6.0 Landscape Design Standards

Introduction

The Landscape Design Standards includes the selection, placement and maintenance of plant material within the MSP Redevelopment District. Landscape plantings will provide a simple and cost effective enhancement to the general appearance of the District.

The visual image conveyed by MSP is defined not just by architectural character and site organization, but also by an attractive, organized landscape design. The presence of plant material greatly enhances visual character and environmental.

Plantings add an element of human scale to open spaces and can be used functionally to screen undesirable views, buffer winds, reinforce the hierarchy of the circulation system or provide a visual transition between dissimilar land uses.

Landscape objectives

The overall objective of the use of plant material within MSP is to improve the physical and psychological well being of the people who visit and work on within the District. This is achieved through the following objectives:

- Preserve and enhance urban trees, forest lands, and detailed planting features such as shrubs and groundcovers.
- Improve the overall visual quality of MSP through the use of native plant material to:
    - Blend built environment with the natural environment.
    - Provide scale and comfort to pedestrian environments.
    - Reinforce the hierarchy of the circulation system.
    - Screen unsightly views or elements.
    - Buffer incompatible land uses.

Use Native Plants to Minimize Maintenance

Provide Comfort to Pedestrian Environment

Landscaping Reinforces Circulation Hierarchy

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    o   Minimize maintenance through the use of native plant materials, which require less maintenance.

Principles of landscape development

Landscape design is based on the following principles.

- Unity. The selection and placement of plant material can be used to blend, screen, and soften incompatible architectural or other unattractive visual impacts. Plant material as a unifying element can be placed in front of a building or view to frame and enhance the visual impact.
- Balance. Plant material can be selected and placed to provide visual equilibrium or balance through the use of either a symmetrical or asymmetrical planting scheme. Symmetrical plantings are generally more formal while asymmetrical plantings are informal.
- Contrast. Plant material can be selected and placed to provide differences in size and shape that add interest to the environment. Plants can be located to provide a backdrop for other plants such as a hedge behind a bed of annuals or perennials.
- Rhythm. Repetition of a single plant or a mass of plants provides visual interest and formality to the landscape. Rhythm produces emphasis and unity and is especially effective in articulating main circulation routes.
- Color and Texture. Plants can be selected and placed to provide visual interest according to their color and texture. Colors are classified as either warm (red, orange, yellow) or cool (violet, blue, green). Texture is classified as either coarse of fine.
- Simplicity. Landscape plans should be broad and simple in form to limit excessive maintenance. Plant material should be grouped in beds with simple edges that are easy to mow. Small turf areas should be avoided because of the difficulty of mowing. The use of annuals should be minimal because of the high maintenance requirements.
- Ultimate Effect. The landscape plan should be prepared with consideration for the mature size of all plants. The spacing of all material should utilize nursery industrial

Simplicity and rhythm.

Contrasting color and texture can complement building materials.

Perennials are used over annuals and a simple edge is provided for easy mowing.

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standards for mature material to account for spread as well as height. The ultimate height of the material should also be considered in relation to windows and other visual concerns.

- Spatial Articulation. Plants can be selected and placed to create enclosed spaces or to separate spaces from one another. They can also be used to direct people by visually defining and reinforcing patterns of movement. The degree of enclosure, separation, or movement is dependent upon the density, form, and type of plants used.

Landscape design guidelines

Proposed plantings must be reviewed to ensure that site conditions (soil, topography, adjacent uses, and architecture) and climatic criteria (sun, shade, and moisture requirements) are considered in the desired plant design and selection (i.e., form, texture, color, size). The uses and users of the site must also be considered. Landscape planting plans should be approved by qualified personnel to provide quality assurance and promote design consistency within each visual zone.

The following paragraphs present landscaping guidelines for the various locations of plant material use.

- Foundation Planting. Foundation planting provides a green background for additional plantings, adds scale and character to the building, helps to integrate the building with its surroundings, screens HVAC and other utilities and helps create a sense of arrival.
  - o Focal and seasonal plantings should be located at building entries for pedestrian interest.
  - o Use the architecture of the building to evaluate the planting design and selection of plants.
  - o Plant materials should not block windows and views from interior spaces.
  - o Trees shall be setback from the building walls to provide space for mature growth and to prevent root systems from damaging the foundation.


