



2011

# Landscape Guidelines Handbook



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**CITY OF WEST JORDAN**

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# CONTENTS

## Purpose

This manual is a supplemental tool meant to assist in the implementation of the City's landscape requirements and provide an educational guide for landscape and irrigation design. Proper application of these principles will promote positive and enriching development by assuring that landscapes are not only water wise, but provide an aesthetically pleasing and flourishing atmosphere. In so doing West Jordan will become a more cohesive, remarkable and unmistakable community that its citizens can continue to take pride in.

<b>Design Guidelines</b>	<b><u>Page</u></b>
I. Landscape Design .....	3
II. Irrigation Systems .....	5
III. Tree Protection and Selection .....	8
IV. Noxious Weeds List.....	11
V. Street Tree List.....	13
<b>Examples.....</b>	<b>15</b>

<b>Appendix</b>	<b><u>Page</u></b>
I. Recommended Plant List .....	20
II. Firewise Plants for Utah Landscapes .....	22
III. Landscape Area and Water Conserving Landscaping Calculations Worksheet .....	23
IV. Water Allowance Worksheet .....	26
V. Landscape Certification Worksheet.....	27
VI. Distribution Uniformity Audit Worksheet (For Turfgrass areas).....	28

## Landscape Design

The Zoning Ordinance Landscape Requirements (Title 13, Chapter 13) provides general requirements to provide a wide variety of landscape styles and designs throughout the city. The regulations are designed to create water wise landscaping while not hindering the potential scope of landscape design. The restrictions range from limiting the amount of turf grasses which can be incorporated into a design to requiring 75% of the plants, excluding sod, to be water wise. The below standards are guidelines which should be incorporated into all landscape designs.

### Design Considerations:

1. *Aboveground Utilities:* The landscape design should identify the location of aboveground public utilities (i.e., overhead power lines, transformers, meter boxes, backflow preventers, etc.), and offer design solutions to mitigate the visual impact of such elements on the site while not obstructing access to such facilities for maintenance and service.
2. *Sign Visibility:* Although landscaping may not initially appear to obscure a sign, it may significantly reduce or eliminate the sign's effectiveness unless taken into account in the planning stage. Existing and proposed signs should be shown on the landscape plan. Selection and placement of plants in the vicinity of signs should be determined by the mature height and spread of the plants to ensure that signs are not obscured from view when the landscape has reached full maturity. Plant foliage shall not obscure in any way complete visibility of public safety and traffic regulatory signs.
3. *Light pollution and buffering:* Plants should be used to prevent light pollution from parking lots and buffering from adjacent uses. A combination of plants, fencing, berms and existing topographic features may be used to provide the screening and buffering, as appropriate to the specific site area being designed.
4. *Soil Preparation:* Soil preparation should be suitable to provide healthy growing conditions for the plants and to encourage water infiltration and penetration. Soil preparation should include scarifying the soil to a minimum depth of six inches (6") and amending the soil with organic material as per specific recommendations from a landscape designer based on a topsoil analysis.
  - a. *Topsoil Analysis:* If the landscape designer decides to obtain and provide a topsoil suitability analysis, it should include the following characteristics and quantitative values:
    - i. Soluble salts (dS/m or mmho/cm);
    - ii. pH;
    - iii. Sand (%);
    - iv. Silt (%);



Jordan Valley Water Conservancy District Gardens

- v. Clay (%);
  - vi. Texture class (sandy clay, clay loam, silty sand, etc.);
  - vii. Organic matter (%);
  - viii. % Coarse fragments (>2 mm diameter);
  - ix. Sodium adsorption ratio (SAR).
5. *Slopes*: Areas with slopes greater than 30% should be landscaped with deep rooting, water conserving plants to provide erosion control and soil stabilization.
  6. *Energy Conservation*: Plant placement shall be designed to reduce the energy consumption needs of the development.

