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CITY OF Grand Junction COLORADO

GRAND JUNCTION CITY COUNCIL
MONDAY, JULY 18, 2022
WORKSHOP, 5:30 PM
FIRE DEPARTMENT TRAINING ROOM AND VIRTUAL
625 UTE AVENUE

1. Discussion Topics

a. Community Recreation Center Planning Progress Update

b. Gray Water Control Program Ordinance

c. Parking Study

d. Discussion Regarding an Amendment to the Landscaping Portion of the Zoning and Development Code

2. City Council Communication

An unstructured time for Councilmembers to discuss current matters, share ideas for possible future consideration by Council, and provide information from board & commission participation.

3. Next Workshop Topics

4. Other Business

What is the purpose of a Workshop?

The purpose of the Workshop is to facilitate City Council discussion through analyzing information, studying issues, and clarifying problems. The less formal setting of the Workshop promotes conversation regarding items and topics that may be considered at a future City Council meeting.

How can I provide my input about a topic on tonight's Workshop agenda?
Individuals wishing to provide input about Workshop topics can:

1. Send an email (addresses found here https://www.gjcity.org/313/City-Council) or call one or more members of City Council (970-244-1504);

2. Provide information to the City Manager (citymanager@gjcity.org) for dissemination to the City Council. If your information is submitted prior to 3 p.m. on the date of the Workshop, copies will be provided to Council that evening. Information provided after 3 p.m. will be disseminated the next business day.

3. Attend a Regular Council Meeting (generally held the 1st and 3rd Wednesdays of each month at 6 p.m. at City Hall) and provide comments during "Citizen Comments."

Grand Junction City Council

Workshop Session

Item #1.a.

Meeting Date: July 18, 2022

Presented By: Ken Sherbenou, Parks and Recreation Director

Department: Parks and Recreation

Submitted By: Ken Sherbenou

Information

SUBJECT:

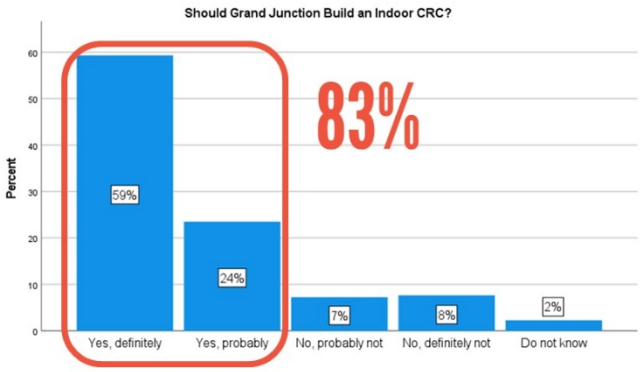
Community Recreation Center Planning Progress Update

EXECUTIVE SUMMARY:

The CRC planning is divided into three core work sessions. Work Session #1 occurred June 13th and 14th and focused on the site of a potential CRC. PRAB analyzed all public input received, along with numerous other data points, and made a unanimous recommendation to City Council to pursue Matchett Park. City Council ratified and approved this recommendation on July 6th and Matchett is now the site of the evolving planning. Worksession #2 kicks off with this July 18th City Council workshop, which will focus on the crux of the planning process: funding. The final work session on September 19th and 20th will focus on the presentation of a preliminary CRC plan.

This CRC planning process was driven by a core result of the survey:

Results: Should GJ Build an Indoor CRC?



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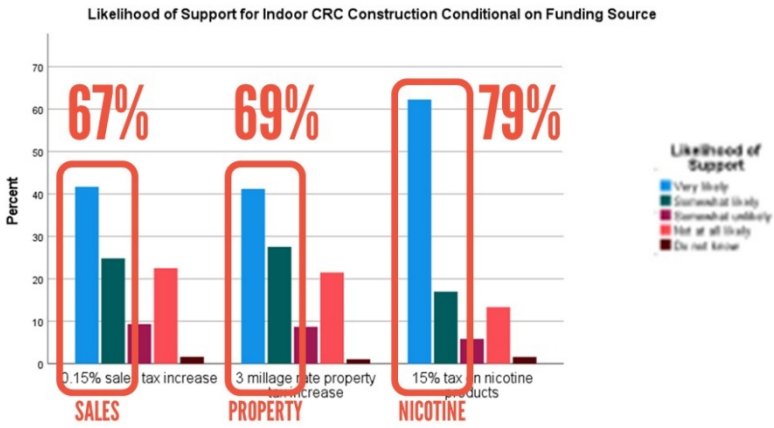
Work session #1's outcome was driven by a core result of the survey that indicated that Matchett is the preferred site. Now that Matchett has been selected as the location, the next step is to discuss funding.

Work session #2's outcome regarding funding will likely be driven by another core result of the survey: in addition to Cannabis already devoted to Parks & Rec., would you support a second funding source as follows:

Results: Likelihood of Support for an Indoor CRC



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Using this result, work session #2 provides two CRC sizes, each with three funding options to bring them to fruition. The background/detailed information section below lays out these options. City Council will be asked to provide some initial thoughts at the July 18th workshop. Following the public process of work session #2, all public feedback will be shared with PRAB. PRAB will then come back to City Council to provide another recommendation at this critical juncture of the CRC planning.

BACKGROUND OR DETAILED INFORMATION:

The Parks, Recreation and Open Space (PROS) Master Plan has a Community Recreation Center (CRC) as the highest priority. City Council gave direction to study the opportunity by working with Professors from Colorado Mesa University (CMU) to conduct a statistically valid survey. Results from the survey indicated strong support for a CRC. Council then provided further direction to staff to assemble a potential proposal to bring a CRC to fruition, including engaging with a consultant to further refine the plan through public engagement. Barker Rinker Seacat Architecture (BRS) is mobilized to facilitate a Community Recreation Center (CRC) study building off of previous studies and reforming plans. City Staff and BRS have created a work session schedule to gain additional guidance from the community, which is then provided to the Parks and Recreation Advisory Board (PRAB). City Council has tasked PRAB to then make recommendations at each critical juncture in the planning process, to then be considered by City Council.

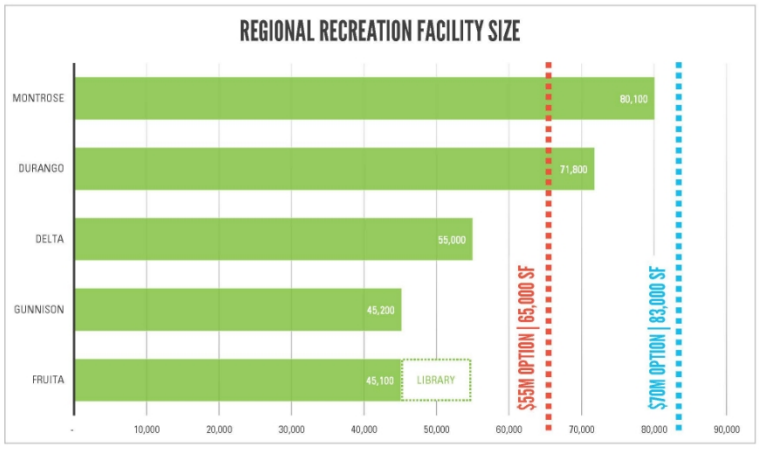
This Council workshop will discuss two building programs, one with a total project cost of $55M at approximately 65,000 square feet in size and the other with a total project cost of $70M at approximately 83,000 square feet in size. Both the building programs include the highest needs based on the CRC survey. The primary difference is the size and extent of each component. For example, both have leisure pools, fitness/weights and gym space. The larger version just has larger versions of these and other components.

The $55M option can be funded in one of three ways:
1. Cannabis revenue already secured + 0.1% sales tax increase
2. Cannabis revenue already secured + 2 mill property tax increase
3. Cannabis revenue already secured + $2 per pack tax on cigarettes plus a nicotine tax on all other products such as vaping, chew and cigars

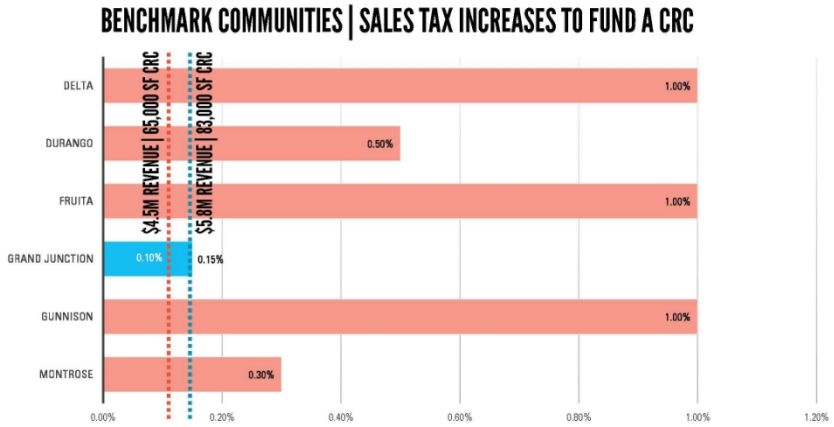
The $70M option can be funded in one of three ways:
1. Cannabis revenue already secured + 0.15% sales tax increase
2. Cannabis revenue already secured + 3 mill property tax increase
3. Cannabis revenue already secured + $3 per pack tax on cigarettes plus a nicotine tax on all other products such as vaping, chew and cigars

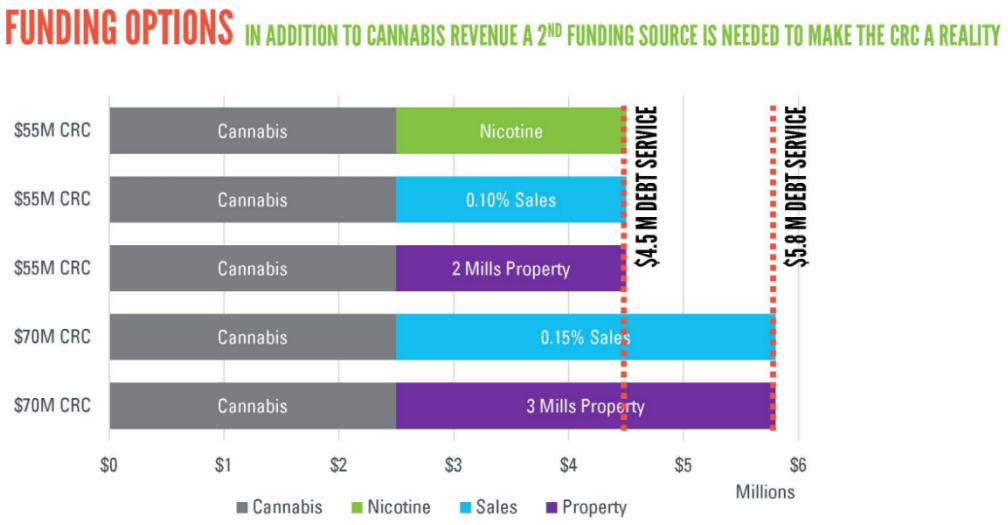
For reference, this Council workshop will review Community Recreation Centers in other nearby communities and their primary funding sources and look at their respective sales tax rates, total mill levy (property tax) and nicotine tax:

REGIONAL RECREATION CENTER FACILITY COMPARISONS



SALES TAX AS A FUNDING SOURCE





FISCAL IMPACT:

The cost of the planning effort for Barker Rinker Seacat and sub-consultants is $94,711. This is planned for inclusion in a supplemental budget coming to City Council this summer.

SUGGESTED ACTION:

This update from Barker/Rinker/Seacat (BRS) will be an opportunity to ask questions and for Council to discuss the proposed process and evolving plan.

Attachments

None

Grand Junction City Council

Workshop Session

Item #1.b.

Meeting Date: July 18, 2022

Presented By: Randi Kim, Utilities Director

Department: Utilities

Submitted By: Randi Kim

Information

SUBJECT:

Gray Water Control Program Ordinance

EXECUTIVE SUMMARY:

The draft ordinance would create Chapter 13.40 regarding a Graywater Control Program to establish standards and guidelines for the design, construction, installation, repair, modification, maintenance and use of graywater systems.

BACKGROUND OR DETAILED INFORMATION:

The State of Colorado promulgated Regulation 86 – Graywater Control Regulation on May 11, 2015 establishing the allowed users and allowed uses of graywater within the state; establishing the minimum state-wide standards for the location, design, construction, operation, installation, modification of Graywater Treatment Works; and establishing the minimum ordinance or resolution requirements for a city, city and county, or county that chooses to authorize graywater use within its jurisdiction.

The City enacted Title 13 of the Grand Junction Municipal Code to establish standards for water supply, wastewater management, and water conservation within the City. It defines water conservation in the City as the practice of “eliminating water waste and making beneficial water uses more efficient”. Title 13 also identifies the City’s goal to achieve “wise use of water for ordinary household uses and for outdoor irrigation to a reasonable degree”. The City adopted the 2012 Grand Valley Regional Water Conservation Plan (“Water Conservation Plan”) on June 20, 2012. The Water Conservation Plan advises partners to “assist City and County Health Departments in distributing guidelines for using gray water where legal and appropriate”. The City adopted the 2020 One Grand Junction Comprehensive Plan (“Comprehensive Plan”) on December 16, 2020. The Comprehensive Plan contains the goal of efficient and reliable management of water resources, which includes the promotion of water

conservation (Comprehensive Plan Principle 8.1.a.), the protection of water quality (Comprehensive Plan Principle 8.1.d.), and maximized water efficiency in the construction of new buildings and the adaptive reuse of existing buildings (Plan Principle 8.1.c.).

As provided by Regulation 86, a local city, city and county, or county with a local graywater control program has exclusive enforcement authority regarding compliance with the ordinance or resolution and, if applicable, rule. The City has not adopted a graywater control program by ordinance, resolution, or rule prior to this ordinance. As directed by Title 13 of the Grand Junction Municipal Code, the Water Conservation Plan, and the Comprehensive Plan, and in the interest of advancing the public health, safety and welfare of the community, the proposed ordinance would create Chapter 13.40 under Title 13 of the Grand Junction Municipal Code and establish standards and guidelines for the design, construction, installation, repair, modification, maintenance and use of graywater systems.

FISCAL IMPACT:

The draft ordinance includes a provision for imposing fees for administration and oversight of the Graywater Control Program as well as plan review, planning clearance and building permit and inspection fees. If Council moves forward with the program and fees, the revenues and expenses will be included in the annual budget as applicable.

SUGGESTED ACTION:

For discussion purposes

Attachments

1. Design Criteria Attachment 070722 DRAFT
2. ORD-Graywater 070822 DRAFT

ATTACHMENT A: GRAYWATER DESIGN CRITERIA

TABLE OF CONTENTS

1.0 Introduction

This Graywater Design Criteria document contains the minimum requirements for all Graywater Treatment Works installed in the City of Grand Junction.

2.0 Definitions

***Agricultural irrigation* means irrigation of crops produced for direct human consumption, crops where lactating dairy animals forage, and trees that produce nuts or fruit intended for human consumption. This definition includes household gardens, fruit trees, and industrial hemp as defined by C.R.S. § 35-61-101.**

***Agronomic rate* means the rate of application of nutrients to plants that is necessary to satisfy the nutritional requirements of the plants.**

***City* means the City of Grand Junction, a Colorado home rule Municipality.**

***Closed sewerage system* means either a permitted Domestic Wastewater Treatment Works, which includes a permitted and properly functioning On-site Wastewater Treatment System with a design capacity more than 2,000 gpd, or a properly functioning and approved or permitted OWTS with a design capacity of 2,000 gpd or less.**

***Commission* means the Water Quality Control Commission 25-8-201, C.R.S.**

***Component* means a subpart of a Graywater Treatment Works which may include multiple devices.**

***Cross-Connection* means any connection that could allow any water, fluid, or gas such that the water quality could present an unacceptable health and/or safety**

risk to the public, to flow from any pipe, plumbing fixture, or a customer's water system into a public water system's distribution system or any other part of the public water system through backflow.

