

Landscape Reference Manual

Revised April 2016 By City of Aurora, Planning Department

City of Aurora

Planning Department 15151 E. Alameda Pkwy 2nd Floor Aurora, CO 80012 Phone: 303-739-7250

Fax: 303-739-7268 Email: planning@auroragov.org

Included in this reference manual:

Appendix of Landscape Plan Information

This document is available on our web site. Go to www. Auroragov.org:

City of Aurora Landscape Reference Manual

Table of Contents

Int	troduction	Page 3
1.	Landscape Plans	Page 4
	1.1 Landscape Plan Requirements	Page 4
2.	Appendix	Page 9
	A. Recommended Xeriscape and No Water (Z) Plant List	Page 10
	B. City of Aurora Policy On Preservation of Existing Trees	Page 21
	C. Custom Home Landscape and Tree Mitigation Form	Page 25
	D. Sample Landscape Tables	Page 26
	E. Legends, Plant Lists, Index Maps	Page 30
	F. Street Frontage and Perimeter Buffer Calculations	Page 32
	G. Front Yard Landscapes	Page 34
	H. Front Yard Xeriscape Landscapes	Page 44
	I. Artificial Turf	Page 52
	J. Revegetation Plan Check List	Page 56
	K. Development Review Staff List	Page 57
	L. Landscape Material Placement Criteria	Page 58

Landscape Reference Manual Revised: April, 2016

Introduction

Changes to City of Aurora landscape plans and submittal requirements.

The City of Aurora no longer requires the submittal of final landscape plans. The **preliminary landscape plan (Section 1.1)** will be the only plan required and is submitted concurrent with the site plan during development review.

The appendix has pertinent information for preparing preliminary plans and also includes the city's <u>Recommended Xeriscape Plant List</u> and the <u>Policy On The Preservation of Existing Trees</u>, single-family detached landscaping information, artificial turf requirements, and more.

City of Aurora Planning Department

1.0. Landscape Plans. The landscape plan is a legal document that is binding on the developer or owner, their successors and assigns. The landscape plan is a commitment to quality and is a long-term maintenance agreement therefore, the plans must be complete and legible and will not be accepted if they are unclean or information is illegible or missing.

The landscape plan is submitted concurrent with the Development (DA) application and will be reviewed for compliance with the landscape code during development review.

- 1.1 **Landscape Plan Requirements.** The following bullet points describe the landscape plan and the information that shall be provided on the plan:
 - Sheet Size. 24"X36" sheet size. Each sheet shall include a title block, north arrow, graphic scale, and key map. The plans are to be drawn at a minimum scale of 1"=40'-0" and shall include all pertinent information as further described in the bullet points that follow.
 - <u>Title Block</u>. Show project name, developer name, consultant name, revisions table, sheet description, and sheet number.
 - Key Map. To facilitate reviewing sets of plans consisting of two or more sheets, staff recommends providing a key map that shows the overall site and the area covered by each sheet.
 - North Arrow/Graphic Scale. Show a numeric and graphic scale for all plans and details, and include a north arrow.

Not For Construction. Label each sheet in the landscape plan set "NOT FOR CONSTRUCTION".

- <u>Phase Lines</u>. Phase lines are required on all phased development. Include phase lines in the symbol legend. Buffers next to residential development, arterial and collector street frontages and perimeter buffers, should be included in phase one construction whenever feasible.
- <u>Proposed Waivers List</u>. All landscape waivers should be listed on the landscape plan.
 Discuss required language with Case Manager.
- <u>Standard Landscape Notes</u>. The following notes are required on all landscape plans.
 Statements should describe the information requested and notes shown in quotation marks "" should be provided as written without revisions or additions. Modified statements and notes will be rejected unless previously approved.
 - □ Provide a statement committing to soil preparation, listing type and quantity of amendment(s) to be applied. Four cubic yards of organic material per 1,000 SF of area is the minimum amount currently required to obtain a lawn permit.
 - Provide a statement generally describing any freestanding lights.

- □ Provide a statement generally describing the surface material of walks, vehicular drives, parking lots, plazas, etc.
- □ Show this note, "All utility easement shall remain unobstructed and fully accessible along their entire length for maintenance equipment entry."
- □ Show this note, "The developer, his successors and assigns, shall be responsible for installation, maintenance and replacement of all landscaping materials shown or indicated on the approved site plan or landscape plan on file in the planning department. All landscaping will be installed as delineated on the plan, prior to issuance of certificates of occupancy."
- Show this note, "All landscaped areas and plant material, except for non-irrigated native, restorative, and dryland grass areas that comply with requirements found in Sec. 146-1429 and/or Sec. 146-1435 must be watered by an automatic underground irrigation system. Irrigation system design, installation, operation, and maintenance shall conform to requirements found in the City of Aurora Irrigation Ordinance."
- General Landscape Notes. In addition to the required standard landscape notes to be
 provided above, the applicant may include notes that describe landscape materials such
 as mulches, pavers, and decorative pavement. Notes that describe tree lawn and
 residential single-family detached lot landscape responsibilities may be included. Notes
 giving contractors freedom to make substitutions and field changes without prior city
 approval are not permitted.
- <u>Landscape Plan Legend.</u> Show property lines; utilities; lighting fixtures; fire hydrants; fences; walls; curb and gutter; concrete and asphalt pavement; decorative pavement; existing and proposed contours and elevations, and T.O.W and B.O.W. elevations; 100 year flood plain boundaries; and all other site improvements that are shown on the site plan should match those shown on the landscape plan and be included in the legend.
- <u>Utility Easements & Utility Hardware Locations</u> Show and label all existing and proposed utility easements and utility hardware such as fire hydrants, stand pipes, transformers, enclosures, etc. since they will impact plant material locations. Be sure to show these items in a legend.
- <u>Plant Material Symbol Legend:</u> Include a separate legend showing deciduous, evergreen and ornamental trees, plant beds; irrigated cool and warm season sod or seed; irrigated and non-irrigated native, restorative, and dryland grasses. Show required sizes at time of installation.
- <u>Plan Layout</u> <u>Plant Material Symbol Scale.</u> Draw all plant material at the corresponding sizes.
 - □ Deciduous shade and street tree species. 25' diameter.
 - □ Deciduous ornamental trees. 12' to 15' diameter.
 - □ Evergreen trees. 10' diameter.
 - □ Large shrubs*/Small trees. 6' to 8' diameter.
 - □ Medium shrubs*. 4'-5' diameter.

- □ Small shrubs*, perennials, and ornamental grasses. 3' to 4' diameter.
- □ Annuals and Groundcovers. Cross-hatching, stippling, and shading are acceptable when accompanied by spacing and planting pattern notations. e.g. (Annuals 8" o.c. triangular spacing.)
- Existing Plant Material. Special symbols should be provided for existing trees, shrubs, and plant beds that will be protected in place, or when existing trees will be relocated. Also, provide special symbols for all plant species such as Cottonwoods and Yucca that may be prohibited or hazardous to the public's health, welfare, and safety.
- Water Zones Show water usage requirements for each turf and plant species listed in the Plant List. Usage requirements should be shown as follows:
 - Non-water conserving means any turf or plant using high amounts of water (greater than 15 inches per year) through automatic irrigation connected to a permanent tap to survive in normal weather conditions
 - Water conserving means any turf or plant using low or moderate amounts of water (less than 15 inches per year) through automatic irrigation connected to a permanent tap to survive in normal weather conditions.
 - Non-water (Z) using means any turf or plant species needing no water through automatic irrigation connected to a permanent tap to survive or needing only water by a temporary tap for re-establishment in normal weather conditions.
- <u>Detailed Plant List.</u> Provide a plant list including representative plant symbols, labels, quantities, sizes, common and botanical names, special notes/or planting requirements i.e. spacing and water usage requirements for each species.
- Contours. Show existing and proposed one or two foot contours and label.
- 404 Permit. Provide a copy of Wetlands application and mitigation plan when necessary.
- Existing Trees, Shrubs, and Natural Areas. Show trees, plants, existing landscaped areas, natural areas that are to remain and be protected in place.
- <u>Detention</u>, <u>Retention</u>, <u>and Water Quality Ponds</u>. Show pond type, area boundary, 100 year flood line, maximum depth below 100 yr. flood line, and show retaining walls and details if applicable.
- <u>Distinctive Landscape Treatments</u>. Required at site and neighborhood entrances and at each collector or arterial street intersection.
- <u>Surface Treatments</u>. Including each turf type, decorative pavement, concrete, asphalt, pavers, concrete curb and gutter, and include details,
- Fences, Walls and Retaining Walls. Retaining walls and fence materials, height, and placement are regulated by code and therefore, always provide design details including dimensions, materials, finishes, color and top and bottom of wall elevations. Graphically show the location of each fence style. It should be very clear where each fence begins

and ends. The city will not issue fence or wall permits if this information is not shown on the plans or if it is incomplete. Also for more information, please see Article 17 Fence, Wall, and Awning Standards. Include cross sections as requested showing relationship to adjacent infrastructure and structures with grades at top and bottom of wall/fence at critical locations as addressed during development review.

- Monumentation Signs and Community Design Elements. Show the locations of proposed or existing monuments and signs. Include design details with dimensions, materials, finishes, and colors. Reference all details.
- Parking Lot Landscaping. Include all islands and screening.
- <u>Service Areas and Trash Enclosures</u>. Show location, label and Include design details. Show dimensions, materials, finishes, and colors.
- <u>Standard Tables</u>. Standard tables shall be provided on all landscape plan submissions
 to demonstrate compliance with landscape code requirements. Provide tables for
 standard rights-of-way, street and non-street buffer and building perimeter landscaping
 and tree mitigation. Sample tables are included below for reference only and may be
 modified, but at a minimum should include the information as shown below.
 - Standard Rights-of Way Table Provide a table listing each street individually and the required street tree requirements. Street trees are required at a ratio of 1 tree per 40 linear feet. Have columns for required versus provided street trees.
 - Street Perimeter Buffer Table Provide a table listing each street individually and the required buffer requirements i.e. buffer width required, buffer width provided, trees and shrubs required versus provided trees and shrubs. If incentive features are used, identify the incentive feature at the bottom of the table for the given street. Buffer areas are measured inward from back of walk or from the R.O.W. when a walk is not present. Landscaping shall consist of one tree and 10 shrubs per 40 linear feet of frontage length and is in addition to standard rights-of-way frontage requirements.
 - □ Non Street Buffer Table Provide a table for all non-street frontage buffers. Label the buffers on the plan and in the table A, B, C, etc. and list the required versus provided landscape requirements i.e. trees, shrubs, widths etc. If using incentive features to reduce the buffer width, provide a note at the bottom of the table explaining the buffer reduction feature.
 - Special Landscape Buffer Table Provide a table for Special Landscape Buffers that occur next to city owned open space, parks, trails or the E-470, I-225 or I-70 corridors. Provide columns for required and provided widths, required and provided trees and shrubs. Reductions in buffer widths are not permitted next to city owned parks, trails or open space. Reductions in buffers adjacent to E-470, I-225 or I-70 shall be denoted at the bottom of the chart with an explanation of the buffer reduction feature utilized.
 - Building Landscaping Table Provide a building perimeter landscape table showing each elevation facing public rights of way, residential neighborhoods,

- public open space or parks, or elevations having and entrance door. Label each elevation (A, B. C, etc.) and show their locations on the plans.
- Tree Preservation Table –The tree preservation table shall be shown on the Landscape Plan whenever tree mitigation is required. Show the total caliper inches of trees that will be removed, relocated, or mitigated. The Forestry Division following their site inspection will forward a report of their findings to the case manager. The report will show species, diameter, condition, location factors, and mitigation requirements in caliper inches and assessed dollar value. Mitigation values are based on International Society of Arboriculture's Guide to Plant Appraisal criteria. A copy of the city's Policy on Preservation of Existing
- □ <u>Water Usage Table</u> A water usage table is required whenever common area landscape tracts are proposed. The table should include the square footage of each tract, and the water usage categories within each tract as follows:
 - Non-water conserving means any turf or plant using high amounts of water through automatic irrigation connected to a permanent tap to survive in normal weather conditions. Any area that will include plant material requiring 15 inches or more of supplemental water in an average year will be considered a non-water conserving area.
 - Water conserving means any turf or plant using low or moderate amounts of water through automatic irrigation connected to a permanent tap to survive in normal weather conditions. Any area that requires less than 15 inches of supplemental water in an average year will be considered a water conserving area.
 - Non-water (Z) using means any turf or plant species needing no water through automatic irrigation connected to a permanent tap to survive or needing only water by a temporary tap for re-establishment in normal weather conditions. This includes hardscaped, mulched (organic and inorganic) and artificial turf areas not containing plant material.
- <u>Irrigation Plans</u>. Following approval of the final landscape plan, Irrigation plans may be submitted to Aurora Water per the department's requirements. Approved Landscape Plans will be required as part of the irrigation plan submittal documents with the irrigation plan submittal.
- Tree Protection Plan (TPP). Whenever, Black Forest tree species such as Ponderosa
 Pine and Gambel Oak are present on site or maybe impacted by off-site construction
 such as roads, grading, or utilities that are required for that development, a final tree
 protection plan signed by the City Forester shall be included with the landscape plan
 set. TPP requirements may be found in <u>ACC</u>, <u>Chapter 146</u>, <u>Building and Zoning Code</u>,
 <u>Article 14 Landscaping</u>, <u>Division 6</u>. <u>Black Forest</u>.

