This Section will be moved ahead of the Woodlands Section and shall completely replace the existing Section.

5.23.5 Landmark and Heritage Trees

Large, picturesque, rare, well-located, or otherwise special or interesting trees, especially older trees play an important role in the character of our City.

Trees are very important to the people who live here not only because they provide us with much visual beauty and great pleasure. They have very positive effects on microclimates across the City, they are essential to sustaining life. As the apex creatures of terrestrial life, they can harbor a great diversity of plants and animals, they provide us with oxygen and clean the air of pollutants, they conserve water and transmit rain to the soil, and as they grow older they become great collectors of carbon.

Native trees and Native Forest Fragment Woodlands are especially important contributors to biological diversity in the City. They are models for how to Restore native ecosystems. Protection and Restoration work on a wider basis across the City would: increase our climate resiliency; best sustain and increase carbon sequestration; reduce heat island effects; bring more benefit to parts of the City with fewer trees; and support more diverse plants and wildlife in the City. A sustainable City needs as many trees as it can have.

There is much unintended loss of valuable trees across the City because of widespread lack of knowledge and understanding that Compaction of Soil on tree roots is devastating, often fatal for trees, especially older trees. Further, people generally do not know that things done to keep grass green and weed free are opposite of things to do to sustain trees.

It is in the best interest of the people of Ann Arbor to eliminate unintended loss of trees, and to minimize the number of trees taken in Development. This goal is especially important for Heritage Trees. Landmark and Heritage Tree List, Table …..)

A. Identification

1. Trees which have reached size thresholds of trees listed on the Landmark and Heritage Tree List are important to protect.
2. Landmark trees can be found across the City individually or within Woodlands.
3. Heritage trees can be found individually across the City but are most often found on or near Native Forest Fragment Woodlands, on the City's Natural Areas, on forested Wetlands, Watercourse zones, or along old fence rows.

B. Protection Priorities

1. **Highest concern**

   Heritage Trees must be defended from Development and the impacts of Development wherever they are growing in the City.

Landmark Trees which are native must also be defended if they are growing on a Site with a Native Forest Fragment Woodland, on a Site with an old fencerow that has Heritage Trees or are near a Natural Area because of the far greater ecosystem services that they provide or can provide using them as core elements in a Restoration.

Large, picturesque, rare, well-located, old or otherwise special non-native Landmark Trees should be protected to the fullest extent possible.

The City Forester shall approve all determinations regarding the presence of Native Forest Fragments, Natural Areas, old fence rows, and about large, picturesque, rare, well-located, old or otherwise special or interesting trees on a Site.

2. **Midlevel concern**

   Native trees wherever they are growing, if not yet large enough to reach protection thresholds, are important to protect.

   Landmark should be protected as much as possible including Heritage trees growing on an Urban Woodland or especially on a Qualified Urban Woodland.

3. **Lowlevel concern**

   Trees which are pioneer species (poplars, elms, box elder, walnuts, willow) and certainly Invasive Species are typical of plants which rise on abandoned, usually farmed lands, or on otherwise disturbed soils are of lowlevel concern.

C. Protection Measures

Most people think that trees have a tap root, that their roots go deep and don't extend far from the stem. This is not true. Only a few species have tap roots, even those have most of their roots extending horizontally at least as far away from the stem as the outer edge the tree's "drip line." They are often closely intertwined with neighboring tree roots.

Those roots are only inches to a few feet beneath the surface. The ends of those roots are the most fragile portions and critical for the uptake of water and nutrients into a tree.

Most people think that since trees have tap roots, they can drive, operate machinery, park, dig, trench, flood, generally cause mayhem in the CRZ of a tree and not hurt it. Of course, the tree does not immediately keel over. But often they will be dead in a year to several, depending upon how much damage is done to roots. The person causing the damage is usually long gone.

And most people think that young trees and freshly planted trees sink more carbon because they are growing fast. That is also not true. It is old trees that do most of that work because they respire in great volumes and because they insert much carbon into the soil and soil microflora beneath them.

1. All tree roots are vulnerable to disturbance, especially older trees. Some species have roots which are more fragile than others, among those are trees in Ann Arbor's keystone tree family, the Oaks. The result of root

damage to vulnerable trees is usually the death of the tree. The Critical Root Zone of all Landmark and Heritage trees to be protected must not be intruded upon.

2. The most effective way to save trees is to plan ahead for their protection. This means delineating areas where Earth Change activities may damage them and excluding those areas from changes, provide adequate storm water management so there are not Hydrological Changes in those areas, and design landscape installations to complement and honor retained trees.

3. Barrier Fencing shall be installed at the Limits of Soil Disturbance on a Site, around the CRZ of each Protected Tree if they are within the Limits of Soil Disturbance. Barrier Fencing shall be kept in good repair, shall remain in place until the Site Management Official agrees it can be removed (after activities which might threaten Protected Trees are completed), and shall not be trespassed while standing.

4. Grading, Earth Change activity, Site or Building activity, Stockpiling or storage of materials, parking of construction equipment or vehicles, Clearing and improper Grubbing, tree removal activities, landscape construction activities, and trenching for utilities or drain tiles are NOT permitted within the CRZ of a Protected Tree, inside Barrier Fencing.

5. Measures that could be undertaken whenever needed are placing utilities under pavement not under trees, boring them under trees rather than trenching or tunneling, not disturbing the surface root zone, excavating by hand rather than by machine.

6. The Site Management Official may give specific permission to Contractors to do tree care, Invasive Species removal, or to do other Restoration work inside Barrier Fencing of Protected Trees, in accordance with Best Management Practices.