***Design* means the process of selecting and documenting in writing the size, calculations, site specific data, location, equipment specification and configuration of treatment components that match site characteristics and Facility use.**

***Design flow* means the estimated volume of graywater per unit of time for which a component or Graywater Treatment Works is designed.**

***Dispersed subsurface irrigation* means a subsurface irrigation system including piping and emitters installed throughout an Irrigation Area.**

***Division* means the Water Quality Control Division of the Colorado Department of Public Health and Environment.**

***Facility* means any building, structure, or installation, or any combination thereof that uses graywater subject to a graywater control program (Program), is located on one or more contiguous or adjacent properties, and is owned or operated by the same person or legal entity. Facility is synonymous with the term operation.**

***Floodplain (100-year)* means an area adjacent to a river or other watercourse which is subject to flooding as the result of the occurrence of a one hundred (100) year flood, and is so adverse to past, current or foreseeable construction or land use as to constitute a significant hazard to public or environmental health and safety or to property or is designated by the Federal Emergency Management Agency (FEMA) or National Flood Insurance Program (NFIP). In the absence of FEMA/NFIP maps, a professional engineer shall certify the floodplain elevations.**

***Floodway* means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot or as designated by the Federal Emergency Management Agency or National Flood Insurance Program. In the absence of FEMA/NFIP maps, a professional engineer shall certify the floodway elevation and location.**

***Graywater* means that portion of wastewater that, before being treated or combined with other wastewater, is collected from fixtures within residential, commercial, or industrial buildings or institutional facilities for the purpose of being put to beneficial uses. Sources of graywater are limited to discharges from bathroom and laundry room sinks, bathtubs, showers, and laundry machines. Graywater does not include the wastewater from toilets, urinals, kitchen sinks, dishwashers, or nonlaundry utility sinks. C.R.S. 25-8-103(8.3)(a)**

Graywater treatment works **means an arrangement of devices and structures used to: (a) collect graywater from within a building or a Facility; and (b) treat, neutralize, or stabilize graywater within the same building or Facility to the level necessary for its authorized uses. C.R.S. 25-8-103(8.4)**

Irrigation area **means that area of ground consisting of soil, Mulch, gravel, and plant material to which water is directly applied by a graywater subsurface irrigation system.**

Indirect connection **means a waste pipe from a Graywater Treatment Works that does not connect directly with the closed sewerage system, but that discharges into the closed sewerage system though an air break or air gap into a trap, fixture, receptor, or interceptor.**

Legally Responsible Party

(a) For a residential property, the Legally Responsible Party is the property owner.

(b) For a corporation, the Legally Responsible Party is a responsible corporate officer, either:

(1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or

(2) the manager of operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated Facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for approval application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(c) For a general or limited partnership or sole proprietorship, the Legally Responsible Party is the general partner, business matters partner or the proprietor, respectively.

(d) For a limited liability company, the responsible party shall be the manager or other authorized agent of the company and shall be a natural person.

(e) For a Municipality, State, Federal, or other public agency, the Legally Responsible Party is a principal executive officer or ranking elected official, either

(1) the chief executive officer of the agency, or

(2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA), or

(3) when the entity is the State of Colorado, the Commission.

Graywater control program **(Program) is this ordinance and, as applicable, any rule(s), including implementation practices, regulation(s), standard(s) authorized by the City, and which follows the minimum requirements of this Chapter and other applicable law(s), rule(s) and regulation(s).**

Local public health agency **means any the Mesa County Colorado Health Department.**

Modification **means the alteration or replacement of any component of a Graywater Treatment Works that can affect the quality of the finished water, the rated capacity of a Graywater Treatment Works, the graywater use, alters the treatment process of a Graywater Treatment Works, or compliance with this regulation and the local graywater control program. This definition does not include normal operations and maintenance of a Graywater Treatment Works.**

Mulch **means organic material including but not limited to leaves, prunings, straw, pulled weeds, and wood chips.**

Mulch basin **means a type of irrigation or treatment field filled with Mulch or other approved permeable material of sufficient depth, length, and width to prevent ponding or runoff. A Mulch Basin may include a basin around a tree, a trough along a row of plants, or other shapes necessary for irrigation.**

On-site wastewater treatment system or OWTS **means an absorption system of any size or flow or a system or Facility for treating, neutralizing, stabilizing, or dispersing sewage generated in the vicinity, which system is not a part of or connected to a sewage treatment works. C.R.S. 25-10-103(12)**

Percolation test **means a subsurface soil test at the depth of a proposed Irrigation Area to determine the water absorption capability of the soil, the results of which are normally expressed as the rate at which one inch of water is absorbed. The rate is expressed in minutes per inch.**

Potable water system **means a system for the provision of water to the public for human consumption through pipes or other constructed conveyances, where**

such system has less than fifteen service connections or regularly serves less than an average of at least 25 people daily at least 60 days per year.

Professional engineer **means an engineer licensed in accordance with section 12-25-1, C.R.S.**

Nuisance **means the unreasonable, unwarranted and/or unlawful use of property, which causes inconvenience or damage to others, including to an individual or to the general public.**

Public water system **means a system for the provision of water to the public for human consumption through pipes or other constructed conveyances if such system has at least fifteen service connections or regularly serves an average of at least 25 individuals daily at least 60 days per year. A public water system is either a community water system or a non-community water system. Such term does not include any special irrigation district. Such term includes:**

> **(a) Any collection, treatment, storage, and distribution facilities under control of the supplier of such system and used primarily in connection with such system.**
>
> **(b) Any collection or pretreatment storage facilities not under such control, which are used primarily in connection with such system.**

Regulation 86 **means Colorado Department of Public Health and Environment Water Quality Control Commission Regulation no. 86 – Graywater Control Regulation, 5 CCR 1002-86.**

Single family **means a detached or attached structure, arranged and designed as a single-family residential unit intended to be occupied by not more than one family and that has separate water and sewer services connections from other dwelling units.**

Site evaluation **means a comprehensive analysis of soil and site conditions for a graywater Irrigation Area.**

Soil horizon **means layers in the soil column differentiated by changes in texture, color, redoximorphic features, bedrock, structure, consistence, and any other characteristic that affects water movement.**

Soil profile test pit **means a trench or other excavation used for access to evaluate the soil horizons for properties influencing effluent movement, bedrock, evidence of seasonal high ground water, and other information to be used in locating and designing a graywater Irrigation Area.**

Soil structure **means the naturally occurring combination or arrangement of primary soil particles into secondary units or peds; secondary units are characterized because of shape, size class, and grade (degree of distinctness).**

Suitable soil **means unsaturated soil in which the movement of water, air, and the growth of roots is sustained to support healthy plant life and conserve moisture. Soil criteria for graywater subsurface irrigation are further defined 6.0(b)(11)(i) of this document.**

Subsurface irrigation **means a discharge of graywater into soil a minimum of four inches (4") and no deeper than twelve inches (12") below the finished grade.**

State **means the State of Colorado or any of its agencies.**

State waters **means any and all surface and subsurface waters which are contained in or flow in or through this state, but does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.**

Abbreviations and Acronyms. The following meanings are associated with the acronyms used in this chapter.

ANSI	**American National Standards Institute**
BK	**Blocky**
C.R.S.	**Colorado Revised Statutes**
CDPS	**Colorado Discharge Permit System**
FEMA	**Federal Emergency Management Agency**
gpd	**gallons per day**
GR	**Granular**
mg/L	**milligrams per Liter**
MPI	**Minutes Per Inch**
NFIP	**National Flood Insurance Program**
NSF	**NSF International, formerly know as National Sanitation Foundation**
O&M	**Operations and Maintenance**
OWTS	**On-Site Wastewater Treatment System(s)**
PR	**Prismatic**

3.0 Graywater Treatment Works – Sizing Criteria

(a) Sizing Criteria for all graywater treatment works

(1) Graywater treatment works must be sized appropriately using the following flow projection methods:

(i) Residential users: Flow to graywater treatment works must be calculated on the occupancy and the fixtures connected to the

graywater treatment works. The calculated graywater flow is the number of occupants multiplied by the estimate graywater flow in terms of gpd/occupant from the attached fixtures.

(A) The occupancy must be calculated based on a minimum of two (2) occupants for the first bedroom and one (1) occupant for each additional bedroom.

(B) The estimated graywater flow from each fixture is based on the design flow of the fixture or if the fixture's design flow is unknown then the estimated graywater flow per occupant is with based on the following gallons per day per occupant.

a. Traditional fixtures: 25 gpd/occupant for each shower, bathtub, and wash basin and 15 gpd/occupant for each clothes washer.

b. Water saving fixtures: 20 gpd/occupant for each shower, bathtub, and wash basin and 8 gpd/occupant for each clothes washer.

(ii) Non-residential users: Graywater treatment works must be sized in accordance with fixture or water use records taking into account the number of fixtures attached to the graywater treatment works.

4.0 Design Criteria Applicable to All Graywater Treatment Works

(a) All graywater treatment works must meet all design requirements of this regulation and meet any additional design requirements of the Colorado Plumbing Code.

(b) At minimum, all graywater treatment works must:

(1) Be constructed such that each treatment component or combination of multiple components has a design flow greater than the calculated peak graywater production, if upstream of the storage tank or if no tank is present.

(2) Include a diversion valve that directs graywater to either the graywater treatment works or a closed sewerage system. The diversion valve must be:

(i) Easily operable;

(ii) Clearly labeled;

(iii) Constructed of material that is durable, corrosion resistant, watertight;

(iv) Designed to accommodate the inlet and outlet pipes in a secure and watertight manner; and e. Indirectly connect the bypass line to the closed sewerage system.

(3) Not have any piping that allows the treatment process(es) or a storage tank to be bypassed prior to graywater use.

(4) Include a tank to collect and store graywater, except for a subsurface irrigation system that discharges to a mulch basin. The storage tank must:

(i) Be constructed of durable, non-absorbent, water-tight, and corrosion resistant materials;

(ii) Be closed and have access openings for inspection and cleaning;

(iii) Be vented;

(iv) For indoor tanks, be vented to the atmosphere outside of the house;

(v) For outdoor tanks, have a downturned screened vent;

(vi) Have an overflow line: i. with the same or larger diameter line as the influent line; ii. without a shut off valve; iii. that is trapped to prevent the escape of gas vapors from the tank; and iv. that is indirectly connected to the closed sewerage system;

(vii) Have a valved drain line with the same or larger diameter line as the influent line that is indirectly connected to the closed sewerage system;

(viii) Be a minimum of 50 gallons;

(ix) Be placed on a stable foundation;

(x) If located outdoors, not be exposed to direct sunlight; and

(xi) Have a permanent label that states “CAUTION! NON-POTABLE WATER. DO NOT DRINK.”

(5) For indoor toilet or urinal flushing systems (Categories C and D) graywater treatment works must have a backup potable water system connection. For subsurface irrigation systems (Categories A and B) graywater treatment works may, but are not required to, have a backup potable water system that provides potable irrigation water when graywater is not being produced or is produced in insufficient quantities. A backup potable water system connection must meet the following requirements:

(i) For non-public water system, potable water system connections: uncontrolled cross connections between a potable water system and

a graywater treatment works are prohibited. All cross connections must be protected by a reduced pressure principle backflow prevention zone assembly or an approved air gap.

(ii) For public water system, potable water system connections: uncontrolled cross connections between a public water system and a graywater treatment works are prohibited. The graywater treatment works design must protect the public water system from cross connections by meeting the requirements of Regulation #11: Colorado Primary Drinking Water Regulations.

(6) Not be used as a factor to reduce the design, capacity or soil treatment area requirements for OWTS or domestic wastewater treatment works.

(7) Have any wastewater from graywater treatment works (e.g., filter backwash water) be properly contained and disposed into a closed sewerage system or an approved Underground Injection Control (UIC) well.

(8) Have all graywater piping clearly distinguished and must be clearly labeled, including pipe identification and flow arrows.

(9) If located in a 100-year floodplain area, meet or exceed the requirements of FEMA and the local emergency agency. The graywater system must be designed to minimize or eliminate infiltration of floodwaters into the system and prevent discharge from the system into the floodwaters.

(10) Not be located in floodways.

(11) Be located within the confines of the legal property boundary and not within an easement;

5.0 Design Criteria for Indoor Toilet and Urinal Flushing Graywater Treatment Works

(a) All subsurface irrigation systems must meet all design requirements of this regulation and meet any additional design requirements of the Colorado Plumbing Code.

(b) The following minimum design criteria are required for all graywater treatment works being used for single family, indoor toilet and urinal flushing graywater treatment works (Category C).

(1) All single family, indoor toilet and urinal flushing graywater treatment works must:

(i) Be certified under “Class R” of NSF/ANSI 350 Onsite Residential and Commercial Water Reuse Treatment Systems.

(ii) If a disinfection process is not part of NSF/ANSI 350-2011 equipment, include separate disinfection system equipment. For graywater treatment works that use sodium hypochlorite (bleach), the graywater treatment works must be capable of providing a free chlorine residual of 0.2 to 4.0 mg/L in the graywater throughout the indoor graywater plumbing system.

(iii) Include a dye injection system that is capable of providing a dye concentration that is visibly distinct from potable water.

(2) For Category C indoor toilet and urinal flushing graywater treatment works that are also capable of using graywater for subsurface irrigation, the system may be designed to allow graywater to be diverted to the subsurface irrigation graywater treatment works prior to the disinfection and dye process, however after the point of diversion the subsurface irrigation portion of the system must meet the requirements in section 6.0 of this document.

(c) The following minimum design criteria are required for all graywater treatment works being used for non-single family, indoor toilet and urinal flushing graywater treatment works (Category D).

(1) All non-single family, indoor toilet and urinal flushing graywater treatment works must:

(i) Be certified under "Class R" or "Class C" of NSF/ANSI 350 Onsite Residential and Commercial Water Reuse Treatment Systems. Required classification shall be dictated by the size of the graywater treatment works and if the graywater sources are residential or commercial as defined by NSF/ANSI 350.

(ii) If a disinfection process is not part of NSF/ANSI 350-2011 equipment, include a separate disinfection system equipment. A graywater treatment works must be capable of providing a free chlorine residual of 0.2 to 4.0 mg/L in the graywater throughout the indoor graywater plumbing system.

(iii) Include a dye injection system that is capable of providing a dye concentration that is visibly distinct from potable water.

(2) For Category D indoor toilet and urinal flushing graywater treatment works that are also capable of using graywater for subsurface irrigation, the system may be designed to allow graywater to be diverted to the subsurface irrigation graywater treatment works prior to the disinfection and dye process, however after the point of diversion the subsurface irrigation portion of the system must meet the requirements in Section 6.0.

(3) For graywater treatment works that have a capacity to receive greater than 2,000 gallons per day, the design must be prepared under the supervision of and submitted with the seal and signature of a professional engineer licensed to practice engineering in the State of Colorado in accordance with the requirements of the Colorado Department of Regulatory Agencies (DORA) – Division of Registrations.

6.0 Design Criteria for Subsurface Irrigation Systems

(a) All subsurface irrigation systems must meet all design requirements of this regulation and meet any additional design requirements of the Colorado Plumbing Code.

(b) The following minimum design criteria are required for all graywater treatment works being used for subsurface irrigation. All subsurface graywater irrigation systems must:

(1) Have the subsurface irrigation components of the graywater irrigation system installed a minimum of four inches (4”) and a maximum of twelve inches (12”) below the finished grade.

(2) Have the subsurface irrigation components of the graywater irrigation system installed in suitable soil, as defined in section 6.0(b)(11)(i).

(3) Have a minimum of twenty-four inches (24”) of suitable soil between the subsurface irrigation components of the graywater irrigation system and any restrictive soil layer, bedrock, concrete, or the highest water table. Restrictive soil layers are soil types 4, 4A, and 5 in Table 6-2.

(4) Include controls, such as valves, switches, timers, and other controllers, as appropriate, to ensure the distribution of graywater throughout the entire irrigation zone.

(5) If utilizing emitters, the emitters be designed to resist root intrusion and be of a design recommended by the manufacturer for the intended graywater flow and use. Minimum spacing between emitters shall be sufficient to deliver graywater at an agronomic rate and to prevent surfacing or runoff.

