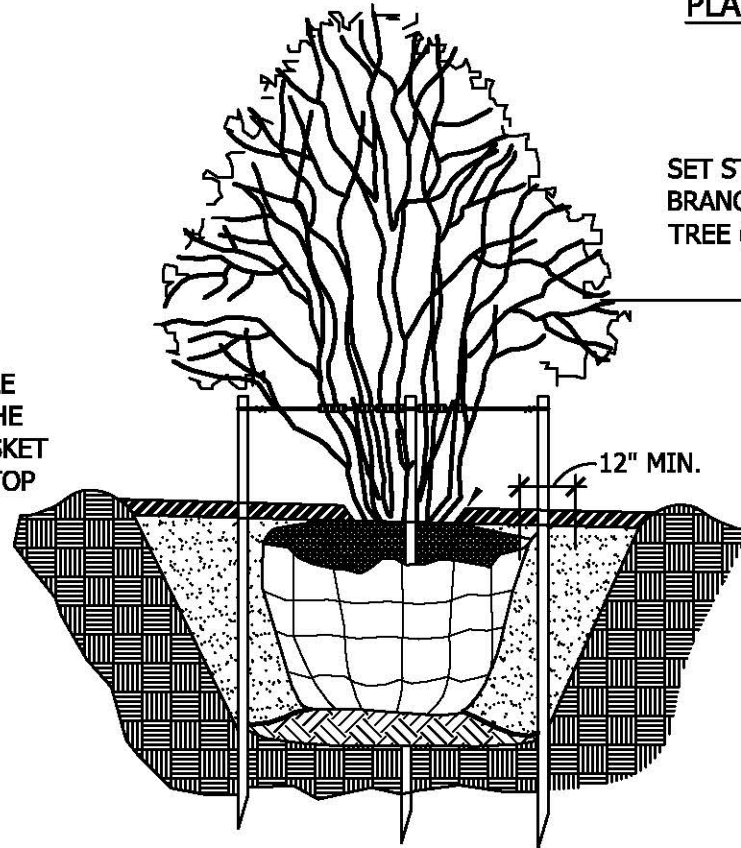
MOUND TO FORM SAUCER

REMOVE ALL NON-BIODEGRADABLE  
MATERIALS COMPLETELY FROM THE  
ROOTBALL. CUT DOWN WIRE BASKET  
AND FOLD DOWN BURLAP FROM TOP  
1/3 OF THE ROOTBALL.

PLANT MIXTURE AS SPECIFIED

SCARIFY SIDES TO 4" DEPTH  
AND RECOMPACT

STAKES TO EXTEND 12" BELOW  
TREE PIT IN UNDISTURBED  
GROUND



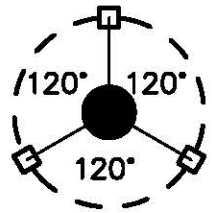
SET STAYS ABOVE FIRST  
BRANCHES, APPROX. HALFWAY UP  
TREE (SEE DETAIL)

MULCH 3" DEPTH WITH SHREDDED  
HARDWOOD BARK. NATURAL IN  
COLOR. LEAVE 3" CIRCLE OF BARE  
SOIL AT BASE OF TREE TRUNK TO  
EXPOSE ROOT FLARE. REMOVE  
EXCESS SOIL TO EXPOSE ROOT  
FLARE IF NECESSARY.

## MULTI-STEM TREE PLANTING DETAIL

Not to scale

2-15-2016



DOWNHILL SLOPE  
OR  
PREVAILING WIND

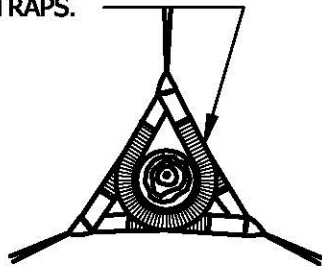
**NOTE:**

ORIENT STAKING/GUYING TO PREVAILING WINDS, EXCEPT ON SLOPES GREATER THAN 3:1 ORIENT TO SLOPE.

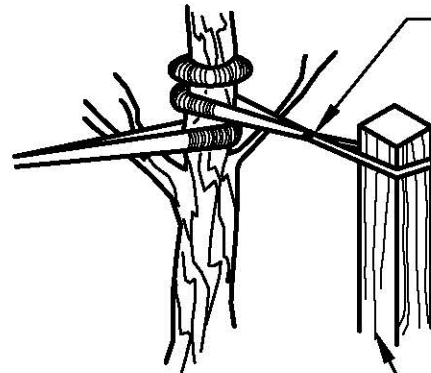
USE SAME STAKING/GUYING ORIENTATION FOR ALL PLANTS WITHIN EACH GROUPING OR AREA

**STAKING/GUYING LOCATION**

2"-3" WIDE BELT-LIKE NYLON OR PLASTIC STRAPS.



**GUYING DETAIL**



2"-3" WIDE BELT-LIKE NYLON OR PLASTIC STRAPS.

**STAKING DETAIL**  
STAKES AS SPECIFIED 3 PER TREE

**TREE STAKING DETAIL**

Not to scale

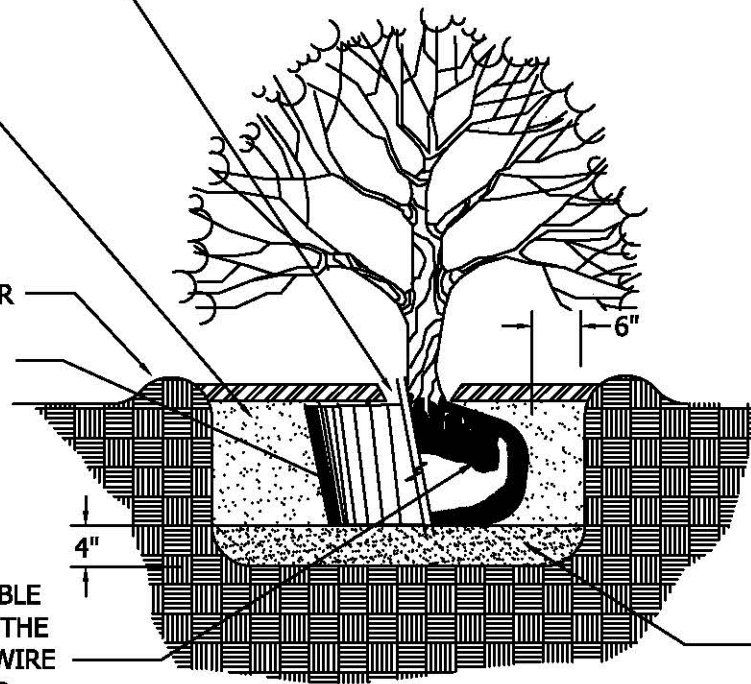
MULCH 2" DEPTH WITH SHREDDED HARDWOOD BARK. NATURAL IN COLOR. LEAVE 3" CIRCLE OF BARE SOIL AT BASE OF TREE TRUNK TO EXPOSE ROOT FLARE.

PLANTING MIXTURE: AMEND SOILS PER SITE CONDITIONS AND REQUIREMENTS OF THE PLANT MATERIAL.

MOUND EARTH TO FORM SAUCER

REMOVE COLLAR OF ALL FIBER POTS. POTS SHALL BE CUT TO PROVIDE FOR ROOT GROWTH. REMOVE ALL NONORGANIC CONTAINERS COMPLETELY.

REMOVE ALL NON-BIODEGRADABLE MATERIALS COMPLETELY FROM THE ROOTBALL. CUT AND REMOVE WIRE BASKET AND BURLAP FROM TOP HALF OF THE ROOTBALL.



**NOTE:**

SHRUB SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE UP TO 4" ABOVE GRADE, IF DIRECTED BY LANDSCAPE ARCHITECT FOR HEAVY CLAY SOIL AREAS.

PRUNE ONLY DEAD OR BROKEN BRANCHES.