#### **Design Standards:**

1. *Scale and Nature of Plants*: The scale and nature of plants should be appropriate to the size of the structures. Large scaled buildings, for example, should generally be complemented by larger scaled plants.
2. *Selection of Plants*: Plants should be selected for form, texture, color, pattern of growth and adaptability to local conditions. All plants should be of good quality and capable of withstanding the extremes of individual site microclimates.
3. *Evergreens*: Evergreens should be incorporated into the landscape design, particularly in those areas where screening and buffering is required.
4. *Deciduous*: Deciduous trees should be placed on the south and west sides of buildings to provide shade from the summer sun.
5. *Winds*: Evergreens and other plant materials should be concentrated on the north side of buildings to dissipate the effect of winter winds.
6. *Softening Of Walls And Fences*: Plants should be placed intermittently against long expanses of building walls, fences, and other barriers to create a softening effect
7. *Detention/Retention Basins and Ponds*: Site drainage and detention facilities should be integrated into the overall landscape design as open space. Detention/retention basins and ponds should be landscaped, as opposed to the use of rock gravel. Such landscaping may include shade and ornamental trees, evergreens, shrubbery, hedges, turf, ground cover and/or other plants.

#### **Maintenance and Preservation:**

1. *Maintenance*: All landscaping plants should be maintained in good condition so as to present a healthy, neat and orderly appearance. Plants not in this condition shall be removed and replaced when necessary.
2. *Mulch*: Mulch shall be refreshed regularly to support plant health, suppress weeds and maintain a neat appearance.
3. *Weeds*: Weeds should be controlled to prevent spread and maintain a neat appearance.
4. *Preservation*: Existing plants which are healthy and free of injury and disease should be preserved, when possible, rather than replaced in order to contribute to a mature landscaping garden.
5. *Tree Fostering Program*: Participation in the City's Tree Fostering Program is highly encouraged.

## Irrigation Systems

The below information provides detailed design guidelines for irrigation systems. Generally, these standards have been adapted from the Utah Irrigation Association's "Minimum Standards for Efficient Landscape Irrigation System Design and Installation." The Utah Irrigation Association and the National Irrigation Association can provide industry standards which can be incorporated into irrigation designs in addition to those found below.

### Design Considerations:

1. *Irrigation Systems:* While irrigation systems are necessary for certain landscape areas, and may be desirable for other applications, all irrigation systems should be designed for the most efficient use of water.
2. *Parkstrip Landscaping:* Parking strips and other landscaped areas less than eight feet (8') wide should not be irrigated with pop up fixed or rotor sprinklers. These areas should generally be landscaped with water conserving plants or approved street trees irrigated with micro spray, bubblers or drip irrigation. Turf grass should only be used in these areas if irrigated with surface bubblers or subsurface systems.
3. *Irrigation Times:* Spray head sprinklers shall be scheduled to operate between six o'clock (6:00) P.M. and ten o'clock (10:00) A.M. to reduce water loss from wind and evaporation.
  - a. Exceptions: Bubblers, drip and subsurface irrigation and during the 60-day plant establishment period.
4. *Reduction of runoff:* Valves shall be programmed for multiple repeat cycles where necessary to reduce runoff, particularly on slopes and soils with slow infiltration rates.
5. *Winterization:* All pressurized irrigation systems shall be winterized each year.
6. *Weather:* All irrigation systems should be equipped with controllers for temporary shutoff due to inclement weather thru internal/external options such as rain, wind, and freeze devices.
7. *Installation:* Irrigation systems should be installed by an irrigation contractor, as defined in West Jordan Municipal Code Section 13-2-3.



Bubbler Irrigation System

### Design Standards:

1. *Slope:* On slopes exceeding thirty three percent (33%), the irrigation system should consist of drip emitters, bubblers or sprinklers with a maximum average precipitation rate of 0.85 inch per hour, and the controller clock should be set with appropriate cycles and run times to eliminate runoff.
2. *Valve Separation:* Each valve should irrigate a landscape with similar site, slope and soil conditions and plant materials with similar watering needs. Turf and non-turf areas shall be

- irrigated on separate valves. Each type of irrigation device (drip, bubblers, fixed, rotors, etc.) shall be placed on separate valves.
3. *Tree Irrigation:* Drip emitters or a bubbler should be provided for each tree. Bubblers should not exceed one and one-half ( $1\frac{1}{2}$ ) gallons per minute per device. Bubblers for trees should be placed on a separate valve unless found unfeasible due to the limited number of trees on the project site.
  4. *Drip Irrigation:* Drip irrigation lines should be installed underneath mulch, except for emitters and where approved as a temporary installation. Filters and end flush valves should be provided as necessary.