Rhythm

Hedges can add to spatial articulation

Foundation Plantings Help Screen Utilities

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- o A symmetrical foundation planting design should be used for a symmetrical building.
- o Due to the possibility of insect problems (bee stings, etc.) do not plant flowering plants near entrances.

- Screening.
  - o Windscreens. Use a combination of evergreen and deciduous trees to provide windbreak protection from prevailing winds. Windbreak plantings should be irregular in form, rather than straight and evenly spaced, in order to provide more effective wind control.
  - o Screening of Dumpsters. Landscape planting should be used to supplement wood fence and masonry wall dumpster enclosures.

- Buffer Planting. Use a mixture of evergreen and deciduous trees and shrubs to visually separate land uses and to help separate visual zones.

- Open Space Planting. Enhance open space areas with planting. Use a mix of evergreen, deciduous, and flowering trees. Plant the same kind of trees in massive groupings to impact the vast open areas.

- Street Trees. Street tree plantings should be used to reinforce vehicular hierarchy, orient and direct traffic, upgrade views and to visually de-emphasize on-street parking. Also, in the design of a street tree planting, separate plant species may be used to identify distinctive details or areas of MSP, for example, a particular land use relationship, historical area, public service campus or other similar entity.
  - o Use formal street trees in single rows to visually reinforce primary and secondary roads. Use regularly spaced and uniformly shaped deciduous trees to provide a formal appearance.
  - o Use informal groupings of street trees along tertiary routes. Utilize medium size deciduous trees to screen on-street parking along roadways. Set trees 3 feet from the back edge of sidewalks. Spacing should be uniform, except where curb cuts interrupt regular spacing.
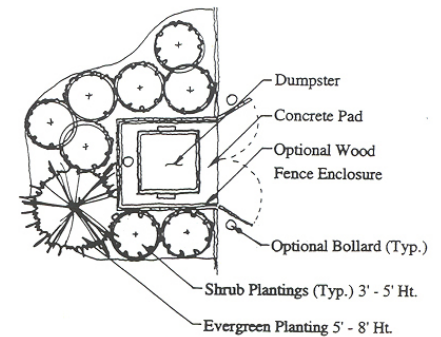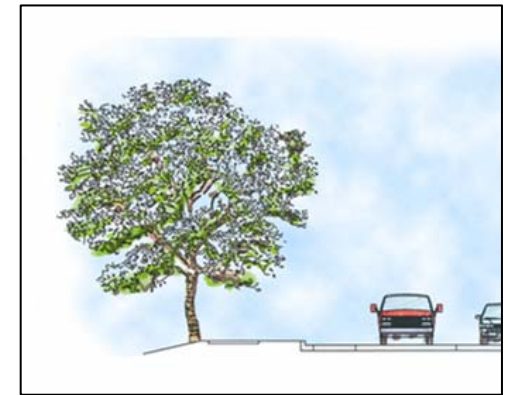