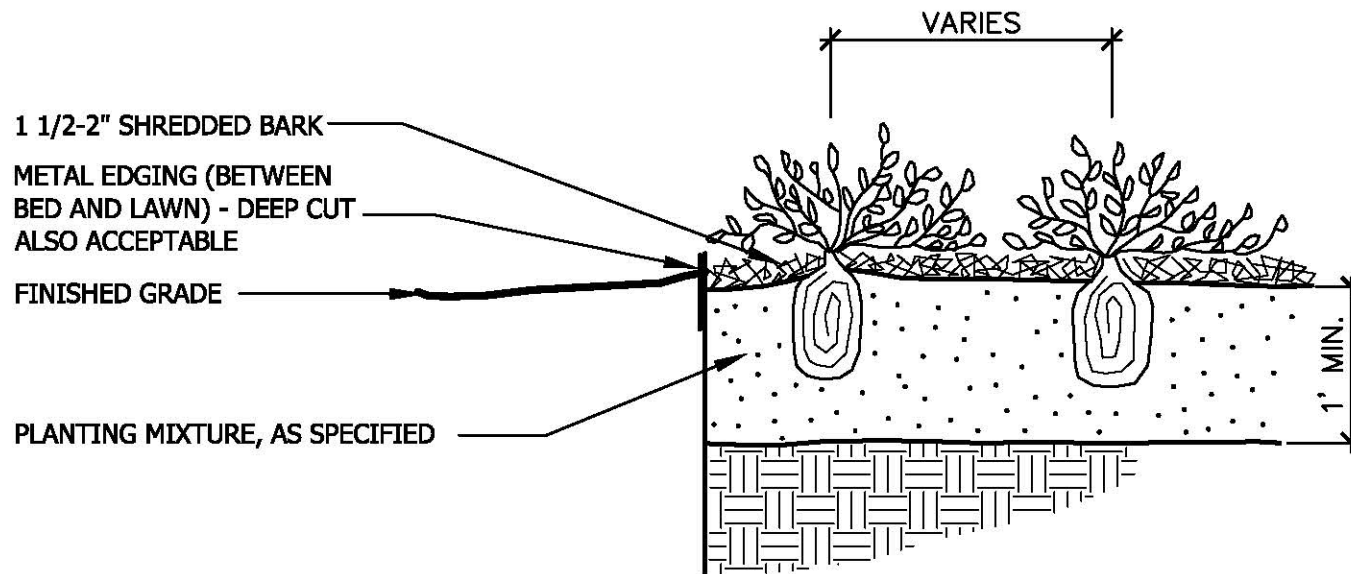
REMOVE ALL TAGS, STRING, PLASTICS AND OTHER MATERIALS

SHRUBS PLANTED IN BEDS SHALL HAVE ENTIRE BED MASS EXCAVATED AND BACKFILLED WITH APPROVED PLANT MIX. PLANTS SHALL NOT BE INSTALLED IN INDIVIDUAL HOLES.

SCARIFY PLANTING PIT SIDES. RECOMPACT BASE OF TO 4" DEPTH.

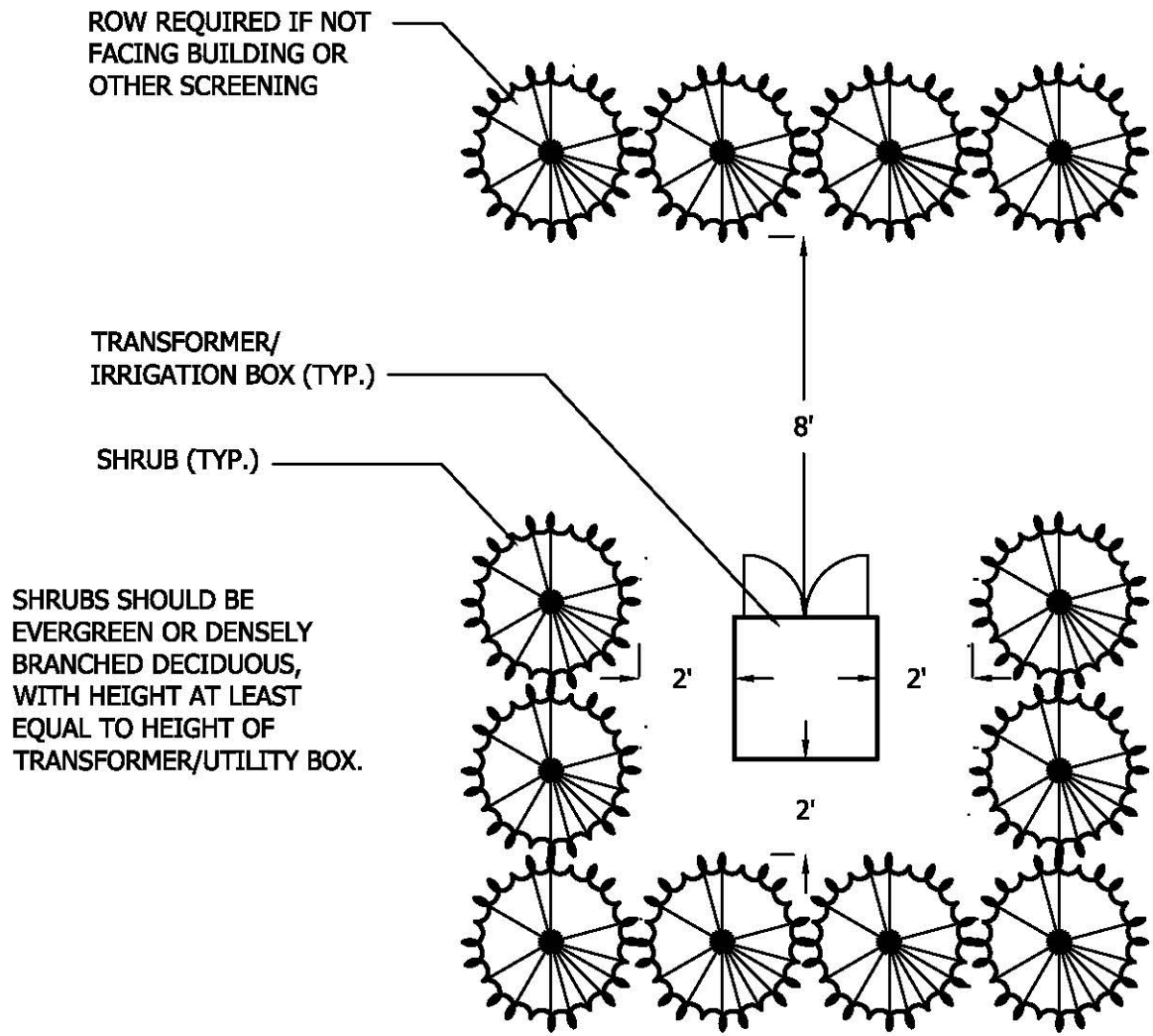
## SHRUB PLANTING DETAIL

NOT TO SCALE



## PERENNIAL PLANTING DETAIL

Not to scale



# TRANSFORMER SCREENING DETAIL

Not to scale



## PART IV: STREET TREE LIST

Genus	Species - cultivar	Common Name	Native to Michigan?	Size	App Ht	App Spread	Use	Treelawn Size	Overhead Utilities
Acer	buergeranum	Maple, Trident	Not Native	Small	20'	25'	Special Circumstances	4-6 Feet	Under Utility
Acer	campestre	Maple, Hedge	Not Native	Sm./Med.	30'	30'	Recommended	4-8 Feet	
Acer	freemanii	Maple, Freeman	Cultivar - Native	Large	50'	40'	Special Circumstances	>8 Feet	
Acer	ginnala	Maple, Amur	Not Native	Small	20'	20'	Special Circumstances	4-6 Feet	Under Utility
Acer	griseum	Maple, Paperbark	Not Native	Sm./Med.	25'	20'	Special Circumstances	4-6 Feet	Under Utility
Acer	rubrum	Maple, Red	Native	Large	50'	40'	Recommended	>8 Feet	
Acer	rubrum 'Bowhall'	Maple, Red Bowhall	Cultivar - Native	Med./Lg.	40'	15'	Special Circumstances	>8 Feet	
Acer	rubrum 'Sunset'	Maple, Red Sunset	Cultivar - Native	Large.	45'	35'	Recommended	>8 Feet	
Acer	saccharum	Maple, Sugar	Native	Large	60'	40'	Recommended	>8 Feet	
Aesculus	hippocastanum	Horsechestnut	Not Native	Large	80'	35'	Special Circumstances	>10 Feet	
Amelanchier	arborea	Serviceberry	Native	Small	10'	6'	Special Circumstances	4-6 Feet	Under Utility
Amelanchier	x grandifolia 'Autumn Brilliance'	Serviceberry	Cultivar - Native	Medium	20'	20'	Special Circumstances	6-8 Feet	Under Utility
Carpinus	betulus	European Hornbeam	Not Native	Medium	35'	25'	Recommended	6-8 Feet	
Carpinus	caroliniana	American Hornbeam	Native	Medium	25'	25'	Recommended	6-8 Feet	Under Utility
Celtis	occidentalis	Hackberry	Native	Large	55'	45'	Recommended	>8 Feet	
Cercidiphyllum	japonicum	Katsura Tree	Not Native	Med./Lg.	40'	40'	Recommended	>8 Feet	
Chionanthus	retusus	Chinese fringetree	Not Native	Small	20'	20'	Special Circumstances	4-6 Feet	Under Utility
Clasdrastis	lutea	Yellowwood	Not Native	Medium	30'	40'	Special Circumstances	6-8 Feet	
Cornus	kousa	Dogwood, Kousa	Not Native	Sm./Med.	25'	25'	Special Circumstances		Under Utility
Crataegus	crus-galli inermis	Hawthorn, Cockspur Thornless	Cultivar - Native	Sm./Med.	25'	25'	Special Circumstances	4-6 Feet	Under Utility
Crataegus	laevigata 'Superba'	Hawthorn, Crimson Cloud	Cultivar - Not Native	Sm./Med.	25'	18'	Special Circumstances	4-6 Feet	Under Utility

