Tree Issues During Construction

Texas Master Gardener
2019 Tree Care Specialist Training

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TEXAS MASTER GARDENER
TEXAS COOPERATIVE EXTENSION
The Texas A&M University System

We are a volunteer arm of

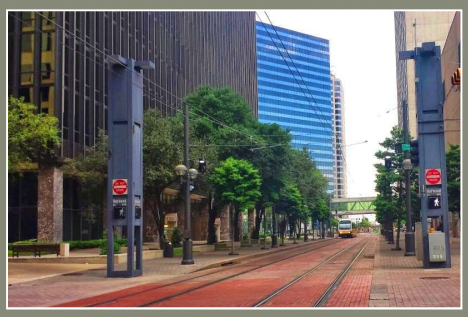
TEXAS A&M AGRILIFE EXTENSION

our mission is…

to educate the public regarding good horticulture practices.

Under Construction

- Five phases involved in saving trees:
  - Planning
  - Design
  - Preconstruction
  - Construction
  - Post construction



Under Construction

Planning Phase

Involvement of a consulting arborist in the beginning of the planning phase ensures the most suitable trees are preserved in the long term . The later a consulting arborist is involved, the less likely a tree will survive.

Project planners, architects, and civil engineers determine many important factors that affect tree preservation such as soil grades, the location of a building or where underground utilities will be located. During this stage of planning, a consulting arborist can have the most impact on the project.

Planning Phase- Tree Survey

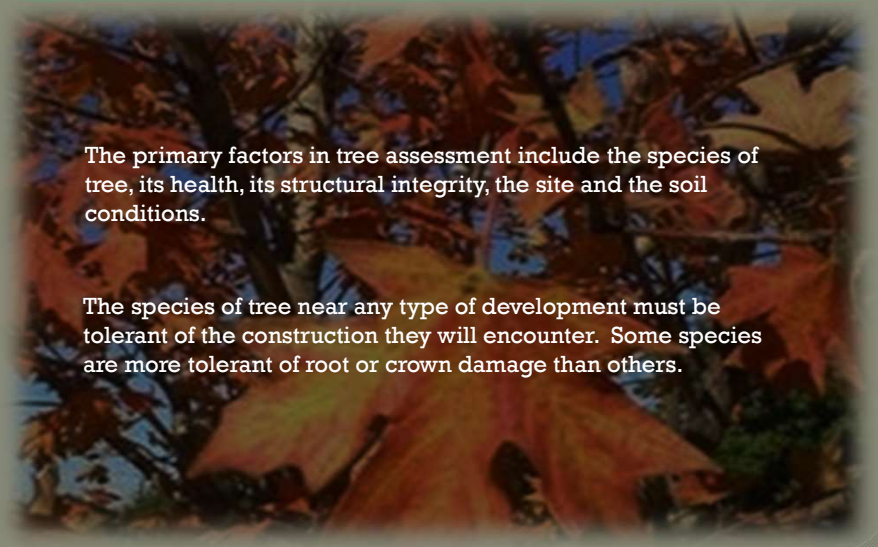
To understand the trees on a site, the first step is the completion of a tree inventory.

Most tree surveys require visiting each tree for a visual inspection and to determine its location.

The tree location coordinates are recorded by GPS and a map of the site is often provided.

Trees on or near a property line may also need to be included as they may be impacted by the construction.

Planning Phase–Tree Assessment



The primary factors in tree assessment include the species of tree, its health, its structural integrity, the site and the soil conditions.

The species of tree near any type of development must be tolerant of the construction they will encounter. Some species are more tolerant of root or crown damage than others.

Planning Phase-Tree Assessment

The health of a tree is judged by assessing the crown density, color of the foliage, extent of shoot growth, previous injuries and the existence of any pathogens/insects.

The structural integrity is an important factor when "targets" may be present in the future.

The structural integrity is judged by assessing the branching habit, the trunk, roots and limbs for decay or pathogens.

Planning Phase-Tree Assessment

- The native soil and its profile must be assessed including it structure, texture, level of organic matter, the amount and depth of rock
- Consider future grading and its effect on soil health and condition
- Can some trees be transplanted?
- Proper root ball size
- Retain groves of trees if possible

Design Phase

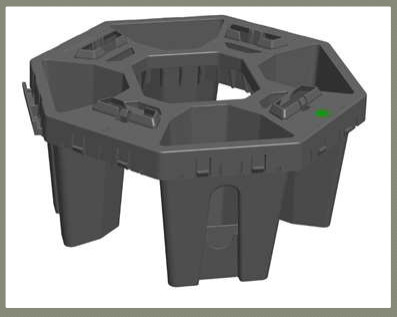
- During the design phase, many factors must be considered and taken into account
  - Parking and vehicle traffic
  - Adequate space for equipment operation and construction activity
  - Location of all underground lines and utilities
  - Expected grade changes and excavation
  - Soil storage
  - Construction material staging and storage
  - How much to cut a tree back from a structure?
  - Washout area for concrete
  - Location of overhead lines

Design Phase

- Once a project is designed to preserve or plant new trees more details must be considered
  - Where is critical root zone (CRZ) of a tree?
  - How much CRZ is required?
  - How much open area is required for the root system of a newly planted?
    1) 10 feet of crown spread requires 120 cubic feet of soil
    2) 30 feet of crown spread (or 16 inch diameter) requires 1,000 cubic feet of soil
  - Structural soil or soil cells required?
  - Polly grates required?

Design Phase

Structural soil and soil cells



Design Phase

Different types of foundations and root conflicts.

50-year-old pecan, now 24-inches in diameter, has been less than 2-feet from the Sperry house since it was built in 1977. Trees and foundations *can* co-exist.

Design Phase

- Horizontal boring offers minimal impact (trenchless method)
- Air Spading

Design Phase

Root Barriers

An alternative to root barriers- Air Spading to uncover roots, then selectively root pruning away from structure.

Design Phase

Too much fill soil around a tree will cause its loss.

Preconstruction Phase

- Develop tree protection/conservation plans
  - Protective fencing (plastic versus metal)
  - Signage for fencing?
  - Root and soil protection required? (mulch or bridging roots)
  - Are any root excavations or removals required?
  - 2 x 4`s strapped to trees required?

Preconstruction Phase

- During the construction process, there is a need to inspect the property on a regular basis for the following:
  - Protective fencing in place and not compromised
  - Trees are not under or over watered
  - Possible damage to limbs, trunks, or roots
  - Monitor health issues including insects and diseases
  - Check for soil compaction near trees
  - Ensure material storage is not under trees to be preserved
  - Fertilization with nutrients and bio-stimulants

Post Construction Phase

- Basic maintenance of the trees continues after construction including:
  - Inspections on a regular basis
  - Nutrient and bio-stimulator applications
  - Insect and disease control
  - Damage to limbs, trunk, and roots are repaired
  - Soil compaction near trees is alleviated by:
    1) aerate the soil
    2) composting (sometimes vertical composting)
    3) mulching



Construction Around Trees

To retain trees that provide the greatest amount of benefits to the residents and community, a consulting arborist should be involved from the beginning to the end of the process and beyond.

Questions?

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