Screen Dumpsters
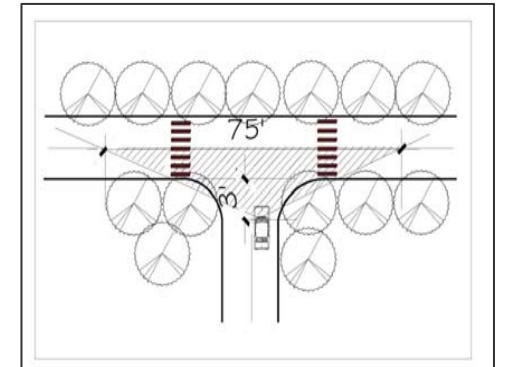

Buffer Adjacent Land Uses

Enhance Open Spaces with Plantings

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- o As a general rule, street trees should be deciduous species, resistant to salt and root pressure, and should have a 10' to 12' high clearance between the street pavement and branch height to allow adequate clearance for pedestrian and vehicle traffic to pass unimpeded by lower branches.
- o The street tree layout should be coordinated with the layout of proposed street lighting.
- o Appropriate plant heights should be used within sight triangles to ensure safe views from intersections.
- o Weeping trees should not be used in locations where them may hang over the roadway or block views.
- Parking Lot Planting. Parking lots are often the least attractive elements on site. The use of landscape plant material and earth berms can greatly improve the appearance of these areas as well as help define circulation and reduce heat gain during summer months.
  - o Use shade tree plantings at parking lots to reduce glare and moderate ambient air temperatures on the lot. Optimum spacing of parking lot shade trees is 35 to 40 feet on center.
  - o Choose trees and shrubs that require minimum maintenance and will not litter the parking area with leaves, fruit, or nuts.
  - o Consider sight distances near entrances and exits when selecting and placing plant material.
  - o Select trees, shrubs, and ground covers that can withstand harsher conditions, such as sun, glare, heat, and reduced water supply.
  - o Use a mix of evergreen and deciduous plant material to screen parking areas from adjacent uses.
- Environmental Control Planting. When properly placed, plants can provide environmental benefits, as well as address visual concerns.

Street Tree Plantings

Street Trees Reinforce Roadway Hierarchy

Surface Parking

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- o Use deciduous trees and shrubs at courtyards, buildings and along streets to provide shade, moderate temperatures and reduce glare during the summer months while allowing solar exposure in the winter.
- o Locate deciduous plantings on the southeast and southwest corner of buildings or courtyards to mitigate solar radiation and glare due to heat build-up and lower sun angles in the mid-morning and late afternoon hours.
- o Use mixed massings of deciduous shrubs and evergreen trees and shrubs to provide sound control along primary and secondary roads.

- Image Planting. The image of the MSP District is formed by the visual impressions that exist within the District. The primary locations of highly visible images are along primary circulation systems, and at areas of high concentrations of people can be improved by the use of trees, shrubs, and ground cover.

First Impression

- Entrances to MSP. The entrances and streetscapes into MSP are areas to place landscaping that will develop a strong visual image and provide visual interest during all four seasons. The entrance to MSP creates the first visual impression for the visitor.
  - o The landscape materials and planting areas should be proportional in scale to the hierarchy of the street on which they are located.

- Xeriscape. Xeriscape is the conservation of water and energy through creative and adaptive landscape design. Xeriscape landscapes provide attractive solutions that save money, water, and maintenance. An established, properly maintained xeriscape needs about one-third the water of a traditional turf-based landscape. Some xeric plants require almost no supplemental watering once they are established. An established xeriscape also requires less maintenance than a traditional landscape. Following are some principles of Xeriscape planning:
  - o Planning and Design - A beautiful xeriscape starts with a good design. The physical characteristics of the site should be considered and so should the needs and aesthetic requirements.

Image Planting

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o Soil Improvements - To enable soil to better absorb water, soil amendments may be required before planting. If landscaping with native plants, soil amendments may not be necessary. Some well-adapted xeric plants prefer poorer soils. For these plants, loosening the soil is all the soil preparation required.

o Limited Turf Areas - Drought-tolerant grasses such as buffalo grass and blue grama grass may be substituted for water-demanding bluegrass in many situations. Consider reducing the size of the lawn and planting water-wise groundcovers and shrubs.

o Efficient Irrigation - A well-planned and well-maintained irrigation system can significantly reduce a traditional landscape's water use. For the most efficient use of water, irrigate turf areas separately from other plantings. Other irrigation zones should be designed so low-water-use plants receive only the water they require. Turf lawns are best watered by sprinklers. Trees, shrubs, flowers, and groundcovers can be watered efficiently with low-volume drip emitters, sprayers, and bubblers.

o Mulching - Mulch cover the soil and minimize evaporation, cool the soil, reduce weed growth and slow erosion. Mulch can also provide landscape interest and offer protective cover until plants mature. Organic mulches-including bark chips and wood grindings are commonly used in planting beds. Inorganic mulches, such as gravel and decomposed granite, can be used to add texture and color under trees and around shrubs.

o Proper Maintenance - Although most successful xeriscapes are low maintenance, they are not no maintenance. Keeping your xeriscape beautiful and water thrifty through a program of well-timed mowing, fertilizing, pruning, pest control, and weeding will ensure successful landscape development. To ensure continued water savings, keep irrigation systems

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properly adjusted. A well-planned and maintained xeric landscape requires even less work as it matures.