### **Irrigation Schedules:**

The City recommends that two irrigation schedules be created based on sprinkler precipitation rates. The first schedule should cover the initial sixty (60) day plant establishment period. The second schedule should cover the post-establishment period. The table should suggest sprinkler run times, in minutes, and irrigation frequency to apply  $\frac{1}{2}$  inch of water based on each zone's designed pressure and precipitation rate. Copies of these schedules should be provided to the property owner and business owner. Both the establishment and post-establishment irrigation schedules should be posted visibly near the irrigation controller and include the following information for each valve:

- a. Station (valve) number;
- b. Plant type;
- c. Sprinkler type;
- d. Precipitation rate (inches per hour);
- e. Minutes required for appropriate watering depth;
- f. Cycles and run times (minutes per cycle) to avoid runoff;
- g. Irrigation intervals (days between watering) based on plant material, soil type, and the seasonal fluctuations in water demand. The seasonal intervals found on the next page may be used as a general guide, but may be adapted as needed:

Month	Apply One-Half Inch Of Water
January	No irrigation
February	No irrigation
March	No irrigation
April	Every 6 days (if needed)
May	Every 4 days
June	Every 3 days
July	Every 3 days
August	Every 3 days
September	Every 6 days
October	Every 10 days (if needed)
November	No irrigation
December	No irrigation

## Tree Protection and Selection

Existing trees should be protected during site construction when feasible and new trees should be selected with the sites constraints and specific tree characteristics in mind. Best Management Practices (BMP) have been provided below for the protection of existing trees and the selection of new trees. These BMPs were developed and recommended by professional arborists, urban and community foresters and landscape architects.

### Existing Tree Protection:

Trees should be protected throughout their lives from damage to maximize their health, safety, functionality, and benefits. Construction on a property does not necessarily mean that existing trees will need to be removed. Every effort should be made to protect existing trees to ensure a mature landscape.

### Tree Protection Techniques:

Tree protection involves activities designed to preserve and protect tree health by avoiding damage to tree roots, trunk, or crown. Site development planning prior to site disturbance should include identifying tree protection zones for all trees designated for retention.

Tree protection may be passive or active. Passive tree protection, most commonly used during the planning or post-development stages, simply means avoiding any disturbance or harmful activity near the tree. Active tree protection involves physical protection barriers and is generally required during any site disturbance that may impact retained trees, such as grading, building construction and maintenance, infrastructure and utility installation and maintenance, and other landscape changes that may affect the structural integrity and stability of retained trees.

Existing tree root systems should be protected during construction in order to increase the likelihood of the trees survival. Each tree has a critical root zone that varies by species and site conditions which if disturbed may increase a trees probability of failure or death. There are two common methods to determine the critical root zone. The first has been identified by the International Society of Arboriculture as an area equal to 1-foot radius from the base of the tree's trunk for each 1-inch of the tree's diameter at 4.5-feet above grade. The second method is to use a tree's dripline to estimate the critical root zone.

### Best Management Practices:

1. Plan and budget for tree conservation and protection as part of the development process.
2. Plan for tree protection well in advance, at least one growing season prior to beginning of construction activities, where possible, or during site planning prior to construction.
3. Employ a certified arborist or an urban forester whenever possible to assist in tree protection planning, implementation, monitoring, and follow-up maintenance.
4. Plan to protect trees located on adjacent property, including those portions of the roots, trunk, and crown growing into or over the developing property.
5. Evaluate soil health and past site damage; incorporate that information into tree protection measures.
6. Evaluate existing trees on the site. Locate buildings, other structure and infrastructure through evaluation of the opportunities and constraints of existing trees. Select trees to be conserved

and protected based upon their location, species, quality, health and benefits such as energy savings by shade or wind protection.