(6) Have all irrigation supply lines be polyethylene tubing or PVC Class 200 pipe or better and Schedule 40 fittings. All joints shall be pressure tested at 40 psi (276 kPa), and shown to be drip tight for five minutes before burial. Drip feeder lines can be poly or flexible PVC tubing.

(7) Meet the following setback distances in Table 6-1.

Table 6-1: Graywater System Setback Requirements

Minimum Horizontal Distance Required from:	Graywater Storage Tank	Irrigation Field
Buildings	5 feet	2 feet
Property line adjoining private property	10 feet	10 feet
Property line adjoining private property with supporting property line survey	1.5 feet	1.5 feet
Water supply wells	50 feet	100 feet
Streams and lakes	50 feet	50 feet
Seepage Pits and cesspools	5 feet	5 feet
OWTS disposal field	5 feet	25 feet
OWTS tank	5 feet	10 feet
Domestic potable water service line	10 feet	10 feet
Public water main	10 feet	10 feet

(8) Be applied to an irrigation field located on slopes of less than thirty percent (30%) from horizontal.

(9) Comply with the following protocols for determining the size of the subsurface Irrigation Area:

(i) Site evaluation protocol conducted to determine the appropriate size of the Irrigation Area for all subsurface irrigation systems, except single family dispersed subsurface irrigation systems (Category A and C dispersed subsurface irrigation systems) that are sized using the Irrigation Area equation protocol as defined in section 6.0(b)(12)(i). This site evaluation must include:

(A) Site information, including:

a. A site map; and

b. Location of proposed graywater Irrigation Area in relation to physical features requiring setbacks in Table 6-1.

(B) Soil investigation to determine long-term acceptance rate of a graywater Irrigation Area as a design basis. This soil investigation must be completed by either:

a. A visual and tactile evaluation of soil profile test pit, or

b. A percolation test.

(10) Comply with the following standards for appropriate irrigation rates.

(i) Irrigation rates shall not exceed maximum allowable soil loading rates in Table 6-2 based on the finest textured soil in the twenty-four inches (24”) of suitable soil beneath the subsurface irrigation components.

Table 6-2: Soil Type Description and Maximum Hydraulic Loading Rate

Soil Type	USDA Soil Texture	USDA Structure Shape	USDA Soil Structure Grade	Percolation Rate (MPI)	Loading Rate for Graywater (gal./sq.ft./day)
0	Soil Type 1 with more than 35% Rock (>2mm); Soil Types 2-5 with more than 50% Rock (>2mm)	--	0 (Single Grain)	Less than 5	Not suitable without augmentation 1.0 with augmentation
1	Sand, Loamy Sand	--	0	5-15	Not suitable without augmentation 1.0 with augmentation
2	Sandy Loam, Loam, Silt Loam	PR BK GR	2 (Moderate) 3 (Strong)	16-25	0.8
2A	Sandy Loam, Loam, Silt Loam	PR, BK, GR 0 (none)	1 (Weak) Massive	26-40	0.6
3	Sandy Clay Loam, Clay Loam, Silty Clay Loam	PR, BK, GR	2, 3	41-60	0.4
3A	Sandy Clay Loam, Clay Loam, Silty Clay Loam	PR, BK, GR 0	1 Massive	61-75	0.2
4	Sandy Clay, Clay, Silty Clay	PR, BK, GR	2, 3	76-90	Not suitable
4A	Sandy Clay, Clay, Silty Clay	PR, BK, GR 0	1 Massive	91-120	Not suitable
5	Soil Types 2-4A	Platy	1, 2, 3	121+	Not suitable

(11) Be applied only to soils that comply with the following standards for soil suitability.

(i) Suitable soil may consist of original, undisturbed soil or original soil that is augmented. Not suitable soil may be augmented as needed to ensure suitable soil is used.

(ii) If the original soil is augmented, the mixture used for augmentation must meet the following criteria to ensure that suitable soil is achieved.

(A) The mixture must have an organic content that is at least five percent (5%) and no greater than ten percent (10%);

(B) The mixture must be a well blended mix of mineral aggregate (soil) and compost where the soil ratio depends on the requirements for the plant species; and

(C) The mineral aggregate must have the following gradation:

Table 6-3: Mineral Aggregate Gradation

Sieve Size	Percent Passing
3/8	100
No. 4	95 – 100
No. 10	75 – 90
No. 40	25 – 40
No. 100	4 – 10
No. 200	2 -5

(iii) If the original soil is augmented, the additional soil must be tilled into the native soil a minimum of six inches (6”) below irrigation application zone.

(iv) Soil types 0 and 1 must be augmented before use. Soil type 4, 4A, and 5 are not suitable for subsurface irrigation.

(12) Comply with the following protocols for determining the size of the subsurface Irrigation Area for single family, dispersed subsurface irrigation systems (Categories A and C dispersed subsurface irrigation systems):

(i) For graywater treatment works using subsurface Irrigation Areas not including mulch basins, use the following Irrigation Area equation protocol to determine the appropriate size of the Irrigation Area:

LA = GW / (CF x ET x PF)

Where:

LA = Landscaped area (square feet); GW = Estimated graywater flow (gallons per week);

CF = 0.62 (square foot x inch / gallon) = ((7.48 gallons/ 1-cu-ft) / 12 inch/ft);

ET = Evapotranspiration rate (inch / week), as determined by USDA Natural Resources Conservation Service CO652.0408 "Figure CO4-1: Map of Colorado Climate Zones" dated April 1978, or weekly averages based on actual conditions;

PF = Plant factor, 0.5

ii) For graywater treatment works using mulch basin systems for subsurface irrigation, comply with the following minimum design criteria:

(A) Mulch shall be permeable enough to allow rapid infiltration of graywater.

(B) The minimum void space mulch basin volume must be either:

a. Three (3) times the anticipated average daily flow for graywater treatment works without a storage tank to allow for graywater volume surges and to prevent surfacing or runoff.

b. One and a half (1.5) times the anticipated average daily flow for graywater treatment works with storage tank meeting the design criteria in Section 3.0 Sizing Criteria.

(C) Piping to mulch basins must discharge a minimum of four inches (4") below grade into a container for dispersal of graywater into the mulch basin. The container must be designed to have four inches (4") of freefall between the invert of the discharge pipe and the mulch. The container must have an access lid for observation of flow and to check mulch levels.

(D) The mulch basin must have a minimum depth of twelve inches (12") below grade and not more than twenty four (24") below grade.

(E) A filter is not required.

iii) For graywater treatment works using dispersed irrigation systems for subsurface irrigation, comply with the following minimum design criteria:

(A) Include a cartridge filter, which must meet the following requirements:

a. A minimum of 60 mesh;

b. Located between the storage tank and the irrigation system;

c. If a pump is being used to pressurize the graywater distribution system, the filter must be located after the pump.

7.0 Signage Requirements

(a) All required notifications shall include posting of signs of sufficient size to be clearly read with the language below in the dominant language(s) expected to be spoken at the site.

(b) Signage for non-single family graywater treatment works (Categories B and D) shall comply with the following.

(1) A permanent warning sign must be visible at all fixtures from which graywater is collected. The signs must state that, "WATER FROM THIS FIXTURE IS REUSED. CHEMICALS, EXCRETA, PETROLEUM OILS AND HAZARDOUS MATERIALS MUST NOT BE DISPOSED DOWN THE DRAIN";

(2) Each room that contains graywater treatment works components must have a sign that says "CAUTION GRAYWATER TREATMENT WORKS, DO NOT DRINK, DO NOT CONNECT TO THE POTABLE DRINKING WATER SYSTEM. NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM."; and

(c) Signage for non-single family, subsurface irrigation non-single family graywater treatment works (Categories B and D) shall comply with the following.

(1) Each Irrigation Area must have a sign that says "CAUTION GRAYWATER BEING USED FOR IRRIGATION. DO NOT DRINK, DO NOT CONNECT TO THE POTABLE DRINKING WATER SYSTEM."

(d) Signage for non-single family, indoor toilet or urinal flushing, non-single family graywater treatment works (Category D) shall comply with the following:

(1) Each toilet and urinal must have a sign that says: “TO CONSERVE WATER, THIS BUILDING USES TREATED NON-POTABLE GRAYWATER TO FLUSH TOILETS AND URINALS.”

8.0 Operations and Maintenance Manual.

(a) The Operations and Maintenance Manual shall be referred to as the O&M manual. The O&M manual must include the following items:

(1) A graywater treatment works description including:

(i) equipment list

(ii) design basis data including but not limited to:

(A) design volumes;

(B) design flow rates of each component and service area;

(C) system as-built drawing; and

(D) process description.

(2) Maintenance information for the graywater treatment works including but not limited to:

(i) component maintenance schedule;

(ii) instructions for component repair, replacement, or cleaning;

(iii) replacement component source list;

(iv) testing and frequency for potable containment device; and

(v) instructions for periodic removal of residuals.

(3) Operational ranges for parameters including but not limited to:

(i) disinfectant concentration levels;

(ii) filter replacement parameters;

(iii) pressure ranges;

(iv) tank level; and

(v) valve status under normal operation.

(4) Step-by-step instructions for starting and shutting down the graywater treatment works including but not limited to:

(i) valve operation;

(ii) any electrical connections;

(iii) cleaning procedures;

(iv) visual inspection; and

(v) filter installation.

(5) A guide for visually evaluating the graywater treatment works and narrowing any problem scope based on alarm activations, effluent characteristics, system operation, and history.

(6) A list of graywater control measures in which the graywater treatment works must be operated.

CITY OF GRAND JUNCTION, COLORADO

ORDINANCE NO. XXXX

AN ORDINANCE AMENDING TITLE 13 OF THE GRAND JUNCTION MUNICIPAL CODE TO ADD CHAPTER 13.40 REGARDING A GRAYWATER CONTROL PROGRAM IN THE CITY OF GRAND JUNCTION

Recitals:

On May 11, 2015, the State of Colorado promulgated Regulation 86 – Graywater Control Regulation (5 CCR 1002-86). Regulation 86 establishes the allowed uses and users of graywater within the State; establishes the minimum state-wide standards for the location, design, construction, operation, installation, modification of Graywater Treatment Works; and establishes the minimum ordinance or resolution requirements for a city, city and county, or county that chooses to authorize graywater use within its jurisdiction.

The City of Grand Junction ("City") enacted Title 13 of the Grand Junction Municipal Code ("GJMC") to establish standards for water supply, wastewater management, and water conservation within the City, and to provide for the management of the Persigo Wastewater Treatment Plant and 201 Planning Area for the City and certain unincorporated areas of Mesa County. Title 13 defines water conservation in the City as the practice of "eliminating water waste and making beneficial water uses more efficient" (GJMC 13.36.020). Title 13 also identifies the City's goal to achieve "wise use of water for ordinary household uses and for outdoor irrigation to a reasonable degree" (GJMC 13.36.090).

On June 20, 2012, the City adopted the Grand Valley Regional Water Conservation Plan ("Water Conservation Plan"). The Water Conservation Plan advises partners to "assist City and County Health Departments in distributing guidelines for using graywater where legal and appropriate" (GJMC 45.04.390(g)).

On December 16, 2020, the City adopted the 2020 One Grand Junction Comprehensive Plan ("Comprehensive Plan"). The Comprehensive Plan includes goals for efficient and reliable management of water resources, including but not limited to the promotion of water conservation (Comprehensive Plan Principle 8.1.a.), the protection of water quality (Comprehensive Plan Principle 8.1.d.), and maximized water efficiency in the construction of new buildings and the adaptive reuse of existing buildings (Plan Principle 8.1.c.).

As provided by Regulation 86, a local city, city and county, or county with a local graywater control program has exclusive enforcement authority regarding compliance with the ordinance or resolution and, as applicable, rule. The City has not adopted a graywater control program by ordinance, resolution, or rule prior to this ordinance.

As directed by Title 13 of the GJMC, the Water Conservation Plan, and the Comprehensive Plan, and in the interest of advancing the public health, safety and welfare of the community, the City Council does hereby create Chapter 13.40 in Title 13 of the GJMC and does establish guidelines and standards for the design, construction, installation, repair, modification, maintenance, and use of graywater systems in the City.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GRAND JUNCTION THAT:

Chapter 13.40 shall be added to Title 13 of the Grand Junction Municipal Code as follows (additions shown in **bold** print):

Chapter 13.40 GRAYWATER CONTROL PROGRAM

13.40.010 Definitions

Agricultural irrigation **means irrigation of crops produced for direct human consumption, crops where lactating dairy animals forage, and trees that produce nuts or fruit intended for human consumption. This definition includes household gardens, fruit trees, and industrial hemp as defined by C.R.S. 35-61-101.**

Agronomic rate **means the rate of application of nutrients to plants that is necessary to satisfy the nutritional requirements of the plants.**

City **means the City of Grand Junction, a Colorado home rule municipality.**

Closed sewerage system **means either a permitted Domestic Wastewater Treatment Works, which includes a permitted and properly functioning On-site Wastewater Treatment System (OWTS) with a design capacity more than 2,000 gpd, or a properly functioning and approved or permitted OWTS with a design capacity of 2,000 gpd or less.**

Commission **means the Water Quality Control Commission 25-8-201, C.R.S.**

Component **means a subpart of a Graywater Treatment Works which may include multiple devices. (See, Graywater Treatment Works)**

Cross-Connection **means any connection that could allow any water, fluid, or gas such that the water quality could present an unacceptable health and/or safety risk to the public, to flow from any pipe, plumbing fixture, or a customer's water**

system into a public water system's distribution system or any other part of the public water system through backflow.

Design **means the process of selecting and documenting in writing the size, calculations, site specific data, location, equipment specification and configuration of treatment components that match site characteristics and Facility use.**

Design flow **means the estimated volume of graywater per unit of time for which a component or Graywater Treatment Works is designed.**

Dispersed subsurface irrigation **means a subsurface irrigation system including piping and emitters installed throughout an Irrigation Area.**

Division **means the Water Quality Control Division of the Colorado Department of Public Health and Environment.**

Facility **means any building, structure, or installation, or any combination thereof that uses graywater subject to a graywater control program (Program), is located on one or more contiguous or adjacent properties, and is owned or operated by the same person or legal entity. Facility is synonymous with the term operation.**

Floodplain (100-year) **means an area adjacent to a river or other watercourse which is subject to flooding as the result of the occurrence of a one hundred (100) year flood, and is so averse to past, current or foreseeable construction or land use as to constitute a significant hazard to public or environmental health and safety or to property or is designated by the Federal Emergency Management Agency (FEMA) or National Flood Insurance Program (NFIP). In the absence of FEMA/NFIP maps, a professional engineer shall certify the floodplain elevations.**

Floodway **means the channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than one foot or as designated by the Federal Emergency Management Agency or National Flood Insurance Program. In the absence of FEMA/NFIP maps, a professional engineer shall certify the floodway elevation and location.**

Graywater **means that portion of wastewater that, before being treated or combined with other wastewater, is collected from fixtures within residential, commercial, or industrial buildings or institutional facilities for the purpose of being put to beneficial uses. Sources of graywater are limited to discharges from bathroom and laundry room sinks, bathtubs, showers, and laundry machines. Graywater does not include the wastewater from toilets, urinals, kitchen sinks, dishwashers, or nonlaundry utility sinks. C.R.S. 25-8-103(8.3)(a)**

Graywater Treatment Works **means an arrangement of devices and structures used to: (a) collect graywater from within a building or a Facility; and (b) treat,**

neutralize, or stabilize graywater within the same building or Facility to the level necessary for its authorized uses. C.R.S. 25-8-103(8.4)

Irrigation area **means that area of ground consisting of soil, Mulch, gravel, and plant material to which water is directly applied by a graywater subsurface irrigation system.**

Indirect connection **means a waste pipe from a Graywater Treatment Works that does not connect directly with the closed sewerage system, but that discharges into the closed sewerage system though an air break or air gap into a trap, fixture, receptor, or interceptor.**

Legally Responsible Party

(a) For a residential property, the Legally Responsible Party is the property owner.