7. If the Site Management Official determines any Protected Tree to be missing, dead, dying or severely damaged due to on-site construction activities, within three years after issuance of the certificate of occupancy or final permit approval for Development authorized by an approved Site Plan, PUD Site Plan, plat, or other permit the tree shall be replaced in accordance with the mitigation requirements of this Section.

8. In these cases, the responsibility for replacement lies with the original Site Plan petitioner and his or her contractors. The original petitioner must inform and obligate any subsequent owner or manager of the property on which the tree was located if the property or its management is transferred. A copy of the documents which inform and make that transfer are to be filed PDSU. If not, the original petitioner will be held liable for tree replacement costs. This requirement applies to individuals and to any association which may be involved with the property.

9. Red Maples shall not be planted on or within 1000 feet of Oak-dominated Natural Areas and Native Forest Fragments. They tend to regenerate faster than Oak trees and tend to gradually change the original ecosystem.

10. To the extent possible, plantings on a site should reflect our locally native ecosystems, with native trees and herbaceous species used, in accordance with Best Management practices.

D. Mitigation

1. A replacement tree or a combination of trees native to Michigan shall be provided to equal a minimum of 50% of each inch of the DBH of each Landmark Tree that is removed.
2. A replacement tree or a combination of trees of species native to Michigan shall be planted equal to 100% of each inch of DBH for each Heritage Tree that is removed. (Additional requirements may apply if native trees are taken from Woodlands). In example, a Heritage Tree 24" in diameter at breast height that is removed would require 24, 1" DBH or 12, 2" DBH native replacement trees to be installed as mitigation.
3. Replacement trees shall be non-sterile varieties and shall not be any tree on the City's Invasive Species List. The minimum size of deciduous replacement trees shall be one inch caliper DBH. The minimum size of an evergreen replacement tree shall be five feet in height. If more than 20 replacement trees are required, a mixture of three or more species must be used. If more than 50 replacement trees are required, a mixture of at least five species shall be used.
4. A replacement tree or a combination of trees shall be provided to equal a minimum of 200% of the original DBH for each Landmark Tree or Heritage Tree that is removed without the approval required by this Chapter or City Code.
5. Mitigation trees shall be provided on the same Site as the Protected Trees that are removed, as space and long-term tree health allow, in accordance with Best Management Practices.
6. Where replacement trees cannot be completely accomplished on the Site, an alternative mitigation plan must be approved in accordance with the provisions of Section 5.30.2.A of this Chapter. If the number of replacement trees exceeds both the Site capacity and the limits imposed on alternative plans, then the project will be re-designed to remove fewer trees from the Site.
7. If the Site Development agreements include a provision that Invasive Species on the Site will be removed using Best Management Practices during the time of construction, and if that agreement also provides for comprehensive removal of Invasive Species seedlings from the Site each year for a period of 3 years after final approval at completion of the project, then 30% of the requirement for replacement trees for Landmark Trees taken may be waived. This option is not available if trees are taken from a Native Forest Fragment or Qualified Urban Woodland.

Best Mitigation Practices

1. It is the expressed intent of this Section that loss of Landmark and Heritage Trees be minimized as much as possible. Therefore, the best mitigation

practice is to arrange proposed Development and the manner and means of construction on a Site to do exactly that.

Fewer trees taken means less expense in mitigation, it means happier citizens of Ann Arbor, it means the very significant benefits accrued from more trees growing in old age and to older age are realized.

2. Barrier Fencing around Protected Trees must be installed with sturdiness, be well-maintained. CRZ's may not trespassed without the permission of the Site Management Official, and then only in accordance with Best Management Practices.

3. How soils and water drainage are handled on a Site is critical to the success of a project in protecting trees, in handling storm water, and in protecting other Natural Features. Within planting zones well-drained fertile soils are critical to the performance, over time, of trees and plants to be retained or installed.

4. Project design consideration must be given to how construction activities may impact soils, and how to carefully minimize or repair as necessary to remove negative impacts on planting zones. It is important that these considerations are fully communicated all who would work on a Site, and that they adhere to them. The Site Management Official plays an essential role in this.

    a. Excavation for buildings, roadways, utilities, and stormwater works usually bring to the surface of B and C Horizon subsoils. In Ann Arbor these are typically clay soils which can be compacted significantly.

    b. Replacement trees need a chance to become as great as the trees they replace. Genuine concern must be shown for soils and soil drainage, for the other cultural needs of the specific new plants to be installed should be part of the design process

    c. Many species of trees and plants will never survive in Fill, Compacted, or poorly drained soil. Resolving these issues is an important part of the design process and its implementation.

    d. B and C (and lower) horizon and clay A horizon soils should not be spread on a Site, unless they are placed under planned impervious surfaces, or unless they are ultimately covered with 15 inches to 18 inches of well-drained, fertile topsoil. Not all Sites have good topsoil, but to the extent they are present they should be removed from building zone and then placed on planting zones as landscape work begins.

    e. Wet soil conditions can cause problems for construction traffic. If stone is imported to a site to support such traffic on wet soils, it should be placed only on routes intended to become impervious surfaces. Other means of soil stabilization for construction traffic is required (such as pads and planks), including adjacent to buildings

under construction if those areas are to be planted in any way. The procedures must be approved by the Site Management Official.

5. Since turf grass and the "habitat" it creates is non-native and resource use intensive, its use outside active recreation areas on a Site is discouraged. Instead, Restoration work using native species is encouraged, especially in tree planting zones.
6. Work outside the Limits of Soil Disturbance on a Site, or within CRZ's of Protected Trees (such as Invasive Species management or Restoration work) should be accomplished in accordance with Best Management Practices, and with the permission and oversight of the Site Management Official.