2.0 APPENDIX

A. City of Aurora Recommended Xeriscape and No-Water (Z Rated) Plant List



City of Aurora Parks and Open Space Department

March 2016

Attached are lists of xeriscape plants recommended for planting in Aurora. These lists were developed by compiling information from the following sources:

- X-Rated Plant List from the Garden Centers of Colorado
- Xeric Plant List from watersaver.org
- Xeriscape Plant Guide by **Denver Water**
- Plant Select Program at Colorado State University
- Fact Sheets #7.229, 7.230, 7.231, 7.234 from **CSU Cooperative Extension**
- Xeriscape Garden Brochures from City of Aurora Utilities Department

Indications of water usage for various plants were determined by utilizing the recommendation from the Garden Centers of Colorado, as follows:

X-rated= Plants need 1" of water per week

XX-rated= Plants need ½" of water per week

XXX-rated= Plants need ½" of water every two weeks

These watering recommendations are for plants that have been established for at least one growing season. Newly installed plants will require more water than indicated on the following lists.

CITY OF AURORA Parks and Open Space Department 2003 XERISCAPE PLANT LIST Trees and Evergreens **Garden Centers of Colorado Rating BOTANIC NAME** COMMON NAME XX XXX Acer ginnala (all cultivars) Amur Maple Acer grandidentatum **Bigtooth Maple** Acer tataricum Tatarian Maple Ohio Buckeye Aesculus glabra Aesculus pavia Red Buckeye Aescuclus hippocastanum Horsechestnut Amelanchier sp. Serviceberry **Examples: Amelanchier alnifolia** Saskatoon Serviceberry Amelanchier alnifolia 'Regent' Regent Serviceberry Amelanchier 'Autumn Brilliance' Autumn Brilliance Serviceberry Amelanchier canadensis Shadblow Serviceberry Catalpa speciosa Western Catalpa Celtis occidentalis Hackberry Cercis sp. Redbud Crataegus sp. Hawthorn Examples: Crataegus ambigua Russian Hawthorn Crataegus arnoldiana Arnold's Hawthorn Crataegus crus-galli Cockspur Hawthorn Crataegus crus-galli var. inermis Thornless Cockspur Hawthorn Crataegus douglasii River Hawthorn Downy Hawthorn Crataegus mollis Crataegus phaenopyrum Washington Hawthorn Crataegus succulenta Fleshy Hawthorn Crataegus virdia 'Winter King' Winter King Hawthorn **Examples: Gleditsia triacanthos inermis** Imperial Honeylocust 'Imperial" Gleditsia triacanthos inermis 'Shademaster' Shademaster Honeylocust Gleditsia triacanthos inermis 'Skyline' Skyline Honeylocust Gleditsia triacanthos 'Sunburst' Sunburst Honeylocust Gymnocladus dioica Kentucky Coffeetree Black Walnut Juglans nigra Juniperus sp. Juniper (all types) Koelreuteria paniculata Goldenrain Tree Malus sp. Apple and Crabapple (all types) Phellodendron amurense Amur Corktree Pinus sp. Pine Examples: Pinus aristata Bristlecone pine Pinus cembroides edulis Pinyon Pine Limber Pine Pinus flexilia Austrian Pine Pinus nigra Pinus ponderosa Ponderosa Pine Pinus strobiformis Southwestern White Pine Pinus syslvestris Scotch Pine

		Garden Cent	ers of Colora	do Rating
BOTANIC NAME	COMMON NAME	X XX		XXX
Prunus sp.	Cherries/Plums/Chockcherries			
Pyrus sp.	Pear (ornamental)			
Examples: Pyrus calleryana 'Aristocrat'	Aristocrat Pear			
Pyrus calleryana 'Chanticleer'	Chanticleer Pear			
Pyrus calleryana 'Stone Hill'	Stone Hill Pear			
Pyrus fauriei	Fauriei Pear			
Pyrus fauriei 'Korean Sun'	Korean Sun Pear			
Pyrus ussuriensis	Ussurian Pear			
Pyrus ussuriensis ' Prairie Gem'	Prairie Gem pear			
Quercus sp.	Oak			
Examples: Quercus alba	White Oak			
Quercus bicolor	Swamp White Oak			
Quercus gambelii	Gambel Oak			
Quercus imbricaria	Shingle/Laurel Oak			
Quercus macrocarpa	Bur Oak			
Quercus prinus	Chestnut Oak			
Quercus robur	English Oak			
Quercus robur 'Fastigiata'	Columnar English Oak			
Quercus undulata	Wavy Leaf Oak			
Robinia pseudoacacia	Black Locust			
Sophora japonica	Japanese Pagoda Tree			
Syringa pekinensis	Peking Lilac			
Syringa reticulata	Japanese Tree Lilac			
Ulmus sp.	Elm			
Examples: Ulmus Frontier				
Ulmus George Washington	George Washington Elm			
Ulmus Triumph	Triumph Elm			

	CITY OF AURORA			
Parks a	nd Open Space Department			
	XERISCAPE PLANT LIST			
	Shrubs			
Garden Centers of Colorado Ratio				do Rating
BOTANIC NAME	COMMON NAME	Х	XX	XXX
<u>Acer ginnala</u>	Amur Maple			
Examples: Acer ginnala 'Bailey Compact'	Bailey Compacy Amur Maple			
Acer ginnala 'Compactum'	Compact Amur Maple			
Acer ginnala 'Emerald Elf'	Emerald Elf Amur Maple			
Acer ginnala 'Flame'	r ginnala 'Flame' Flame Amur Maple			
Acer tataricum	Tatarian Maple	Tatarian Maple		
Amorpha canescens	Leadplant			
Amelanchier sp.	Serviceberry			
Examples: Amelanchier alnifolia	Saskatoon Serviceberry			
Amelanchier alnifolia 'Regent'	Regent Serviceberry			
Amelanchieralnifloia 'Autumn Brilliance'	Autumn Brilliance Serviceberry			
Amelanchier canadensis	Shadblow Serviceberry			
Aronia sp.	Chokeberry			
Artemisia sp.	Sage			
Examples: Artemisia cana	Silver Sagebrush			
Artemisia tridentata	Tall Western Sagebrush			
Atriplex canescens	Four-wing Saltbrush			
Berberis sp.	Barberry			
Examples: Berberis mentorensis	Mentor Barberry			

Berberis thunbergii 'Atropurpurea'	Red Leaf Barberry		
Berberis thunbergii 'Bagatelle'	Bagatelle Barberry		
Berberis thunbergii 'Crimson Pygmy'	Crimson Pygmy Barberry		
Berberis thunbergii 'Rose Glow'	Rose Glow Barberry		
Buddleia davidii	Butterfly Bush		
Caragana sp.	Peashrub		
Examples: Caragana arborescens	Siberian Peashrub		
Caragana arborescens 'Lobergii'	Fern-leaf Siberian Peashrub		
Caragana frutex 'Globosa'	Globe Peashrub		
Caragana maximowicziana	Maximowicz Peashrub		
Caryopteris x clandonensis	Blue Mist Spirea		
Ceanothus fendleri	Mountain-Lilac		
Ceratoides lanata	Winterfat		
Cercocarpus sp.	Mountain Mahogany		
Examples: Cercocarpus brevifolius	Little-flowered Mountain Mahogany		
Cercocarpus intricatus	Littleleaf Mountain Mahogany		
Cercocarpus ledifolius	Curl-leaf Mountain Mahogany		
Cercocarpus montanus	Common Mountain Mahogany		
Chamaebatiaria millefolium	Fernbush		
Chrysothamnus sp.	Rabbitbrush		
Cotoneaster sp.	Cotoneaster		
Examples: Cotoneaster acutifloia	Peking Cotoneaster		
Cotoneaster apiculatus	Cranberry Cotoneaster		
Cotoneaster apiculatus 'Tom Thumb'	Tom Thumb Cotoneaster		
Cotoneaster dammeri 'Coral Beauty'	Coral Beauty Cotoneaster		
Cotoneaster divaricatus	Spreading Cotoneaster		
Cotoneaster horizontalis	Rock Cotoneaster		
Cotoneaster horizontalis perpusillus	Ground Cotoneaster		
Cotoneaster lucidus	Hedge Cotoneaster		
Cowania neomexicana	Cliffrose		

		Garden Cent	ers of Colora	do Rating	
BOTANIC NAME	COMMON NAME	Х	XX	XXX	
Cytisus sp.	Broom				
Examples: Cytisus scoparius 'Moonlight'	Moonlight Broom				
Cytisus purgans 'Spanish Gold'					
Daphne sp.	Daphne				
Euonymus sp.	Euonymus				
Fallugia paradoxa	Apache Plume				
Forestiera neomexicana	New Mexican Privet				
Hippophae rhamnoides	Sea Buckthorn				
Holodiscuc dumosus	Rock Spirea				
Juniperus sp.	Juniper				
Kolkwitzia amabilis	Beautybush				
Ligustrum sp.	Privet				
Examples: Ligustrum obtusifolium var.	Regal Privet				
regalianum					
Ligustrum vulgare 'Cheyenne'	Cheyenne Privet				
Ligustrum vulgare 'Densiflorum'	Upright Privet				
Ligustrum vulgare 'Lodense'	Lodense Privet				
Lonicera sp.	Honeysuckle				
Examples: Lonicera 'Honeyrose'	Honeyrose Honeysuckle				
Lonicera korolkowii var. floribunda 'Blue Velvet'					
Lonicera syringantha var. wolfii					
Lonicera tatarica 'Arnold Red'	Arnold Red Honeysuckle				
Lonicera xylosteoides 'Clavey's Dwarf'					
Lonicera xylosteoides 'Miniglobe'	Miniglobe Honeysuckle				
Mahonia repens	Creeping Grape Holly				
Perovskia atriplicifolia	Russian-Sage				
Philadelphus sp.	Mockorange				

Examples: Philadelphus lewisii	Lewis Mockorange	
Philadelphus microphyllus	Littleleaf Mockorange	
Physocarpus sp.	Ninebark	
Examples: Physocarpus monogynus	Mountain Ninebark	
Physocarpus opulifolius & cultivars	Ninebark	
Pinus mugo	Mugo pine	
Potentilla sp.	Potentilla	
Prunus sp.	Cherries/Plums/Chokecherries	
Examples: Prunus besseyi	Western Sand Cherry	
Prunus fruiticosa	Ground Cherry	
Prunus tomentosa	Nanking Cherry	
Prunus virginiana	Native Chokecherry	
Quercus gambelii	Gambel Oak	
Rhamnus sp.	Buckthorn	
Examples: Rhamnus frangula 'Asplenifolia'	Fern-leaf Buckthorn	
Rhamnus frangula 'Columnaris'	Columnar Buckthorn	
	Smith Buckthorn	
Rhus sp.	Sumac	
Example: Rhus aromatica	Fragrant Sumac	
Rhus aromatica 'Gro-Low'	Gro-Low Sumac	
Rhus glabra	Smooth Sumac	
Rhus glabra var. cismontana	Rocky Mountain Sumac	
Rhus trilobata	Threeleaf Sumac	
Rhus typhina	Staghorn Sumac	
Rhus typhina 'Lacinata'	Cutleaf Sumac	

		Garden Cent	ers of Colora	do Rating
BOTANIC NAME	COMMON NAME	Х	XX	XXX
Ribes sp.	Gooseberry/Currant			
Examples: Ribes alpinum	Alpine Currant			
Ribes alpinum 'Green Mound'	Green Mound Currant			
Ribes aureum	Golden Currant			
Ribes cereum	Wax Currant			
Ribes 'Red Lake'	Red Lake Currant			
Ribes 'Pixwell'	Pixwell Currant			
Rosa sp.	Shrub Roses			
Robinia pseudoacacia	New Mexico Locust			
Rubus x tridel 'Beneden'	Beneden Thimbleberry			
Shepherdia sp.	Buffaloberry			
Spiraea sp.	Spirea			
Symphoricarpus sp.	Snowberry			
Examples: Symphoricarpus albus	White Snowberry			
Symphoricarpus chenaultii 'Hancock'	Hancock Coralberry			
Symphoricarpus doorenbosii 'Magic Berry'	Magic Berry Coralberry			
Symphoricarpus doorenbosii 'White Hedge'	White Hedge Snowberry			
Symphoricarpus occidentalis	Western Snowberry			
Symphoricarpus orbiculatus	Red Coralberry			
Symphoricarpus oreophilus	Mountain Snowberry			
Syringa sp.	Lilac			
Examples: Syringa hyancinthiflora (all cultivars)	Early Lilac			
Syringa prestoniae (all cultivars)	Late Lilac			
Syringa vulgaris (all cultivars)	Common & French Lilac			
Viburnum sp.	Viburnum			
Examples: Viburnum lantana	Wayfaringtree			
Viburnum lantana 'Mohican'	Mohican Viburnum			
Viburnum lentago	Nannyberry			
Viburnum rhytidophylloides 'Alleghany'	Alleghany Leatherleaf Viburnum			
Yucca sp.	Yucca			

