

# University of Kentucky.

## **Grounds Management Manual**





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## The Campus Landscape Overview

The University of Kentucky is located in Lexington, Kentucky in the heart of Kentucky's Bluegrass Region. Over the years, the campus has seen the environment in which it exists transform from one of being on the outskirts of a small town and therefore almost farm-like in nature to one that is in the middle of an urban area. Consisting of 800 acres, the campus is a vibrant and dynamic place that since 2012 has been undergoing a facilities transformation including the campus landscape. Throughout this change, the Grounds Department has sought to maintain the landscape with professionalism and pride.

The campus landscape influences the first impression one has of the culture and quality of the University. It is often one of the influencing factors a prospective student considers in selecting where they will attend college.

Additionally, the quality of the landscape contributes to fostering lasting relationships between our students and the University. It contributes to a student's academic experience by providing places to learn, live, work, and recreate. Students are collaborating more and more and outdoor spaces provide yet another area of campus to do so.

The landscape of the University, together with the buildings and other facilities are challenged daily with creating a safe and aesthetically pleasing environment for the community. It should be an experience that is rich in memories. The Grounds Department is committed to this experience.

# Overview of Grounds Operations

## **Vision**

The University of Kentucky's Grounds Department is committed to see the campus nationally recognized for its beauty, and its safe and welcoming environment as well as its horticultural excellence.

## **History**

In 2015, the Grounds Department began evaluating the makeup of the department in an attempt to better attain our goals. The result of this evaluation involved moving away from one employee being assigned to one area, doing all grounds maintenance in that area, to a team approach. The former made assumptions that employees could take care of all aspects of landscape care, from pulling weeds, applying herbicide, pruning and lawn care. It became apparent that this methodology was not sustainable.

The change to a modified team approach began in the 2016. The Department was organized by general tasks: mowing, landscape care and installation, and area maintenance. As transitions occur, operations will continually be evaluated for improvement.

In 2016, the University also developed an in-house arboriculture management team. This required hiring qualified employees and acquiring all of the necessary tools and equipment to perform all aspects of arboriculture on campus.

## **Mission**

To realize this vision the mission statement of the Grounds Department is to strive to establish and maintain the landscape of the University in a manner that provides:

- Safe and Clean Campus
- Environmental Responsibility
- Reliability and Dedication
- Visual Aesthetics
- Integrity
- Collaboration and Caring
- Excellence through High Standards

# Landscape Management

- A. Turf Care
- B. Horticultural Beds
- C. Arboriculture
- D. Sanitation
- E. Mulch
- F. Snow Removal
- G. Irrigation
- H. Leaf Removal
- I. Football
- J. Green Roofs
- K. Priority Areas
- L. Storm Water Quality Management

# Landscape Management

## A. Turf Care

### 1. Mowing Execution

- a. Lawns are maintained at a spring/early summer height of 2 ½ - 3 ½ inches removing no more than 1/3 of the leaf blade at each mowing. Operations commence as soon as turf conditions require mowing. **The site is examined, and debris, rocks, limbs, or trash are removed prior to each mowing.** With the exception of fall leaf removal as stated below, grass clippings are mulched and left to remain evenly distributed in the turf without clumping.
- b. Lawns are cut at least once every 5 working days or as needed to maintain height. Exceptions may be made as necessary based on area, weather and special events.
- c. In case of delay due to inclement weather, turf is cut at the first clear weather opportunity without excessive accumulated clippings on the grass surface. Excessive amounts may require removal of clippings or mowing again within a 48-hour period.
- d. String trimming and trim mowing are conducted within 24 hours of mowing.
  - 1) Scalping of the lawn should be avoided.
  - 2) No string trimming around the base of tree trunks.
  - 3) String Trimmers are kept at a minimum of 18 inches away from all woody plant materials.
- e. Turf areas are maintained:
  - 1) At an increased height of ½ inch from July 1 through August 31.
  - 2) At a height of 3 ½ - 4 ½ inches during periods of drought.
- f. Turf is mowed with sharp, well-maintained rotary equipment that provides a clean cut of the grass blades without tearing. Care is taken to avoid damage to turf, including scalping, rutting, and chemical burns. Where feasible, the direction of mowing each visit is alternated.
- g. All turf edges adjacent to ground-level hard surfaces are trimmed at a **90-degree angle** to maintain a clean, crisp delineation between turf and hard surface. Edging



operations are done as to not expose the soil adjacent to these pavements. Edging is done every two weeks at a minimum.

- h. All hardscapes (non-turf areas) including walkways, driveways, patios, tree rings, mulched areas, and window wells are kept free of leaves and grass clippings upon completion of the maintenance operations.
- i. Mowing does not take place when air temperature exceeds 95 degrees.
- j. When grass is excessively wet, no mowing is done to deter poor distribution of grass clippings, rutting, and compaction of soil.
- k. Turf at the base of fences are kept neatly trimmed, no taller than the surrounding turf. Vines and other vegetation are not permitted to grow on the fence. Broad-spectrum herbicide is used at the base of fences in a band no wider than a four-inch width.
- l. Clippings are removed from sidewalks, walkways, and roadways, trash/recycling receptacles, benches, chairs, wayfinding signage, and lamp posts in the area before leaving that area.

## 2. Turf Renovation

- a. Unless site limitations or other variables dictate differently, all turf renovation is done using approved sod.
- b. When seed is used, it is applied with a slit or drill seeder. Rate of seed sown is 5-8lbs. per 1000 square feet. Seed is evenly distributed by sowing equal quantities with two passes of the equipment.
- c. Amendments are applied as required by soil tests.
- d. Starter fertilizer is applied at a rate indicated by the soil tests two applications of 10-0-10/14-0-14 agricultural fertilizer is used at a rate of 1½ lbs. per 1000 square feet within a 6 to 8-week interval dependent on soil tests.
- e. Prior to laying sod, area is cultivated to a depth of 3 inches. All debris (grass, rocks, etc.) is removed from the area.
- f. Fertilizer is broadcast prior to laying sod.
- g. Sod is the standard for all new or renovated lawn areas. All lawn areas disturbed by construction are planted with sod. The use of seed held in place with straw mats is used only with authorization.

- h. Areas that require seeding or sodding are addressed as bare spots become evident. Weeds are removed before seeding. If extensive, chemical controls are applied when necessary. Newly seeded areas are watered, based on weather conditions, to assure establishment.
- i. Where substantial thin lawn remains, they are mowed, raked, aerated if compacted, low spots are filled, humps are removed, soil is cultivated, fertilized, and seeded.
- j. A seed bed mulch is applied, if required, to maintain moist condition.
- k. Turf grass along sidewalk edges damaged from snow removal, and de-icing products are addressed prior to commencement each year. Other areas are addressed throughout the growing season on a priority basis.
- l. Turf grass edges along sidewalks are monitored for unevenness along sidewalks and graded to no less than (1) inch below the edge of the sidewalk and other features on campus.

#### Specifications for Repairing Turf Damage along Sidewalk Edges

- a. The following guidelines are followed if the use of sod is not feasible:
  - 1) Top 1 to 3 inches of soil are loosened with a tilling machine.
  - 2) Proper seed is used for the job and area.
  - 3) Unwanted debris, i.e. soil clods, grass, stones or rocks are removed.
  - 4) Topsoil is added ½ inch below sidewalk edge.
  - 5) If area takes more than 3 inches of soil, area is tamped to prevent settling.
  - 6) If needed, soil is added to meet desired grade.
  - 7) Seed is applied at a rate of 5-8lbs per 1000/sq. ft.
  - 8) Area is raked to obtain a light covering of soil over the seed.
  - 9) Area is rolled with a lightweight roller to promote more seed to soil contact.
  - 10) Area is fertilized with a granular starter fertilizer at 1lb. of N per 1000/sq. ft.
  - 11) Seed mulch is applied to cover area.

- 12) Any undesired areas covered with mulch are cleaned up right away, i.e. sidewalks, light posts, post and chain, buildings.
- 13) Areas larger than 500 sq. ft., or areas prone to foot traffic have string and post around area to keep traffic out.
- 14) When T posts are used, utilities are located prior to driving posts.
- 15) Areas are lightly watered to keep the top 1 inch of soil moist until germination.
- 16) After germination, areas are watered to keep the top 2 to 3 inches of soil moist.
- 17) 11lb. of N/1000 ft. sq. of controlled release fertilizer is applied approximately 2 to 3 weeks after germination.

### 3. Turf Chemical Application

#### a. Pesticides

- 1) Emphasis should be placed on mechanical and cultural practices primarily. When chemical control methods are necessary, they are pursued after scouting has revealed the pest problem has exceeded the established threshold.
- 2) Timing of all turf chemical applications is coordinated with mowing crew to provide optimum conditions for chemical application and assimilation. All applications are made by state of Kentucky licensed applicators. Applicators will utilize PPE (Personal Protective Equipment) in compliance with the pesticide labeling.
- 3) When chemical control is necessary, care is taken to select the shortest-residual product that best controls the target pest/disease without affecting other organisms. Also ensure that application is completed at the optimal time to control the target pest/disease.

#### b. Herbicide

- 1) In accordance with integrated pest management strategies, chemical applications are not required in all designated zones. A threshold of approximately 75% weed-free turf condition is acceptable.
- 2) One application of pre-emergent crabgrass control is provided at the optimum time between late February and early April. All applications are applied according to manufacturer's recommendations.

- 3) Two application of post-emergent broadleaf weed control are applied at the optimum time between mid-spring and mid-fall respectively. Applied in accordance to manufacturer's recommended label rates.

c. Growth Regulators

- 1) Growth regulators provide excellent benefit in situations where conditions warrant. Great care is taken to prevent damage to the turf.

d. Fertilizers

- 1) If there are specific soil problems, soil samples are taken to determine corrective measures.
- 2) Adequate fertilization is applied to plant species, according to their optimum requirement, to ensure an even supply of nutrients for the entire year.
- 3) Whenever possible, a slow-release fertilizer is used on all annuals, perennials, turf and shrubs. Compost is used when available.
- 4) All turf grass areas are fertilized at least one time per year with a minimum of 3lbs of Nitrogen per 1000 square feet. Starter fertilizers are applied in newly planted areas and then one application after lawn is established.
- 5) Fertilizer is applied primarily during the fall. Additional applications are made during spring/early summer according to soil tests with emphasis on slow release.

4. Aerification

- a. All turf grass areas are aerified on a regular basis.
- b. Some areas require more frequent aerification to minimize thatch, or soil compaction.
- c. Aerification is done either in the late spring/early summer and/or late summer/early fall. These times may vary depending on the weather and situation.
- d. Whenever possible, composting and/or fertilization is done in conjunction with aerification.

5. Irrigation

- a. Approximately 25% of campus has automatic irrigation. These areas are managed through the central irrigation control system. Water use is based on environmental factors (heat, drought, etc.).

- b. Irrigation systems are tested at the beginning of each month, while active, for correct operation. All deficiencies or leaks are repaired at this time.
- c. All irrigation system backflow preventers are certified annually.
- d. Each fall the entire system is winterized to prevent freeze damage.
- e. See locations of current irrigation systems (Section G. Irrigation).

# University of Kentucky Mowing Schedule

Monday	Tuesday	Wednesday	Thursday	Friday
<b>North Campus A</b> Good Samaritan Hospital Medical Office Building & Lot Parking Lot on East Maxwell EDR North Dorms	<b>North Campus A</b> EDR North Dorms Blazer Dining Patterson Hall Roselle Hall	<b>North Campus A</b> German House/Gaines Center Hardyman Building Joe Craft Center Marksbury Building Memorial Coliseum Singletary Center	<b>North Campus A</b> Main Building Main Building front field (After Hours) White Hall Student Center Maxwell Place Washington Avenue	<b>North Campus A</b> Washington Avenue Gatton Business and Economics Peterson Service Building P.S. 5 Whalen Building Taylor and Dickey Halls
<b>North Campus B</b> Police Station Linden Walk Alumni House Rose Lane Stuckert Career Center Boone Center	<b>North Campus B</b> J.S.B Central Dorms The 90/Complex Lewis/Flats	<b>North Campus B</b> Smith Hall Baldwin Hall Ingles Hall	<b>North Campus B</b> Woodland Glens Chelligran Hall	<b>North Campus B</b> W.T. Young P.S. 2
<b>South Campus C</b> Chandler Hospital Wethington Building KY Clinic Research Building #3	<b>South Campus C</b> Virginia/Transcript Avenue Lee Todd Jr. Pharmacy BBSRB Export Street	<b>South Campus C</b> Kelly Building University Drive	<b>South Campus C</b> Ag North P.S. 1 AG Greenhouses Heating/Cooling Plants	<b>South Campus C</b> Ag South Plant Science Building Barnhart Building Gluck Building Orange Lot
<b>South Campus D</b> Parking Structure # 7 Johnson Center Boone Tennis Area	<b>South Campus D</b> BCTC Kroger Field	<b>South Campus D</b> Greg Page	<b>South Campus D</b> Shawneetown	<b>South Campus D</b> Alumni Drive

All mowing schedules may vary due to weather and/or events.  
 There are 5 properties on campus that are contracted thru Klauasing Group & Kentucky Twist.  
 There are 5 properties off campus that are contracted through Klauasing Group and Kentucky Twist/  
 The Arboretum is mowed and maintained according to the Arboretum Director utilizing Grounds assigned staff.



# Landscape Management

## B. Horticultural Beds

### 1. General Service Level

- a. Weeds - Beds and ground cover are maintained weed-free to the fullest extent possible.
- b. Dead Plants - All dead plants are removed immediately and replaced during the planting season (spring or fall). For plants considered a fall planting risk, replacements are installed during the next spring planting season.
- c. Edging and Mulching - Beds are evaluated regularly to assess need for mulch/compost. Beds are edged once a year, typically in the spring. (See Section E. Mulch)
- d. Leaf Removal – Leaf piles are to be removed daily throughout the season. Care is taken to minimize removing mulch from beds while removing leaves.
- e. Maxwell Place, the Red Zone and other priority areas are kept in such a manner that mulch looks fresh year-round.

### 2. Woody Shrub Pruning

- a. All woody shrubs are evaluated annually to assess the need for pruning. Pruning is done to maintain design intent and promote optimal plant growth, health, accessibility, and safety.
- b. Most other shrubs and trees will be pruned for structure and vigor in accordance to the Tree Care Standards in Section C. Arboriculture. Some plants (e.g., roses) may need to be pruned multiple times during the growing season. Most pruning will be accomplished during the winter and early spring.
- c. Dead wood is removed as soon as it becomes apparent. Supervisor or Team Lead is notified as soon as dead wood observed.
- d. Hedges are pruned as necessary to maintain desired shape. Emphasis is given to maintaining an appropriate taper from the base.
- e. Staff are trained regularly to perform pruning tasks.