Genus	Species - cultivar	Common Name	Native to Michigan?	Size	App Ht	App Spread	Use	Treelawn Size	Overhead Utilities
Crataegus	phaenopyrum 'Treeform'	Hawthorn, Washington	Cultivar - Not Native	Sm./Med.	25'	20'	Special Circumstances	4-6 Feet	Under Utility
Eucommia	ulmoides	Hardy Rubber tree	Not Native	Large	45'	40'	Special Circumstances	>8 Feet	
Ginkgo	biloba	Ginkgo (Male Only)	Not Native	Large	60'	30'	Recommended	>8 Feet	
Gleditsia	tricanthos	Honeylocust	Native	Medium	35'	35'	Recommended	6-8 Feet	
Gleditsia	tricanthos inermis 'Impcole'	Honeylocust, Imperial	Cultivar - Native	Medium	35'	35'	Recommended	6-8 Feet	
Gleditsia	tricanthos inermis 'Shademaster'	Honeylocust, Shademaster	Cultivar - Native	Large	45'	35'	Recommended	>8 Feet	
Gleditsia	tricanthos inermis 'Skycole'	Honeylocust, Skyline	Cultivar - Native	Large	45'	35'	Recommended	>8 Feet	
Gymnocladus	dioicus	Kentucky Coffeetree	Native	Large	60'	40'	Special Circumstances	>8 Feet	
Koelreuteria	paniculata	Goldenrain-tree	Not Native	Medium	30'	30'	Special Circumstances	6-8 Feet	
Liriodendron	tulipifera	Tuliptree	Native	Large	75'	40'	Recommended	>10 Feet	
Maackia	amurensis	Manchurain maackia	Not Native	Small	20'	20'	Special Circumstances	4-6 Feet	Under Utility
Malus spp.	'Snowdrift' 'White Angel' 'Profusion'	Crabapple	Cultivar - Not Native	Small	20'	20'	Special Circumstances	6-8 Feet	Under Utility - use lg, upright varieties
Nyssa	sylvatica	Black Gum	Native	Medium	35'	20'	Special Circumstances	6-8 Feet	
Ostrya	virginiana	Hophornbeam, American	Native	Medium	35'	25'	Special Circumstances	6-8 Feet	
Phellodendron	amurense 'Macho'	Amur Corktree, Macho	Not Native	Med./Lg.	40'	30'	Recommended	>8 Feet	
Platanus	x acerfolia	London planetree	Cultivar - Not Native	Large	55'	40'	Special Circumstances	>10 Feet	
Quercus	acutissima	Oak, Sawtooth	Not Native	Large	50'	50'	Special Circumstances	>8 Feet	
Quercus	alba	Oak, White	Native	Large	65'	65'	Recommended	>8 Feet	
Quercus	bicolor	Oak, Swamp White	Native	Large	45'	45'	Recommended	>8 Feet	
Quercus	borealis (rubra) Oak	Oak, Northern Red	Native	Large	60'	45'	Recommended	>8 Feet	
Quercus	coccinea	Oak, Scarlet	Native	Large	65'	40'	Recommended	>10 Feet	
Quercus	imbricaria	Oak, Shingle	Native	Large	60'	55'	Special Circumstances	>8 Feet	
Quercus	macrocarpa	Oak, Burr	Native	Large	65'	60'	Recommended	>10 Feet	

Genus	Species - cultivar	Common Name	Native to Michigan?	Size	App Ht	App Spread	Use	Treelawn Size	Overhead Utilities
Quercus	phellos	Oak, Willow	Not Native	Large	50'	35'	Special Circumstances	>8 Feet	
Quercus	robur	Oak, English	Not Native	Large	50'	40'	Special Circumstances	>8 Feet	fastigate/columnar varieties in special
Sophora	japonica	Pagoda Tree	Not Native	Large	45'	35'	Recommended	>8 Feet	
Syringa	reticulata	Japanese Tree Lilac	Not Native	Small	20'	15'	Recommended	4-6 Feet	Under Utility
Tilia	americana	American Basswood	Native	Large	70'	40'	Recommended	>8 Feet	
Tilia	americana 'Redmond'	Linden, Redmond	Cultivar - Native	Medium	35'	25'	Recommended	6-8 Feet	
Tilia	cordata	Linden, Littleleaf	Not Native	Large	50'	35'	Recommended	>8 Feet	
Tilia	euchlora	Linden, Crimean	Not Native	Med./Lg.	40'	35'	Recommended	>8 Feet	
Tilia	tomentosa	Linden, Silver	Not Native	Large	60'	35'	Recommended	>8 Feet	
Ulmus	americana 'New Harmony'	Elm, New Harmony	Cultivar	Large	65'	60'	Special Circumstances	>8 Feet	
Ulmus	americana 'Valley Forge'	Elm, Valley Forge	Cultivar	Large	65'	60'	Special Circumstances	6-8 Feet	
Ulmus	x 'Homestead'	Elm, Homestead	Cultivar - Not Native	Large	55'	35'	Special Circumstances	>8 Feet	
Ulmus	x 'Frontier'	Elm, Frontier	Cultivar - Not Native	Med./Lg.	40'	30'	Special Circumstances	>8 Feet	
Zelkova	serrata 'Green Vase'	Zelkova, Green Vase	Not Native	Large	50'	40'	Special Circumstances	>8 Feet	
Zelkova	serrata 'Village Green'	Zelkova, Village Green	Not Native	Med./Lg.	40'	38'	Special Circumstances	>8 Feet	