CITY OF AURORA

PARKS AND OPEN SPACE DEPARTMENT 2003 XERISCAPE PLANT LIST

Perennials

		Garden Centers of Colorado Rating			
BOTANIC NAME	COMMON NAME	Х	XX	XXX	
Achillea sp.	Yarrow				
Agastache sp.	Hyssop				
Ajuga reptans	Bugleweed				
Alcea sp.	Hollyhock				
Alchemilla mollis	Lady's Mantle				
Allium sp.	Ornamental Onion				
Alyssoides utriculata	Bladderpod				
Alyssum montanum	Mountain Gold				
Alchemilla mollis	Lady's Mantle				
Amsonia hubrichtii	Blue Star				
Anacyclus depressus	Mt. Atlas Daisy				
Anchusa sp.	Bogloss				
Anemone sp.	Windflower				
Antennaria sp.	Pussytoes				
Anthemis tinctoria	Chamomile				
Aquilegia sp.	Columbine				
Arabis caucasica	Rock Cress				
Arctostaphylos santii	Emerald Queen Manzanita				
Arctostaphylos santii Arctostaphylos uva-ursi	Kinnikinnick				
Arenaria sp.	Sandwort				
Armeria maritima	Sea Pinks				
Artemisia frigida					
Artemisia ingida Artemisia sp.	Fringed Sage				
	Sage Butterfly Weed				
Asclepis tuberosa	,				
Aster sp.	Aster				
Aurinia saxatalis	Basket-of-gold				
Baptisia australis	False Indigo				
Belamcanda chinensis	Blackberry Lily				
Bergenia cordifolia	Pigsqueak				
Berlandiera lyrata	Chocolate Flower				
Boltonia asteroides	Starflower				
Brunnera macrophylla	Siberian Forget-Me-Not				
Callirhoe involucrata	Poppy Mallow				
Calylophus serrulatus	Sundrops				
Calamintha grandiflora	Beautiful Mint				
Campanula sp.	Bellflower				
Centaurea montana	Hardy Bachelor Button				
Centranthus ruber	Jupiter's Beard				
Cerastium tomentosum	Snow-In-Summer				
Ceratostigma plumbaginoides	Leadwort/Plumbago				
Chrysanthemum x morifolium	Garden Mum				
Coreopsis sp.	Tickseed				
Cytisus x 'Lena'	Lena Broom				
Delosperma sp.	Ice Plant				
Delphinium sp.	Delphinium				
Dianthus sp.	Pinks				
Diascia intergerrima 'Coral Canyon'	Twinspur 'Coral Canyon'				
Digitalis sp.	Foxglove				
Echinacea purpurea	Purple Coneflower				

		Garden Centers of Colorado Rat	
BOTANIC NAME	COMMON NAME	Х	XX XXX
Echinops ritrp	Globe Thistle		
Epilobium sp.	Fireweed		
Erigeron sp.	Daisy Fleabane		
Eriogonum umbellatum	Sulphur Flower		
Eryngium amethystinum	Sea Holly		
Euonymus fortunei 'Coloratus'	Purple-leaved Wintercreeper		
Eupatorium greggii	West Texas Mist Flower		
Euphorbia epithymoides	Cushion Spurge		
Gaillardia aristata/grandiflora	Blanketflower		
Galium odoratum	Sweet Wodruff		
Gaura lindheimeri	Whirling Butterflies		
Gazania sp.	Hardy Gazania		
Geranium sp.	Hardy Granium		
Geum sp.	Geum		
Goniolimon/limonium sp.	Statice		
Gutierrezia sarothrae	Snakeweed		
Gypsophila sp.	Hardy Baby's Breath		
Hedera helix	English Ivy		
Helenium autumnale	Sneezeweed/Helen's flower		
Helianthemum nummularium	Sun Rose		
Heliopsis helianthoides	False Sunflower		
Helleborus sp.	Lenten Rose		
Hemerocallis sp.			
	Daylily		
Heuchera sanguinea	Coral Bells		
Hosta sp.	Plaintain Lily		
Hypericum calycinum	St. John's Wort		
Iberis sempervirens	Candytuft		
Iris germanica (hybrid)	Bearded Iris		
Knautia macedonica	Red Pincushion		
Kniphofia uvaria	Red Hot Poker		
Lamiastrum galeobdolon	Yellow Archangel		
Lamium maculatum	Dead Nettle		
Lavandula sp.	Lavender		
Lavatera thuringiaca	Tree Mallow		
Leontopodium alpinum	Edelweiss		
Leucanthemum x superbum	Shasta Daisy		
Liatris sp.	Gayfeather		
Linum perenne	Blue Flax		
Lychnis chalcedonica	Maltese Cross		
Lychnis coronaria	Rose Campion		
Mahonia repens	Creeping Grape Holly		
Malva alcea	Rose Mallow		
Mirabilis multiflora	Hardy Four-O-Clock		
Mondard fistulosa menthaefolia	Native Lavender Bee Balm		
Nepeta x faassenii	Catmint		
Oenothera sp.	Evening Primrose		
Origanum sp.	Oregano/Marjoram		
Osteospermum sp.	Sun Daisy		
Paeonia lactiflora	Peony		
Papavar sp.	Poppies		
Penstemon sp.	Beardtongue/Penstemon		
Perovskia atriplicifolia	Russian Šage		
Persicaria affinis	Himalayan Border Jewel		
Phlomis cashmeriana	Jerusalem Sage		
Phlox subulata	Creeping Phlox		

		Garden Centers	of Colorado R	ating
BOTANIC NAME	COMMON NAME	Х	XX	XXX
Platycodon grandiflorus	Ballon Flower			
Polemonium caeruleum	Jacob's Ladder			
Potentilla sp.	Cinquefoil/Potentilla			
Prunella laciniata	Self Heal			
Pulmonaria sp.	Lungwort			
Pulsatilla vulgaris	Pasque Flower			
Ratibida columnifera	Prairie Coneflower			
Rosmarinus officianalis 'Arp'	Lemon Rosemary			
Rudbeckia sp.	Black-eyed Susan			
Salvia sp.	Silver Sage			
Salvia officinalis	Garden Sage			
Santolina sp.	Lavender Cotton			
Saponaria sp.	Soapwort			
Scabiosa sp.	Pincushion			
Sedum sp.	Sedum/Stonecrop			
Sempervivum sp.	Hen and Chicks			
Solidago sp.	Goldenrod			
Stachys lanata (S. byzantina)	Lamb's Ear			
Stanleya pinnata	Prince's Plume			
Tanacetum coccineum	Painted Daisy			
Tanacetum densum amani	Partridge Feather			
Tanacetum niveum	Snow Daisy			
Thymus sp.	Creeping Thyme			
Tradescantia sp.	Spiderwort			
Verbena canadensis	Verbena			
Veronica sp.	Speedwell/Veronica			
Vinca sp.	Myrtle/Periwinkle/Vinca			
Viola corsica	Corsican Violet			
Waldsteinia ternata	Barren Strawberry			
Zauschneria arizonica	Hummingbird Trumpet			
Zauschneria garrettii	California Fuschia			
Zinnia grandiflora	Golden Paper Flower			

CITY OF AURORA						
Parks and Open Space Department						
	2003 XERISCAPE PLANT LIST					
	<u>Vines</u>					
Garden Centers of Colorado Rating						
BOTANIC NAME	COMMON NAME	Х	XX	XXX		
Campsis radicans	Trumpet Vine					
Celastrus scandens	Celastrus scandens Bittersweet					
Clematis sp.	Clematis					
Lonicera japonica Honeysuckle Vine						
Fallopia (Polygonum) aubertii Silver Lace Vine						
Parthenocissus quinquefolia	Virginia Creeper					

CITY OF AURORA							
	Parks and Open Space Department						
2003 XERISCAPE PLANT LIST							
	Ornamental Grasses						
		Garden Cen	ters of Colora	do Rating			
BOTANIC NAME X XX XXX							
Agropyron cristatum	Crested Wheatgrass						

Andropogon gerardii	Big Bluestem		
Bouteloua curtipendula	Sideoats Gramma Grass		
Bouteloua gracilis	Blue Gramma Grass		
Buchloe dactyloides	Buffalo grass		
Calamagrostis acutiflora	Feather Reed Grass		
Chasmanthium latifolium	Northern Sea Oats		
Deschampsia caespitosa	Hairgrass		
Erianthus (Sacharrum) ravennae	Hardy Plume Grass		
Festuca arundinacea	Tall Fescue		
Festuca ovina glauca	Blue Fescue		
Helictotrichon sempervirens	Blue Oat Grass		
Imperata cylindrica 'Red Baron'	Japanese Blood Grass		
Miscanthus sinensis	Maiden Hair Grass		
Oryzopsis hymenoides	Indian Ricegrass		
Panicum virgatum	Switch Grass		
Pascopyrum smithii	Western Wheatgrass		
Pennisetum alopecuroides	Fountain Grass		
Pennisetum setaceum 'Rubrum'	Purple Fountain Grass		
Phalaris arundinacea 'Picta'	Ribbon Grass		
Schizachyrium scoparium	Little Bluestem		
Sorghastrum nutans	Indian Grass		
Spartina pectinata	Prairie Cordgrass		
Sporobolus heterolepsis	Prairie Dropseed		
Stipa Sp.	Feather/Needle Grass		

	CITY OF AURORA			
	Parks and Open Space Departme	nt		
	2003 XERISCAPE PLANT LIST			
	Ground Covers	_		
		Garden Cent	ers of Colora	do Rating
BOTANIC NAME	COMMON NAME	Х	XX	XXX
Antennaria rosea	Pink Pussytoes			
Cerastium tomentosum	Snow-in-Summer			
Delosperma sp.	Hardy Ice Plant			
Santolina chamaecyparissus	Lavender Cotton			
Polygonum affine	Himalayan Fleeceflower			
Sedum spectabile	Showy Stonecrop			
Sempervirens sp.	Hens and Chicks			
Thymus pseudolanuginosus	Wooly Thyme			
Veronica pectinata Blue Wooly Speedwell				
Zinnia grandiflora	Paper Flower			

Recommended "No-Water" Plant List - Z-rated Plants – February, 2014

Shrubs

Ephedra equisetina/viridis

Ericameria nauseosa ssp. nauseosa var. glabrata/speciosa/nauseosa

Genista lydia

Amelanchier alnifolia 'Regent'

Arctostaphylus uva ursi

Arctostaphylus x coloradoensis

Arctostaphylus x coloradoensis 'Chieftain'/'Coloradoensis'

Cercocarpus montanus

Chamaebatiaria millefolium

Chilopsis linearis

Fallugia paradoxa

Hesperaloe parviflora

Mahonia fremontii

Mahonia repens

Prunus besseyi 'Pawnee Buttes'

Redleaf Rose (Rosa glauca, Rosa rubrifolia)

Rhus aromatica 'Grow Low'

Yucca baccata/filamentosa

Perennials

Baptisia australis

Lavandula angustifolia

Marrubium rotundifolium

Pulsatilla vulgaris

Agastache cana 'Sinning'

Agastache rupestris

Amsonia jonesii

Anthemis marschalliana

Argenome Great plant, but may be

considered weedy

Artemisia cana

Artemisia filifolia

Artemisia ludoviciana

Calyophus serrulatus 'Prairie Lode'

Delosperma dyeri 'Psdold'

Echium amoenum

Eriogonum jamesii/umbellatum

Eriogonum wrightii var. wrightii

Kniphofia caulescens

Liatris spicata

Nepeta 'Psfike'

Oenothera caespitosa

Penstemon x mexicali 'Psmyers'

Penstemon rostriflorus

Penstemon strictus

Rhatibida columnifera

Salvia pachyphylla

Sedum lanceolatum

Sedum rupestre 'Angelina'

Sedum sediforme

Sedum 'Blue Spruce'

Veronica lewanensis

Antennaria parvifolia

Iris x germanica

Lavandula angustiflora

Ratibida columnifera

Veronica liwanensis

Grass

Schizacharium scoparium

B. City of Aurora Tree Preservation Policy



CITY OF AURORA

POLICY ON PRESERVATION OF EXISTING TREES

I. Policy:

This document represents the policy of the City of Aurora that existing trees within the City, which are alive and in good health, shall remain in their present location and shall be safeguarded from damage that may result from the development process. Therefore, existing healthy trees, with a caliper greater than or equal to 4 inches, as measured four and one-half (4½) feet above the ground, shall be preserved or protected during the development process.

This policy shall be incorporated into the Planning Department Landscape Review Procedures for site plan approval. In addition, this policy shall also be applied to properties or sites not required to provide a site plan.

II. Scope:

This policy shall apply to all residential and non-residential development projects within the City of Aurora, including City projects on City-owned or managed properties. Exempted from this policy are single-family detached residential properties where additions or modifications to existing buildings, or improvements to the lot, are proposed.

III. Definitions:

For the purposes of implementing this policy, the following terms are hereby defined:

- <u>Development process</u> the intent to construct upon, improve, or modify any property within the City of Aurora, whether governed by a Site Plan or not.
- <u>Intent</u> having the mind, attention, or will to develop, modify, construct or improve real property within the City of Aurora.
- <u>Mitigation</u> the replacement of trees removed from a site due to the development process. Replacement may include relocation of existing trees, the planting of caliper inches lost or cash payments to the Tree Planting Fund.
- <u>Preservation</u> the act of keeping existing trees safe from injury, harm or destruction during the development process.

- Relocation the practice of moving an existing tree to another site or other location within the same site.
- <u>Tree protection zone</u> generally, an area encompassing one linear foot in radius around the tree per inch of trunk diameter. For example: a tree 12 inches in diameter (measured at 4.5 feet from the ground) should have a disturbance free zone with a 12-foot radius around the tree, as measured from the tree trunk.

IV. Properties Affected:

A. Properties Governed by a Site Plan:

<u>Applicability:</u> Generally includes residential and non-residential properties within the City of Aurora, except as noted in section IV, subsection D: "Properties Not included in this Policy".

Requirements: Properties in this category must comply with the following items:

- 1. <u>Preservation:</u> Site designers shall make all feasible attempts to accommodate existing trees within their design.
- 2. <u>Relocation</u>: If tree relocation within the site is attempted, it shall be performed by a professional forester or nurseryman. All available measures shall be taken to ensure the life and good health of the tree(s).