(b) For a corporation, the Legally Responsible Party is a responsible corporate officer, either:

(1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or

(2) the manager of operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated Facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for approval application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(c) For a general or limited partnership or sole proprietorship, the Legally Responsible Party is the general partner, business matters partner or the proprietor, respectively.

(d) For a limited liability company, the responsible party shall be the manager or other authorized agent of the company and shall be a natural person.

(e) For a Municipality, State, Federal, or other public agency, the Legally Responsible Party is a principal executive officer or ranking elected official, either

(1) the chief executive officer of the agency, or

(2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA), or

(3) when the entity is the State of Colorado, the Commission.

Graywater Control Program **(Program) is this ordinance and, as applicable, any rule(s), including implementation practices, regulation(s), standard(s) authorized by the City, and which follows the minimum requirements of this Chapter and other applicable law(s), rule(s) and regulation(s).**

Local Public Health Agency **means any the Mesa County Colorado Health Department.**

Modification **means the alteration or replacement of any component of a Graywater Treatment Works that can affect the quality of the finished water, the rated capacity of a Graywater Treatment Works, the graywater use, alters the treatment process of a Graywater Treatment Works, or compliance with this regulation and the local graywater control program. This definition does not include normal operations and maintenance of a Graywater Treatment Works.**

Mulch **means organic material including but not limited to leaves, prunings, straw, pulled weeds, and wood chips.**

Mulch basin **means a type of irrigation or treatment field filled with Mulch or other approved permeable material of sufficient depth, length, and width to prevent ponding or runoff. A Mulch Basin may include a basin around a tree, a trough along a row of plants, or other shapes necessary for irrigation.**

On-site Wastewater Treatment System or OWTS **means an absorption system of any size or flow or a system or Facility for treating, neutralizing, stabilizing, or dispersing sewage generated in the vicinity, which system is not a part of or connected to a sewage treatment works. C.R.S. 25-10-103(12)**

Percolation test **means a subsurface soil test at the depth of a proposed Irrigation Area to determine the water absorption capability of the soil, the results of which are normally expressed as the rate at which one inch of water is absorbed. The rate is expressed in minutes per inch.**

Potable Water System **means a system for the provision of water to the public for human consumption through pipes or other constructed conveyances, where such system has less than fifteen service connections or regularly serves less than an average of at least 25 people daily at least 60 days per year.**

Professional Engineer **(P.E.) means an engineer licensed in accordance with section 12-25-1, C.R.S.**

***Nuisance* means the unreasonable, unwarranted and/or unlawful use of property, which causes inconvenience or damage to others, including to an individual or to the general public.**

***Public Water System* means a system for the provision of water to the public for human consumption through pipes or other constructed conveyances if such system has at least fifteen service connections or regularly serves an average of at least 25 individuals daily at least 60 days per year. A public water system is either a community water system or a non-community water system. Such term does not include any special irrigation district. Such term includes:**

(a) Any collection, treatment, storage, and distribution facilities under control of the supplier of such system and used primarily in connection with such system.

(b) Any collection or pretreatment storage facilities not under such control, which are used primarily in connection with such system.

***Regulation 86* means Colorado Department of Public Health and Environment Water Quality Control Commission Regulation no. 86 – Graywater Control Regulation, 5 CCR 1002-86.**

***Single family* means a detached or attached structure, arranged and designed as a single-family residential unit intended to be occupied by not more than one family and that has separate water and sewer services connections from other dwelling units.**

***Site Evaluation* means a comprehensive analysis of soil and site conditions for a graywater Irrigation Area.**

***Soil Horizon* means layers in the soil column differentiated by changes in texture, color, redoximorphic features, bedrock, structure, consistence, and any other characteristic that affects water movement.**

***Soil Profile Test Pit* means a trench or other excavation used for access to evaluate the soil horizons for properties influencing effluent movement, bedrock, evidence of seasonal high ground water, and other information to be used in locating and designing a graywater Irrigation Area.**

***Soil Structure* means the naturally occurring combination or arrangement of primary soil particles into secondary units or peds; secondary units are characterized because of shape, size class, and grade (degree of distinctness).**

***Suitable Soil* means unsaturated soil in which the movement of water, air, and the growth of roots is sustained to support healthy plant life and conserve moisture. Soil criteria for graywater subsurface irrigation are further defined in Attachment A: Graywater Design Criteria.,**

Subsurface irrigation **means a discharge of graywater into soil a minimum of four inches (4") and no deeper than twelve inches (12") below the finished grade.**

State **means the State of Colorado or any of its agencies.**

State Waters **means any and all surface and subsurface waters which are contained in or flow in or through this state, but does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.**

13.40.020 Abbreviations and Acronyms. The following meanings are associated with the acronyms used in this chapter.

ANSI	**American National Standards Institute**
BK	**Blocky**
C.R.S.	**Colorado Revised Statutes**
CDPS	**Colorado Discharge Permit System**
FEMA	**Federal Emergency Management Agency**
gpd	**gallons per day**
GR	**Granular**
mg/L	**milligrams per Liter**
MPI	**Minutes Per Inch**
NFIP	**National Flood Insurance Program**
NSF	**NSF International, formerly know as National Sanitation Foundation**
O&M	**Operations and Maintenance**
OWTS	**On-Site Wastewater Treatment System(s)**
PR	**Prismatic**

13.40.030 Purpose, Applicability, and Compliance

(a) Purpose. The purpose of this chapter is to:

(1) Establish a Graywater Control Program (Program) within the City of Grand Junction, Colorado.

(2) Reduce per capita water consumption in service of the City's goals for water and wastewater management.

(3) Establish standards including requirements, prohibitions, and recommendations, for the use of graywater; and for the location, design, construction, operation, installation, and Modification of Graywater Treatment Works.

(4) Establish allowed users and uses of graywater within the City of Grand Junction.

(5) Assist the City in its effort to protect public health and water quality.

(b) Applicability. This Chapter applies to:

(1) Properties within the legal boundaries of the City as the same now exist or as the boundary may change over time.

(2) This Chapter does not apply to:

(i) Discharges pursuant to a Colorado Discharge Permit System (CDPS) or National Pollutant Discharge Elimination System Permit (NPDES) permit;

(ii) Wastewater that has been lawfully treated and released to state waters prior to subsequent use;

(iii) Wastewater that has lawfully been treated and used at a Domestic Wastewater Treatment Works for landscape irrigation or process uses;

(iv) On-site wastewater treatment works authorized under and operating in accordance with Regulation #43 (5 CCR 1002-43);

(v) Reclaimed wastewater authorized under and operating in accordance with Regulation #84 (5 CCR 1002-84);

(vi) Water used in an industrial process that is internally recycled in accordance with applicable law;

(vii) Graywater research activities exempted from graywater control regulations under C.R.S. 25-8-205.3; and

(viii) Lawful rainwater harvesting.

(c) Compliance.

All graywater uses and Graywater Treatment Works within the City's jurisdiction must comply with the minimum requirements of this Chapter, all applicable state and federal requirements for graywater system, and all requirements imposed by Mesa County Colorado Health department.

(1) Any Graywater Treatment Works installed prior to the effective date of this regulation must be able to demonstrate they meet the minimum requirements of this Chapter.

(2) Should the City Program be revoked or rescinded by the City, all Graywater Treatment Works in the City's jurisdiction must within 365 days:

(i) If applicable, be regulated by Mesa County under a graywater control program by which the County assumes authority over the existing Graywater Treatment Works; or

(ii) Be physically removed or permanently disconnected in accordance with local or state regulations.

(3) Should a property with a lawful Graywater Treatment Works be de-annexed from the City of Grand Junction, the property owner must within 365 days

i (i) Ensure the Graywater Treatment Works complies with the controlling jurisdiction of the property; or

(ii) Ensure the Graywater Treatment Works is physically removed or permanently disconnected in accordance with applicable local and state regulations.

(4) Graywater may be used only as allowed under and by the City Program. Unauthorized graywater use and discharge(s) are prohibited.

(5) All Graywater Treatment Works installed in the City must:

(i) meet all requirements of Regulation 86 as may be amended, and

(ii) City Building Code, and

(iii) and any applicable federal law, state, City, and Mesa County requirements.

(6) Graywater Treatment Works are prohibited from being installed in properties that have new or existing On-Site Wastewater Treatment Systems (OWTS). Connection of the Graywater Treatment Works to the Persigo Wastewater Treatment Plant is a requirement to own/operate a Graywater Treatment Works.

13.40.040 Materials Incorporated by Reference

(a) Design criteria incorporated by reference and cited herein are included in Attachment A and are referred to herein as the Graywater Design Criteria.

(1) The Graywater Design Criteria shall be maintained in accordance with Regulation 86, as amended and the most recent version of the International Plumbing Code adopted by Mesa County.

(b) All materials referenced in and/or incorporated by reference in this ordinance may be examined at gjcity.org or at the City of Grand Junction, 250 N 5th Street Grand Junction, CO 81501.

13.40.050 Permitting, Inspection and Approval

(a) Permitting. Prior to approval for use, all Graywater Treatment Works must be approved by the City of Grand Junction.

(b) Inspection. Prior to approval for use, all Graywater Treatment Works must be inspected, verified and accepted by the City of Grand Junction.

(c) Operation and Maintenance (O&M) Manual, All graywater systems must have an O&M manual. The O&M manual shall fully comply with the O&M manual requirements, specifications and content all as provided in the Graywater Design Criteria.

13.40.060 Enforcement and Oversight

(a) Responsible Agency. The City Manager shall be responsible for oversight and implementation of this Chapter including, but not limited to, review, inspection, enforcement, tracking, and receipt of complaints.

(b) Enforcement. The City and its contractor the Mesa County Building Department (Building Department) are authorized to perform inspections and take enforcement actions to ensure compliance with this Chapter.

> **(1) Enforcement of this Chapter shall be in accordance with the duty(ies) set forth in GJMC 15.08.020.**
>
> **(2) The Applicant shall install and maintain any Graywater Treatment Works within the City in accordance with the Graywater Design Criteria in Attachment A. the City Manager is authorized to perform inspection(s) and take enforcement action(s) to ensure compliance with this Chapter.**
>
> **(3) The City shall provide an application for, and when a complete application is made, filed and fees are paid, review the proposed Graywater Treatment Works.**
>
> **(4) The City shall review and approve, approve with conditions, or deny each application within 30 days of the City determining the application to be complete. An incomplete application will be denied.**

13.40.070 Reporting Requirements and Tracking System

(a) Owners (or their Legally Responsible Party) of Category B and D Graywater Treatment Works are required to provide an annual self-certification of the legal status of their Graywater Treatment Works. The letter must contain the following:

(1) A statement indicating if the Graywater Treatment Works is still in operation;

(2) A certification that the Graywater Treatment Works is being operated in accordance with the operations and maintenance manual;

(3) A certification that no Modification(s) has(have) been made to the Graywater Treatment Works. If Modification(s)has(have) been made to the Graywater Treatment Works, the Modification(s) must be described in a written statement.

(4) Written attestation that the Graywater Treatment Works is overseen by an operator certified according to requirements of Regulation 100, 5 CCR 1003-2, if required.

(b) The owner or operator of a Graywater Treatment Works must report the following information to the City of Grand Junction for inclusion in a tracking system of Graywater Treatment Works. The information must be received within 30 days of the treatment works becoming operational:

(1) The legal address where the Graywater Treatment Works is located;

(2) The owner of the Graywater Treatment Works;

(3) A list of Graywater uses;

(4) A description of the Graywater Treatment Works; and

(5) Where required, the name and contact information for the certified operator associated with the Graywater Treatment Works.

(b) The owner or operator of a Graywater Treatment Works must report changes to any of these items must be reported to City of Grand Junction within 60 days of the changes.

13.40.080 Fees

(a) The City may impose fees for administration and oversight of the Graywater Control Program.

(b) Plan Review Fees and Planning Clearance Fees, Building Permit and Inspection Fees may be applicable as determined by the City Manager.

13.40.090 Graywater Use Categories. The graywater use categories allowed are defined below. A Facility may have multiple Graywater Treatment Works if all applicable use and design requirements are satisfied.

(a) Category A: Single family, subsurface irrigation

(1) Category A graywater use must meet the following:

(i) Allowed users: Single family.

(ii) Allowed graywater sources: Graywater collected from bathroom and laundry room sinks, bathtubs, showers, and laundry machines.

(iii) Allowed uses: Outdoor, subsurface irrigation within the confines of the legal property boundary.

(iv) Design flow: The design flow for a single-family Graywater Treatment Works shall not exceed 400 gallons per day (gpd) for all approved uses.

(b) Category B: Non-single family, subsurface irrigation, 2,000 gallons per day (gpd) or less

(1) Category B graywater use must meet the following:

(i) Allowed users: Non-single family users.

(ii) Allowed graywater sources: Graywater collected from bathroom and laundry room sinks, bathtubs, showers, and laundry machines.

(iii) Allowed uses: Outdoor, subsurface irrigation within the confines of the legal property boundary.

(iv) Design flow: The design flow for a non-single family Graywater Treatment Works shall not exceed 2,000 gallons per day (gpd) for outdoor irrigation for the Facility.

(c) Category C: Single family, indoor toilet and urinal flushing, subsurface irrigation

(1) Category C graywater use must meet the following:

(i) Allowed users: Single family.

(ii) Allowed graywater sources: Graywater collected from bathroom and laundry room sinks, bathtubs, showers, and laundry machines.

(iii) Allowed uses: Indoor toilet and urinal flushing and outdoor, subsurface irrigation within the confines of the legal property boundary.

(iv) Design flow: The design flow for a single-family Graywater Treatment Works shall not exceed 400 gallons per day (gpd) for all approved uses.

(d) Category D: Non-single family, indoor toilet and urinal flushing, subsurface irrigation

(1) Category D graywater use must meet the following:

(i) Allowed users: Non-single family users.

(ii) Allowed graywater sources: Graywater collected from bathroom and laundry room sinks, bathtubs, showers, and laundry machines.

(iii) Allowed uses: Indoor toilet and urinal flushing and outdoor, subsurface irrigation within the confines of the legal property boundary.

(iv) Design flow: There is no maximum design flow for a non-single family Graywater Treatment Works for indoor toilet and urinal flushing. There is no maximum design flow for wastewater from the Facility that can go to a Closed Sewerage System. The design flow is limited to 2,000 gallons per day (gpd) or less for outdoor irrigation for the Facility.

13.40.100 Design Criteria

(a) Design Criteria

(1) All Graywater Treatment Works must meet the requirements of the Graywater Design Criteria in effect at the time of installation of the system. The Graywater Design Criteria is included in Attachment A. Attachment A is incorporated by this reference as if fully set forth.

(b) Sizing

(1) Graywater Treatment Works must be sized appropriately using the flow projection methods described in the Graywater Design Criteria.

(2) The size of Irrigation Areas must be determined using the sizing protocols described in the Graywater Design Criteria.

(c) System Modifications

(1) Graywater Treatment Works requiring Modifications must be upgraded to the requirements of the Graywater Design Criteria in effect at the time of

Modifications. All system Modifications must be approved by the City of Grand Junction.

13.40.110 Control Measures

(a) General control measures.

(All Graywater Treatment Works and uses must be conducted in accordance with the following control measures:

(1) Graywater must be collected in a manner that minimizes the presence or introduction of:

(i) Hazardous or toxic chemicals in the graywater to the greatest extent possible;

(ii) Human excreta in the graywater to the greatest extent possible;

(iii) Household wastes; and

(iv) Animal or vegetable matter.

(2) Use of graywater is limited to the confines of the Facility from which the graywater is derived.

(3) All graywater systems must have an operation and maintenance (O&M) manual. The Graywater Treatment Works must be operated and maintained in accordance with the O&M manual, including all manufacturer recommended maintenance activities. See the Graywater Design Criteria for O&M manual requirements.

(i) The O&M manual must remain with the Graywater Treatment Works throughout the system's life and be updated based on each Modification and approval made to the system.

(ii) The O&M manual must be transferred, upon change of ownership or occupancy, to the new owner or tenant.