Scientific Name	Common Name	Plant Type	Interest/ Bloom Time	Native to Michigan?	Woodland Replace- ment?	Street Tree Class	Growing Conditions	Nursery Type
<b>DECIDUOUS CANOPY TREES</b>								
<i>Acer nigrum</i>	Black Maple	DC	SU/Fall	NOC	YES		SS	SP
<i>Acer nigrum</i> 'Greencolumn'	Black Maple	DC	SU/Fall	~	YES	SC	SS	CO
<i>Acer platanoides</i>	Norway Maple	DC	SU/Fall	EX	NO		SU	CO
<i>Acer pseudoplatanus</i>	Sycamore Maple	DC	SU/Fall	EX	NO		SU	CO
<i>Acer rubrum</i>	Red Maple	DC	SU/Fall	NOC	YES	RC	SU	CO
<i>Acer rubrum</i> 'Bowhall'	Bowhall Red Maple	DC	SU/Fall	~	YES	RC	SU	CO
<i>Acer rubrum</i> 'Franksred'	Red Sunset Red Maple	DC	SU/Fall	~	YES	RC	SU	CO
<i>Acer rubrum tomentosum</i>	Red Maple	DC	SU/Fall	~	YES		SU	SP
<i>Acer rubrum trilobum</i>	Red Maple	DC	SP/SU/FA	~	YES		SU	SP
<i>Acer saccharum</i>	Sugar Maple	DC	SU/Fall	NOC	YES		SU	CO
<i>Acer saccharum</i> 'Commemoration'	Sugar Maple	DC	SU/Fall	~	YES	RC	SU	CO
<i>Acer saccharum</i> 'Green Mountain'	Sugar Maple	DC	SU/Fall	~	YES	RC	SU	CO
<i>Aesculus glabra</i>	Ohio Buckeye	DC	SU/Fall	NOC	YES		SH	CO
<i>Aesculus hippocastanum</i>	Horsechestnut	DC	Spring/SU	EX	NO	SC	SS	SP
<i>Betula alleghaniensis</i>	Yellow Birch	DC	SU/Winter	NOC	YES	PR	WT	SP
<i>Betula nigra</i>	River Birch	DC	SU/Winter	NU	NO		WT	CO
<i>Betula papyrifera</i>	Canoe Birch	DC	SU/Winter	NOC	YES		SU	CO
<i>Carya cordiformis</i>	Bitternut Hickory	DC	SU/Fall	NOC	YES		SU	SP
<i>Carya glabra</i>	Pignut Hickory	DC	SU/Fall	NOC	YES		SU	SP
<i>Carya laciniosa</i>	Big Shellbark Hickory	DC	SU/Fall	NOC	YES		SU	SP
<i>Carya ovata</i>	Shagbark Hickory	DC	SU/Winter	NOC	YES		SU	SP
<i>Celtis occidentalis</i>	Hackberry	DC	Summer	NOC	YES	RC	SU	CO
<i>Cladrastis lutea</i>	Yellowwood	DC	Spring/SU	NU	NO	SC	SU	CO
<i>Fagus grandifolia</i>	American Beech	DC	SU/Winter	NOC	YES		SH	CO
<i>Fagus sylvatica</i>	European Beech	DC	SU/Winter	EX	NO		SU	CO
<i>Ginkgo biloba</i> (male)	Ginkgo	DC	Summer	EX	NO	RC	SU	CO
<i>Ginkgo biloba</i> 'Autumn Gold'	Ginkgo	DC	Summer	EX	NO	RC	SU	CO
<i>Ginkgo biloba</i> 'Magyar'	Ginkgo	DC	Summer	EX	NO	RC	SU	CO
<i>Gleditsia triacanthos</i>	Honeylocust	DC	Summer	NOC	YES		SU	SP
<i>Gleditsia triacanthos inermis</i>	Thornless Honeylocust	DC	Summer	~	YES	RC	SU	CO
<i>Gleditsia triacanthos</i> 'Skyline'	Honeylocust	DC	Summer	~	YES	RC	SU	CO
<i>Gymnocladus dioicus</i>	Kentucky Coffeetree	DC	SU/Winter	NS	YES	SC	SS	CO
<i>Juglans cinerea</i>	Butternut	DC	Summer	NOC	YES		SU	CO
<i>Juglans nigra</i>	Black Walnut	DC	Summer	NOC	YES		SU	SP
<i>Liquidambar styraciflua</i>	Sweetgum	DC	SU/Fall	NU	NO		SU	CO
<i>Liriodendron tulipifera</i>	Tuliptree	DC	SU/Fall	NOC	YES	RC	SS	CO
<i>Nyssa sylvatica</i>	Tupelo	DC	SU/Fall	NOC	YES	SC	SU	CO
<i>Platanus acerifolia</i> 'Columbia'	Columbia Planetree	DC	Summer	EX	NO	SC	SS	CO
<i>Platanus occidentalis</i>	American Sycamore	DC	Summer	NOC	YES	SC	SS	SP
<i>Prunus serotina</i>	Black Cherry	DC	Fall	NOC	YES		SU	SP
<i>Quercus alba</i>	White Oak	DC	Summer	NOC	YES		SU	CO
<i>Quercus bicolor</i>	Swamp White Oak	DC	Summer	NOC	YES	RC	SU	SP
<i>Quercus coccinea</i>	Scarlet Oak	DC	Summer	NOC	YES		SU	SP
<i>Quercus ellipsoidalis</i>	Hill's Oak	DC	SU/Fall	NS	YES		SU	SP
<i>Quercus imbricaria</i>	Shingle Oak	DC	Summer	NS	YES		SU	SP
<i>Quercus macrocarpa</i>	Bur Oak	DC	Summer	NOC	YES	RC	SU	CO
<i>Quercus muehlenbergii</i>	Chinkapin Oak	DC	Summer	NOC	YES		SU	SP
<i>Quercus prinus</i>	Chestnut Oak	DC	Summer	NU	NO		SU	SP
<i>Quercus robur</i>	English Oak	DC	Summer	EX	NO	SC	SU	CO
<i>Quercus robur</i> 'Skymaster'	English Oak	DC	SU/Fall	EX	NO	SC	SU	CO
<i>Quercus rubra</i>	Red Oak	DC	Summer	NOC	YES	RC	SU	CO
<i>Quercus velutina</i>	Black Oak	DC	Summer	NOC	YES		SU	SP
<i>Sophora japonica</i>	Pagoda Tree	DC	Spring/SU	EX	NO	RC	SU	SP
<i>Tilia americana</i>	American Basswood	DC	Summer	NOC	YES	RC	SS	CO
<i>Tilia cordata</i>	Little Leaf Linden	DC	Summer	EX	NO	RC	SU	CO
<i>Tilia cordata</i> 'Chancellor'	Little Leaf Linden	DC	Summer	EX	NO	RC	SU	CO
<i>Tilia cordata</i> 'Corzam'	Little Leaf Linden	DC	Summer	EX	NO	RC	SU	CO
<i>Tilia cordata</i> 'Greenspire'	Little Leaf Linden	DC	Summer	EX	NO	RC	SU	CO
<i>Tilia platyphyllos</i>	Large-leaf Linden	DC	SU/Fall	EX	NO	RC	SU	
<i>Tilia tomentosa</i>	Silver Linden	DC	Summer	EX	NO	RC	SU	CO

Scientific Name	Common Name	Plant Type	Interest/ Bloom Time	Native to Michigan?	Woodland Replacement?	Street Tree Class	Growing Conditions	Nursery Type
<i>Tilia x euchlora</i> 'Laurelhurst'	Crimean Linden	DC	Summer	EX	NO		SU	
<i>Zelkova serrata</i>	Zelkova	DC	Summer	EX	NO	SC	SU	CO
<b>CONIFEROUS TREES - see Section 37-8 for woodland replacement ratio</b>								
<i>Abies balsamea</i>	Balsam Fir	LE	Winter	NU	YES	PR	SS	CO
<i>Abies concolor</i>	Concolor Fir	LE	Winter	NU	NO	PR	SU	CO
<i>Larix laricina</i>	Tamarack	LE	Fall	NOC	YES		WT	SP
<i>Metasequoia glyptostroboides</i>	Dawn Redwood	LE	SU/Fall	EX	NO		SU	CO
<i>Picea abies</i>	Norway Spruce	LE	Winter	EX	NO	PR	SU	CO
<i>Picea pungens</i>	Colorado Spruce	LE	Winter	NU	NO	PR	SU	CO
<i>Picea glauca</i>	White Spruce	LE	Winter	NS	YES	PR	SU	CO
<i>Picea mariana</i>	Black Spruce	LE	Winter	NOC	YES	PR	SU	SP
<i>Picea omorika</i>	Serbian Spruce	LE	Winter	EX	NO	PR	SU	CO
<i>Pinus nigra</i>	Austrian Pine	LE	Winter	EX	NO	PR	SU	CO
<i>Pinus resinosa</i>	Red Pine	LE	Winter	NU	YES	PR	SU	CO
<i>Pinus strobus</i>	White Pine	LE	Winter	NOC	YES	PR	SU	CO
<i>Pinus sylvestris</i>	Scotch Pine	LE	Winter	EX	NO	PR	SU	CO
<i>Pseudotsuga menziesii</i>	Douglas Fir	LE	Winter	NU	NO	PR	SS	CO
<i>Taxodium distichum</i>	Bald Cypress	LE	SU/Winter	NU	NO		WT	CO
<i>Tsuga canadensis</i>	Canada Hemlock	LE	Winter	NOC	YES	PR	SS	CO
<b>UPRIGHT EVERGREENS - see Section 37-8 for woodland replacement ratios</b>								
<i>Juniperus virginiana</i>	Eastern Red Cedar	UE	Winter	NOC	YES	~	SU	CO
<i>Thuja occidentalis</i>	Arborvitae	UE	Winter	NOC	YES	~	SS	CO
<b>DECIDUOUS SUBCANOPY TREES - see Section 37.8 for woodland replacement ratios</b>								
<i>Acer campestre</i>	Hedge Maple	DS	Summer	EX	NO	SC	SU	CO
<i>Acer campestre</i> 'Queen Elizabeth'	Hedge Maple	DS	Fall	EX	NO	UO	SU	CO
<i>Acer ginnala</i>	Amur Maple	DS	Fall	EX	NO		SU	CO
<i>Acer griseum</i>	Paperbark Maple	DS	Winter	EX	NO	SC	SU	CO
<i>Acer pensylvanicum</i>	Striped Maple	DS	Fall	NU	YES		SH	SP
<i>Acer spicatum</i>	Mountain Maple	DS	Fall	NOC	YES		SH	SP
<i>Alnus rugosa</i>	Speckled Alder	DS	Fall	NOC	YES	PR	WT	SP
<i>Amelanchier xAutumn Brilliance</i>	Serviceberry	DS	Spring	~	YES	UO	SS	CO
<i>Asimina triloba</i>	Paw Paw	DS	Fall	NOC	YES	PR	SH	SP
<i>Carpinus betulus</i>	European Hornbeam	DS	Winter	EX	NO	UO	SS	CO
<i>Carpinus caroliniana</i>	American Hornbeam	DS	Summer	NOC	YES		SS	CO
<i>Cercis canadensis</i>	Eastern Redbud	DS	Spring	NS	YES		SS	CP
<i>Chionanthus virginicus</i>	Fringetree	DS	Spring	NU	NO		SU	CO
<i>Cornus alternifolia</i>	Alternate-Leaved Dogwood	DS	Summer	NOC	YES	~	SS	CO
<i>Cornus florida</i>	Flowering Dogwood	DS	Spring	NOC	YES	PR	SS	CO
<i>Cornus kousa</i>	Japanese Dogwood	DS	Spring	EX	NO	UO	SS	CO
<i>Cornus mas</i>	Corneliancherry Dogwood	DS	Spring	EX	NO	UO	SS	CO
<i>Crataegus crus-galli inermis</i>	Cockspur Hawthorn	DS	Winter	~	YES	UO		CO
<i>Crataegus phaenopyrum</i>	Washington Hawthorn	DS	Winter	NU	NO	SC		CO
<i>Koeleruteria paniculata</i>	Golden-Rain Tree	DS		EX	NO	SC		CO
<i>Magnolia stellata</i>	Star Magnolia	DS	Spring	NU	NO			CO
<i>Malus hybrids</i>	Flowering Crabapple	DS	Spring	~	NO	UO	SU	CO
<i>Ostrya virginiana</i>	Hophornbeam	DS	Summer	NOC	YES		SS	CO
<i>Ptelea trifoliata</i>	Wafer-Ash	DS	Fall	NOC	YES	SC	SU	SP
<b>LARGE SHRUBS - see Section 37-8 for woodland replacement ratio</b>								
<i>Amelanchier alnifolia</i>	Saskatoon Serviceberry	SL	Spring	NU	NO	~	SS	SP
<i>Amelanchier arborea</i>	Juneberry	SL	Spring	NOC	YES	~	SS	SP
<i>Amelanchier canadensis</i>	Shadblow	SL/DS	Spring	NU	NO	~	SS	CO
<i>Amelanchier laevis</i>	Shadbush	SL/DS	Spring	NOC	YES	~	SS	CO
<i>Aronia melanocarpa</i> (prunifolia)	Black Chokecherry	SS	Summer	NOC	YES	~	SS	CO
<i>Betula pumila</i>	Dwarf Birch	SL	Winter	NOC	YES	~	SU	SP
<i>Calycanthus floridus</i>	Strawberry-Shrub	SL	Summer	NU	NO	~	SS	CO
<i>Cephalanthus occidentalis</i>	Buttonbush	SL	Summer	NOC	YES	~	WT	CO
<i>Cornus amomum</i>	Silky Dogwood	SL	Summer	NOC	YES	~	SS	CO
<i>Cornus foemina</i>	Gray Dogwood	SL	Spring	NOC	YES	~	SS	SP
<i>Cornus rugosa</i>	Round-Leaved Dogwood	SL	Summer	NOC	YES	~	SS	SP