7. Remove trees within 10-feet of the proposed building or structure.
8. Remove trees that cannot be adequately protected.
9. Remove trees that have less than one-quarter of their total height composed of tree crown (tall and spindly), or those with more than one-third of the trunk wounded.
10. Do not remove the best trees.
11. Conserve and protect trees in stands or groups, where possible, to facilitate their protection and maintenance, and to keep the urban tree canopy intact.
12. Establish substantial penalties for tree damage and noncompliance with tree protection requirements during construction.
13. Complete preconstruction tree maintenance, including mulch, fertilization, supplemental irrigation as necessary, and pruning to remove dead, structurally weak, and low-aging branches.
14. Engage maintenance staff in early decision-making and education about care of retained trees.
15. Educate all workers on site about tree protection techniques and requirements during preconstruction meetings.
16. Establish critical root zones for both large and small trees.
17. Avoid cutting tree roots over 4-inches in diameter.
18. Make all necessary cuts to tree roots cleanly with sharp tools; never tear with a backhoe. A clean cut encourages good wound closure and confines the spread of decay.
19. Remove badly damaged trees that may attract insects and disease.
20. Monitor tree health and compliance with tree protection requirement regularly during construction.
21. Complete post-construction tree maintenance, including mulch, fertilization, irrigation, soil aeration, and pruning where necessary.



Fenced off Critical Root Zone

### **New Tree Selection:**

When planting a new tree on site, several things will affect the long-term survival and health of the tree, including tree species, varieties, planting methods and site conditions. Keep the below best management practices in mind when decided on which tree species and variety to plant on a site.

### **Best Management Practices:**

1. Select a tree of appropriate mature size for the site.
2. Make sure there is at tree planting and will be at tree maturity adequate clearance from overhead utility lines, pedestrian and vehicular traffic, buildings, signs, and street lights.

3. Consult with local utilities for planting specifications to maintain adequate utility clearance.
4. Select native tree species for planting when appropriate for the location and if good quality stock is available.
5. Use nonnative species and varieties if necessary where native soils may be severely impacted by long-term development, such as those found in many urban locations, and cannot support healthy native tree species. Choose noninvasive species and varieties appropriate to the development soils.
6. Select trees compatible with special site conditions, such as extremely wet (poor draining) or dry (excessive draining) soils.
7. Plan for a diversity of tree species and varieties to protect the urban forest from massive failure due to pest or disease infestation and to add visual interest.
8. Plant trees where they have plenty of room to grow to maturity without compromised health or form due to conflicts with adjacent infrastructure, such as power lines, and sewer or water lines.
9. Select only good quality planting stock.
10. Select nursery stock that meets the minimum standards for root ball size and quality as defined in ANSI A300 (Standards for Nursery Stock).
11. Plant the right tree in the right place (for example, don't plant large trees that require constant pruning to maintain safety under overhead power lines).

## Noxious Weeds List

Weeds should be controlled to prevent their spread and maintain a neat appearance. Weeds listed on the Noxious weeds list, below, shall be removed and shall not be included in any new landscape planting. This list was compiled from the State of Utah Noxious Weeds List, as administered by the Utah Department of Agriculture, the list of additional noxious weeds declared by Salt Lake County in August of 2009, and the Utah Weed Control Association Noxious Weeds List. The plants below are listed in alphabetical order by their common name. The botanical name has been included for reference purposes.

West Jordan Noxious Weeds List		
	Common Name	Botanical Name
1	Bermudagrass	Cynodon dactylon
2	Black henbane	Hyoscyamus niger
3	Blue Lettuce	Lactuca pulchella
4	Buffalobur	Solanum rostratum
5	Bull Thistle	Cirsium vulgare
6	Camelthorn	Alhagi pseudalhagi
7	Canada thistle	Cirsium ravense
8	Common Burdock	Arctium minus
9	Dalmatian toadflax	Linaria dalmatica
10	Diffuse knapweed	Centaurea diffusa
11	Dyerswood	Isatis tinctoria L.
12	Field bindweed (Wild Morning Glory)	Convolvulus arvensis
13	Garlic mustard	Alliaria petiolata
14	Goatsrue	Galega officinalis
15	Hoary cress	Cardaria Spp.
16	Houndstongue	Cynoglossum officinale
17	Johnsongrass	Sorghum halepense
18	Jointed Goatgrass	Aegilops cylindrical
19	Leafy spurge	Euphorbia esula
20	Medusahead	Taeniatherum caput-medusae
21	Musk thistle	Carduus nutans
22	Myrtle spurge	Euphorbia myrsinites
23	Ox-Eye daisy	Chrysanthemum leucanthemum
24	Perennial pepperweed	Lepidium latifolium
25	Perennial sorghum	Sorghum halepense L. & Sorghum alnum
26	Poison hemlock	Conium maculatum
27	Puncturevine	Tribulus terrestris
28	Purple loosestrife	Lythrum salicaria L.
29	Quackgrass	Agropyron repens