(iii) For Category D Graywater Treatment Works that have a capacity to receive greater than 2,000 gallons per day (gpd), operational and maintenance records must be maintained for a minimum of the past five (5) years.

(4) The owner or operator of a Graywater Treatment Works must minimize exposure of graywater to humans and domestic pets.

(5) Graywater use and Graywater Treatment Works must not create a nuisance.

(6) Graywater may not be stored for more than 24 hours unless the graywater has been treated by a Graywater Treatment Works. All Graywater must be stored inside a tank(s) that meets the design requirements of the Graywater Design Criteria.

(7) Temporary or semi-temporary connections from the Potable Water System or public water system to the Graywater Treatment Works are prohibited. Permanent connections from the Potable Water System or public water system to the Graywater Treatment Works must meet the design requirements of the Graywater Design Criteria.

(b) Subsurface irrigation system control measures. All subsurface irrigation systems must be operated in accordance with the additional following control measures:

(1) Agricultural irrigation with graywater is prohibited by Regulation 86 and this Chapter.

(2) Irrigation with graywater is prohibited when the ground is frozen, plants are dormant, during rainfall events, or the ground is saturated.

(3) Irrigation scheduling must be adjusted so that application rates are closely matched with soil and weather conditions.

(4) Graywater must be applied in a manner that does not result in ponding, runoff, or unauthorized discharge to state waters. For Dispersed Subsurface Irrigation systems, the graywater must be applied at an agronomic rate. For Mulch Basins systems, the graywater must not be applied in excess of the soil adsorption rate.

(5) For Mulch Basin systems, Mulch must be replenished and undergo periodic maintenance as needed to reshape or remove material to maintain surge capacity and to prevent ponding and runoff.

(c) Control measures that apply to indoor toilet and urinal flushing graywater use Indoor toilet and urinal flushing Graywater Treatment Works (Categories C and D) must be operated in accordance with the following additional control measures.

(1) Graywater for toilet and urinal flushing use must be disinfected.

(a) Graywater Treatment Works that utilize chlorine for disinfection must have a minimum of 0.2 mg/L and a maximum of 4.0 mg/L of free chlorine residual throughout the indoor graywater plumbing system, including fixtures.

(b) Single family Graywater Treatment Works that utilize non-chemical methods, such as UV, for disinfection must have a chlorine puck present in each toilet or urinal tank.

(2) Graywater for toilet and urinal flushing must be dyed with either blue or green food grade vegetable dye and be visibly distinct from potable water.

13.40.120 Certified Operator of Category D Systems

(a) Category D non-single family systems of over 2,000 gallons per day must be operated by qualified personnel who meet any applicable requirements of Regulation #100 the Water and Wastewater Facility Operators Certification Requirements (5 CCR 1003-2).

13.40.130 Nuisance

(a) It shall be unlawful and constitute a nuisance for any person to erect, install, or use a graywater system upon property located within the City without first having obtained a building permit, issued pursuant to this Chapter, for an approved, compliant graywater system.

(b) It shall be unlawful and constitute a nuisance for any person to collect or cause to be collected graywater from any sources except as otherwise expressly permitted under this Chapter.

(c) It shall be unlawful and constitute a nuisance for any person to use graywater, or conduct any graywater activity, upon property located within the City for any purpose except as otherwise expressly permitted this Chapter.

(d) It shall be unlawful and constitute a nuisance for any person to operate a graywater system or subsurface irrigation system without implementing the control measures provided in this Chapter.

13.40.140 Remedies for Noncompliance

(a) Compliance orders. Whenever the City determines that any activity is occurring which is not in compliance with a building permit and/or the requirements of this Chapter, the City may issue a written compliance order to the Legally Responsible Party containing a compliance schedule (Schedule).

(1) The Schedule shall direct specific action(s) by the Legally Responsible Party including dates for the completion of the action(s). It shall be unlawful for any person to fail to comply with any compliance order.

(b) Suspension and revocation of permit. The City may suspend or revoke a building permit for violation of any provision of this chapter, violation of the permit, and/or misrepresentations by the permittee or the permittee's agents, employees, or independent contractors.

(c) Stop work orders. Whenever the City determines that any activity is occurring which is not in compliance with an approved permit and/or the requirements of this chapter, the City may order such activity stopped upon service of written notice upon the Legally Responsible Party. Any and all work or other activity(ies) under, or in reliance on a permit having issued, shall immediately stop until authorized in writing by the city to proceed.

(1) Service shall be by hand delivery or posting the property.

(2) If the Legally Responsible Party cannot be located, the notice to stop shall be posted in a conspicuous place upon the property where the activity is occurring.

(3) The notice shall state the nature of the violation.

(4) The notice shall not be removed until the violation has been cured or authorization to remove the notice has been issued by the city.

(5) It shall be unlawful for any person to fail to comply with a stop work order.

(d) Civil proceedings. In case of any violation of any provision of this chapter, or any amendment thereof, the city may, at its discretion, initiate civil proceedings, including administrative citations pursuant to chapter 8.25 of the GJMC injunction, mandamus, abatement, declaratory judgment or other appropriate actions or proceedings, to prevent, enjoin, abate, remove, or otherwise correct any such unlawful condition. Civil remedies provided for under this section are not exclusive and shall not preclude prosecution for criminal violations under the provisions of this chapter.

13.40.150 Severability

(a) The provisions of this Chapter are severable. If any portion of this Chapter should be declared invalid for any reason whatever, such decision shall not affect the remaining portions thereof.

Introduced on first reading the ____ day of ____ 2022 and ordered published in pamphlet form.

Adopted on second reading this ____ day of ____ 2022 and ordered published in pamphlet form.

ATTEST:

_____
Anna M. Stout

President of City Council

_____

Amy Phillips City Clerk

Grand Junction City Council

Workshop Session

Item #1.c.

Meeting Date: July 18, 2022

Presented By: Jay Valentine, General Services Director

Department: General Services

Submitted By: Jay Valentine

Information

SUBJECT:

Parking Study

EXECUTIVE SUMMARY:

In January of this year, staff again engaged Walker to complete an update on the Downtown Grand Junction Parking Study. With this current study, staff expanded the scope to include a broader area of downtown. The results of this study are intended to identify the Study Area's existing and future parking needs. Where applicable, comparisons are provided to the previous study findings.

BACKGROUND OR DETAILED INFORMATION:

In September of 2015, the City of Grand Junction hired Walker Parking Consultants (“Walker”) to conduct a Downtown Parking Study. The purpose of this study was to evaluate the existing downtown parking system and determine if additional capacity was needed to support current uses and future growth and development, including a possible new downtown event center which was being considered at the time. In short, this study indicated at the peak time of day, parking utilization was approximately 54% of total parking supply.

In January of this year, staff again engaged Walker to complete an update on the Downtown Grand Junction Parking Study. With this current study, staff expanded the scope to include a broader area of downtown. The results of this study are intended to identify the Study Area's existing and future parking needs. Where applicable, comparisons are provided to the previous study findings.

The 2022 study indicates current parking utilization is at 49% of supply. Parking utilization is expected to increase to 70% by 2027. The parking system is projected to approach the overall effective capacity by 2032 based on parking behaviors observed

in April 2022, the anticipated developments, and the assumptions outlined in the attached future parking needs analysis. However, should the population, visitors, and parking demands associated with existing land use increase, the parking system could reach or exceed effective capacity earlier than 2032.

Christina Jones will present the findings of the 2022 Parking Study.

FISCAL IMPACT:

N/A

SUGGESTED ACTION:

For discussion and possible direction.

Attachments

1. Downtown Grand Junction 2022 Parking Study Update

Downtown Grand Junction 2022 Parking Study Update

May 27, 2022

CITY OF Grand Junction COLORADO

WALKER CONSULTANTS

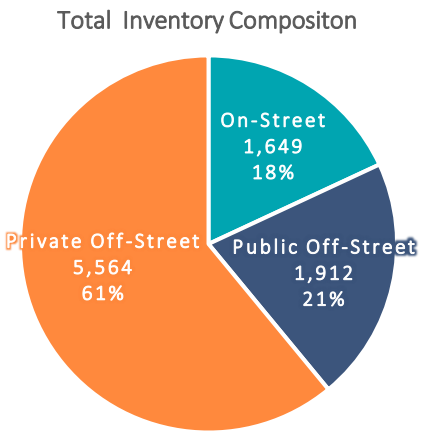
Table of Contents

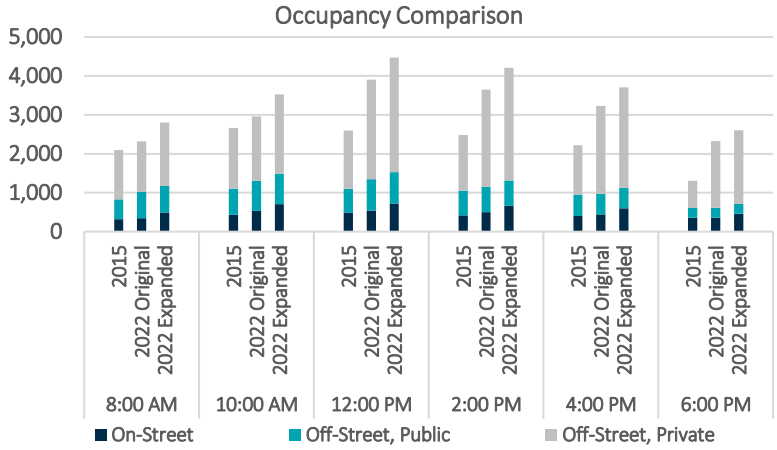
01 Executive Summary

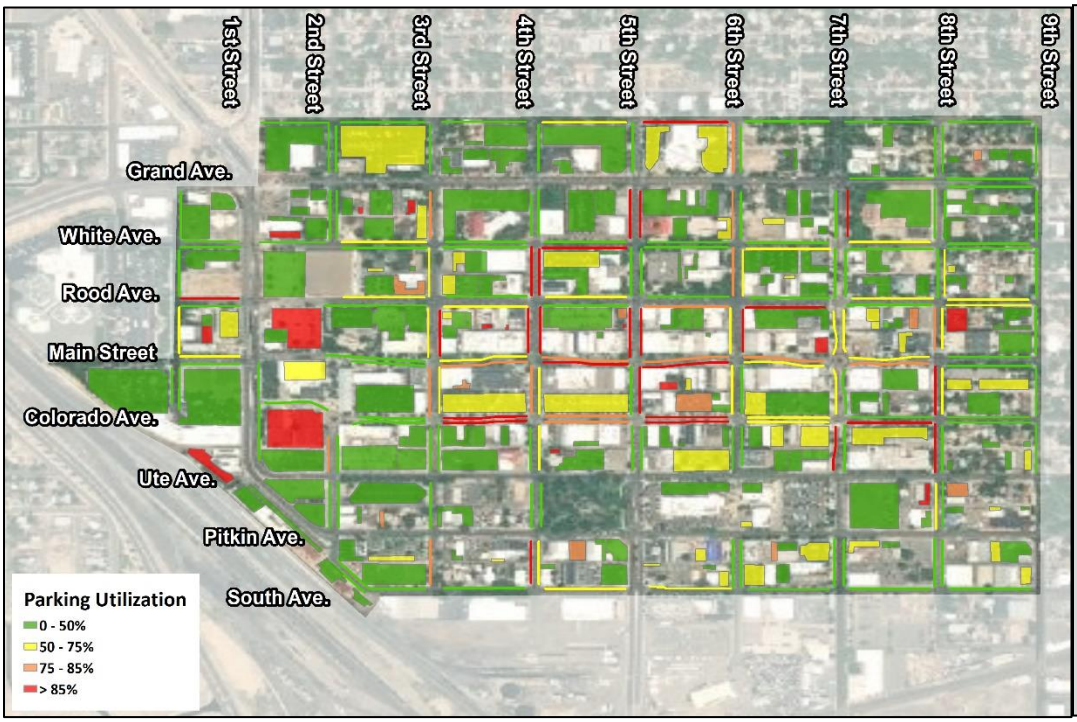
Executive Summary

The City of Grand Junction ("City") engaged Walker Consultants ("Walker") to complete an update on the Downtown Grand Junction Parking Study in January 2022. The results of this study, contained herein, are intended to identify the Study Area's existing and future parking needs. Where applicable, comparisons are provided to previous study findings. However, direct comparisons between the datasets should consider the impacts and long-term changes to parking and transportation that continue to evolve today following the COVID-19 pandemic.

Existing Conditions

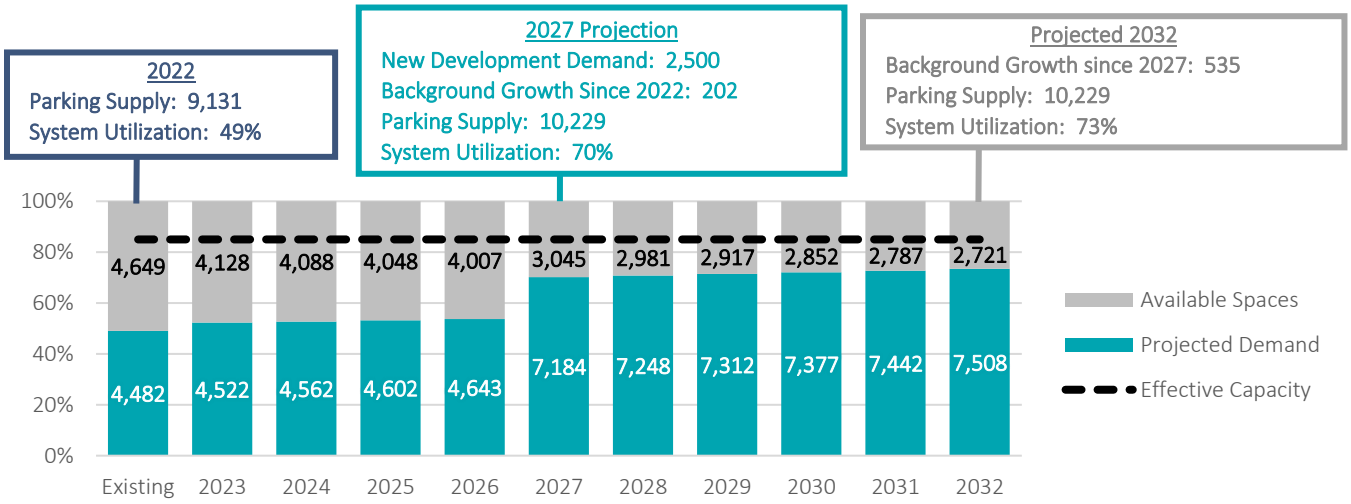






Observed parking occupancy indicates the parking supply is sufficient to meet the existing parking demand on an aggregate basis; however, there are localized areas of high demand where available parking spaces may be difficult to located during typical weekday peak conditions.

Future Parking Needs



As demonstrated in the graphic above, the parking system is projected to approach the overall system's effective capacity by 2032 based on parking behaviors observed in April 2022, the developments anticipated by the City, and the assumptions outlined in the future parking needs analysis. However, should growth in population and visitor increase, parking demands associated with existing land uses increase, or other developments not included in this analysis impact the parking system, the system reach or exceed effective capacity and the City find there to be a parking shortage. These models are intended only as a guide and do not account for potential private parking supply adjustments or changes in parking behaviors.

Next Steps for Consideration

As the city continues to develop and the employee, resident, customer, and visitor demands for parking within Downtown grow, additional strategies to manage parking should be considered. As demonstrated in the future parking needs analysis, the public parking system is projected to exceed effective capacity by approximately 2030. With the anticipated timeline to construct a new parking facility estimated at three years, the City should begin exploring policy updates, transportation demand management strategies to reduce reliance on vehicles, potential funding sources for new parking supplies, or some combination of these based on community goals and resources.