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<i>Cornus stolonifera</i>	Red Osier Dogwood	SL	Winter	NOC	YES	~	SS	CO
<i>Corylus americana</i>	American Hazelnut	SL	Fall	NOC	YES	~	SS	CO
<i>Corylus cornuta</i>	Beaked Hazelnut	SL	Spring	NS	YES	~	SS	SP
<i>Euonymus alatus</i>	Burning Bush	SL	Fall	EX	NO	~	SS	CO
<i>Fothergilla major</i>	Large Fothergilla	SL	Spring	NU	NO	~	SS	CO
<i>Hamamelis vernalis</i>	Vernal Witchhazel	SL	Spring	NU	NO	~	SS	CO
<i>Hamamelis virginiana</i>	Witch-Hazel	SL	Winter	NOC	YES	~	SS	CO
<i>Hibiscus syriacus</i>	Rose-Of-Sharon	SL	Summer	EX	NO	~	SS	CO
<i>Ilex opaca</i>	American Holly	SL	Winter	NOC	NO	~	SS	CO
<i>Ilex verticillata</i>	Winterberry	SL	Fall	NOC	YES	~	SS	CO
<i>Itea virginica</i>	Virginia Willow	SL	Summer	NU	NO	~	SS	CO
<i>Lindera benzoin</i>	Spicebush	SL	Fall	NOC	YES	~	SS	CO
<i>Physocarpus opulifolius</i>	Common Ninebark	SL	Summer	NOC	YES	~	WT	CO
<i>Rhus copallina</i>	Dwarf Sumac	SL	Summer	NOC	YES	~	SU	SP
<i>Rhus glabra</i>	Smooth Sumac	SL	Summer	NOC	YES	~	SU	CO
<i>Rhus typhina</i>	Staghorn Sumac	SL	Summer	NOC	YES	~	SU	CO
<i>Salix discolor</i>	Pussy Willow	SL	Spring	NOC	YES	~	WT	CO
<i>Sambucus canadensis</i>	Common Elder	SL	Summer	NOC	YES	~	SU	CO
<i>Sambucus racemosa (pubens)</i>	Red-Berried Elder	SL	Winter	NOC	YES	~	SU	CO
<i>Staphylea trifolia</i>	Bladdernut	SL	Winter	NOC	YES	~	SH	SP
<i>Syringa vulgaris</i>	Lilac	SL	Spring	EX	NO	~	SU	CO
<i>Viburnum dentatum</i>	Arrowwood	SL	Spring	NOC	YES	~	SS	CO
<i>Viburnum lantana</i>	Wayfaring Tree	SL	Spring	EX	NO	~	SU	CO
<i>Viburnum lentago</i>	Nannyberry	SL	Spring	NOC	YES	~	SS	CO
<i>Viburnum opulus</i>	European High-Bush Cranberry	SL	Spring	EX	NO	~	SU	CO
<i>Viburnum prunifolium</i>	Black Haw	SL	Winter	NS	YES	~	SS	CO
<i>Viburnum rafinesquianum</i>	Downy Arrowwood	SL	Spring	NOC	YES	~	SS	SP
<i>Viburnum trilobum</i>	High-Bush Cranberry	SL	Spring	NOC	YES	~	SS	CO
<b>SMALL SHRUBS - see Section 37-8 for woodland replacement ratios</b>								
<i>Arctostaphylos uva-ursi</i>	Bearberry	SS	Summer	NU	NO	~	SU	CO
<i>Aronia melanocarpa (prunifolia)</i>	Black Chokecherry	SS	Summer	NOC	YES	~	SS	CO
<i>Berberis thunbergii</i>	Japanese Barberry	SS	Winter	EX	NO	~	SS	CO
<i>Chaenomeles japonica</i>	Japanese Quince	SS	Spring	EX	NO	~	SU	CO
<i>Comptonia peregrina</i>	Sweet Fern	SS	Summer	NOC	YES	~	SS	CO
<i>Euonymus fortunei</i>	Climbing Euonymus	SS	Winter	EX	NO	~	SS	CO
<i>Euonymus kiautschovicus</i>	Climbing Euonymus	SS	Winter	EX	NO	~	SS	CO
<i>Euonymus obovatus</i>	Running Strawberry Bush	SS	Winter	NOC	YES	~	SS	SP
<i>Fothergilla gardenii</i>	Dwarf Fothergilla	SS	Spring	NU	NO	~	SS	CO
<i>Ilex glabra</i>	Inkberry	SS	Winter	NU	NO	~	SS	CO
<i>Juniperus communis</i>	Common Juniper	SS	Winter	NOC	YES	~	SU	CO
<i>Juniperus horizontalis</i>	Trailing Juniper	SS	Winter	NU	NO	~	SU	CO
<i>Potentilla fruticosa</i>	Bush Cinquefoil	SS	Summer	NOC	YES	~	SS	CO
<i>Rhus aromatica</i>	Fragrant Sumac	SS	Summer	NOC	YES	~	SU	CO
<i>Taxus canadensis</i>	Canada Yew	SS	Winter	NOC	YES	~	SH	SP
<i>Viburnum acerifolium</i>	Maple-Leaved Arrowwood	SS	Spring	NOC	YES	~	SS	SP
<b>HERBACEOUS PLANTS - see Section 37-8 for woodland replacement ratios</b>								
<i>Acorus calamus</i>	Sweet-Flag	PG	Spring	NOC	YES	~	WT	SP
<i>Actaea pachypoda</i>	White Baneberry	PG	Summer	NOC	YES	~	SH	SP
<i>Actaea rubra</i>	Red Baneberry	PG	Summer	NOC	YES	~	SH	SP
<i>Adiantum pedatum</i>	Maidenhair Fern	PG	Summer	NOC	YES	~	SH	SP
<i>Aegopodium podagraria</i>	Bishop's Weed	PG	Summer	EX	NO	~	SH	CO
<i>Agastache nepetoides</i>	Yellow Giant Hyssop	PG	Summer	NOC	YES	~	SS	SP
<i>Agrimonia gryposepala</i>	Tall Agrimony	PG	Summer	NOC	YES	~	SH	SP
<i>Agrimonia parviflora</i>	Swamp Agrimony	PG	Summer	NOC	YES	~	SS	SP
<i>Ajuga reptans</i>	Bugleweed	PG	Summer	EX	NO	~	SS	CO
<i>Alcea rosea</i>	Hollyhock	PG	Summer	EX	NO	~	SU	CP
<i>Allium cernuum</i>	Nodding Wild Onion	PG	Summer	NS	YES	~	SS	CO
<i>Allium schoenoprasum</i>	Chives	PG	Summer	NU	YES	~	SU	CO
<i>Allium tricoccum</i>	Wild Leek	PG	Spring	NOC	YES	~	SH	UN
<i>Amorpha canescens</i>	Lead Plant	PG	Summer	NU	YES	~	SU	UN
<i>Amphicarpaea bracteata</i>	Hog Peanut	PG	Summer	NOC	YES	~	SS	SP