30	Russian knapweed	( <i>Centaurea repens</i> )
31	Russian Olive	<i>Elaeagnus angustifolia</i>
32	Saltcedar	<i>Tamarix ramosissima</i>
33	Scotch thistle	<i>Onopordum acanthium</i>
34	Silverleaf Nightshade	<i>Solanum elaeagnifolium</i>
35	Spotted knapweed	<i>Centaurea maculosa</i>
36	Squarrose knapweed	<i>Centaurea squarrosa</i>
37	St. John's wort	<i>Hypericum perforatum</i>
38	Sulfur cinquefoil	<i>Potentilla recta</i>
39	Velvetleaf	<i>Abutilon theophrasti</i>
40	Western Whorled Milkweed	<i>Asclepias subverticillata</i>
41	Yellow Nutsedge	<i>Cyperus esculentus</i>
42	Yellow starthistle	<i>Centaurea solstitialis</i>
43	Yellow toadflax	<i>Linaria vulgaris</i>



Russian Olive Tree; Photo by J.S. Peterson



Johnson Grass



Leafy Spurge

## Street Tree List

The below Street Tree List is designed to provide a variety of trees, based on their appropriateness in certain circumstances, including the width of parkstrips, tree root depth, and mature height. These tree species may also be incorporated into general landscape areas. If other varieties of trees are preferred, a request for an assessment can be made with the Urban Forester.

<b>West Jordan Approved Street Tree List</b>		
<b>Trees in parkstrips located under power lines</b>		
	<b>Common Name</b>	<b>Botanical Name</b>
1	Crabapple	<i>Malus spp.</i> (Mildew resistant and non-persistent fruit varieties only)
2	Golden Raintree	<i>Koelrueteria paniculata</i>
3	Japanese Tree Lilac	<i>Syringa reticulata</i>
4	Hedge Maple	<i>Acer campestre</i>
5	Amur Maple	<i>Acer ginnala</i>
6	Bigtooth Maple	<i>Acer grandidentatum</i>
7	Paperbark Maple	<i>Acer griseum</i>
8	Tartarian Maple	<i>Acer Tartaricum</i>
9	Eastern Red Bud	<i>Cercis canadensis</i>
10	English Hawthorn	<i>Crataegus laevigata</i>
11	Lavalle Hawthorn	<i>Crataegus lavalley</i>
<b>Trees in parkstrips 5 feet in width</b>		
	<b>Common Name</b>	<b>Botanical Name</b>
1	Any tree listed above	
2	Amur Cork Tree	<i>phellodendron amurense</i>
3	Red Horse Chesnut	<i>Aesculus o'neill</i>
4	Hardy Rubber Tree	<i>Eucommia ulmoides</i>
5	Turkish Filbert	<i>Corylus colurna</i>
6	Little leaf Linden	<i>Tillia cordata</i>
7	Avalanche Birch	<i>Betula avalzum</i>
<b>Trees in parkstrips larger than 10 feet width</b>		
	<b>Common Name</b>	<b>Botanical Name</b>
1	Any tree listed above	
2	American Yellow-wood	<i>Cladrastis kentukea</i>
3	Ginko	<i>Ginco biloba</i>
4	Common Hackberry	<i>Celtis occidentalis</i>
5	Japanese Zelkova	<i>Zelkova serrata</i>
6	Lace Bark Elm	<i>Ulmus parvifolia</i>
7	Kentucky Coffee	<i>Gymnocladus dioicus</i>
8	Tulip tree	<i>Liriodendron tulipifera</i>
9	Bur Oak	<i>Quercus macrocarpa</i>

10	Chinquapin Oak	<i>Quercus muelenbergii</i>
11	Swamp White Oak	<i>Quercus bicolor</i>
12	Japanese Pagoda	<i>Saphora japonica</i>

The following species are prohibited in the Public Right-of-Way in West Jordan City. These trees exhibit characteristics including but not limited to: extreme insect or disease susceptibility, nuisance, soft or brittle wood, and/or limited cold or heat hardiness. Such problems often lead to excessive maintenance costs, hazard to other trees and potential public safety hazards.