### 3. Perennial and Annual Floral Plant Maintenance

- a. Perennial plants, including broadleaf perennials, grasses, and groundcovers, are maintained to promote optimal growth, vigor, and display value. Deciduous broadleaf perennials are usually cut back to the ground in late autumn or early winter, though some (ornamental grasses) may be left standing to provide seasonal interest.
- b. Annual color plantings are designed to provide visual interest from April through October.
- c. If plant material is found to be in decline or dead, it is reported to the supervisor.
  - 1) If plant is in decline due to lack of water or mechanical damage, a replacement is selected from the nursery replacement stock and replanted.
  - 2) If plant is not in stock, a different plant is then chosen.
  - 3) If plant is in decline or dead and it is not from mechanical damage or lack of water, but from pest/disease, a sample is taken and sent to Plant Pathology Diagnostics lab or Entomology.
    - i. If disease/pest problem is found, the plant is removed from the area and other plants in the area are inspected for disease/pest as well.
    - ii. All tools are disinfected to prevent spread.
    - iii. Once diagnosis comes back from Plant Pathology or entomology, area is treated per their recommendations.
    - iv. Team is made aware of symptoms of pest/disease.
    - v. Decision is made to either replant same cultivar or replace with plant material less susceptible to pest/disease.
- d. See Greenhouse Yearly Schedule for more extensive information.

### 4. Irrigation

- a. Areas that currently have irrigation are irrigated based on use, and environmental conditions (heat, drought, etc.).
- b. The majority of campus annual flower beds and containers do not have automatic irrigation. Grounds staff are required to water manually as necessary to maintain plant vigor.

## 5. Weed Control

- 1) Weeds should not be allowed to reach the reproductive stage of setting seed.
- 2) Large mulched areas with weeds should be:
  - a. Weedeated down to soil.
  - b. Regenerative growth treated with steam or herbicide when it emerges. Herbicide shall be allowed to fully dry to maximize effectiveness.
  - c. Pre-emergent herbicide is then applied to the area.
  - d. New mulch applied.
- 3) Applications of post emergent herbicides are done throughout the growing season. Broadleaf post-emergence herbicides are applied to keep a 99% weed free landscape bed. Care is taken to prevent drift on to trees, shrubs, perennials and annuals. **Every effort to reduce the use of herbicides must be employed.**
- 4) Pre-emergent herbicides are applied up to twice annually in established beds to control weeds. Herbicide applications are done at the optimum time to ensure complete efficacy is maintained. Pre-emergent herbicides are to be applied to the soil before new mulch is applied.

## 6. Insect Monitoring and Control

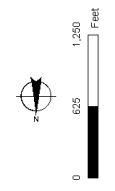
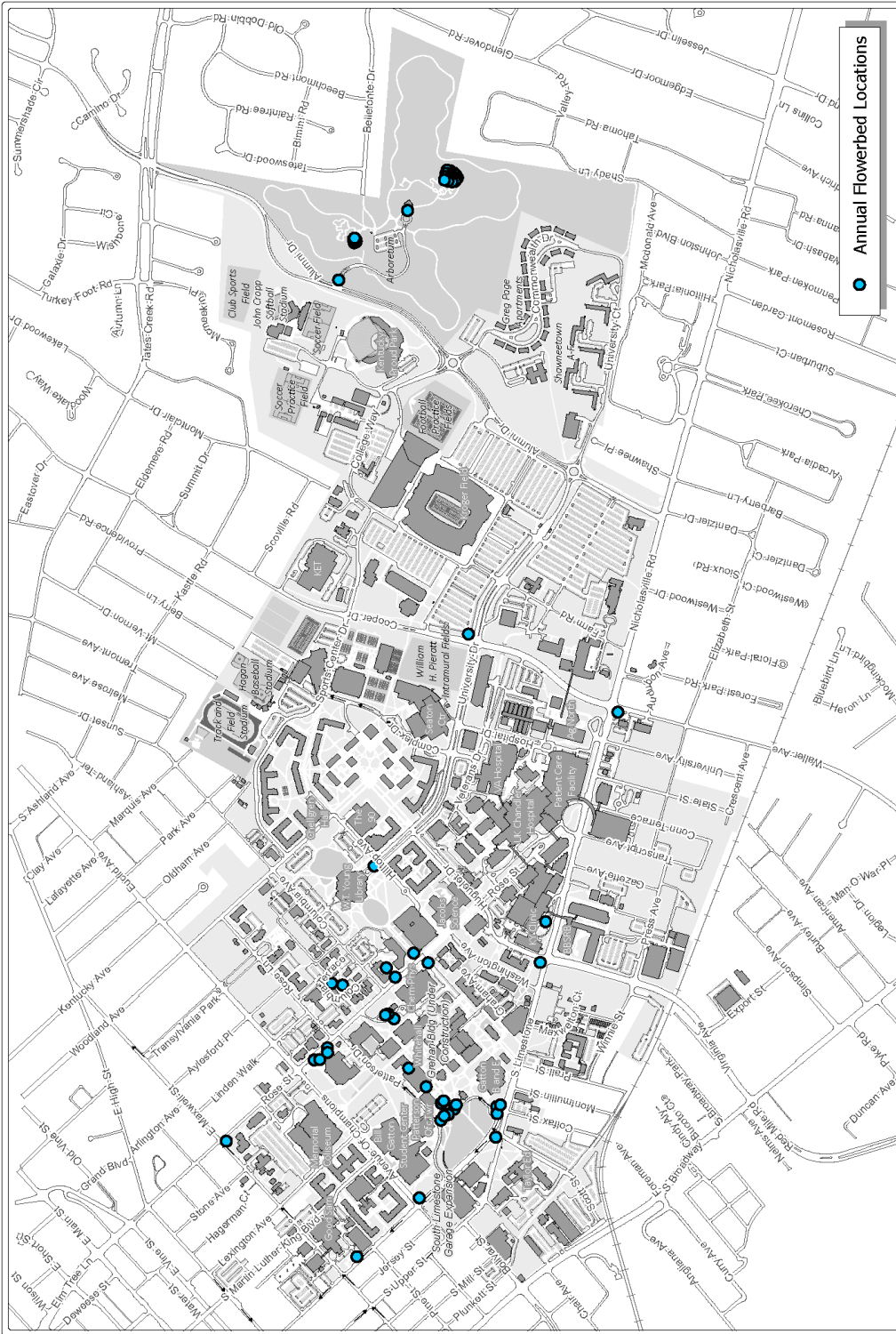
- a. Emphasis should be placed on mechanical and cultural practices primarily. When chemical control methods are necessary, they are pursued after scouting has revealed the pest problem has exceeded the established threshold.
- b. If chemical control is needed, care is taken to select the least toxic product with the shortest-residual that best controls the target pest/disease without affecting other organisms.
- c. Care is taken to ensure that application is completed at the optimal time to control the target pest/disease. For annually recurrent problems (e.g., emerald ash borer, fireblight, boxwood pests, etc....) an IPM prescription is developed each year prior to pest emergence, and treatment is applied at optimal time following regular scouting.

Greenhouse Yearly Schedule	
January	- Begin sowing and transplanting seeds
February	- Plugs begin arriving - Continue transplanting and sowing - Bleach pots and filling trays
March	- Continue sowing seeds
April	- Planting beds are planted around 2 weeks before commencement
May	- All planting beds are edged, weeded, fertilized (if necessary), pruned and mulched before commencement - Pick up tropical foliage for commencement ceremony - After commencement, any damaged plant material is replaced
June	- Continue annual plantings until all beds are complete - Maintain and water all annual beds
July	- Maintain and water all annual beds
August	- Make sure beds are near perfect for move-in
September	- Order seeds, plugs, and bulbs for spring
October	- Begin sterilizing pots and figure out how many will need replacement - Clean and organize greenhouse - Sterilize greenhouse - Pull annual beds, rake smooth, mulch if bed doesn't get bulbs
November	- Plant bulbs, mulch beds - Bring plants into greenhouse for winter if needed
December	- Begin filling trays with soil before new year - Fertilize all landscape beds

# The University of Kentucky Annuals List

## Spring/Summer

Angelonia Carita Purple	Lobularia Dark Knight
Angelonia Carita Raspberry	Lobularia Snow Princess
Angelonia Serena Blue hybrid	Marigold Antigua Mix
Angelonia Serena White	NGI SunPatiens Compact Orange
Angelonia Serenita Raspberry	NGI SunPatiens Compact White Imp
Begonia Big Rose	NGI SunPatiens Compact Coral
Begonia Cocktail Gin	NGI SunPatiens Salmon
Begonia Cocktail Vodka	NGI SunPatiens Spreading Corona
Begonia Dragon Wing Pink	Petunia Easy Wave Blue Pellets
Begonia Dragon Wing Red Pellet	Petunia Easy Wave White Pellet
Canna Tropical Salmon	Petunia Tidal Wave Liver hybrid
Canna Tropical Yellow	Petunia Wave lavender
Cleome Seniorita Rosailta	Platycodon Astra Semi Double Blue
Coleus Premium Sun Lime Delight	Sunpatiens Compact Lilac
Coleus Wizard Mix	Verbena SB Coral Red
Coreopsis Moonbeam	Verbena SB Purple
Crossandra Marmalade Orange	Vinca Cora Mix
Cuphea I Flamenco Cha-Cha	
Cuphea I Totally Tempted	
Delosperma Fire Cooperi	
Delosperma Fire Spinner	
Dianthus Firewitch	
Diascia Sundiascia Rose Pink	
Euphorbia Deamond Frost	
Evolvulus Blue My Mind	
Gaura Belleza Dark Pink	
Gaura Belleza White	
Gomphrena Gnone Mix	
Helenium Dakota Gold	
Impatiens Sunpatiens Spreading Carmine	
Lantana Bandana Pink 09	
Lantana New Gold	
Laurentia Avant Garde Blue	
Laurentia Avant Garde White	
Laurentia Avant Pink	
Lavandula Hidcote Blue	



● Annual Flowerbed Locations

## Annual Flower Bed Locations

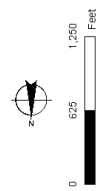
Grounds Department

Created by UK Facilities Information Services  
 Geospatial Reports@uky.edu  
 Source: CFPD Grounds (1/13)  
 #BY-10152123





Perennial Shrub Bed Locations



## Perennial Shrub Bed Locations

Grounds Department



Credibility UK Facilities Information Services  
 Source: CFPD Grounds (2/23)  
 REV: 20231212



# Landscape Management

## C. Arboriculture

### University of Kentucky Tree Care Plan

#### Purpose

The purpose of the University of Kentucky Tree Care Plan is to identify the policies, procedures, and practices that are used in establishing, protecting, maintaining, and removing trees on University's campus. The overall goal of the plan is to ensure a safe, attractive, and sustainable campus urban forest. The specific objectives of the plan are:

- Promote species diversity and proper age structure in the tree population
- Protect high-value campus trees during construction and renovation projects
- Promote tree health and safety by utilizing International Society of Arboriculture best management practices when maintaining campus trees
- Ensure that trees are reasonably replaced when there is mortality due to weather, pest infestations, injury, or construction displacement
- Encourage campus community members to respect and value the campus urban forest
- Ensure proper species selection, high quality nursery stock acquisition and industry – consensus-planting procedures.

#### Department Responsible for Implementation

The University of Kentucky Grounds Department under the direction of the Grounds Manager, Arboriculture Superintendent, and the Superintendent of Grounds will be responsible for the implementation of this Tree Care Plan.



# Campus Arboriculture Practices

## Plant Selection

### A. Quality of Plantings

Requirements for the measurement, branching, grading, quality, balling and burlapping of plants in the plant list generally follows or exceeds a code of standards currently recommended by the American Association of Nurserymen, Inc. in the American Standard for Nursery Stock ANSI Z60.1.

[https://americanhort.org/documents/ANSI\\_Nursery\\_Stock\\_Standards\\_AmericanHort\\_2014.pdf](https://americanhort.org/documents/ANSI_Nursery_Stock_Standards_AmericanHort_2014.pdf)

1. All plants shall have a well-formed head with minimum caliper, height and spread of the side branches as shown on the plant list. Trunks shall be undamaged, and shape shall be typical of the species.
2. Measurement of conifer height shall include no more than fifty (50) percent of this year's vertical growth (candle top).
3. All plants shall be inspected and tagged at the nursery by University of Kentucky Physical Plant Grounds Superintendent or his Assistant before digging. A list of plants and where they are to be inspected must be furnished to the University's Project Manager. The Contractor will set up the appointments and make arrangements to purchase plants after the University has tagged them. Plants must be bought within a 400-mile radius of Lexington, Kentucky to facilitate the inspection and tagging. If this is not possible or practical, then the plants will be inspected on site prior to planting.
4. All plants must be inspected before March 1st for the spring planting, or September 1st for the fall planting. All trees and shrubs are to be balled and burlapped with regular burlap unless potted plants are accepted during inspection at the nursery. Bare root trees and shrubs are acceptable provided they have sufficient root systems to sustain growth. Treated or synthetic burlap must be removed when planting. Trees will have to be dug before leafing. Upon delivery of plants to job site, but prior to planting, a second inspection shall be made by campus Facilities Management Grounds personnel. If the plants are not in good condition at the time of delivery, such as too small of a ball, trunk flare more than two(2) inches below surface, girdling roots, loose in ball, damaged trunks, or broken balls, they will not be accepted.

5. Trees selected should not require excessive corrective pruning at planting and should have good form.
6. Trees with poor growth form or multiple stems should not be planted as they can lead to future management issues.
7. Trees selected should be species that are not prone to disease or host invasive insects. All trees planted should be inspected prior to planting for insects and disease to ensure they will not affect the health of other campus trees.
8. Species selected should conform to the location they are being planted so their future growth will not be impeded by buildings, other trees, limited soil volume, roads, and sidewalks, above and below ground utilities.
9. Species selection should increase biodiversity of the campus canopy.
10. Trees planted on campus by student groups, faculty or alumni must obtain written approval prior to planting from the University Grounds Department.

B. Current UK Plantings:

The following is a partial list of plantings currently on the University of Kentucky Campus. Any consultant selecting plantings for a new or renovated facility should consult this listing. Campus Facilities Management Grounds Department shall have a chance to review the selected plantings either prior to or during the Phase "B" Review.

Recommendations to add to this list either native or exotic will be screened for adaptability, serviceability and appropriateness. The best plant for the site and intended purpose will be chosen and may not be one considered "native".