A list of potential next steps to be disused and evaluated are as follows, including but not limited to:

- Evaluate potential funding sources for additional future public parking supplies
- Identify potential sites for potential future additional public parking supplies
- Assess existing parking fees and their ability to support the parking program or other mobility initiatives
- Audit parking enforcement technologies and practices
- Analyze compliance with posted time limits for potential adjustments
- Update signage and wayfinding to maximize the efficient use of existing supplies
- Review parking and mobility fines, fees, and policies to ensure support of community goals related to environmental and financial sustainability
- Develop a curbside management plan and strategies
- Develop of transportation and mobility master plan that provides a holistic, strategic framework for all transportation, access, and mobility decisions

02 Project Background

Project Background

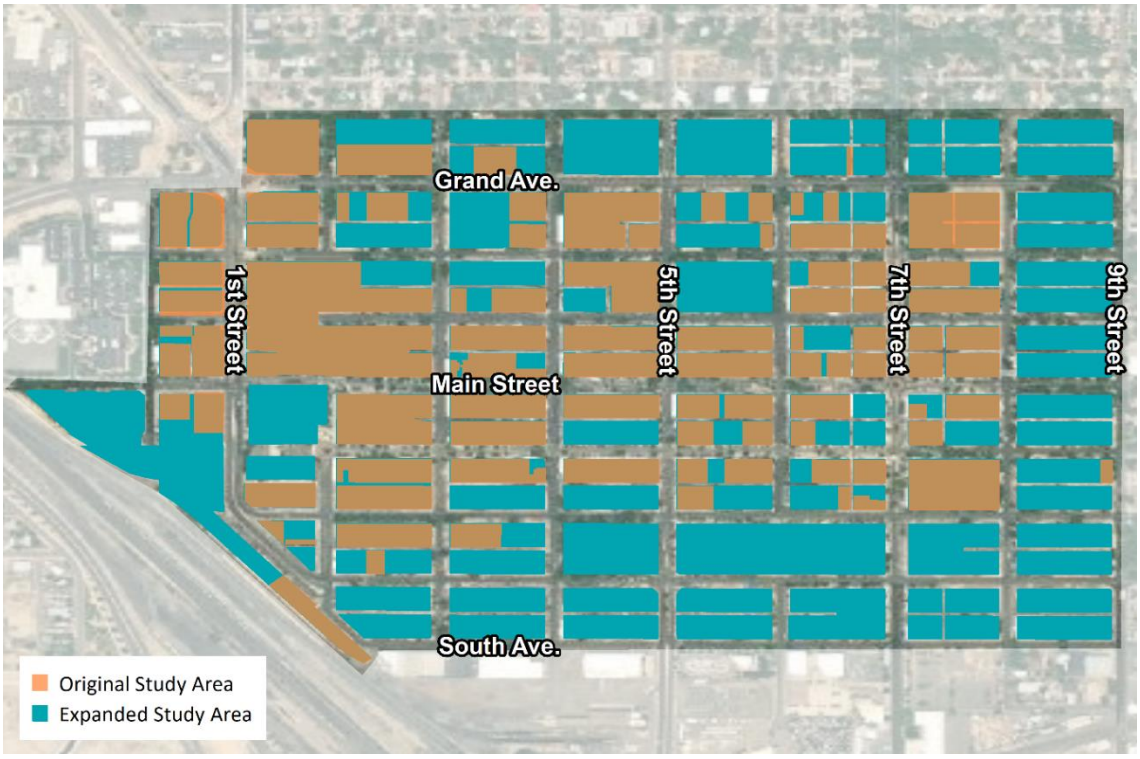
Introduction

In January 2022, the City of Grand Junction commissioned Walker Consultants ("Walker") to conduct an update of the parking supply and demand evaluated in the *Downtown Parking Study* originally completed in 2015. The purpose of this update is to evaluate the downtown parking system and identify potential parking supply needs to support current uses and future growth and development. While included in the 2015 study, an updated evaluation of the parking system's financial performance and recommendations to improve the revenue potential are not included in this 2022 update; however, it does include an updated list of recommended next steps for the City to consider.

Study Area

Compared to the original 2015 study, the area of study has expanded by approximately 20 blocks, mainly to the east and south as shown in **Figure 1**. All maps included throughout this report are provided as high-resolution images in the electronic appendix. The Study Area was expanded by an amendment to the Agreement for the 2022 update based on feedback received from community stakeholders during the initial stages of the effort, and prior to collection of inventory or occupancy counts, allowing the entire expanded Study Area to be collected simultaneously. As used throughout this report, the "Original Study Area" refers to the block faces and off-street facilities observed during both the 2015 and 2022 studies, shown in orange below. The "Expanded Study Area" refers to the entire area of study in 2022, shown in teal below.

Figure 1. Study Area Map



03 Existing Parking Conditions

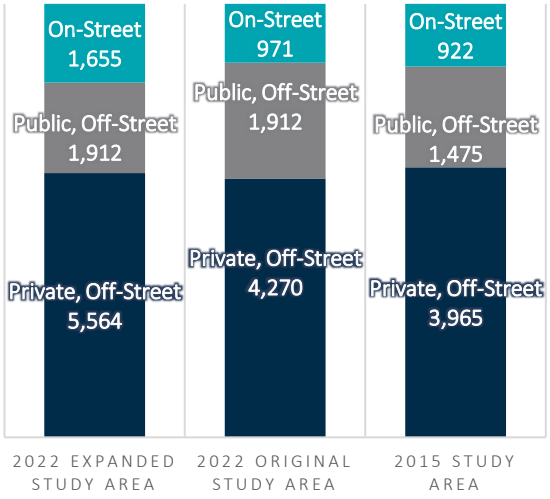
Existing Parking Conditions

Parking Inventory

Parking inventory and occupancy counts were conducted in late April 2022, with inventory completed on Monday, April 25th and occupancy counts conducted every two hours on Tuesday, April 26th beginning at the top of each hour from 8:00 AM through 6:00 PM. 9,131 parking spaces were surveyed across the overall Expanded Study Area, as summarized in **Figure 2**.

Figure 2. Observed Study Area Parking Supply

Observed Parking	2022 Expanded Area	2022 Original Area	2015
Metered	719	630	Detail not available
Unmanaged	738	233	
Accessible	32	17	
Loading	49	38	
Time Limited, 2 hours	93	53	
Time Limited, 1 hour	10	0	
Permit Only	14	0	
Total On-Street Parking	**1,655**	**971**	**922**
Public, Off-Street	1,912	1,912	1,475
Private, Off-Street	5,564	4,270	3,965
Total Off-Street Parking	**7,476**	**6,182**	**5,440**
Total Parking	**9,131**	**7,153**	**6,362**



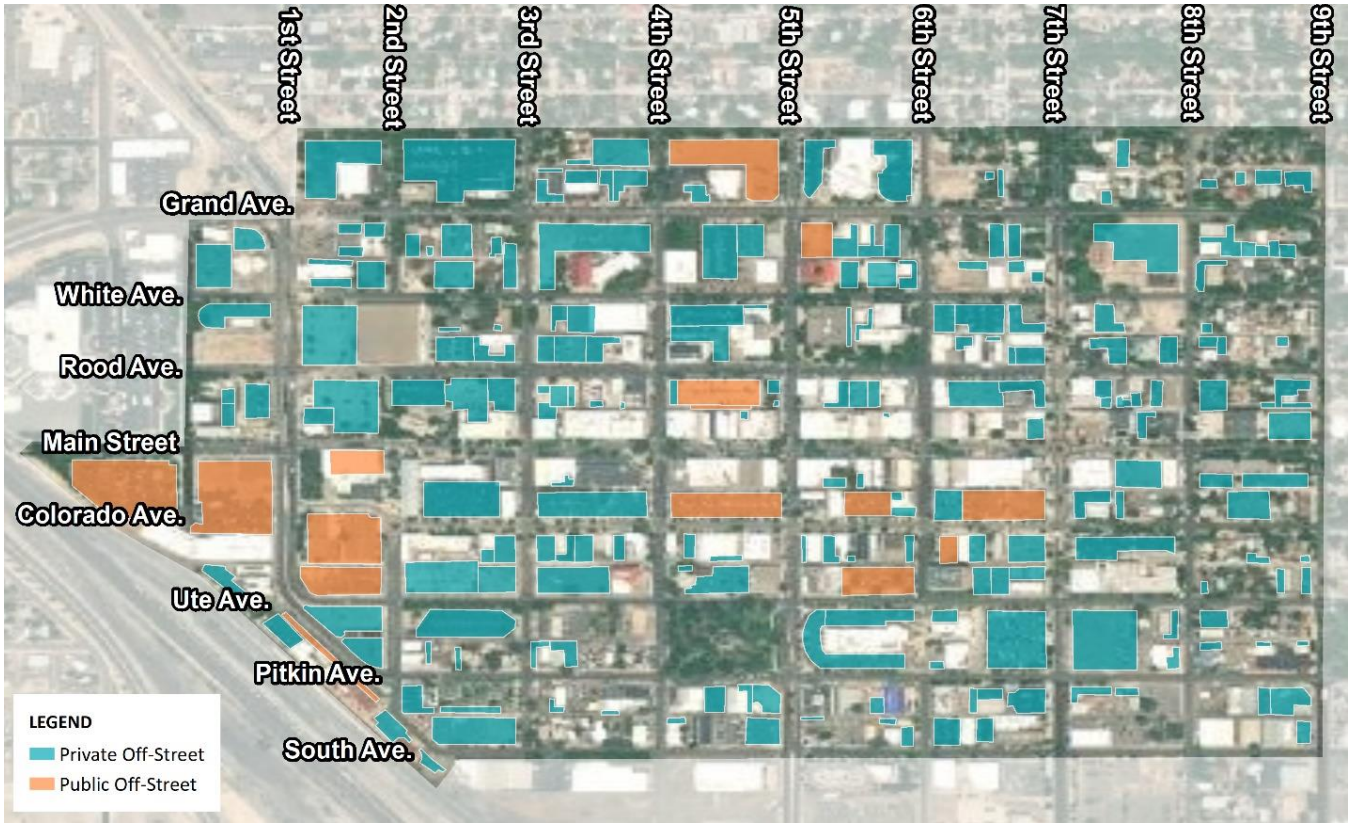
Off-Street Parking

Parking supply in areas without formally delineated parking spaces are estimated at 350 square feet per space. This assumption reflects the average area a typical parking space occupies when including an additional allowance for drive aisles, loading areas, landscaping and curbs, and other encroachments.

Several off-street facilities were inaccessible due to controlled access during field surveys. These included the County's garage at 538 White Avenue and the surface lots serving the police and fire stations. Publicly available, recent aerial images from Maxar Technologies were used to collect the inventories for the police and fire stations, however the County Garage inventory is not included in this analysis.

Figure 3, on the following page, maps the location of off-street parking facilities studied by the type of supply. As shown in the map, much of the off-street parking supply is privately owned and managed.

Figure 3. Off-Street Parking Supply Studied by Category



On-Street Parking

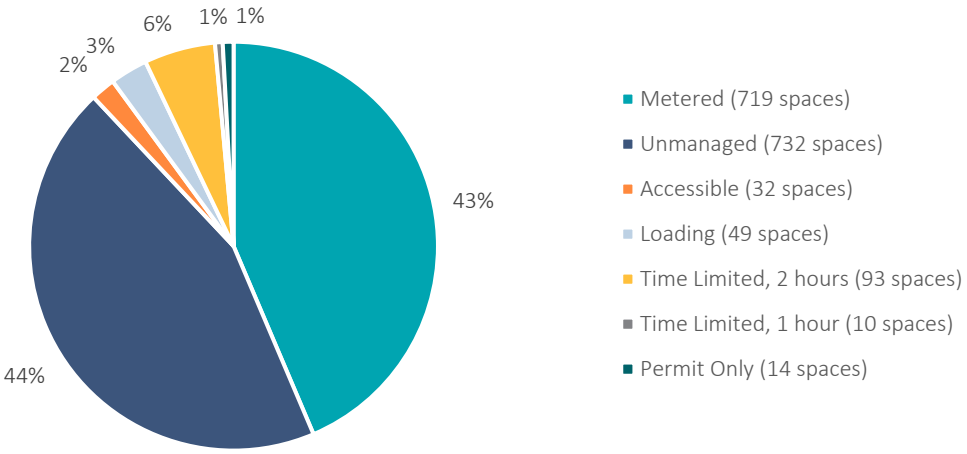
The 1,649 on-street parking spaces observed in the Expanded Study Area are classified into the following sub-categories:

- Unmanaged
- Time Limited, 2 hours
- Time Limited, 1 hour
- Metered
- Accessible
- Loading
- Permit Only

Unmanaged parking is on-street parking where no posted restrictions were observed. **Time Limit** parking includes non-metered parking with a posted time limit. Time limits of one and two hours were observed throughout the Expanded Study Area and are included as separate categories for mapping purposes. **Permit Only** parking is non-metered parking reserved for the exclusive use of designated vehicles. **Metered** parking is on-street parking with meters of all time limits. **Accessible** parking includes all spaces reserved for those displaying a state-issued placard (metered, unrestricted, or time-limited). **Loading** is any parking signed as either loading only or with a time limit of less than one hour.

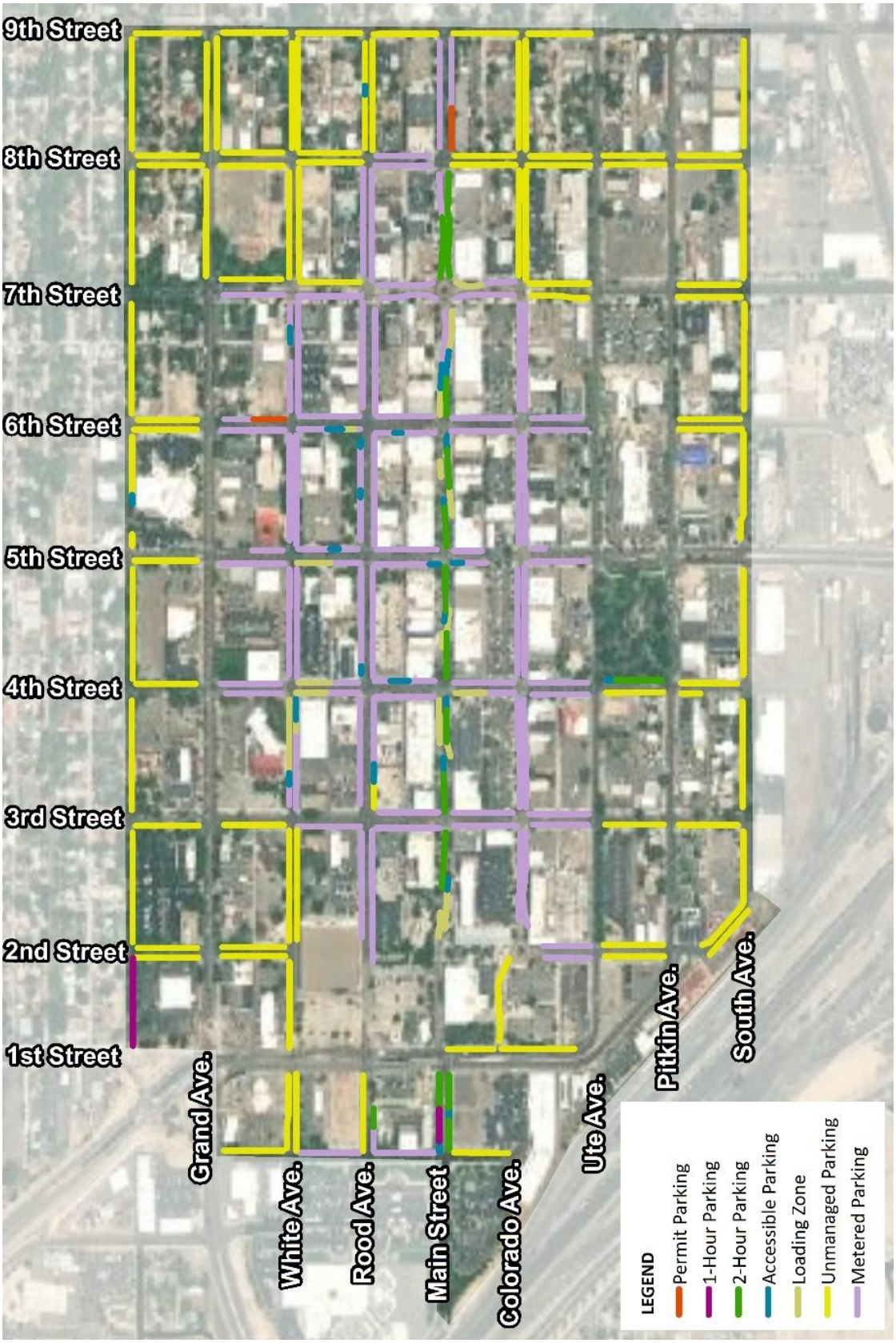
Figure 4 summarizes the on-street parking spaces observed by category, which is mapped in **Figure 5**.