<b>Prohibited Trees</b>		
	<b>Common Name</b>	<b>Botanical Name</b>
1	Black locust	<i>Robinia pseudoacacia</i>
2	Boxelder maple	<i>Acer negundo</i>
3	Cottonwoods, Aspen, and Poplars	<i>Populus spp.</i>
4	Evergreens	
5	Orchard trees	
6	Purple Robe Locust	<i>Robinia ambigua 'Purple Robe'</i>
7	Russian Olive	<i>Eleagnus angustifolia</i>
8	Siberian Elm	<i>Ulmus pumila</i>
9	Silver Maple	<i>Acer sacharinum</i>
10	Sunburst Honey Locust	<i>Gleditsia triancanthos 'Sunburst'</i>
11	Tree of Heaven	<i>Ailanthus altissima</i>
12	Willows	<i>Salix spp.</i>
13	Flowering Pear	<i>Pyrus calleryana 'Chanticleer'</i>
14	Green Ash	<i>Fraxinus spp.</i>

## Examples

The following examples are of several landscapes located within the City of West Jordan that contain excellent examples of water wise landscaping. All have won the West Jordan Water Wise Landscape Award.

### Commercial:





**Residential:**





## Appendix

- I. Recommended Plant List**
- II. Firewise Plants for Utah Landscapes**
- III. Landscape Area and Water Conserving Landscape Calculations Worksheet**
- IV. Water Allowance Worksheet**
- V. Landscape Certification Worksheet**
- VI. Distribution Uniformity Audit Worksheet (For Turfgrass Areas)**

## Recommended Plant List

The attached Plant List is designed to provide a variety of plant species, which are water conscious and suited for the soil and weather conditions typically found in the City of West Jordan. While every effort has been made to make the list as comprehensive as possible, it should not be considered definitive. As additional information becomes available over time it is likely that plants may be added, or removed, from this list. To this end, input from individuals or organizations involved in the landscape industry, as well as members of the general public, is welcomed.

### ***Explanation of Column Headings***

**Water Zones** identify the minimum amount of water a plant needs in order to survive after it is established in the landscape. It should be understood that, while plants will survive with the amounts of water indicated, some plants may not maintain their best appearance without some additional water. Additionally, during periods of extended droughts, even xeric plants might benefit from periodic supplemental watering. It is assumed that the establishment period will be a minimum of two years during which more frequent supplemental water may be needed. Water zones, as used in this list, are defined as follows:

- 0 No supplemental water is required after plants are established.
- 1 At least 1-inch of supplemental water per month may be required after plants are established.
- 2 At least 1-inch of supplemental water every two weeks may be required after plants are established.

Plants requiring more than 1-inch of supplemental water every two weeks are not considered “water conserving” or “drought tolerant” plants for the purposes of this list.

**Botanical Name** is the scientific name that identifies plants using a system called binomial nomenclature; that is, by grouping plants with more or less similar physical traits together through levels of classifications: genus, species, varieties, and cultivars. Each plant has only one botanical name, making it unique from any other plant, unlike common names, which may vary region to region. Botanical name has been abbreviated to include only the genus, species and, if necessary, the variety; few cultivars or hybrids are named. The genus followed by “sp.” (singular), or “spp.” (plural) indicates that there are several different species of a plant which all have similar characteristics.

While a plant has only one botanical name it may be several common names. In compiling this list an attempt has been made to determine the most widely used common names.

**Mature Size** is considered to be the average size a plant could be expected to grow with proper care and the amount of water indicated. Actual size of a given plant at a given location may vary.