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<i>Amsonia tabernaemontana</i>	Blue Star	PG	Summer	NU	NO	~	SS	CO
<i>Andropogon gerardii</i>	Big Bluestem	PG	Summer	NOC	YES	~	SU	SP
<i>Andropogon scoparius</i>	Little Bluestem	PG	Summer	NOC	YES	~	SU	SP
<i>Andropogon virginicus</i>	Broom Sedge	PG	Summer	NS	YES	~	SU	SP
<i>Anemone canadensis</i>	Meadow Anemone	PG	Spring	NS	YES	~	SU	SP
<i>Anemone cylindrica</i>	Prairie Thimbleweed	PG	Spring	NOC	YES	~	SS	SP
<i>Anemone patens</i>	Pasque Flower	PG	Spring	NU	NO	~	SU	UN
<i>Anemone virginiana</i>	Thimbleweed	PG	Summer	NOC	YES	~	SH	SP
<i>Anemonella thalictroides</i>	Rue Anemone	PG	Spring	NOC	YES	~	SH	SP
<i>Angelica atropurpurea</i>	Great Angelica	PG	Spring	NS	YES	~	SU	SP
<i>Apocynum androsaemifolium</i>	Spreading Dogbane	PG	Spring	NOC	YES	~	SS	SP
<i>Aquilegia canadensis</i>	Wild Columbine	PG	Spring	NOC	YES	~	SH	CP
<i>Arisaema triphyllum</i>	Jack-In-The-Pulpit	PG	Summer	NOC	YES	~	SH	CO
<i>Aranus dioicus</i>	Goat's-Beard	PG	Summer	NU	NO	~	SS	CO
<i>Asarum canadense</i>	Wild Ginger	PG	Spring	NOC	YES	~	SH	CO
<i>Asclepias exaltata</i>	Poke Milkweed	PG	Summer	NOC	YES	~	SH	SP
<i>Asclepias incarnata</i>	Swamp Milkweed	PG	Summer	NOC	YES	~	WT	CO
<i>Asclepias syriaca</i>	Common Milkweed	PG	Summer	NOC	YES	~	SU	SP
<i>Asclepias tuberosa</i>	Butterfly Weed	PG	Summer	NOC	YES	~	SU	CO
<i>Asclepias verticillata</i>	Horsetail Milkweed	PG	Summer	NOC	YES	~	SU	SP
<i>Aster cordifolius</i>	Heart-Leaved Aster	PG	Fall	NOC	YES	~	SH	SP
<i>Aster ericoides</i>	Heath Aster	PG	Fall	NOC	YES	~	SU	SP
<i>Aster laevis</i>	Smooth Aster	PG	Fall	NOC	YES	~	SU	SP
<i>Aster macrophyllus</i>	Big-Leaved Aster	PG	Fall	NOC	YES	~	SH	UN
<i>Aster novae-angliae</i>	New England Aster	PG	Fall	NOC	YES	~	SS	CO
<i>Aster novi-belgii</i>	New Belgium Aster	PG	Fall	NU	NO	~	SU	CO
<i>Aster oolentangiensis</i>	Sky Blue Aster	PG	Fall	NOC	YES	~	SU	SP
<i>Aster pilosus</i>	Hairy Aster	PG	Fall	NOC	YES	~	SU	SP
<i>Aster sagittifolius</i>	Arrow Aster	PG	Fall	NOC	YES	~	SS	SP
<i>Aster sericeus</i>	Silky Aster	PG	Fall	NU	YES	~	SU	SP
<i>Aster umbellatus</i>	Flattop Aster	PG	Fall	NOC	YES	~	SU	SP
<i>Athyrium filix-femina</i>	Lady Fern	PG	Summer	NOC	YES	~	SH	CO
<i>Aureolaria pedicularia</i>	Annual False Foxglove	PG	Summer	NOC	YES	~	SS	SP
<i>Baptisia australis</i>	Blue Wild Indigo	PG	Summer	NU	NO	~	SU	CO
<i>Baptisia leucophaea</i>	Cream Wild Indigo	PG	Summer	NU	YES	~	SU	SP
<i>Bouteloua curtipendula</i>	Sideoats Grama	PG	Summer	NOC	YES		SU	SP
<i>Bromus latiglumis</i>	Vibrant Shade Grass	PG	Summer	NOC	YES		SH	SP
<i>Calamagrostis canadensis</i>	Blue Joint Grass	PG	Summer	NOC	YES		WT	SP
<i>Calla palustris</i>	Water Arum	PG	Spring	NOC	YES	~	WT	CO
<i>Calopogon tuberosus</i>	Grass Pink Orchid	PG	Spring	NOC	YES	~	WT	SP
<i>Caltha palustris</i>	Marsh-marigold	PG	Spring	NOC	YES	~	WT	SP
<i>Campanula glomerata</i>	Clustered Bellflower	PG	Spring	EX	NO	~	SS	CO
<i>Campanula rotundifolia</i>	Bellflower	PG	Spring	NOC	YES	~	SS	SP
<i>Carex sp.</i>	Sedges	PG	Spring	~			WT	SP
<i>Caulophyllum thalictroides</i>	Blue Cohosh	PG	Summer	NOC	YES	~	SH	SP
<i>Ceanothus americanus</i>	New Jersey Tea	PG	Fall	NOC	YES	~	SU	CO
<i>Chasmanthium latifolium</i>	Sea Oats	PG	Summer	NU	YES	~	WT	CO
<i>Chelone glabra</i>	Turtlehead	PG	Fall	NOC	YES	~	SU	CO
<i>Cimicifuga racemosa</i>	Black Cohosh	PG	Fall	NS	NO	~	SH	CO
<i>Cinna arundinacea</i>	Common Wood Reed	PG	Summer	NOC	YES	~	WT	SP
<i>Cirsium discolor</i>	Pasture Thistle	PG	Summer	NOC	YES		SU	SP
<i>Collinsonia canadensis</i>	Citronella Horse Balm	PG	Summer	NOC	YES	~	SH	SP
<i>Convallaria majalis</i>	Lily Of The Valley	PG	Spring	EX	NO	~	SS	CO
<i>Coreopsis grandiflora</i>	Large-Flowered Coreopsis	PG	Fall	NU	NO	~	SU	CO
<i>Coreopsis lanceolata</i>	Sand Coreopsis	PG	Fall	NS	YES	~	SU	CO
<i>Coreopsis palmata</i>	Prairie Coreopsis	PG	Fall	NU	NO	~	SU	SP
<i>Coreopsis tripteris</i>	Tall Coreopsis	PG	Summer	NU	YES	~	SU	SP
<i>Cornus canadensis</i>	Bunchberry	PG	Fall	NOC	YES	~	SS	CO
<i>Cryptotaenia canadensis</i>	Honewort	PG	Summer	NOC	YES	~	SH	SP
<i>Dennstaedtia punctilobula</i>	Hay-Scented Fern	PG	Summer	NS	NO	~	SU	CO
<i>Desmodium canadense</i>	Showy Tick Trefoil	PG	Summer	NOC	YES	~	SS	SP
<i>Desmodium glutinosum</i>	Pointed-Leaved Tick-Trefoil	PG	Summer	NOC	YES	~	SH	SP
<i>Dianthus deltoides</i>	Maiden Pink	PG	Spring	EX	NO	~	SU	CO