American beech	Eastern Hemlock	River birch
American holly	Eastern redbud	Sassafras
American hop hornbeam	Eastern red cedar	Scarlet oak
American hornbeam	Eastern white pine	Shagbark hickory
Baldcypress	Elm	Shellbark hickory
Big leaf magnolia	Flowering dogwood	Shingle oak
Black cherry	Fringe tree	Shumard oak
Blackgum	Ginkgo	Sourwood
Blacklocust	Green hawthorn	Sugar Hackberry
Black oak	Hazelnut	Sugar maple
Black walnut	Honey locust (thornless)	Swamp white oak
Blue ash	Kentucky coffee tree	Sweet birch
Bur oak	Mockernut hickory	Sweetgum
Carolina silverbell	Northern catalpa	Sycamore
Chestnut oak	Northern red oak	Tulip-poplar
Chinquapin oak	Ohio buckeye	Umbrella magnolia
Cockspur hawthorn	Overcup oak	Virginia pine
Common witchhazel	Pawpaw	White ash
Common hackberry	Pecan	White oak
Crabapple (disease resistant varieties)	Pignut hickory	White walnut
Cucumber magnolia	Post oak	
Downy serviceberry	Red buckeye	

\*As stated above, this is not an exhaustive list and “non-native” species shall be considered if they fit the purpose and site specifications.

## Plant Installation

### A. Planting Season for Shrubs and Trees

Planting season for shrubs and trees shall be October 15 through May 15.

1. Shrubs and trees planted after May 15 and before October 15 may be rejected.
2. No shrubs or trees shall be planted in periods of declared drought.
3. No shrubs or trees shall be planted in temperatures below 28°F (-2°C) or above 92°F (33 °C)
4. No shrubs or trees shall be planted in soils at or above field capacity.

### B. Underground Utilities

1. The landscape contractor is responsible for the contacting of the appropriate agencies for verification of underground utilities within the limits of the work area.
2. The contractor shall verify the exact location of all utility lines prior to commencement of digging operations.

### C. Layout of Plantings

1. Spacing of trees along streets, roads and sidewalks:
  - a. Trees should be set back 15 feet from sidewalks and 20 feet from streets and roads.
  - b. Small trees (25' tall and under) should be spaced 20' apart.
  - c. Medium trees (26'to 49') should be spaced 30' apart.
  - d. Large trees (50' and over) should be spaced 40' apart.
2. The landscape contractor is responsible for staking and layout of plantings on the project.

3. The Superintendent of Grounds shall be advised when stakes are ready for inspection of various planting areas.
4. All layout work shall be inspected and approved by the Superintendent of Grounds prior to opening any planting pits.

#### D. Drainage

1. It is the responsibility of the landscape contractor to verify that each excavated tree or shrub pit will percolate (drain) prior to adding topsoil and installing trees or shrubs.
2. The contractor shall fill the bottom of selected holes with six (6) inches of water. This water should percolate out within a twenty-four (24) hour period.
3. The Superintendent of Grounds shall verify accuracy and effect of percolation testing.

#### E. Unsatisfactory Conditions

1. Should the landscape contractor encounter unsatisfactory surface or subsurface drainage conditions, soil depth, latent soils, hard pan, steam or other utility lines or other conditions that will jeopardize the health and vigor of the plants, he must advise the Superintendent in writing of the conditions prior to installing the plants.
2. Otherwise the landscape contractor warrants that the planting areas are suitable for proper growth and development of the plants installed.

#### F. Planting

*See attached diagram Appendix I*

1. Planting holes for trees and shrubs shall be dug 2 to 3 times the width the ball around the entire plant.
2. Backfill with soil dug from hole. If the contractor encounters soils that are unsuitable for backfill, he shall advise the Grounds Superintendent prior to backfilling.
3. Careful attention should be given to backfilling; lightly tamp the soil to firm up, do not compact the soil.

4. Water the plant in as soil is being backfilled.
5. No excavation of planting pit shall be left unattended or open overnight.
6. Tree balls shall be inspected to determine if the trunk flare has been covered. If so the flare shall be exposed and planted at grade.
7. All visible ropes and burlap at the top one-third of the ball shall be cut away. The top two thirds of the wire basket shall be removed once the root ball is stable in the hole.
8. After planting, only broken or damaged branches are to be pruned.
9. Tree wrapping is not recommended.
10. Irrigation for tree and shrub establishment will be determined based on weather conditions and time of year.

#### G. Mulch

- A. Mulch shall be applied to all newly installed trees and shrubs and beds.
- B. Mulch should be of a depth of two (2) to four (4) inches leaving a one (1) inch buffer free of mulch immediately around the trunk or base of the plant.
- C. Tree rings should be of a uniform circular shape.
- D. The size of tree rings should be a minimum of 5 feet in diameter
- E. Mulch rings should be joined or incorporated into beds when there is less than 52” of turf between them or in conditions where turf will not grow.
- F. Do no leave small strips of turf less than 18” in between mulch rings and a hardscape.
- G. A sample of mulch shall be presented to the Grounds Superintendent for approval.

#### H. Staking

1. Staking of trees at planting is not required if the root ball or root system is stable.

2. If staking must be done, it shall be done in accordance with ANSI A300 most recent standard.
3. Ties and stakes shall be removed after one growing season.

## APPENDIX I

### 329343D01 PLANTING - TREES

**Notes:**

1. Do not handle or move trees by their trunks. Lift and move by the ball.
2. Remove top 1/3 of wire cage and burlap from root ball. Do not include in backfill.
3. Remove all tree wrapping and tags prior to planting.
4. See specifications for further requirements related to this detail.

Trunk caliper shall meet ANSI Z60 current edition for root ball size.

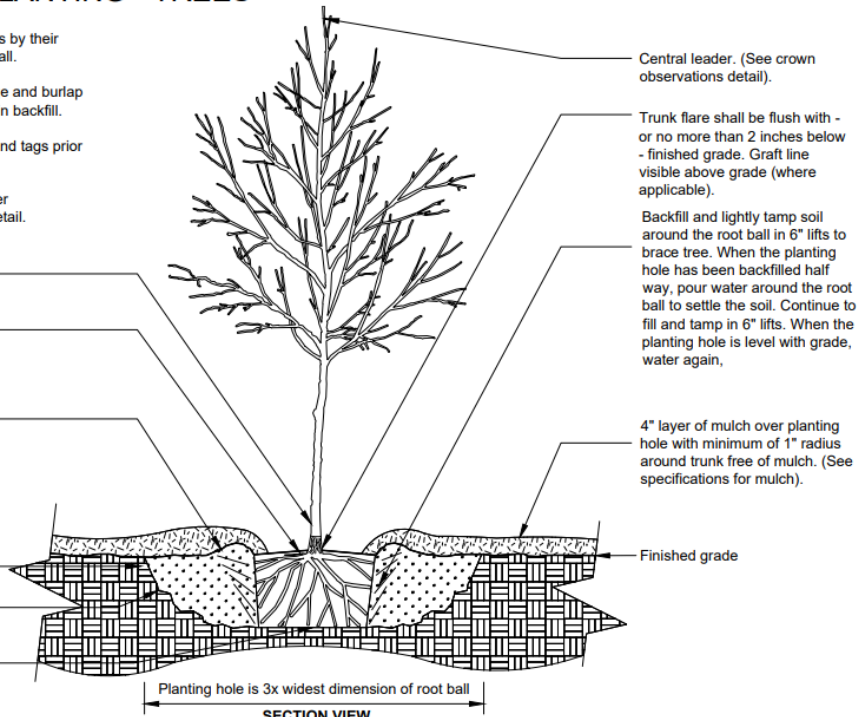
Top of root ball modified as required to expose trunk flare. Prune all girdling and circling roots.

Round-topped soil berm 4" high x 8" wide above root ball surface shall be constructed around the root ball. Berm shall begin at root ball periphery.

Existing soil

Slope and loosen sides of planting hole.

Bottom of root ball rests on existing or recompacted soil.



**D01** TREE PLANTING DETAIL (TYPICAL)  
No Scale

Modified from: Urban Tree Foundation

329343D01 PLANTING - TREES  
Dated: 03/08/18  
Applies to: All Projects  
University of Kentucky

Page 1 of 1

## Tree Care and Maintenance

### 1. Maintenance of Trees

All tree maintenance is performed with the oversight of the Campus Arborist. The Campus Arborist is to be an ISA Certified Arborist and hold a current ISA Tree Risk Assessor Qualification.

#### 1. Pruning Schedule

*The maintenance pruning schedule shall be dictated by tree species, age, function, and placement. All Campus trees are periodically given a visual inspection to determine if any pruning or additional action is needed. Inspections help to determine the scheduling of priorities.*

- a. Trees less than 7 years old should be assessed for structural pruning on an annual basis.
- b. Trees 7-20 years old should be assessed for structural pruning every three to five years.
- c. Trees 20 years old and older should be assessed for maintenance pruning every seven years to remove dead, diseased, dying, and defective branches from the crown.
- d. Trees adjacent to roadways, walkways, signs, and streetlights are inspected annually for safety and clearance issues and maintenance pruned as necessary.
- e. Trees are assessed after storm events for hazardous conditions requiring immediate mitigation.

#### 2. Pruning

*The Campus Facilities Management Grounds Department prunes all the trees on Campus either in-house or with contractors under the oversight of the Campus Arborist.*

- a. General
  - 1) All pruning shall be conducted with a clear purpose and objective.



- 2) Assess how a tree will be pruned from the top down.
  - 3) Pruning shall be prioritized for safety, plant health and aesthetics.
  - 4) When removing branches, the pruning cut shall not damage the branch bark ridge or branch collar.
  - 5) The 3-Point Cut method shall be used when removing any branch one (1) inch diameter and larger so as not to damage the branch collar.
  - 6) Pruning shall not leave branch stubs or flush cuts.
  - 7) Internode (heading) cuts should not be used except in storm response and crown restoration procedures.
  - 8) Branch reduction and/or thinning cuts should be used to achieve pruning objectives rather than making large (>6" diameter) branch removal cuts.
  - 9) Pruning cuts that are 2" diameter and larger should be covered with LacBalsam when located in a highly visible location.
  - 10) Do not remove more than one-quarter of the living crown of a tree at one time. If it is necessary to remove more, do it over successive years.
- b. Cleaning
- 1) Pruning shall be performed to remove dead, dying, diseased, damaged and "deranged" twigs, branches and limbs to reduce risk, promote health and improve appearance.
  - 2) Large branches should be removed with the aid of ropes and rigging equipment to minimize the risk of injury to the tree, people and property from falling debris.
- c. Thinning
- 1) Thinning shall be performed to reduce the density of branches to enhance light penetration, improve visibility and decrease wind load.

- 2) Favor branches with strong, U-shaped angles of attachment. Remove branches with weak, V-shaped angles of attachment and/or included bark.
  - 3) Lateral branches should be evenly spaced on the main stem of young trees.
- d. Raising
- 1) Raising shall be performed to provide vertical clearance from thoroughfares, signs, street lights, and structures.
  - 2) Always maintain live branches on at least two-thirds of a tree's total height. Removing too many lower branches will hinder the development of a strong main stem.
  - 3) Remove basal sprouts and vigorous epicormic sprouts.
  - 4) Branches should be maintained to a height of 7' over sidewalks and 12' over roads.
- e. Reduction
- 1) Reduction pruning shall be performed to decrease the overall height of a tree or to decrease the length of an individual limb.
  - 2) Reduction pruning used only when necessary to mitigate overall risk of existing conditions within the tree. Make the pruning cut at a lateral branch that is at least one-third the diameter of the stem to be removed.
  - 3) If it is necessary to remove more than two thirds of the foliage from a branch, remove the entire branch.

### 3. Mulching

- a. See previous Mulch section

### 4. Pest and Disease Management

- a. Trees will be monitored for pests and diseases.
- b. Treatments will be made if the health of the tree is at risk or the pests are a nuisance to people.
- c. Integrated Pest Management will be practiced when treating any pest or pathogen.
- d. Tree health should be assessed and improved in conjunction with treatment.
- e. The least toxic chemical and the least environmentally impactful treatment method shall be used before more toxic chemicals and application methods are utilized.
- f. Treated trees will be monitored for efficacy of control and to determine the need for additional applications/treatments

## 5. Irrigation

- a. Newly-planted trees will be watered at the time of installation and will be provided with weekly supplemental water over the course of their first growing season.
- b. Should it be necessary, supplemental irrigation may be continued during the second growing season following installation.
- c. Trees located in irrigated and mixed garden beds with other types of plants will be assessed regularly for irrigation requirements.
- d. Irrigation volume and frequency will be determined by rainfall, temperature, season length, demands of plant material, and event schedules in addition to watering in fertilizers, herbicides, or other products.
- e. Trees in Fields and Natural Areas:
  - 1) In general, trees located in non-garden settings such as lawns and natural areas will not be provided with supplemental irrigation. However, exceptions may be made in the case of high-value specimens exposed to severe drought conditions.

## 6. Growth Regulators

Plant Growth Regulator (PGR) with the active ingredient Paclobutrazol (ShortStop, Cambistat, Profile 2SC) will be applied to trees as required to:

- a. Prepare trees for impending construction stress.
- b. Decrease pruning cycles for trees with infrastructure clearance conflicts (lights, buildings, roads, sidewalks).
- c. Reduce stress of mature and over mature trees.

## 7. Tree Removal

- a. Live, healthy trees are generally removed only when required to protect the safety or enhance the overall quality of the campus landscape.
- b. Live, healthy trees removed due to construction shall be replaced at a 1:1 ratio of trunk diameter. The cumulative trunk diameter measured at 4.5 feet above grade shall be replaced with an equal equivalent of trunk diameter of new trees. (example: A 20” diameter tree is removed and replaced with ten 2” diameter trees)
- c. Diseased, stressed or trees of poor health or structure will be removed upon inspection by the Campus Arborist.
- d. Sound wood from felled trees will be salvaged and utilized to its highest and best use.

## 8. Storm Response and Recovery

- a. Storm response and recovery are generally accomplished in-house. In a crisis the priority is to remove tree debris that blocks campus thoroughfares, disrupts campus operations or poses hazards to the campus community.
- b. Once critical needs are addressed a prioritized recovery plan is implemented, during which unsalvageable trees are removed and salvageable trees are pruned to restore their health and structure.
- c. Lost trees are replaced to restore the structure and function of the campus urban forest in a reasonable time frame

# Landscape Management

## D. Sanitation

### 1. Site Maintenance

- a. Sidewalks, walkways, and other hardscape surfaces are maintained to avoid an accumulation of sand, dirt, leaves, graffiti, mold, mildew, or weeds in cracks.
- b. Areas are policed for litter/trash at a minimum one time per day, more in high trash areas, daily or as needed/directed. Trash/Recycling containers are on a schedule and monitored and emptied as needed.
- c. Stickers and posters are removed from trees, light poles, signs, bus stops, etc.
- d. Yard signs are checked for expiration date. All that are up past the date of the advertised event are to be removed. All unofficial, non-approved yard signs are removed immediately upon discovery. Supervisor approval is needed prior to removal.
- e. Report and clean all graffiti. Paint graffiti is reported to supervisor for removal by appropriate Facilities Management Department.