**Area Value** is the area of the plant canopy. Using this number, a designer or planner can determine the total area comprised by a single plant grouping or an entire landscape. Specific spacing

recommendations were not made on the list to allow for a more creative use of plants and to recognize that a plant might be used differently in various landscapes.

If you are in need of guidelines to determine an appropriate average spacing of a plant on the list, consult the Height and Width column. To create a massed effect, place plants closer together so that branches overlap and mingle. For specimen plants, keep plants farther apart so that the plants form becomes distinct.

For trees, a standard guide is to plant on centers equaling, or slightly smaller than the diameter.

For long term health and sustainability of a landscape, allow plants adequate room to meet full growth without overcrowding.

**Light** is the recommended amount of sun light specific plants will require to be healthy and grow to their potential mature height and width. The amount of light can range from full shade, part shade, light shade, part sun, sun, and full sun.

The **Comments** column contains qualifying statements and/or unique cultural requirements that affected the determination of water zones. This column has also been used to provide additional general information about a plant.

Note: The *City of West Jordan Recommended Plant List* is a modified version of the *Water-Wise Plants for Salt Lake City* list created by Salt Lake City Corporation in September 1995, and updated in April 2004. This list is part of their Water Conservation Master Plan. The City of West Jordan modified the list in August 2010 to reflect differing code requirements and soil conditions than found in Salt Lake City.

## Firewise Plants for Utah Landscapes

Developments located adjacent to natural open spaces, shall provide drought-tolerant plants which blend with the native vegetation and are fire resistant or fire retardant and non-invasive per the landscaping section of the Zoning Ordinance. The attached list is from Utah State University. This list has been provided to provide suggestions into creating fire safe landscaping area.

# Landscape Area and Water Conserving Landscaping Calculations Worksheet

Note: This worksheet applies to Multi-Family, Commercial and Industrial Developments and contains only general references to the adopted landscape code. It is the applicant's responsibility to consult the West Jordan Code for applicable requirements. (See Section 13-13, Landscaping Requirements of the West Jordan Code for Details)

Project: \_\_\_\_\_ Applicant: \_\_\_\_\_

Property Address: \_\_\_\_\_ Date \_\_\_\_\_

## On-Site Landscaping

<u>Total Area</u>	<u>Total Percentage</u>
-------------------	-------------------------

\_\_\_\_\_

Total **on-site landscape area** (including parking lot landscaping but excluding tree canopies and parkstrip landscaping)

- 40% minimum for Multi-Family Developments; §13-13-11;
- 25% minimum for Business/Research Park Developments; §13-13-11;
- 15% minimum for Commercial, Professional Office, and Non-Residential Development; §13-13-11;
- 10% minimum for Manufacturing Developments; §13-13-11.

\_\_\_\_\_

On-site **plant coverage** including turf grass (excluding tree canopies).

- Shall cover no less than 40% of the ground surface at maturity §13-13-6.

\_\_\_\_\_

**Turf grass** in landscaped areas.

- Shall be no more than 25% of the total on-site landscaped area; §13-13-6.

\_\_\_\_\_

**Plant coverage in detention basins**

- No less than 50% of the detention basin area must be covered with groundcover, and/or turf at maturity §13-13-6.

\_\_\_\_\_

**Hardscape material.**

- No more than 60% of the total on-site landscape area may be covered by hardscape materials such as mulch, gravel, pavers and rock.

\_\_\_\_\_ **Water-conserving shrubs, herbaceous, perennial, and ground cover plants** in landscaped areas that are on the *West Jordan Recommended Plant List*.

- No less than 75% of all shrubs, herbaceous, perennial, and ground cover plants must be on said list; §13-13-6.

\_\_\_\_\_ **Water-conserving trees** in landscaped areas that are listed on the *West Jordan Recommended Plant List*.

- No less than 75% of all trees must be on said list; §13-13-6.

### Parking Lot Landscaping (See §13-13-9)

<u>Total Area</u>	<u>Total Percentage</u>
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\_\_\_\_\_ **Parking lot landscaping**

- Either 1 shade tree per seven (7) parking spaces shall be provided within the parking lot or, if shade trees are not used, no less than 6% of all parking areas shall be landscaped.