3. Mitigation:

a. A tree mitigation plan shall be specified. Mitigation plans shall consist of an equal replacement of tree caliper inches lost on site. These plans shall indicate the trees that are proposed to comply with mitigation requirements, including the location of replacement trees and the location of trees that are proposed for relocation. No tree for mitigation shall be less than two inches in caliper and shall be of no less quality species than the tree removed, as determined by the Tree Appraisal Guidelines published by the International Society of Arboriculture (ISA), as amended.

For example: two ten-inch caliper trees are removed because of site constraints; the caliper inches lost equals 20 inches. These inches can be replaced by planting five four-inch caliper trees or four five-inch caliper trees. If the trees removed are blue spruce, they could not be replaced with an upright juniper or other tree species that is considered of lesser quality by the ISA Guidelines.

- b. Should on-site tree replacement and/or relocation not be possible, tree replacement and/or relocation shall take place through any or all of the following methods:
 - 1. Replacement of equal caliper lost on another site.
 - 2. Replacement of equal caliper lost on public lands.
 - 3. Relocation of trees to public lands.
 - 4. Payment of value of caliper lost to the Tree Planting Fund.

c. Mitigation shall be in addition to standard landscape requirements established by the Planning Department. Trees planted to comply with standard landscape requirements may not be counted as satisfying tree mitigation requirements. In the case of tree removals, the location, species, and caliper of trees to be removed and their replacements shall be included on the landscape/site plan. In the case of tree relocations on site, the placement of the relocated trees shall be included on the landscape/site plan.

B. Properties Not Governed by a Site Plan

<u>Applicability:</u> Generally includes properties that were developed before existing Site Plan requirements were in place or were not required to provide a Site Plan.

Examples of this type of property include:

- Non-residential properties that were developed before existing Site Plan requirements.
- Single-family detached residential infill or single-family detached lot division projects.
- Multi-family and single-family attached residential properties.

<u>Requirements:</u> Properties in this category shall comply with the same rules and guidelines set forth for properties governed by a site plan.

C. Projects on City Property

Healthy trees within City-owned properties, City-owned or designated street rights-of-way, City-managed properties and easements or City-managed projects, shall not be removed or damaged during construction or development projects, except as a last alternative or to preserve public health and safety. Future planning or alteration of existing City properties, projects or rights-of-way shall make provisions for the preservation of existing trees. If preserving existing trees is not feasible, City Departments shall follow the same rules and guidelines set forth in section IV, subsection A of this policy.

D. Properties Not Included in this Policy

Single family or two family developed residential properties.

V. Procedures:

A. Protection of Existing Trees During the Construction Process

Site construction shall take into account the life and good health of trees preserved on the site. The following guidelines shall be followed for tree protection. If these guidelines are not followed, the full value of the tree will be used in calculations to determine mitigation requirements.

- 1. Protective fencing shall be set up to visibly show the tree protection zone.
- 2. All equipment, including foot traffic shall remain outside of the tree protection zone.

- 3. If roots greater than 1-inch in diameter require removal, a clean cut shall be accomplished using a sharp hand tool. A maximum of two 3-inch diameter roots per tree are permitted for removal. The removal of additional roots 3-inches or greater in diameter requires approval of the City Forester or designee.
- 4. Limb removal shall be accomplished before construction begins. A professional company that is licensed by the City of Aurora Forestry Division shall complete all pruning.
- 5. Designate concrete washout areas. These areas shall not flow into or across the tree protection zone.
- 6. No stockpiling of soil is permitted within the tree protection zone.
- 7. No vehicle parking is permitted within the tree protection zone.
- 8. The soil shall not be compacted within the tree protection zone.
- 9. Existing trees damaged through the construction process shall be immediately repaired and if damaged beyond repair, replaced per the mitigation specifications outlined in section IV, subsection A, item 3. The restoration plan for these trees shall follow that approved through the site plan submittal.

B. Interruption and Maintenance of Drainageways

- Drainage plans for individual sites shall not alter the supply of water to existing stands of trees if the longevity of those trees is dependent upon the flows. If the drainage of the site requires altering the existing supply of water, some alternative form through the use of irrigation shall be available from the time the existing watering source is eliminated.
- 2. This policy shall not preclude standard maintenance of drainageways necessary to ensure the free flow of storm water. It will, however, protect those trees that do not interfere with the flow of storm drainage. Drainageways shall be maintained at the density of trees for which they were designed and future drainageways shall be designed, as far as economically feasible, to consider preservation of mature stands of trees. If preservation is not possible, mitigation and/or replacement shall be accomplished, as outlined in section IV, subsection A, item 3.

C. Timing for Tree Mitigation Activities

Tree preservation and/or mitigation may be accomplished at any time during the development process. The timing of these activities is especially critical when moving trees from one location to another. The City Forester, or designee, shall determine the conditions that will ensure the optimal success for tree relocation, preservation or mitigation.

When feasible, the decision to relocate trees will be made after all Planning process requirements are completed. In cases where conditions necessitate the relocation of trees before all Planning processes are complete, the Developer and adjoining property owners shall be notified that these activities do not guarantee project approval and that these activities are undertaken at the Developer's risk.

C. Custom Home Landscape and Tree Mitigation Form



City of Aurora Planning Department 15151 E. Alameda Pkwy, 2nd Floor Aurora, Colorado 80012 303 739-7250

Case Mgr	
Case Number	
Quarter Section	
Row ID	

CUSTOM HOME LANDSCAPE AND TREE MITIGATION REQUIREMENTS FORM

Applicant Information

Enter information for the person who will answer any questions regarding the application. Name Address Phone Email Residence Address Lot Area sf LANDCAPE REQUIREMENTS: Turf Requirements: Check One Total lot size in sf. % Turf allowed: Lot Size 40% min. - 50% max. Small 3700 sf - 5999 sf Standard 6000 sf - 8999 sf 30% min. - 40% max. ☐ Large 9000 sf - 14999 sf 25% min. - 40% max. Estate 15000 sf and greater 25% min. - 40% max. Shrub Requirements: Check One Total lot size in sf. Total # Shrubs Required: Lot Size Small 3700 sf - 5999 sf 8 Standard 6000 sf - 8999 sf 16 ☐ Large 9000 sf - 14999 sf 26 Estate 15000 sf and greater 36 Trees Required: Check One # Trees Required: Lot Size Total lot size in sf. Small 3700 sf - 5999 sf 2 - Trees 6000 sf - 8999 sf 1 - 2 1/2 caliper shade tree Standard 9000 sf - 14999 sf and Large 1 – 2 caliper ornamental tree Estate 15000 sf and greater or 1 – 6 ft. tall evergreen tree Mitigation is always In addition to other tree requirements. Tree Mitigation Requirement: Forestry Memorandum of: By: # Trees. Notes:

D. Sample Landscape Tables

Landscape tables when properly prepared provide staff, citizens, Planning Commission, and City Council with an important tool when determining compliance with standards, assessing quality, justifying waivers, or comparing similar developments. Sample tables have been shown to assist with their completion. Included are:

- Site Date Table
- Street Frontage, Street Perimeter Buffer, Non-street Frontage Buffer, and Special Buffer Table
- Non-residential Building Landscaping Table
- Multi-Family and Single-Family Attached Building Landscaping Table

Site Date Table.

Site Data	Area in SF	%
Total Site Area: (7.5 ac)	326,700 SF	100 %
Building Coverage:	81,675 SF	25 %
Hard Surface Area:	173,151 SF	53 %
Landscape Area:	71,874 SF	22 %
Maximum % of cool season grasses allowed:	32,388 SF	33 %
% of cool season grasses provided:	31,665 SF	44 %

At 44% the amount of cool season grasses provided is more than the maximum 33% that is allowed. Therefore, the landscape plan does not comply with Sec. 1427 <u>Turf Regulations</u>. To bring the plan into compliance a minimum amount of Blue Grass totaling at least 11% of the proposed cool season grasses must be converted to alternative grasses or additional plant beds.

Landscaped area coverage:

- 50% max.* Non-living materials including river rock, crushed rock, organic mulches such as shredded bark, pole shaving, pine needles, etc., gravel, aggregate, cobbles, walks, decorative pavement, and artificial turf or other non-living materials.
- 50% min. Living materials including shrubs, perennials, ornamental grasses, groundcover plants, and turf grasses. The total coverage of cool season grasses (Blue Grass sod) may not exceed 33% of a sites landscape area.

When replacing Blue Grass with xeriscape plant beds refer to Section 146-1431 Living Material Requirements, item (B) Coverage Requirements to determine the number of plants required at installation.

<u>*NOTE:</u> Section 146-1431 cannot be used to replace tree lawn, parking lot island, buffer, or building perimeter landscape requirements. Section 146-1431 has been rewritten to assist those who intend to remove areas of Blue Grass or who will convert their traditional high water landscapes to water conserving sustainable landscapes.

Standard Rights-of-Way, Street Perimeter Buffer, Special Buffers, Non-street Frontage Buffer, and Special Buffer Table.

Standard Rights-of Way:

	Sta	andard Rig	hts-of-Way* - List each Separately	/	
Area	Description	Length	Notes	Trees Req. (1/40')	Trees Provided
Α	Aurora Pkwy	320 LF	30' Dr. excluded	8	8

Buffer Table for street perimeter, non-street frontage, and special buffers:

STREET PERIMETER**, NON-STREET FRONTAGE BUFFERS, SPECIAL BUFFERS***						
					Trees/S Required/	
Area	Description	Length	Width Req.	Width Provided **	Trees	Shrubs
Α	Street Frontage (#1)	1,200'	10 TL		30	30
Α	Street Perimeter Buffer (#2)	1,200'	20'	20'	30/14	300/460
В	Non-residential Buffer (#3)	600'	10'	6'	15/150	15/150
С	Residential Buffer (#4)	400'	25'	15'	16/16	80/80
D	Special Buffer (#5)	1200'	25'	25'	40/44	400/360

^{**}Buffers may be reduced when features are provided. See the appropriate table, namely, Tables 14.1, 14.4, 14.5, or 14.5 Standard Buffer Widths and Allowed Reductions, for the appropriate buffer reduction and incentive feature requirements.

Please note in this example:

- 1. Street frontage (TL=Tree Lawn) A calculations. Two 30-foot wide entrance/egress drives (30'+30'= 60') were deducted from a 1,260' tree lawn and street perimeter buffer. (1,260' 60' = 1,120').
- 2. Street Perimeter Buffer A. Sixteen trees were converted to 160 shrub equivalents for use in distinctive entry features. The buffer landscaping also satisfies parking lot screening requirements.
- 3. Non-Residential Buffer B. The applicant took advantage of the 4' buffer reduction incentive for xeriscaping and therefore did not require a waiver to reduce the buffer to 6 feet.
- 4. Residential Buffer C. The applicant has agreed to install a decorative masonry wall in exchange for a 10-foot buffer width reduction. Landscaping will comply with residential landscape buffer requirements and a waiver for the buffer reduction is unnecessary.
- 5. Special Buffer D. The applicant has negotiated with Parks Recreation and Open Space Department to exchange 40 shrub for 4 trees.

Measuring Tips:

 When measuring street frontages and street perimeter buffers measure from property line to property line, curb return to curb return, or curb return to property line.

- Subtract entrance and egress drives from street frontage and street perimeter buffer measurements.
- Use the plat when determining street frontage, street perimeter buffer, and non-street frontage buffer measurements will increase accuracy and save time.
- Include all curve lengths and tangent lengths in your measurements.

Calculating Plant Quantity Tips:

- Landscaping that falls within intersecting buffers may be counted toward each buffer.
- Buffer landscape requirements are not transferable.
- Buffer landscape requirements may be counted toward detention, retention, and water quality pond landscape requirements. The stricter shall apply.

Building Perimeter Landscape Table

1. Non-Residential Development:

The sample table is for a retail building 40 ft. by 120 ft. The south and east elevations face public rights or way and the north elevation faces a residential neighborhood.

Non-residential Building Elevation Landscaping Information*

Elevation	Elevation length	Tree Equivalent	Trees provided	Shrubs provided
(direction facing)		required (1 tree equivalent per 40 LF)		(10 shrubs per tree equivalent).
South-ROW (1#)	120 ft.	3	3	N/A
East-ROW (#2)	40 ft.	1	N/A	10 shrubs
North-Resid (#3)	120 ft.	3	2	10 shrubs

^{*}Non-residential Development – Provide the information shown in the table for each elevation facing public streets, transportation corridors, public open space or parks, or residential neighborhoods.

The above example demonstrated how tree equivalents allow for flexibility when meeting building landscaping requirements.

- 1. South-R.O.W. Three trees in tree gates were provided. The developer could have provided 30 shrubs in raised planters or plant containers to satisfy this requirement.
- 2. East-R.O.W. The east elevation was planted in a plant bed consisting of a mixture of shrubs and ornamental grasses. (Note: 3 one-gallon ornamental grasses equal one five-gallon shrub.)
- 3. North-Resid. The developer negotiated a building planting consisting of a plant bed with 10 flowering shrubs and two evergreen trees.

Non-residential Building Landscaping Tips:

 Parking lot island landscaping may be counted toward building landscaping whenever any portion of the island is within 20 feet of a building elevation.

- If a site contains expansive soils building landscaping will be required but it must be
 planed for. In such instances, landscaping may be separated from the building by an
 impervious surface sloped away from the building to allow drainage.
 In extreme cases, remove expansive soils from under the slab and from areas near
 the building that are required to be landscaped as building perimeter landscaping.
 Replace expansive soils with non-expansive soils. Waterproof containers with
 individual irrigation and drainage systems may also apply.
- Parking lot screening and building landscaping that falls within a street perimeter buffer may be counted toward buffer requirements. The stricter requirement shall apply.

Multi-family and Single-Family Attached Residential Building Landscaping

Requirements per Unit Type*

	Building Type	Building perimeter /	# trees required/provided	# Tall Shrubs required/provided	# Other shrubs required/provided
		Total # plants			
Ī	Building #1	440 LF / 110	6	16	88

^{*}Provide the following information (see table) for each unit including accessory buildings:

2. Multi-Family, Single-Family Attached Residential Development:

In this example, a residential unit has a perimeter length of 440 LF. Garages are shown on one elevation and comprise two thirds of that elevation's length. The following table and calculations show the total landscape requirement and the breakdown of trees, tall shrubs, and other shrubs. A possible substitution from shrubs to perennials and/or ornamental grasses is also discussed.

Calculations:

Building Perimeter (360 degrees) = 440 LF Plant material requirement = 1.25 plant per each 5 LF of perimeter

(440 / 5) X 1.25 = 110 plants

Plant material breakdown:

• 5% Trees = 6

• 15% Tall Shrubs = 16

• 80% Other Shrubs = 88 Total 110 plants

Tree Mitigation Table

Caliper* Inches Removed Caliper Inches Relocated	Caliper Inches Replaced for Mitigation and /or Amount Paid to "Tree Planting Fund"
--	--

^{*}Caliper is the diameter of the tree trunk measured at a height of 4.5 feet or at breast height. Also known as DBH which stands for *diameter at breast height*. (Evergreen tree height may be converted to caliper inches by dividing each tree's height by two. For example, a six-foot tall evergreen tree would be three caliper inches).

E. Legends, Plant Lists, Index Maps

Far too many unnecessary comments are generated because legends, plant lists, and index maps are either missing, incomplete, or inconsistent with the site plan or plat. We believe 100% of these comments can be eliminated.

TIPS FOR PREPARING SITE IMPROVEMENT AND LANDSCAPE MATERIALS LEGENDS.

- 1. Complete lists and legends will eliminate guess work and reduce comments.
- 2. Symbols shown on the landscape plan should match on the site plan or in the plant list.
- 3. A brief description following a symbol can be very beneficial and save everyone time and money. For instance, indicating if native turf is irrigated or not will save the time of having to respond to comments. For instance, is that a R.O.W., flow line, or utility service line?
- 4. Whenever possible legends, index maps, and in some cases plant lists should be shown on each sheet.

PLANT LISTS.

Plant Lists - General. The following information is required for all plant lists:

- <u>Symbols</u>. Provide distinctive symbols when proposed, existing and potentially prohibited species such as Cottonwoods and Aspens, or thorny or spiky species are proposed.
- Quantities. Are required for each species when non-xeric plants are proposed.
- Common Name. Include.
- Botanic Name. Include.
- <u>Size.</u> At installation. Minimum plant material sizes including caliper, height and container size are regulated by code.
- <u>Description</u>. Show when applicable.
- <u>Water Usage.</u> Include either high, medium, low designations, or X, XX, XXX ratings per <u>City</u> of Aurora Recommended Xeriscape Plant List.

Typical Plant List Format:

Symbol	Quantity	Common Name	Botanical Name	Size	Description	Water Usage

Typical plant material categories should include:

- Deciduous Canopy Trees Highlight (*) Recommended Street Trees
- Evergreen Trees
- Ornamental Trees
- Low Spreading Evergreen Shrubs
- Medium Evergreen Shrubs

- Tall Evergreen Shrubs
- Low Spreading Deciduous Shrubs
- Medium Deciduous Shrubs
- Tall Deciduous Shrubs
- Perennials
- Ornamental grasses
- Vines
- Groundcovers
- Seed Mixes, show grass species and note if irrigated or not irrigated
- Sod, show grass species

INDEX MAPS

<u>Index Maps - General. The following information should be included on all index maps:</u>

- Scale and North Arrow
- Current sheet highlighted and numbered, match sheet numbers
- Tract Labels, be consistent
- Collector and Arterial street names

F. Street Frontage and Perimeter Buffer Calculations

How many street trees or trees and shrubs are required for the tree lawn or adjacent street edge buffer? To get it right the first time, follow the recommendations provided below.

Street Frontage Measurements for Street Trees within a Tree Lawn. See Fig. 1.

• Public Works Standards requires that detached walks transition from a parallel alignment with the street toward a diagonal curb ramp at all intersecting streets and in some cases at ingress and egress drives. (See Publics Works Detail, <u>Layout of Detached Sidewalks To Ramps at Street Corners, Curb Ramps</u>, **\$9.8**) To determine how many street trees are required measurements should be taken between tangent points or between a tangent point and an intersecting property line. The resulting distance is divided by 40 (street trees are required 40 feet on center) to determine the required number of street trees. Street trees should not be placed in the "triangular" area formed by this transition. The tangent point may be determined by measuring from the flowline of the intersecting street a distance equal to the radius of the curb return at flowline (FL) plus the tangent length. The tangent point distances provided in the table below were taken from Detail S9.8.

	R@FL*	Tangent Distance**	Distance from FL to tangent
			<u>point</u>
Local Type 1,2, & 3	<u>15'</u>	<u>39'</u>	<u>54'</u>
Collector	<u>20'</u>	48'	<u>68'</u>
6 Lane Arterial	<u>25'</u>	<u>62'</u>	<u>87'</u>

*R@FL = Radius at flowline; Public Works Detail S9.8.

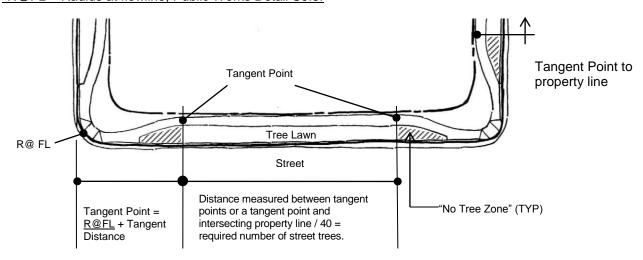


Fig. 1. Street Tree Measurements.

Street perimeter buffer lengths are measured between curb returns at flowline or between a curb return and intersecting property line. See Fig. 2.

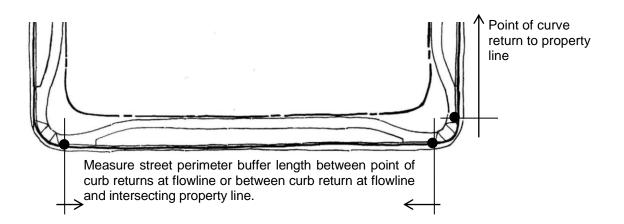


Fig. 2. Street Perimeter Buffer Length Measurements.

G. Front Yard Landscapes.

Requirements for residential landscapes range from "no standards" to current standards found in the <u>Building and Zoning Code</u>, <u>Article 14 Landscaping</u>. Front yard landscape standards first became effective in February 1996 and were revised in December of 2003 and again in October of 2004 as a result of drought and changing home building practices. Many of Aurora's residents whose homes were landscaped before these standards went into effect are "grandfathered" from standards found in zoning code. However, they are subject to landscape maintenance requirements that are currently enforced per <u>Section 142-75 Duty to provide and Maintain Landscaping</u>. Also, an existing Home Owners Association may have requirements for landscaping review and approval of landscape plans. See table below and Fig. 1 in this section.

Other homeowners may be subject to site plan requirements that were approved for their subdivision even though their homes may have been built before standards were codified. Also, as previously noted, landscaping in many neighborhoods is subject to Homeowners Association rules and regulations that may be in addition to city regulations. Always check with the Homeowner's Association or the city before making changes to residential lot landscaping.

The table below shows applicable requirements for homes built at certain points in time.

Landscaping was in-place:	Applicable Code and Requirements
Before February, 1996	No site Plan:
Contact your Code Enforcement Officer in Neighborhood Services for additional	Sec. 142-75 Duty to provide and maintain landscaping.
information concerning interpretation of code requirements at 303 739-7280. Check with the Planning Department to determine if a site plan governs your development. Contact your Homeowner Association HOA, if applicable, to determine what landscape requirements may apply to you.	(g) Subject to the provisions contained in section 138-1910f this code, any and all landscaping required to be installed or otherwise provided by this section shall consist of not less than 50 percent of long-live organic materials such as sod, turf, shrubs, trees, and other similar materials. Note: Other similar materials may include flowerbeds, hedges, and plants in containers whenever they make a substantial visual impact.
	Existing Site Plan:
	Comply with the plan or contact the HOA to discuss changing your landscaping to something else such as xeriscape.
	See Fig. 1.

Landscaping in Place	Applicable Code and Requirements
After February, 1996 but before December 5, 2003: Contact Planning Department for additional information or if you live in a neighborhood that has an existing site plan and landscape plan. 303 739-7250.	Existing Site Plan: When applicable requirements found on the site plan and/or landscape plan on file in the Planning Department shall rule with the exception of turf requirements. 50% turf no longer applies. 40% turf is the average maximum amount allowed. * No Site Plan: Restore landscape to Section 142-75 (see above) standards. Site Plan: Comply with landscape plan or contact the HOA to request changing the landscaping. The minimum standard following February, 1996 was: - Minimum 50/75% turf (40% turf is the maximum allow following the drought of 2003).* - 5 shrubs - Two trees *Current percentage of turf allowed in order to obtain a Lawn Permit. See Fig. 2.
New Construction after December 5, 2003 to Present: Contact Planning Department for additional information. 303 739-7250.	All development with or without a site plan: - Comply with Sec. 146-1450 Additional landscape requirements for Residential Development and Tables 14.3a or 14.3b. See Fig. 3 and 4.

<u>Re-landscaping Recommendations</u>. To assist the homeowner staff has provide the following recommendations and information:

Residents without a site plan or HOA. These residents are not bound by a site plan or landscape requirements enforced by a Home Owner Association (HOA). They have two choices. First, they may choose to comply with Section 142-75 Duty to provide and maintain landscaping. They must provide 50% long lived organic materials. Second, residents may also chose to comply with the city's current landscape standards found in Article 14 Landscaping, Section 146-1450, Table 14.3a Turf Option, or Table 14.3b Xeric Option. Tables may be found in SECTION VI and VIII, respectively, in the appendix.

Residents with a site plan and HOA. These residents may comply with landscape requirements shown on the site plan, or they may with permission of the HOA landscape according to current city landscape standards found in Article 14 Landscaping, Section 146-1450, Table 14.3a Turf Option, or Table 14.3b Xeric Option. Tables may be found in SECTION VI and VIII, respectively, in the appendix. Residents should always consult with their HOA before beginning a landscape project. The landscaping shown in Fig. 1 complies with Sec. 142-75. Duty to Provide and Maintain Landscaping. Per code, landscaping shall consist of not less than 50% long-lived organic materials such as sod, turf, shrubs, trees, and other similar material. The landscaping is applicable for landscapes in place before February 1996. Also see SECTION XIV.

Fig. 1 Plan View **LEGEND**: **ENTRANCE Rear Yard** SHRUB TREE **MULCH** 40% LAWN AS REQUIRED FOR A PERMIT* PLUS 10% IN SHRUBS EQUALS 50% LONG LIVED ORGANIC MATERIALS. **Drive** Way *LAWN PERMITS ARE REQUIRED FOR ANYONE INSTALLING SOD OR SEED. CONTACT AURORA WATER.

STREET

36

Figure 2 shows a front yard landscape that complies with standards that became effective in February 1996. Known at that time as <u>Sec. 146-215 Design Standards for Single-Family Detached Residential</u> this standard no longer exists and was replaced by standards that are in place today. Today's standards may be found in Sec. 146-1450 and Tables 14.3a.and 14.3b. See Figure 3.

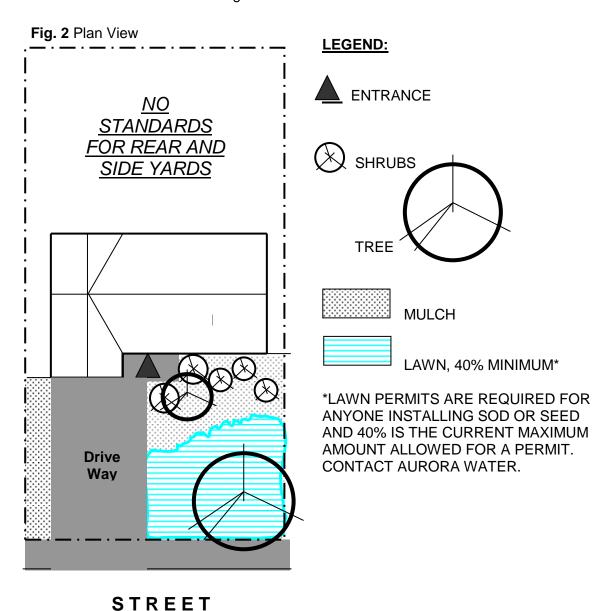
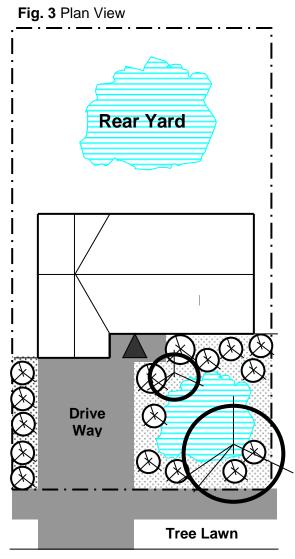


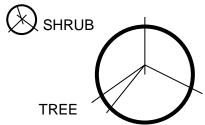
Figure 3 graphically shows front, side, and rear yard landscape standards that became effective on December 6, 2003 and may now be found in <u>Sec. 146-1450 Additional</u> Landscape Requirements for Residential Development and in Tables 14.3a and 14.3b.



STREET

LEGEND:





MULCH

30 TO 40% LAWN AS REQUIRED FOR A PERMIT* or AS REQUIRED PER TABLE 14.3A. 45% MAX. IN REAR YARD.

*LAWN PERMITS ARE REQUIRED FOR ANYONE INSTALLING SOD OR SEED. CONTACT AURORA WATER.

STANDARD REQUIREMENT (Fig. 4, TABLE 14.3A.):

- 2 TREES ALL LOTS
- 8 SHRUBS SMALL LOTS
- 16 SHRUBS STANDARD LOTS
- 26 SHRUBS LARGE LOTS
- 32 SHRUBS ESTATE LOTS
- 40 50% TURF SMALL LOTS
- 30 40% TURF STANDARDS LOTS
- 25 40 % TURF LARGE LOTS
- 25 40% TURF ESTATE LOTS

Figure 4 Turf Option Table.

Table 14.3A Home Yard Landscaping—Turf option Front, Side, and Rear Yard Landscaping Requirements for Single-Family Detached, Two-Family, and Single-Family Attached Duplex Homes.			
FRO	NT YARD		
	(A) Plant Quality and Type	(B) Requirements	
1.	Turf. (At corner lots with a side yard visible to public view, turf areas shall include both front and side yard areas)	Minimum and Maximum Turf per Lot Size: (See Note 2) Small – 40% Min. and 50% Max. Standard – 30% Min and 40% Max. Large – 25% Min. and 40% Max. Estate – 25% Min. and 40% Max.	
2. 1 Shade Tree, and either 2 ½ inch caliper		2 ½ inch caliper	
	1 Ornamental Tree	2 inch caliper	
	Or 1 Evergreen Tree	6 foot height	
Small – 8 American Standard for Nursery Stock, Ansi		Shrubs – 5 gallon container Min. – Plant material shall conform with American Standard for Nursery Stock, Ansi Z60.1, current addition.	
		Fabric may be omitted under annuals, perennials and groundcovers.	
		Use a variety of shrubs and plant materials that will provide visual interest during all seasons.	
SIDE	YARDS	•	
	Internal side yard, not exposed to public view – No plant material is required but mulches are required for soil stability. External side yards on corner lots exposed to public view – Shall be landscaped with turf, and shrubs and trees at the rate of one tree and 10 shrubs per 40 linear feet of side yard.		
REA	R YARDS	·	
	Turf or xeric landscaping is not required. In rear yards the use of natural turf shall be limited to not		

Turf or xeric landscaping is not required. In rear yards the use of natural turf shall be limited to not more than 45% of the area to be landscaped. No maximum restriction shall apply to the use of artificial turf. Rear yards at corner lots exposed to public view shall be landscaped with turf or xeric landscaping.

NOTE 1: Perennials and ornamental grasses may be substituted for shrubs at 3 one-gallon perennial or ornamental grass species per one five-gallon shrub.

NOTE 2: Lot sizes: Small 3,700sf – 5,999sf; Standard 6,000sf – 8,999sf; Large 9,000sf – 14,999sf Estate 15,000sf and greater.

Single-Family Detached Residential Corner Lot Side Yard Landscape Requirements.

This section was developed to provide current information that should lead to consistent answers to questions that may arise during code enforcement, development, and landscaping of corner lots. The table show below is a chronological summary of landscape requirements that currently regulate landscaping of single-family detached residential lots. The table is accompanied by Fig. 1, Table 14.3a a table of current landscape standards and Fig. 2 a graphic representation of corner lot landscape standards.

Re-landscaping is addressed at the end of this section. See SECTION VI.

Table VII. Chronological Summary of Single-family detached residential lot landscape Requirements.

Residential Lot Landscape Requirements Landscape Turf Shrubs Trees Side Yard² Requirement/s¹ (See Fig. 1) Pre-February, No existing standards exist prior to February, 1996. Landscaping before then 1996 was at the discretion of the developer or homebuilder as provided on an approved site plan, landscape plan or preliminary development plan (PDP). See plans for typical lot landscape details or written description of landscape Landscape Review requirements. Procedures Handbook These plans are still enforceable to this day and are currently enforced by Home Owner Associations and the City. 1-Jan 1989 Howe Owners are exempt from current landscape standards but must comply Handbook Rev. 5/94 with Sec. 172-75 Duty to provide and maintain landscaping. See Section VI. 1996-2001 Minimum 50% 5 shrubs - 5-One 2 ½ inch Landscape turf gallon container caliper shade required when 146-215 tree and one 2 side vard faces 75% minimum inch caliper public R.O.W. or turf in corner lots ornamental tree other public with side yards Or one 6 feet tall space evergreen tree L/S Options: -Sod Plant bed w/ 50% coverage. (See Fig. 2.) 2001-2003 References Sec. 146-215 Design Standards for Single-Family Detached Ord. No. 2001-13 Residential. (See above.) Effective 04-28-01.

40

¹ Requirements based on Site Plan or PDP application submittal date.

² Measured from corner of house at front setback to rear lot line. (See Fig. 2)

After December 5, 2003 to Present	Front, side, and rear yard landscapes per Art. 14. Table 14.3a, See Fig. 1.	Corner Lot Rear Yard: Landscape rear yards exposed to
New front, side, and rear yard landscape standards became effective 12-05-03.		public view with turf or xeric landscaping. (Fig. 2.)
12-03-03.		External Side Yard: External side yards on corner lots exposed to public view – landscape with turf, shrubs, and trees at the rate of 1 tree and 10 shrubs per 40 linear feet of side yard. (Fig. 2.)

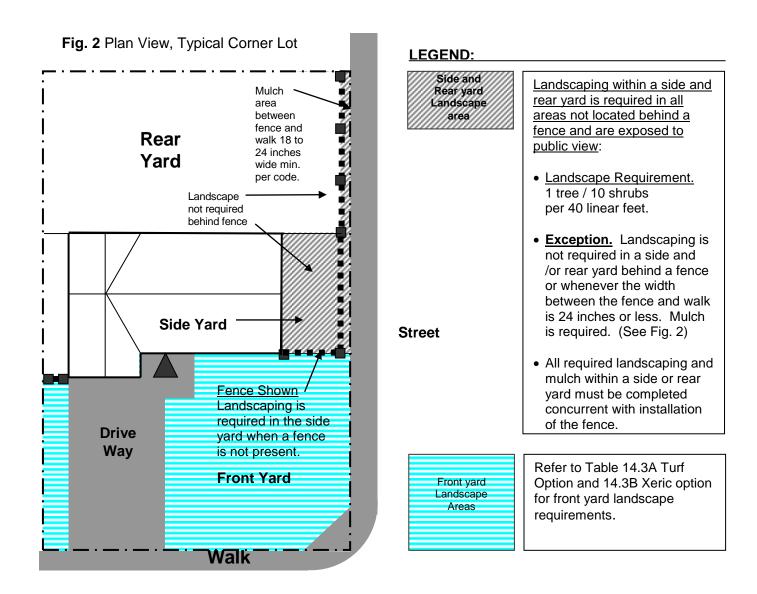
Re-Landscaping. Residents with corner lots who choose to re-landscape or must relandscape because of a code violation should follow recommendations provided in SECTION VI.

Figure 1 Turf Option Table

Froi	Table 14.3A Home Yard Landscaping—Turf option Front, Side, and Rear Yard Landscaping Requirements for Single-Family Detached, Two-Family, and Single-Family Attached Duplex Homes.			
FROI	FRONT YARD			
110		(D)		
	(A) Plant Quality and Type	(B) Requirements		
4		•		
1.	Turf. (At corner lots with a side	Minimum and Maximum Turf per Lot Size: (See Note 2)		
	yard visible to public view, turf	Small – 40% Min. and 50% Max.		
	areas shall include both front	Standard – 30% Min and 40% Max.		
	and side yard areas.)	Large – 25% Min. and 40% Max.		
		Estate – 25% Min. and 40% Max.		
2.	1 Shade Tree, and either	2 ½ inch caliper		
	1 Ornamental Tree	2 inch caliper		
	Or 1 Evergreen Tree	6 foot height		
3.	Front yard shrubs per lot size:	Shrubs – 5 gallon container Min. – Plant material shall conform with American Standard for Nursery Stock, Ansi Z60.1, current addition.		
	Small – 8			
	Standard – 16	Fabric may be omitted under annuals, perennials and		
	Large – 26 Estate – 36	groundcovers.		
		Use a variety of shrubs and plant materials that will provide visual interest during all seasons.		
SIDE	YARDS	· ·		
	Internal side yard, not exposed to public view – No plant material is required but mulches are required for soil stability. External side yards on corner lots exposed to public view – Shall be landscaped with turf, and shrubs and trees at the rate of one tree and 10 shrubs per 40 linear feet of side yard.			
DEAL	R YARDS	and 10 shrubs per 40 linear reet or side yard.		
KEAI		and the latest and the second and the latest little Police Co.		
	Turf or xeric landscaping is not required. In rear yards the use of natural turf shall be limited to not more than 45% of the area to be landscaped. No maximum restriction shall apply to the use of artificial turf. Rear yards at corner lots exposed to public view shall be landscaped with turf or xeric landscaping.			
	E 1: Perennials and ornamental gra mental grass species per one five-g	sses may be substituted for shrubs at 3 one-gallon perennial or allon shrub.		

NOTE 2: Lot sizes: Small 3,700sf – 5,999sf; Standard 6,000sf – 8,999sf; Large 9,000sf – 14,999sf Estate 15,000sf and greater.

Figure 2 shows how to apply landscape regulations found in Table 14.3a to a typical corner lot.



STREET

Note: Sidewalks may be attached or detached depending on site plan requirements. Street trees in tree lawns are in addition to all other side, rear, and front yard landscape requirements.

H. Front Yard Xeriscape Landscapes

This section will provide the homeowner and landscape professional with information needed for the design and implementation of front yard Xeriscapes. A plan to scale that complies with requirements found herein must accompany requests made to the Director of Planning for Front yard landscapes as required in Table 14.3b, Fig. 2, p. 51. Fig. 2 shows a typical front yard xeriscape that conforms to all of the requirements found in Table 14.3b. Home Yard Landscaping – Xeric Option.

1. <u>Definitions</u>.

Drip line – The outside edge of a tree's branch structure.

<u>Landscapable area</u> – The remaining permeable surface area after the surface area of driveways, walks, decorative pavement, existing plant beds, and the area within an existing deciduous or evergreen tree's drip line are subtracted. The landscapeable area is calculated from within property lines.

<u>Mulch/non-living groundcover</u> – Nonliving plant materials that are applied to plant beds, the base of trees, and shrubs. Mulches include organic materials such as wood chips and shredded bark, and inert organic materials such as decomposed granite, crushed rock, river rock, and cobble. Organic and inorganic mulches should be applied at a uniform depth of 3 inches minimum.

<u>Plant bed</u> – An area prepared for the planting of plant materials. All areas that are not considered to be borders, edging, concrete, asphalt, artificial streambeds, and natural stone or man-made pavers shall be considered to be plant beds. All plant beds shall be mulched with organic and/or inorganic mulches.

<u>Plant materials</u> – All living plant species consisting of trees, shrubs, annuals, perennials, vines, groundcovers, ornamental and turf grasses that will thrive in the city's climate.

Square footage value – A value in square feet assigned to evergreen trees, deciduous and evergreen shrubs, perennials, annuals, and groundcover for the purpose of calculating plant material quantities. Each plant's square footage value is based on a number that will provide 50% coverage at the time of planting as required in Sec. 146-1431. Values for each plant species may be found in item Table 14.8 Plant Material Coverage Values.

<u>Existing Tree cover</u>. The area surrounding an existing deciduous or evergreen tree located within the drip line.

<u>Tree Lawn</u>. The landscape area between the sidewalk and street and usually located within the right-of-way. Tree lawns are not included in front yard landscape calculations.

<u>Xeriscape</u> – Waterwise landscaping. A landscaping method that utilizes individual site conditions to maximize efficient water usage. The seven principals of xeriscape are:

- 1. Minimize cool season turf grasses.
- 2. Replace turf areas with hardscape such as decking patios, walkways, etc.

- 3. Reduce turf areas with mulched planting beds.
- 4. Amend soil with organic matter.
- 5. Zone or group plants by water, soil, and sun needs.
- 6. Zone irrigation by plant water needs.
- 7. Maintain landscape to reduce water usage by weeds and promote healthy plant growth.

<u>Zeroscape</u> – Landscapes consisting of natural or manmade materials such as rock that are not landscaped with turf grasses, shrubs, perennials, annuals, and groundcovers. A prohibited landscape that <u>does not comply</u> with Aurora City Code Chapter 146, Zoning, Article 14. Landscaping, Sec. 146-1431 Living Material Requirements.

<u>Zone</u> – To group plants according to water requirements. The components of an irrigation system consisting of heads, emitters, and lateral pipes that are connected to a single valve for the purposes of controlling the amount of irrigation according to each zone's unique watering needs.

2. Procedures and Process.

Requests for Xeriscape front yard landscapes—including side and rear yards when visible from a public street--shall be made in writing to the Director of Planning and shall include a scaled landscape plan. The plan shall conform to all requirements found in section 3 Landscape Plan Requirements. Persons taking advantage of the city's Xeriscape Rebate Program will develop a

Xeriscape plan with the assistance of Aurora Water and will not have to submit a plan to the Planning Department for approval.

3. Landscape Plan Requirements.

To facilitate review of your xeriscape landscape and to expedite the review process a landscape plan drawn to scale shall be provided when the request is made to the Director of Planning. The following information is required on all landscape plans:

- North arrow and scale.
- Scale not less than one inch equal to 10 feet.
- Title Block complete with residence address, owners name, designer if other, phone number, and date,
- Property lines, utility easements, walks, drives, hard pavement, existing landscaping to remain, city trees, and building/s foot print/s.
- Draw proposed and existing plant material to scale. Recommended dimensions for proposed plant are: Shade Trees, 25' dia, maximum; Ornamental trees, 15' dia. Maximum; Evergreen trees, 10' dia. Maximum; shrubs, perennials, ornamental grasses, 3' to 5' depending on species.
- Existing tree cover, existing plant beds, and plant containers drawn to scale.
- Plant list including symbols, quantities, water usage characteristics, botanic and common names, size in applicable caliper inches, height, and container.
- Total landscaped area.
- The area in square feet and percentage of the total landscape area of rock mulch, bark or wood mulch, and decorative pavement.
- Location of three-dimensional features such as boulders, berms, fences, and walls.

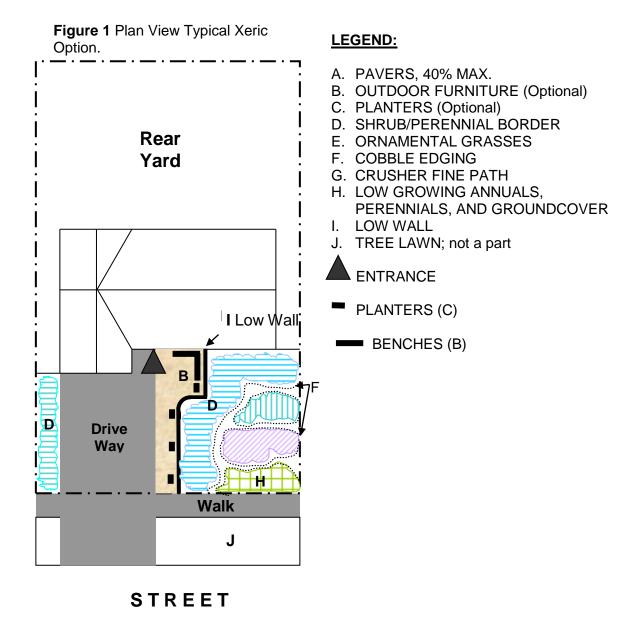
4. Xeriscape Requirements.

The conversion of all front yard landscapes to Xeriscape should comply with the following regulations shown below. Also see Fig. 1, Typical Xeriscape per Table 14.3b requirements, and Fig. 2, Table 14.3b Home Yard Landscaping – Xeriscape Option, Aurora City Code, Article 14 Landscaping for more information.

- 1. Residents without an approved site plan. Residences living in a neighborhood that does not have a site plan are 'grandfathered' from current landscape requirements found in the Zoning Code. However, they must comply with Section 142-75 Duty to Provide and maintain landscaping. See SECTION VI, XI, and VII.
- Residences with an approved site plan. These residents may choose to comply with Aurora City Code, Chapter 146, Zoning, Article 14 Landscaping, Section 146-1450, and Table 14.3b Xeric Option (Fig. 2). Homeowners should contact their HOA for submittal and approval requirements before landscaping.
- Plant Materials All plant material shall comply with <u>Sec. 146-1426 Plant Material Requirements</u>. Plant materials should be integrated with walls, fences, structures, and landscape materials. A variety of plant materials should be provided to screen privacy areas, utility hardware, and to provide a high degree of visual interest during all seasons.
- Irrigation All converted front yard landscapes shall be watered by an underground automatic irrigation system and comply with requirements as found in <u>Sec. 146-1430</u> <u>Irrigation and City of Aurora Irrigation Ordinance</u>. Contact Aurora Water for irrigation requirements.
- Non-living materials The use of non-living landscape materials such as river rock, crushed rock, cobbles, crusher fines, shredded bark, bark chips, wood chips, pole peelings, natural stone, manmade pavers, and other approved materials shall be subject to the following landscape restrictions and limitations as found in city code:
 - (A) Borders, edging, paths, and artificial streambeds (Fig 1). Non-living landscape materials may be used for borders, paths, or artificial streambeds and may be exempt from landscape coverage requirements found in item (C) below:
 - (B) Mulches or non-living groundcover. Are subject to area coverage requirements found in item (D) and landscape requirements found in item (E).
 - (C) Plant beds (Fig 1. and 2). All areas that are not regarded as edging, paths, and artificial streambeds shall be designated as plant beds. All plant beds should be mulched with organic and/or inorganic mulches as found in item (D). All plant beds shall be planted with quantities of plant material that will provide a minimum of 50% coverage when planted as described in item (E).
 - (D) Organic and inorganic mulches (Fig 1). Rock mulch is limited to not more than 50% of the total landscapeable area, whereas, the use of organic mulch is unlimited.
 - (E) Plant quantity requirements (Fig 1. and 2). Plant material quantities are based on assigned square footage values for evergreen trees, shrubs, annuals, perennials, and groundcovers. The total square footage value for plant materials

within a plant bed shall be equal to or exceed the square footage of the plant bed. Square footage values are based on 50% coverage at time of planting as required in code. Also see Section 146-1431, Article 14 Landscaping available on line or in the Planning Department.

- (F) Natural stone and man-made pavers. Other non-living landscape materials including brick pavers, concrete pavers, asphalt pavers, and other natural stone or manmade pavers are subject to these requirements and recommendations:
 - (i) The use of natural stone and/or manmade pavers shall not exceed 40% of the landscapeable area. (Fig. 2)
 - (ii) It is recommended that all pavers shall be laid on a base course of compacted builder's sand, crusher fines, or other approved material. Base course material should be applied over undisturbed earth and weed barrier at a depth of not less than 3 inches.
 - (iii) It is recommended that all joints and gaps between pavers shall be spaced to provide an even safe walkable surface.
- (G) Three dimensional natural or manmade feature. Walls, fences, rock garden, boulders, and earth berms constructed from natural or approved man-made materials shall be integrated into the overall landscape. Select a minimum of one from the following features (Fig. 1. & 2):
 - (i) 1 foot to 2 ½ foot high decorative natural stone, stucco, or approved CMU Wall
 - (ii) Fence in accordance with Article 17 Fence, Wall, and Awning Regulations.
 - (iii) Low earth berm Maximum height of 2 ½ feet; grade may not exceed one foot of rise for each four feet of run.
 - (iv) Rock Garden Consisting of natural boulders and approve rock garden plant materials. Detail drawings are required for review and approval.
 - (v) Boulders Minimum number of 3; Boulders must be a minimum or 18 inches in height with minimum dimensions of two feet by three feet.



Notes, Fig. 1:

- 1. Pavers The installation of all-natural stone and manmade pavers shown in area A shall comply with requirements found in section (F).
- 2. Plant beds Areas D, E, and H are considered to be plant beds and are subject to mulching and planting quantities found in sections (D) and (E).
- 3. Edging and paths Cobble edging, item F, and the crusher fine path item G, shall comply with requirements found in section (A).
- 4. Design Follow the standards and city codes and don't be afraid to exercise your imagination!

Figure 2

Table 14.3B Home Yard Landscaping—Xeric Option Front, Side, and Rear Yard Landscaping Requirements for Single-Family Detached, Two-Family, and Single-Family Attached Duplex Homes.

	ONT YARD	(D)	
	(A) Plant Quality and Type	(B) Requirements	
1.	Applicability	Requirements apply to all lot sizes.	
2.	Turf	No turf is required.	
3.	Request and landscape plan	Submit request in writing to Director of planning accompanied with landscape plan at a minimum scale of one inch equals 10 feet.	
4.	Rock and inorganic mulches. (See note 1)	Rock mulch is limited to not more than 50% of the area to be landscaped. 50% of all rock and other mulch areas shall be covered with living plant material.	
5.	Plant materials (See note 1)	All plant materials shall comply with requirements found in Sec. 146-1426 Plant Material Requirements.	
6.	Pavers (See note 1)	Brick pavers, asphalt pavers, and natural stone limited to not more than 40% of the landscaped area.	
7.	Features	One of the following features shall be incorporated: a. Wall – 1 ft. to 2 ½ ft. high decorative natural stone, stucco, or approved CMU wall. b. Fence – in accordance with art. 17 Fence. c. Berms – low earth berm 2 ½ ft. tall max. Slopes not to exceed one foot rise for each 4 feet of run. d. Natural boulders – 3 - two feet by three feet min.	
8.	1 Shade tree, and either	2 ½ inch caliper	
	1 Ornamental tree	2 inch caliper	
	Or 1 Evergreen tree	6 foot height	
9.	Shrubs: (See notes 2)	Shrubs – 5 gallon container Min. – Plant material shall conform with American Standard for Nursery Stock, Ansi Z60.1, current addition. Fabric may be omitted under annuals, perennials and groundcovers. Use a variety of shrubs and plant materials that will provide visual interest during all seconds.	
וחוס	_ E YARDS	during all seasons.	
חוס		1.0 1. At the exercise and add but made as a property of an odd	
	Internal side yards, not exposed to public view – No plant material is required but mulches are required for soil stability. External side yards on corner lots exposed to public view – Shall be landscaped by combining visible side and front yard areas and applying front yard standards.		
REA	I AR YARDS		

Turf or xeric landscaping is not required. In rear yards the use of turf shall be limited to no more than 45% of the area to be landscaped. Rear yards at corner lots exposed to public view shall be landscaped with turf or xeric landscaping.

NOTE 1: At corner lots with a side yard visible to public view, front and side yard areas shall be combined for calculation of xeric requirements.

NOTE 2: Perennials and ornamental grasses may be substituted for shrubs at 3 one-gallon perennial or ornamental grass species per one five-gallon shrub.

50% Long-Lived Material Calculations and Front Yard Landscape Area Calculations

Fig. 3 Plan View. 50% long-lived material calculations.

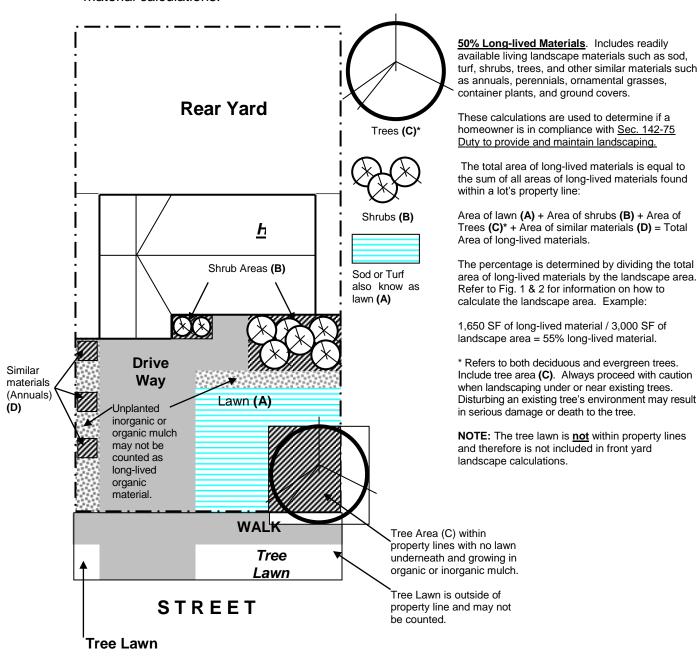
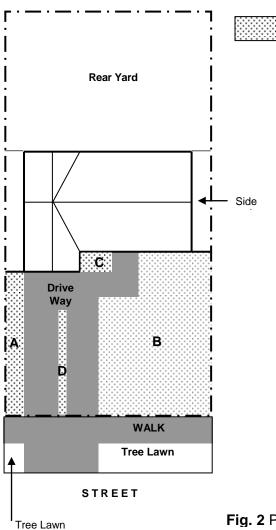


Fig. 1 Plan View. Front yard landscape area calculations.



<u>Landscape Area</u>. The area that lies within the front yard setback and within property lines that is used for front yard landscape calculations.

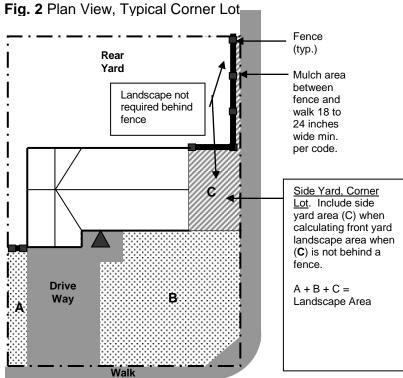
Landscape area calculations are used to determine if a homeowner is in compliance with Sec. 142-75 Duty to provide and maintain landscaping, namely, duty to provide not less than 50% of long-lived organic materials such as sod, turf, shrubs, trees, and other similar materials. They are also used to calculate minimum and maximum artificial or natural turf square footages allowed as found in Sec. 146-1450 and Table 14.3a Turf Option.

The landscape area is equal to the sum of all landscape areas:

A + B + C + D = Landscape Area.

NOTE: The tree lawn is <u>not</u> within property lines and therefore is not included in front yard landscape calculations.

