



Remote Meeting Instructions for the December 8, 2020, City Council Worksession:

In order to comply with all health orders and State guidelines intended to stop the spread of the COVID-19 (Coronavirus), **no physical location, including the City Council Chambers, will be set up for viewing or participating in this Worksession. Because this is a Worksession, no public input will be accepted in any format, written or otherwise.**

The **only** way to view this Worksession is to follow the instructions below to watch the YouTube live stream.

- From your laptop or computer, click the following link or enter it manually into your Web Browser: (www.youtube.com/CityofGreeley)
- Clicking the link above will take you to the City of Greeley's YouTube Channel.
- Once there, you will be able to view the Worksession!

Please contact the City Clerk's Office with any questions you might have at 970-350-9740. Thank you!



Mayor
John Gates

Councilmembers

Tommy Butler
Ward I

Brett Payton
Ward II

Michael Fitzsimmons
Ward III

Dale Hall
Ward IV

Kristin Zasada
At-Large

Ed Clark
At-Large

A City Achieving
Community Excellence

Greeley promotes a healthy, diverse economy and high quality of life responsive to all its residents and neighborhoods, thoughtfully managing its human and natural resources in a manner that creates and sustains a safe, unique, vibrant and rewarding community in which to live, work, and play.

City Council Worksession Agenda

December 08, 2020 at 6:00 PM

This meeting will be conducted remotely. (See instructions on previous page to view the YouTube live stream.)

1. Call to Order
2. Pledge of Allegiance
3. Roll Call
4. Reports from Mayor and Councilmembers
5. COVID-19 Update
6. Emergency Medical Services – Fire-Based EMS Transport
7. Landscape Code Update
8. Scheduling of Meetings, Other Events
9. Adjournment

Worksession Agenda Summary

December 8, 2020

Agenda Item Number 1

Title:

Call to Order

Worksession Agenda Summary

December 8, 2020

Agenda Item Number 2

Title:

Pledge of Allegiance

Worksession Agenda Summary

December 8, 2020

Agenda Item Number 3

Title:

Roll Call:

1. Mayor Gates
2. Councilmember Butler
3. Councilmember Payton
4. Councilmember Hall
5. Councilmember Fitzsimmons
6. Councilmember Clark
7. Councilmember Zasada

Worksession Agenda Summary

December 8, 2020

Agenda Item Number 4

Title:

Reports from Mayor and Councilmembers

Background:

This Council Reports item has traditionally appeared on Council's regular meeting agenda; however, Council expressed a desire, at its February Council Retreat, to move it to Council's Worksession meeting agendas to allow for better opportunity to report on activities of the committees/boards to which they have been assigned and to seek feedback and input on various committee/board initiatives and actions. During this portion of the meeting any Councilmember may offer a summary of the Councilmember's attendance at assigned board/committee meetings and should include key highlights and points that may require additional decision and discussion by the full Council at this or a future Worksession.

Board/Committee	Meeting Day/Time	Assignment
--Team of 2-- Board/Commission Interviews	Monthly as Needed	Council Rotation
Water & Sewer Board	3 rd Wed, 2:00 pm	Gates
Youth Commission Liaison	4 th Mon, 6:00 pm	Butler
Historic Preservation Loan Committee	As Needed	Zasada
Human Relations Commission	2 nd Mon, 4:00 pm	Zasada
Police Pension Board	Quarterly	Clark
Employee Health Board	As Needed	Fitzsimmons
Airport Authority	3 rd Thur, 3:30 pm	Payton/Clark
Visit Greeley	3 rd Wed, 7:30 am	Fitzsimmons
Upstate Colorado Economic Development	Last Wed, 7:00 am	Gates/Hall
Greeley Chamber of Commerce	4 th Mon, 11:30 am	Hall
Island Grove Advisory Board	1 st Thur, 3:30 pm	Butler
Weld Project Connect Committee (United Way)	As Needed	Hall
Downtown Development Authority	3 rd Thur, 7:30 am	Butler/Zasada
Transportation/Air Quality MPO	1 st Thur, 6:00 pm	Payton/Gates
Poudre River Trail	1 st Thur, 7:00 am	Hall
Interstate 25 Coalition	As Needed	Gates
Highway 85 Coalition	As Needed	Gates
Highway 34 Coalition	As Needed	Payton
CML Policy Committee (Council or Staff)	As Needed	Payton/Otto Gates alternate
CML Executive Board opportunity	As Needed	Hall
CML - Other opportunities	As Available/Desired	

Worksession Agenda Summary

December 8, 2020

Agenda Item Number 5

Roy Otto, City Manager, 970-350-9750

Title:

COVID-19 Update

Background:

There will be a brief update to Council regarding COVID-19.

Decision Options:

Informational only

Attachments:

None

Worksession Agenda Summary

December 8, 2020

Agenda Item Number 6

Dale Lyman, Fire Chief, 970-350-9511

Title:

Emergency Medical Services – Fire-Based EMS Transport

Background:

On September 22, 2020, City Council received a presentation of the recently completed Emergency Medical Systems (EMS) Transport Analysis and Assessment as produced by Emergency Service Consulting International (ESCI). At the time, City Council indicated it concurred with the staff recommendation to pursue Option 1B – maintain the current EMS response model with separate Banner Health Paramedics staffing. In addition, the City Council requested the following information:

- How is service being provided in other communities?
- Is there a difference in quality of service?
- What are the costs of Fire based EMS and how could it be funded?

During the December 8 Work Session, staff will review the information relative to these questions.

Decision Options:

Following the December 8 presentation, City Council feedback and/ or direction is sought on:

1. Does City Council have any further questions or requests for analysis or information?
2. Does City Council affirm that it concurs with Option 1B – to maintain the current EMS response model with separate third party vendor staffing?

Attachments:

PowerPoint

Fire Based Emergency Medical Services (EMS) Transport Financial & Implementation Overview

December 8, 2020

City Council Work Session

Dale Lyman, Fire Chief

Overview

- **September 22, 2020 Council Work Session**
 - **Council concurred with Option 1B recommendation:**
 - **maintain the current EMS response model with separate Banner Health Paramedics staffing**
 - **Based on recommendation to continue analysis, Council requested additional information:**
 - **How is service being provided in other communities?**
 - **Is there a difference in quality of service?**
 - **What are the costs of Fire based EMS and how could it be funded?**

How service is provided nationally

EMS Agency Organization Type	Sum
Fire-Department Based	6,388 (40%)
Governmental, Non-Fire Based	3,255 (21%)
Hospital-Based	901 (6%)
Private Non-Hospital-Based	3,910 (25%)
Tribal	84 (1%)
Emergency Medical Dispatch	339 (2%)
Other EMS Agency	978 (6%)
Total	15,865
**CA, IL and WA data unavailable	
Reference: National Highway Traffic Safety Administration – “The 2011 National EMS Assessment”	

How service is provided in Colorado

Fire Based			Special District
Westminster Fire	South Metro Fire:	West Metro Fire	Loveland Fire
Castle Rock Fire	Cherry Hill	Grand Junction Fire	Berthoud
Lafayette Fire	Littleton	Red, White & Blue Fire	Windsor (Larimer)
Mountain View Fire	Lone Tree	Steamboat Springs Fire	Route County
Frederick Firestone Fire	Parker	Durango Fire	Grand County
Thornton Fire	Castle Pines		Yuma
North Washington Fire	Bow Mar	Hospital Based	Limon
North Metro Fire	Centennial	Greeley Fire	Denver
Bennet Fire	Columbine	Brighton Fire	
Boulder Rural Fire	Foxfield	Evans Fire	Private
Adams County Fire	Greenwood Village	Platte Valley Fire	Boulder Fire (AMR)
Arvada Fire	Parker	Poudre Fire (Fort Collins)	Aurora Fire (Faulk)
Federal Heights	Highlands Ranch	Windsor/Severance	Colorado Springs (AMR)
Clifton Fire	Louviers	Front Range Fire	Pueblo Fire (AMR)
Glenwood Springs Fire	Denver Tech		Golden Fire (AMR)

Is there a difference in quality of service?

- **Based on the research completed, while there are pros and cons to each service model, neither service model provides a difference in the quality of service.**

Current Status of Greeley EMS Transport

- **Finalizing an Amendment to the current Ambulance Service Agreement with Banner Health**
 - **Current agreement expires November 2021**
 - **City will seek sustainable and longer term agreement**
- **January 10, 2020 – Operational change to the new Amendment**
 - **Implemented study recommendations**

What is cost of establishing City of Greeley as sole EMS transport provider?

	Year 1	Year 2	Year 3	Year 4	Year 5
NON- TAX REVENUE					
Fee Revenue	0	1,047,405	1,618,555	2,223,246	2,862,430
GEMT					
Total Non-Tax Revenues	0	1,047,405	1,618,555	2,223,246	2,862,430
EXPENSES					
Salary / Benefits	330,373	1,888,091	2,729,447	3,945,738	4,116,278
Operating Expenses	487,770	757,964	838,047	597,699	656,155
Infrastructure	285,500	5,000	5,000	5,000	23,000
Capital Equipment	458,562	545,087	680,006	683,242	684,442
Total Expenses	1,562,205	3,196,141	4,252,500	5,231,679	5,479,875
Net Gain / Loss	1,562,205	2,148,737	2,633,946	3,008,432	2,617,446
New Sales Tax Revenue*	2,803,208	2,934,636	3,029,922	3,121,668	3,220,014
Balance	1,241,003	785,899	395,977	113,235	602,569

Assumptions:

- 5 year estimated cost = \$13,162,108
- * .13 sales tax funding source
- Full staff of 34 FTE over 5 years
- Ambulance fleet of 5 operating over 5 years



How might a Fire Based EMS transport provider be funded?

- **New Revenue Stream would need to be identified:**
 1. **Propose a sales tax initiative for voter approval**
 - **.12% tax increase on all items (including food) would generate approximately \$13,163,211 over 5 years; or**
 - **.13% tax increase (excluding food) would generate approximately \$15,109,448 over 5 years.**
 - **Sales tax revenue fluctuates with economic cycles and activity.**
 2. **Other new funding stream options would require further analysis**

Increase Sales Tax Funding Considerations

- **Sales tax revenue fluctuates with economic cycles and activity.**
- **Proposed sales tax would NOT have sunset provision**
- **Conduct polling regarding voter support**
- **Establish timeline for ballot placement**
 - **November 2021 ballot (set in late August 2021)**
 - **Municipal Election**
 - **Keep Greeley Moving Tax Renewal**
 - **November 2022 ballot (set in late August 2022)**
 - **US Senate Election**
 - **US Congressional Election**
 - **Governor Election**
 - **Statewide Election (State Senators and Representatives)**

Conclusion

- **This concludes the further analysis recommended by the Study and requested by the City Council**
- **Does City Council have any further questions or requests?**
- **Does City Council reaffirm that it concurs with Option 1B – maintain the current EMS response model with separate Banner Health Paramedics staffing?**

Worksession Agenda Summary

December 8, 2020

Agenda Item Number 7

Brad Mueller, Community Development Director, 970-350-9786

Mike Garrott, Planning Manager, 970-350-9784

Marian Duran, Long Range Planner, 350-9824

Title:

Landscape Code Update

Background:

The Community Development Department is updating the Landscape Code, Title 18.44, with an anticipated adoption date in January. The last rewrite of the landscaping code was in 2009 (Ordinance No. 2009-20), which added language that supports water-wise landscaping methods and objectives. In 2015, Ordinance No. 2015-40 adopted a "*Landscape Policy Plan for Water Efficiency*." This cooperative planning project, which involved the City Manager's Office, the Water and Sewer Department, CPRD (Culture, Parks, and Recreation Department), and Community Development, developed policy that balanced the history of water acquisition and lifestyle values of the City of Greeley while also defining water efficiency goals. This Plan is a sub-element of the "*Imagine Greeley: Comprehensive Plan*," and it promotes incentives, information, and training programs related to conservation through landscaping.

In the last five years, Greeley has experienced exponential growth and development that still often results in over-watering. During this time, the City has introduced new programs such as the Water Efficiency Audits, Water Restrictions, and Water Budgets to reflect how the community uses water. The Water and Sewer Department is also running a pilot program that encourages developers to implement a water-wise subdivision design.

To support these efforts and the goals of the 2015 Policy Plan, updated code is being proposed for Council's consideration. The revised Landscape Code includes modernized water conservation language that influences and encourages planting practices to reduce each property's overall water consumption. The update seeks to achieve City Council's 2040 Vision and 3-Year Priorities, "*Imagine Greeley: Comprehensive Plan*" goals, and to improve code enforcement action.

The Landscape Code Update has been developed in-house, taking into account internal/external stakeholder comments and comments from a 15-person citizen advisory Landscape Code Update Committee. The Landscape Code Update

Committee consists of landscape design professionals, including those working for developers and those active in construction and maintenance. The Committee met four times since August 28th, and representatives provided input on what existing code elements work well, and on areas where new regulations would assist in achieving water efficiency goals and improve the development process.

Staff also conducted an online public survey in English and Spanish, and hosted a virtual public webinar on November 5th. The meeting provided information regarding the importance of water conservation and limited water supplies, Greeley's landscape tradition, and why it is essential to continuously review the Landscape Code in order to support City water efficiency goals. There have been 85 survey responses to date. Common themes are that the public cares about water conservation and is supportive of water-efficient landscaping.

Planning Commission conducted a worksession on November 10 to review the draft Landscape Code Update. There were no questions or comments at the worksession, but there was an email correspondence from Commissioner Larry Modlin, sharing his concerns of overwatering in parkways (area between the curb and the sidewalk) and that he would rather see water-wise plants and materials, using a drip system.

Review:

The primary goals of the Landscape Code Update are following:

1. Implement City Council's Vision for 2040, and the corresponding 3-Year Priorities, including:
 - a. Greeley Water: History, Heritage, Innovation
 - b. A Dynamic and Resilient Economy
 - c. Your Home is Here
 - d. We Are Greeley Proud
 - e. Operational Excellence
2. Implement the Comprehensive Plan (*Imagine Greeley*) (2018)
3. Support the *Landscape Policy Plan for Water Efficiency* (2015)
4. Include user-friendly language that clarifies processes and standards, and minimizes the potential for confusion
5. Revise infill development standards to encourage adaptive reuse of existing buildings and minimize requirements for minor site improvements
6. Simplify landscape provisions for residential properties by requiring improvements only in areas that are visible from public rights-of-way
7. Encourage holistic design alternatives, reduce the amount of landscape material in buffers, and allow for creative solutions by providing options for landscape enhancements (including hardscape, walls, and berms)

Next Steps:

The table below outlines tentative dates for future hearings.

Project Timeline:

Worksession	Topic
December 8, 2020	City Council (CC) Worksession
December 15, 2020	Planning Commission Hearing
January 5, 2020	CC Hearing – 1 st Reading
January 19, 2020	CC Hearing – Final Reading

Decision Options:

No decisions are required at this time. This is an opportunity, however, for Council to comment, confirm and/or modify the goals of the update, and any provisions related to the update that are found in the draft code language.

Attachments:

Attachment A - Target Comprehensive Plan Objectives

Attachment B – PowerPoint Presentation

Attachment C – Landscape Policy Plan for Water Efficiency (2015)

Attachment D -- Landscape Code Update Draft

Imagine Greeley Comprehensive Plan: Target Objectives for Landscape Code Update

1. Objective GC-3.4 Tree City - Reinforce the community's image as a "Tree City" by promoting the establishment and maintenance of tree-lined travel corridors throughout the community, taking into consideration water use, conservation strategies, and the natural environment.
2. Objective NR-1.3 Water Conservation - Promote the most efficient use of water through conservation and related practices.
3. Objective NR-2.4 Light Pollution - Minimize light trespass from developed areas and reduce sky glow to maintain night sky visibility.
4. Objective NR-2.5 Urban Heat Island Effect - Promote the use of sustainable development practices that have been demonstrated to mitigate the urban heat island effect.
5. Objective NR-3.7 Urban Forest Protect - Maintain, and expand the urban forest within and around the city.
6. Objective NR-3.8 Native Habitats Where Possible - Work to restore native prairie/grassland habitats on open lands or other natural areas.
7. Objective NR-3.9 Wildlife Habitat - Protect, maintain, and manage wildlife habitat in both natural and urban settings.
8. Objective NR-4.3 Landscaping and Plant Species - Promote the use of landscaping with species appropriate to the local climate conditions.
9. Objective NR-5.1 Education - Promote education of the public about issues of local and regional environmental concern.
10. Objective NR-5.2 Recognition - Recognize and celebrate environmental stewardship in all aspects of community life.
11. Objective PR-1.8 Streetscapes and Greenways - Design streetscapes, linear parks, greenways, and other green spaces within the city as integral elements of the park system.
12. Objective PR-2.1 Water Conservation - Ensure that new parks support best practices in water conservation and irrigation efficiency including reducing irrigated bluegrass areas unless needed for a specific activity. Integrate such strategies into existing park facilities as opportunities arise.
13. Objective PR-2.2 Planting and Landscaping - Incorporate native vegetation, natural grasslands, and low water-use plants and landscaping approaches into the design of parks, trails, and recreational facilities.
14. Objective PR-2.3 Maintenance Practices - Maintain vegetation through the application of "best management practices" including mechanical, chemical, biologic, grazing, and fire among others.

15. Objective PS-3.1 Urban Design - Enhance public safety through the use of public improvements, urban design, street furniture, lighting, and other features of the built environment.
16. Objective PS-3.2 Code Enforcement - Address behaviors that disregard public safety of others or property. When necessary, take actions to minimize more serious conditions as needed to address threats that impede community and individual safety.
17. Objective TM-1.2 Pedestrian Movements - Ensure pedestrian movement and accessibility is considered in the design and construction of all public and private development projects. Ample and safe sidewalks and other pedestrian pathways within and between developments should be provided.
18. Objective TM-1.3 Streetscape Design - Develop attractive, safe, accessible, and efficient public rights-of-way, including roadways and sidewalks. The design of such rights-of-way should vary depending on the modes accommodated, the surrounding land uses, and the character of the area or neighborhood through which it passes.
19. Objective TM-2.1 Complete Streets Plan - Program rights-of-way that fully integrate the needs of bicyclists, pedestrians, transit users, commercial vehicles and trucks, emergency service vehicles, and passenger vehicles.
20. Objective TM-2.4 Residents with Disabilities - Ensure the transportation system effectively serves people with disabilities.

Landscape Code Update

Supporting Water Conservation Efforts while Honoring
Greeley's Landscaping & Tree Planting Traditions

Greeley City Council Worksession: December 8, 2020

Brad Mueller, Director
Community Development Department

Importance of Agriculture



Early agricultural crops being delivered to Greeley.
Photo Credits: City of Greeley History Museum

- **Agriculture has been an important part of Greeley's economy.**
- **Weld County is ranked 9th in agricultural production value in the U.S. at \$ 1.9 billion dollars.**
- **Production is based on converting forage from irrigated cropland.**

Historical Perspective



Lincoln Park in 1870, an early example of landscape irrigation in Greeley.

Photo Credits: City of Greeley Museum.

- 1870, irrigation diverted along streets for trees
- Plantings were unsuccessful due to climate, people persisted
- People see something similar from the Midwest, New York area
- Bellvue Water Treatment Plan in 1907
- Vegetation provided both shade and evaporative cooling
- Reduce heat loss from buildings during winter

Ecological Benefits

- **Air Quality and Health**
- **Flood Control**
- **Erosion Control**
- **Habitat**
- **Soil Fertility**
- **Property Value**
- **Tree City USA**



Trees, especially large trees, trap fine particulates, improving air quality and public health.

Photo Credit: Landscape Policy Plan for Water Efficiency



Trends, Data Source: West Sage Water Consultants, 2014

Regional Growth

- Within the South Platte and Denver Metro watersheds, population projections:
 - 3,490,000 in 2008 to 6,599,000 in 2050
- Colorado's annual demand will grow by an additional 110,000 acre-feet.
- Less than 50% of the necessary water resources caused by growth.

What is Greeley doing now?

- 1. Community Development Department – Administers the existing Landscape Code and enforces Code standards**
- 2. Culture, Parks and Recreation - Design, construction, and maintenance of Greeley's parks and urban forestry**
- 3. Public Works – Street construction and landscape enhancements, stormwater and erosion control**
- 4. Water and Sewer – Implemented a Water Budget Program, Water Conservation Plan, and Water Master Plan to address water demand**

CITY OF GREELEY, COLORADO

ORDINANCE NO. 20, 2009

**AN ORDINANCE REPEALING AND REENACTING CHAPTER 18.44,
LANDSCAPING AND BUFFERING STANDARDS, OF THE GREELEY
MUNICIPAL CODE**

WHEREAS, it becomes necessary to update the Greeley Municipal Code from time to time to address changes in values and policies and to correct inconsistencies; and

WHEREAS, water conservation and efficiency have become increasingly important over the past decade; and

WHEREAS, several sections of Chapter 18.44 have been identified as having vague or ambiguous language that requires clarification; and

WHEREAS, in order to address water conservation and efficiency, and to clarify and update certain sections of the landscape code, portions of Chapter 18.44 have been modified and/or reordered; and

WHEREAS, it is desirable to repeal and reenact Chapter 18.44 to make such changes and corrections that have been widely accepted and supported by various City departments.

NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF GREELEY,
COLORADO:

Section 1. Greeley Municipal Code Chapter 18.44 (Landscaping and Buffering Standards) is hereby repealed and reenacted as described in Exhibit A, attached hereto.

Section 2. This ordinance shall become effective five (5) days after its final publication as provided by the Greeley City Charter.



ADOPTED, SIGNED AND APPROVED, THIS 21st DAY OF _____, 2009.

2009 Landscape Code Update

- **Changed method of measuring live vs. non-living**
- **Minimum 50% live material in any required yard (front, side, back) [vs. previous 75%]**
- **Parkway standards**
- **Perpetual maintenance**
- **Added water conservation components (rain sensors)**
- **Increased buffer yard width for most intensive types (D and E types)**
- **Give clear options for developers – transfer to builder or homeowner (covenants)**

2015 Landscape Policy Plan

CITY OF GREELEY, COLORADO

ORDINANCE NO. 40, 2015

AN ORDINANCE ADOPTING THE LANDSCAPE POLICY PLAN FOR WATER EFFICIENCY

WHEREAS, Article XIX, Section 19-1 C of the Greeley City Charter indicates that the City Council shall adopt a Comprehensive Plan as a guide to land use and development; and,

WHEREAS, water use, landscaping as an element of the built environment, and efficient water use are prominent themes throughout the adopted 2060 Comprehensive Plan, having many Goals and Policies devoted to the subjects, most particularly in the Chapters devoted to Environment, Growth, and Land Use; and,

WHEREAS, it is a common practice to have sub-elements of the Comprehensive Plan that provide more detailed policies that apply to a specific topic, such as Transportation or Parks, Trails, and Open Lands; and,

WHEREAS, the City desires to further promote those goals pertaining to the efficient use of water, particularly in the areas of landscaping, which encompasses the complex interplay of

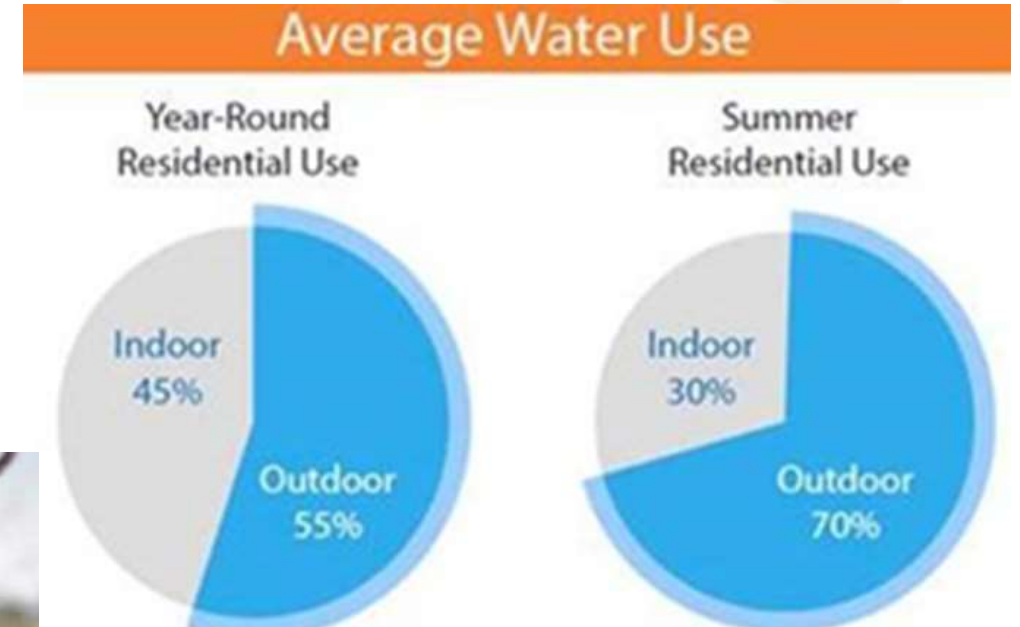
- **Balanced preservation of lifestyles**
- **Honors the natural environment**
- **Provides best management practices**
- **Timely information of water needs**
- **Education and reform**

Landscape Policy Plan for Water Efficiency, Ordinance No. 40, 2015

Average Water Use



Typical Yard & Blue Gamma



Limited Water



Across from Highpoint Industrial Park,
Photos Credits: Community Development Department

- Greeley is located in an area with a semi-arid climate.
- Potential loss of soil moisture to the atmosphere is greater than the amount of precipitation that falls each year.
- The result is a short-grass steppe where few plants commonly used in landscapes can grow without irrigation.



Example of Greeley Water-Efficient Design



Example of Greeley Water-Efficient Design





Smarter Irrigation

- **Installation and maintenance based on a good landscape design**
- **Water budgets**
- **Irrigation audits**
- **Pressure reducing valves**
- **Quality products**
- **Rain sensors**

- **Landscape Code Update – 2021**
 1. City Council's Priorities and Objectives
 2. Comprehensive Plan (Imagine Greeley) (Water Conservation)
 3. Landscape Policy for Water Efficiency (Ordinance NO. 40, 2015)
 4. Provide a user-friendly language
 5. Revise infill development standards
 6. Simplify landscape provisions for residential properties
 7. Encourage holistic design alternatives, reduce the amount of landscape material and water to be used for landscaping
- **Landscape & Irrigation Manual – TBD future project (W&S)**
 1. Requirements for irrigation system design
 2. Irrigation installation guidelines
 3. Performance audits
 4. Water-efficient planting guide
 5. Best management practices

Public Outreach

- **Advisory Committee met 4 times**
 - Citizens, staff, and landscape industry professionals
 - Discussions started August 28, 2020
 - Worksheet/review of Landscape Code Update drafts
- **Public Survey/Public Meeting**
 - Comments incorporated
 - 85 responses

Current

- **Purpose and Intent**

- Has eight sections
- Promote compatibility
- Promote tree-lined streets, Tree City USA
- Reduce heat island effect from inadequate landscaping

- **Single-family and two-family lots**

- 50% of ALL yards (front, side, back) must be landscaped
- 50% of parkway/tree lawn must be live plantings

Revision

- **Purpose and Intent**

- Five topical sections
- Land use compatibility & water efficiency
- Uphold agriculture and Tree City USA tradition
- Promote energy and ecological benefits at the regional, community, and lot level

- **Single-family and two-family lots**

- Only front yards/any yard visible from adjacent rights-of-way must have 50% live plantings
- Properties still may not have weeds or bare dirt as an acceptable ground cover
- Clarified that trees in parkways are required every 35 feet

Current

- **Buffer Yards** (applies to SF non-residential only)

- Buffering required along entire length of adjoining lot lines
- Requires buffers for both differing uses and zoning districts
- Three tables:
 1. Land Use Intensity
 2. Required Buffer Yards
 3. Buffer Yard Types
- There are 7 buffer types, each one increasing in width and number plantings
- Options to reduce the material if the width increases, but only as the width gets wider
- Options to reduce the material if a berm, wall, or fence is installed

Revision

- **Buffer Yards (non-residential)**

- Does not require buffering along the entire length of adjoining lot, but only where the most intense and differing land-uses exist
- Requires buffer against differing uses, not differing zoning districts. Like-for-like uses would not be required to have buffering.
- Reduces the amount of tables to two:
 1. Land use intensity table
 2. Minimum buffer yard material and width
- Reduces the number of buffer yards to 4, and reduces width from 50 to 20 feet (60% reduction)
- Increases options, such as hardscape designs in infill areas
- Requires a 60/40 mix of non-deciduous to deciduous materials, respectively (creates year-round screening)

Current

- **Perimeter Treatment**

- Applies at the subdivision and major development scale
- Requires that a number of plantings be installed based on the classification of streets
- Maintained in perpetuity by an owner's association

- **Parking Lot Standards**

- Parking lots must be screened from the view of adjacent properties and adjacent rights-of-way
- Unclear when medians are required, but standards apply (i.e., shall contain 1 shade tree for every three 3 parking space)

Revision

- **Perimeter Treatment**

- Still applies to all major development (e.g., preliminary subdivision, USR, or PUD)
- Classification of streets remains, but plantings are reduced
- Maintained in perpetuity by an owners' association, metro district, property owner, or tenant
- Exempts parking lot areas, when parking lot screening is already required

- **Parking Lot Standards**

- Screening area reduced to 8 feet wide, perimeter treatment not required
- Medians are required for parking lots with more than 100 parking spaces, and requires a minimum of 2 parking bays

Current

- **Water Conservation & Irrigation**

- Sprinklers shall be placed so as not to throw water onto adjacent paved or hardscaped surfaces
- All multi-family, commercial, industrial, mixed-use, and institutional properties must install rain sensors
- Green Industry Best Management Practices

Revision

- **Water Conservation & Irrigation**

- Best management practices can change somewhat frequently. As such, these are removed from the Code, and will instead be included in a separate landscape & irrigation policy manual, developed primarily by Water & Sewer Dept.
- Examples include: rain sensors, automatic irrigation, subsurface and drip irrigation, irrigation audits, and temporary irrigation allowances.
- Other aspects will be successful through education and incentives (not Code). Examples include: using hydrozones when designing irrigation, promoting xeric landscaping and native grass in lieu of traditional turf-grass, bioretention facilities

Summary

- **Landscape code updates are part of a continuous improvement initiative**
- **Water efficiency continues to drive updates, and will continue to change with new tools and technology**
- **Greeley has a proud history of water acquisition and stewardship**
- **Always a balance of aesthetics, personal choice, environmental benefits, and water resources**





LANDSCAPE POLICY PLAN FOR WATER EFFICIENCY

A cooperative planning project
City Manager's Office, Water and Sewer Department,
Culture, Parks, and Recreation Department,
Community Development Department



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EXECUTIVE SUMMARY

The City of Greeley landscape code has evolved over many years. The purpose of this document is to provide policy direction that strikes the balance between preservation of the lifestyle values of the City of Greeley, and honoring the natural environment by adopting a landscape code that is appropriate for our region.

According to the draft Colorado Water Plan, municipalities use 7% of the state's water, approximately half of which is used for outdoor irrigation. During the public participation process for the development of this policy, the two main reasons given for not installing low water landscapes were high cost and lack of knowledge. Information and education initiatives include

- the development of an extensive plant database;
- developing model landscape designs based on hydro zones (zones of high, moderate, low water and very low water use plants as described in the plant database),

- providing information and examples as demonstrated in City projects of low water use landscapes,
- providing information on best management practices and best technologies,
- providing timely information on irrigation water need, and
- supporting or providing training for professionals and trades people in how to implement best management practices.

Policy direction can range from education and reform to incentives and code changes. This document opens discussion of all of these approaches. We do not know what the impact of these measures will be on water demand. Our purpose is to collect related data over the next several years to analyze its effect.

CITY OF GREELEY, COLORADO

ORDINANCE NO. 40, 2015

AN ORDINANCE ADOPTING THE
LANDSCAPE POLICY PLAN FOR WATER EFFICIENCY

WHEREAS, Article XIX, Section 19-1 C of the Greeley City Charter indicates that the City Council shall adopt a Comprehensive Plan as a guide to land use and development; and,

WHEREAS, water use, landscaping as an element of the built environment, and efficient water use are prominent themes throughout the adopted 2060 Comprehensive Plan, having many Goals and Policies devoted to the subjects, most particularly in the Chapters devoted to Environment, Growth, and Land Use; and,

WHEREAS, it is a common practice to have sub-elements of the Comprehensive Plan that provide more detailed policies that apply to a specific topic, such as Transportation or Parks, Trails, and Open Lands; and,

WHEREAS, the City desires to further promote those goals pertaining to the efficient use of water, particularly in the areas of landscaping, which encompasses the complex interplay of landscape design, irrigation system design, installation, and sustained maintenance; and,

WHEREAS, water demand for landscaping on a single property can represent 50% or more of the water use for that property, and water is naturally limited in the natural semi-arid climate of Colorado, and projected regional growth portends a future limit on the availability of water regionally; and

WHEREAS, Greeley has a long tradition of beneficial use of water coupled with early conservation policies going back to the early 1900's, resulting in a balanced built environment that provides both the ecological benefits of landscaping such as shade, which mitigates "heat island" effects and allows for reduced water on groundcover, and the benefits of water use consistent with a City that is at the heart of an agricultural economy and county that is currently the largest agriculturally productive one in the country, outside of California; and,

WHEREAS, proposed and contemplated policies were presented and commented on by members of the public, professionals in associated industries, stakeholders, and City Boards and Commissions; and,

WHEREAS, the proposed "Landscape Policy Plan for Water Efficiency" provides a foundation and more detailed set of Goals and Policies for the City of Greeley as it seeks to further advance efforts in the areas of education, regulation, and incentives, while maintaining Greeley's existing quality landscapes and urban forest, and ensuring that the City "lead by example," and;

WHEREAS, the proposed "Landscaping Policy Plan for Water Efficiency" also contemplates many potential action items that would implement such Goals and Policies, and provide for on-going and continued investigation by the City as to how to further achieve the vision to "maintain or enhance Greeley's quality landscaping in both private and public areas, while improving landscape irrigation water efficiency."

NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF GREELEY,
COLORADO:

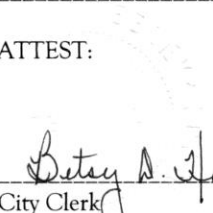
Section 1. The Landscape Policy Plan for Water Efficiency, as set forth in "Exhibit A," which is attached hereto and incorporated by this reference, is hereby adopted.

Section 2. This ordinance shall become effective five (5) days after its final publication as provided by the Greeley City Charter.

PASSED AND ADOPTED, SIGNED AND APPROVED, THIS 15th DAY OF
December, 2015.

ATTEST:

THE CITY OF GREELEY


Betsy D. Holder
City Clerk

Thomas E. Nolan
Mayor

INTRODUCTION

This policy is intended to implement recommendations of the Greeley 2060 Comprehensive Plan adopted in 2009, the Water Master Plan adopted in 2003, the Water Conservation Plan adopted in 2010, and the updated Water Conservation Plan recently submitted for approval to CWCB. It is intended to guide development of incentives, information, training programs and amendments to the City Code as they relate to conservation through landscaping.

This Landscape Policy for Water Conservation is intended to be a sub-element of the Greeley 2060 Comprehensive Plan. As described in state statutes, a community master plan “shall be made with the general purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the municipality and its environs which will, in accordance with present and future needs, best promote health, safety, morals, order, convenience, prosperity, and general welfare, as well as efficiency and economy in the process of development, including among other things, adequate provision for light and air, the promotion of healthful and convenient distribution of population, the promotion of good civic design and arrangement, wise conservation, and the adequate provision of public utilities and other public requirements “ (CRS 1973 31-23-207, revised 1977).

This Plan was developed with staff from the City Manager’s Office, the Water and Sewer Department, the Culture, Parks, and Recreation Department, and the Community Development Department. During the development of the initial draft of this policy, 15 meetings with identified groups (stakeholders) including four open houses with interested members of the public were held. The 237 people who attended submitted 90 written comments, which were carefully evaluated and considered. (See appendix B, Input Received.)

Landscape has economic, environmental and health benefits, so our goal is to encourage residents to maintain their landscape, rather than let it die.

There is a long window of opportunity to start changing the perception of what the landscape in Greeley could look like. This Plan describes a series of actions designed to create an incremental impact on irrigation water conservation and allow sufficient time to analyze those impacts. As with the impact of interior water conservation measures, results may be relatively small in a given year, but cumulatively over a period of years they can lead to an increase in water use efficiency. Similarly, a reduction of demand for irrigation water in newly developed areas may seem

insignificant for the first few years but, over time, can become meaningful.

Approximately half of Colorado's treated water is used for landscape irrigation. Conservation offers an opportunity to lessen the use of this valuable water resource by choosing plants and trees appropriate for our region. The challenge is to conserve this water without damaging Greeley's landscape tradition, aesthetics and economy. Meeting this challenge is the purpose of this Landscape Policy Plan for Water Conservation.

Purpose and Need

The City has a long history of water conservation and has recognized the need for a policy to reduce the demand for water to irrigate landscapes through at least three adopted plans: the Greeley 2060 Comprehensive Plan the Water Master Plan, and the Water Conservation Plan.

Limited Water in Colorado's semiarid climate

The City of Greeley is located in an area with a semi-arid climate where the potential loss of soil moisture to the atmosphere is greater than the amount of precipitation that falls each year. The result is a short-grass steppe where few plants commonly used in landscapes can grow without irrigation.

Importance of agriculture to Greeley

Since Greeley's founding, agriculture has been an important part of its economy. Weld County is ninth in agricultural production value in the U. S. at \$1.9 billion dollars. It is the most agriculturally productive county outside of California (Bureau of the Census). Most of this production is based on converting forage from irrigated cropland to animal protein and processing it.



Figure 1. Early agricultural crops being delivered to Greeley. City of Greeley History Museum

Regional growth and projected water limits

Within the South Platte and Denver Metro watersheds, the population is expected to grow from 3,490,000 in 2008 to 5,244,000 in 2035, and from 5,826,000 to 6,599,000 in 2050 respectively (West Sage Water Consultants, 2014). As a result of this population and related economic growth, Colorado's annual water demand will grow by an additional 110,000 acre-feet. Within the South Platte and Denver Metro watersheds, there is only 46,000 acre-feet available for development. At a 70% success rate for identified projects and programs, there will still be a shortfall of 64,000 acre-feet. In fact, in the South Platte and Denver Metro District basins, it is estimated that there is less than 50% of the necessary water resources to meet projected demand caused by growth between now and 2050 (West Sage Water Consultants, 2014).

Throughout the western United States, the development of new water resource diversion and storage projects has become more challenging. As a result, environmental laws and regulations have made the development of new water supplies more difficult.

Greeley's landscape tradition

Historical perspective

During the 1870s, irrigation water was diverted along the streets of Greeley so trees could be planted. While many of these initial plantings were unsuccessful, the people persisted and established a thriving urban forest in spite of an adverse climate. When Greeley completed the construction of the first Bellvue Water Treatment Plant in 1907 at the mouth of the Poudre Canyon, capacity was provided to continue to irrigate high quality landscapes of trees, shrubs, perennials, and grasses. In addition, Greeley developed an extensive park system with high quality landscaping of grass, trees, shrubs, and flowers. This vegetation provided both shade and evaporative cooling, offering improved comfort during hot, dry summers. It also reduced the impacts of high winds during winters, reducing heat losses from buildings and saving valuable heating fuel.



Figure 2. The native landscape of Greeley is a short grass steppe. Photo by John Barnett



Figure 3. Lincoln Park in 1870; an early example of landscape irrigation in Greeley. City of Greeley Museum.

Ecological services provided by landscaping

Trees and landscaping provide valuable ecological services, including energy conservation, air quality and health, flood control, erosion control, soil fertility, wildlife habitat, and increased property values. The alternatives to these services include more insulation in buildings, more air conditioning of buildings, more suffering from heat waves, and a lower quality of life in a less attractive community.

Energy Conservation. Effective landscaping can reduce summer cooling bills by 50% or more and winter heating bills by up to 25%. Reduction of winter heat loss is caused by the reduction of wind velocities near the building. This, in turn, reduces the pressure difference between the inside and outside of the building, leading to a reduction of heat loss by as much as 50% on cold windy days. The reduction in summer cooling demand is caused by shading of the building, leading to a reduction in solar radiation reaching windows and walls. Through the use of deciduous trees on the south sides of buildings, solar radiation can still reach buildings during the winter, warming them when the leaves are gone, and buildings can be shaded in the summer, reducing heat gain by solar radiation. (Walker, 2009)



Figure 4. Trees can reduce the temperature of urban areas by 10° F on hot summer days with shade and evapotranspiration.

Air Quality and Health. Trees—especially large mature trees with large leaf areas—improve air quality by trapping fine particulates, especially very fine particulates of less than 2.5 microns (PM_{2.5}) that, even in low concentrations, contribute significantly to public health risks such as premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing (U. S. EPA , 2014). Large trees reduce fine particulate concentration by altering temperatures, emitting volatile organics, altering energy use by shading buildings, slowing wind speeds, and cooling air temperatures. The interior of large patches of tree canopy have lower concentrations of fine particulate than

the edges of the patch or single, isolated trees. Removal of fine particulates by trees contributes significant public health benefits, including reducing premature death, pulmonary inflammation, accelerated atherosclerosis, and altered cardiac fluctuation (Nowak, 2013). Plants also absorb carbon-dioxide and release oxygen. Grass and shrubs improve air quality by covering the soil and reducing wind erosion that would occur with bare soil. When windblown dust settles momentarily on plant covered areas, it is frequently trapped out of range of the wind that delivered it and thus is not retransmitted into the atmosphere.

