Construction damage is one of the greatest causes of tree death and decline in urban areas.
Damage & Effects

Roots

- Key to everything!
- Extend 2 - 3 times tree height from base.
- Shallow - 95% in top 3’ of soil; 90% in top 1”
- Root volume reduced with reduction of soil pore space.
- Reduced root volume equals branch dieback in following years.
1. Tree roots are not an underground reflection of the crown.

2. Roots spread far and wide!
Soil Compaction

• Effected by soil type or texture.

• Loss of pore space = loss of oxygen = loss of roots = loss of branches or tree.

• Results from any equipment or foot traffic.

• Protect **Critical Root Zone (CRZ)** with fencing, mulch, water, etc.
Above Ground

- Protect trunks
- Assure adequate height clearance for branches (use an arborist)
- No storage, parking, etc. within CRZ.
- Avoid cut/fill within CRZ
- Avoid damaging conditions from grade changes (excess water, etc.)
Below Ground

- Trenching beyond CRZ only.
- Tunnel under roots within CRZ.
- Assure “clean cuts” of large, severed roots.
- Keep exposed roots moist until covered.

Why tunneling saves trees

- Trench
- 40% Root Kill
- Tunnel
- No Root Kill

☑ When you must cut roots, make sharp cuts
Grade Changes

• 2” - 4” of fill kills roots.
• Fine “feeder” roots are near the soil surface.
• Any “cut” removes roots.
• Drainage patterns change.
• Use retaining walls if unavoidable.
Prevention

Plan Before You Build

- Tree map.
  - Species, Size, Location, Health?

- Site plan.
  - Structures
  - Utilities
  - Roads
  - Grading
ID Trees to be Preserved

• Use a professional “tree person”.

• Trees to remove include:
  - Those that can’t be planned around.
  - Undesirable species.
  - Those unlikely to survive the construction process. (These may be the larger trees on site)
ID Trees to be Preserved, cont.

- Modify site plan to accommodate trees to be preserved.

  - Written construction specs are needed including:

    + Protection fences for CRZ
    + Travel lanes beyond CRZ
    + Parking areas beyond CRZ
    + Storage areas beyond CRZ
    + Grade changes beyond CRZ

  - Supervised by “tree pro” on site.
Post Construction Activities

• Re-asses condition of trees.

• Determine maintenance needs.
  - Automatic sprinkling systems?
  - Pruning damaged limbs (arborist).
  - Mulch, mulch, mulch; aka NO GRASS
  - Extra water?
  - Fertilization?