In some cases it may be appropriate to include a side yard or portion of a side yard in these calculations. For instance, in older neighborhoods or in newer neighborhoods with large or estate size lots it is a common practice to include side yards as part of the front yard landscape.



Street

51

I. Artificial Turf Requirements

This section should provide the homeowner, installer, and landscape professional with all the information needed for the design and implementation of artificial turf in residential lots and all other developments.

Sec. 146-1402. Definitions.

The following words or phrases used in this article shall be defined as listed:

(A) Artificial Turf. A man-made substitute for organic turf, lawn, or sod which effectively simulates the appearance of a well-maintained lawn and meets all of the quality, material and installation standards listed in Section 146-1414 of this article.

Sec. 146-1413 Turf Regulations.

The design and installation of all new turf and artificial turf areas shall comply with the following requirements:

- (A) Turf Area Limitations for Each Lot Containing Single-family Detached, Two-family, and Single-family Attached Duplex Homes. Turf requirements for such areas shall be subject to all of the requirements listed in tables 14.3A and 14.3B of this article
- (B) Turf Area Limitations for All Other Development Areas except Playfields and Golf Courses. In all other development sites except playfields, and golf courses, the use of cool-season grass sod, seed, and seed mixtures that contain cool-season grass species shall be limited to not more than 33% of the site's total landscaped area.
- (C) Declared Drought Emergency Measures. At such times as the city council may declare a drought emergency, the installation of turf may be delayed, subject to preparation measures contained in Section 146-1405. Such measures shall be completed prior to the issuance of a certificate of occupancy.
- (D) Artificial Turf. Artificial turf as defined and described in Section 146-1402(f) and Section 146-1414 may be used to meet the natural turf requirements of this article when installed in accordance with all city requirements and regulations. The use and installation of artificial turf is also subject to the following limitations:
 - In single family detached, two-family and single-family attached duplex homes. Artificial turf may replace natural turf in front, side, and rear yards, but must meet minimum and maximum percentage requirements found in Table 14.3a.
 - 2. In all other uses. Artificial turf shall be considered a non-living material and its use as such shall be limited as specified in Section 146- 417 Living Material Requirements. More specifically, the quantity of artificial turf that may be installed shall be determined in combination with all other natural non-living materials so that the combination of these materials may not exceed 50% of said site's landscape area as measured within property lines.

3. *Prohibited use.* The use of indoor or outdoor plastic or nylon carpeting or other materials or combinations of materials as a replacement for artificial turf or natural turf shall be prohibited.

Sec. 146-1414 Artificial Turf Standards.

The use of artificial turf shall be governed by the following standards:

- (A) Materials. Artificial turf shall be of a type known as cut pile infill and shall be manufactured from polypropylene, polyethylene, or a blend of polypropylene and polyethylene fibers stitched onto a polypropylene or polyurethane meshed or hole-punched backing. Hole-punched backings shall have holes spaced in a uniform grid pattern with spacing not to exceeding four inches by six inches on center.
- (B) Installation. Artificial turf shall be installed over a compacted and porous road base material and shall be anchored at all edges and seams. Seams shall be glued and not sewn. An infill medium consisting of ground rubber, ground coal slag, clean washed sand and ground rubber, or other approved mixture shall be brushed into the fibers to insure that the fibers remain in an upright position and to provide ballast that will help hold the turf in place and provide a cushioning effect.
- (C) Slope Restrictions. The installation of artificial turf on slopes greater that 6.6% shall require the approval of the city engineer and shall meet requirements of the Public Works Department.
- (D) General Appearance. Artificial turf shall be shall be installed and maintained to effectively simulate the appearance of a well-maintained lawn. The Planning Department shall maintain and make available for public inspection a sample of various artificial turf products that meet this standard of appearance.

Applicability of Artificial Turf Requirements. Residents living within the following areas when installing artificial turf within the front or side yard should follow the requirements applicable to where they live as shown below:

- Residents without a site plan. These residents may substitute artificial turf for natural turf, but they shall also comply with <u>Section. 142-75 Duty to Provide and Maintain Landscaping</u>. Within a front yard, provide at least 50% long lived organic materials. See appendix SECTION XIV. Artificial turf cannot be counted as a living material.
- Residents with a site plan. These residents may substitute artificial turf to natural turf, but they shall also comply with turf requirements when installing artificial turf within a front or side yard as found in Section 146-1450, Table 14.3a Home Yard Landscaping – Turf Option. See attached.
- Rear Yards. All residents may install 100% of the area within the rear yard in artificial turf.
- HOA Covenants. Always check with your HOA to determine if they allow artificial turf.

Table 14.3A Home Yard Landscaping—Turf option
Front, Side, and Rear Yard Landscaping Requirements for Single-Family Detached, Two-Family, and
Single-Family Attached Duplex Homes.
See Fig. 1.

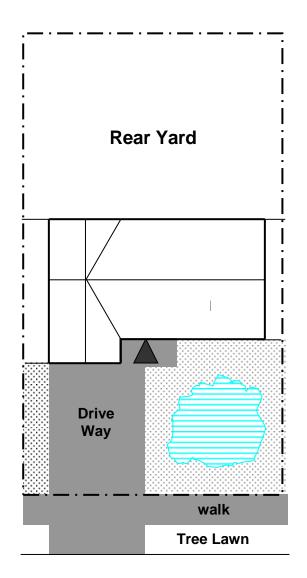
See Fig. 1.				
FRO	FRONT YARD			
	(A)	_ (B)		
	Plant Quality and Type	Requirements		
1.	Turf. (At corner lots with a side	Minimum and Maximum Turf per Lot Size: (See Note 2)		
	yard visible to public view, turf	Small – 40% Min. and 50% Max.		
	areas shall include both front	Standard – 30% Min and 40% Max.		
	and side yard areas.)	Large – 25% Min. and 40% Max.		
		Estate – 25% Min. and 40% Max.		
2.	1 Shade Tree, and either	2 ½ inch caliper		
	1 Ornamental Tree	2 inch caliper		
	Or 1 Evergreen Tree	6 foot height		
3. Front yard shrubs per lot size: Shrubs – 5 gallon container Min. – Plant materi		Shrubs – 5 gallon container Min. – Plant material shall conform with		
		American Standard for Nursery Stock, Ansi Z60.1, current addition		
	Small – 8			
	Standard – 16	Fabric may be omitted under annuals, perennials and		
	Large – 26	groundcovers.		
Estate – 36				
		Use a variety of shrubs and plant materials that will provide visual		
interest during all seasons.		interest during all seasons.		
SIDE	YARDS			
	Internal side yard, not exposed to public view – No plant material is required but mulches are			
	required for soil stability.			
	External side yards on corner lots exposed to public view – Shall be landscaped with turf, and shrubs			
and trees at the rate of one tree and 10 shrubs per 40 linear feet of side yard.				
REAR YARDS				
	Turf or xeric landscaping is not required. In rear yards the use of natural turf shall be limited to not			
	more than 45% of the area to be landscaped. No maximum restriction shall apply to the use of			
	artificial turf. Rear yards at corner lots exposed to public view shall be landscaped with turf or xeric			
	landscaping.			

NOTE 1: Perennials and ornamental grasses may be substituted for shrubs at 3 one-gallon perennial or ornamental grass species per one five-gallon shrub.

ornamental grass species per one five-gallon shrub.

NOTE 2: Lot sizes: Small 3,700sf – 5,999sf; Standard 6,000sf – 8,999sf; Large 9,000sf – 14,999sf Estate 15,000sf and greater.

Figure 1 Artificial Turf Conversions and Other landscape Requirements



STREET

LEGEND:



50% LONG-LIVED ORGANIC MATERIALS SUCHAS SHRUBS AND TREES. SEE <u>SEC. 142-75.</u>

PERCENTAGE OF ARTIFICIAL TURF AS REQUIRED PER LOT SIZE AS SHOWN IN TABLE 14.3A. NO LIMIT IN REAR YARD.

LANDSCAPE REQUIREMENTS:

TREES*

- 2 TREES - ALL LOTS

SHRUBS*:

- 8 SHRUBS SMALL LOTS
- 16 SHRUBS STANDARD LOTS
- 26 SHRUBS LARGE LOTS
- 32 SHRUBS ESTATE LOTS
- *Existing trees and shrubs may be counted toward landscape requirements.

% OF ARTIFICIAL TURF:

- 40 50% TURF SMALL LOTS
- 30 40% TURF STANDARDS LOTS
- 25 40 % TURF LARGE LOTS
- 25 40% TURF ESTATE LOTS
- Rear Yard Unlimited ALL LOTS

LOT CLASSIFICATION:

SMALL LOT - 3,700 SF TO 5,900 SF STANDARD LOT - 6,000 SF TO 8,900 SF LARGE LOT - 9,000 SF TO 14, 999 SF ESTATE LOT - 15,000 SF AND GREATER.

J. Revegetation Plan Check List

A revegetation plan is intended to be a stand alone document; however, staff may allow under extenuating circumstances for revegetation plan information to be placed on the landscape plan. Discuss your situation with a Planning Department landscape architect before proceeding.

List of Required Items:

- a. Title Block.
- b. North arrow and scale.
- c. Finish grade contours. Show one foot or two-foot contours.
- d. Re-vegetated areas. Show all applicable areas.
- e. Soils Information, Type and Slope. Show soils information.
- f. Seed Mixture Information, common & botanical names, percentage of species.
- g. Seed Application Rates, PLS/Acre.
- h. Seeding and Mulching Methods.
- i. Plant List, trees, shrubs, other.
- j. Initial, Conditional, and Final Acceptance Requirements.
- k. Monitoring and Stewardship Program Outline.
 - 1. Maintenance Plan for weeding, herbicide applications, erosion control, and mowing. 1st, 2nd, and 3rd years.
 - 2. Temporary fencing. Show locations on plan and show details/description if required.
 - 3. Initial notification. Show requirements.
 - 4. Yearly Report. Show requirements.
 - 5. Reseeding. Show requirements.
 - 6. Irrigation Requirements and Supplemental Irrigation. Irrigation may be required after it has been determined that grasses have not been successfully established. Show requirements.
 - 7. Irrigation of trees and shrubs located within a re-vegetation area. Show requirements.

K. Development Review Staff List:

Following Development Review Team members will from time to time comment on landscape design. Please contact them directly to discuss issues. Note this list is subject to change without notice.

Contact	<u>Department</u>	<u>Phone</u>
Chris Ricciardiello, Sr. Landscape Architect/Plans Review	Parks and Open Space, Planning, Design, & Construction	303 739-7154
Doug Hintzman, Sr. Landscape Architect/Plans Review	Parks and Open Space, Planning, Design, & Construction	303 739-7147
Steven Gardner, Principal Engineer Public Works - Drainage, Traffic	Public Works – <i>Traffic</i> Services	303 739-7852
Ted Wiedeman, Water Engineering, Design Engineer	Aurora Water – <i>Plans</i> <i>Review</i>	303 739-7296
Edward Francis, Water Engineering, Plans Examiner	Aurora Water – <i>Plans</i> <i>Review</i>	303 739-7382
Neil Wiegert, Plans Examiner II	Development Services	303 739-7613
Mike Dean, Supervisor Life-Safety, Fire	Development Services	303 739-7447
Mark Geyer, Project Manager	City Manager's Office – Development Assistance	303 739-7588
Gary Sandel – Project Manager	City Manager's Office – Development Assistance	303 739-7354

L. Landscape Material Placement Criteria

Recommended Street Tree Planting Criteria

Criteria	Recommended Distance/Spacing*	
Street Tree	Large Deciduous Species – 2 ½ inch caliper	
Species	min.	
Spacing	40 feet on center, centered within tree lawn,	
	or 5 ft from back of curb when no detached	
	walk is present.	
Distance from	Local Streets – 54'	
Intersecting	Collect Streets – 68'	
Flowline	Arterial Streets – 87'	
Distance Stop		
Sign		
Distance from	May Vary; See Distance from Intersecting	
Traffic Signal	Flowline	
Street Light		
Electric Power or	10 ft.	
Utility Pole	Marriage depending on appairs and	
Existing Trees	May vary depending on species and location.	
Water and Gas	8 ft.	
Meters	O It.	
Utility Enclosures		
Transformers		
Intersecting:	5 ft.	
Driveways		
Sidewalk		
Curb		
Trail		
Bike Path		
Alley Entrances	5 ft.	
Railroad Track	5 ft. from edge of Railroad R.O.W.	
Crossing	<u> </u>	

^{*}Distances are always measured from face of object nearest to tree to center of tree; or at a 90degree angle from a line to center of tree; or from center of tree to center of tree.

Recommendations for plant material separations at time of installation:

FROM:	Recommended Plant Material Separations*	
	Trees	Shrubs or Edge of Plant Bed
Transformers Utility Enclosures	8 ft.	8 ft.
Fire Hydrants	8 ft.	8 ft.
Sidewalks, trails, bicycle paths	5 ft.	3 ft.
Building Foundations	10 ft. **	5 ft.
Utility Easements	8 min.	2 ½ ft. min.
Other Structures	10 ft. **	5 ft.
Locate thorny trees and shrubs a minimum of 20 ft. and 4 ft. respectively, from public walks.		

*Distances are always measured from face of object nearest to tree or plant bed to

center of tree or edge of plant bed; or at a 90degree angle from a property line, easement line, public or private right-of-way line, curb, or edge of pavement to center of tree or edge of plant bed.

^{**}Distances may vary depending on circumstances and species of tree. For instance, upright pear species may be planted much closer to buildings when located within raised planters or plant beds.