Green plants also remove carbon dioxide from the atmosphere and use the sun's energy to combine it with water to make carbohydrate and release oxygen. Research has demonstrated a clear positive relationship between the quality of landscaping and mental health (Starkey, 1978). Perhaps one of the reasons for this relationship is the beauty of high quality landscapes.



Figure 5. Trees especially large trees trap fine particulate improving air quality and public health.

Flood Control. Plants also reduce flood peaks in several important ways. By intercepting rainfall, they reduce overall precipitation from individual storms by approximately 1/10 inch. When rainfall does reach the ground, it takes longer and falls at a slower speed when compared to hitting the soil directly. In addition, plant litter roughens the soil. As animals eat the plant litter and burrow into the soil, they improve infiltration.

Erosion Control. Landscaping reduces both wind and water erosion. The typical vertical structure of plants with leaves and stems increases roughness thus slowing the velocity of wind and water near the ground. In addition, plant cover reduced the impact velocity of rain splash thus reducing sheet erosion.

Habitat. Trees and landscaping provide valuable habitat for urban wildlife and birds including migratory birds.

Soil Fertility. Landscaping, and especially trees, improve soil fertility by extracting carbon from the atmosphere and transferring it to the soils creating topsoil, cycling nutrients, opening root holes, loosening soil, increasing infiltration rates, and pulling nutrients trapped deep in the soil profile to the rooting zone.

Property Value. Ecosystem services are not the only value of trees and landscaping. People also value landscaping and trees because they are beautiful. The urban forest and quality landscaping are an integral part of the Greeley community, parks, and neighborhoods not just because of the ecosystem services. Trees frame views, create attractive streetscapes, and create attractive entryways to the City.

Most properties in Greeley have a significant investment in irrigated landscapes. Attractive landscapes are so essential that many people spend a significant amount to landscape their properties. Attractive landscaping adds to property values. Many property owners will not make significant changes in how they irrigate their landscapes after they complete installation.



Figure 5. The achievement of the Tree City USA designation in 1980 was an important accomplishment for the City of Greeley. Keeping that designation remains an important policy goal.

Greeley's commitment to quality landscaping continues. Greeley was designated a "Tree City USA" by the Arbor Day foundation in 1980, and the 2060 Comprehensive Plan includes a policy to maintain this designation. The University of Northern Colorado achieved the designation of "Tree Campus USA" in 2013.

What is Greeley doing now?

Four City departments are currently involved in activities that affect the conservation of water in landscapes: Community Development; Culture, Recreation and Parks; Public Works; and Water and Sewer.

Community Development

The Community Development Department administers the existing landscape code and approves landscape plans through the development review process. The current Landscape Code requires a minimum of 50% coverage of the uncovered surface of a lot with approved plantings. A table in the Code prescribes bonuses for certain plants that provide layered covering of the ground. Since much of the effect of trees is above ground level, they receive less credit than their large size might seem to warrant. The Current Planning Division reviews landscape plans included in development review submittals for conformance with the landscape code and buffering requirements. In addition, the Current Planning Division assists the Code Compliance staff with reviewing designs submitted to address landscape code violations. Code Compliance staff receives complaints or observes a violations related to insufficient or non-compliant landscaping and then undertakes processes for enforcement.

Culture, Parks, and Recreation

The Parks and Forestry Divisions have a significant role in landscape management and irrigation, based on upon customer services and demand.



Figure 6 & 7. Homestead Park (left) and JB Jones Park have been designed to use water efficiently.
Photos by John Barnett

The Parks Division is responsible for the design, construction, and maintenance of Greeley's parks. How these parks are designed and landscaped drives their irrigation demand. To date,

four parks have been converted to low water use landscapes: Ramsier, Homestead, JB Jones and Greeley West. The design for Homestead received a 2014 award from the Colorado Parks and Recreation Association for New Park Design.

The Forestry Division is responsible for the urban forest. By City Code, the care and removal of street trees are the responsibility of the adjacent property owners. Different species require different amounts of irrigation. Careful selection of species can make a difference in the irrigation requirements of a landscape.

Public Works

The Public Works Department is responsible for street construction and maintenance, as well as snow removal, ditch maintenance, and water detention areas. Many of the streets being reconstructed include significant landscape components. Street reconstruction and corridor landscape enhancements also are generally the responsibility of Public Works. For the last few years, these projects have been designed following the principles of low water landscaping.

The Facilities Division is responsible for the design, construction, and maintenance of City-owned buildings and facilities except those owned and operated through the City's Water and Sewer Department. Many facilities have landscaping components.

The Stormwater Management Division is responsible for maintenance of stormwater detention facilities dedicated to the public. The landscaping in these detention areas can range from bluegrass lawns to dryland grasses.

Water and Sewer

Greeley's commitment to quality landscaping has continued over the years through Water and Sewer Department policies and practices. Water conservation is one of the four initiatives in Greeley's Water Master Plan. Greeley's water conservation program is designed to address all areas of water demand across the City.

The City has included conservation in overall supply planning for more than 20 years, developing its first water conservation plan in 1992. In 1997, Greeley hired a full-time conservation coordinator, who has managed the City's water efficiency efforts since then. While overall water demand has grown with added population, from 1993 to 2014, Greeley's per capita water use has declined primarily because of metering and more efficient indoor water fixtures and appliances.

Greeley's Conservation Program. Greeley's water conservation began in 1907 with permanent watering restrictions that remain in place today. Our program has grown since 1997 to

encompass all customer sectors in the City. In 2007, the City’s conservation program budget was increased, making it one of the five largest programs in Colorado. The conservation program addresses both indoor and outdoor water use through education, ordinances, direct outreach, rebates, and information. The Greeley conservation program implements an extensive social media campaign that includes advertisements on radio, in print, on buses, and cable TV. Consequently, the Greeley program has become one of the most visible and well-publicized conservation efforts in Northern Colorado.

Irrigation Efficiency Rebates and Grants. The City of Greeley provides free irrigation audits, as well as grants and rebates for replacing turf with xeric plantings. The irrigation auditing program has been gradually modified each year since 2001 to meet the changing needs of customers. Greeley offers grants to schools, businesses or homeowners’ associations (HOAs) to replace turf with xeric plantings.

Implementation of recommendations in adopted plans and policies

This policy is intended to implement recommendations in the 2060 Comprehensive Plan, the 2003 Water Master Plan and the 2014 Water Conservation Plan calling for the reduction of landscape water demand. These documents provide a context for this Plan and its goals, policies, and recommended actions.

2060 Comprehensive Plan

The 2060 Comprehensive Plan (City of Greeley, 2009) provides a policy framework for the City’s land and growth related codes. The 2060 Comprehensive Plan, adopted by the City Council on April 9, 2009, includes the following Objective and recommended actions:

Objective EN2.A Water Resources

- A Protect, conserve, maintain, and improve the quality and quantity of water available to Greeley residents and commerce.
 - 4. Promote the most efficient use of water through conservation and related practices.
 - a. Regularly review building and fire codes to assure standards include “best management practices” concerning energy efficiency installations related to plumbing fixtures and conservation measures
 - b. Review and revise land use development codes, as appropriate, to

encourage:

- drought-resistant and xeric plantings in landscape installations
- proper installation of landscape materials to conserve water at planting, such as with soil amendments
- planting at optimal seasons to minimize water use and plant stress
- an appropriate ratio of required landscape and permeable area to site improvements consistent with the other objectives of this 2060 Comprehensive Plan

- c. Audit water use associated with City facilities and review options to convert to xeric landscape treatments or strategically redesign sites for water conservation
- d. Develop incentive programs which induce water conservation installations and practices, including irrigation systems
- e. Develop a water rate structure that provides incentives for the efficient use of water and reflects actual cost of service
- f. Provide extensive education of the public in efficient and cost effective water conservation practices, including access to water audits for developed sites to measure actual water use patterns

Water Master Plan

In 2003, Greeley adopted a Water Master Plan (Water & Sewer Department, 2003) intended to assure adequate water supplies and infrastructure through 2050. This Water Master Plan sets forth a four point strategy for providing securing water for future growth:

- Improve conservation
- Strengthen infrastructure
- Continue acquisition
- Expand storage

This Landscape Policy is intended to address improving conservation.

Water Conservation Plan

This Landscape Policy for Water Conservation implements recommendations from the Water Conservation Plan (Meyer P. M., 2008) adopted by the Greeley Water and Sewer Board on November 19, 2008. These recommendations include:

- Enhanced water-wise landscaping code language;

- Water-wise landscape incentives for landlords, foreclosed properties, developers, and homeowners' associations;
- Develop low-budget xeric alternatives to zero landscaping;
- Explore changes in landscape codes, new construction requirements, lot sizes, turf and landscape percentages of total lot sizes;
- Retrofits of existing landscapes to water-wise landscaping such as cash for replacing bluegrass with species that require less water.

This Landscape Policy is intended to address these recommendations.

Vision, Goals, and Policies

Vision: Maintain or enhance Greeley’s quality landscaping in both private and public areas, while improving landscape irrigation water efficiency.

The following is a summary of the City’s adopted Goals and Policies, and potential action items designed to meet these. These Goals and Policies are adopted to address the challenges identified in the Purpose and Need sections above.

Goal 1: Maintain Greeley’s quality landscapes and urban forest.

- Policy 1.1 Maintain the designation of Tree City U.S.A.
- Policy 1.2 Maintain ecological benefits provided by trees, shrubs, grasses and perennials.

Goal 2: Provide adequate information, training, and examples of water efficient landscapes that enable the design, installation, and maintenance of quality landscapes that use landscape water efficiently.

- Policy 2.1 Maintain and distribute a plant database to assist users in selecting plants for specific water requirements that will grow in Greeley. This database will be stratified by hydro-zone, plant form (trees, shrubs, perennials and grasses).
- Policy 2.2 Create, maintain, and publicize a library of water efficient irrigation tools and information on installing, maintaining, and repairing water efficient irrigation systems.
- Policy 2.3 Provide and create training and information materials to provide homeowners and practitioners with the information necessary to design, install and maintain high quality water-efficient landscapes.
- Policy 2.4 Create design examples that people could use to create a water-efficient landscape design.

Goal 3: Revise applicable sections of the Municipal Code that address landscaping, irrigation, and soil conditioning to comply with the goals, policies, and recommendations of this Plan.

- Policy 3.1 Continue to require a minimum of 50% of required open space to be covered with long-living plants.

- Policy 3.2 Limit the use of high irrigation-demand plants in new development and redevelopment projects to no more than 25% of the on-site open space for all sites except single family lots under two acres, and agricultural uses.
- Policy 3.3 Require the design, installation, maintenance, and operation of landscape irrigation systems to meet, but not exceed, the water requirements of the allowed landscaping.
- Policy 3.4 Require saving of topsoil for new construction, and require and enforce soil conditioning for all new landscapes prior to landscape installation.
- Policy 3.5 Require professional certification for associated professionals and tradespersons.
- Policy 3.6 Require permits and inspections for sites of over two acres not used for single-family housing or agriculture, and under one ownership.

Goal 4: Explore incentives for water-efficient landscapes.

- Policy 4.1 Explore incentives to install and maintain water-efficient landscapes in new development.
- Policy 4.2 Explore incentives to install and maintain water-efficient landscapes in redevelopment projects.
- Policy 4.3 Explore incentives to convert existing water-inefficient landscapes to water-efficient landscapes and to maintain the latter long-term.
- Policy 4.4 Investigate the potential for constructing a WaterSense model home in Greeley.

Goal 5: Ensure that the City of Greeley and its departments continue to lead by example by adhering to landscape practices that may improve irrigation efficiency.

- Policy 5.1 Establish and maintain adequate management and administration mechanisms to implement this Plan.
- Policy 5.2 Apply water-efficient design principles to all City capital improvement projects.

These Goals and Policies are discussed in more detail below, along with proposed action items that might be undertaken to implement them. These recommended action items are thought

to be an appropriate approach to meeting the Goals and Policies of this Plan; however, other actions may be more appropriate in the future in meeting the Goals and Policies, at the time of implementation. Therefore, while the Goals and Policies are adopted, the specific actions outlined below should be considered as recommendations.

Goal 1: Maintain Greeley’s quality landscapes and urban forest.

Located in an agricultural hub, and having innovated in providing reliable water supplies, Greeley citizens have a long history of creating a rich landscape environment.

Policy 1.1 Maintain the designation of Tree City U.S.A.

Greeley was designated a “Tree City U.S.A.” by the Arbor Day foundation in 1980, and the 2060 Comprehensive Plan includes a policy to maintain this designation. The University of Northern Colorado achieved the designation of “Tree Campus USA” in 2013. The City has historically implemented several activities to maintain this designation.

Action 1.1.1 Continue and expand, when appropriate, programs that revitalize tree appreciation and planting in the community, making house calls to discuss tree problems and solutions, planting boulevard trees in the mature portion of the community, reviewing landscape plans regarding proper tree and plant selections and planting methods, and reviewing individual sites to make recommendations based on the unique site conditions, landscape function and surrounding characteristics.

Policy 1.2 Maintain ecological benefits provided by trees, shrubs, grasses, and perennials

Greeley has had a history of high quality landscaping since its founding. Early settlers imported trees from the eastern and midwestern areas of the United States and attempted to grow them via irrigation systems. Over time, they learned what could grow with certain irrigation practices. The continuation and refinement of these landscape practices continues to this day. Indeed, this Plan can be seen as a continuation of the process of refining the practice of landscaping to meet the realities of the 21st Century when the ability to expand irrigation water availability in Colorado will be limited.

Goal 2: Provide adequate information, training, and examples of water efficient landscapes that enable the design, installation, and maintenance of quality landscapes that use landscape water efficiently.

Bluegrass requires as much as or more water than any other plant used in Greeley landscapes. Therefore, if the bluegrass is healthy, so is nearly everything else.

Bluegrass also acts as a low-water “canary in the coal mine” since it is quite forgiving by going dormant long before any plants are adversely affected by low water. In these ways, bluegrass is an easy default landscaping option. Using low water plants in a low water environment, on the other hand, requires more knowledge related to design, installation, maintenance, and irrigating.

It is important to increase irrigation efficiency without increasing weed invasions. Some actions — reduction in live plant coverage, increased use of mulch, or landscaping with perennials – can reduce water demand, but they can have the effect of increasing weed invasion, unless there is more maintenance.

Policy 2.1 Maintain and distribute a plant database to assist users in selecting plants for specific water requirements that will grow in Greeley. This database will be stratified by hydro- zone, plant form (trees, shrubs, perennials and grasses).

A major barrier to landscaping for water conservation is the complexity in matching the varying seasonal water needs of plants, the delivery of irrigation water, and the weather to deliver the appropriate amount of water to plants at the appropriate time. By providing specific information on the amount of water needed by each plant species and by providing enough variety in species, people can make appropriate choices and still be assured that they will be able to find plants on the list at the nursery or retail location of their choice.

Given the area climate, all of the following hydrozones can be achieved in Greeley with irrigation:

Hydro-Zone	Irrigation Water for an Average Year	Land Use	Plants That Can Grow with Irrigation in the Climate and Soils of Greeley
High Water Use	17-19 gallons per sq. ft. per year or 27.3 to 30.5 inches	High performance turf for athletic fields	Any plant that can grow in Greeley. Many of the plants that need this amount of moisture are wetland plants.
Moderate Water Use	10-14 gallons per sq. ft. per year or 16.0 to 22.5 inches	Light use. Areas provide visual interest, ecological services, and visual interest.	Most plants that can grow in Greeley. This includes some low water using varieties of bluegrass.
Low Water Use	5-10 gallons per sq. ft. per year or 8.0 to 16.0 inches	Limited uses. Areas provide visual interest, habitat and ecological serves	Most plants that are native to Greeley
Very Low Water Use	0-5 gallons per sq. ft. per year or 0.0 to 8.0 inches	Limited uses. Areas provide visual interest, habitat and ecological serves	Bunch grasses, perennials, native shrubs, and a few trees

Greeley has a challenging climate. Nearly all other places that reach Greeley's cold temperatures have more precipitation, and nearly all places in the world that are as dry are hotter. These circumstances, together with the extreme and rapid changes in temperature that occur during winters, limit the number of plants that can grow in Greeley.

Action 2.1.1 Develop a plant database of plants that will grow in Greeley and require less water.

The list would be made available in a user-friendly way for professionals in the landscape industry and members on the general public to learn about plants, many of which are already being used in Greeley landscapes but require less water than is typically applied to Greeley landscapes. This plant database should group plants into one of four hydro-zones as described above -- high water use, moderate water use, low water use, and very low water use. It should further group plants by form into

deciduous and evergreen trees, deciduous and evergreen shrubs, perennials, and perennial grasses. For each plant species, it should include the botanical name, common name, height, spread, sun/shade preference, soils requirements, and additional information such as flowering time and color. The plant database can provide information for each species on water requirements, height, spread, plant form, sun and shade preferences, soil preferences, and information about why people might wish to plant it. The plant database should be updated as new information becomes available. Plants can be added or deleted as appropriate.

The following chart summarizes the potential number of plants in a plant database that are well-suited to Greeley. While such a database might show what plants grow well in Greeley and would be initially intended for informational purposes, another possibility would be to potentially limit the number of high-water use plants allowed in a given landscape.

Summary of a Sample Plant Database, and the number of plants well-suited for Greeley:

Hydro-Zone	Irrigation Water for an Average Year	Deciduous Trees	Coniferous Trees	Deciduous Shrubs	Coniferous Shrubs	Perennials	Grasses	Total
High Water Use	17-19 gallons per sq. ft. per year	12	0	14	3	32	1	62
Moderate Water Use	10-14 gallons per sq. ft. per year	68	17	103	4	194	6	392
Low Water Use	5-10 gallons per sq. ft. per year	24	11	88	6	273	10	412
Very Low Water Use	0-5 gallons per sq. ft. per year	1	4	15	5	29	6	60
Total		105	32	220	18	528	23	926

Policy 2.2 Create, maintain, and publicize a library of water-efficient irrigation tools and information on installing, maintaining, and repairing water efficient irrigation systems.

Irrigation technology is the combination of sensing the need for additional soil moisture, turning on the irrigation system, applying water to the landscape, and turning off the water. To use irrigation water more efficiently, the irrigation system should not apply water at a rate faster than the soil can absorb it and the system should not apply more water than the plants need before the next watering. Irrigation technology can be as simple as a water user hand-operating irrigation devices such as setting up hoses and sprinklers by hand, simple irrigation controllers operated by clocks, or automated controllers using real time soil moisture or precipitation information and applying the appropriate quantity of water at an appropriate time. Nearly all plants used in landscapes in Greeley, including very low water using plants, require at least some irrigation. Even most very low water using plants require supplemental water for establishment. Therefore, effective irrigation technology is essential to maintain high quality landscapes. In addition, effective irrigation technology is essential to avoid overwatering low water landscapes that do not need much water. Irrigation heads that reduce evaporation loss and deliver water more evenly are available. Operating irrigation systems within their designed water pressure range can also reduce evaporative losses. Drip systems can apply water to specific plants that require higher water than surrounding plants.

- Action 2.2.1 Create and maintain a library focused on best practices for water conserving landscapes. This library should include publications on landscape design, plant design, plant characteristics, the use and value of plants, ecosystem services, plant water requirements, irrigation design, irrigation technology, landscape irrigation practice, and operation and maintenance of landscape irrigation systems.

Policy 2.3 Provide and create training and information materials to provide homeowners and practitioners with the information necessary to design, install and maintain high quality water-efficient landscapes.

While the design, installation, and maintenance of a bluegrass lawn can be a relatively simple task, the design, installation, and maintenance of a water-efficient landscape requires more thought and skill. The interaction of plants, soil, water, irrigation systems, soil texture, irrigation systems, climate and weather, and people are complex and changing. One frequently mentioned reason for not following water efficient landscape practices is a lack of knowledge of what plant materials and other practices are likely to be successful, and how much or how little water is required for plant survival. It is therefore recommended that the City support and coordinate with other organizations to provide training, and create training programs for landscape professionals and trades people, residents, and property managers to effectively address the need to conserve landscape irrigation water. Some or all of these training programs could be offered regionally rather than just locally.



Figure 8. A water efficient landscape design can be beautiful. Photo by Ruth Quade

Many in the green industry are recommending professional certifications and licensure at either the local or state level. A requirement for this professional licensure or certification would justify the expense of the training and continuing education necessary to obtain and keep the credentials. Information, training, and technical assistance are essential in addressing the goals of this plan. It can be unreasonable to ask people to meet a landscape water conservation goal when they do not know how to design, install, or maintain a low water landscape.

Action 2.3.1 Before Greeley develops additional training programs, staff should research available training programs to determine which programs could meet Greeley’s needs. Research and coordinate available training programs for landscape professionals and trades people, residents, and property managers in water-efficient landscape design, construction, and maintenance provided by others. Absent alternative training options, the City should develop and sponsor training programs.

Action 2.3.2 Provide homeowner training opportunities. In some communities, nurseries provide training in landscape subjects. Absent existing training options, the City should develop and sponsor training programs.

Policy 2.4 Create design examples that people could use to create a water-efficient landscape.

Action 2.4.1 Create water-efficient landscape design templates and sample site layouts for water-conserving landscapes. These templates should reflect a variety of lot sizes, lifestyle choices, and should also include a variety of plant species choices for each location shown. The designs for a variety of lifestyle choices could include designs for people who want an outdoor living room, people who wish to host backyard gatherings, people who enjoy gardening, people who want to attract wildlife, people who want minimal maintenance responsibility, and others as necessary. (See Appendix E Water Conserving Landscape Design Examples.)

Action 2.4.2 Develop pilot projects where citizens create water-efficient landscapes, and then analyze the results and challenges so that future programs can be successfully implemented and adopted by residents.

Action 2.4.3 Maintain detailed instructions on best practices for water-efficient landscapes that can be understood by lay people. The vast majority of landscaping projects after initial installation are completed by homeowners, so there is a need for detailed instructions on how to follow best low-water use best practices geared to the average homeowner.



Figure 9. Water efficient landscape designs can use many plants already used in Greeley and fit in any program.

Action 2.4.4 Teach and publicize at every opportunity the seven principles of Xeriscaping® developed by Denver Water and listed below. Modifications to reflect Greeley policy are in brackets. These principles are as follows (Greeley, City of, 2015):

Xeriscape isn't only types of plants; it's a system. Whether or not you install a full water wise garden, the 7 steps of Xeriscape are good landscape practices in Greeley's semi-arid climate.

1. *Planning and Design:* Plan before you plant. Think about landscape needs, backyard activities, and existing features to determine how you should plan it.
2. *Soil Amendment:* Soil will retain 30% more moisture when compost is added. The City Code requires 4 cubic yards per 1,000 square feet of new landscaped area. This equals approximately 1.3 inches in depth.
3. *Reduced Turf:* Instead of a large expanse of bluegrass, plant shrubs, trees, ground covers, and other plants that require less water.
4. *Efficient Irrigation:* Drip irrigation and bubblers are efficient ways to water plants at the ground level to reduce evaporation.
5. *Appropriate Plant Selection:* Choose low water use plants. Group plants with similar water, sun, and soil needs in the same area of your yard.
6. *Use of Mulches:* To minimize evaporation, impede weed growth, slow erosion, and help prevent soil and temperature fluctuations.
7. *Appropriate Maintenance:* Proper pruning, weeding, fertilization and proper attention to the irrigation system will preserve and enhance the quality of your Xeriscape. A landscape adapted to the environment will require less maintenance, less fertilizer, and reduce the use of pesticides and other chemicals.



Figure 10. Periodic irrigation audits are an important part of irrigation maintenance.

Goal 3: Revise applicable sections of the Municipal Code that address landscaping, irrigation, and soil conditioning to comply with the goals, policies, and recommendations of this Plan.

The purpose of this document is to provide policy direction that strikes the balance between preservation of the lifestyle values of the City of Greeley, and honoring the natural environment by adopting a landscape code that is appropriate for our region. Recommended implementation strategies are based on 1) adapting the soil in a landscape to efficiently hold water and nutrients, 2) using plants that, while needing less water because they are appropriate for our region, perform the same services as higher water use plants and 3) irrigating efficiently and only applying as much water as the plants need. Reduced irrigation water demand should not create an undue hardship. Actions which place an undue burden upon specific sectors of Greeley's population or on the entire community are neither necessary nor desirable.

Policy 3.1 Continue to require a minimum of 50% of required open space to be covered with long-living plants.

Since 2009, Greeley has required a minimum of 50% coverage of the unpaved portion of front yards and parkways (the area between the sidewalk and curb, most common in older parts of the City) with live plants. Prior to this the minimum requirement was 75%. Coverage is based on the area actually covered by the plants as a percentage of the pervious surface of the front yard or parkway, with bonuses given for plants that have larger mature sizes such as shrubs, ornamentals, evergreen trees and deciduous trees. Given the number of trees, shrubs, ground covers, and perennial grasses that will grow in water-conserving landscapes, it is appropriate to continue to require a 50% minimum coverage standard.

Action 3.1.1 Revise the landscape code to accomplish both quality landscaping and increased efficient use for irrigation water, while retaining the historic Greeley vision of landscaping aesthetics.

The existing City Code provides for square footage bonuses for certain plants based on their contribution to the

coverage of the ground surface. Bonuses for all large shade trees are 50 square feet and large conifers, 100 square feet. This does not reflect the ecosystem service contribution of these large trees. It is recommended that bonuses for large trees more closely follow the actual area of the canopy to reflect the value of their ecosystem services.

Policy 3.2 Limit the use of high irrigation-demand plants in new development and redevelopment projects to no more than 25% of the on-site open space for all sites, except for single family lots under two acres and agricultural uses.

Action 3.2.1 Action 2.1 provides a definition of high water use plants. Review the City Code to potentially limit the use of such plants and turf to no more than 25% of the on-site open space. Such a requirement would still permit between 25% and 75% of the on-site landscape to be in moderate, low, and very low water grasses, perennials, shrubs, or trees. As shown in the plant database there are several varieties of bluegrass that are moderate water use plants. The use of these varieties would not count against the high water use limit.

Action 3.2.2 Reduce the minimum size of required trees in water-efficient landscapes. Studies have shown that reducing the minimum size of trees at the time of planting does not contribute to a reduced tree size after approximately five years. Planting smaller trees, on the other hand, reduces the shock of transplanting and improves survivability. It also reduces the volume of required water over the first few years. Therefore, landscape regulations should differentiate between the minimum size of trees planted in water-efficient landscapes by permitting a smaller size (1-1/2 inches caliper instead of 2 1/2 inches) in water-inefficient landscapes, except for street trees.

Policy 3.3 Require the design, installation, maintenance, and operation of landscape irrigation systems to meet, but not exceed, the water requirements of the allowed landscapes.

Efficient and effective irrigation is essential to provide high quality landscapes that provide the ecological services expected by Greeley residents. These irrigation systems must provide enough water to

meet the needs of the hydrozone they serve without excessive watering and waste.

Action 3.3.1 Explore how “smart” irrigation systems can be integrated into the current system of fixed irrigation days.

Action 3.3.2 Amend the City Code to require separate meters for all sites except single family lots under two acres, and agricultural uses.

Policy 3.4 Require saving of topsoil for new construction, and require and enforce soil conditioning for all new landscapes prior to landscape installation.

One of the most valuable natural resources in the world is topsoil. Topsoil is a complex physical and biological material made up of living and dead mineral and organic particles. It is the product of climate, topography, geology, biology, and time. Nearly all terrestrial life, including human life, is dependent on topsoil. The presence or absence of topsoil can make a profound difference in whether plants survive and how much moisture and fertilizer they require to grow. Therefore, topsoil should be saved wherever it exists during any construction project and stockpiled to be spread as the final layer of soil over a site. In this way, it can resume its natural function.

Action 3.4.1 Amend the City Code to require saving of onsite topsoil wherever it is feasible and spreading it over the site prior to landscaping.

Action 3.4.2 Retain the Code requirement to incorporate four cubic yards of organic matter into every 1000 square feet of landscaped area. Organic matter holds nutrients rather than permitting them to be dissolved in water and leached out of the soil profile. These nutrients can then be released by soil microbes and made available to plants.

Policy 3.5 Require professional certification for associated professionals and tradespersons.

Each of the professions or trades involved in the design, construction, or maintenance of commercial landscapes has organizations appropriate to certify their qualifications. In addition, the State of Colorado requires the licensure of persons practicing landscape architecture or representing themselves as landscape architects. Greeley does require that people who

audit irrigation systems be certified. Both professional engineers and landscape architects are required to be licensed by the State of Colorado. The Greeley City Code requires engineering designs and studies submitted for development review to be prepared under the direction of a professional engineer licensed to practice in the State of Colorado, but does not require that landscape or irrigation plans for commercial and multi-family projects be prepared by a licensed landscape architect or certified irrigation designer. This requirement would affect landscape designs for commercial, industrial and multi-family projects, and for common areas of residential subdivisions. It would not affect landscape designs on single-family residential lots.

- Action 3.5.1 Amend the City Code to require the certification of professionals and tradespersons involved in the design, construction, and maintenance of commercial landscapes in Greeley. (See Policy 2.3 for training and scholarship programs).

Policy 3.6 Require permits and inspections for sites of over two acres not used for single-family houses or agriculture, and under one ownership.

- Action 3.6.1 Explore a permitting and inspection system for sites of over two acres not used for single-family housing or agriculture, and under one ownership. This would require submittals of landscape designs over a certain minimum size for review by qualified City staff and inspection of construction.

Goal 4: Explore incentives for water-efficient landscapes.

Incentives are actions undertaken by the City to encourage people to provide a public benefit by reducing their cost burden or offering rewards. Incentives could address one of the reasons given by members of the public for not implementing water-efficient landscape design—a concern for higher costs of design, installation, and maintenance. Developers and homeowners’ associations may also have concerns about potential loss in property values or marketability because of a lack of understanding about water-efficient landscapes. The high cost of converting existing non-water efficient

landscapes to water efficient landscapes is certainly a factor in preventing such conversions. Incentives can encourage the installation and conversion to more water-efficient landscapes. Consideration should be given to how much water efficiency is appropriate in return for receiving an incentive. Issues to consider include the amount of water-efficient irrigated or non-irrigated common areas; landscaping on individual lots; whether the incentive should be provided to the developer, builder, or homeowner; the permanence and enforceability of the water- efficiency commitment; how disclosure of the commitment to future buyers is handled; how enforcement takes place; and the manner in which the commitment to provide adequate maintenance is handled. A pilot study will help to answer specific questions about the effectiveness of various incentives and approaches prior to adoption of specific measures on a City-wide basis.

Policy 4.1 Explore incentives to install and maintain water-efficient landscapes in new development

Action 4.1.1 The Water and Sewer and Community Development Departments should consider working with (a) willing developer(s) to design and implement a pilot program that would provide appropriate incentives for water conservation in new development areas that meet the goals of the Greeley Comprehensive Plan and are effective, permanent, and enforceable.

Policy 4.2 Explore incentives to install and maintain water-efficient landscapes in redevelopment projects.

Action 4.2.1 Design and implement a pilot program that would provide appropriate incentives for landscape water efficiency in redevelopment areas.

Policy 4.3 Explore incentives to convert inefficient existing landscapes to water-efficient landscapes and to maintain the latter long-term.

Action 4.3.1 Design and implement a program that could provide appropriate incentives to convert existing inefficient landscapes to more water-efficient landscapes.

Policy 4.4 Investigate the potential to construct a WaterSense model home in Greeley.

Action 4.4.1 Investigate the potential to construct a WaterSense model home

and landscaping in Greeley and whether incentives or partnerships would be the most appropriate mechanism for implementation.

Action 4.4.2 Provide assistance to assure new Greeley Urban Renewal Authority and Habitat for Humanity homes are WaterSense certified.

Goal 5: Ensure that the City of Greeley and its departments continue to lead by example by adhering to landscape practices that may improve irrigation efficiency.

The City of Greeley is the largest land owner and manager within the Greeley City limits. Therefore, it is the largest landscaper and whatever it does with its landscaping of streets, parks, and rights-of-way shall serve as an example to all other property owners contemplating the design or installation of landscapes. The success of this Plan depends on how effectively the City staff is able to design landscapes and administer City Code amendments intended to conserve water.

Policy 5.1 Establish and maintain adequate management and administration mechanisms to implement this Plan.

The following City departments and divisions have responsibilities for administering sections of the City Code that affect landscaping and landscape irrigation water demand: Community Development, Planning, Code Compliance, and Engineering Development Review Divisions; Culture, Parks, and Recreation Forestry Division; Public Works Department, Streets Division and Facilities Division; and Water and Sewer Department, Water Resources Division.

Action 5.1.1 Review the administration of the Landscape Code and Water Conservation Plan to improve compliance. As part of the code revisions, convene staff from the responsible departments and divisions to review administrative procedures to determine the most effective strategy for administering the code.

Policy 5.2 Apply water-efficient design principles on all City capital improvement projects.

A significant portion of water used for landscape irrigation is used to irrigate City parks, rights-of-ways, and other City facilities. The City is currently practicing effective irrigation water conservation through how it designs some of the landscaping in its parks, how it landscaping along street rights of way, and how it designs landscapes related to City facilities.

By definition, water-efficient landscapes reduce water demand for the areas they cover. Cumulatively over time, many of these designs may reduce future demand for landscape water. By publicizing the designs, especially the plant species lists related to hydro-zones, and irrigation plans, perhaps with exhibits on-site, online, or using them in training programs, completion of these projects would help to provide information on how to implement low water landscapes for homeowners.

Action 5.2.1 Practice low water landscape design in City parks. Greeley has begun to apply low water landscaping designs in parks where it is appropriate. In parks where there are sports fields or areas with intensive use areas, it will be necessary to continue to install and maintain irrigated turf areas. In parks, bluegrass or other high water demanding turf grasses should be reserved for athletic fields and similar intensively-used areas. These areas would be designed with a high water hydro-zone. As new parks are developed or existing parks are redeveloped, turf areas that will be used at a moderate intensity should be lowered to a medium high hydro-zone. Where trees are present, this change should be accomplished over several years to allow trees to develop deeper root systems as irrigation is reduced.

Action 5.2.2 It is recommended that the City continue to convert parks to water-efficient landscapes when it is consistent with the uses present in those parks and following such procedures as necessary to maintain the health of trees. Areas not needed for intensive uses such as athletic fields could be converted to more water-efficient landscapes. New parks should be designed to have 35-50% non-irrigated turf landscaping, depending on the

planned use. Passive parks could be converted to lower-water landscapes. In select cases, converting athletic play turf areas to artificial turf may be an appropriate alternative that reduces water demand, while at the same time allowing more play on the field. This, in turn, limits the wear on non-artificial grass fields, which can require less watering of these places.

Action 5.2.3 Practice water-efficient landscape design in City rights-of-way.

The City is now practicing water-efficient best management practices and effective irrigation water conservation in its new landscape designs along street corridors where possible. It is recommended that this process be continued and enhanced to demonstrate the potential for enhanced landscapes that require limited irrigation. Within street and road rights-of-way and at major City entryways, it is possible to achieve attractive landscapes using irrigation water more efficiently , featuring large trees, ornamental trees, colorful flowering shrubs, and beautiful flowering perennial beds. This approach is recommended as a demonstration of what is possible.

Action 5.2.4 Practice water-efficient landscape design for City facilities.

As City facilities are developed and redeveloped, it is recommended that water-efficient landscape design principles be followed to demonstrate the potential for enhanced landscapes that require limited irrigation. Such facilities should be using large trees, ornamental trees, colorful flowering shrubs, and beautiful flowering perennial beds. This approach is recommended as a demonstration of what is possible.

Action 5.2.5 Retrofit existing detention ponds to native turf, trees, shrubs, or perennials. Where feasible, convert City owned and maintained stormwater detention ponds from bluegrass to native turf and vegetation.

Action 5.2.6 Provide assistance to assure new GURA & Habitat for Humanity homes are WaterSense certified.

Appendices

Appendix A, Definitions

While some of the readers of this document have an excellent understanding of the language of water resources, some may not. Here are some of the key terms:

- Acre-foot—the amount of water that covers one acre one foot deep; (43,560 cubic feet, or 325,851 gallons) the approximate amount of water to serve one to two average family single family homes;
- Demand Management—any of a number of actions taken by a water provider to reduce the need for water;
- Evapotranspiration—the transfer of liquid water from the soil to water vapor in the atmosphere by either direct evaporation of water from the soil or transpiration through the plants and their leaves. Plant species have widely varying evapotranspiration rates which also vary throughout the year with seasonal temperatures.
- Excess irrigation—the amount of water applied to plants that exceeds the amount lost to evapo-transpiration. This water either seeps into the ground where much of it is lost to groundwater flows that return to the river, or runs off directly. Water that is applied at rates in excess of the infiltration rate of the soil also runs off.
- Hydro-zone—an area with plants having a need for and receiving a similar amount of water in a landscape. In this policy, the hydro-zones can be characterized as high, medium, low and very low water use.
- Infiltration—the process where liquid water from irrigation or precipitation is absorbed by the soil and becomes soil moisture. With very few exceptions in the world, plants receive water only from soil moisture
- Irrigation rate—the amount of water applied to a land area within a period of time (usually inches per hour). Any amount of water in excess of the maximum infiltration rate that the soil can absorb becomes runoff.
- Irrigation volume—the volume of water per area applied to a landscape. This is usually expressed as gallons per square foot or inches of depth. A volume of 0.6233 gallons per square foot would cover that square foot with one inch of water.
- Return flow—the amount of water diverted by a water provider that is returned to the river and not lost to evapotranspiration. It includes most of the water used by indoor water uses that passes through wastewater treatment plants and is released to the river or that is used for irrigation and other outdoor purposes and flows back to the river. Most of the outdoor water is consumed by evapotranspiration.
- Runoff—water that flows from or runs off the land. Some runoff is cause when rainfall or irrigation rates exceed the infiltration capacity of the soil. Runoff can also be

generated when the soil is saturated so that it cannot absorb any more water until some water emerges downslope through seeps or springs.

- Xeriscaping® —a term coined by the Denver Water Board to describe a process for creating water-efficient landscapes following seven defined steps: planning and design, using turf appropriately, irrigating efficiently, conditioning soil, mulching, selecting appropriate plants, and maintaining landscapes.

Appendix B, Input Received

During the development of this Plan, 13 public events were held, two Open Houses, six stakeholder Meetings, and five presentations before the City Council and various boards and commissions. Over 225 people attended these various events and submitted 82 written comments. These comments are shown below. To enable staff to apply these comments most effectively, they were classified as shown below by relevance as shown in the right-hand column.

Comment	Relevance
I think what you are doing is great. We really need to do this.	Overall approach
Conversion of existing landscapes is too expensive.	Existing landscapes
I think Astroturf and artificial trees would be all we need.	Alternative landscape approaches
I would like to xeriscape my yard but it is too expensive.	Existing landscapes
Bluegrass is easy to maintain and looks nice.	Overall approach
Landscape contractors would really be interested in this.	Stakeholder concerns
If Greeley adopted code changes encouraging Xeriscaping®, adequate maintenance should be required.	Maintenance/Regulations
Poorly maintained areas look ugly. Any regulation needs teeth. Poorly maintained areas are ugly and brown.	Maintenance/Regulations
Look at phasing this in. This is about starting to change lifestyles. Maybe do 30% for a while and then do more.	Implementation Timing
Think through the cost/ revenue side. What might happen if reducing water use requires increasing water rates?	Possible unintended financial impacts
Builder & Realtor Round Table	
If irrigation water use were limited, should water dedication requirements be reduced?	Fairness
How would reduced water use be enforced?	Incentives
Outreach and education are essential to ongoing success of this project.	Information and Training
We need to show people how to do this and what it looks like.	Information and Training
Agriculture is important to the community	
The scheduled presentation to local groups should be bumped from August to October because many people are gone on vacations during the summer. The Weld County Builders' Association doesn't meet during the summer. Our first meeting is the Second week of Sept.	Schedule
The Xeriscape gardens of the City and UNC have not been well maintained and do not encourage people to follow that model.	Maintenance
Comment	Relevance

There is a need for better education on water conservation to the public.	Information and Training
If conservation delays the need for a dam, doesn't the cost increase?	Alternatives to conservation
Landscape Contractors	
What happened with the Water Star program?	This was a previous effort to conserve landscape irrigation water.
There are price point barriers where customers will not spend <u>any</u> more for water conservation measures even when the payback period for the investment is one year or less and even when rebates are available.	Customer response to price and incentives
Many people are unwilling to spend 1% more for low water use bluegrass than for regular bluegrass.	Customer response to price and incentives
Water is our most valuable resource. We allow people with no qualifications to control the management of the 50% of it used for landscape irrigation. There are certifications for Landscape Technicians, Irrigation Auditors, Backflow Technicians, Irrigation technicians, and others. Water is too important to leave its management to unqualified people.	Professional qualifications
60% of irrigation water runs directly down the street.	The need for conservation measures
Comment	Relevance
If solutions are purely based on price, east Greeley will be all rock and west Greeley will be lush. There needs to be minimum landscape performance standards.	Incentives/ Regulation
Should do reminder cards about water	Public information and outreach
Comment	Relevance
Top-of-the-line irrigation systems might cost approximately \$300 more than a standard system. Most first time homebuyers will not buy the upscale irrigation system even though it has a payback of 2 to 3 years.	Customer response to price and incentives
Proper licensing such as Certified Landscape Technician or Certified Irrigation Designer can provide better protection for the City and better water savings.	Professional qualifications
Regulation for landscapers. Auditing new irrigation systems before COs rather than just inspecting commercial systems.	Incentives/ Regulation
Drought Resistant bluegrass varieties cost only 1% more than non-drought-resistant bluegrass.	Incentives/ Regulation
The City should adopt a policy that landscape professionals who practice in Greeley should be required to take continuing education training on water conservation every two to three years.	Professional qualifications/ Information and Training
There should be a City board of landscape professionals to adopt a plant list for Greeley and make decisions within guidelines and criteria set by the City Council.	Participation/ Implementation
Greeley Association of Realtors	
Opportunity: The City should work with builders who offer front yard landscaping to homeowners.	Incentives/ Regulation
Comment	Relevance
Work with current single family residents to help homeowners to simplify and keep up properties for less water usage and less maintenance.	Information and Training/ Incentives
I would love updates	Outreach
Larger older neighborhoods have larger yards and huge trees that are	Regulation/ Incentives

costly to redo.	
Can there be can there be classes or support relative to this issue?	Information and Training
Thank you for the presentation on current and future water use and landscaping. It is good to know this issue is being looked at. Water is critical and I believe some landscaping restrictions will be necessary to save and conserve water.	Regulation
I think the landscape guidelines must allow for individual preferences— not all folks are open to rock in the front yard. The City needs to offer choices of products and plant types to use.	Regulation
Most, or at least a lot of us, don't know what plants to use although we would certainly like to save on water use.	Information and Training
Offer rebates for Astro-turf	Incentives
Would you consider having classes to educate the people and give ideas?	Information and Training
Will the parks cut down on their grass, plants, and trees? They water when you have had a lot of rain. Is there any way to regulate the sprinklers?	Parks and capital investment
Stop requiring so much cement in residential areas.	Integrated stormwater management
Allow natural buffalo grasses in different %.	Appropriate plants
Save rainwater.	Non-Potable water use/ Rainwater harvesting Regulations
Change the code to allow for no plants.	
Please consider reducing the cost of a building permit in exchange for a water saving landscape plan.	Incentives
We're very interested in the plant database when it comes online	Information and Training
Weld County Builders Association	
Will there possibly be rebates on raw water fees for builders who Xeriscape before the sale of a home?	Incentives
Will the City participate with homeowners to modify existing landscaping to create new landscaping scenarios that use less water?	Incentives Training & Technical Assistance
Yes, live plants are important! Trees absorb CO2 for air quality (and produce Oxygen). Also habitat for urban wildlife and bird populations— both year round and migratory.	Coverage with live plant material.
I think the City should look at possibly doing a large central park for the community and have it be on the heavy water use. The park should have amenities to attract citizens and their families to spend time at the community park and try and pull them away from individual residences. The park should have items such as a pool, water play area, green grass, lots of trees, natural water way (if possible), and should be large enough such that the community could use the park without the feeling overcrowded. I am thinking some variation of the New York Central	

<p>Park. One place that this park could be located would be a redevelopment of the old part of the City and located the park for ease access to the down town area.</p> <p>The other question/concern would be that if the City is going to limit each residential house to 19 gallons a year for each sq. ft. of landscaping, it seem that this could be problematic in that the City would be limiting the water rights for the individual households to less than what was promised when they purchase of the tap. I realize there can be incentives such as a tiered rate schedule, or other, to help limit the water use, but it seems that this would add complexities in administration and enforcement. With the Central park idea there are a lot of taps that have old rights that the City could take control over with a scrape and rebuild.</p>	
Open House 4/ 21/ 14	
<p>Change the required square feet needed. Note able to follow the City Code and Xeriscape with what current plants qualify per square foot.</p> <p>Requirement for square footage coverage for plants needs to be reduced. Coverage should be 30%. Credit should be given for lower water plants.</p> <p>My current yard required coverage space is just over 1200 Sq. ft. To be in compliance with the City, I would have to plant 265 perennials [illegible]. I'm being penalized because 15 years ago, I put [artificial] turf down to help conserve water. Credit should be given to those who put in [artificial] turf and plant around it.</p> <p>Future development should be the use of irrigation water and allow [artificial] turf.</p>	Coverage with live plant material.
I like 30% live landscape.	Coverage with live plant material.
On lawn watering, how much water is returned to the river?	Water Balance
<p>From Facebook:</p> <p>Are you working with HOAs? Some of them have ridiculous requirements. A lot of water pours into the sewers every morning from people watering their bluegrass. Anything natural is frowned on. This morning they were watering the strip along 83. What a waste!</p>	<p>Outreach.</p> <p>Wasteful irrigation</p> <p>Plant species choices.</p>
Open House 4/23/14	
I would prefer a requirement of even more soil amendment for new projects.	
I would prefer a requirement of only certain trees that are better suited to our winters and water usage.	
Maybe a list of plant recommendations that are included with the water bill.	
I would still prefer a 50% requirement of live plants in the front yard.	
I like the idea of tiered water rates, as long as it is proportional to property size. I have a large lot and don't want to be punished for that. I understand from our discussions that this is the model of interest.	
I support 50% water reduction. I live in a neighborhood where most of	

my neighbors water 5-7 days a week to keep their lawns looking lush. They look down their noses at me because I water within the recommendations of the city, and as such, do not have as green of a lawn as they do.	
The xeriscape in a box program is great - but what I would really like to leverage is a landscaping audit. Much like the water audit that the city provides, but making recommendations for different types of drought resistant vegetation given the characteristics of an individual property.	
Open House 9/17/15	
Goals and vision plans are good. Educate the public is a must. Builders, HOAs, all of this to conserve water. Xeriscaping/ water efficient grass is the way to go. I would like updates	
As a design/build company, we have been promoting low water use landscapes for years. The challenge is to educate and incentivize the end user to change their mindset and overlook the initial cost savings to lay a bunch of high use sod.	
Q. Why can't we store water on our lot? A. Under existing state law, all water is appropriated under Colorado's prior appropriation system. The legislature is looking at permitting up to 2 55 gallon rain barrels if the storage is augmented.	
Q. What about allergenic plants in the plant database? A. All known allergenic plants have been eliminated.	
Builders of new homes have to be educated and brought along.	
Education and professionalism is critical.	
The median of 20 th Street between Buena Vista Drive and 35 th Avenue was converted from buffalo grass to bluegrass. This was a mistake	
What builders build, homeowners will maintain. They are unlikely to make changes.	
The City must incentivize developers. They want a consistent look.	
Good low water grasses include inland saltgrass, streambank wheatgrass, buffalo grass, and blue gramma.	
Open House 9/24/15	
The City needs to make all power lines be underground and encourage street trees.	
Weeds and maintenance can be a problem.	
The City needs to review landscape plans and irrigation plans at the same time. Irrigation design cannot be left to be designed by the landscape installer during construction. Otherwise it will be cheap and inefficient. City parks have been done this way.	
Most people do not understand irrigation technology.	
New home yards average approximately 3,000 square feet.	
It is dangerous to legislate landscape design.	
Sideyard setbacks could be gravel.	

The City should hire a resource person to assist homeowners with design and maintenance problems	
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Appendix C, Semiarid environments

Prior to the settlement of Greeley, runoff from the short grass prairie was less than one inch per year. This runoff was generated primarily from intense rainfalls when the precipitation rate exceeded the infiltration capacity of the soil. A small portion of this runoff occurs when shallow groundwater encounters impervious layers where it cannot pass through and reemerges through springs. Most of the water that infiltrates into the soil stays in the top few inches and evaporates directly from the soil. The water that is taken up by plants is also transpired relatively quickly into the atmosphere. In dryer areas, where most water leaves the soil through evapotranspiration, salts and water soluble minerals tend to be carried to the surface where they are deposited by the evaporating moisture. The result is a soil profile that tends to be alkaline or salty. Plants that are drought tolerant, have deep root systems or shallow root systems that can take up water quickly, and can live with limited resources have an advantage over those that don't.

In humid regions such as eastern North America and mountain landscapes in the west, where precipitation exceeds potential evapotranspiration, much of the precipitation infiltrates into the soil where some of it is taken up by plants and most of the remainder percolates downward and through the soil and bedrock, then reemerges and flows into streams. This higher volume of water carries salts and other soluble minerals downstream to the ocean. The result is a soil profile that tends to be acidic. Plants that grow large, and can compete for light and nutrients have an advantage over others. Because of increased water, soils under irrigated landscapes where precipitation plus evapotranspiration exceeds potential evapotranspiration evolve over time to more closely resemble those of humid regions.

Unlike more humid climates with more rainfall, water is a limiting factor for plant growth in a semi-arid climate. Unless soil moisture is increased, plant growth or diversity in plant species cannot increase. Plants that survived in the native landscape had to be able to survive extensive drought. Many of them were grasses, forbs, and shrubs that had significant adaptations for survival in the semi-arid climate. The Greeley climate is characterized by wet springs and dry summers, falls, and winters. Soil conditions in winter are often exceptionally dry. Rainfalls are often brief intense afternoon thunder showers, which in the fine textured soils typical of much of eastern Colorado, favor grasses over shrubs. Cold dry windy winters prevent the natural growth of trees over nearly the entire landscape. The exceptions are along rivers and large streams where annual floods, shallow water table, and coarse textured floodplain soils facilitate the growth of cottonwoods (*Populus* spp.) and steep sided canyons and rock outcrops permit the growth of eastern red cedar (*Juniperus virginiana*). In addition, the low humidity and Chinook winds characteristic of eastern Colorado winters contribute to rapid temperature

changes throughout the winter which make survival of many trees problematic even where there is sufficient moisture. Many species which can survive in colder climates cannot survive in Greeley because of the rapidly changing winter temperatures and dry winter soil conditions. Nearly every other part of the world that is this dry is hotter and nearly every area of the world that is this cold is wetter. The result is a short-grass steppe where only a select number of plants can grow without irrigation. The early settlers who encountered this environment quickly recognized that they would need to make significant changes to this environment to survive.

With irrigation, many plants that cannot tolerate the naturally dry climate of Greeley thrive—especially if adequate winter moisture is available. Without supplemental water, trees grow along perennial streams and in rocky soils.

A number of sources exist that provide information about plant types that thrive best in low-water conditions and are compatible with Greeley's climate. They include the following: the GreenCo plant database (Wright Water Engineers, Inc., 2008), Missouri Botanical Gardens for USDA hardiness zones (Missouri Botanical Garden), New Sunset Western Garden Book for its climate zones specific to western North America (Brenzel, 2012), Plants for a Future.org (Plants for a Future, 2014), (for soils information). All of the above sources provide information on height, spread, flowering, and sun/ shade preference.

Appendix D, The Goal of Irrigation

The goal of irrigation is to provide adequate soil moisture to meet the needs of the plants in a landscape. Water applied in excess of plant needs run off over the ground surface and down the gutter or infiltrate to soils below the rooting zone where it contributes to groundwater flow. Plants may use some of the excess water to increase their growth rate or size. Thus one possible outcome for overwatering bluegrass is the need to mow more frequently. Either way, the water is paid for and lost to the user.

Automated irrigation systems with controllers with preset programs offer significant opportunities for water conservation but also can be major contributors to wasted irrigation water. Residential controllers for automated sprinkler systems are frequently set for the highest seasonal demand and are not adjusted for seasonal or short-term changes in moisture demand. Water use is therefore excessive during wet periods or spring and fall when the need for irrigation is lower.

Smart irrigation technology is intended to apply irrigation water efficiently with quantifiable water savings. Smart Irrigation controllers use information about moisture conditions such as precipitation data or soil moisture to adjust the watering schedule to meet changing water needs of plants. They also adjust both seasonal and short-term weather needs. They use site-specific soil moisture or precipitation data to make these adjustments to change either the frequency of irrigation or the run-time of irrigation cycles. A rain shut-off device can override the controller and temporarily turn off the controller after a significant rainfall event. Smart Irrigation Technology is constantly evolving and irrigation technology evolution is being driven by water scarcity, increased understanding of the variability of meteorological events in time and space the evolution of information technology, and the desire to reduce costs.

Many property owners do not have irrigation systems but hand set sprinklers with above-ground hoses. As a rule, irrigators who drag hoses use less water than those with automated irrigated systems because they tend to wait until plants need water as opposed to “setting and forgetting” their irrigation systems. (Personal communication with Ruth Quade))

Appendix E, Discussion of Coverage Area Bonus for Plant Form

The existing City Code provides for square footage bonuses for certain plants based on their contribution to the coverage of the ground surface. Bonuses for all large shade trees are 50 square feet and large conifers, 100 square feet. This does not reflect the ecosystem service contribution of these large trees. It is recommended that bonuses for large trees more closely follow the actual area of the canopy to reflect the value of their ecosystem services. It is recommended that revised landscape regulations be adopted reflecting both the need for high quality landscaping and the need to reduce the growth in the demand for irrigation water. It is recommended that the revised landscape regulations be amended as follows:

- Square footage bonuses for large trees should be based on actual mature size of the species and should more closely follow the actual area of the canopy (the area directly under the crown) of the tree. For example, instead of a 50 square foot credit for a burr oak, a large shade tree, it would receive a credit of 200 square feet reflecting both its large size the time it takes to reach its mature size and still significantly below its maximum canopy area of approximately 900 square feet. This added bonus would reflect the contribution of such a large, long-lived shade tree to value the urban in providing essential ecological services in reduction of the urban heat island, reduction of near surface wind speeds, improvement in air quality, and reduction of erosion.
- To offset for the potential reduction in landscape area caused by increasing bonuses for large trees, bonuses for plants of minor significance would be reduced or eliminated. For example, the bonus for a bulb which may only be effective for a three week window in the spring would be reduced from three square feet to zero and that of a low growing juniper would be reduced from 25 square feet to 10 square feet. Reflecting its lesser significance.
- To encourage the use of low water plant materials, a water efficiency factor would be applied to the area of plant coverage and any bonuses for specific plants. The area covered by plants requiring the full water budget of 19 gallons per square foot per year would be multiplied by 0.75 to reduce its credit for coverage. The area covered by plants requiring only moderate irrigation water or 10 to 14 gallons per square foot per year would receive its full credit for coverage. The area covered by plants requiring low water use or five to ten gallons per square foot per year would be multiplied by 1.25 to increase its credit to reflect the value of low water use. Finally the area covered by plants requiring only very low irrigation water or less than five gallons per square foot per year would be multiplied by 1.5 to reflect the high value of its very low irrigation water demand.

The above mentioned burr oak would receive the initial area credit of 200 square feet multiplied by 1.25 for its low water use for a total of 250 square feet.

REFERENCES

- Brenzel, K. N. (2012). *The New SUNset Western Garden Book*. New York: Time Home Entertainment, Inc.
- Bureau of the Census. (n.d.). *2012 Census of Agriculture County Profile: Weld COunty Colorado.pdf*. Retrieved 12 23, 2014, from <http://www.agcensus.usda.gov/>:
http://www.agcensus.usda.gov/Publications/2012/Online_Resources/County_Profiles/Colorado/cp08123.pdf
- City of Greeley. (2009). *City of Greeley 2060 Comprehensive Plan*. City of Greeley, CO.
- City of Greeley. (2009). *City of Greeley 2060 Comprehensive Plan*. City of Greeley, CO.
- Greeley, C. o. (n.d.). *City of Greeley*. Retrieved Sept 22, 2015, from Greeley Xeriscaping:
<https://www.greeleygov.com/services/water/conservation/xeriscaping>
- Greeley, City of. (2015, June 22). *News and Events: 7 Steps of Xeriscape*. Retrieved Sept 24, 2015, from City of Greeley Water and Sewer:
<https://www.greeleygov.com/services/water/conservation/xeriscaping>
- Meyer, P. &. (2014). *City of Greeley Water Conservation Plan*. Greeley, CO: City of Greeley.
- Meyer, P. M. (2008). *Water COnservation Master Plan*. Greeley, CO: City of Greeley.
- Missouri Botanical Garden. (n.d.). *Plant Finder*. Retrieved December 23, 2014, from
www.missouribotanicalgarde.org:
<http://www.missouribotanicalgarden.org/plantfinder/plantfindersearch.aspx>
- Nowak, D. J. (2013). Modeled PM2.5 removal by trees in ten U.S. cities and associated health effects. *Environmental Pollution*, 395-402.
- Plants for a Future. (2014). *Plant Search*. Retrieved December 23, 2014, from www.pfaf.org:
<http://www.pfaf.org/user/plantsearch.aspx>
- Program, C. o. (n.d.). *City of Greeley Services*. Retrieved September 22, 2015, from Xeriscape:
<http://greeleygov.com/services/water/consevation/xeriscaping>
- Starkey, D. G. (1978). Trees and their relationship to mental health. *Journal od Aboriculture*, 153-154.
- U. S. Bureau of the Census. (2012). *2012 Census of Agriculture*. Washington: U. S.
- U. S. EPA . (2014, May 6). *Particulate Matter (PM)*. Retrieved August 6, 2015, from US Environmental Protection Agency: <http://www.epa.gov/pm/health.html>
- Walker, L. a. (2009). Lanscaping for energy conservation: Fact Sheet No. 7.225. *Gardening Series Basics*. Colorado State University Extension.
- Water & Sewer Department. (2003). *Water Master Plan*. City of Greeley.

West Sage Water Consultants. (2014). *Draft South Platte Implementation Plan*. Metro and South Platte Basin Roundtable.

Wright Water Engineers, Inc. (2008). Appendix E: Plant water requirement estimates (results of GreenCO/Colorado State University 2004 crop coefficient (Kc) survey). In *Green industry best management practices(BMPs) for the conservation and protection of water resources in Colorado*. Denver: The Green Industries of Colorado.

Chapter 18.44 – Landscaping, Irrigation, Buffers, and Screening Standards

18.44.010 - Purpose and intent.

- (a) As the City of Greeley's local population grows and development density increases in designated areas, it must protect a natural sense of place and character through the preservation, protection, and enhancement of the existing natural and planted landscapes, as well as upholding Greeley's agricultural tradition and "Tree City USA" designation that holistically furthers the goals of the [Comprehensive Plan](#).
- (b) Aesthetics and walkability. These standards enhance the aesthetic condition of Greeley's communities, along its thoroughfares and in its public spaces by:
 - (1) Using landscape material to define the hierarchy of roadways visually and to provide shade;
 - (2) Coordinating the public frontage with the private frontage;
 - (3) Preserving and protecting the aesthetic qualities that contribute to Greeley's unique character and the economy that such qualities attract;
 - (4) Providing visual screening, where appropriate; and
 - (5) Reducing visual pollution from the built environment and increasing separation between incompatible uses;
- (c) Health and safety. These standards enhance the health, safety, welfare, and quality of life in Greeley's communities, along its thoroughfares, and in its public and private spaces by promoting the application of trees and landscaping to:
 - (1) Improve air quality;
 - (2) Provide seasonal shade and temperature regulation to moderate the urban heat island effect;
 - (3) Limit glare created by exterior lighting;
 - (4) Provide a partial barrier between sidewalks and vehicular lanes; and
- (d) Environment and energy. These standards promote ecological benefits at the regional, community, and lot level by:
 - (1) Conserving energy and other limited resources used in buildings through strategic shading and windbreaks;
 - (2) Intercepting precipitation by vegetative canopies to reduce stormwater runoff and its associated costs;
 - (3) Preserving and protecting sensitive natural land or features, open areas, wildlife habitat, and waterways;
 - (4) Mitigating erosion and sedimentation which negatively impact streams and rivers; and
 - (5) Restoring soils and surrounding land disrupted as a result of construction or grading.
- (e) Water Efficiency. These standards uphold [Greeley's Landscape Policy Plan for Water Efficiency](#), promoting responsible stewardship of Greeley's limited water resources for the benefit of present and future generations by:
 - (1) Conserving water through water-smart landscape design which utilizes xeriscape principles;
 - (2) Encouraging efficient irrigation practices and the use of native and climate adapted plants;
 - (3) Reducing high-water use turf and omitting it from impractical areas such as steep slopes and narrow strips; and
 - (4) Amending soil pursuant to the Water Efficiency policy.

18.44.020 - Applicability of landscaping standards.

- (a) All development, except single-family and two-family dwellings, shall be classified as either major or minor development based on the following:

- (1) Minor development.
 - a. Has a one (1) time increase of imperviousness or building gross floor area (GFA); and
 - b. Has between a five (5%) and a twenty-five (25%) percent increase for buildings or sites less than 10,000 square feet; or
 - c. Has between a five (5%) and a ten (10%) percent increase for buildings or sites between a minimum of 10,000 square feet and not greater than 20,000 square feet.
- (2) Major development.
 - a. Has a twenty-five (25%) percent increase for buildings or imperviousness greater than 10,000 square feet.
- (b) Alternative compliance. In conjunction with a development application, the City may waive one (1) or more of the provisions contained herein, if the the applicant or developer proposes modifications and alternatives to the required landscape design and materials which are equal or greater in design than what is being proposed and meet the purpose and intent of this Chapter.
- (c) Exemptions. The landscaping requirements of this Chapter shall not apply to the following:
 - (1) A change of use within existing infill sites that do not qualify or meet the threshold for either a major or minor site alteration.
 - (2) A one (1) time increase of use and building gross floor area (GFA) that is less than five (5%) percent.
 - (3) Interior or exterior rehabilitation or remodeling of an existing building that does not involve the expansion of the gross floor area of a building on a lot.
 - (4) A property located within the General Improvement District (GID) pursuant to Section 18.34.220.
 - (5) A property located within the Redevelopment District Site on a case-by-case determination of the City.

18.44.030 - Landscape plan requirements.

- (a) Landscape plan requirements apply to all major and major developments as defined herein:
 - (1) Landscape plans shall be prepared and stamped by a Colorado registered landscape architect unless waived by the Director of Community Development.
 - (2) A certificate of occupancy shall be issued pursuant to Section 18.44.050 (b)(1)(a.).

18.44.040 - General landscaping design standards

- (a) General landscaping design standards apply to all major development as defined herein:
 - (1) Entry corridors must incorporate an architectural landscape design.
 - (2) Planting types to be incorporated into a landscaping may include shade trees, ornamental trees, non-deciduous trees and shrub, deciduous shrubs, and perennials.
 - (3) Landscaping provisions shall not be cumulative or overlapping. When more than one (1) standard applies in the same area of a lot, the Community Development Department shall determine the most restrictive landscape standard applicable to the area
 - (4) Bioswales, water quality ponds, and rain gardens. Bioswales, water quality ponds, and rain gardens may be installed and are encouraged to infiltrate runoff from parking lots, streets, civic spaces, and other impervious surfaces.
 - a. Bioretention facilities such as bioswales, water quality ponds, and rain gardens that are integrated into, or part of, a stormwater system shall adhere to the [Storm Drainage Design Criteria and Construction Specification document and Urban Drainage Criteria Manual](#), as amended.

- (5) Site landscape requirements that propose stormwater and erosion control methods shall find specifications in the [Storm Drainage Design Criteria and Construction Specification](#) manual, as amended.
- (6) Shall include foundation plantings where facades are visible from adjacent rights-of-way, open space, parking lots, trails and walks, and passive recreational areas.
- (7) Minimum Plant Sizes. The minimum plant size shall be consistent with Table 18.44-1 below:

Table 18.44-1 – Minimum plant size table

Plant Type	Plant size (Minimum)
Shade trees	2-inch diameter caliper, measured 6-inches above ground from the uppermost root flare
Ornamental trees	1½ - inch diameter caliper, measured 6-inches above ground from the uppermost root flare
Non-deciduous trees	6-foot in height
Shrubs	Volume #5 (ANSI Standards)*
Perennials	Volume #1 (ANSI Standards)

**Shrubs may be substituted with large perennials (Volume #2 (ANSI standard)) or larger in size at a 3 perinneeal to 1 shrub ratio.*

- (b) Applies to major and minor development, and single-family and two-family dwelling as defined herein:
- (1) Bare dirt or weeds are not allowed as ground cover or landscape material.
 - a. Acceptable ground covers or an approved synthetic ground cover shall be kept free of weeds.
 - b. Synthetic or non-plant ground covers shall not be counted towards the required live plantings coverage.
 - (2) Artificial turf is an acceptable ground cover, but is only permitted in yards that are not visible from the public rights-of-way.
 - (3) Landscape plantings shall be designed to establish hydrozones that enable efficient irrigation practices.
 - a. Water efficient, pollinator garden, and Xeric landscaping shall be planted to promote water conservation.
 - b. Place xeric plants together with contrasting textures or forms to improve the aesthetic appearance of a yard and promote further water conservation.
 - c. Residential subdivisions that incorporate xeric planting designs in parkways, outlots, and common open space areas, may receive a raw water reduction on a case-by-case basis.
 - (4) Native grass shall be planted in detention and retention ponds, and in areas that will not be highly trafficked by pedestrian activity.
 - (5) Utility line clearance zones.
 - a. Landscaping shall not obstruct or grow into fire hydrants, water meter pits, utility boxes, public traffic signs, sidewalks, or utility boxes except to comply with the screening of mechanical equipment pursuant to Section 18.40.040.

- b. Easements. No plant material with mature growth greater than three (3) feet in height shall be planted within potable water, sanitary, or non-potable irrigation easements.
 - c. Meters, mains, and services. No shrubs shall be planted within five (5) feet or trees within ten (10) feet of potable and non-potable water meters, fire hydrants, sanitary sewer manholes, or potable water, sanitary sewer, and non-potable irrigation mains and services.
 - d. Overhead lines. Trees or shrubs may encroach into the utility clearance zone, but shall never touch or bump into overhead phone or utility lines when the landscape material has fully matured. Shorter ornamental trees with a maximum height of 20 feet are typically acceptable, but shall follow service provider guidelines.
 - e. Storm water detention areas. Placement of floatable, erodible, or any other landscape materials, which may be determined to produce pollutants that negatively affect the quality of stormwater runoff shall not be permitted near drainage, stormwater detention, or 100-year floodplain areas.
- (6) Clear vision-sight distance triangle. For safety and visibility purposes, a sight distance triangle shall be created and maintained in which no landscape materials, earthen berms, or other visual obstructions are present. The clear vision sight distance triangle shall have a 15-foot decision point distance and a conflicting vehicle distance measurement. It is measured perpendicular 15-feet from the projected flowline of the intersecting street, driveways, and alleys.
- a. The conflicting vehicle distance measurement is dependent on the street classification and speed of major street pursuant to the City's [Design Criteria and Construction Specifications](#), as amended. It must allow full view of traffic approaching on the left or the right of the minor road. See Figure 18.44-2 for reference.

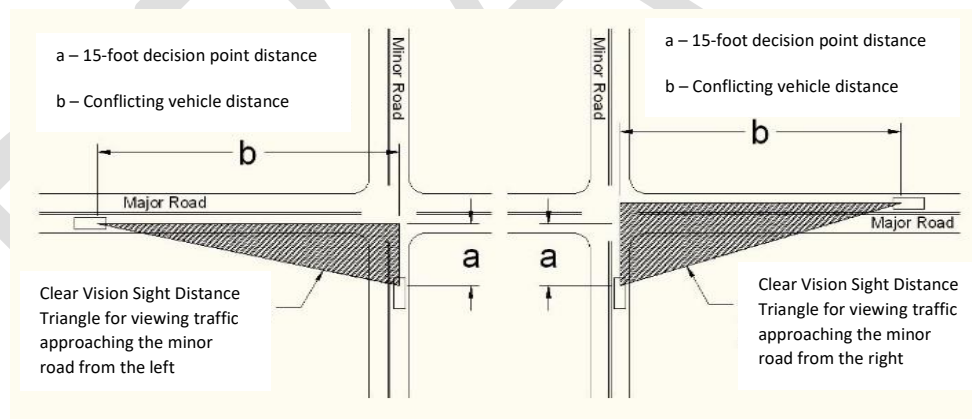


Figure 18.44-2: Clear Vision Sight Distance Triangles

- b. Landscaping proposed within the required clear vision sight distance triangle shall not be taller and shall be maintained at a height no greater than thirty (30) inches above the adjoining street level.
- (7) Right-of-way planting permit. A right-of-way planting permit, issued by the Community Development Department, shall be required for any trees and landscape material over 18-inches planted within a public rights-of-way.
- (8) Prior to the installation of turf-grass and/or other plant materials in areas that have been compacted or disturbed by construction activity, such areas shall follow soil amendments pursuant to [Title 14.08](#) and the [Water and Sewer lawn installation specifications](#).

(c) Alternative.

- (1) Utility easements or utility lines that conflict with required landscaping such as but not limited to, buffer yards, perimeter treatment, rights-of-way, parkway, and median standards shall require an alternative design that is equal to or greater than what is typically required by this chapter when landscape standards are encumbered by utility easements.
- (2) Short rooting plantings such as perennials can be planted along utility easements and other utility line paths.

18.44.050 - Installation and Maintenance.

(a) Installation and maintenance shall apply to all major, minor, and single-family and two-family dwellings as defined herein:

(b) All major development.

- (1) Required installation and inspections. Prior to the issuance of a certificate of occupancy the following provisions shall be executed:
 - a. A stamped letter of substantial completion shall be provided by a licensed landscape architect or a certified irrigation auditor.
 - b. All subdivision landscape installation must have complete common open space, outlots, street trees, and perimeter treatments installed prior to the first issuance of a certificate of occupancy or through a landscape or development agreement that includes a phasing arrangement.
- (2) All landscaped areas, including but not limited to, bioretention facilities, bioswales, rain gardens, detention areas, common open space areas, medians, and perimeter treatments shall be maintained in perpetuity by a homeowner or business association unless otherwise noted in a development agreement, a plat, or a recorded document, and as accepted and approved by the City.
- (3) Approval. Approved landscaped material may be inspected by the City periodically throughout the life of development.

(c) All major and minor development.

- (1) An inspection shall be performed by the City, if there is new and changed landscape material
- (2) Perpetual maintenance.
 - a. The developer, owners' association, property owner and/or tenant, as required by this Chapter, shall be responsible for the necessary maintenance of all on-lot, and rights-of-way landscaping, buffer yard, perimeter treatment, and screening improvements to be kept in healthy condition.
 - b. Property owners shall be responsible for the perpetual maintenance of the adjacent front parkway.
 - c. Landscape material on corner lots with a side or rear parkway shall be installed by a developer and maintained perpetually by a property owners association.
- (3) Replacement. Failure to replace dead landscape materials within three growing seasons (spring, summer, or fall) from the date of issuance of Certificate of Occupancy, shall be considered a violation of the site plan approval and is subject to penalties pursuant to Chapter 9.18.180 of the Municipal Code.

(d) Exceptions. If weather prevents the required landscaping from being installed, collateral in the form of a Financial Security Agreement, acceptable to the City, in the amount of one hundred twenty-five

(125%) percent of the cost of materials and installation is to be provided to the City and approved prior to issuance of the certificate of occupancy.

- (1) Single-family dwellings and two-family dwellings. If not previously installed, all required on-lot and rights-of-way landscaping, excluding perimeter treatment and buffer yards, shall be installed in accord with the provisions of this Chapter, within one (1) year of the issuance of the certificate of occupancy.

18.44.060 - Irrigation systems.

(a) Irrigation systems apply to all major and minor developments, and as applicable to single-family and two-family dwellings as defined herein.

(b) All major developments:

- (1) Irrigation system design required. In conjunction with a landscape plan, an irrigation system design shall be submitted to be reviewed and approved by the Water and Sewer Department.
- (2) The irrigation system shall be fully functioning automatic irrigation the following:
 - a. A fully-functioning automatic irrigation system which is designed to minimize overspray and is installed in accordance with Water and Sewer design standards. Then something about the audit.
 - i. Waiver. Existing infill developments located in the Redevelopment District may request a waiver from the Community Development Director, on a case-by-case basis.

(c) All major and minor developments:

- (1) The irrigation system shall include the following:
 - a. Subsurface and drip irrigation. Trees, shrubs, and plantings in bed areas such as landscape islands shall be designed to have hydrozones and be irrigated by drip, bubbler systems, low volume spray heads, or subsurface irrigation systems.
 - b. Temporary irrigation. A temporary irrigation system is only allowed where native grass has been installed on an undeveloped lot or part of a developed lot, an outlot, retention or detention pond, and it must be established within three (3) to four (4) seasons complying with the re-vegetation standards as provided in the [Storm Drainage Design Criteria and Construction Specification](#), as amended.
 - i. After native grass is established, the temporary irrigation must be removed within three (3) months of after establishment is complete.
- (2) Irrigation audit. An Irrigation audit shall be required following installation of the irrigation system pursuant to Section 18.44.050.

(d) All major and minor, including new single-family and two-family dwellings:

- (1) Automatic irrigation. Landscaped areas shall be served by a functioning automatic irrigation system, as determined by the Greeley's Water and Sewer Department policies.
- (2) Minimize overspray. Irrigation systems shall be designed and maintained to minimize overspray and runoff onto adjacent impervious surfaces, such as roadways, sidewalks, and parking lots.

18.44.070 - Landscape requirements for all zoning districts.

(a) Landscape requirements for all zoning districts apply to all major and minor development as defined herein:

- (1) The minimum percent of the site area required to be landscaped is fifty (50%) percent of the required open space standards established in each zoning district pursuant to Chapter 18.38.
 - (2) Where landscaping is used for screening, forty (40%) percent must be non-deciduous and sixty (60%) percent deciduous.
 - (3) Any part of a site not used for building coverage and main entrances, parking areas, driveways, sidewalks, or other site improvements shall be landscaped.
 - (4) All utility and ground-mounted electrical equipment planned and existing, and including but not limited to electric transformers, switch gearboxes, cable television boxes, telephone pedestals, and boxes, shall be screened with landscape material on the sides visible from the public rights-of-way that are not used for service access.
 - (5) Trash enclosures that do not have architectural design, trash receptacles, including loading docks, and the portion of the land-use area used as outdoor display and outdoor storage areas shall be screened with landscape material on the sides visible from public rights-of-way such as sidewalks, streets, and other areas from which the property is visible.
 - (6) For streetscapes, parking lot perimeters, and parking lot interiors, additional landscaping beyond the minimum standards may be required in order to:
 - a. Buffer dissimilar uses and activities.
 - b. Break up the massing of blank walls and large buildings.
 - c. Accent special features such as main entries and corridors.
 - d. Screen parking lot landscaping, buffer yard, rights-of-way landscaping, and perimeter treatment, and shall also meet the requirements of this Chapter.
- (b) Applies to all major and minor developments, and single-family and two-family dwellings as defined herein:
- (1) Trees required on lot. Trees shall be planted on sites pursuant to the following:
 - a. All required trees shall comply with the minimum plant material sizes listed in Table 18.44-1, Minimum plant size table.
 - b. Existing mature trees may count toward these requirements pursuant to Section 18.44.120.
 - (2) Parkway standards. Landscaping within rights-of-way shall be provided subject to the following standards:
 - a. New parkway development must have fifty (50%) live landscape material.
 - b. Shade trees shall be planted at a regular spacing of a minimum of thirty-five (35) feet on center, except in perimeter treatment areas and parking lot islands.
 - (1) Single-family and two-family dwelling shall have no less than one (1) tree per street frontage.
 - c. Shrubs and perennials shall not be taller than thirty (30) inches from the top of curb at maturity within the clear vision sight distance triangle, in all other areas in the parkway, shrubs shall exceed thirty-six (36) inches at maturity.
 - d. Street trees and shrubs must be those species suitable for the location in which they are placed and installed after sidewalks have been completed. Street trees and shrubs must be planted pursuant to Section 18.44.040, clear vision sight distance triangle provisions.
 - e. Xeric grasses are encouraged in parkways.
 - f. Street trees adjacent to sidewalks and streets, with a projection and an overhanging canopy greater than 2-feet in length, shall have an upper height clearance of eight (8) feet above sidewalks and fourteen (14) feet above streets.
 - (3) If existing healthy vegetation is retained on-site, it can be counted toward the landscape requirements pursuant to provisions of this Chapter.

- (4) All landscape materials planted pursuant to the provisions of these guidelines shall be healthy at the time of planting and compatible with the local climate.
- (c) The following applies to all single-family and two-family dwellings only as defined herein:
- (1) A minimum of one (1) tree shall be planted on all single-family and two-family lots as follows:
 - a. One (1) tree shall be planted on lot in the front yard. Not including parkway requirements.
 - b. Additional trees, not otherwise required, are encouraged to be planted.
 - (2) A minimum of fifty (50%) percent live plantings shall be provided within all yards adjacent and visible from all rights-of-way, except for alleys, including typical and atypical lots pursuant to Figures 18.44-1 and 18.44-2.
 - a. All non-paved areas and yards not visible from adjacent rights-of-way must be landscaped with ground cover pursuant to Section 18.44.060 (b).
 - b. Driveways, walkways, patios, porches, and areas containing an accessory structure shall be included for the purposes of calculating the 50% landscape material requirement.

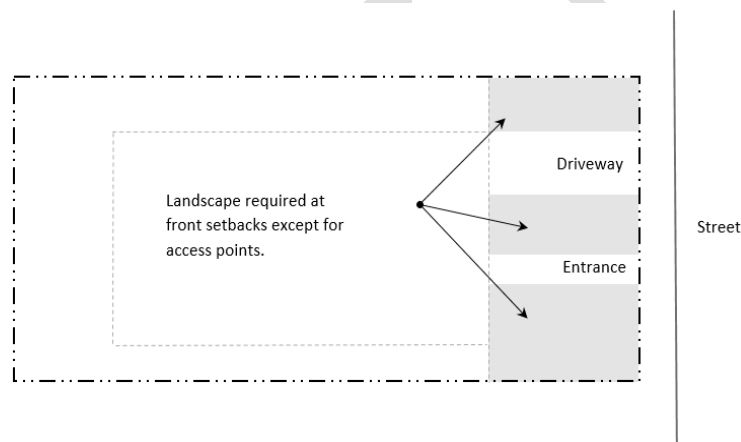


Figure 18.44-1: Typical Lot Frontage

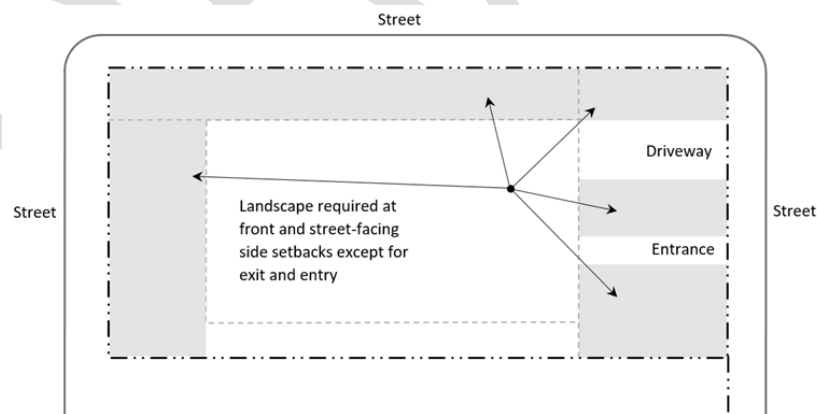


Figure 18.44-2: Atypical Lot Frontage

18.44.080 - Buffer yards standards

- (a) Buffer yard standards apply to major development as defined herein:

- (1) The purpose of buffer yards is to provide a transitional effect between two (2) or more lots sharing a common property line. The buffer yard standards of this section also apply as follows:
 - a. All new development on vacant land adjacent to existing development.
 - b. New residential subdivisions are not exempt from this provision.
 - c. Oil and gas development located in non-urbanized areas shall be reviewed on a case-by-case basis.
 - d. Land uses separated by public rights-of-way, such as alleys and streets, shall not be considered adjacent for the purposes of this section.
- (2) Location of buffer yards.
 - a. Pursuant to Figure 18.44.-3, buffer yards shall be located along the property line where the most intense and differing land-uses exist.
 - b. A buffer yard is required where the most intense use of abutting land uses may impact the adjacent property, such as, but not limited to a storage yard or a building development against a residency, or an open space park even with existing vegetation.
 - c. Buffer yards shall not be placed within any dedicated rights-of-way.