### Parkstrip Landscaping (See §13-13-8)

\_\_\_\_\_ **Parkstrip plant coverage** including turf grass (excluding tree canopies).

- Shall cover no less than 40% of the ground surface at maturity.

\_\_\_\_\_ **Turf grass** in landscaped parkstrip areas.

- Shall be no more than 25% of the total plant coverage.

\_\_\_\_\_ **Hardscape material**

- No more than 60% of the total parkstrip area may be covered by hardscape materials including mulch, gravel, pavers and rock.

\_\_\_\_\_ **Water-conserving shrubs, herbaceous, perennial, and ground cover plants** in landscaped areas that are on the *West Jordan Recommended Plant List*.

- No less than 75% of all shrubs, herbaceous, perennial, and ground cover plants must be on said list.

\_\_\_\_\_ **Water-conserving trees** in landscaped areas that are listed on the *West Jordan Recommended Plant List*.

- No less than 75% of all trees must be on said list.

**Frontage   # of Trees**

\_\_\_\_\_   \_\_\_\_\_

**Street trees**

- 1 street tree required (from the *City of West Jordan Street Tree List*) for each 25' of curb frontage.

**Landscape Buffer (See §13-13-10)**

**Landscape**

**Area   # of Trees**

\_\_\_\_\_   \_\_\_\_\_

**Trees in the landscape buffer**

- 1 tree required for each 400 sq. ft. of the area of the landscape buffer.

## Water Allowance Worksheet

For all landscapes measuring over one thousand (1,000) square feet, the landscape designer shall prepare annual and monthly baseline landscape water allowances for use after the sixty (60) day plant establishment period, and provide copies to the city and property owner. The below formulas are examples of how the annual and monthly water allowance should be calculated.

- a. Annual water allowance (gallons) =  $ET_o \times 1.0 \times 0.62 \times A$ , where landscape water allowance is in gallons per year, and

$ET_o$	=	Reference evapotranspiration (31.18 inches per year in Salt Lake County)
1.0	=	$ET_o$ adjustment factor, 100% turf grass $ET_o$ (water year adjustment factor)
0.62	=	Conversion factor (to gallons per square feet)
A	=	Total irrigated landscape area in square feet

- b. Monthly water allowance (gallons) =  $ET_o \times 1.0 \times 0.62 \times A$ , using the following monthly  $ET_o$  values:

ET <sub>o</sub> Values (Inches) For Monthly Water Allowance											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.00	0.00	0.00	3.36	4.59	5.40	6.21	5.60	3.72	2.30	0.00	0.00

## Landscape Certification Worksheet

I, the undersigned landscape designer for this project in the City of West Jordan, certify that the landscaping and irrigation system have been installed according to the plans approved by the City. I understand that in the case of substantial deviations from approved plans the City may require removal and re-installation of landscaping or irrigation systems, at the developer's expense, in order to comply with the approved plans and the Municipal Code of the City of West Jordan.

Name of Project:
Address of Project:
Print name of Landscape Designer:
Signature of Landscape Designer:
Date:

## Distribution Uniformity Audit Worksheet (For Turfgrass Areas)

I, the undersigned, am a Certified Landscape Irrigation Auditor (CLIA) with the Irrigation Association, and I certify that I have tested at least one “fixed spray head” zone (if any exist), and at least one “rotor spray head zone” (if any exist) and the distribution uniformity (DU) results are listed in the table below. The City of West Jordan requires a minimum of 60% DU for fixed head zones and 70% DU for rotor head zones.

In the case of substantial deviations from approved plans or failure to meet minimum distribution uniformity standards the City may require removal or alterations of irrigation systems, at the developer’s expense, in order to comply with the approved plans and the Municipal Code of the City of West Jordan.

Name of Project:
Address of Project:
Project includes <b>FIXED</b> head zones: Yes ___ No ___      Distribution Uniformity (%): _____
Project includes <b>ROTOR</b> head zones: Yes ___ No ___      Distribution Uniformity (%): _____
Print name of Certified Landscape Irrigation Auditor:
Signature of Certified Landscape Irrigation Auditor:
Date: