



Briefing for Planning Commission

Planning Division
Community & Economic Development Department

To: Planning Commission Members
From: Doug Dansie, Senior Planner
Date: October 20, 2010
Re: Sustainability Ordinance: October 27th briefing on proposed code amendments for water efficient landscaping and tree protection.

Petition: PLNPCM2010-00322

Background

Attached are two preliminary concepts, submitted by Clarion, a consultant to the City, regarding updating ordinances for sustainability: One encouraging Water Efficiency in landscaping and the other providing for Tree Protection.

There will be a briefing at the October 27, 2010 meeting, in preparation for a more formal staff report and public hearing scheduled on November 10, 2010.

Issues

The intent of the Water Efficiency ordinance is to encourage efficient irrigation systems and common-sense grouping of landscape plants (hydro-zoning) to save water. The ordinance is not intended to be a cosmetic "put rocks in the front yard" ordinance that may only provide the appearance of being water conscious; it is intended to make real changes to water consumption rates while still allowing (and encouraging) a full range on landscaping options. The ordinance encourages the use of water-wise plant materials, but more importantly, it is intended to insure that irrigation system design is installed and operated efficiently. Most landscapes now are watered more than necessary to maintain good plant health in this environment. This ordinance provides more detail on how to design an efficient irrigation system. The ordinance is intended for large scale uses and does not apply to single-family homes. It does not prohibit turf or other landscape materials (in fact it acknowledges that these are often the best choice), but instead encourages grouping of plant materials based upon water consumption so that there are no "cat tails with cactus", where the plant with the highest water need determines the irrigation level, despite the drought tolerance of its companion plants. By hydro-zoning plants according to water needs, water use may be reduced to lower levels.

The Tree Preservation ordinance is designed to acknowledge and protect important trees in the City. The ordinance attempts to define what qualifies as a specimen tree and encourages building and site design and methods of construction to maintain the health of the tree.

WATER EFFICIENT LANDSCAPING

BACKGROUND

The proposal is to replace and expand the existing regulations found in the City's Development Codes (Zoning Ordinance and Site Development Ordinance) relating to landscaping and water conservation. The approaches include:

- Specifying a minimum percentage of landscape materials that must be drought-tolerant and require that hydrozones¹ be established in landscaping plans so that plants that have similar water needs are grouped together;
- Adding more specific standards regarding irrigation system design and efficiency, including an inspection of the irrigation system to ensure it waters efficiently prior to allowing occupancy in new development.

PURPOSES

- Promote the values and benefits of landscapes while recognizing the need to use water resources as efficiently as possible and reducing water use to the lowest practical amount;
- Establish procedures and standards for the design, installation, and maintenance of water-efficient landscapes and landscape irrigation systems throughout Salt Lake City;
- Recognize the need for tailored requirements for special landscapes such as those associated with historic sites and public facilities such as parks.
- Implement the 2009 Water Conservation Master Plan;
- Contribute to the attainment of other city sustainability goals such as energy conservation.



¹ A portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

APPLICABILITY

New Development

All new development as specified below requiring approval by the city would need to comply with the provisions of this ordinance.

Residential

- Large subdivisions with 10 or more lots²;
- Multi-family residential³;
- Planned unit developments that include residential units;
- Single-family and twin-family homes on lots greater than ½ acre.

Non-Residential

- Industrial
- Commercial
- Institutional (including public facilities)

Existing Development

The new regulations would be required for existing development that is expanding to a point that it is required to meet current codes.

Exemptions

- New single-family and twin-family homes on lots ½ acre or less unless part of a subdivision with 10 or more lots;
- Treasured landscapes⁴;
- Plant collections as part of botanical gardens and arboretums open to the public;
- Community gardens and edible plant gardens;
- Active recreational areas in schools, parks, playgrounds, sports fields, and golf courses;
- Cemeteries;
- Ecological restoration projects that do not require a permanent irrigation system.



² Common and public areas only, not individual single-family lots unless greater than ½ acre.

³ Three units or more.

⁴ Landscapes associated with designated historic structures and sites, public gardens, and other notable sites and institutions as determined by the city.

CHAPTER 21A.262

21A.26.01: WATER-EFFICIENT LANDSCAPE REGULATIONS.....2

A. PURPOSES.....3

B. APPLICABILITY3

C. SUBMITTAL REQUIREMENTS4

D. REVIEW PROCEDURES5

E. STANDARDS6

F. INSPECTION, MAINTENANCE, ENFORCEMENT8

G. DEFINITIONS10

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Chapter 21A.26¹

21A.26.01: WATER-EFFICIENT LANDSCAPE REGULATIONS

Background/Commentary: Like many other western communities, Salt Lake City faces significant water supply issues. In 2009, the city's Department of Public Utilities produced a comprehensive water conservation master plan that contains many recommendations to reduce water consumption, preserve water supplies, and integrate water conservation with other sustainability issues such as energy use.² While the city has made some impressive progress over the last twenty years to reduce water consumption, much remains to be done. For example, according to the 2009 Water Conservation Master Plan, per capita consumption has been reduced from 320 gallons per day (gpd) in 1988 to 240 gpd in 2008 and 204 gpd in 2009. But this lags behind other western cities such as Denver where the per capita consumption in 2009 was 165 gpd. Significantly, the water master plan estimates that the city's service area demand will increase by 30%+ from 117,100 acre feet in 2010 to 152,900 acre feet in 2030. In addition, the Public Utilities Department reports it is already beginning to deal with the impacts of climate change on existing water supplies.

Because landscape irrigation is one of the biggest water users, many communities have adopted landscaping standards in their zoning regulations to address water conservation. Salt Lake City has some modest development regulations in its current zoning code and site development ordinance that address water conservation, but they fall far short of implementing the new water conservation master plan and attaining the city's ambitious water conservation goals. For example, the zoning ordinance's landscaping provisions require the use of "drought-tolerant" trees in landscaping plans (Chapter 21A.48), but place no limits on the amount of water that can be used for landscape irrigation nor do they address the efficiency of irrigation systems. These proposed regulations would replace and expand on this smattering of existing regulations found in the city's zoning code and site development ordinance relating to landscaping and water conservation. They take a three-pronged approach to water conservation by:

1. Specifying a maximum percentage (20%) of high-water demand plants that may be used for landscaping and requiring that hydrozones be established in landscaping plans so that plants that have similar water needs are located together. This will help avoid grouping plants that have different water demands which can lead to overwatering of some plants.
2. Establishing overall landscaping water budgets for non-residential and multi-family developments that limit that amount of water that can be used annually for landscaping. For developments that exceed the landscape water budget developments will be subject to irrigation audits and water rates will increase under the city's current water rate structure.
3. Adding more specific standards regarding the use of appropriate plants for the city's climate, the contents of landscape plans, and irrigation system design and efficiency.

Importantly, the new regulations would apply primarily to new non-residential (commercial, industrial, and institutional projects), multi-family, and common areas of large subdivisions (10+ lots). They would not apply to landscaping in existing developments or to most single-family homes. The ordinance also authorizes the Public Utilities Department to coordinate the preparation of a series of landscape design and irrigation manuals to assist applicants.

Three principles guided the drafting of these new regulations:

- Make them easy to understand,
- Keep them simple to administer, and

¹ The numbering system follows the general format of the city's current zoning code. A specific section number will be assigned after discussions with staff.

² Water supply/treatment and wastewater treatment facilities are the largest users of electricity in the United States—accounting for over 4% of overall electricity demand.

- Maintain flexibility to address variable site conditions throughout the city

Many communities in the West have enacted similar regulations. The State of California, for example, has adopted a model statewide water-efficient landscaping ordinance that includes site-specific water budgets; it must be followed or exceeded by all local governments. Every major city in Arizona has adopted stringent water-efficient landscaping regulations, many of which strictly limit the use of turf grasses. Colorado has a state-wide water-efficient model landscaping ordinance that has been adopted in part by many communities.

This ordinance will build on the city's past efforts to decrease water use and attain the ambitious water-consumption reduction goals in the water master plan thereby reducing impacts on aquifers and riparian habitat while at the same time greatly reducing energy consumption.

A. PURPOSES

The purposes of these provisions relating to water-efficient landscape include:

1. Promote the values and benefits of landscapes while recognizing the need to use water resources as efficiently as possible;
2. Use water efficiently without waste by establishing water budgets for new non-residential landscaping that reduce water use to the lowest practicable amount;
3. Establish procedures and standards for the irrigation system and landscape design, installation, and maintenance to promote water-efficient landscaping throughout Salt Lake City;
4. Recognize the need for tailored requirements for special landscapes such as those associated with historic landmarks and public facilities such as parks and playgrounds;
5. Implement the policy recommendations relating to water-efficient landscaping in the 2009 Water Conservation Master Plan; and
6. Contribute to the attainment of other city sustainability goals such as energy conservation.

B. APPLICABILITY

1. New Development

All new development as specified below requiring approval by the city shall comply with the provisions of this ordinance.

(1) Residential

- (a) Large subdivisions with 10 or more lots (common and public areas and street landscaping only, not individual single-family lots unless greater than ½ acre).
- (b) Multi-family residential, three units or more.
- (c) Planned unit developments that include residential units
- (d) Single-family and twin-family homes on lots greater than ½ acre.

(2) Non-Residential

- (a) Industrial
- (b) Commercial
- (c) Institutional (including public facilities)
- (d) Mixed-use developments including industrial, commercial, or institutional elements
- (e) Developments utilizing city funds or grants.

2. Existing Development

The regulations in this ordinance shall apply to all existing non-residential and multi-family residential development projects that increase the assessed valuation of the site and/or site improvements by 25% or more.³

3. Exemptions

The following developments and uses are exempt from the provisions of this ordinance unless otherwise specified:

- (1) New single- and twin-family homes on lots one-quarter (1/4) acre or less unless part of a subdivision with 10 or more lots;
- (2) Treasured landscapes.⁴
- (3) Plant collections as part of botanical gardens and arboreta open to the public;
- (4) Community gardens and portions of private gardens dedicated to edible plants;
- (5) Cemeteries;
- (6) Ecological restoration projects that do not require a permanent irrigation system; and
- (7) Similar uses and activities as determined by the planning director in consultation with the Public Utilities Department.

C. SUBMITTAL REQUIREMENTS

In addition to the submittal requirements set forth in Section 21A.48.030, *Landscape Plan*, the applicant shall complete a water-efficient landscape worksheet. The water-efficient landscape worksheet shall be prepared by a licensed landscaped architect, licensed civil engineer, licensed architect, certified irrigation professional, or other landscape professional appropriately licensed or recognized by the State of Utah or Salt Lake City. It shall contain the following information unless specifically waived in writing by the zoning administrator in consultation with the Public Utilities Department Director:

1. A hydrozone table that contains the following information:

- a. A listing of each hydrozone that is contained in the landscape plan.
- b. For each hydrozone listed, the table shall set forth:
 - (1) the plant and turf types to be used as categorized and defined in the Salt Lake City Plant and Turf Guide or other water-efficient plant list approved by the Public Utilities Department.
 - (2) the location, surface area, and type of water features to be installed in that hydrozone,
 - (3) the irrigation methods to be used, and
 - (4) the square footage and percentage of the total landscaped area of the project represented by that hydrozone.

³ Staff is exploring alternative triggers to apply these regulations to expansion of existing developments such as an increase in parking spaces or square footage instead of valuation.

⁴ See definition section—includes designated historic homes, public gardens, etc

2. Water budget calculations shall:

- a.** Use the formula for water budgets set forth in the Salt Lake City Plant and Turf Guide,
- b.** Use the appropriate plant factor from the Salt lake City Plant and Turf Guide. Any plan that mixes plants with different water requirements in a single hydrozone shall use the plant factor for the plant with the highest water use in the hydrozone.
- c.** Include temporarily irrigated areas in the low-water use hydrozone.⁵
- d.** Set forth the type and surface area of all water features including swimming pools shall be included in the high-water use hydrozone as defined in the Salt Lake City Plant and Turf Guide.
- e.** Calculate the water usage of exempt landscaped areas as defined in Section B.2 above shall be calculated using the formula set forth in the Salt Lake City Plant and Turf Guide.

3. The type, location, and size of exempt landscaped areas as defined in Section B.2 above.

- 4.** A soil report providing information on soil texture, pH, percent organic matter, and other information as specified by the zoning administrator and with areas proposed for soil amendment identified;
- 5.** A planting plan with delineation of areas to be planted with edible plants and areas to be mulched with type of mulch to be used, location, and application depth;
- 6.** An irrigation plan;
- 7.** A backflow prevention plan indicating the type of backflow prevention devices to be installed and their location on the system;
- 8.** A grading plan; and
- 9.** Other documentation as required in the Salt Lake City Irrigation and Landscape Manual.

D. REVIEW PROCEDURES

The following review procedures shall be followed for all landscaping plans and irrigation systems subject to this ordinance:

⁵ See definition. Temporarily irrigated means the period of time when plantings receive water until they become established.

1. Landscaping plans shall be submitted concurrently with a development application and reviewed by the planning department in consultation with other relevant agencies such as the Public Utilities Department.
2. The Public Utilities Department is authorized to coordinate the production, publication, and maintenance of guides and manuals addressing water-efficient irrigation systems and landscape design for non-residential and residential developments subject to this ordinance. These guides and manuals may include, but are not limited to, information on hydrozones and appropriate vegetation for each, water-wise landscape plant lists, and irrigation system design and components, and landscape design practices that promote water conservation.
3. No certificate of occupancy (CO) for a development subject to this ordinance shall be issued until any required water-efficient landscape plan (including irrigation systems where relevant) has been approved, installed, and fully functioning. An irrigation audit report prepared by an independent certified irrigation auditor shall be required to be submitted to confirm that the irrigation system is functioning as required prior to issuance of a CO.
4. Temporary COs may be issued if seasonal growing conditions are not appropriate for landscape installation provided that the applicant post an acceptable surety with the city as set forth in Section VI to ensure installation within nine months of the issuance of the temporary CO.

E. STANDARDS

All developments subject to this ordinance shall comply with the following standards:

1. Required Plants

All landscapes in developments subject to this ordinance shall use plants identified in the Salt Lake City Plant and Turf Guide or plants identified as being water-wise or low-water plants in other guides approved by the Public Utilities Department.⁶ Plants not listed in these references shall not exceed ten (10) percent of the total landscaped area. Unlisted plants, water features, and the highest water-demand turf grasses as identified in the Salt Lake City Plant and Turf Guide shall collectively not exceed more than twenty (20) percent of the total landscaped area.

2. Plant Substitutions

Landscaping shall be installed consistent with the approved planting plans, but plant substitutions may be made provided that the substituted plants are from the same hydrozone as the plant originally specified in the approved landscape plan.

⁶ At this time, these include the Utah Division of Natural Resources Water-Wise Utah Plant tag program; lists maintained by the Utah Native Plant Society; Intermountain Native Plant Growers Choice program list; and the Colorado Plant Select list.

3. Hydrozones

- a. All landscape plans shall be divided into one or more of hydrozones listed in the Salt Lake City Plant and Turf Guide, and all plants shall be grouped in appropriate hydrozones.
- b. Mixing plants from different hydrozones and with different water demands is strongly discouraged. Landscape areas with a mix of plants from different hydrozones shall be designated as a hydrozone of the highest water-demand plant within that hydrozone.
- c. No more than twenty (20) percent of the landscaped area of any landscape plan shall be devoted to the highest hydrozone or highest water-demand turf species as defined in the Salt Lake City Plant and Turf Guide or water features or a combination thereof.
- d. Any landscape area that utilizes recycled water or harvested rainwater for at least seventy-five (75) percent of irrigation requirements shall be counted as the lowest hydrozone as defined in the Salt Lake City Plant and Turf Guide.

4. Water Budget

- a. All developments with a total landscaped area exceeding 5,000 square feet must install an irrigation meter at the expense of the applicant and shall be assigned a water budget by the Public Utilities Department as set forth in Section 17.16.680 of the City Code (*Public Services*).⁷
- b. All developments with a total landscaped area one-half (1/2) acre or less will not be required to install an irrigation meter, but may do so at their option. If no irrigation meter is installed, the development will be assigned a water budget by the Public Utilities Department based on average winter water usage during the months of November to March.
- c. Water audits. If a water budget established for a development pursuant to Section 4.a above is exceeded in any billing cycle, the owner may be required by the Public Utilities Department at the owner's expense to undertake an irrigation audit conducted by an independent certified irrigation auditor in a manner consistent with the standards adopted by the Irrigation Association.⁸ At the direction of the Public Utilities Department, the owner shall carry out any remedial measures identified in the audit or by the Public Utilities Department to comply with the established water budget.

5. Small Landscaped Areas

To prevent overspray and water waste, landscaped areas eight (8) feet or smaller in any perimeter dimension, including but not limited to parkstrips, parking lot islands, and landscaped areas separated by walkways from other landscaped areas, shall only be irrigated with micro-emitter systems, MP rotator nozzles, or similar low-flow devices approved by the Public Utilities Department. Pop-up spray and rotor heads, impact rotors, gear-driven, rotors, large turf rotors, and similar devices are prohibited.

6. Soil Amendment/Preparation

Where a soil report documents soil conditions unfavorable for healthy plant growth, soil amendment with organic and/or inorganic materials to provide plant nutrients or a better growing

⁷ According to the Public Utilities Department, the cost to install an irrigation meter plus associated pipes runs between \$4,000 and \$8,000.

⁸ The Irrigation Association® is the leading membership organization for irrigation equipment and system manufacturers, dealers, distributors, designers, consultants, contractors and end users. Originally founded in 1949, IA includes over 2,000 corporate and individual members and is dedicated to promoting efficient irrigation.

medium shall be required as specified in the Salt Lake City Irrigation and Landscape Design Manual.

7. Mulch

Where mulch is required or allowed in a landscape plan by this ordinance, it shall be installed at a minimum depth of three (3) inches. Fiber barriers and plastic sheeting that are not porous to air and water are prohibited.

8. Runoff

Irrigation and storm water runoff from a site shall be minimized through the use of swales, rain gardens, terracing, and pervious materials (where approved by the city) and in compliance with existing city regulations.

9. Preservation of Existing Specimen Trees

All specimen trees located within a landscape plan area shall be protected as provided in Chapter _____, *Tree Protection*.

10. Water Features

The surface area of a water feature (See definition in Section G.) shall be included in the area calculation and assigned the appropriate hydrozone as specified in the Salt Lake City Plant and Turf Guide. Recirculating systems shall be used for all water features such as fountains..

11. Irrigation Systems

- a. Irrigation systems shall be designed, installed, and maintained as set forth in the Salt Lake City Irrigation and Landscape Design Manual. At a minimum such systems shall be designed and calibrated that water delivery during irrigation season (April 1 through October 31) does not exceed 80 percent of reference ET or the current Tier 2 Target Budget (City Code Section 17.16.670), whichever is less unless waived by the zoning administrator in consultation with the Public Utilities Department. Such systems must be installed prior to plant materials.
- b. Smart controllers and rain sensors (e.g., weather-based controllers that limit irrigation if raining) shall be installed on all irrigation systems as specified in the Salt Lake City Irrigation and Landscape Design Manual
- c. Micro-emitters, MP rotators, or similar low-flow irrigation devices shall be used in landscaped areas eight (8) feet or smaller in any perimeter dimension to avoid overspray and runoff.
- d. Irrigation systems with a precipitation rate exceeding 0.75 inches per hour shall be prohibited on steep slope areas (slope greater than 30%) exceeding one thousand (1,000) square feet unless (1) infiltration trenches, vegetated swales, bioretention areas, and similar facilities as approved by the city are employed to reduce runoff or (2) the landscape designer specifies an alternative design or technology that clearly demonstrates to the city's satisfaction no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the pre-occupancy irrigation inspection.

F. INSPECTION, MAINTENANCE, ENFORCEMENT

1. Pre-Occupancy Inspection and Irrigation Audit

Prior to the issuance of any certificate of occupancy for a development subject to this ordinance, an irrigation audit report shall be submitted to the city as provided in Section D.3. Additionally, a backflow prevention inspection report prepared by a certified backflow technician shall be submitted to the Public Utilities Department and shall include a verification of compliance with the approved landscape plan application and an initial test report.

2. Bonds and Security Requirements

Where an applicant/developer is required to provide water-efficient landscaping and an irrigation system pursuant to this ordinance, the estimated cost of such landscaping and facilities, as approved by the Zoning Administrator in consultation with the Public Utilities Department, shall be set forth as a separate figure in a security device acceptable to the city. Upon the completion of such landscaping and facilities, and provided that the city has not received any claims or notices of claim upon the security device, fifty percent (50%) of the money held as security for such facilities shall be returned to the applicant/developer and fifty percent (50%) shall be retained for one (1) growing season to ensure that growth has taken hold and to secure the applicant/developer's other obligations under the landscaping plan. All dead vegetation shall be replaced through replanting at the end of the second growing season. At the end of that one (1) year period, and provided that the city has not received any claims or notices of claim upon the security device and that the landscaping and irrigation system remains acceptable to the city, the city shall release or consent to the release of the final fifty percent (50%) of the security device to the applicant/developer. All sums, if any, held by the city in the form of cash shall be returned to the applicant/developer without interest, the interest on such money being reimbursement to the city for the costs of supervision of the account. If the security device is a corporate surety bond, copies of the partial release from the city shall be sent to the recorder's office for inclusion with and attachment to the bond.

3. Maintenance

- a. **Responsibility:** The owner of the premises shall be responsible for the maintenance, repair and replacement of all landscaping materials and barriers, including refuse disposal areas, as may be required by the provisions of this chapter.
- b. **Landscaping Materials.** Landscape materials shall be maintained to ensure water efficiency. A regular maintenance schedule shall be maintained and available to be viewed by the city. It shall include but not be limited to aerating and de-thatching turf areas (only if needed), replenishing mulch, fertilizing, pruning, and weeding in landscaped areas; checking, adjusting, and repairing irrigation equipment; removing obstructions to irrigation emission device; and resetting automatic controllers.
- c. **Fences, Walls, And Hedges:** Fences, walls and hedges shall be maintained in good repair.
- d. **Irrigation Systems:** Irrigation systems shall be maintained in good operating condition to promote the conservation of water.
- e. **Backflow prevention assemblies** shall be maintained in accordance with the manufacturer's standards and state regulations. Annual test reports by a certified backflow technician shall be submitted to the Public Utilities Department. Failed devices shall be replaced with comparable assemblies and require reports as set forth in Section F.1. Devices replaced with a different assembly shall meet the submittal requirements as set forth in Section C.7.

4. Enforcement

- a. **General.** The provisions of this ordinance shall be enforced pursuant to Section 21A.20, *Enforcement*.
- b. Water use that exceeds the water budget established pursuant to Section _____ may result in an increase in water rates under Section 17.16.670 of the Municipal Code and remedial action as required by the Public Utilities Department in Section E.4.e above.
- c. Failure to comply with the backflow prevention requirements contained in this ordinance shall result in termination of water service. In the case of contamination or a cross-connection incident, the Public Utilities Department may require a backflow prevention and cross-connection inspection and take appropriate measures to ensure utility system integrity and protect the public health and safety.

G. DEFINITIONS⁹

a. **Backflow Preventer**

A mechanical device intended to prevent contamination of a culinary water line that meets the specifications set forth in the Salt Lake City Irrigation and Landscape Design Manual.

b. **Ecological restoration project**

A project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

c. **Evapotranspiration (ET) Rate**

The quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time. *Reference ET* or *ET_o* is a standard of measurement of environmental parameters that affect the water use of plants. *ET_o* is expressed in inches of water per day, month, or year and is an estimate of the evapotranspiration of a large field of four-to-seven inch tall cool-season grass that is well-watered. *Reference ET* is used as a

⁹ These definitions would be inserted into the zoning ordinance definition section.

basis for determining the Maximum Applied Water Allowances. Reference ET for the Salt Lake City area is defined in the Salt Lake City Plant and Turf Guide.

d. Hydrozones

A portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated. Hydrozones and applicable plants are further defined in the Salt Lake City Plant and Turf Guide.

e. Irrigation Audit

An in-depth evaluation of the performance of an irrigation system that includes, but is not limited to an on-site inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule.

f. Low-Volume Irrigation

The application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low-volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

g. Mulch

Any organic material such as leaves, bark, straw, compost or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

h. Overspray

Irrigation water that is delivered beyond the target landscaped area.

i. Rainwater harvesting

Collection of rainwater on site that is used or stored for landscape irrigation.¹⁰

j. Reuse water

Treated or recycled waste water of a quality suitable for non-potable uses such as above-ground landscape irrigation and water features. This water is not intended or fit for human consumption.

k. Salt Lake City Irrigation and Landscape Design Manual

A manual published and maintained by the Salt Lake City Public Utilities Department establishing standards and practices to achieve water-use efficiencies in landscaping.

l. Salt Lake City Plant and Turf Guide

A guide published and maintained by the Salt Lake City Public Utilities Department setting forth appropriate plants and turf to be utilized in landscape plans and their associated hydrozones.

m. Structured soil

A combination of amended soil and gravel that allows tree root development while providing the structural strength to hold the weight of hard surface treatments such as sidewalks or parking lot pavement. The specific mix of structural soil is determined by Salt Lake City engineering standards.

¹⁰ All rainwater harvesting must be carried out in compliance with Utah state law.

n. Soil amendment

Elements added to the soil, such as compost, peat moss, vermiculite, sand, or fertilizer, to improve its capacity to support plant life.

o. Temporarily irrigated area

Areas that are irrigated for a limited period only after landscaping installation until plantings become established.

p. Tier 2 Water Target Allowance

The maximum allowed monthly and annual water use for a specific landscaped area based on the square footage of the area, the ETAF, and the reference ETo.

q. Treasured landscape

Landscapes associated with designated historic structures and sites, public gardens, and other notable sites and institutions as determined by the city that may be allowed a higher volume of water use.

r. Turf

Grasses planted as a groundcover and mowed and maintained to be used as an area of landscaping.

s. Water feature

A design element with open water that performs an aesthetic or recreational function. Water features include but are not limited to ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools where water is artificially supplied. Constructed wetlands used for on-site wastewater treatment or storm water best management practices are not included in this definition.

t. Water budget

A target amount of water to be used per acre that is established by the public utilities director or his designee each year for each applicant subject to the provisions of this ordinance. The water budget is based on factors including, but not limited to, evapotranspiration rates and efficient water practices. Different target budgets may be established for each month of the year or seasons.

TREE PROTECTION



BACKGROUND

In order to supplement the provisions of the Salt Lake City Urban Forestry Ordinance, a new section is proposed to be added to the Salt Lake City Zoning Code specifically addressing the protection of specimen trees on private property.

- The approach taken in this section is to protect defined specimen trees on private property with the requirements and standards coming into play at the time someone is proposing development;
- The review for such protection would occur at the time of application of a building permit, site development permit, subdivision and other relevant development applications;
- The provisions also include options for protection of trees or mitigation if it is impracticable or undesirable to keep a tree on site.

PURPOSE

- Enhance the quality of life in the city and protect public health and safety;
- Preserve and enhance the visual and aesthetic qualities of the city;
- Enhance public and private property for greater enjoyment and usability due to the shade, cooling, and the aesthetic beauty afforded by trees;
- Protect and improve the real estate values of the city;
- Preserve and enhance air and water quality;
- Reduce noise, glare, dust, and heat, and moderate climate, including urban heat island effects;
- Increase slope stability, and control erosion and sediment run-off into streams and waterways;
- Protect the natural habitat and ecosystems of the city;
- Conserve energy by reducing heating and cooling costs;
- Preserve the function of mature trees to absorb greenhouse gases such as carbon dioxide.

APPLICABILITY

General

The standards in this section would apply to new development in the city unless exempted (see below).

Proposed Regulations

The Planning Director would have the authority to modify setbacks and lot coverage regulations when it is necessary to preserve specimen trees. Additional trees will be required for the new development if specimen trees cannot be preserved.

Other Regulations

The Salt Lake City Urban Forester will still have the authority over the protection of trees located on public property owned by the city and in rights of way.

Exemptions

The following specimen tree removal activities would be exempted upon confirmation and approval by the city urban forester:

- The removal of dead, damaged, or naturally fallen trees;
- The removal of trees in such a condition that they pose a threat to structures or natural features on the site, on adjoining properties, or in the public right of way;
- The removal of diseased trees posing a threat to adjacent trees;
- The selective and limited removal of trees necessary to obtain clear visibility at driveways or intersections;
- The removal of trees associated with development at the Salt Lake City Airport only as necessary to provide safe operations;
- Construction of a single- or twin-family residence not part of a proposed new subdivision;
- Removal of trees on an existing legal lot when not associated with new development.

RESPONSIBILITY AND MAINTENANCE

During development, the owner or developer shall be responsible for the erection of barriers necessary to protect any existing or installed specimen tree from damage during and after construction. Any new trees used to replace specimen trees shall be maintained in a healthy condition and cared for pursuant to the standards of the City Forester. If in the opinion of the city, replacement trees show signs of decline or mortality within the first two years of planting, they shall be replaced by the developer.



Credits: bigtreesnursery.com

A **SPECIMEN TREE** means a structurally sound mature tree, native or introduced, that is characteristic of the species; whose contributions to carbon sequestration, shade footprint, soil permeability, and aesthetics is high; and whose absence from the landscape would significantly alter the site's appearance, character or history.

CHAPTER 21A.26	2
21A.26.01: TREE PROTECTION	2
A. Purpose Statement	3
B. Applicability	3
C. Exemptions	3
D. Definitions.....	4
E. Standards	4
F. Specimen Tree Protection During Construction.....	<u>65</u>
G. Maintenance	<u>75</u>
H. Removal Prior To Development	<u>75</u>
I. Enforcement	<u>75</u>

Chapter 21A.26¹

21A.26.01: TREE PROTECTION

Background/Commentary:

Trees are a major element of every community, and Salt Lake City is no exception. The first settlers and leaders of Salt Lake City recognized the importance of trees and the potential to "green the desert" to make a more hospitable place to live. Trees contribute to a sense of nature in our urban areas, to the beauty and structure of our streets, to the quality of our parks, and the enhancement of our residential and commercial landscapes. Salt Lake City's urban forest provides many environmental benefits to the community. Aside from the obvious aesthetic benefits, trees within the urban forest improve our air, protect our water, save energy, and improve economic sustainability. It is well-documented that trees provide key environmental benefits that increase community sustainability such as:

- Absorb greenhouse gases. The U.S. Department of Energy finds a 30-year old hardwood tree can sequester the equivalent of 136 pounds of carbon dioxide annually.
- Reduce the amount of energy used and costs associated with indoor cooling and heating by 30-40%,
- Reduce ground-level ozone concentrations by reducing air temperatures biologically,
- Provide buffers that can reduce highway noise by 50%,
- Reduce topsoil erosion, slow down water runoff, and act as pollution filters, and
- Shade lawns that can reduce the demand on irrigation water requirements by 20%

These proposed regulations are to supplement the provisions of the Salt Lake City Urban Forestry Ordinance, Ordinance No. 75 of 1988, which address public trees and the impact that development on private land may have on public trees. While tree protection measures are in place to protect trees in public places and on publicly-owned lands, Salt Lake City's regulatory framework is not strong in protecting trees on private property. For example, the site development ordinance (Section 18.28.30A5a) suggests that subdivisions be designed to preserve the greatest amount of on-site vegetation and trees with a trunk diameter of four or more inches. While a good goal, there are no specific standards to determine which trees and how many must be preserved or not. The zoning ordinance, on the other hand, does require the preservation of trees along stream corridors through the Riparian Overlay District provisions. However, these provisions are limited to only certain lands in the city. We feel that Salt Lake City should move in a similar direction of the Riparian Corridor provisions in protecting trees on private property when development is proposed.

We are proposing to add a new section to the Salt Lake City Zoning Code specifically addressing the protection of specimen trees on private property. Specimen trees are those trees that in general add to the quality of life of the Salt Lake City community and the environment by virtue of their size, quality, and species. For the purposes of implementing protection standards, the more specific definition of a specimen tree is:

"A structurally sound mature tree, native or introduced, that is characteristic of the species; with space and essential requirements for its growth both above and below ground compatible with existing and proposed site conditions; whose future vitality can be reasonably expected and maintained with proper protection and regularly scheduled care; whose contributions to carbon sequestration, shade footprint, soil permeability, and aesthetics is high; and whose absence from the landscape would significantly alter the site's appearance, character, or history.

The approach we have taken in this section is to protect defined specimen trees on private property with the requirements and standards coming into play at the time someone is proposing development. The review for

¹ The numbering system follows the general format of the city's current zoning code. The various sections of this draft code will be placed in appropriate sections of the existing regulations. A specific section number will be assigned after discussions with staff.

such protection would occur at the time of application of a building permit, site development permit, subdivision and other relevant development applications. The provisions also include options for protection of trees or mitigation if it is impracticable or undesirable to keep a tree on site.

Many municipalities across the United States have enacted regulations to protect trees. For example, this approach is used in Laramie, Wyoming, Aspen, Colorado, and Cary, North Carolina.

A. PURPOSE STATEMENT

The purpose of these tree protection provisions is to recognize and protect the valuable asset embodied in the trees that exist on private lands within the city and ensure that the existing trees of Salt Lake City continue to provide benefit to its citizens. Essential to effective tree protection is the understanding of tree growth requirements having to do with space, water, and soil quality needs, among other qualities. Good, early planning, site design, and construction management practices are key to allowing trees to prosper. Preconstruction planning and mitigation of potential impacts that development may have on trees is necessary and one of the purposes of this section.

Numerous community and personal benefits arise from the presence of trees in urbanized areas - both on residential and non-residential lands- and it is the intent of this section through the protection of the trees to:

1. Enhance the quality of life in the city and protect public health and safety;
2. Preserve and enhance the visual and aesthetic qualities of the city;
3. Enhance public and private property for greater enjoyment and usability due to the shade, cooling, and the aesthetic beauty afforded by trees;
4. Protect and improve the real estate values of the city;
5. Preserve and enhance air and water quality;
6. Reduce noise, glare, dust, and heat, and moderate climate, including urban heat island effect;
7. Increase slope stability, and control erosion and sediment run-off into streams and waterways;
8. Protect the natural habitat and ecosystems of the city;
9. Conserve energy by reducing heating and cooling costs; and
10. Preserve the function of mature trees to absorb greenhouse gases such as carbon dioxide.

B. APPLICABILITY

1. General

The standards in this section shall apply to new development in the city unless exempted in accordance with Section C, Exemptions. The standards in this section shall apply at the time of a development application for "development" as defined in the zoning ordinance.

2. Other Regulations

Ordinance No. 75 of 1988, the Salt Lake City Urban Forestry Ordinance, addressing the protection of trees located on public property owned by the city and in rights of way, shall remain in effect.

C. EXEMPTIONS

The following specimen tree removal activities are exempt from the standards of this section upon confirmation and approval by the Urban Forester:

1. The removal of dead, damaged, or naturally fallen trees, or in cases of community emergency;

2. When in conjunction with the construction of a single- or two-family residence not part of a proposed new subdivision;
3. The removal of trees on an existing legal lot when not associated with new development;
4. The removal of trees in such a condition that they pose a threat to structures or natural features on the site, on adjoining properties, or in the public right of way;
5. The removal of diseased trees posing a threat to adjacent trees;
6. The selective and limited removal of trees necessary to obtain clear visibility at driveways or intersections;
7. The removal of trees associated with development at the Salt Lake City Airport only as necessary to provide safe operations;
8. The removal of trees when required by the Urban Forester for the purposes of conflict with utilities or streets.

D. DEFINITIONS

1. "Caliper" shall mean the dimension of the diameter of a tree trunk measured at a distance of 4' 6" from the ground.
2. "Maximum extent practicable" shall mean no feasible or practical alternative exists, as determined by the Urban Forester, and all possible efforts to comply with the standards or regulations and minimize potential harmful or adverse impacts have been undertaken by the applicant. Economic considerations may be taken into account but shall not be the overriding factor in determining "maximum extent practicable."
3. "Specimen tree" shall mean a structurally sound mature tree, native or introduced, that is characteristic of the species; with space and essential requirements for its growth both above and below ground compatible with existing and proposed site conditions; whose future vitality can be reasonably expected and maintained with proper protection and regularly scheduled care; whose contributions to carbon sequestration, shade footprint, soil permeability, and aesthetics is high; and whose absence from the landscape would significantly alter the site's appearance, character or history. See Tree Protection Appendix A for listing of species, sizes, and conditions that are likely specimen trees.
4. "Tree protection area" is the area of a development site that includes the area located within the drip line of specimen trees and also includes the area that supports tree health requirements and interactions as determined by the Urban Forester.

E. STANDARDS

1. Preservation of Specimen Trees

Specimen trees shall be preserved to the maximum extent practicable as determined by the Zoning Administrator in consultation with the Urban Forester, unless exempted pursuant to Section C, *Exemptions*. In determining if preservation is impracticable, the city shall consider the following criteria, including but not limited to:

- a. Whether an alternative location or configuration of the development including elements such as parking or structures on the site would be feasible to accomplish tree preservation, without negatively impacting adjacent properties
- b. Whether preservation of the specimen tree would render all permitted development on the property infeasible, or
- c. If development of the property will provide significant community benefits that outweigh tree preservation.

2. Cutting, Removal , or Harm Prohibited

Specimen trees shall not be cut, removed, pushed over, killed, or otherwise harmed unless approved to Section E.1, above.

a. Paving, Fill, Excavation, or Soil Compaction Prohibited

The tree protection area of any protected specimen tree shall not be subjected to paving, filling, excavation, or soil compaction.

3. Mitigation

Where the city determines it is not practicable to preserve a specimen tree on the development site, the following mitigation provisions shall apply.

a. Replacement Tree Required

Two caliper inches of replacement trees shall be provided for each caliper of specimen tree removed (For example, if a 24" caliper specimen tree is removed, it must be replaced with at least 24 trees of a minimum 2" caliper or eight trees with a 6" caliper). Each replacement tree shall be a minimum of two caliper inches, and shall either be replanted prior to certificate of occupancy or within a conditional timeframe as approved by the Zoning Administrator in consultation with the Urban Forester. Replacement trees shall not be used to meet any other landscape requirements, but be in addition to such requirements.

Replacement trees shall be planted on the lot or site where the specimen tree was removed except where the Zoning Administrator in consultation with the Urban Forester finds the following:

- (1) The site does not provide for adequate landscape surface area to accommodate the total number of replacement trees; or
- (2) That due to unique soil types, topography, or unusual characteristics of the site, the likelihood of successful tree growth is diminished.

In such cases, the applicant shall mitigate for the loss of the specimen tree in the form of payment to the city's tree fund as provided below.

b. Cash In-Lieu Payment /Tree Fund Contribution

Applicants who are permitted to remove a specimen tree but not plant a replacement tree on site shall make a cash in-lieu payment into the city's tree fund.

c. Modification by Zoning Administrator

The Zoning Administrator may modify any dimensional standard such as setbacks and height limits by up to 20% if such modification will result in preservation of a specimen tree.

d. Landscape Credit Provided

Any development that preserves a specimen tree shall be granted credit towards any required landscaping tree planting requirements pursuant to Chapter 21A.48 of the Zoning Ordinance, the Subdivision Code, and Site Development Ordinance on a 2:1 basis (2 inches of caliper credit for every inch of caliper preserved).

F. SPECIMEN TREE PROTECTION DURING CONSTRUCTION

1. Owner's Responsibility

During construction, the applicant shall be responsible for the ongoing health of specimen trees located on the site. This includes basic tree maintenance and watering throughout the term of construction. The owner shall also ensure the erection of barriers necessary to protect any existing or installed specimen tree from damage during and after construction.²

2. Tree Protection Fencing

a. When Required

Specimen trees shall be fenced in accordance with this subsection before any grading, excavating, or other land-disturbing activity begins on a construction site. Fencing shall protect the tree from excavation, fill, compaction, or other impacts that would threaten tree health. No construction, grading, equipment or material storage, or any other activity shall be allowed within the fenced area except in accordance with the standards in subsection 3, below, Encroachments into Tree Protection Areas and Root Zones. Fencing shall be maintained until the land disturbance activities are complete.

The tree protection fencing shall be clearly shown on the required development applications such as a site plan, building permit, or grading permit application.

b. Location

Fencing shall extend at least one foot in distance from the edge of the drip line of a specimen tree or group of specimen trees.

c. Type of Fencing

The developer shall erect a plastic mesh or chain link fence a minimum of four feet in height at the drip line around each specimen tree or group of specimen trees. Such fencing shall be secured to withstand construction activity and weather on the site and maintained in a functional condition.

d. Inspection

All tree protection measures shall be inspected and approved by the Urban Forester prior to the commencement of any land disturbing activities.

3. Encroachments Into Tree Protection Areas and Root Zones

Encroachments into a tree protection area or within the root zones of trees protected in accordance with this subsection shall occur only in rare instances. If such encroachment is anticipated, the following preventative measures shall be employed prior to the action:

a. Arborist Report

Written verification is prepared by a certified arborist of the tree's condition before and after encroachment, including preventative measures that shall be employed prior to, during, and after the encroachment to insure the viability of the tree.

b. Soil Compaction

Where compaction might occur due to planned, temporary traffic through or materials placed within the protection area, the area shall first be mulched with a minimum four-inch layer of wood chips or a six-inch layer of pine straw. Plywood sheet or metal plate coverage of the impacted area may be accepted by the Urban Forester when high moisture conditions warrant. Equipment or materials storage shall not be allowed within the tree protection zone.

² Applicants whose development are adjacent to public rights of way and publicly owned trees should refer to the "Tree Protection Guidelines for Construction Sites" provided by the Urban Forestry Division.

C. Construction Debris/Effluent

In no instance shall any debris or effluent associated with the construction process, including equipment or vehicle washing, concrete mixing, pouring, or rinsing processes, drain onto lands within tree protection areas.

G. MAINTENANCE

Any new trees used to replace specimen trees shall be maintained in a healthy condition and cared for pursuant to the standards of the City Forester contained in Appendix B. If in the opinion of the city, replacement trees show signs of decline or mortality within the first two years of planting, they shall be replaced by the applicant.

H. REMOVAL PRIOR TO DEVELOPMENT

If a specimen tree is removed from a site within two years prior to any development application on the site by the applicant or someone associated with the applicant, the applicant shall mitigate for such removal on a 3:1 caliper basis pursuant to the provisions of Section E.3 above.

I. ENFORCEMENT

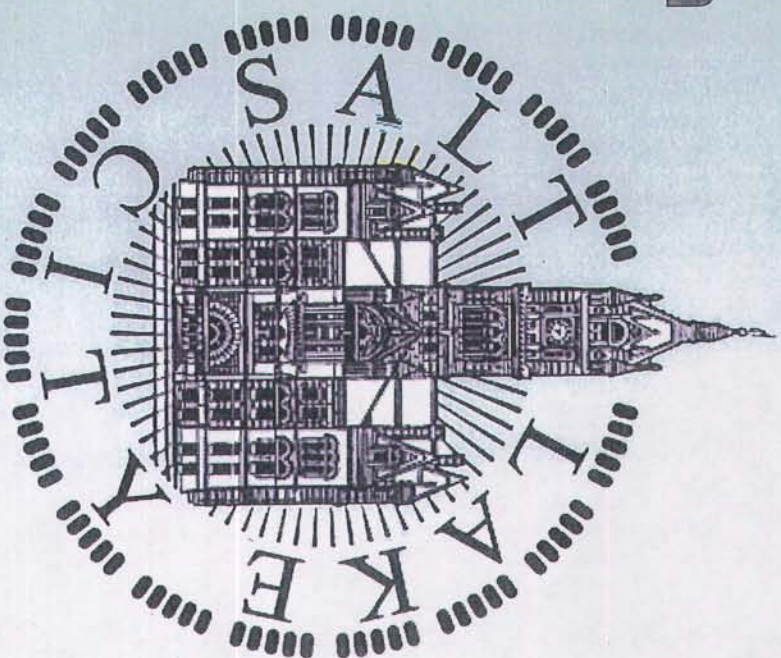
These tree protection provisions shall be subject to the zoning and development enforcement codes as adopted by the city.

Salt Lake City Corporation

Vision for a Green City

Salt Lake City's Sustainable
City Code Initiative

Mayor
Ralph Becker



Introduction-Blueprint for a Green City

Salt Lake City residents deserve a city to match the spectacular scenery. A green city is a place that uses energy efficiently. It reduces, reuses and recycles its waste. It works to keep its air and water clean. A green city protects its open spaces as ecological and recreational treasures. It offers its residents healthy and efficient transportation and housing choices.

By doing these things, a city becomes green: it becomes a highly desirable place to live, work, play, raise a family and own a business. A green city is a place where people want to be because the quality of life is high. As a result, a green city is economically stable and less vulnerable to the ups and downs of national and global forces, such as the prices of imported fossil fuels, over which city residents have little control.

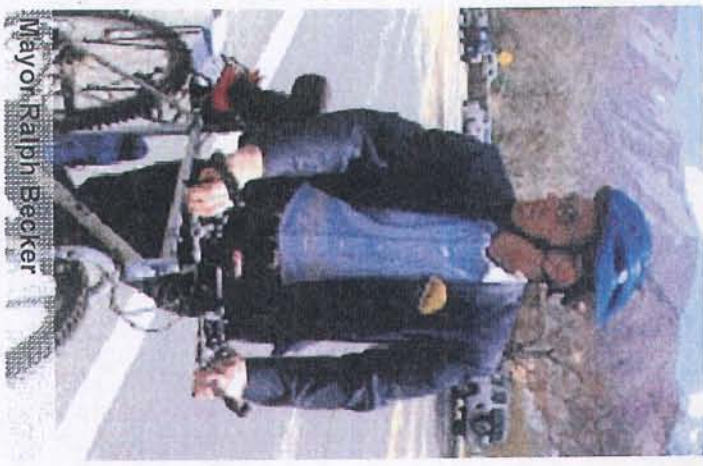
Salt Lake City can be one of America's leading green cities. In fact, Salt Lake City has the potential to be the greenest city in America.

To improve Salt Lake City's green credentials, we must:

- Reduce air pollution from sources both within the City and, with the cooperation of other cities, counties and the state, outside it.
- Use energy efficiently and from clean, renewable sources.
- Develop convenient public transit and non-motorized transportation choices for residents and visitors that link open spaces, residential neighborhoods, downtown and suburban cities.
- Preserve, improve and expand the network of open space and greenbelts throughout the City.
- Establish neighborhood centers for commercial and governmental services that foster walkable neighborhoods, reducing vehicular traffic and thus air pollution.

Salt Lake City's Sustainable City Code Initiative is one way to implement this vision. This project is a ground-breaking initiative to incorporate sustainability provisions into the City's development codes (Zoning, Subdivision and Site Development Ordinances). The revised codes will contribute to making Salt Lake City one of the most sustainable communities in the country.

The Sustainable City Code Initiative implements the Mayor's Blueprint for a Green City in many ways. This Vision document indicates how the project will help implement the vision for a green city.



Mayor Ralph Becker

1. Embrace public transit, cycling, walking and alternative energy vehicles

By giving people easy and efficient options for moving around the City, we can reduce the amount of emissions that are put into the air in the first place. Transportation choices affect our daily lives, from how quickly we get to work or back home again, to traffic congestion, to where there are convenient bus and light rail stops, to the safety of bike lanes, to how we get around town or from one town to the next, to how clean our air is. These choices also can directly affect business and commerce entities, and even the amount of exercise we get in a day.

The following points are things to consider:

- We need to provide transportation choices for Salt Lake City residents (automobiles, light rail, buses, improved and safer bicycle lanes, enlarged and safer pedestrian-friendly zones) to promote livability and to reduce congestion, reduce air pollution, and reduce the use of fossil fuels.
- Salt Lake City should be enhanced as a regional and state hub by emphasizing mobility into and out of the City and accessibility to a variety of transportation choices within the City.
- The walking environment should be enhanced so that residents can leave cars behind as often as possible or park in one convenient place to access many destinations on foot.

A. Connectivity

Connectivity is the connections within and between developments. The proposed connectivity regulations are geared to ensuring that there are ample options for pedestrians, bicycles, and vehicles to reach destinations within a development, around a development and between developments. Increased mobility options can reduce vehicle miles traveled (VMTs) and thus greenhouse gas emissions, and promote healthy lifestyles by encouraging walking and bicycling.

The proposed regulations require:

- Street and sidewalk connections between activity centers such as neighborhood commercial nodes, schools, and parks.
- Internal access between adjacent non-residential uses to avoid unnecessary drive-ways which disrupts pedestrian movement.
- Sidewalks on both sides of the streets.
- Access to entrances of non-residential uses to public sidewalks, to transit areas, to park and ride lots, to parks and trails, to schools, community centers, libraries, places of worship and other similar activity centers.
- Midblock walkways on large blocks
- Designation of pedestrian access through parking areas to building entrances
- Safe and convenient bike routes.



1. Embrace public transit, cycling, walking and alternative energy vehicles (continued)

B. Transit Oriented Development Regulations

Transit Oriented Development (TOD) integrates land use and transit to help create compact, walkable mixed-use communities close to transit stations. It brings people, jobs, and services together in such a way that makes it safe and convenient to travel by foot, bicycle, and transit as well as by car. In addition, Transit Oriented Development can create lively neighborhood activity centers.

Salt Lake City has a great opportunity to promote sustainable development in concert with its growing transit system. There is growing evidence that mixed-use, transit-oriented developments can significantly reduce the use of automobiles and associated greenhouse gases from burning of fossil fuels.

The specific regulations of the new Transit Station Area Zones adopted by the City Council in August 2010 include:

- Encouraging mixed-use moderate and high-density, economically viable developments within walking distance of transit stations to increase transit ridership and reduce use of automobiles and associated reduce greenhouse gas emissions.
- Promoting transit-supportive uses that are high pedestrian generators that directly promote greater transit ridership and opportunities for multi-purpose trips while discouraging auto-oriented uses.
- Creating a pedestrian-friendly environment to encourage walking, bicycling, and healthier lifestyles.
- Creating attractive, lively, and safe places for living, working, shopping, learning, and recreating.
- Providing a range of housing options for people of different income levels and at different stages of life.
- Encouraging developments that are connected with surrounding neighborhoods and compatible in terms of uses, scale, and other aspects.
- Incorporating engaging, high-quality public spaces such as small parks and plazas as organizing features and gathering places for residents and surrounding neighborhoods.



Mixed use development and transit stop on 2nd South

2. Plant a tree, save a life

Trees absorb carbon dioxide, the chief greenhouse gas, and produce oxygen. They also prevent erosion and water runoff, and they cool the air by producing moisture and providing shade. That keeps people and buildings naturally cool, reducing our need for energy-consuming air-conditioning. A continuous tree canopy helps reduce smog by reducing the amount of heat radiating off roads, parking lots and roofs. In the winter, trees lower our heating costs by blocking winter wind. Trees provide key environmental benefits that increase community sustainability such as:

- Absorb greenhouse gases. The U.S. Department of Energy finds a 30-year old hardwood tree can sequester the equivalent of 136 pounds of carbon dioxide annually.
- Reduce the amount of energy used and costs associated with indoor cooling and heating by 30-40%.
- Reduce ground-level ozone concentrations by reducing air temperatures biologically.
- Provide buffers that can reduce highway noise by 50%.
- Reduce topsoil erosion, slow down water runoff, and act as pollution filters, and
- Shade lawns that can reduce the demand on irrigation water requirements by 20%



Tree shaded sidewalk on South Temple

A. Tree Protection

While the City already has tree protection measures in place to protect trees in public places and on publicly-owned lands, Salt Lake City's regulations are not strong enough in protecting trees on private property.

The proposed regulations specifically address the protection of specimen trees on private property as new development occurs. Specimen trees are those trees that in general add to the quality of life of the Salt Lake City community and the environment by virtue of their size, quality, and species.

The proposed regulations:

- Protect specimen trees on private property when new development occurs.
- Include options for protection of specimen trees, such as modifications in zoning setbacks in order to build around the tree, or
- Require additional and larger trees to be planted beyond the minimum requirement if the specimen tree cannot be preserved.

3. Make our buildings more energy efficient and use renewable energy resources.

Most buildings in Salt Lake City consume energy inefficiently because they are older structures that do not have the most efficient mechanical systems, nor have they been retrofitted to minimize energy loss or to take advantage of passive solar design principles.

The increased use of renewable resources could help mitigate the negative effects of air pollution and the use of costly, imported fossil fuels that are ultimately a finite resource and that contribute to global warming.

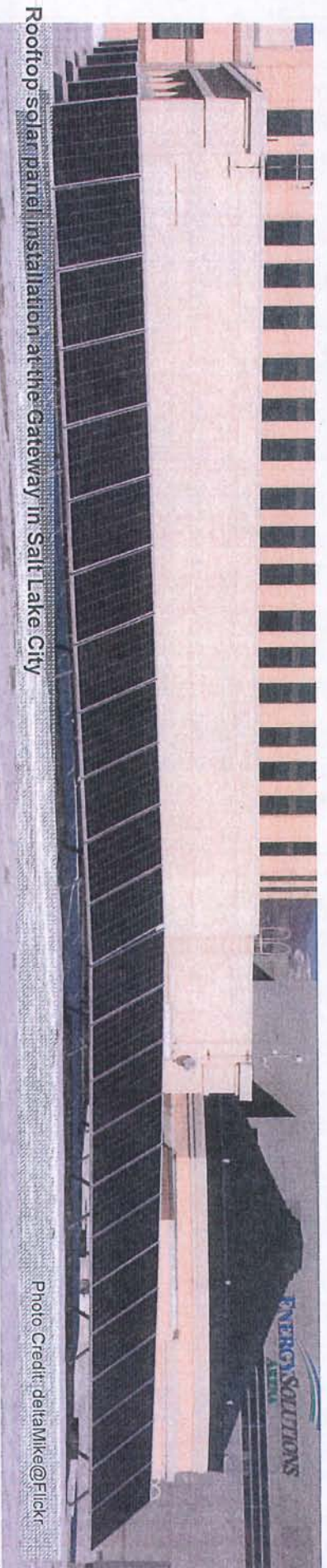
A. Renewable Energy

The proposed regulations address three distinct issues:

- Require all new single- and twin-family dwellings to be “solar-ready,” that is, be equipped for the future use of solar power for electric power or hot water heating.
- Provide that all new major subdivisions be laid out to require a minimum percentage of the lots have optimal solar orientation for the installation of solar systems.
- Permit solar and small-scale wind energy systems as accessory structures in certain zone districts subject to compatibility and safety standards. Also, permit solar arrays and large wind generating systems as principal uses (e.g., a ground-mounted solar array and large wind generating systems in appropriate zoning districts.), again subject to standards.

The proposed regulations include:

- Providing a priority hierarchy for location of solar collectors in historic districts. The installation of the panels would be more flexible where the panels are least visible from the street and the placement does the least damage to the historic structure.
- Allow for small wind energy facilities where height is based on the size of the lot.
- Allow Large Wind Generating Systems in appropriate zoning districts with criteria to address impacts.
- Allow Solar Arrays as a principal use in appropriate zoning districts.
- Require a percentage of Solar Oriented buildings in new large subdivisions.
- Require solar ready buildings in new residential development.



Rooftop solar panel installation at the Gateway in Salt Lake City

Photo Credit: deltaMike@Flickr

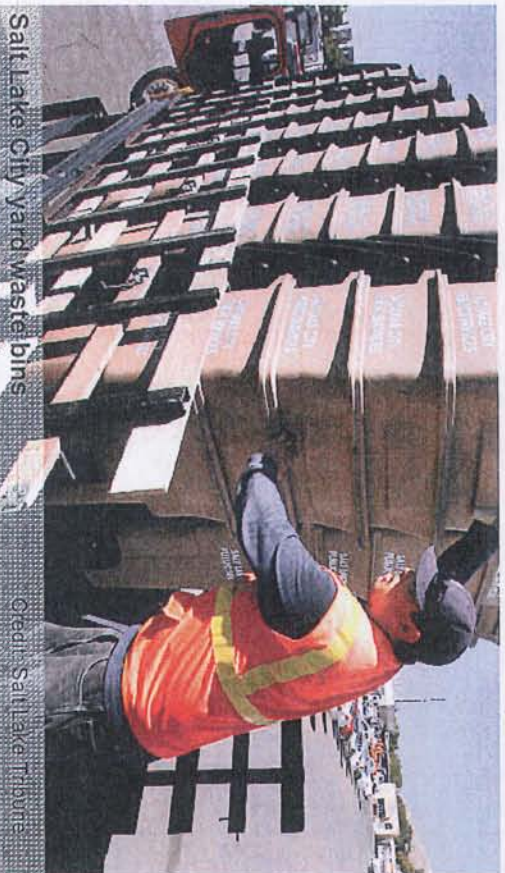
4. Promote Recycling and Minimize Construction Waste

Recycling and waste reduction means fewer materials enter the landfill, thereby extending its life and also reducing emissions of methane, a landfill and greenhouse gas. For Salt Lake City, reducing waste will result in more efficient trash collection services, long term cost savings, and extended landfill life.

In a sustainable community, waste is considered as a resource to be used and reused, not a problem to be disposed of. Communities, not just buildings or the operations of homes and businesses, should be designed to minimize and manage solid waste. A comprehensive solid waste management program should incorporate:

- Reduction of the amount of waste produced,
- Reuse of waste materials where possible, and
- Recycling of wastes.

Preventing waste at the source, through strategic purchasing by businesses and citizens, can decrease the consumption of raw materials and energy during manufacturing, transportation, and disposal. Public awareness to this basic tenet of recycling, along with the basic platform within the City to allow for more recycling, reuse, and waste reduction will be key in moving Salt Lake City forward on this front.



Salt Lake City Yard Waste Bins

Green Salt Lake Tribune



A. Recycling and Waste Reduction

Salt Lake City has made great strides with its recycling programs by implementing private contractor service for approximately 7,300 residential homes per day/5 days a week, variable refuse rates based on container size, and municipally funded composting and waste operations.

The proposed regulations include:

- Requiring recycling station areas in non-residential and mixed use buildings (the size of the facility is based on the size of the building) and in multi-family developments (the size of the area is based on the number of units.)
- Requiring centralized neighborhood recycling and composting stations in new residential developments including built in kitchen recycling centers.
- Requiring existing development to meet the new standards as upgrades of a certain percentage are made.
- Allowing the conversion of parking or common space in existing developments in order to retrofit for recycling areas (convert up to 3-6 stalls based on specific criteria.)
- Requiring construction waste management plans and encouraging deconstruction plans and recycling / reuse staging areas as part of the issuance of a demolition permit.
- Requiring that for all demolition applications for multifamily, low density residential with 20+ units and non-residential development to include a plan to separate waste types.

5. Preserve and acquire open space

Without a Big Picture plan for preserving and acquiring our precious open spaces, our green spaces will "suffer death by a thousand cuts" as they are slowly nibbled away. A long-range plan for both retaining our current open spaces and for acquiring additional ones is critical to our health and quality of life from both a recreational and an ecological standpoint.

A. Open Space Dedication Requirements

Salt Lake City has a history of public parks dating back to the dedication of the first major public park in the City: Liberty Park in 1882. Well-located near the City's business core close to workers and residents alike, Liberty Park stands as a shining example of public open space that serves a multitude of uses – passive, active, and urban green space. Today, the City's park system includes 71 parks of a variety of sizes and uses, totaling 172 acres. According to the Salt Lake City Parks and Recreation Recovery Plan, these parks provide a ratio of 1.24 acres to every 1000 residents.

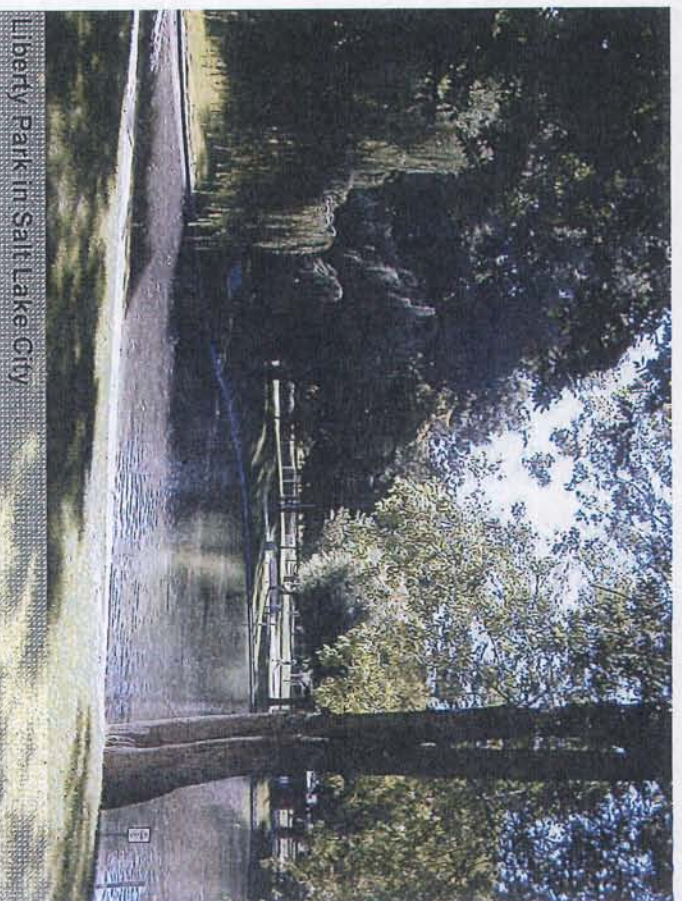
In addition, Salt Lake City is blessed with access to the multiple-use public lands of the U.S. Forest Service and Bureau of Land Management that provide numerous recreational options within close proximity to the City. These are coveted lands and continued access to them is important not only to Salt Lake City citizens and the thousands of recreationalists that visit the Wasatch Front every year, but to the economy of the City as well. But access to public lands and trails can be challenged by new developments, cutting off historic public access - an issue Salt Lake City understands.

Future growth in the City's west/northwest region and in the foothills will place more pressure on existing open space and increase demand for more parks, open space, and potentially cut access to public lands. Moreover, desired redevelopment of higher density and mixed use complexes in established parts of the City will create demand and the need for a variety of new open space and recreational opportunities.

To address community sustainability related to the provision of parks, open space, and access, the proposed regulations would require major new residential developments to provide open space and parks as a condition of approval. This will help position the City so that if new development is addressing the demands of growth, the City will not see increased pressure on its existing open space and park resources, taxpayer money will not be spent on new growth but rather on other desirable lands to add to its system, and developments will have parks and open space in close proximity to serve its residents.

Proposed Regulations include:

- Requiring new residential developments to dedicate land for parks and open space in proportion to the demand generated by the residents of the project
- Allowing up to 25% of the public land dedication requirement to be provided as private open space set aside for exclusive use of residents of the development;
- Tailoring open space dedication standards for infill development by allowing alternatives to traditional parks and open space such as courtyards, plazas, green roofs, and community garden space, and
- Preserving access to public lands through the use of incentives.



Liberty Park in Salt Lake City

6. Use Water Wisely

Water supplies will be stretched even further in the region over the next several decades. We have tremendous untapped opportunities for wastewater recycling and reuse (to irrigate parks, golf courses, etc.) and for the channeling and reuse of storm water runoff. In addition, innovative urban water conservation strategies must be developed that will sharply reduce our household water use. This ordinance will build on the City's past efforts to decrease water use and attain the ambitious water-consumption reduction goals in the water master plan thereby reducing impacts on aquifers and riparian habitat while at the same time greatly reducing energy consumption.



Water efficient landscaped yard in Salt Lake City

A. Water Efficient Landscaping

Because landscape irrigation is one of the biggest water users, many communities have adopted landscaping standards in their zoning regulations to address water conservation. The proposed regulations would replace and expand on the City's existing water conserving regulations relating to landscaping and water conservation. The proposed regulations take a three-pronged approach to water conservation by:

1. Requiring plants to be installed according to watering needs (hydrazones) so that plants that have similar water needs are located together.
2. Establishing overall landscaping water budgets for non-residential and multi-family developments that penalize users that exceed the water budget by requiring irrigation audits and increased water rates under the City's current water rate structure.
3. Adding more specific standards regarding irrigation system design and efficiency.

Importantly, the new regulations would apply primarily to new commercial, industrial, institutional, multi-family, and common areas of large single-family subdivisions (10+ lots). They would not apply to landscaping in existing developments or to most low-density residential developments.

7. Improve Air Quality

Air quality is an overriding concern. To improve our air quality, we need to work within the context of federal and state law. There is no single solution to this difficult problem. It will take a concerted effort from all of the municipalities in the valley and region to bring about positive changes. Our continued economic prosperity is dependent upon having a city and region with clean and healthy air.

Salt Lake City must take the lead and serve as a model in comprehensively reducing the amount of pollutants that are put into the air. Among other things, this means:

- Making it easy and convenient for residents to walk, bike or take transit throughout the City.
- Finding ways to ensure that housing in the City (near where most people work) is affordable so that driving is less necessary
- Having zoning laws that carefully permit commercial and public centers in neighborhoods that complement residential areas
- Providing incentives to builders, homeowners, and business owners to retrofit their structures so that they use fuels efficiently and/or use renewable and clean-

A. Urban Agriculture

Local food production can save energy through diminished transport needs and reduced reliance on mechanical equipment associated with large scale agriculture. Urban farms, community gardens and farm stands located near where people live and work allows people to access locally grown produce without relying on private automobiles, which in turn decrease greenhouse gas. Additionally, urban farmers and residents benefit as the local economy is enhanced and social impacts strengthen neighborhoods. Studies have shown that community gardening increases community pride, property values, and personal physical health, while reducing crime and blighted lands.

The proposed regulations

- Allow accessory structures relating to urban agriculture with dimensional and locational requirements in appropriate zoning districts including residential
- Allow urban farm uses for food cultivation allowed in more zoning districts including residential and commercial.
- Allow residents to grow, distribute and sell produce from residential zoning districts with qualifying provisions to mitigate impacts.
- Allow community gardens in more zoning districts and allow the sale of food grown on site.
- Allow Seasonal Farm stands in more zoning districts but limit the sale to locally grown produce.



A community garden in Salt Lake City

Credit: WFRG

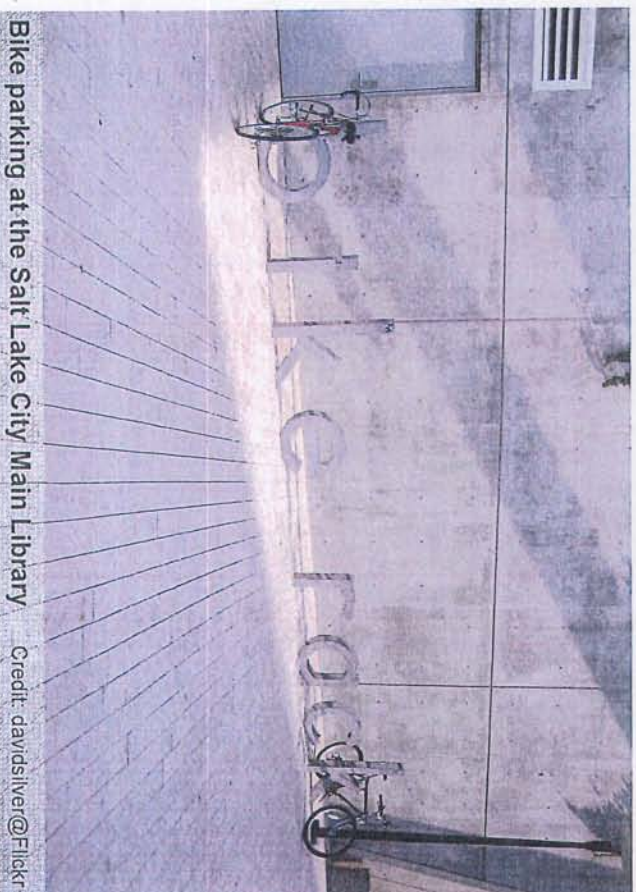
7. Improve Air Quality (continued)

B. Transportation Demand Management

Transportation Demand Management (TDM) refers to a variety of strategies that can be used by a city to influence travel decisions by residents and employees and thereby reduce vehicle miles traveled (VMT), alter driving from peak to off-peak periods, and shift use of automobiles to alternative modes. Reducing the use of automobiles is a key to reducing greenhouse gas emissions that contribute to climate change and also to control air pollution that affects public health. In the United States transportation accounts for fully 33% of CO₂ emissions (the primary greenhouse gas), and that percent is growing according to recent studies. Moreover, despite technological advances, VMT are expected to increase nationwide and in Utah. Throughout the Intermountain West, sprawling growth patterns has lead to poor integration between land use and transportation. Between 1990 and 2007, the state of Utah experienced a 47% increase in population, but at the same time VMT increased 71%.

Proposed Regulations include:

- Requiring bike parking with at least 50% of outdoor bike parking to be covered and to be located close to the main entrance.
- Requiring bike lockers and showers on site for companies with 100 or more employees.
- Ensuring car pool parking gets a preferential location.
- Requiring minimum and maximum parking requirements for high density residential, in the Downtown area and in Transit Oriented Development projects.
- Decreasing the parking requirement for development which includes more than 10 units, and where at least 20% of the units are affordable, senior or assisted living.
- A maximum parking requirement with a conditional use out for certain types of land uses.
- Allowing credit for on-street parking in all zones with criteria to mitigate impacts and where the on-street parking is located along the frontage adjacent to the use.
- Requiring lease and sale prices of commercial and residential space to be listed separate from lease sale space of associate parking for the use.
- Continuing to allow shared parking.
- Requiring TDM measures for uses that are proposed to have more than 2500 Vehicle Miles Traveled per day, have 500 employees or students or have 100 units or more. Examples of the measures include
 - * Facilities and Improvements (such as bike facilities, transit stops, onsite business centers, etc.) Parking Management (such as reserved parking for alternative fuel vehicles, electric charge stations, etc.) and Alternative Modes of Circulation (such as transit passes, shared bike fleet, shared car fleet, flex work strategies, etc.)



Bike parking at the Salt Lake City Main Library

Credit: davidsilver@Flickr

8. Housing Diversity

A key aspect of a sustainable community is that people have the opportunity to live in housing that is located in close proximity to work, schools, services, and community activity centers, that is affordable, and that provides a range of choices in terms of types (single family, multi-family, etc.). As Salt Lake City continues to grow and demographics change, the demand for a sustainable housing stock will also continue to grow. Land prices are rising in the Wasatch Region and land availability is decreasing so the challenge to develop work force housing will heighten. While the city is well positioned with numerous programs, the land use regulatory strategies available to the city can make important contributions to building a sustainable housing stock.

Some of the land use regulatory approaches that may support Salt Lake

City's goals include:

- Removing barriers for constructing accessory dwelling units and "granny flats,"
- Allowing more flexibility for various building types (town homes, duplexes, studios)
- Reducing large minimum lot size requirements in some residential zone districts. Allow smaller (<5,000) square foot lots and smaller lot splits for affordable housing.
- Offering expedited review/permitting processes for affordable housing development.
- Allowing mixed use developments by-right in appropriate locations near public transportation facilities.
- Providing density bonuses for developments including all or part affordable housing.



Example of an ADU/garage

Credit: Peterson Architects

A. Accessory Dwelling Units

Accessory dwelling units (ADUs) have become an important component of the housing stock in many communities - both large and small - in the United States. By providing housing on existing lots in developed neighborhoods, ADUs are a form of land use that makes good use of land and existing public infrastructure investment. ADUs, when located near employment and retail centers, help increase use of mobility alternatives leading to a reduction in greenhouse gas emissions and energy (fuel) use. Additionally, the changing face of the American public and its housing needs supports the inclusion of ADUs as a housing alternative. More people are aging, are "empty nesters", and desire to down-size. In addition, the work force continues to be challenged to find affordable housing and ADUs can help address that demand.

The proposed regulations include:

- Allowing where single-family dwellings are allowed or where single-family dwellings exist.
- Limiting the size of ADU: The proposal is to limit the size of an Accessory Dwelling Unit to ensure it is subordinate to the principal structure. The regulation would limit the size to 50% of the square footage of the principal structure or 650 square feet; whichever is greater.
- Requiring Owner Occupancy: Require either the principal unit or the ADU to be occupied by the owner of the lot. The idea is that if an owner is on site, they are more likely to ensure tenants are not causing problems (such as noise, etc.) and will ensure the property is maintained.
- Limiting ADUs to one ADU per lot.
- Requiring ADUs to be registered / licensed with City.
- Requiring one parking stall per ADU. As written, parking would be required but the Transportation Division could modify the requirement (such as allow Tandem Parking or no Parking) where certain factors are evident (such as where there is available on-street parking, it is within 1/4 mile of a Trax Station, it is within walking distance to a Business District area, etc.)
- Allowing home occupations (such as an office) in an ADU, but not conditional home occupations (such as music lessons or hair styling) where person would come to house.
- Requiring the ADU to meet height, setback and building coverage for the principal structure regulations of the zoning district.
- Requiring the entrances for an ADUs to the back or side of the property. This is to enforce the subordinate nature of the unit.

9. Lighting

To set forth lighting standards for outdoor uses that serve to create a safe and comfortable nighttime environment, while protecting the public's ability to view the night sky. These lighting standards are designed to ensure personal safety and prevent motor vehicle and pedestrian conflicts by reducing the negative effects of glare, light pollution and light trespass.

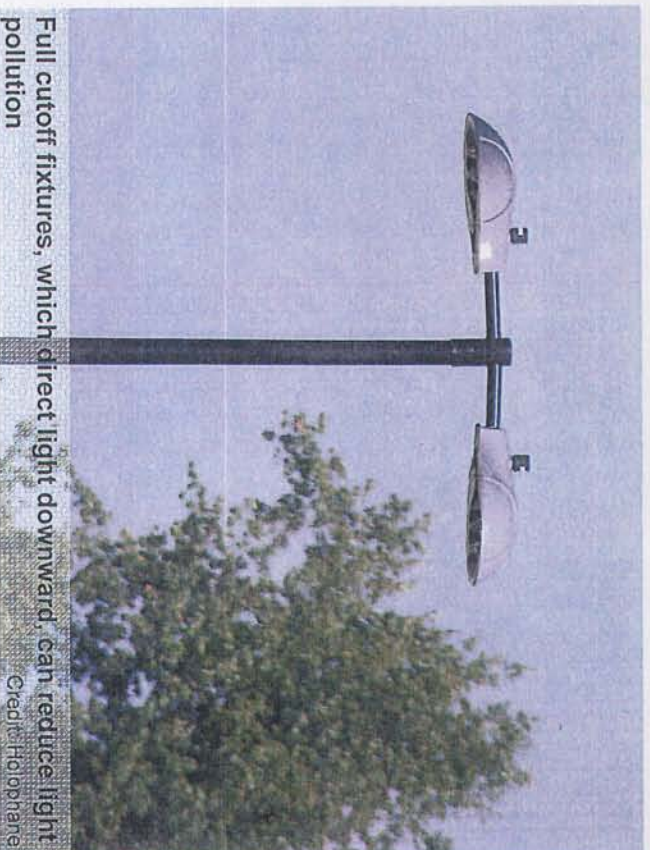
Fossil fuels—coal, oil, and natural gas—currently provide more than 85% of all the energy consumed in the United States. Nearly two-thirds of this is used to produce electricity. Energy generation from these fossil fuels is the single largest contributor to greenhouse gas emissions. The vast majority of Salt Lake City's energy comes from Rocky Mountain Power (PacifiCorp) which generates 93% of its electricity from coal-powered plants. Salt Lake City's consumption of electricity has grown steadily over the past 40 years due to the city's growth and development. Nationally, U.S. residential per household energy consumption has increased 39% since 1970 reflecting the trend toward larger homes and a greater variety of lighting, electronics, and appliances. Recently, home energy use has been trending downwards, an encouraging sign.

One of the major sources of consumption of electricity is outdoor lighting. Lighting was estimated to consume about 1.1% of the total electrical demand in the residential sector in 2007. Large commercial establishments like shopping centers use huge amounts of electricity to light parking lots and other outdoor areas.

Many communities throughout the West have adopted very strong controls on outdoor lighting in their development codes to reduce potential adverse impacts on surrounding properties, to preserve the dark western sky, and to reduce energy consumption. The proposed regulations include modern comprehensive lighting regulations that reduce over-lighting of sites, address hours of lighting, and other energy and dark-sky saving provisions..

The purposes of the proposed lighting regulations include:

- Ensuring outdoor lighting that is adequate for safety and convenience; in scale with the activity to be illuminated and its surroundings; directed to the surface or activity to be illuminated; and designed to clearly render people and objects visible and contribute to a pleasant nighttime environment.
- Providing safety and personal security as well as convenience and utility in areas of public use or traverse, for uses where there is outdoor public activity during hours of darkness;
- Controlling glare and excessive brightness to improve visual performance, allow better visibility with relatively less light, and protect residents from nuisance and discomfort;
- Controlling trespass light onto neighboring properties to protect inhabitants from the consequences of stray light shining in inhabitants' eyes or onto neighboring properties;
- Resulting in cost and energy savings to establishments by carefully directing light at the surface area or activity to be illuminated, using only the amount of light necessary; and
- Controlling light pollution to minimize the negative effects of misdirected light and recapture views to the night sky.



Full cutoff fixtures, which direct light downward, can reduce light pollution

Credit: Holoplane