### 2. Site Furnishings

- a. Benches and other site furnishings are cleaned at the end of winter and throughout the year on a regular basis. Trash/Recycling containers cans are checked and if necessary cleaned each time they are emptied.
- b. Any damaged or missing bollards, posts and chains are reported as soon as seen.
- c. Repairs are made whenever safety, function, or appearance is in question.
- d. Damage to trash/recycling containers, bike racks, benches, railings, permanent signs, maps, etc. not easily repairable in the field are reported to supervisor.

### 3. Sidewalk Bollards

a. Purpose

- 1) The purpose of the sidewalk bollards is to control/prevent unauthorized vehicle traffic on campus sidewalks.
- 2) Grounds is charged with the control and maintenance of these bollards.

b. Bollard Removal

- 1) Campus Facilities Management departments, other University departments, contractors, event organizers, etc. that need the bollards removed request removal by Grounds through submitting a work order on their budget.
- 2) A time for removal and replacement is provided at time of request. Bollards are replaced daily. Exceptions are sometimes made for long term removals for events such as construction projects.
- 3) The bollards at the north and south ends of Woodland Glen Drive can be lowered and raised automatically.

c. Seasonal Removal

Bollards are removed for the winter to facilitate snow removal and to maintain emergency access to designated areas.



# Landscape Management

## E. Mulch

### 1. Overview

A. In an urban setting mulch helps soil to retain soil moisture and nutrients as well as provide a strong soil ecosystem.

B. Three types of mulch are used on campus:

1) Triple shredded hardwood mulch is used in the “Red Zone” area of campus.

2) Arborist Wood Chips are the predominant mulch used around trees and in landscape beds.

3) Adjacent to hospitals, research facilities, utility areas, and building air intake locations, a ken-lite rock mulch is used.

C. Compost

1) At the University of Kentucky food waste from dining halls is collected and taken to a University farm to be composted. For every batch of food waste brought to the farm, a load of compost is brought back to campus to be used in horticulture beds. Compost is mixed with mulch and used as a ground cover. Ideally, compost is added to horticulture beds twice a year.

### 2. Mulching Procedures

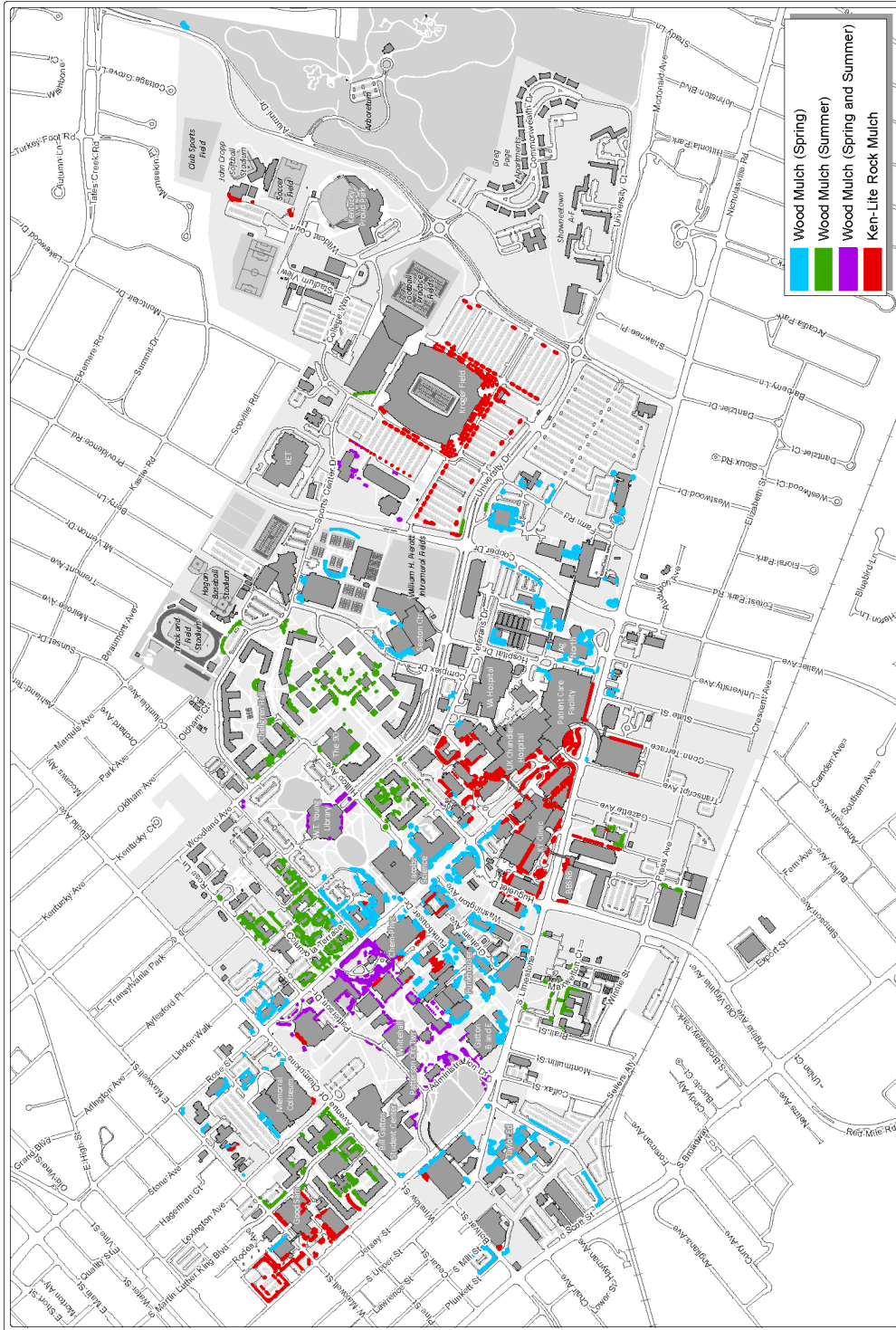
a. Trees are mulched so that the mulch layer is even with the turf and does not create a “volcano” formation. They are mulched out to the drip line of the tree to prevent compaction, and mechanical damage.

b. On smaller trees mulch rings are no smaller than 5 feet in diameter. On larger and more mature trees, the mulch is spread out to the drip line.

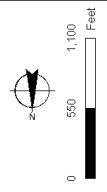
c. A crisp, clean shovel cut edge with consistent curvature to a depth of 3 inches is maintained where turf or pavement adjoins mulched areas and is tapered up to the finish grade of the plant bed. Cutting at-grade tree roots is avoided.



- d. An application of pre-emergent herbicide is made prior to mulching and is to be watered in before applying the mulch.
- e. Mulch is spread to a depth of 2-4 inches, and a 1-inch buffer is maintained around trunks of trees and shrubs. Mulch shall not be in contact with, and/or cover, the base of the trees or shrubs. This also includes the buttress roots.
- f. Mulching along hardscapes such as sidewalks and roads is applied at not more than an inch lower than the surface to prevent mulch from being washed away.
- g. Mulch is applied with a mulch blower in larger areas to prevent compaction. Otherwise, wheel barrows are utilized.
- h. All hardscapes, fixtures, and foliage of plants are to be cleaned of immediately after mulching before leaving the site.
- i. Soaking the mulch with water after it is applied prevents a hydrophobic layer from forming.
- j. Once annually, mulch is lightly cultivated to prevent a hydrophobic layer and prepare the mulch for an application of pre-emergent.



- Wood Mulch (Spring)
- Wood Mulch (Summer)
- Wood Mulch (Spring and Summer)
- Ken-Lite Rock Mulch

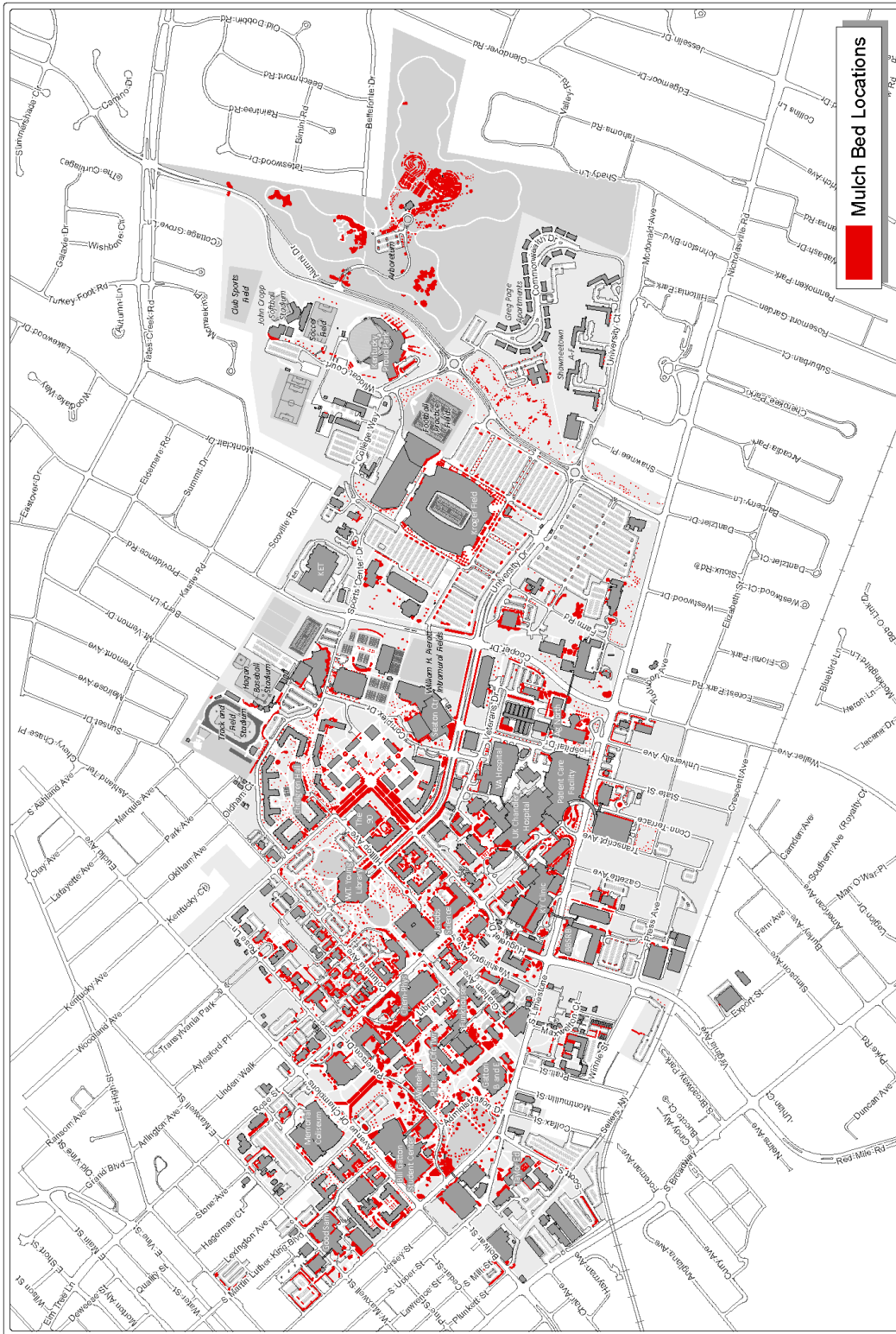


## Mulch Schedule & Types

### Grounds Department

Source: CPPD Grounds (2023)  
 Created by UK Facilities Information Services  
 Groundskeeper@uky.edu  
 REV 7/2023/22





Created by UK Facilities Information Services  
 Geographical Requests@uky.edu  
 Source: GIS Pro Grounds (2019)  
 REV 2/05/21

## Mulch Bed Locations

Grounds Department



# Landscape Management

## F. Snow Removal

It is the Grounds Departments' responsibility to provide access while on campus in the safest, most efficient and environmentally responsible manner possible. Grounds management in collaboration with the UK Police Department and other campus stakeholders monitor weather conditions 7 days a week. Grounds utilizes the campus [PPDsnow@uky.edu](mailto:PPDsnow@uky.edu) email address to communicate and update the entire campus on potential hazardous weather problems.

Additionally, grounds management utilizes the above email address to communicate mid and post event updates as well as receive service requests from the campus community.

Approximately 6 hours prior to a forecasted event, grounds management begins dispatching department personnel in a staggered fashion to ensure safe travel-vehicular and pedestrian.

Grounds employees are assigned to specific areas at the start of weather events. In the event of severe weather, snow removal areas will be prioritized and staffed in the following order:

1. Hospital areas
2. Primary pedestrian routes, roads and parking lots
3. Minimal use walks, roads and parking lots
4. Fire hydrants, storm drains and secondary access will be cleared the days following a storm
5. Athletic fields will be cleared only as resources are available

Building entrances, adjacent steps and walks from buildings to main walks are cleared and maintained by Building Operators and Custodial staff assigned to that building during normal working hours. Other units from the University assist in keeping areas immediately surrounding assigned buildings or other working areas safe and clear.

For additional information, please refer to our online Snow Plan for information regarding snow removal:

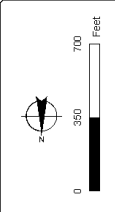
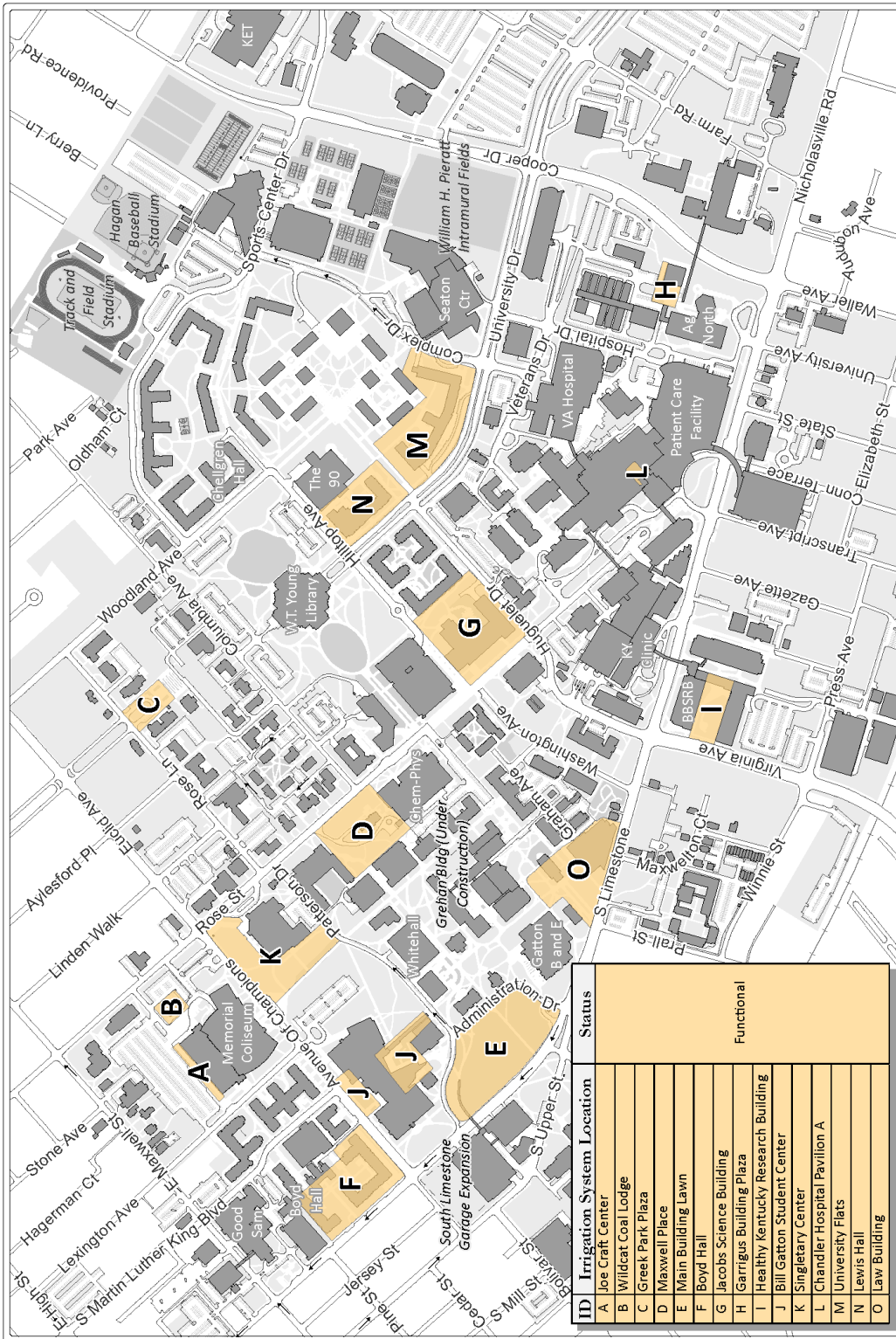
<http://www.uky.edu/facilities/cppd/services/grounds-garage/snow-removal>

# Landscape Management

## G. Irrigation

Irrigation systems on campus are designed to keep plants alive during summer months and drought conditions. All systems are designed to be water efficient. There is currently an effort to have all systems be cloud controlled or remote systems. On campus there are both drip line irrigation and spray head irrigation systems on campus. Drip line irrigation is used for smaller areas that need more control preventing water loss. Spray heads are for larger areas and also have more water loss associated.

	MAP ID
<b>FUNCTIONAL</b>	
Joe Craft Center	A
Wildcat Coal Lodge	B
Greek Park Plaza	C
Maxwell Place	D
Main Building Lawn	E
Boyd Hall	F
Jacobs Science Building	G
Garrigus Building Plaza	H
Bill Gatton Student Center	J
Singleton Center	K
Chandler Hospital Pavilion A	L
University Flats	M
Lewis Hall	N
<b>PENDING/FUTURE</b>	
Research Building 2	I
Boyd Hall	F



## Irrigation System Locations

Grounds Department

Source: CTRP Grounds (2/2021)  
 Grounds Department Services  
 Grounds, Irrigation & Sky Off  
 REV: 2/02/2120



# Landscape Management

## H. Leaf Removal

### 1. Overview

- a. Leaf collection and removal starts in late September. Leaf removal is substantially completed prior to winter break. Lingering activity continues throughout the winter. Leaves are recycled into reusable compost and soil amendment.
- b. Campus is divided into 4 areas for leaf collection with Turf Maintenance Crews to each area.
- c. Grounds Maintenance Crews assist with clearing hardscapes (sidewalks, patios, etc.) and shrub beds.
- d. Priority areas such as Maxwell Place and the Red Zone receive additional attention throughout the process.

### 2. Procedures

- a. The two methods utilized are mulching kits and leaf collection.
- b. Initially, leaves are mulched as part of the weekly mowing process. Leaves located on hard surfaces and planting beds are blown into lawn areas for mulching.
- c. Generally by late October wholesale leaf removal commences. Leaf vacuums are installed on mowers and specially outfitted trucks. Leaves are vacuumed and then deposited in a central location. Leaf piles are removed daily. Additionally, the campus street sweepers remove leaves from curbs and gutters. Collected leaves are taken to a composting facility.

# Landscape Management

## I. Football

### A. Purpose:

The Grounds Department's involvement in Football games is to ensure that fans have a safe and memorable experience while watching the game.

### B. Day Before Game Responsibilities:

1. Entire stadium is blown out
2. All trash and recycling cans are changed
3. Sidewalks are blown off
4. All trash around the stadium is picked up

### C. Game Day Responsibilities:

1. All dumpsters are empty and in place
2. Barricades and cones are set out for traffic control
3. Trash is continually picked up throughout the stadium and the surrounding parking lots
4. Trash and recycling bins are continually checked and emptied as needed
5. At half-time all bins are emptied

### D. Post-Game Responsibilities:

1. All cones and barricades are picked up
2. Parking lots are cleaned of debris, trash and recycling bags
3. Stadium is blown out
4. Street sweeper is ran in the parking lots



# Landscape Management

## J. Green Roofs

As the University is in an urban environment, green roofs have many beneficial aspects. Reducing storm water runoff, reducing heat island effect, protecting the roof itself from thermal/sun damage, and creating additional occupancy space are some of these. Around campus there are numerous green roofs that do just that and also supply a nice aesthetic to the area. Locations of Green Roofs are as follows:

- Garigus Hall
- Aztec/Grehan Hall
- Gatton Student Center
- Blazer Hall
- UK A.B. Chandler Hospital
- Biological Biomedical Science Research Building 2

Green roofs on campus are maintained by Grounds members. Some of them may require unique care due to variety of plants and location/accessibility. The maintenance procedures for green roofs are as follows:

- Green roofs are watered when necessary
- Weeds are removed and kept to a minimum
- Plants are fertilized when necessary
- Plants are trimmed when needed to encourage additional growth

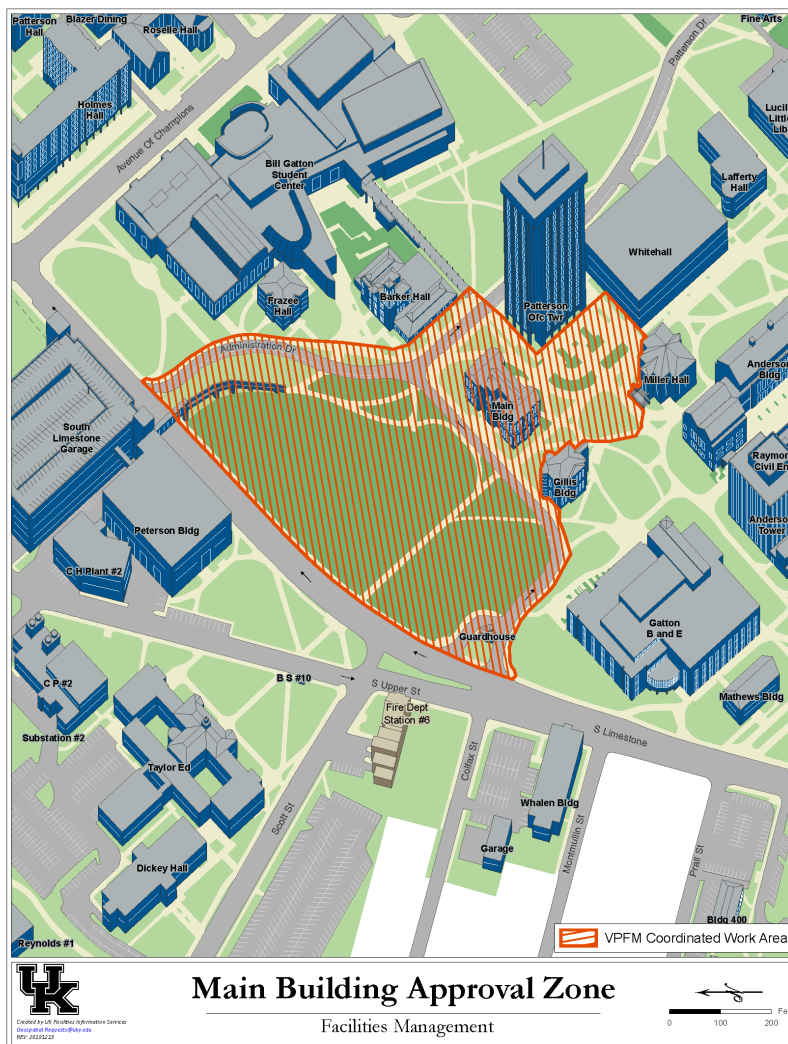


# Landscape Management

## K. Priority Areas

### 1. Red Zone

All mechanized work will be completed within the red-zone by 7am daily Monday-Friday. In the case of emergency, work done in the “Red Zone” must have approval by the President’s Chief of Staff. This zone is bounded north by Administration Drive, Patterson Drive, and Patterson Office Tower, and south by S. Limestone Street and Gatton College of Business and Economics. (See image below – Main Building Approval Zone)



## 2. Maxwell Place

Maxwell Place is the residence of the University President along with their family. It is located in the heart of campus. This area requires additional supervision because of its special location. Some of the unique features of Maxwell Place are its rain barrel, cutting garden, turf parking, pond, large gathering patio, mature trees, and its biodiversity.



# Maxwell Place Annual Maintenance

<b>Month</b>	<b>Description</b>
<b>January</b>	Monitor landscape and perform maintenance as needed. Perform selected dormant pruning.
<b>February</b>	Monitor landscape and perform maintenance as needed Fertilize lawn Assess landscape for winter damage Spade edge tree rings and beds
<b>March</b>	Begin mowing, apply pre-emergent herbicide to lawn Begin mulching, apply pre-emergent herbicide to shrub beds Soil test beds and turf Aerate and compost turf Clean up pond, Turn water fall pump on
<b>April</b>	Late April, begin planting annuals, finish mulching
<b>May</b>	Perform routine maintenance on color and shrubs beds Startup irrigation system, continue lawn maintenance, monitor for lawn and landscape for pests
<b>June</b>	Perform routine maintenance on color and shrubs beds and lawn, Prune spring flowering shrubs and trees
<b>July</b>	Perform routine maintenance on color and shrubs beds and lawn
<b>August</b>	Maintain color and shrub beds and lawn, Begin mulching beds as needed for fall events
<b>September</b>	Maintain color and shrub beds and lawn, Finish mulching
<b>October</b>	Begin annual removal doing bed preparation for next spring Begin fall fertilizer applications, begin fall lawn seeding monitor perennials for cut back, begin leaf removal
<b>November</b>	Finish seeding and fertilizing, begin planting perennial bulbs for next spring as needed, continue leaf removal
<b>December</b>	Continue leaf removal, cut back perennials

# Landscape Management

## L. Storm Water Quality Management

### 1. Purpose:

In 2010, as part of the campus Storm Water Quality Management Program, several Best Management Practices (BMPs) were assigned to Grounds Management. These duties come from the LFUCG BMP Maintenance and LID Guidance, UK Post Construction BPM, UK 2010 and 2018 Storm Water Quality Management Plan (SWQMP), UK Environmental Protection Handbook, MCM5 and MCM6 permits.

### 2. Grounds Management responsibilities as part of the 2018 SWQMP:

- a. Develop a comprehensive Storm Water Operations Manual
- b. Update the BMP Manual
- c. Create a required activity calendar and creating work orders
- d. Contract out certain maintenance activities
- e. Create procedures for unplanned events
- f. Update the employee training program
- g. Create procedures to address storm water issues once they are identified
- h. Continue goose population control efforts at Gluck and FEMA project
- i. Perform an assessment to determine if all departments are adequately funded to perform storm water duties as assigned

### 3. General Grounds Duties:

- a. Inspect Existing and New BMPs
- b. Maintain Existing and New BMPs
  - i. BMP's for grounds are bioswales/rain gardens, green roofs, pervious pavers, pervious concrete, inlet filters, vegetative swales, and detention basis
  - ii. Each of these has specific maintenance requirements which is in the BMP manual and in the LFUCG Storm water Manual and LID guidance

- c. Maintain all campus grass swales/ditches
  - d. Storm water inlet cleanout
    - Cleanout of debris both at and below the grade. Once debris enters the pipe it is Utility's responsibility.
  - e. Storm water Policy Development/Incorporation of storm water protection into regular duties
  - f. Regular storm water training for grounds employees
  - g. Pick up all trash before mowing
  - h. Coordinate with LFUCG at campus boundaries
  - i. Develop/implement bmp's to prevent cigarette butts from entering storm drains
4. Must also meet duties based from permit requirements for MCM5 – Post construction storm water management and MCM6 – Pollution Prevention/Good Housekeeping for Municipal Operations. The following is required:
- a. Install storm water BMPs
  - b. Provide long-term maintenance of the BMPs
  - c. Inspect BMPs for needed maintenance
  - d. Verify correct operation and maintenance of BMPs
  - e. Annually report inspection results, maintenance practices, and BMPs needing repair
  - f. Develop and implement an O&M plan that includes training, maintenance activities, maintenance schedules, BMPs for campus operations (reducing floatables and pollutants from streets/parking lots, maintenance and storage yards, fuel storage areas, fleet maintenance, sand/salt storage, snow disposal areas), inspection procedures for bmp's, procedures for proper disposal of waste removed from the storm sewer and other areas
  - g. Track activities to document compliance with the permit
  - h. Funding is established and maintained to ensure the accomplishment of the activities required by the permit

5. Specific Grounds Management Tasks:

- a. Inspecting new and existing BMPs – document findings and create actions plants
- b. Scheduled Preventative maintenance of Existing BMPs
- c. Contract management out certain maintenance activities
- d. Respond to and address unplanned events
- e. Monitoring and management of goose population control efforts
- f. Storm water inlet cleanout
- g. Create and submit annual report



# Grounds Personnel

The purpose of this Section is to define the structure and job expectations for the Grounds staff:

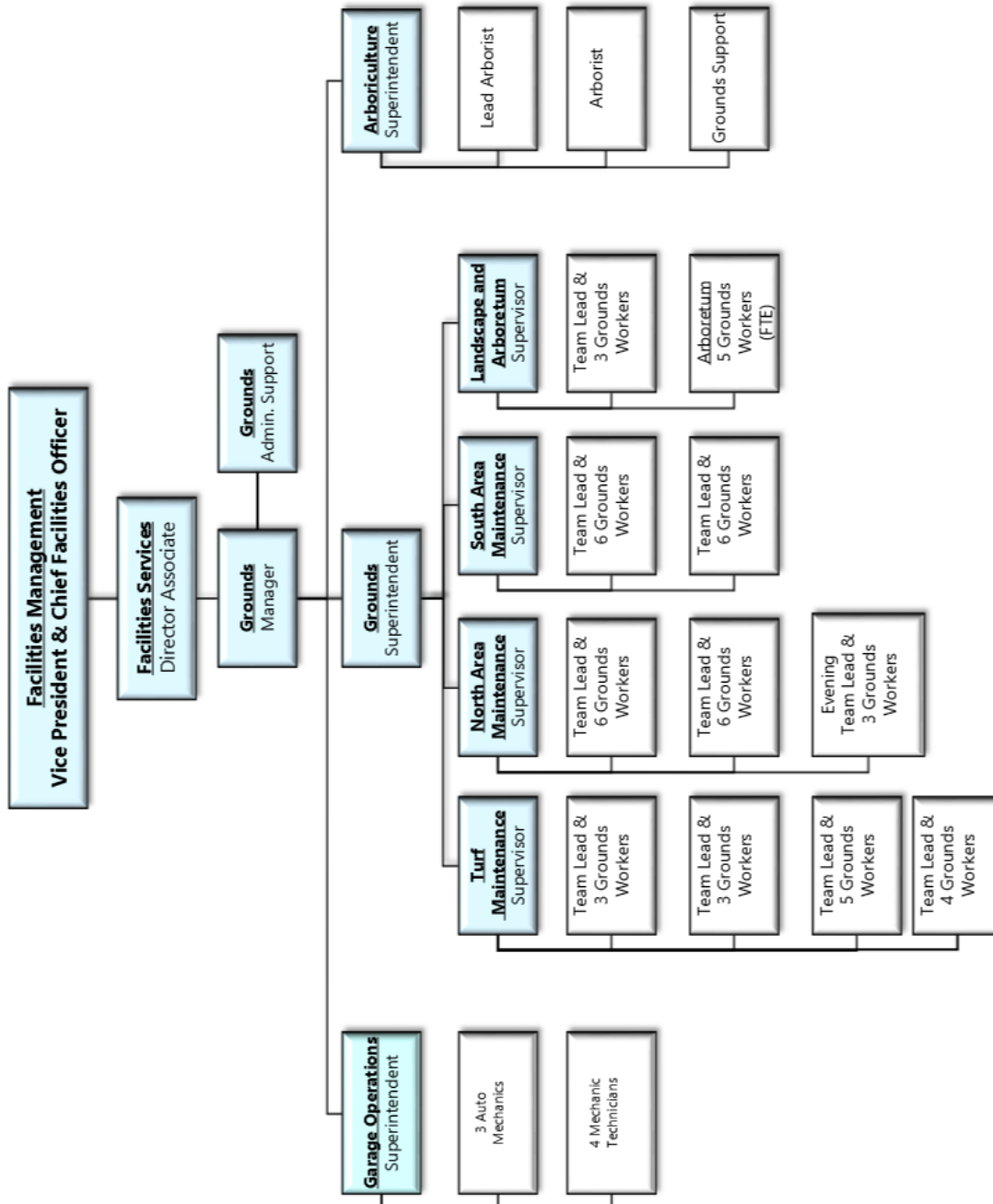
## A. Org Chart

## B. Positions

- Grounds Manager
- Grounds Superintendent
- Arboriculture & Horticulture Superintendent
- Arborist Lead
- Arborist
- Arborist Ground Support
- Grounds Supervisor
- Grounds Team Lead
- Grounds Worker III
- Grounds Worker

# Grounds Personnel

## A. Org Chart



# Grounds Personnel

## B. Positions

### Grounds Manager

Reporting directly to the Associate Director for Facilities Services, this position provides administrative and leadership direction in overseeing and maintaining the grounds landscaping and seasonal plantings for the University of Kentucky's renowned Lexington Campus and arboriculture program. The Grounds Manager provides administrative and leadership direction in overseeing and maintaining facilities garage services, encompassing a fleet of vehicles, including cars, trucks, golf and utility carts, heavy duty trucks and tractors for use in grounds, facilities maintenance, and snow removal. The manager oversees and provides work management direction for related job tasks, including grounds, garage, and arboriculture maintenance schedules, frequencies, and equipment types used as well as the activation and deactivation of equipment; communicates and meets routinely with Facilities Management – Campus, Medical Center, Utilities, and Capitol Projects Managers to define and prioritize needs in accordance with the planning, designing and implementation of the University's Landscape Master Plan; develops Key Performance Indicators (KPIs) to be measured to ensure customers' requirements are met or exceeded in accordance with established procedures, processes, and schedules; utilizes established systems to ensure grounds and equipment maintenance and preventative maintenance tasks, schedules, and completions are monitored for compliance with requirements and communicated directly with staff members. This position collaborates with superintendent and supervisors to ensure accurate and complete information is provided regarding daily work performed, time to perform, parts and equipment used, etc., analyzes information, uses logic, and develops new ideas and answers to address work-related issues and/or problems, and executes priorities in order to improve response time and facility/equipment reliability.

In addition, the Grounds Manager oversees fiscal responsibilities associated with funded projects, renovations, and maintenance repairs for grounds, garage services, and arboriculture; monitors cost center allocations; obtains and reviews relevant cost information, constraints, compliance, etc., to ensure overall quality, compliance, and cost containment; participates in budget preparation and administration; monitors costs and unit expenditures and reviews budget detail monthly with Associate Director; directly manages superintendents and staff support personnel; leads a 'Safety First' work culture; ensures compliance with all safe operating procedures and standards and ensures departmental compliance, including contractors, with all federal and state statutory codes and regulations as well as safety and environmental regulators.

### Grounds Superintendent

Provides administration management direction for supervisors and personnel assigned to the Campus Facilities Management – Grounds Department who are charged with maintaining the grounds and landscaping of the University of Kentucky's, renowned Lexington Campus. In addition, this position is responsible for coordinating the efforts needed to maintain a safe and accessible campus (roadways, sidewalks, grounds, etc.) during inclement weather conditions.

Communicates and meets with Campus Facilities Management customers as needed to define and prioritize ground's maintenance needs.  
Coordinates work performed by contractors and in-house grounds crews.  
In compliance with a master schedule, monitors progress and addresses problems and concerns as needed.

Compiles fiscal budget to support funded projects, renovations, and maintenance repairs for grounds services.  
Tracks maintenance cost of materials, tools, equipment and labor.  
Reviews, recommends, and negotiates means/methods for new and/or renovated landscaping requirements.  
Reviews consultant and internal designs, methods and materials.  
Obtains and reviews relevant information related to grounds maintenance start and completion dates, constraints, overrides, etc., to ensure overall quality and cost containment.  
Initiates appropriate actions to ensure specifications are met within budget and on-schedule.  
Adheres to established university procedures/policies.  
Communicates and implements any changes related to equipment or operations to ensure customer satisfaction and quality service.

Establish Key Performance Indicators (KPIs) to be measured to ensure customer requirements are met or exceeded in accordance with established procedures and processes and hold team members accountable.  
Directly supervise assigned personnel.  
Maintain appropriate staffing levels.  
Focus on relationships among team members and customers and address employee relations issues.  
Conduct individual performance evaluations, prepare and implement training and development plans.  
Model and promote excellent customer service for internal and external colleagues and customers.  
Participates in continuous improvement activities for all department processes.

Ensure vendor and employee compliance with local, state, and federal statutes, university standards, codes, etc.  
Ensures correct use of Personal Protective Equipment (PPE) when carrying out projects, renovations, and maintenance job tasks.  
Ensures compliance with safety codes, OSHA, EPA, and other regulatory agencies.  
Authorizes safety training, as required.  
Leads a 'Safety First' work culture.

Special projects as assigned or required by the Grounds Manager or Associate Director as well as unanticipated duties and responsibilities necessary for the job position, including landscape design and planning.  
Performs studies and cost analysis for funded and/or new construction landscaping projects as directed.  
Creates reports for various administrative needs.

## Arboriculture Superintendent

Specializes in and oversees the care, nurturing maintenance, and cultivation of trees campus-wide, including all aspects of pruning, felling, planting, fertilizing and protecting trees.

Provides expertise in support of the campus-wide University Landscape Master Plan, and ensures planning requests meet legislation and preservation requirements.

Ensures tree protection standards are enforced.

Conducts campus-wide assessments of trees in accordance with the standards set by the International Society of Arboriculture.

Carries out detailed surveys of sites to record the number of trees and their condition, and decides what works needs to be done.

Examines trees in significant detail to ensure their safeguarding.

Collaborates with various entities, including utilities, to enhance University arboriculture.

Advises on proper tree selection and specific planting preparations/procedures depending on soil conditions, situation, and visual qualities.

Estimates costs for the work to be carried out.

When necessary, initiates and participates in the development of vendor bid specifications; and oversees contracts and contractors.

Performs professional tree, hedgerow, shrub, and flora work, including undertaking thinning, pruning, felling, planting, or transplanting.

Instructs tree trimmers and groundskeepers in arborist work.

Inspects trees, shrubs, and flowerbeds to determine the need for trimming, spraying, or other appropriate treatment.

Treats disease and insect spread in trees.

Performs work with considerable independence within department and horticultural guidelines.

Ensures the health and aesthetic facts related to the good living of trees.

Develops and utilizes Key Productivity Indicators (KPIs):

Ensures department standards and requirements are met and/or exceeded in accordance with established procedures and processes and holds team members accountable.

Directly supervises assigned staff.

Maintains appropriate staffing levels and recommends personnel actions, including hires, promotions, transfers, separations, etc.

Focuses on relationships among team members and customers.

Addresses employee relation issues, and initiates corrective actions, as necessary.

Monitors employee work levels and reviews work performance.

Counsels employees about work-related issues and assists employees to correct job-skill deficiencies.

Conducts individual performance evaluations; and prepares and implements individual training and development plans.

Encourages staff to maintain personally challenging achievement goals and exert effort toward mastering tasks.

Proactively assists direct reports in reaching and obtaining their goals and objectives.

Promotes teamwork and a positive work environment.

Ensures the appropriate wage payment of direct reports and authorizes all overtime requirements.

Provides on-going training and development of staff personnel in the care and health maintenance of the Campus Urban Forest and related safety compliance.

Monitors work in-process and upon completion to ensure compliance with instructions, adherence to established practices and standards and overall acceptability of work.  
Monitors designated working areas to ensure all are maintained in a safe and orderly manner and continuously free of trash and debris.  
Provides emergency response after a disaster or when trees are sick.  
Safely and correctly organizes and removes trees in times of natural catastrophe.  
Prepares for winter weather events as necessary; participates in continuous snow and ice control/removal; addresses clean-up efforts, including the cleaning and storage of equipment and supplies.  
May operate, as assigned, light to heavy snow/ice removal equipment, including salt spreaders, snow shovels, snow blowers, snow plows or brushes, trucks and tractors with attached snow removal equipment, etc.  
Ensures safe operating standards are upheld and use of appropriate Personal Protective Equipment is required.

Models and promotes excellent customer service for internal and external customers.  
Proactively and regularly initiates with customers and clients, to assist developing recommendations that may help them reach their goals and objectives.  
Communicates, initiates, and implements changes as directed.  
Utilizes software as a tool to manage and maintain up-to-date and detailed tree information for developing and implementing short and long-term tree management goals.  
Analyzes data and creates reports for various implementation goals and other administrative needs.  
Keeps records of time and materials and requisitions supplies.  
Performs studies and cost analyses as directed; creates reports for various administrative needs.  
Files and maintains all reports and records in accordance with UK Records Retention Policy.

Special projects as assigned or required by the Grounds Superintendent or Associate Director, Facilities Services as well as unanticipated duties and responsibilities necessary for the job position.  
Provides information and advice on specific tree-related issues, and responds to complaints about individual trees.  
Addresses emergency or crisis management events promptly and effectively.  
Stays up-to-date on facilities transformational changes.  
Maintains specialized training, licensing, and/or certifications.  
Learns new technologies as they are developed, and applies new knowledge to the job.  
Stays-up-to-date about the latest studies and discoveries by attending seminars and workshops; and increases capabilities and skills in dealing with various tree diseases.  
Strives for continuous improvement in all activities and work performance.  
Hour of work and task assignments may vary dependent upon crisis management for situation and/or weather-related factors and may include nights(s), weekends, and holiday(s) response.

## Arborist Lead

Maintains trees in outdoor areas on UK Campus: Demonstrates knowledge of University Landscape Guidelines and specifications. Participates in evaluating the Campus tree canopy for overall health and safety issues. Demonstrates keen awareness of any tree safety concerns, including tree health, structural stability, falling timber, lighting conflicts, etc. Participates in emergency response after a disaster; and provides assistance in the safe and correct removal of trees in times of natural catastrophe. Coordinates and performs pruning of trees on all properties maintained by the Campus Facilities Management Grounds Department. Performs tree work as directed including pruning, removals, cabling/bracing, lightning protection, and site cleanup. Trims and prunes trees for various safety and aesthetics purposes. Utilizes safe and efficient climbing methods and rigging techniques through the application of appropriate knots, ropes and related gear. Applies use of equipment, materials, manpower, and time to ensure safe, efficient and effective operations. Demonstrates proficiency in operating aerial lift in pruning and removal maneuvers and procedures. Utilizes various hand and power tools. Ensures safe operation of chainsaws, chippers, and other tools required on the job. Inspects ropes, tools, equipment, machinery, and other gear daily. Maintains a safe and controlled work-site environment at all times and participates in all work-site safety briefings. Closely collaborates and communicates with Arboriculture Superintendent, Arborist and Arborist Grounds Support. Creates work orders in inventory management software system and informs Superintendent. Ensures active listening to instructions of all job site participants. Immediately communicates all issues clearly and concisely. Ensures work-site is cleared of brush and debris and cleaned in an appropriate manner. Participates in long-term tree management goals and objectives. Stays up-to-date on facilities transformational changes.

Supports the Arboriculture Superintendent in providing direction and oversight of team members in their successful completion of daily tasks.

Ensures assigned work schedules and arboriculture services are maintained by staff and job duties are completed in a safe, accurate, efficient, and timely manner on a daily basis.

Recommends adjustments to schedules as needed, and responds to customer concerns as they arise.

Resolves issues with customers in conjunction with department management and implements solutions as directed.