Figure 4. Observed On-Street Parking Supply Studied by Category, Expanded Study Area*



*Where on-street parking is not delineated, supply is estimated at 20 feet of uninterrupted curb length per parallel parking space.

Figure 5. On-Street Parking Regulations Map

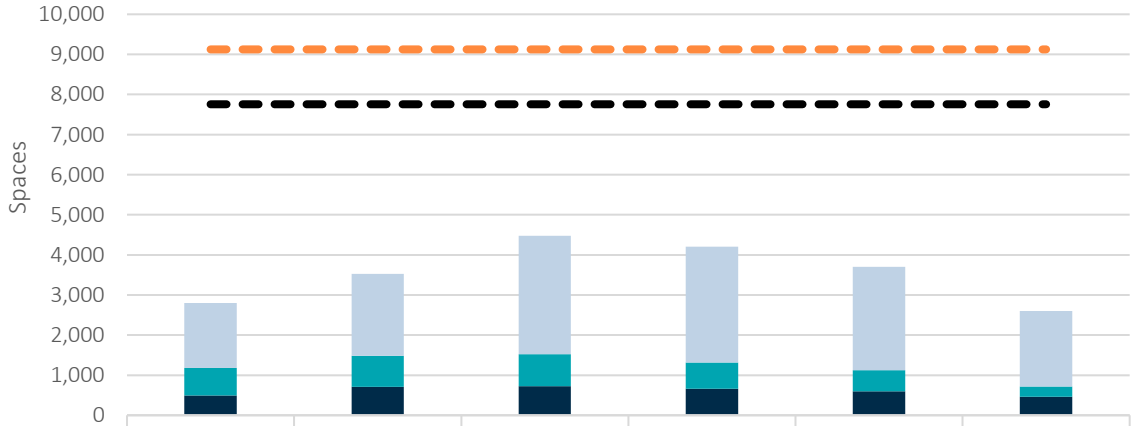


Parking Utilization

Consistent with the 2015 Parking Study, Walker staff conducted parking occupancy counts within the Expanded Study Area every two hours from 8:00 AM through 6:00 PM on Tuesday, April 26th to evaluate parking demand patterns on a typical weekday. All on-street and off-street parking outlined in the existing parking inventories, both public and private, were included in the surveys. Several off-street facilities, however, were inaccessible due to controlled access. These included the County's garage at 538 White Avenue and the surface lots serving the police and fire stations. Occupancy counts for these three facilities are not included in this analysis.

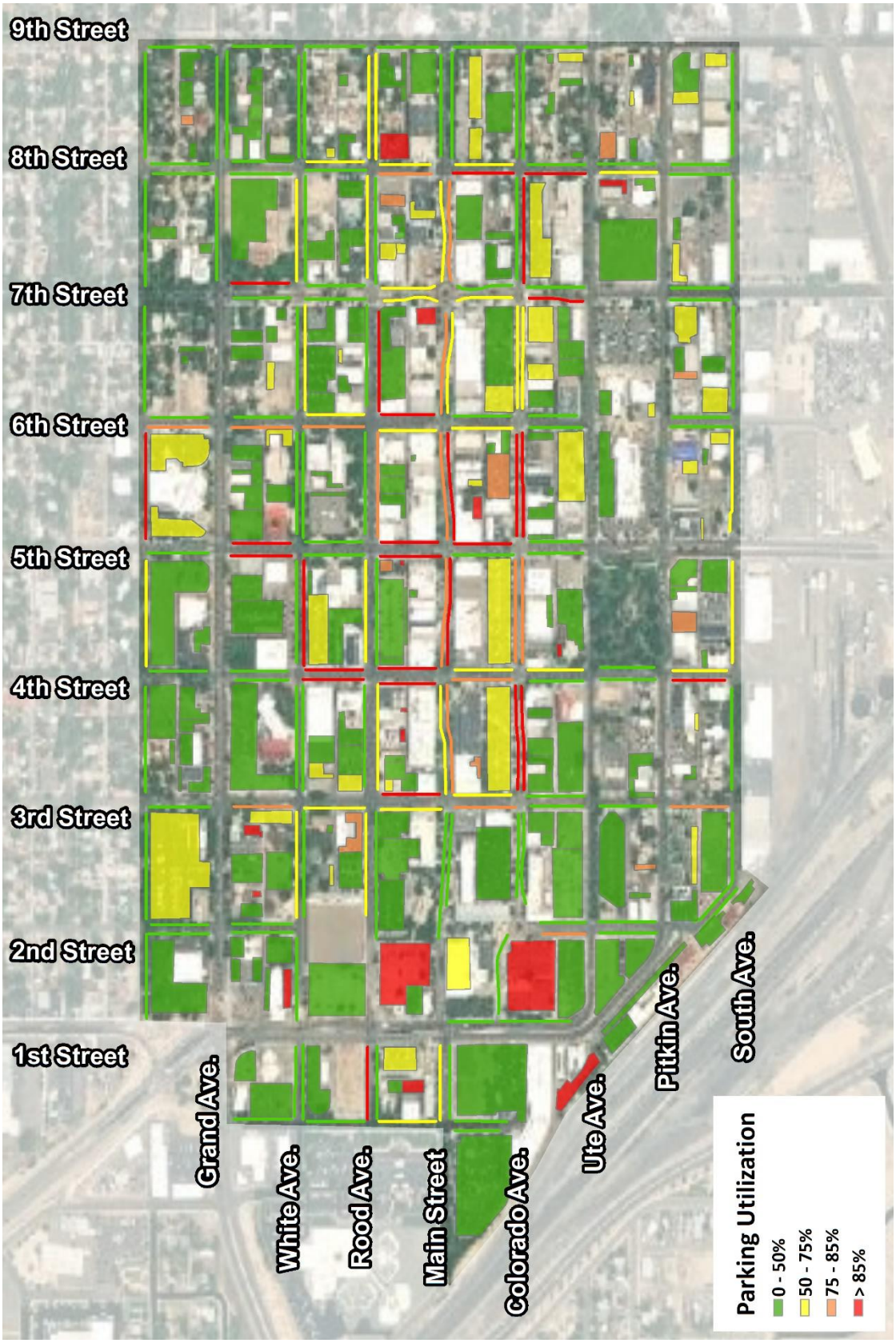
The overall existing parking supply serving Downtown Grand Junction adequately meets its observed parking demand, with a peak observed occupancy of 49% occurring at 12:00 PM, as summarized in **Figure 6**. While localized areas of high utilization exist throughout the Expanded Study Area, these occurrences are limited and generally have publicly accessible parking spaces available within one block. **Figure 7**, on the following page, maps the observed occupancy for each facility and block face during the 12:00 PM peak hour, with additional maps for each observation period included in the **Appendix**.

Figure 6. Observed Parking Utilization by Hour



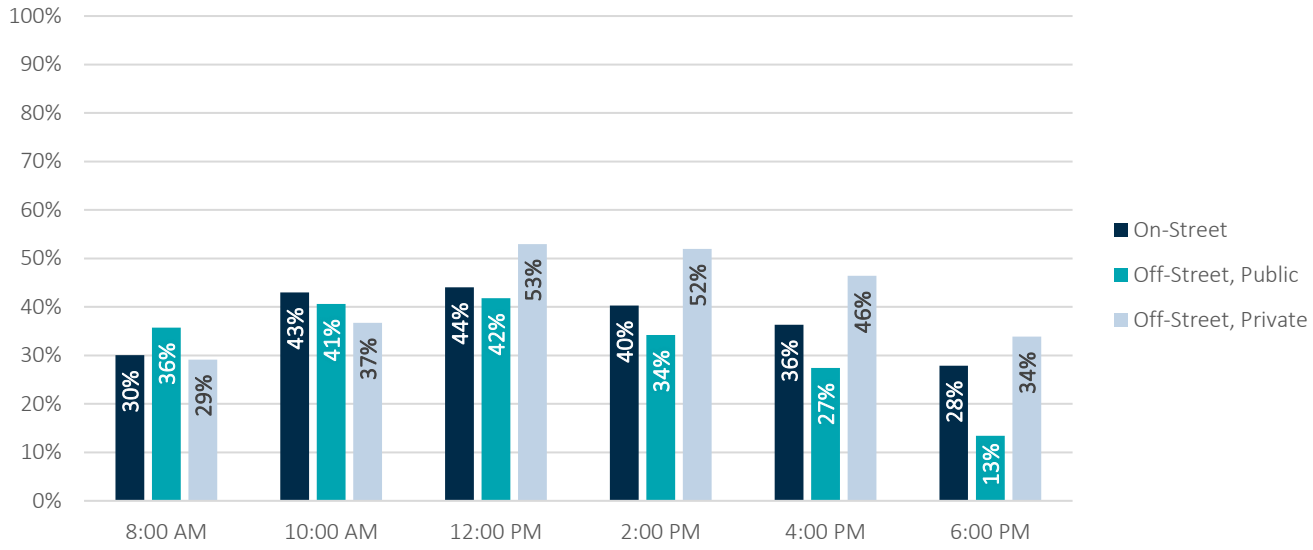
	8:00 AM	10:00 AM	12:00 PM	2:00 PM	4:00 PM	6:00 PM
Off-Street, Private	1,622	2,043	2,948	2,890	2,581	1,884
Off-Street, Public	683	776	799	654	524	257
On-Street	495	709	726	664	599	460
Effective Capacity	7,756	7,756	7,756	7,756	7,756	7,756
Total Supply	9,125	9,125	9,125	9,125	9,125	9,125

Figure 7. Observed Parking Utilization Map – 12:00 PM



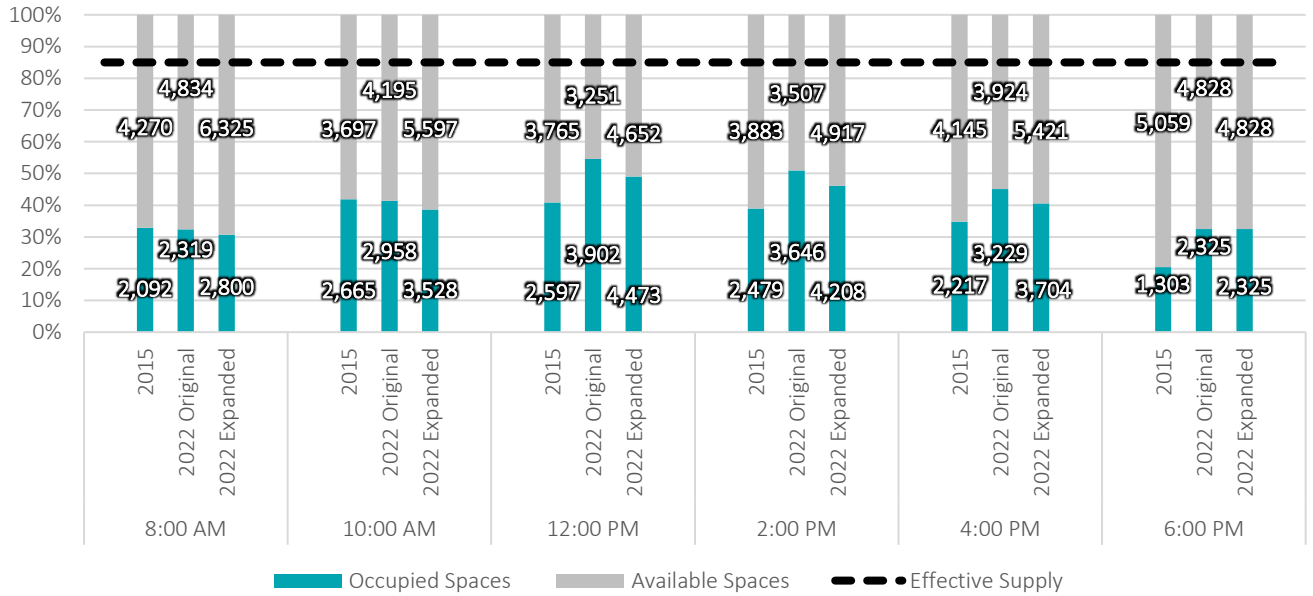
Analysis of each category of parking per hour individually shows private parking supplies experienced higher occupancies in the afternoon compared to public on-street and off-street facilities. However, as summarized in **Figure 8**, all three categories were observed to peak at 12:00 PM.

Figure 8. Observed Parking Utilization by Hour per Category



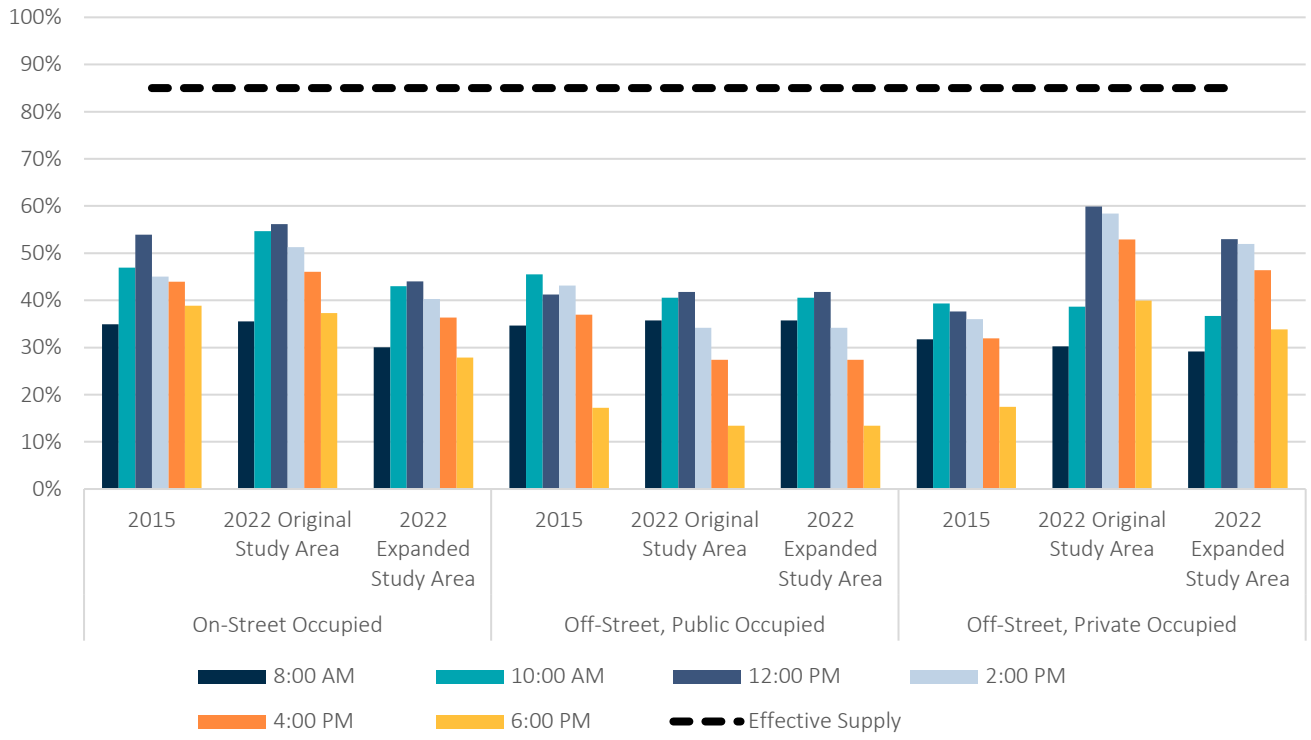
Compared to the 2015 observations, parking utilization has remained relatively consistent, increasing slightly from approximately 42% in 2015 to 49% in 2022 for the overall Expanded Study Area. In looking at just those blocks included in both studies, occupancy of the Original Study Area increased to 55% during the 12:00 PM peak. The Original Study Area was observed to experience increased occupancies throughout the afternoon, as summarized in **Figure 9**.