Plant material selection

Trees, shrubs, ground cover and turf are the major elements of a planting composition. Basic plant selection criteria should consider creating a unified composition utilizing native materials for low maintenance and sustainability, avoiding incompatible colors, textures and forms, and matching the appropriate plant to the land use, situation and environmental condition.

The ability of plant material to provide lasting benefit is dependent upon the plant's hardiness and its appropriateness to the site use.   Major factors affecting plant hardiness are soil type, organic content, temperature, moisture and light. These climatic conditions can be modified to an extent by specific site conditions, such as wind protection, solar orientation and planting design, to create microclimates.

Selecting appropriate plants for a given condition is only one aspect of planting design. Compositional arrangement to provide texture variety and to accent site and building features is another. The selection and composition of a planting design requires an understanding of each plant's characteristics, form, and environmental needs as well as how each plant can relate to and complement other plants in the design. Plants are used in four basic design categories:

- Canopy
- Barrier
- Screen (or Baffle)
- Groundcover
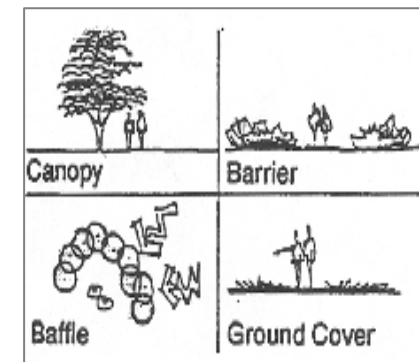
Basic Design Categories

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Plant suitability matrix
The plant suitability matrix is designed to help the designer choose the best plant for each particular set of design requirements. The plants that appear on the matrix categories were selected for their hardiness and their ability to survive in this geographical area. To use them effectively, the design requirements must be well defined for the specific site. A select group of plant materials has been divided into the following three categories:

- o trees
- o shrubs
- o groundcover and vines

In the matrix, the plants appear by their botanical name, followed by their common name, design characteristics, cultural information, recommended use and miscellaneous notes.

Space Plants According to their Mature Size

Plant material installation
A key step in assuring successful planting is to select plants of the highest quality. Plant material should be of the size, genus, species, and variety to comply with the recommendations and requirements of the "American Standard for Nursery Stock" ANSI Z60.1.

General Guidelines for Plant Installation.
- At planting time, thin plants by removing one-third of the vegetative material.
- Spray all evergreens with an antidesiccant within 24 hours of planting.
- Water all plants thoroughly during the first 24-hour period after planting.
- Site all plants and stakes plumb.
- Space plants according to their mature size.
- Install plant materials in groups for greater impact.
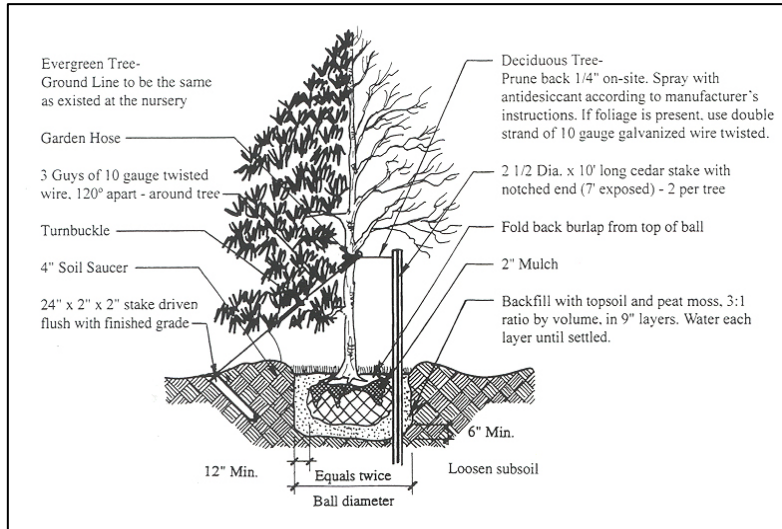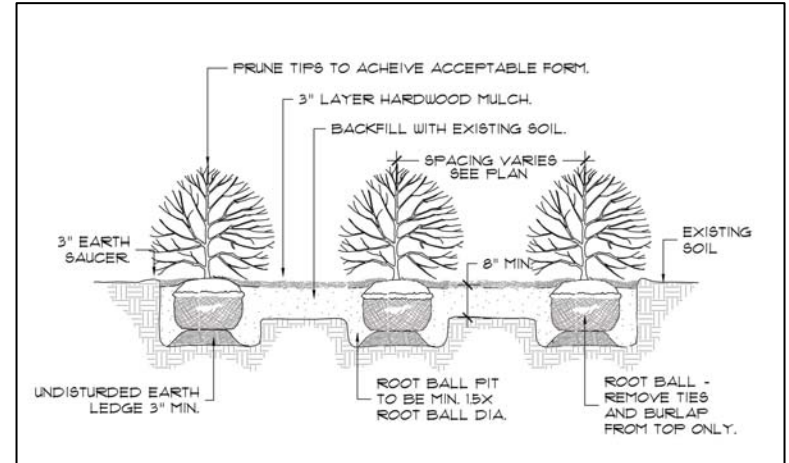- Installation of Lawn Areas.
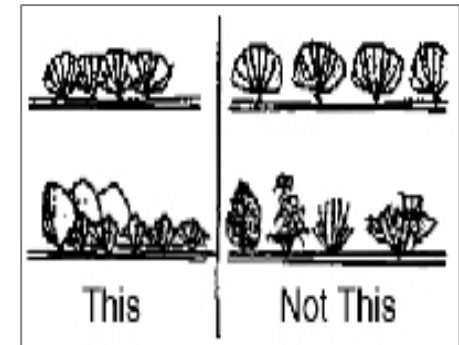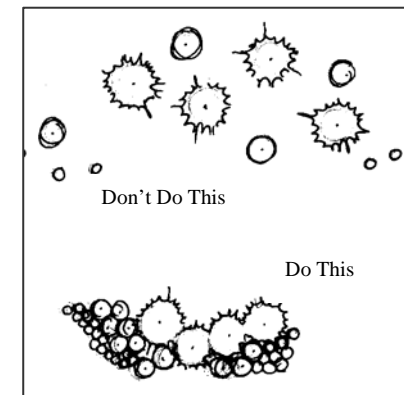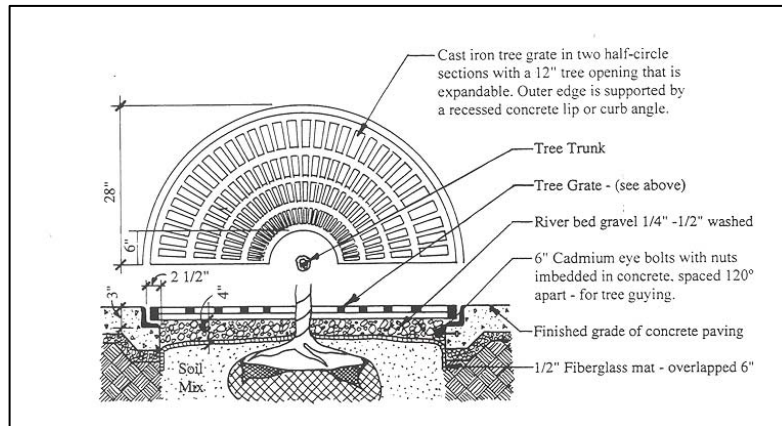

Grouped Plants Have Greater Impact

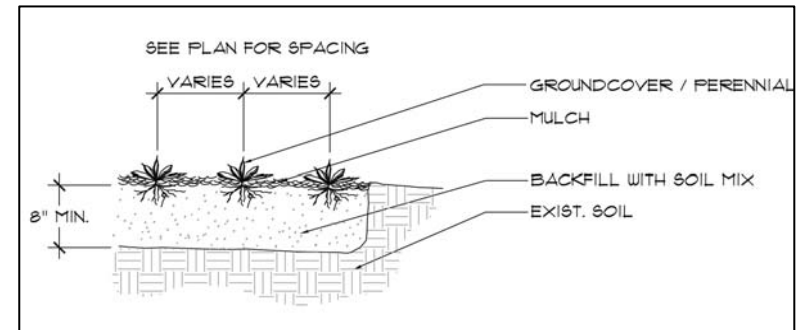# 6.0 Landscape Design Standards

Deciduous and Evergreen Tree Planting Detail

Typical Shrub Planting Detail

Tree Grate Installation


Typical Groundcover Planting Detail

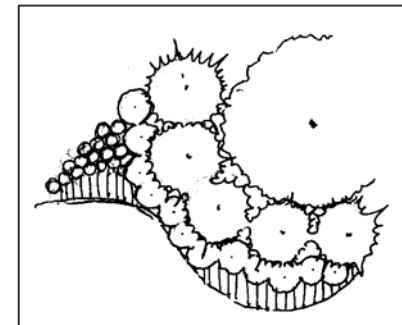## 6.0 Landscape Design Standards

Maintenance of plant material
The ease of maintenance should be one of the primary goals when considering the success of any planting design.

Pruning. In general plant material should be allowed to conform to its natural shape. This practice allows the plant to mature in a healthy manner, and saves the time and energy required for trimming. The pruning of trees and shrubs is done to maintain overall plant health, direct plant growth, maintain a desired shape, and increase flower or fruit development.

- Pruning Shrubs.
    o Do not prune shrubs flat across the top.
    o Prune branches yearly on thick-branched shrubs and at the base of the shrub.
    o When pruning deciduous shrubs prune shrub stems as close to the ground as possible and shrub branches as close to the stem as possible.
    o When "thinning out" deciduous shrubs prune about one-third of all branches where they meet their main stem.
- Pruning Trees.
    o Remove a large limb by making three cuts as follows:
    o Make the first cut at the bottom of the branch 12-24 inches from the branch attachment (Cut A).
    o Make the second cut on the top of the branch within 1 inch of the undercut (Cut B).
    o Make the final cut just beyond the outer portion of the branch collar (Cut C). The first two cuts were necessary to remove the weight of the branch to allow cut #3 to be clean without ripping the bark.
    o Never cut the central leader of the tree.
    o Coniferous evergreens trees should be pruned, during the spring, by snipping off new growth. Avoid geometrically shaping plant material while pruning.
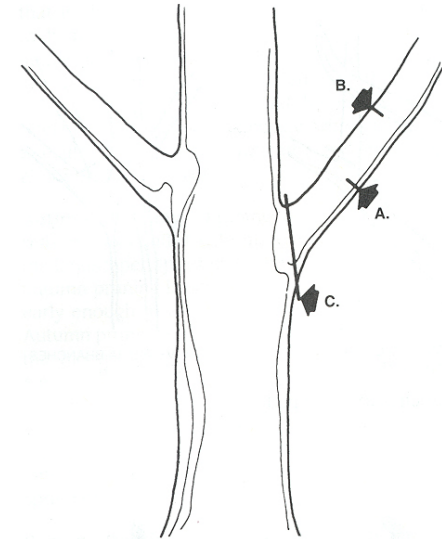
Proper Tree Pruning Procedures

Group Plants in Mulched Beds to Reduce Maintenance

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Mulching.
- Use mulch around the base of plant material to provide for greater moisture and help inhibit the growth of weeds and grasses. Mulch should be maintained at a depth of 2 to 4 inches.
- The best time to mulch for water conservation is in the late spring. Apply mulch immediately to new fall plantings.

Ground Cover Maintenance. Although ground covers do not require pruning, they may be periodically dug up in the spring or fall for propagation and to prevent overcrowding in their beds.

Tree protection and preservation

Existing urban trees and forest should be preserved if they are in good health. Construction should be planned to provide for the preservation of significant trees.
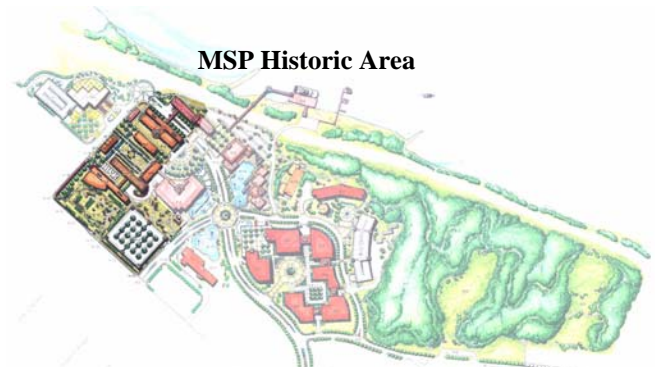
During the clearing and construction process, trees should be protected from damage. Construction barricades should be erected to protect the existing trees to be preserved. The barricades should be placed at the drip line of the tree. Existing trees that cannot be preserved should be considered for transplanting to a different location on site or to a different site.

Changes in the grade of the soil around trees can cause extensive root damage and eventually death of the tree. To prevent damage to the tree, it is important to maintain the existing grade for at least the size of the threes canopy.
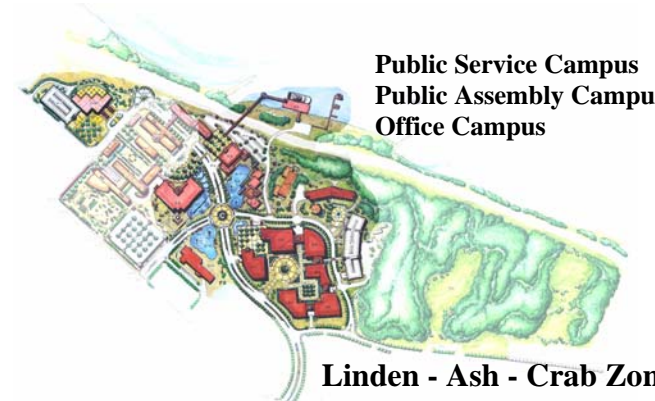

Construct a Barrier at Drip Line During Construction to Maintain Grade

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MSP Historic Area

Sugar Maple – Elm Zone

Public Service Campus
Public Assembly Campus
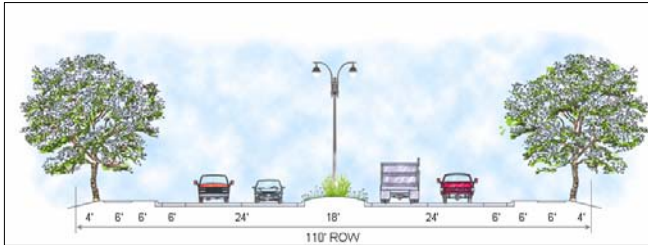Office Campus

Linden - Ash - Crab Zone

Natural Resources Area

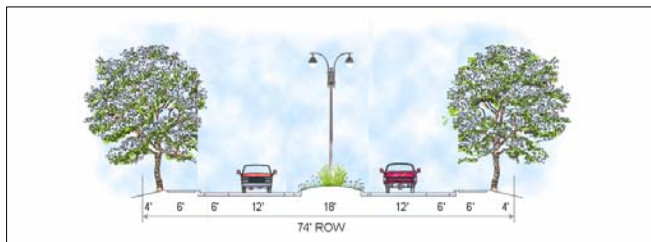**Oak - Hickory - Dogwood Zone**

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MSP Parkway

- Japanese Zelkova
- Red Maple

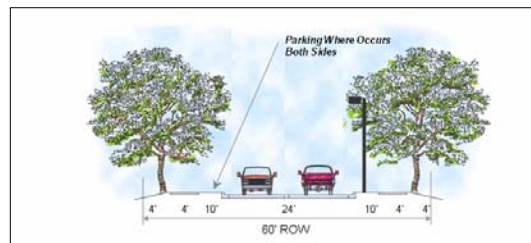**Circulation Hierarchy**

Lafayette Street and Chestnut Street

- Ginko
- Red Maple

Secondary and Tertiary Roads

- Littleleaf Linden
- Red Maple