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<i>Dicentra cucullaria</i>	Dutchman's Breeches	PG	Spring	NOC	YES	~	SH	SP
<i>Dicentra eximia</i>	Wild Bleeding Heart	PG	Spring	NU	NO	~	SS	CO
<i>Dodecatheon meadia</i>	Shooting Star	PG	Spring	NS	NO	~	SS	SP
<i>Dryopteris carthusiana</i>	Spinulose Woodfern	PG	Spring	NOC	YES	~	SH	CO
<i>Echinacea pallida</i>	Pale Purple Coneflower	PG	Fall	NU	NO	~	SU	SP
<i>Echinacea purpurea</i>	Purple Coneflower	PG	Summer	NU	NO	~	SS	CO
<i>Echinops sphaerocephalus</i>	Globe Thistle	PG	Summer	EX	NO	~	SU	CO
<i>Elymus canadensis</i>	Canada Wild Rye	PG	Summer	NOC	YES	~	SS	SP
<i>Elymus virginicus</i>	Virginia Wild Rye	PG	Summer	NOC	YES	~	SS	SP
<i>Eragrostis spectabilis</i>	Purple Love Grass	PG	Summer	NOC	YES	~	SU	SP
<i>Eryngium yuccifolium</i>	Rattlesnake Master	PG	Summer	NU	YES	~	SU	SP
<i>Erythronium americanum</i>	Yellow Trout Lily	PG	Spring	NOC	YES	~	SH	SP
<i>Eupatorium maculatum</i>	Joe Pye Weed	PG	Summer	NOC	YES	~	SU	CO
<i>Eupatorium perfoliatum</i>	Common Boneset	PG	Summer	NOC	YES	~	WT	CO
<i>Eupatorium purpureum</i>	Sweet-Smelling Joe Pye	PG	Summer	NOC	YES	~	SH	CO
<i>Eupatorium rugosum</i>	White Snakeroot	PG	Summer	NOC	YES	~	SH	CO
<i>Euthamia graminifolia</i>	Grass-Leaved Goldenrod	PG	Fall	NOC	YES	~	SU	SP
<i>Filipendula rubra</i>	Queen Of The Prairie	PG	Spring	NU	NO	~	SU	CO
<i>Gaultheria procumbens</i>	Wintergreen	PG	Winter	NOC	YES	~	SS	CO
<i>Gentiana andrewsii</i>	Closed Gentian	PG	Summer	NOC	YES	~	SU	SP
<i>Geranium maculatum</i>	Wild Geranium	PG	Spring	NOC	YES	~	SH	SP
<i>Geranium sanguineum</i>	Blood-Red Cranesbill	PG	Spring	EX	NO	~	SS	CO
<i>Geum canadense</i>	White Avens	PG	Spring	NOC	YES	~	SH	SP
<i>Geum triflorum</i>	Prairie Smoke	PG	Fall	NU	NO	~	SU	SP
<i>Glyceria striata</i>	Fowl Meadow (Manna) Grass	PG	Summer	NOC	YES	~	SS	WT
<i>Helenium autumnale</i>	Sneezeweed	PG	Summer	NOC	YES	~	SU	CO
<i>Helianthus divaricatus</i>	Woodland Sunflower	PG	Fall	NOC	YES	~	SU	SP
<i>Helianthus occidentalis</i>	Western (Or Naked) Sunflower	PG	Fall	NOC	YES	~	SU	SP
<i>Helianthus strumosus</i>	Pale-Leaved Sunflower	PG	Fall	NOC	YES	~	SU	SP
<i>Heliopsis helianthoides</i>	False Sunflower	PG	Fall	NOC	YES	~	SU	CO
<i>Heracleum maximum</i>	Cow Parsnip	PG	Summer	NOC	YES	~	WT	SP
<i>Hibiscus moscheutos</i>	Swamp Rose Mallow	PG	Spring	NOC	YES	~	SU	CO
<i>Hosta lancifolia</i>	Plantain Lily	PG	Summer	EX	NO	~	SS	CO
<i>Hydrophyllum virginianum</i>	Virginia Waterleaf	PG	Spring	NOC	YES	~	SH	SP
<i>Hystrix patula</i>	Bottlebrush Grass	PG	Summer	NOC	YES	~	SS	SP
<i>Impatiens capensis</i>	Spotted Touch-Me-Not	PG	Summer	NOC	YES	~	SH	SP
<i>Iris germanica</i>	Flag	PG	Spring	EX	NO	~	SU	CO
<i>Iris pumila</i>	Dwarf Iris	PG	Spring	EX	NO	~	SU	CO
<i>Iris versicolor</i>	Wild Blue Flag	PG	Spring	NU	YES	~	WT	CO
<i>Iris virginica</i>	Southern Blue Flag	PG	Spring	NOC	YES	~	WT	CO
<i>Juncus effusus</i>	Common Rush	PG	Spring	NOC	YES	~	WT	SP
<i>Koeleria macrantha</i>	June Grass	PG	Summer	NOC	YES	~	SU	SP
<i>Kuhnia eupatorioides</i>	False Boneset	PG	Summer	NU	NO	~	SU	SP
<i>Lamium maculatum</i>	Spotted Dead Nettle	PG	Summer	EX	NO	~	SU/SH	CO
<i>Leersia oryzoides</i>	Rice Cut Grass	PG	Summer	NOC	YES	~	WT	SP
<i>Lespedeza capitata</i>	Round Headed Bush Clover	PG	Summer	NOC	YES	~	SU	SP
<i>Liatis aspera</i>	Rough Blazing Star	PG	Summer	NOC	YES	~	SU	SP
<i>Liatis cylindracea</i>	Cylindrical Blazing Star	PG	Summer	NOC	YES	~	SU	SP
<i>Liatis spicata</i>	Spiked Blazing Star	PG	Summer	NOC	YES	~	SU	CO
<i>Lilium michiganense</i>	Michigan Lily	PG	Summer	NOC	YES	~	SS	SP
<i>Lilium superbum</i>	Superb Lily	PG	Summer	NU	NO	~	SU	CO
<i>Liriope spicata</i>	Lilyturf	PG	Summer	EX	NO	~	SU/SH	CO
<i>Lobelia cardinalis</i>	Cardinal Flower	PG	Spring	NOC	YES	~	SH	CO
<i>Lobelia siphilitica</i>	Blue Cardinal-Flower	PG	Summer	NOC	YES	~	SU	SP
<i>Lobelia spicata</i>	Pale Spiked Lobelia	PG	Summer	NOC	YES	~	SU	SP
<i>Lycopus americanus</i>	Common Water Horehound	PG	Summer	NOC	YES	~	WT	SP
<i>Lysimachia clethroides</i>	White Loosestrife	PG	Summer	EX	NO	~	WT	CO
<i>Lysimachia nummularia</i>	Moneywort	PG	Fall	EX	NO	~	WT	CO
<i>Lysimachia punctata</i>	Dotted Loosestrife	PG	Summer	EX	NO	~	WT	CO
<i>Matteuccia struthiopteris</i>	Ostrich Fern	PG	Summer	NS	YES	~	SH	CO
<i>Mentha canadensis</i>	Wild Mint	PG	Summer	NOC	YES	~	SU	SP
<i>Mertensia virginica</i>	Virginia Bluebells	PG	Spring	NU	YES	~	SH	CO