Provides input to Superintendent regarding individual employee performance and accountability for the purposes of annual performance evaluations and/or employee relations concerns.

Promotes teamwork and a positive work environment.

Models and promotes excellent customer service for internal and external customers.

Proactively and regularly initiates contact with customers and clients.

Adheres to Superintendent's means of tracking customer needs, delivering appropriate responses,

and monitoring progress towards reaching goals and objectives.  
Deals calmly and effectively with others in difficult situations.  
Maintains inventories of tools, materials, equipment, or products.  
Orders materials; supplies, or equipment.  
Monitors work in-process and upon completion to ensure compliance with instructions, adherence to established practices and standards, and overall acceptability of work.  
Ensures quality and safety meet ANSI and ISA BMP's.  
Monitors designated working areas to ensure all are maintained in a safe and orderly manner and continuously free of trash and debris.  
Executes arboriculture priorities in order to improve response time and facility/equipment reliability.  
Maintains specialized training.  
Stays informed of current technology trends; learns new technologies as they are developed, and applies knowledge to the job.  
Strives for continuous improvement in all activities and work performance.

Demonstrates a disciplined safety focus in the performance of all job tasks.  
Participates in and/or conducts daily work-site safety briefings and scheduled safety meetings.  
Ensures safe operating standards are upheld and use of appropriate Personal Protective Equipment is required.  
Trains departmental staff in arboriculture, including the care and health maintenance of the Campus Urban Forest and related safety compliance.  
Performs Plant Health Care (PHC), including fertilizing; pest/disease treatments; growth regulator; applications; and use of compressed air to correct/improve soil conditions.  
Evaluates and diagnoses pest related problems.  
Performs and/or oversees the application of pesticides (including herbicides) as necessary to prevent and control pests/diseases.  
Maintains a valid Kentucky Certified Applicators License.  
Ensures vendor compliance with Campus safety and health policies, code compliance, and sustainable forestry management.  
Ensures compliance with safety standards in Arboriculture, OSHA, DOT, EPA, and other regulatory agencies.  
Documents and maintains records of pesticide applications related to tree health.  
Records completed work in inventory management software system.  
Ensures compliance with UK Records Retention Policies.

Special projects or job tasks as assigned or required by the Arboriculture Superintendent or department management as well as unanticipated duties and responsibilities necessary for the job position.  
Addresses emergency or crisis management events promptly and effectively. \*  
Contributes to assigned team's efforts.  
May provide back-up support as needed in various cross-functional assignments.  
Participates in winter weather events as necessary, including continuous snow and ice



control/removal, clean-up efforts, and the cleaning and storage of equipment and supplies. May operate, as assigned, light to heavy snow/ice removal equipment, including salt spreaders, snow shovels, snow blowers, snow plows or brushes, trucks and tractors with attached snow removal equipment, etc. Participates in campus/community tree related events and projects.

## Arborist

Maintains trees in outdoor areas on UK Campus:  
Demonstrates knowledge University Landscape Guidelines and specifications.  
Participates in evaluating the Campus tree canopy for overall health and safety issues.  
Demonstrates keen awareness of any tree safety concerns, including tree health, structural stability, falling timber, lighting conflicts, etc.  
Participates in emergency response after a disaster; and provides assistance in the safe and correct removal of trees in times of natural catastrophe.  
Coordinates and performs pruning of trees on all properties maintained by the Campus Facilities Management Grounds Department.  
Performs tree work as directed including pruning, removals, cabling/bracing, lightning protection, and site cleanup.  
Trims and prunes trees for various safety and aesthetic purposes.  
Utilizes safe and efficient climbing methods and rigging techniques through the application of appropriate knots, ropes and related gear.  
Applies use of equipment, materials, manpower, and time to ensure safe, efficient and effective operations.  
Demonstrates proficiency I operating aerial lift in pruning and removal maneuvers and procedures.  
Utilizes various hand and power tools.  
Ensures safe operation of chainsaws, chippers, and other tools required on the job.  
Inspects ropes, tools, equipment, machinery, and other gear daily.  
Maintains a safe and controlled work-site environment at all times and participates in all work-site safety briefings.  
Closely collaborates and communicates with Lead Arborist and Arborist Grounds Support.  
Creates work orders in inventory management software system and informs Lead Arborist and Superintendent.  
Ensures active listening to instructions of all job site participants.  
Immediately communicates all issues clearly and concisely.  
Ensures work-site is cleared of brush and debris and cleaned in an appropriate manner.  
Participates in long-term tree management goals and objectives.  
Stays up-to-date on facilities transformational changes.

Models and promotes excellent customer service for internal and external customers.  
Proactively and regularly initiates contact with customers and clients.  
Adheres to Superintendent's means of tracking customer needs, delivering appropriate responses, and monitoring progress towards reaching goals and objectives.  
Deals calmly and effectively with others in difficult situations.  
Maintains inventories of tools, materials, equipment, or products.  
Orders materials; supplies, or equipment.

Monitors work in-process upon completion to ensure compliance with instructions, adherence to established practices and standards, and overall acceptability of work.

Monitors designated working areas to ensure all are maintained in a safe and orderly manner and continuously free of trash and debris.

Executes arboriculture priorities in order to improve response time and facility/equipment reliability.

Maintains specialized training.

Stays informed of current technology trends; learns new technologies as they are developed, and implies knowledge to the job.

Strives for continuous improvement in all activities and work performance.

Demonstrates a disciplined safety focus in the performance of all job tasks.

Participates in and/or conducts daily work-site safety briefings and scheduled safety meetings.

Ensures safe operating standards are upheld and use of appropriate Personal Protective Equipment is required.

Trains departmental staff in arboriculture, including the care and health maintenance of the Campus Urban Forest and related safety compliance.

Performs Plant Health Care (PHC), including fertilizing; pest/disease treatments; growth regulator; applications; and use of compressed air to correct/improve soil conditions.

Evaluates and diagnoses pest related problems.

Performs and/or oversees the applications of pesticides (including herbicides) as necessary to prevent and control pests/diseases.

Maintains a valid Kentucky certified Applicators License.

Ensures vendor compliance with campus safety and health policies, code compliance, and sustainable forestry management.

Ensures compliance with safety standards in arboriculture, OSHA, DOT, EPA, and other regulatory agencies.

Documents and maintains records of pesticide applications related to tree health.

Records completed work in inventory management software system.

Ensures compliance with UK Records Retention Policies.

Special projects or job tasks as assigned or required by the Arboriculture Superintendent or department management as well as unanticipated duties and responsibilities necessary for the job position.

Addresses emergency or crisis management events promptly and effectively.

Contributes to assigned team's efforts.

May provide back-up support as needed in various cross-functional assignments.

Participates in winter weather events as necessary, including continuous snow and ice control/removal, clean-up efforts, and the cleaning and storage of equipment and supplies.

May operate, as assigned, light to heavy snow/ice removal equipment, including salt spreaders, snow shovels, snow blowers, snow plows or brushes, trucks and tractors with attached snow removal equipment, etc.

Participates in campus/community tree related events and projects.

Hours of work may vary dependent upon situation and/or weather-related factors, and emergencies requiring night(s), weekends, or holiday(s) response.

## Arborist Grounds Support

Maintains trees in outdoor areas on UK Campus: Demonstrates keen awareness of any tree safety concerns, including tree health, structural stability, falling timber, and lighting. Acts as ground support on the job site during tree pruning and removal operations. Sets up and maintains safety perimeters around tree work zones. Sets up and oversees rigging equipment, ropes, and other gear. Applies use of equipment, materials, manpower, and time to ensure safe, efficient and effective operations. Maintains a safe and controlled work-site environment at all times and participates in all work-site safety briefings. Trims and prunes trees for various safety and aesthetics purposes. Participates in emergency response after a disaster; and Provides assistance in the safe and correct removal of trees in times of natural catastrophe. Lifts heavy tree branches. Hauls brush and wood from the tree to the truck or chipper. Utilizes various hand and power tools. Ensures safe operation of chainsaws, chippers, and other tools required on the job. Inspects ropes, tools, equipment, machinery, and other gear daily. Provides assistance to the tree climber or arborist. Actively listens to instructions. Communicates any issues clearly and immediately. Clears brush and debris, and cleans dedicated work zones.

Demonstrates a disciplined safety focus in the performance of all job tasks. Participates in training related to the care and health maintenance of the Campus Urban Forest and related safety compliance. Maintains working areas in a safe and orderly manner and continuously free of trash and debris. Performs Plant Health Care (PHC), including fertilizing; pest/disease treatments; growth regulator applications; and use of compressed air to correct/improve soil conditions. Ensures safe operating standards are upheld and uses appropriate Personal Protective Equipment as required. Maintains specialized training. Learns new technologies or skills as they are developed and applies new knowledge to the job. Strives for continuous improvement in all activities and work performance.

Models and promotes excellent customer service for internal and external customers. Communicates customer concerns to Arboriculture Superintendent to warrant appropriate response. Delivers work in-process and upon completion in accordance with instructions, established practices and standards, and overall acceptability of work. Maintains daily inspection logs. Enters data into the automated tree inventory system as required.

Special projects or job tasks as assigned or required by the Arboriculture Superintendent as well as unanticipated duties and responsibilities necessary for the job position. Addresses emergency or crisis management events promptly and effectively. \* Stays up-to-date on facilities transformational changes. Participates in winter weather events as necessary, including continuous snow and ice control/removal, clean-up efforts, and the cleaning and storage of equipment and supplies. May operate, as assigned, light to heavy snow/ice removal equipment, including salt spreaders, snow shovels, snow blowers, snow plows or brushes, trucks and tractors with attached snow removal equipment, etc. Participates in campus/community tree related events and projects. \*Hours of work may vary dependent upon situational factors, emergencies, or crisis management requiring night(s), weekends(s), or holidays(s) response when necessary.

## Supervisor

Directs the daily activities of 10-20 employee. Schedules, coordinate, and inspects projects. Responsible for staff's efficiency and productivity. Trains and works directly with Grounds Workers.

**Communicates and enforces policies and procedures/safety code compliance.** Interviews applicants and assists superintendent in hiring/firing process; responsible for staff's disciplines, terminations, and performance evaluations; recommends promotions, transfers, pay increases, etc.

Keeps track of daily time records of sick, vacation, timekeeping, etc. Keeps inventory of tools and equipment. Prepares written reports for Superintendent, and Manager when needed.

Performs all duties of a Grounds Worker I, II, and III. Makes sure jobs are completed with efficiency. Works overtime when required.

## Team Lead

Maintains an area of land for aesthetic or functional purposes.

Performs all aspects of grounds turf maintenance including: mowing trimming, edging, weed control and removal, seeding, fertilizing, grounds clean-up, and leaf removal.

Ensures proper utilization of grounds keeping equipment, including implements and vehicles such as: mowers, lawn mowers, tractors, string trimmers, edgers, rotary brushes, rakes, leaf blowers, shovels, sprinklers, garden tools, as well as pressure washers, or truck mounted watering equipment.

May repair and maintain the turf and grounds at designated venues, as required.

Performs minor pruning or tree limbs, shrubbery, and bushes.

Maintains grounds and landscaping equipment in a safe operating condition.

Maintains campus landscaping, gardens or sporting venues (and their vegetation where appropriate) for appearance and functionality, including trimming.

During plant installations, installs and maintains landscaped areas, including mulching, planting, and watering flower gardens.

Applies environmentally appropriate weed and pest control.

Maintains, improves, and ensures general upkeep of grounds, athletic, or designated venues, including garages.

Secures litter and empties trash in designated area(s).

**Ensures litter-free campus grounds.**

Maintains and cleans university parking garages and stairwells, as assigned.

Performs new and/or temporary grounds services requirements as required by the customer and as authorized by department management.

**Supports the Grounds Supervisor in providing direction and oversight of team members in their successful completion of daily tasks.**

**Ensures assigned work schedules and grounds services are maintained by staff and job duties completed in a safe, accurate, efficient, and timely manner on a daily basis.**

In the absence of staff, ensures all assigned client areas are covered by recommending to the Grounds Supervisor any adjustments to schedules as needed.

May be required to intervene in responding to customer concerns as they arise.

Resolves service issues with customers in conjunction with department management and implements solutions as directed.

May provide input to supervisor regarding individual employee performance and accountability during corrective actions or performance evaluations.

Stays informed of current technology trends and learns new technologies as they are developed.

Strives for continuous improvement in all activities and work performance.

Prepares for winter weather events as necessary, at any and all hours, including nights, weekends, and holidays.

Participates in continuous snow and ice control/removal during winter weather events.

Addresses clean-up efforts as necessary following winter weather events, including the cleaning and storage of equipment and supplies.

Removes snow and ice from university sidewalks, steps, parking areas, roads, etc., as required.

Operates, as assigned, light to heavy snow/ice removal equipment, including salt spreaders, snow shovels, snow blowers, snow plows or brushes, trucks and tractors with attached snow removal equipment, etc.

Demonstrates excellent customer service for internal and external customers.

Informs Grounds Supervisor of customer needs and delivers an appropriate response(s), as directed.

Demonstrates progress towards reaching goals and objectives.

Demonstrates compliance with quality assurance inspection results.

Demonstrates compliance with instructions regarding work in-process and upon completion.

**Delivers work results which are in compliance with established practices and standards, and overall acceptability of work.**

Ensures all assigned working areas are maintained in a safe and orderly manner and continuously free of trash and debris.

Operates and maintains equipment in a safe manner and requests repairs, as needed.

**Demonstrates compliance with PPE usage, use of cautionary signage, and use of appropriate chemicals.**

**Demonstrates compliance with safety codes, OSHA, EPA, and other regulatory requirements.**

**Follows grounds safety and general rules and regulations.**

Special projects as assigned or required by the Grounds Supervisor or department management.

Contributes to assigned team's efforts.

May provide back-up support as needed in various cross-functional assignments to cover for absences.

Hours of work may vary dependent upon situational and weather-related factors.

Work is primarily performed in assigned area(s), and requires work out in the field exposed to elements, temperatures, and weather extremes.

## Grounds Worker III

Completes all duties of a Grounds Worker I & II. Responsible for establishment of sub-grades and finished grades in preparation of planting or working with sod. Renovates areas by seeding. Mows turf areas using lawn tractors. Operates tractors, steer loaders, backhoes, etc. May specialize in tree trimming.

Removes snow and ice from walks. Removes brush. Empties trash cans and sweeps. Picks up trash and debris. Sweeps broken glass. Leaf removal from walks, turf, shrub beds, etc. Reports any problems or unusual conditions to supervisor.

Prunes and trims hedges. Plants, transplants trees shrubs and flowers. Maintains shrub and flower beds.

Assists Supervisor in planning and scheduling work for assigned crew. Trains employees. Handles complaints/suggestions. Assumes role of Team Lead when he or she is out.