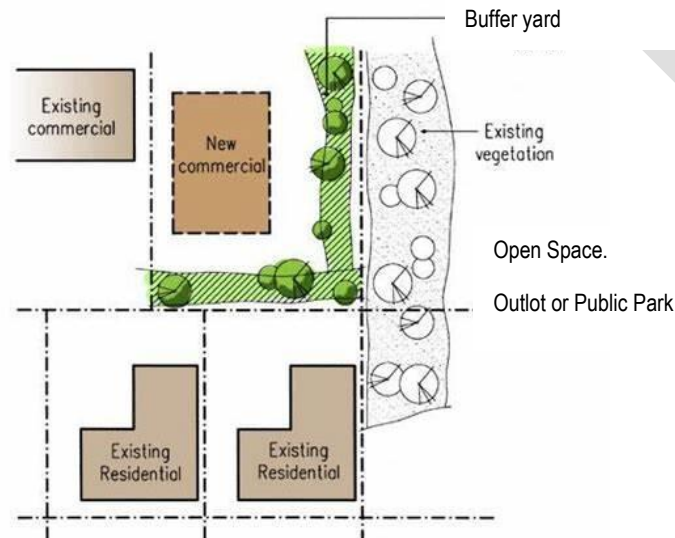


Figure 18.44-3: Buffer yard along most differing land uses

- (3) Buffer yards may be interrupted, having a break, for necessary pedestrian and vehicle access.
- (4) Existing healthy vegetation within the required buffer yard area may be counted toward the required landscaping.
- (5) Landscaping requirements for buffer yards.
 - a. Non-deciduous trees are required to make up forty (40%) percent of the required trees.
 - b. In no event shall a perennial or shrub be smaller than thirty-six (36) inches in height at maturity.
 - c. Shrubs, ornamental grasses, and perennials may not be substituted for trees in the buffer unless the applicant has demonstrated to staff that the site is encumbered by utilities as described in Section 18.44.020 (d).
 - d. All plant material conversions shall be approved by the City on a case-by-case basis based on durability and appearance in the location where the materials are to be installed.

- e. A solid wall or fencing is not required as part of a buffer yard, but if a solid wall or fence is provided, then the width of the buffer yard may be reduced by twenty-five (25%) percent.
- (6) Earthen berms are also encouraged as part of the buffer. Landscape material may be reduced by up to fifty (50%) percent if the site plan includes berming or other topographic features that achieves the intent of this section and are designed to complement adjacent properties.
- a. Earthen berms shall have a slope with a horizontal to vertical ratio of no less than 3:1 ratio to no greater than a 4:1 ratio for turf-grass mowing, and must have a crown width of at least two (2) feet.
- b. All berms, regardless of size, shall be stabilized with grasses, especially at the crown pursuant to Figure 18.44-4.
- c. Berms proposed to be placed along street rights-of-way shall be designed and constructed to provide adequate sight distances at intersections and shall not impair the safe operation of vehicles.

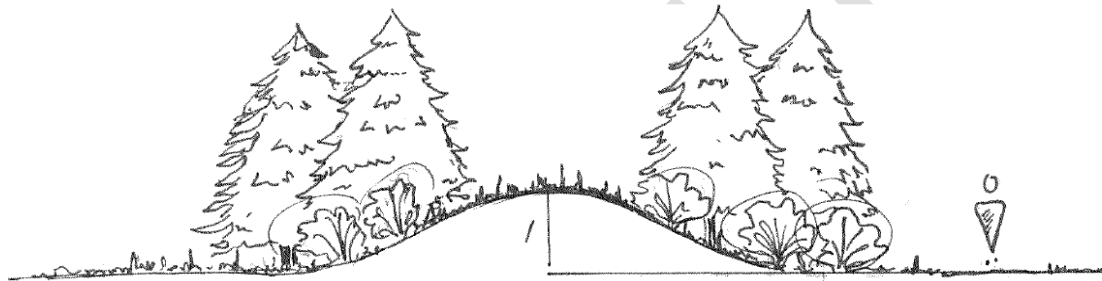


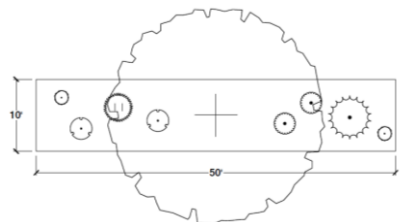
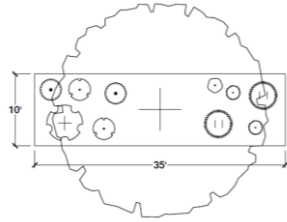
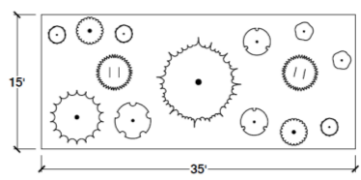
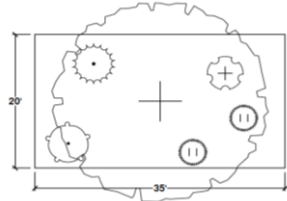
Figure 18.44-4: Example Berm with Landscape

- (7) Minimum buffer yard requirements:

Table 18.44-2 – Land Use Intensity Table

Intensity	Land Use
Low-intensity use	Including but not limited to offices (2 stories or less), churches, schools, public facilities including recreational fields, community swimming pools, and similar facilities, daycare facilities, single-family, two-family, and multi-family development at less than 12 units per acre.
Medium-intensity use or High-density use	Including but not limited to neighborhood commercial and service activities, retail operations under 3,000 gross floor area and typically do not operate 24-hours a day, restaurants (without drive-up windows), banks (without drive-up windows), convenience stores (without gasoline sales), offices (3 or more stories), multi-family development greater than 12 units per acre.
High-intensity use	Including but not limited to commercial activities that typically operate 24-hours, vehicle repair shops, service stations, drive-up window restaurants and banks, car washes, hotels and motels, shopping centers, as well as light manufacturing activities and research facilities; or any commercial or industrial property that has a gross floor area greater than 3,000 square feet in size.
Very-high intensity use	Including but not limited to heavy-industrial uses, heavy manufacturing, truck terminals, mobile home sales, vehicle sales, heavy equipment sales, facilities involving outdoor storage and outdoor commercial recreation establishments; commercial or industrial properties typically greater than 20,000 square feet in size.

366 **Table 18.44-3 – Minimum Buffer Yard Material and Width Table**

<i>Proposed Use:</i>	<i>Adjacent Shared Use:</i>	<i>Buffer Yard Quantity/Width:</i>	<i>Example Image:</i>
No buffer yard is required when property is adjacent to another of use of the same intensity.			
Medium-intensity use or a High-density use	Low-intensity	One (1) tree, eight (8) shrubs for every 50-linear feet; Minimum width: 10-feet wide	
High-intensity use	Medium-intensity or High-density	One (1) tree, Ten (10) shrubs for every 35-linear feet; Minimum width: 10-feet wide	
Very-high intensity use	Medium-intensity	One (1) tree, thirteen (13) shrubs for every 35-linear feet; Minimum width: 15-feet wide	
Very-high intensity use	High-intensity	One (1) tree and five (5) shrubs 35-linear feet; Minimum width: 20-feet wide	

367
368 (8) Alternatives.

- 369 a. If a development includes a vegetative water quality pond, decorative and articulated 6-
- 370 foot tall solid wall, or an architectural landscape design, the property owner may request
- 371 a 10% reduction in the overall landscaping, except buffer yards and perimeter
- 372 treatments.
- 373 b. If the site has unique characteristics where buffering cannot feasibly be installed due to
- 374 size constraints, minimal setbacks, or encumbrances a request for alternative
- 375 compliance pursuant to Section 18.44.020 (d) and 18.38.140 may be granted.
- 376 c. For infill sites only. A buffer yard may be replaced with two (2) or more public space
- 377 concepts such as, but not limited to outdoor seating areas and dining with landscaping,
- 378 gas or propane fire pits, fireplaces, grills and outdoor heaters, decking area and that are
- 379 accessible and functional to the public, is sustainable in design, and engages the
- 380 community with historical perspective or monumentation. This provision must be
- 381 reviewed on a case-by-case basis and approved by the Community Development Director
- 382 or Designee.

18.44.090 Parking lot landscaping standards

(a) Parking lot landscape standards shall apply to all major and minor development as defined herein:

(b) Parking lots shall adhere to the setback standards pursuant to Chapter 18.38 - Zoning District Development Standards.

(1) General parking lot landscape standards:

a. Landscaping must accommodate a two (2) foot vehicle curb overhang.

b. Shall incorporate a universal design.

c. Landscaping material such as shrubs or perennials, notwithstanding required trees, shall have a limited height of 36-inches where vehicle visibility is necessary.

d. The total tree count shall be no less than one (1) tree per five (5) parking lot spaces.

(2) Parking lot screening.

a. A minimum eight (8) foot wide landscaped area, exclusive of sidewalks and utility easements, should be provided between the parking lot and street right of way to accommodate the required screening shrubs.

b. The required landscape treatment for parking lot screening shall include, a dense hedge, berming, decorative metal fencing and/or masonry wall.

c. The landscape treatment shall be located at the perimeter of surface parking lots abutting street corridors not encumbering the clear vision sight distance triangle.

d. Is encouraged to be continuous unless the placement of existing or proposed trees make continuity impossible.

e. The parking lot screening shall have one (1) shade tree or non-deciduous tree for every thirty-five (35) feet along the same row of trees. Where space allows, earthen berms are encouraged as part of the screening standards to allow for diversity and interest in landscape design.

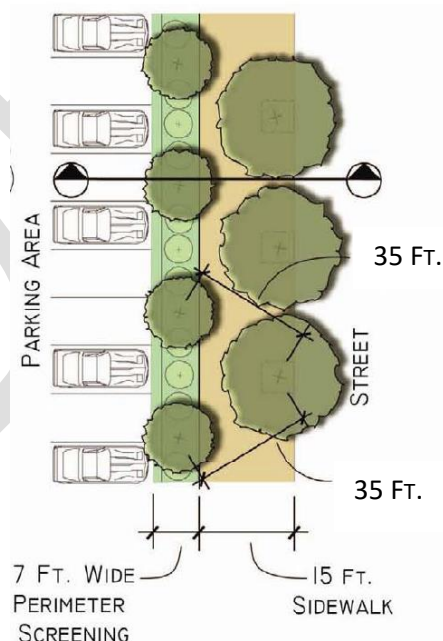


Figure 18.44-6: Parking Lot Screening

(Image above is not matching Code update provisions, revised image is forthcoming.)

- (3) Interior parking lot design. The following landscaping requirements shall apply to parking lots that accommodate fifteen (15) or more parking spaces to increase pervious surfaces within a parking lot.

- a. Parking lot islands shall include curb cuts that direct runoff into pervious areas. Plants shall have high salt and chemical tolerance.
- b. Where more than fifteen (15) parking stalls are provided in a row, one parking lot island must be provided between every fifteen (15) parking spaces. As part of the landscape plan approval, parking lot island locations may be varied based on specific site requirements or design scheme, but the total number of islands must be no less than the amount required of one island for every fifteen (15) spaces.



Figure 18.44-7: Double row parking lot island

- c. The end of every parking aisle shall have a landscaping island.
 - d. Standard size vehicle parking.
 - i. Single row parking lot islands. The minimum size of a parking lot island must be nine (9) feet wide by nineteen (18) feet long, and contain no less than one (1) shade tree.
 - ii. Double row parking lot islands. The minimum size of a parking lot island must be nine (9) feet wide by thirty-eight (38) feet long, and contain no less than two (2) shade trees.
 - e. Compact vehicle parking.
 - i. Single row parking lot islands. The minimum size of a parking lot island shall be eight (8) feet wide by sixteen (16) feet long, and contain no less than one (1) shade tree.
 - ii. Double row parking lot islands. The minimum size of a parking lot island shall be eight (8) feet wide by thirty-two (32) feet long, and contain no less than two (2) shade trees.
 - f. A minimum of sixty-five (65%) of the required parking lot trees shall be provided within the interior of surface parking lots.
- (4) Footstep access.
- a. Landscape islands shall have an additional twelve (12) inch setback from an adjacent curb to provide a footstep for pedestrian access from the parking stall pursuant to Figure 18.44-8.
 - b. The footstep access may be accomplished with a wider walk, enlarged curb, or striping to avoid having vehicles park too close to the landscape curb.
 1. If the footstep is inside the landscape island, the setback must be concrete or an acceptable all-weather compacted material that does not float or drain into the stormwater sewer system.

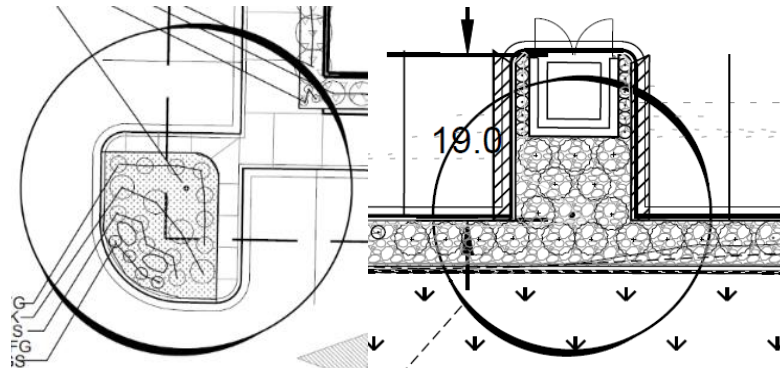


Figure 18.44-8: Example Footstep Access
(New drawings are forthcoming)

- (5) Planting median. Shall be required with parking lots greater than 100 parking spaces.
 - a. Two or more interior parking bays, a defined grouping of parking stalls, requires a continuous planting median between every other bay, to prevent traffic movement across aisles pursuant to Figure 18.44-9.
 - b. All medians shall be a minimum of fifteen (15) feet wide and must include a five (5) foot sidewalk.
 - c. All planting medians shall contain defined breaks, as necessary, to provide pedestrian circulation between bays of parking. The bays shall allow for handicap accessibility from one side of the planting median to the other and onto any sidewalk located within the planting median.
- (6) Alternatives.
 - a. Parking lot entry areas may have reduction of the required landscape material by twenty (20%) percent, if the property includes large monummentation, artwork, or architectural landscape design.
 - b. Parking lot landscape screening. Landscape material may be reduced by twenty (20%), if an architectural and decorative seat-wall no greater than 36-inches in height is included in the overall design of the landscape screening treatment.
 - c. Parking lots that include a bioretention facility that is ten (10%) of the size of the entire impervious area of a parking lot, may reduce the parking lot screening setback by one (1) foot.
- (7) Exemptions.
 - a. Exclusion areas apply to residential complexes or commercial centers that share a parking area or that have property lines adjacent to an alley or areas that abut an alley.
 - b. Parking lots which require parking lot screening, shall not be subject to perimeter landscape requirements.

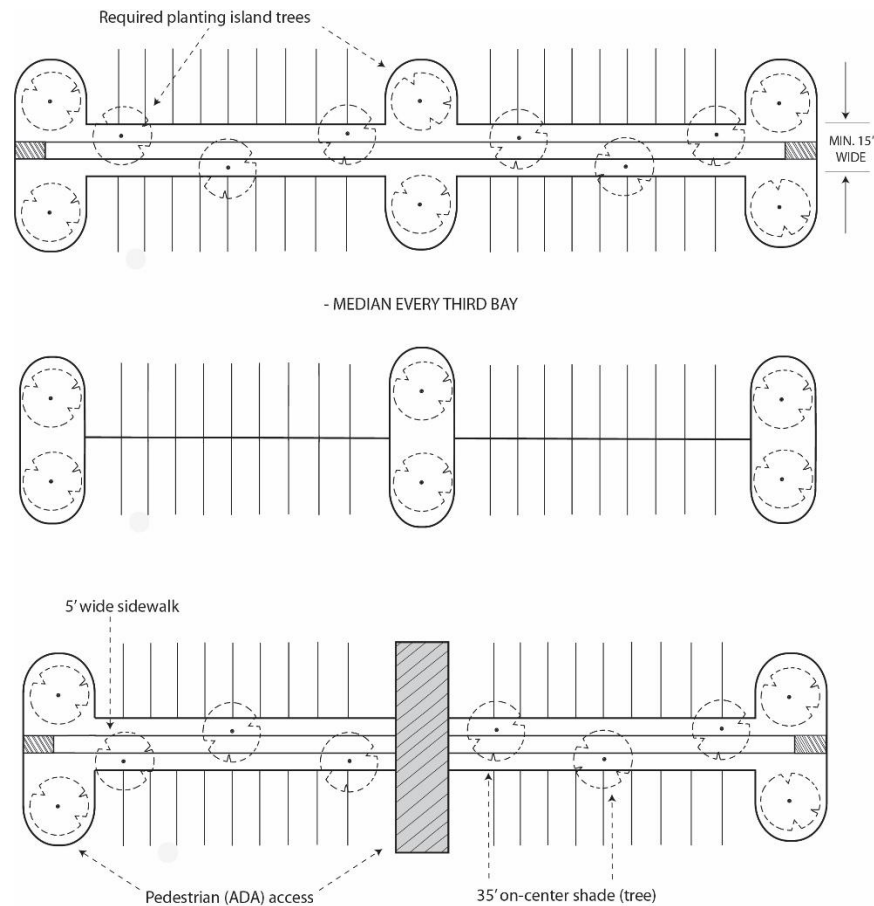


Figure 18.44-9: Example Planting Medians

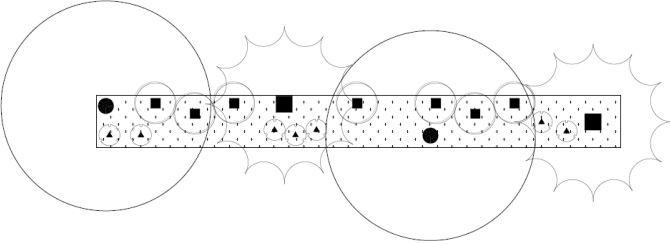
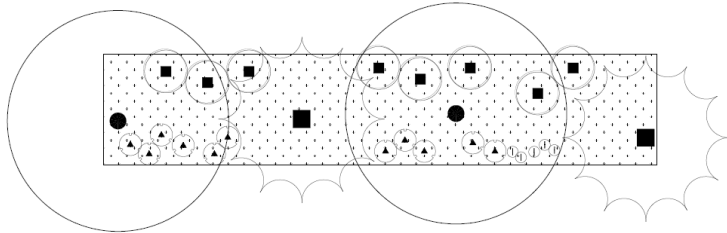
18.44.100 - Perimeter treatment standards

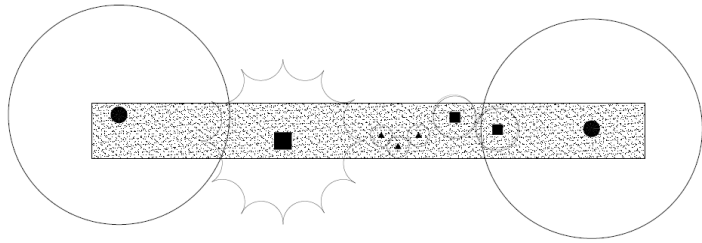
(a) Perimeter treatment standards apply to all major development as defined herein:

- (1) If a perimeter treatment was not installed at the time of subdivision, a perimeter treatment plan shall be provided, if feasible, demonstrating landscaping in areas adjacent to all rights-of-way behind the walk in low density suburban areas, not including parkway standards.
- (2) Requirements. The perimeter treatment plan shall include live plantings or elements such as fencing, earthen berms, walls, and enhanced streetscape that include furnishings, lighting, or an alternative design as approved by the Community Development Director or designee.
 - a. The plantings and elements required in perimeter treatments shall include the area between the edge of the roadway against the property line as part of the streetscape, or along the edge of an outlot or common open space area facing rights-of-way.
 - b. The perimeter treatment shall be complimentary to adjacent sites and any surrounding perimeter treatments in the immediate area.
- (3) Subdivision entryways for major and minor developments shall be planted with ornamental plant material, such as ornamental trees, flowering shrubs, perennials, and ground covers. Planting shall be massed and scaled as based on the entryway size and space. Landscaping should also provide detail, color, and variety to create visual interest.

- (4) Required perimeter treatment shall be installed concurrent with other site infrastructure improvements, as per Section 18.04.1195, and prior to the issuance of a certificate of occupancy pursuant to Section 18.44.050 (b)(1)(a).
- (5) Solid fences and walls included as part of a perimeter treatment shall be in accordance with Section 18.52.035.
- (6) Perimeter treatment design. Notwithstanding the parkway requirements pursuant to 18.44.070 (b)(2), perimeter treatment areas shall contain the plantings according to Table 18.44-4 or an acceptable mix of trees and shrubs that provide comparable screening, as determined by the City.
- (b) Exemptions.
- (1) A perimeter treatment is not required where parking lot screening standards apply.

Table 18.44-4: Perimeter Treatment Design Requirements

<i>Use Type</i>	<i>Street Classification</i>	<i>Type - Base Standard (plants per 100 linear feet)</i>	<i>Minimum Width of Perimeter (in feet)</i>
Residential/Institutional	Collector	4 trees 14 shrubs	10
			
Residential/Institutional	Arterial	4 trees 16 shrubs	20
Image to be drawn to reflect numbers and width			
Residential/Institutional	Highways/ Expressways/ Freeways	4 trees 24 shrubs	30
			
Commercial/Industrial	Collector/Arterial	3 trees 5 shrubs	10

			
Commercial/Industrial	Highways/ Expressways/ Freeways	4 trees 10 shrubs	15
Image to be drawn to reflect numbers and width			

Note: All perimeter treatment plans shall contain 40% non-deciduous trees and shrubs.

18.44.110 - Boulevard median standards

(a) Boulevard median standards shall apply to all major development.

- (1) A cross-section and planting plan of the proposed boulevard median to be landscaped shall be included with the land use application.
- (2) Xeric plants, decorative rocks and boulders, perennials, ornamental grasses, and shrubs may be added to the median design.
- (3) Plant groupings shall be designed in association with the mulch of choice. When mulches are mixed, it is encouraged to incorporate non-monotonous creative aesthetic design that provides stormwater erosion control
- (4) Proposed tree species shall be approved by the City.
- (5) A developer, pursuant a Development Agreement, shall be responsible for installing the median and irrigation system.

18.44.120 - Alterations, replacement, and removals.

(a) Alterations, Replacement, and Removals shall apply all major and minor development, and single-family and two-family dwellings as defined herein:

(b) Protection, mitigation, and preservation applies to all major and minor development:

- (1) Protection of wildlife habitat and/or linkages to wildlife habitat. The preservation and protection of healthy specimen trees, masses of smaller, healthy trees and trees in common open spaces and in passive recreational areas is preferred.
- (2) Unauthorized removal and replacement, modifications, deviations, or alterations to the approved landscape plans, or failure to install and maintain plant material (including replacing dead or dying) under the provisions set in this Code is subject to penalties pursuant to Chapter 9.18.180 of the Municipal Code.
- (3) Mitigation plan.
 - a. A tree inventory and report shall be prepared by a certified arborist to evaluate each tree for its mitigation value.
 - b. Tree credits, pursuant to Table 18.44-5, shall be given so long as the provisions of this Code section are met.
- (2) Preservation of existing trees and vegetation is the preferred means of landscaping.

- 552 a. Trees that are not in the path of new structures, pedestrian access, and parking lots, shall
 553 be preserved and incorporated into the overall site design of an associated development
 554 performed by a property owner, developer or the City.
- 555 (e) Demolition and replacement of trees shall apply to all major and minor development, and single-
 556 family and two-family dwellings:
- 557 (1) Replacement shall be provided on-site and in the rights-of-way adjacent to the property
 558 pursuant to the minimum tree planting requirements of this Code section.
- 559 (2) Replacement of trees shall be of the same or similar species and tied to a previously approved
 560 landscape plan and/or to a grandfathered condition of the subject site except those species
 561 designated as noxious or prohibited species.

Table 18.44-5: Tree Credits/Debits

<i>Diameter caliper of tree</i>	<i>Tree credit/debit</i>
≤ 2-inches to 20-inches	1
>20-inches	3

- 564 (d) If the site design precludes incorporation of some or all existing healthy trees, then replacement
 565 shall be made as follows:
- 566 a. Replacement of dead plant materials. Required landscaping that is dead shall be replaced
 567 within three seasons (summer, spring, or fall) of that same year. Replacement of
 568 vegetation shall be similar in size and type
- 569 b. Only for major and minor developments. Replacement shall be provided on an adjacent
 570 site or the nearest public land, if feasible, as determined by the City.
- 571 c. Only for major and minor developments. If the number of trees required for replacement
 572 cannot be feasibly mitigated on the subject site, the dollar value of the trees as cash-in-
 573 lieu, including the estimated cost of installation, shall be provided to the City.
- 574 (2) No credit shall be granted for trees which are:
- 575 a. Defined as non-native invasive plants or prohibited species as determined by the City.
- 576 b. Dead, dying, diseased, or infested with harmful insects;
- 577 c. Not located on the actual development site;
- 578 d. Irreparably damaged from lack of or improper pruning;
- 579 e. For preserved trees, where root protection zones have been impacted;
- 580 f. For relocated trees, where relocation techniques have not been approved by the City or
 581 as part of an approved landscape plan; and
- 582 g. Any trees removed by the City due to sight impairment of vehicular traffic or pedestrian
 583 circulation shall not be replaced with new trees and shrubs.

Landscape Code Definitions shall be taken out of the Landscape Code update and amended to Appendix 18-B Definitions

American National Standards Institute (ANSI) shall mean the standards by said organization that helps development in the U.S. have an equitable and open process that serves industry and the public good, having a consensus in standards development; ANSI's essential requirements.

Architectural landscape design shall mean the design of outdoor areas, landmarks, and structures to achieve environmental, social-behavioral, or aesthetic outcomes. It involves the systematic design and general engineering of various structures for construction and human use, using existing social, ecological, and soil conditions and processes in the landscape to produce desired landscaping.

Artificial turf shall mean any of the various synthetic fibers made to resemble natural grass.

Authorized shall mean having official permission or approval, an empowerment under the provisions of code or a policy to perform an action.

Bioretention facility shall mean a landscaped stormwater element designed to concentrate or remove debris and pollution from surface runoff water by moving water slowly and horizontally at the surface through vegetation using gently sloped sides, that cleanses water from pollutants and soil erosion before it enters the City's stormwater system.

Bioswale shall mean a landscape element designed to concentrate or remove debris and pollution from surface runoff water. The design of which consists of a swaled drainage course with gently sloped sides filled with vegetation, compost and/or riprap.

Buffer shall mean to promote separation and enhance compatibility between land uses of different intensities.

Buffer yard shall mean that area intended to provide buffering between land uses of different intensities through the use of setbacks, landscaping, earthen berms, solid fences, walls, applicable bioretention facilities or a combination thereof. Unlike a perimeter treatment, a buffer yard is located on the rear yard or interior side yard of a lot, and is not adjacent to streets or alleyways.

Caliper shall mean the diameter or circumference of a tree measured at 6-inches above ground level.

Certificate of Occupancy (C.O.) shall mean a written certificate provided by the City signifying the subject building/structure (property) has complied with City standards allowing for use and occupancy.

Change of use shall mean use that differs from the previous use of a building or land and which may affect such things as parking, drainage, circulation, landscaping, building configuration, noise, or lighting. A change of ownership that does not include any of the factors listed above shall not be considered a change of use.

Clear vision sight distance triangle shall mean an area in which the City requires maintenance in order to preserve the sight distance and safety of motorists, pedestrians, and bicyclists by requiring an unobstructed line of sight necessary for most drivers stopped at an intersection to see an approaching vehicle to avoid a collision.

626 *Deciduous* shall mean a plant with foliage that sheds annually.

627 *Decision point distance* shall mean the clear vision sight distance triangle begins.

628 *Diameter* shall mean the size of an existing size of tree as measured through the tree trunk at a
629 point 4 ½ feet from ground level.

630 *Earthen berm* shall mean a mound of earth, higher than grade, used for screening or buffering,
631 the definition of space, noise attenuation, and decoration in landscaping.

632 *Evergreen* shall mean a plant with foliage that persists and remains green year-round.

633 *Foundation plantings* shall mean live plantings located immediately around the base of the
634 foundation of a building façade that reflects the formal geometry of the structure.

635 *Non-deciduous* shall mean shrubs or trees, also called evergreens, that keep their foliage year-
636 round.

637 *Ground cover* shall mean those materials that typically do not exceed one (1) foot in height
638 used to provide a cover of the soil in landscaped areas, which include rock, cobble, boulders,
639 grasses, flowers, low-growing shrubs and vines and those materials derived from once-living things,
640 such as wood mulch. In no event shall weeds be considered ground cover.

641 *Hydrozones/Hydrozone* shall mean areas within the landscape defined by a grouping of plants
642 requiring a similar amount of water to sustain health.

643 *Impervious* shall mean any hard-surfaced, man-made area that does not readily absorb or
644 retain water, including but not limited to building roofs, paved parking and driveway areas,
645 compacted areas, sidewalks, and paved recreation areas.

646 *Irrigation system* shall mean an underground, automatic sprinkler system or above-ground
647 drip system explicitly designed for a method of watering vegetation.

648 *Landscape plan* shall mean a scaled graphic plan showing the treatment of all open space
649 areas, parking areas, public rights-of-way, and other landscaped areas.

650 *Landscaping* shall mean any combination of living plants, such as trees, shrubs, vines, ground
651 covers, flowers or grass; natural features, such as rock, stone, bark chips or shavings; and structural
652 features, including but not limited to, fountains, reflecting pools, screening walls, solid fences, and
653 benches.

654 *Lawn* shall mean a stretch of open, turf-grass covered land, Artificial turf shall not be
655 considered lawn or turf-grass.

656 *Live plantings* shall mean trees, shrubs, perennials, and long-lived ground cover, which are in
657 healthy condition.

658 *Living fence* shall mean a permanent hedge tight enough and strong enough to serve almost
659 any of the functions of a manufactured fence, but it offers agricultural and biological services.

660 *Maintain or maintenance of landscaping* shall mean but not be limited to regular watering,
661 mowing, pruning, fertilizing, clearing of debris and weeds, the removal and replacement of dead
662 plants, and the repair and replacement of an irrigation system.

Major development shall mean a development that requires an application for a preliminary subdivision, a planned unit development, a site plan review, or a use- by-special review procedure.

Minor development shall mean a development that requires an application for an infill design review, a design review procedure or a minor subdivision.

Mulch shall mean a natural planting material such as pine straw, coconut fiber, ground pine post peelings or tree bark used to control weed growth, reduce soil erosion, and reduce water loss.

Native grass shall mean a native Colorado grass.

Open space, common shall mean an area permanently set aside for the common use and enjoyment of residents or occupants of development or members of a homeowners' association, which open area may be formally landscaped and left with natural vegetation cover and which may include swimming pools and other recreational leisure facilities; areas of scenic or natural beauty and habitat areas; hiking, riding or off-street bicycle trails; and landscape areas adjacent to roads which are in excess of the minimum required setbacks.

Open space, required shall mean that portion or percent defined by the zoning standards of a lot required to be open and unobstructed. The area must not be covered by any structure or impervious surface, such as sidewalks or driveways.

Open space, usable is generally required with subdivision processes, and it shall mean that portion of a lot or site excluding the required front yard area, which is not covered by any building and available to all occupants of the building for use for recreational and other leisure activities that are customarily carried on outdoors. Usable open space may also include outdoor patios and plazas and recreational facilities, as determined in Chapter 18.38 of this title. Usable open space shall not include the required setback area from oil and gas facilities, rights-of-way, platted or built trails or sidewalks, parking lots, or occupied buildings.

Ornamental tree shall mean a deciduous tree planted primarily for its ornamental value or for screening and which will typically be smaller than a shade tree approximately fifteen (15) to twenty-five (25) feet in height.

Outlot shall mean a parcel of land platted in a subdivision for a specific purpose, which shall be shown on the face of the plat. Specific purposes may include but are not limited to, drainage areas, stormwater detention or retention areas, parks, open space, future development, or land areas reserved for other public facilities.

Parkway shall mean the strip of land typically located between the sidewalk and the curb, also referred to as a *tree lawn*.

Passive recreation area is generally an undeveloped space or environmentally sensitive area that requires minimal development. Entities such as the City's Culture, Parks and Recreation Department may maintain passive recreation areas for the health and well-being of the public and for the preservation of wildlife and the environment. The quality of the environment and "naturalness" of an area is the focus of the recreational experience in a passive recreation manner.

Perennials shall mean non-woody plants, which may die back to the ground each year but continue to grow on an annual basis. Perennials shall also include cold weather bulbs and tubers and ornamental grasses that return each year and shall count toward ground cover requirements.

Perimeter treatment shall mean improvements, such as landscaping, berming, and fencing, intended to provide visual and noise protection for the outer edges of developments that border arterial or major collector streets. Perimeter treatment also provides an attractive and varied streetscape for people traveling along thoroughfares. Perimeter treatment is generally located on the fringes of a lot facing public rights-of-way, unlike a buffer yard that screens against directly adjacent uses.

Permeable shall mean a material that allows liquids or gases to pass through it.

Pervious shall mean a surface that allows water to pass through; a surface that presents an opportunity for precipitation to infiltrate into the ground

Planting median is a strip of pervious land.

Pollinator Gardens, a pollinator garden, is one designed for the express purpose of providing habitat for or attracting bees, butterflies, moths, hummingbirds, or other beneficial creatures that transfer pollen from flower to flower, or in some cases, within flowers.

Rain garden shall mean a soil-absorption or filter system designed to be depression storage or a planted hole that allows water filtration and absorption of rainwater runoff from impervious urban areas, such as roofs, driveways, walkways, parking lots, and turf-grass or sod areas. A type of bioretention facility designed to provide stormwater green infrastructure improvements. Typically shallow vegetative depressions with gentle slide slopes designed as individual stormwater receiving areas or linked to conveyance systems. Soils may or may not be amended in these facilities.

Required landscape area shall mean the area of required open space, according to the zoning district provisions in which the property is located, that is not allowed to be covered by buildings, paving, heavily compacted surfaces or other impervious surfaces, whether within a lot, outlot or tract or within a public right-of-way, and shall not include any legally established area for storage or outdoor display.

Required landscaping shall mean the landscaping required by this Chapter.

Rights-of-way landscaping shall mean landscaping located within the public or private rights-of-way adjacent to a privately owned lot, outlot, or tract, including parkways.

Screening shall mean a method of reducing the impact of visual and noise intrusions through the use of plant materials, earthen berms, solid fences and walls, living fences, or any combination thereof, intended to block that which is unsightly or offensive with a more harmonious element.

Shade tree shall mean a deciduous tree planted primarily for its high crown of foliage or overhead shade and which typically reaches a height of thirty-five (35) to 100 feet in height.

Shrub shall mean a woody plant which consists of a number of small stems from the ground or small branches near the ground and which may be deciduous or evergreen.

Site plan shall mean a set of drawings that a property owner, builder, or contractor uses to make improvements to a property through graphic representation, whether computer-generated or

hand-drawn, of the arrangement of buildings, parking, drives, landscaping, and any other structure that is part of a development project.

Sod shall mean the grass and the part of the soil beneath it held together by its roots or another piece of thin material typically used as lawn or agricultural purposes

Solid fence shall mean a fence that is opaque and provided the fence is composed of solid wood, composite, vinyl, or masonry.

Soil amendments are elements added to the soil, such as compost, natural fertilizer, manure, or chemical fertilizer, to improve its capacity to support plant life.

Stamped (Sealed/Signed) documents shall mean technical drawings or documents prepared under and authorized by a licensed professional for City reviews and permitting legal records verifying authority, professional liability, and qualifications to practice.

Streetscaping or streetscape for the purposes of this Chapter, means rehabilitation, preservation and beautification of those exterior elements of a designated property which are visible from a street, including elements and landscaping within a front or street side setback and/or the public right-of-way.

Street tree shall mean a tree planted in close proximity to a street in order to provide shade over the street and to soften the street environment.

Tree shall mean a large woody plant having one (1) or several self-supporting stems or trunks and numerous branches and which may be deciduous or evergreen.

Tree lawn shall have the same meaning as the *parkway*.

Turf-grass shall mean a blend or mix of grasses most tolerant to the Colorado climate, whether in sod or seed form when planted, intended to be regularly maintained as a lawn in urbanized developed areas. Artificial turf shall not be considered lawn or turf-grass.

Universal design is the design of buildings, products or environments to make them accessible to all people, regardless of age, disability or other factors. The term "universal design" was coined by the architect Ronald Mace to describe the concept of designing all products and the built environment to be aesthetic and usable to the greatest extent possible by everyone, regardless of their age, ability, or status in life.

Urban heat island shall mean an urban area that is significantly warmer than its surrounding rural areas due to modifications of land surfaces such as development and other human activities. The temperature difference is usually more significant at night than during the day.

Utility line clearance zones shall mean the minimum clearance horizontal or vertical standard determined by the utility holder. Obstructions and encroachments are prohibited.

Weed shall mean any plant not typically propagated by the horticultural trades and not typically installed for the purposes of landscaping. Weed does not include native and naturalized plants, other than designated noxious weeds, grown in areas managed primarily for ecological services.

Xeric landscaping or Xeriscape was coined by Denver Water in 1981 to help make water-efficient landscaping an easily recognized concept. Xeriscape is a combination of the word

"landscape" and the Greek word "xeros," which means dry. For the purposes of defining it in this Chapter of the Code, it shall mean the use of low-water or very low-water plants in place of plants that typically require more water to survive and include, but are not limited to, plants having a low or very low water requirement.. Xeric landscaping does not mean the same as *hardscaping* or only rock.

Yard shall means the space or area of a lot between a lot line and the principal building (also referred to as a side, rear, or front setback) within which no structure shall be located except as allowed in this Chapter.

Yard, front shall means the space or area of a lot between every point on the front of a principal building and the front property line of the site, typically adjacent to the street, which extends the full width of the site, and measured perpendicularly to the building at the closest point to the front property line. On a corner lot, space or area adjacent to the shorter street rights-of-way shall be considered the front yard.

Yard, rear shall means the space or area of a lot between the rear property line of the principal building and the rear property line of the site, extending the full width of the site, and measured perpendicular to the building at the closest point to the rear property line.

Yard, interior side shall means an open-space area between the interior side property line and the building setback line, extending between the front building setback line and the rear building setback line.

Yard, side street shall mean the area extending between the front yard and the rear yard or rear street yard and situated between the side street property line and the face of the principal building which is parallel to, or most nearly parallel to, the side street property line.

Worksession Agenda Summary

December 8, 2020

Agenda Item Number 8

Roy Otto, City Manager, 970-350-9750

Title:

Scheduling of Meetings, Other Events

Background:

During this portion of the meeting the City Manager or City Council may review the attached Council Calendar or Meeting Schedule regarding any upcoming meetings or events.

Attachments:

Council Meetings/Other Events Calendar

Council Meeting/Worksession Schedule

Status Report of Council Initiatives and Related Information

City Council Meeting Scheduling

	Current as of 12/04/2020		
	This schedule is subject to change		
Date	Description	Sponsor	Placement/Time
December 15, 2020 Council Meeting	COVID-19 Update	Dan Frazen	Regular
	Ordinance - Final - Reauthorizing certain Boards & Commissions for 3 years	Anissa Hollingshead	Regular
	Ordinance - Final - Transfer of Customer and Water Resources to Evans	Sean Chambers	Regular
	Ordinance - Final - Council Compensation	Maria Gonzalez Estevez	Regular
	Resolution - IGA with School District 6 regarding Boomerang South Land Swap	Sean Chambers	Regular
	Ordinance - Final - Final Additional Appropriation	John Karner	Regular
	UNC Update from Dr. Feinstein	Roy Otto	Regular
December 22, 2020 Worksession Meeting	Cancelled (11/17/2020 Council Meeting)		

December 7, 2020 - December 13, 2020

December 2020						
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

January 2021						
Su	Mo	Tu	We	Th	Fr	Sa
						1 2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Monday, December 7

5:30pm - 6:30pm Town/County Call with Weld County Commissioners (Conference Call) - Council Master Calendar

Tuesday, December 8

6:00pm - City Council Worksession Meeting - Council Master Calendar

Wednesday, December 9

Thursday, December 10

7:30am - Poudre River Trail (Hall)

Friday, December 11

Saturday, December 12

Sunday, December 13

December 14, 2020 - December 20, 2020

December 2020						
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

January 2021						
Su	Mo	Tu	We	Th	Fr	Sa
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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Monday, December 14

Tuesday, December 15

6:00pm - City Council Meeting - Council Master Calendar

Wednesday, December 16

2:00pm - 5:00pm Water & Sewer Board (Gates)

4:00pm - 6:00pm Barbara Kirkmeyer Thank-you (Event Room, 1150 O Street, Greeley) - Council Master Calendar

Thursday, December 17

7:30am - 8:30am DDA (Zasada/Butler)

3:30pm - 4:30pm Airport Authority (Clark/Payton)

Friday, December 18

Saturday, December 19

Sunday, December 20

December 21, 2020 - December 27, 2020

December 2020						
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

January 2021						
Su	Mo	Tu	We	Th	Fr	Sa
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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Monday, December 21

Tuesday, December 22

6:00pm - **Cancelled** City Council Worksession Meeting

Wednesday, December 23

Thursday, December 24

7:30am - Poudre River Trail (Hall) ☉

Friday, December 25

Saturday, December 26

Sunday, December 27

December 28, 2020 - January 3, 2021

December 2020						
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

January 2021						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Monday, December 28

- 11:30am - 12:30pm Greeley Chamber of Commerce (Hall)
- 6:00pm - 7:00pm Youth Commission (Butler)

Tuesday, December 29

Wednesday, December 30

- 7:00am - 8:00am Upstate Colorado Economic Development (Gates/Hall) (Upstate Colorado Conference Room) - Council Master Calendar

Thursday, December 31

Friday, January 1

Saturday, January 2

Sunday, January 3

Greeley City Council

Status Report of Council Initiatives

Council Request	Council Meeting, Worksession, or Committee Meeting Date Requested	Status or Disposition (After completion, item is shown one time as completed and then removed.)	Assigned to:
None			

Worksession Agenda Summary

December 8, 2020

Agenda Item Number 9

Title:

Adjournment