Scientific Name	Common Name	Plant Type	Interest/ Bloom Time	Native to Michigan?	Woodland Replacement?	Street Tree Class	Growing Conditions	Nursery Type
<i>Milium effusum</i>	Millet Grass	PG	Summer	NOC	YES	~	SH	SP
<i>Mimulus ringens</i>	Monkey Flower	PG	Summer	NOC	YES	~	SU	SP
<i>Monarda didyma</i>	Oswego Tea	PG	Summer	NS	NO	~	SU	CO
<i>Monarda fistulosa</i>	Wild Bergamot (Beebalm)	PG	Summer	NOC	YES	~	SS	SP
<i>Oenothera biennis</i>	Common Evening Primrose	PG	Summer	NOC	YES	~	SU	SP
<i>Oenothera fruticosa</i>	Shrubby Sundrops	PG	Summer	NS	NO	~	SU	CO
<i>Oenothera speciosa</i>	Showy Evening Primrose	PG	Summer	NS	NO	~	SU	CO
<i>Onoclea sensibilis</i>	Sensitive Fern	PG	Summer	NOC	YES	~	WT	SP
<i>Osmorhiza claytonii</i>	Hairy Sweet-Cicely	PG	Summer	NOC	YES	~	SH	SP
<i>Osmunda cinnamomea</i>	Cinnamon Fern	PG	Summer	NOC	YES	~	WT	CO
<i>Panicum virgatum</i>	Switch Grass	PG	Summer	NOC	YES	~	SU	CO
<i>Parthenium integrifolium</i>	Wild Quinine	PG	Summer	NU	NO	~	SU	SP
<i>Peltandra virginica</i>	Arrow Arum	PG	Summer	NOC	YES	~	WT	CO
<i>Pennisetum alopecuroides</i>	Fountain grass	PG	Summer	EX	NO	~	SU	CO
<i>Penstemon digitalis</i>	Foxglove Beardtongue	PG	Summer	NOC	YES	~	SS	CO
<i>Penstemon hirsutus</i>	Hairy Beardtongue	PG	Summer	NOC	YES	~	SU	SP
<i>Phlox divaricata</i>	Blue Phlox	PG	Spring	NOC	YES	~	SS	CO
<i>Phlox paniculata</i>	Garden Phlox	PG	Spring	NU	NO	~	SU	CO
<i>Phlox subulata</i>	Moss-Pink	PG	Spring	NU	~	~	SU	CO
<i>Physostegia virginiana</i>	Obedient Plant	PG	Summer	NS	YES	~	SS	CO
<i>Phytolacca americana</i>	Pokeweed	PG	Summer	NOC	YES	~	SH	SP
<i>Podophyllum peltatum</i>	Mayapple	PG	Spring	NOC	YES	~	SH	SP
<i>Polygonatum biflorum</i>	Solomon's Seal	PG	Summer	NOC	YES	~	SH	SP
<i>Polygonum virginianum</i>	Jumpseed	PG	Summer	NOC	YES	~	SH	SP
<i>Polystichum acrostichoides</i>	Christmas Fern	PG	Winter	NOC	YES	~	SH	CO
<i>Pontederia cordata</i>	Pickrel Weed	PG	Summer	NOC	YES	~	WT	SP
<i>Potentilla arguta</i>	Prairie Cinquefoil	PG	Summer	NOC	YES	~	SU	SP
<i>Prenanthes altissima</i>	White Lettuce	PG	Summer	NOC	YES	~	SH	SP
<i>Pycnanthemum virginianum</i>	Mountain Mint	PG	Summer	NOC	YES	~	SU	SP
<i>Ratibida pinnata</i>	Grey-Headed Coneflower	PG	Summer	NS	YES	~	SU	SP
<i>Rudbeckia fulgida</i>	Orange Coneflower	PG	Summer	NOC	YES	~	SU	CO
<i>Rudbeckia hirta</i>	Black-Eyed Susan	PG	Summer	NOC	YES	~	SU	CO
<i>Rudbeckia laciniata</i>	Cut-Leaved Coneflower	PG	Summer	NOC	YES	~	SU	SP
<i>Rudbeckia triloba</i>	Brown-Eyed Susan	PG	Summer	NOC	YES	~	SU	CO
<i>Sagittaria latifolia</i>	Common Arrowhead	PG	Summer	NOC	YES	~	WT	CO
<i>Salvia verticillata</i>	Sage	PG	Summer	EX	NO	~	SU	CO
<i>Sanguinaria canadensis</i>	Bloodroot	PG	Summer	NOC	YES	~	SH	CO
<i>Sanicula marilandica</i>	Black Snakeroot	PG	Summer	NOC	YES	~	SH	SP
<i>Scirpus atrovirens</i>	Dark Green Rush	PG	Summer	NOC	YES	~	WT	SP
<i>Scirpus validus</i>	Great Bulrush	PG	Summer	NOC	YES	~	WT	SP
<i>Silphium terebinthinaceum</i>	Prairie Dock	PG	Summer	NOC	YES	~	SU	SP
<i>Smilacina racemosa</i>	False Solomon's Seal	PG	Summer	NOC	YES	~	SH	SP
<i>Solidago caesia</i>	Blue Stemmed Goldenrod	PG	Summer	NOC	YES	~	SH	SP
<i>Solidago flexicaulis</i>	Zig Zag Goldenrod	PG	Summer	NOC	YES	~	SH	SP
<i>Solidago nemoralis</i>	Gray Goldenrod	PG	Summer	NOC	YES	~	SU	SP
<i>Solidago ohioensis</i>	Ohio Goldenrod	PG	Summer	NOC	YES	~	SS	SP
<i>Solidago riddellii</i>	Riddell's Goldenrod	PG	Summer	NOC	YES	~	SU	SP
<i>Solidago rigida</i>	Stiff Goldenrod	PG	Summer	NOC	YES	~	SU	SP
<i>Solidago speciosa</i>	Showy Goldenrod	PG	Summer	NOC	YES	~	SU	CO
<i>Solidago sphacelata</i>	Goldenrod	PG	Summer	NS	NO	~	SU	CO
<i>Sorghastrum nutans</i>	Indian Grass	PG	Summer	NOC	YES	~	SU	CO
<i>Spartina pectinata</i>	Prairie Cordgrass	PG	Summer	NOC	YES	~	WT	SP
<i>Sporobolus heterolepis</i>	Prairie Dropseed	PG	Summer	NS	YES	~	SU	SP
<i>Stipa spartea</i>	Porcupine Grass	PG	Summer	NOC	YES	~	SU	SP
<i>Teucrium canadense</i>	American Germander	PG	Summer	NOC	YES	~	SH	SP
<i>Thalictrum diocum</i>	Early Meadowrue	PG	Summer	NOC	YES	~	SH	SP
<i>Tradescantia ohioensis</i>	Spiderwort	PG	Summer	NS	YES	~	SS	SP
<i>Trillium erectum</i>	Stinking Benjamin	PG	Spring	NOC	YES	~	SS	CO
<i>Trillium grandiflorum</i>	Large White Trillium	PG	Spring	NOC	YES	~	SS	CO
<i>Trillium spp.</i>	Trillium	PG	Spring	~	~	~	SH	SP
<i>Triosteum aurantiacum</i>	Horse Gentian	PG	Spring	NOC	YES	~	SH	SP
<i>Typha angustifolia</i>	Narrow-Leaved Cattail	PG	Summer	EX	NO	~	WT	CO
<i>Typha latifolia</i>	Common Cattail	PG	Summer	NOC	NO	~	WT	CO

Scientific Name	Common Name	Plant Type	Interest/ Bloom Time	Native to Michigan?	Woodland Replace- ment?	Street Tree Class	Growing Conditions	Nursery Type
<i>Uvularia grandiflora</i>	Bellwort	PG	Spring	NOC	YES	~	SH	CO
<i>Verbena hastata</i>	Blue Vervain	PG	Summer	NOC	YES	~	SU	CO
<i>Verbena uruicifolia</i>	White Vervain	PG	Summer	NOC	YES	~	SU	SP
<i>Vernonia missurica</i>	Ironweed	PG	Summer	NS	YES	~	SU	SP
<i>Veronica longifolia</i>	Garden Speedwell	PG	Summer	EX	NO	~	SU	CO
<i>Veronicastrum virginicum</i>	Culver's Root	PG	Summer	NOC	YES	~	SU	CO
<i>Zizia aptera</i>	Heart-Leaf Meadow Parsnip	PG	Summer	NU	NO	~	SS	CO
<i>Zizia aurea</i>	Golden Alexanders	PG	Summer	NOC	YES	~	SU	SP
<i>Eupatorium fistulosum</i>	Hollow Joe-Pye Weed	PS	Summer	NS	YES	~	WT	SP

<b>SUGGESTED PLANT LIST KEY</b>							
<b>Note: Plants must be grown in Upper Midwest/Great Lakes Region</b>							
<b>Legend</b>							
<b>Plant Type</b>							
	DC	Deciduous Canopy Tree					
	LE	Large Evergreen Tree					
	SL	Large Shrub					
	PG	Perennial/Grass					
	DS	Deciduous Sub-canopy Tree					
	SS	Small Shrub					
	UE	Upright Evergreen Tree					
<b>Interest</b>							
	SP	Spring					
	SU	Summer					
	FA	Fall					
	WI	Winter					
<b>Native to Michigan?</b>							
	EX	Exotic or Non-Hardy					
	NOC	Native to Oakland County					
	NS	Native SE Michigan					
	NU	Native US/Canada					
<b>Woodl. Repl. * subcanopy trees, shrubs, herbaceous plants require greater numbers - see Sec 37-8</b>							
	YES	Can be used as woodland replacement					
	NO	Can not be used as woodland replacement					
<b>Street Tree</b>							
	RC	Recommended					
	UO	Recommended Under Overhead Utilities					
	SC	Special Circumstances					
	PR	Prohibited					
	~	Does not apply					
<b>Growing Conditions</b>							
	SH	Shade					
	SS	Sun/Shade					
	SU	Sun					
	WT	Wet					
<b>Nurseries</b>							
	CO	Commonly found most nurseries					
	SP	Specialty nurseries					
	UN	Unknown					