Assists training others. Makes sure jobs are completed with efficiency. Works overtime when required/requested. Available for emergency call backs. Other duties as assigned.

## Grounds Worker

Team members maintain an area of land for aesthetic or functional purposes.

Perform all aspects of grounds turf maintenance including: mowing, trimming, edging, weed control and removal, seeding, fertilizing, grounds clean-up, and leaf removal.

Ensures proper utilization of grounds keeping equipment, including implements and vehicles such as mowers, lawn mowers, tractors, string trimmers, edgers, rotary brushes, rakes, leaf blowers, shovels, trowels, sprinklers, garden tools, as well as a watering can, pressure washers, or truck mounted watering system.

May repair and maintain the playing surface at athletic or designated venues, as required.

Performs minor pruning of tree limbs, shrubbery, and bushes.

Maintains grounds and landscaping equipment in a safe operating condition.

Maintains campus landscaping, gardens or sporting venues (and their vegetation where appropriate) for appearance and functionality, including trimming hedges, pulling weeds, planting flowers, etc.

During plant installations, follows designs created by a landscape architect.

Installs and maintains landscaped areas, including mulching, planting, and water flower gardens.

Applies environmentally appropriate weed and pet control.

Maintains, improves, and ensures general upkeep of grounds, athletic, or designated venues, including garages.

Secures litter and empties trash in designated area(s).

Ensures litter-free zone(s).

Maintains and cleans university parking garages and stairwells.

Prepares for winter weather events as necessary, at any and all hours, including nights, weekend, and holidays.

Participates in continuous snow and ice control/ice removal during winter weather events.

Addresses clean-up efforts as necessary following winter weather events, including the cleaning and storage of equipment and supplies.

Removes snow and ice from university sidewalks, steps, parking areas, roads, etc., as required.

Operates, as assigned, light to heavy snow/ice removal equipment, including salt spreaders, snow shovels, snow blowers, snow plows or brushes, trucks and tractors with attached snow removal equipment, etc.

Special projects as assigned or required by the Grounds Supervisor, Grounds Team Lead, or department management. Contributes to assigned team's efforts. May provide back-up support as needed in various cross-functional assignments to cover for absences.

Hours of work may vary dependent upon situational and weather-related factors.

Work is primarily performed in assigned area(s), and requires work in the field exposed to elements, temperatures, and weather extremes.

# Policies and Guidelines

All University, Facilities Management and Physical Plant policies and procedures apply including but are not limited to:

## Shift

	Work day times	Work night times
Start time	7:00am	3:15pm
Morning Break	9:00am-9:15am*	5:15pm-5:30pm
Lunch time	11:15am to 12:00pm**	7:30pm-8:15pm
Afternoon Break	1:30pm-1:45pm*	9:45pm-10:00pm
Quitting time	3:45pm	12:00am

*\*15 minute breaks are **taken where you are working at that time.***

*\*\*Lunch time; you are free to take lunch anywhere you like; at the shops or off Campus. If off Campus, you must clock out and be back at your assigned shop and clocked in by 12:00pm.*

## Handheld Radios

- Assigned radios are carried at all times.

## Uniform Policy

- Issued uniforms are the responsibility of the individual to keep clean and maintained with no rips, tears, etc.
- Once issued, uniforms are worn at all times while at work.
- Uniforms are not altered, i.e. sleeves cut off or pants made into shorts.
- Class 2 reflective safety vests are worn at all times.

## Vehicle Operation

- Posted speed limit is followed.
- Seatbelts are always worn.
- No cell phone use while driving.
- No Smoking in any type of Vehicles.
- Dump trucks remain on paved roads except while performing a specific task.
  - When trucks are taken off paved roads, alterna-mats or other ground protection is to be used to avoid soil compaction and ruts.
- Beacon light is used on Utility Vehicles.
- Mindfulness of pedestrians is maintained. They have the right-of-way.
- Utility Vehicles are not to be taken off campus.
- Crossing roads is done only at signaled intersections.



- Allowing someone to ride in the bed of a vehicle is never done.
- A neat and orderly appearance of vehicle is always maintained.
- University policies on use of Motor Vehicles are used when conducting University business.
- University policies on the use of Golf Carts and Utility Vehicles are followed.
- Do not leave the vehicle idling.
- Remove the ignition key from the vehicle when leaving it.
- Daily vehicle pre-trip inspections are performed.
- Weekly vehicle inspection reports are done and turned in to supervisor.

#### Training and Professional Development

- All new hires go through safety orientation
- Safety orientation is recertified annually
- At the end of a new hire's probationary period, an individual professional development plan is developed.
- Each employee is evaluated yearly along with their professional development plan.
- Each employee completes all university mandated professional development training.
- Personnel development for professional growth is tracked by Grounds Management.
- Management recognizes individual professional achievements.

#### Safety Policies

- Personal protective equipment and mechanized equipment is inspected daily and prior to each use. (See pages 74, 75 - Summary of Personal Protection Equipment (PPE) requirements)
- Safety glasses and ear protection devices
  - Safety glasses are worn at all times while performing work
  - Ear protection is worn at all times while using powered equipment.
- All new hires go through safety orientation and is recertified annually
- Departments perform weekly safety meetings
- Workplace safety monitoring is performed daily
- Trainings on accidents or "near misses" and injuries are conducted
- Class 2 reflective safety vests are worn at all times.

## Safety Program, Clean-up Procedures

### Bodily Fluids

- Blood
  - Supervisor, Team Lead, or Grounds Office is contacted.
  - Be available for wash-down.
- Vomit
  - Supervisor, Team Lead, or Grounds Office is contacted.
  - Grounds dispatches for a wash-down.
- Feces
  - Supervisor, Team Lead, or Grounds Office is contacted.
  - Grounds dispatches for a wash-down.

### Road kill

- Supervisor, Team Lead, or Grounds Office is contacted.
- Grounds dispatches for disposal.
- Road kill is bagged and placed in an appropriate dumpster.

## Summary of Personal Protection Equipment (PPE) Requirements

SAFETY SHOES AND SAFETY GLASSES ARE REQUIRED FOR ALL LANDSCAPE TASKS. ADDITIONAL PPE IS REQUIRED FOR THE FOLLOWING TASKS.

Task(s) or Work Area(s)	Potential Hazard(s)	Additional PPE Required
Blower operation	Flying particles, noise, contact with motorized equipment	Hearing, eye protection
Chainsaw operation	Flying particles, falling objects, cuts, noise, contact with motorized equipment	Hardhat Hearing, eye protection Work gloves Cut resistant leg protection
Chipper operation	Flying particles, noise, entanglement, cuts, falling objects, contact with motorized equipment	Hardhat Hearing, eye protection Long pants
Dig holes (planting trees, no-excavation work)	Flying particles, falling objects, noise, cuts, contact with motorized equipment	Hard hat if overhead hazard exists Hearing protection if powered equipment is used
Fertilizer application (solid and liquid)	Chemical splash, flying particles, inhalation	Safety goggles Respiratory protection and chemical resistant gloves based on label requirement
Install/ remove equipment attachments (ex. snow blades, mower deck, etc.)	Cuts, falling objects	Work gloves Hard hat if overhead hazard exists
Landscape equipment operation– tractors, skid loader, mini excavator, fork truck etc.	Falling objects, noise, flying debris, contact with motorized equipment	Hearing eye protection Hard hat if overhead hazard exists
Lawn mowing- riding	Flying particles, noise	Hearing, eye protection
Lawn mowing- walk behind	Flying particles, noise	Hearing, eye protection
Mulching	Cuts, falling objects, contact with motorized equipment	Hearing, eye protection (if power equipment is used)

Utility vehicle operation	Noise, flying particles	Hearing protection (depending on noise level of the vehicle)
Pesticide Applicators	Chemical splash, flying particles, noise, inhalation	Refer to container label for PPE requirements. Rubber boots, coveralls and nitrile gloves are required for use above and beyond manufacturer's recommendations.
Pruning shrubbery (with hand equipment)	Flying particles, cuts	Work gloves, eye protection
Pruning shrubbery (with power equipment)	Flying particles, noise, cuts, contact with motorized equipment	Hearing, eye protection when using power tools Long pants Work gloves
Sign / barricade installation	Falls, flying particles, cuts, contact with motorized equipment, vehicle traffic	Hardhat if overhead hazards exists Fall protection – when required Class 2 safety vest
Snow blowing, snow plowing	Flying particles, slip, vehicle traffic	Hearing protection Class 2 safety vest – when working in traffic
Trash and debris removal	Flying objects, cuts, material handling, vehicle traffic	Hearing, eye protection if using motorized equipment Class 2 safety vest- when working in traffic
Small tree, large shrub trimming	Eye hazard, falling object, cuts, fall, contact with motorized equipment, abrasions	Hearing, eye protection
Weed trimming- string/ blade	Flying particles, noise, cuts and lacerations	Hearing, eye protection Long pants or approved lower leg protectors
Leaf Vacuum Operation	Flying particles, noise, contact with motorized equipment	Hearing, eye protection

# Integrated Pest Management Program

Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. This methodology in combination with available pest control methods is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.

How does our IPM program work?

IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, a four-tiered approach is followed. The four steps include:

## **Set Action Thresholds**

Before taking any pest control action, the IPM program first sets an action threshold, a point at which pest populations or environmental conditions indicate that pest control action must be taken. These thresholds could differ by location, Arboretum and outlying areas compared to main campus.

## **Monitor and Identify Pests**

Not all insects, weeds, and other living organisms require control. Our IPM program works to monitor for pests and identify them accurately, so that appropriate control decisions can be made in conjunction with action thresholds. This monitoring and identification removes the possibility that pesticides will be used when they are not really needed or that the wrong kind of pesticide will be used.

Objectives of a monitoring program are as follows:

- Determine the extent and nature of any turf or plant damage.
- Determine the presence and population of pests.
- Establish ambient environmental conditions (e.g. temperature, sunlight, humidity and precipitation) and the associated impacts on pests.
- Identify the growth stage of the pest and its susceptibility to treatment.
- Identify the current life or growth stage of the pest's host (if applicable) and its conditions.
- Identify the presence, identity and population levels of beneficial insects, wildlife and birds.

- Maintenance of good records is an important component of a monitoring program. Specific information to be recorded will include:
  - Name of pest.
  - Where encountered.
  - Scope of damage.
  - Date of occurrence.
  - Weather conditions present.
  - Control measures used.

## **Prevention**

As a first line of pest control, the IPM program works to prevent pests from becoming a threat.

## **Cultural Methods**

Cultural methods are essentially preventative measures, which block or reduce the extent of pest problems and focus on turf health. These control methods can be very effective, cost-efficient, and present little or no risk to people or the environment. Examples of cultural methods are as follows:

- Aeration, topdressing, thatch removal, and over seeding to promote a healthy turf grass environment.
- Hand-pull or spot treat weeds growing in small patches
- Select native or pest-resistant trees, shrubs, and ornamentals in landscape beds.
- Select turf grass cultivars adapted to local climatic conditions
- Conserve native grass species or establish diverse grass species where possible;
- Incorporate organic amendments (such as peat moss, compost or straw) in areas where organic content of the soil is low to improve water and nutrient-holding capacity, enhance drainage and promote aeration;
- Aerate compacted soil and provide good drainage;
- Raise mowing height and reduce mowing frequency;
- Mow with sharp blades;
- Return grass clippings to grass areas, wherever possible;
- Use high quality seed stock / varieties that are disease-free and disease-resistant;

- Manage soil fertility, weed control and irrigation to help maintain a strong, healthy grass stand and increase disease resistance;
- Schedule early-morning irrigation in areas that are susceptible to disease;
- Minimize shade in areas susceptible to disease;
- Till exposed soil to kill growing weeds;
- Prevent the spread of disease and weeds by equipment;
- Use traps or repeated flooding of burrows to control gophers and ground squirrels;
- Use tree guards to control damage by rabbits and porcupines;
- Use mechanical methods for removing vegetation, taking care to remove roots and plant debris.

Non-cultural methods utilize either biological controls or pesticides for pest control.

Biological controls involve the use of specific organisms (e.g., weed-eating fish, snails, etc.) to control the pests. Other control organisms include beneficial bacteria, predatory insects, bats and birds. Given that the use of biological controls is relatively new, combined with the potential adverse consequences of introducing new species into the local environment, you should consult with a biologist prior to implementing any of these control options.

## **Control**

Once monitoring, identification, and action thresholds indicate that pest control is required, and preventive methods are no longer effective or available, the IPM program then evaluates the proper control method for both effectiveness and risk.

Effective, less risky pest controls are chosen first, including highly targeted chemicals, such as pheromones to disrupt pest mating, or mechanical control, such as trapping or weeding. If further monitoring, identifications and action thresholds indicate that less risky controls are not working, then additional pest control methods may be employed, such as targeted spraying of pesticides. Broadcast spreading of non-specific or non-selective pesticides is a last resort.

### Physical Controls

If preventative measures fail to prevent pest problems, a second strategy is to use mechanical trapping devices or other methods. Some pests can be removed by hand, or by using a strong jet of water, other physical practices, including pruning, raking, and regular mulching also help. Using physical controls will mean taking a more active role in pest management, without spending time and money on pesticide treatments that may harm the environment.

## Horticultural Controls

Horticultural practices such as pruning, mulching, planting pest-resistant trees and shrubs, composting decayed plant material and using it to improve soil quality also help control pest populations safely and effectively while protecting the environment from chemical overuse.

## Biological Controls

Biological controls is another safe way to manage pests without the use of chemicals. The most common natural enemies include predators, parasites, and pathogens. Predators, including various insects, birds, bats and moles help consume and eliminate large numbers of pests. Ladybugs, for example, help control aphids.

## Chemical Controls

Chemical pesticides are the last resort, used only when alternative controls have been exhausted. With IPM, the least toxic pesticides is used only when a pest is actively causing serious damage. There is no spraying on a calendar basis.

## **Pest prevention**

Pest prevention is a fundamental IPM concept. Prevention involves removing the conditions that might attract a pest or disease or provide it with the food and environment it needs to thrive. Some plants need full sun, some do better in shade, and some grow best in sandy soils, others in clay or wetlands. Some need a lot of fertilizer, others very little. Nothing does well surrounded by weeds that compete for light, fertility and water and often harbor insects and diseases.

When selecting annuals, perennials, shrubs or trees, make sure the soil and light conditions support the particular plant's needs. Strong healthy vegetation is much less susceptible to attacks by insects or disease. Monitoring flowers, vegetables and landscape plantings for damage every week during the growing season will help reduce pesticide use.

Frequent monitoring will result in spotting a problem before it has a chance to exacerbate. In identifying a particular insect or disease, first consider the level of damage, and then determine the best approach.

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