Figure 9. Comparison of 2015 and 2022 Parking Utilization



The field observations showed consistent use of on- and off-street public parking supplies in comparing 2015 to both the original and expanded study areas. As shown in **Figure 10**, private parking supplies have absorbed most of the increase in parking demand. This is especially evident in comparing the parking utilization of the Original Study Area.

Figure 10. Comparison of Parking Utilization by Type of Facility



04 Future Parking Needs

Future Parking Needs

This section intends to provide an assessment of how future growth in Downtown Grand Junction may impact parking demand and the adequacy of public parking supply over the next five to ten years.

The parking system is projected to operate at or above the overall system's effective capacity based on parking behaviors observed in April 2022 after the completion of the developments considered in this analysis. These models are intended only as a guide and do not account for potential private parking supply adjustments, alternative parking plans, provision of parking in excess of minimum code requirements or alternative or additional developments.

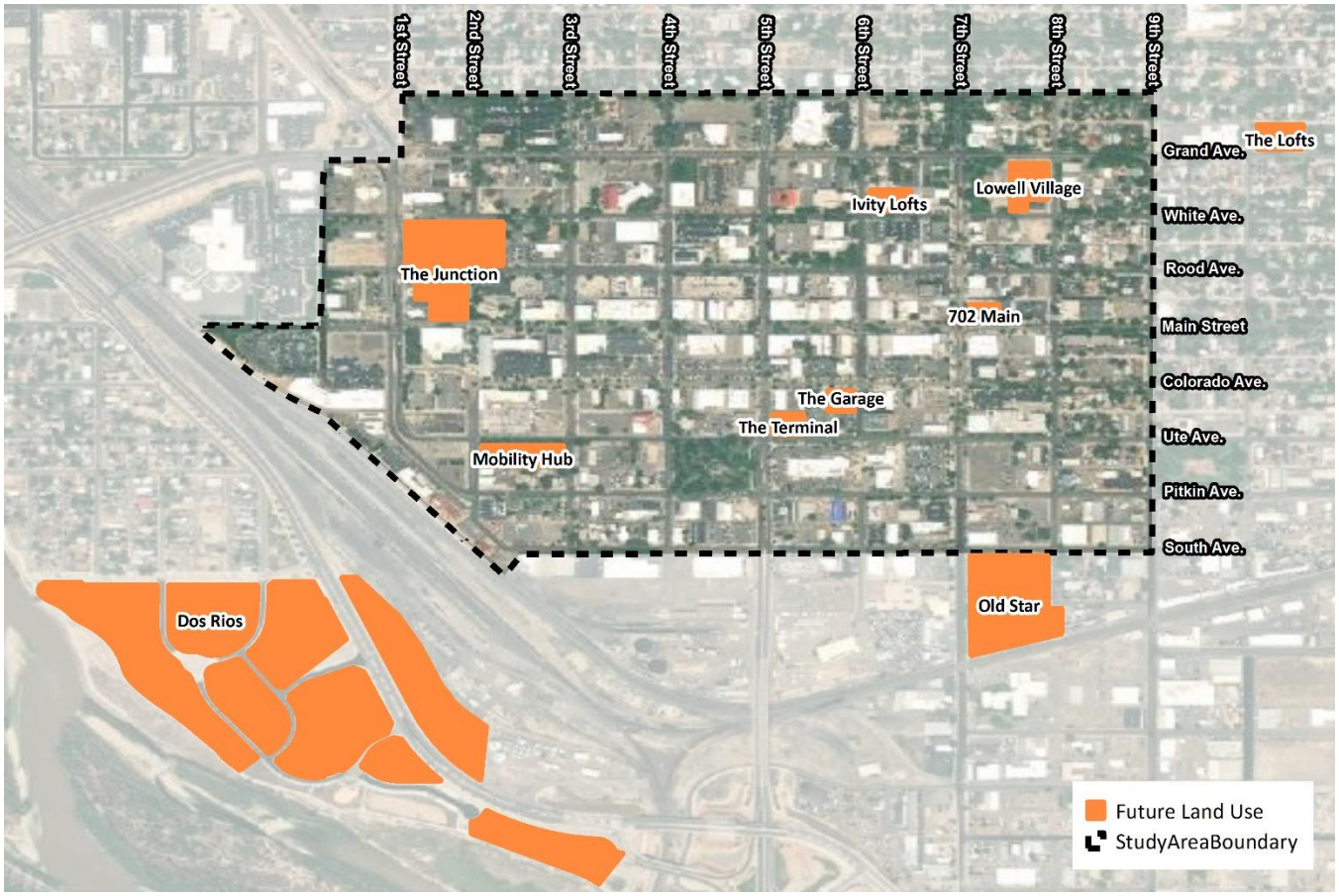
Future Parking Needs by Phase

Additional development projects, dramatic shifts in population, transportation infrastructure decisions, and many other factors such as the long-term impacts of the COVID-19 pandemic on transportation preferences can and will impact parking demands and needs. To project future parking supply and demand for Downtown Grand Junction, Walker analyzed known and anticipated developments under two planning horizons developed with information collected and provided by City staff:

1. **Near-Term Parking Needs** include developments anticipated within the next five years.
2. **Long-Term Parking Needs** include developments anticipated within the next ten years.

Figure 11, on the following page, maps the locations of future developments considered in this analysis.

Figure 11. Map of Anticipated Developments



Assumptions

Additionally, the future parking needs analyses include several assumptions to inform the background growth of parking demands not related to specific changes in land uses and additional context to facilitate comparison to Code requirements.

- Population demographics per the U.S. Census
  - 0.9% annual population growth as reflected in the 10-year trend for 2011 through 2020.
  - 92% of households own at least one vehicle.
  - 78% of service workers drive alone to work, 7% carpool, and 15% use transit, walk, or other means of transportation. Assuming a carpool of at least two employees results in a driving adjustment of 18% during the weekday daytime hours. No driving adjustment is made for service employees in the evening.
  - 78% of office workers drive alone to work, 6% carpool, and 16% use transit, walk, or other means of transportation. Assuming a carpool of at least two employees results in a driving adjustment of 19% during the weekday daytime hours. No driving adjustment is made for office employees in the evening.
  - Industry-standard noncaptive ratios are used for all land uses. A noncaptive ratio estimates the percentage of parkers at a destination in a mixed-use development or district who are not

already counted as parking at another land use. For example, when an employee in an office building visits a coffee shop on its ground floor, additional parking demand is not generated related to the coffee shop by this individual; their parking demand is already and remains reflected in the office space's demand. The noncaptive ratio does not include sequential trips in which the parking demand remains but is allocated to each land use relative to the duration of each stop during that trip. It is important to different sequential and captive parking demands, as sequential trips are commonly included in traffic impact analyses but not in parking needs analyses due to the varied impacts these trips have on these two systems.

- New developments provide 100% of the base parking requirement outlined in the City's Development Code for the B-2 Zoned District, which allows for any permanent public parking supply within 500 feet of the project site to count toward the total parking requirement. This distance is extended to 1,000 feet for employees. Residential uses, however, are prohibited from relying on public parking facilities regardless of distance, and there is no credit assumed for adjacent on-street parking.
- New multi-family residential developments are assumed to provide unreserved parking spaces. Where the breakdown of units by the number of bedrooms is not provided, all units are assumed to have two bedrooms. Townhomes, however, are assumed to have three bedrooms.
- Any development labeled as "Mixed Use" without further breakdown of the land uses is calculated as High-Volume Other Retail Sales. This category is intended to balance potential requirements and projected demands related to Restaurants (1.5 per 1,000 ft^2), Low-Volume Retail (1.0 per 500 ft^2) and Multifamily Residential (varies by number of bedrooms per unit). Use of a generalized land use will materially impact the potential accuracy of projections.
- Any development without a designated intensity is estimated based on the total square footage of the parcel and, where available, anticipated number of floors.
- All developments are assumed to be stabilized as of the provided anticipated completion date. In reality, stabilization will occur over time and will vary in duration from one development to the next, reflecting market conditions at the time of development and its completion.

Other Potential Long-Term Impacts

Each of the planning horizons is presented without adjustment for the long-term impacts related to ongoing work from home arrangements that have become prevalent over the past two years. COVID-19 has impacted our way of life in many respects, including changes to transportation behaviors and parking patterns. Some traditional base parking demand ratios may overestimate future parking needs. Office building parking generation, for example, is the ratio that has likely changed the most.

- Remote work may reduce long-term office parking needs. Although this is still playing out and conclusions cannot yet be data-driven, opinion surveys suggest that remote work is here to stay for significant portions of the workforce. Over time, however, reductions in employee presence may be balanced by reductions in leased office space and hoteling of workstations. This may result in a similar density of employees pre- and post-pandemic and minimal long-term impacts to some types of offices.
- Employees will not work remotely 100 percent of the time, and some companies expressly forbid it. Some employees will work remotely all of the time, while others will work a hybrid schedule. Also, remote work policies at organizations may evolve in the coming years due to factors such as changes in organizational leadership, labor market dynamics, and the nature of work performed.

- Kastle Systems maintains a ten-city back-to-work barometer that compares office occupancy rates as a percentage of pre-pandemic levels. Its ten-city average increased to 43.4% the last week of April 2022, after a dip during the Easter and Passover holidays. This level of remote work reflects a return to pre-holiday office employee presence rates. Employee presence rates may continue to increase, but it seems almost a foregone conclusion that some employees will continue to work remotely more frequently and in larger numbers than before the pandemic.

Walker's working hypothesis is that office building parking generation will permanently decline by 35 percent. This percentage is based on the notion that 40 percent of U.S. office workers will not have the option to work remotely and will be in the office full-time. An additional 35 percent of employees will work remotely part-time with an average of three days in the office per week, and 25 percent will work remotely full time. Before the Covid-19 pandemic, an estimated 5-10 percent of employees worked remotely at least part-time.

Based on the uncertain nature of future impacts to parking demands, no adjustment for remote work has been applied to the future parking needs analysis. However, the potential decline in office employee presence and potential reductions in the density of employees in the workplace should be considered moving forward as these variables stabilize within Downtown Grand Junction.

Near-Term Parking Needs

Nine projects are anticipated to be completed within the Expanded Study Area and its area of influence over the next five years. One additional development, Dos Rios, is located adjacent to the Expanded Study Area's area of influence. Because the perceived barrier of the railroad tracks is anticipated to dissuade a significant proportion of its parking users from accessing the Downtown by alternative means, this development is presented as a below the line calculation. Dos Rios is not projected to benefit from potential shared public parking resources within Downtown, nor reduce trips originating from here to Downtown. These ten developments, provided by City staff, are summarized in Figure 12 and mapped in Figure 11 on Page 18. The summary also provides the minimum parking requirement for each development based on the City's Development Code, not accounting for a potential alternative parking plan and using the assumptions previously outlined where sufficient detail was unavailable.

Figure 12. Summary of Anticipated Developments

Project	Land Use Category	Intensity	Parking Required by Code	Public Parking Supply within		Adjusted Parking Required by Code
				500 ft	1,000 ft	
The Junction	Multifamily Residential	256 dwelling units	384	490	1,283	384
Ivity Lofts	Multifamily Residential	78 dwelling units	117	39	731	117
The Lofts	Multifamily Residential	76 dwelling units	114	0	0	114
The Terminal	Restaurant	17,500 ft^2	262	293	821	0
	Art Studio/Cultural Center	35,000 ft^2	35	293	821	0
	Multifamily Residential	78 dwelling units	117	293	821	117
The Garage	Food hall addition	12,000 ft^2	120	373	821	0
702 Main	Office	110,000 ft^2	275	80	245	30
	Restaurant	11,000 ft^2	165	80	245	0
	Retail	11,000 ft^2	37	80	245	0
Lowell Village	Multifamily Residential	32 townhomes	64	0	0	64
Mobility Hub	Transit/Multimodal	49,000 ft^2	0	326	777	0
Old Star	Mixed Use	226,000 ft^2	753	0	0	753
		Total	**2,443**			**1,579**
Dos Rios	Mixed Use	23.29 acres	3,804	0	0	3,804
	Light Industrial	6.89 acres	299	0	0	299
		Total with Dos Rios	**6,546**			**5,682**

Under typical weekday conditions and based on the assumptions previously outlined, the nine developments within the Expanded Study Area or its area of influence are projected to generate a parking need of approximately 2,500 additional spaces during the 1:00 PM hour, as shown in Figure 13. This is slightly higher than on the weekend, as shown in Figure 14, when the additional parking need is projected at approximately 2,470 during the 12:00 PM hour on the weekend.

The information available for the Dos Rios project is too limited at this time to project a stand-alone parking need for a project of the proposed scale with a reasonable degree of accuracy. Further, because the project is not anticipated to realize any shared parking benefit with the Expanded Study Area, any demand generated by this development would be reflected in general background population and visitor growth projected for the Expanded Study Area. Moving forward, Dos Rios is not included as a stand-alone project in the parking need analysis to serve the Expanded Study Area.

Figure 13. Hourly Distribution of Future Development Parking Needs Analysis, Weekday

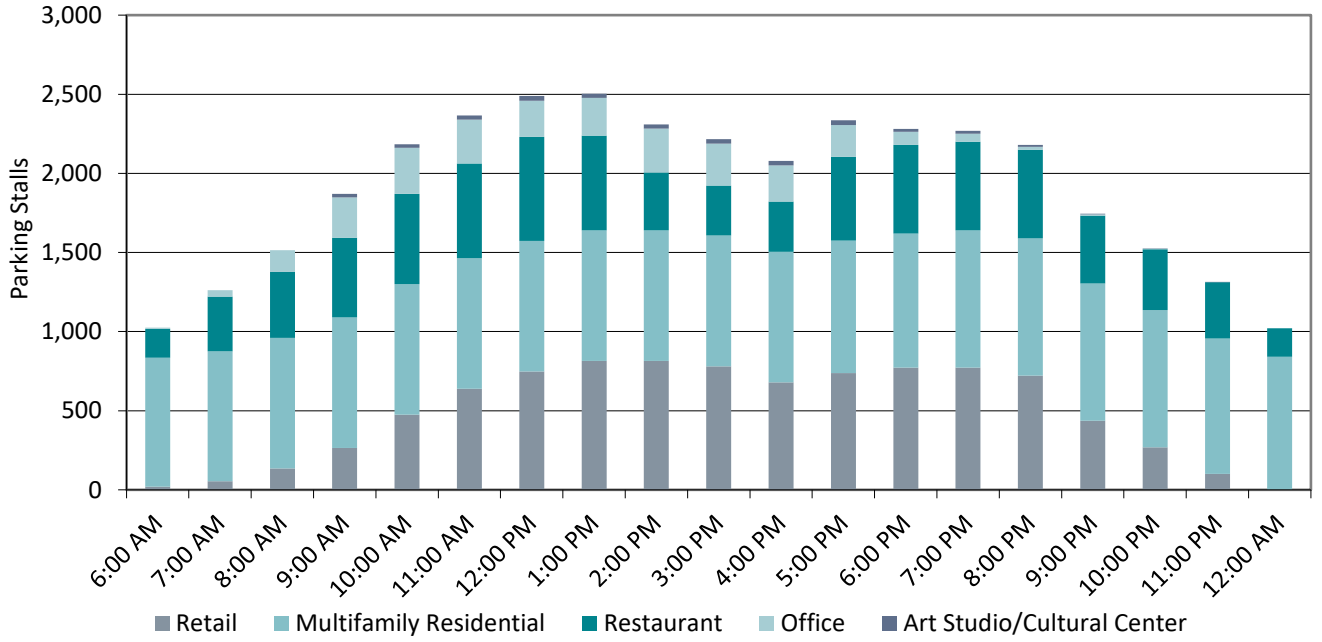
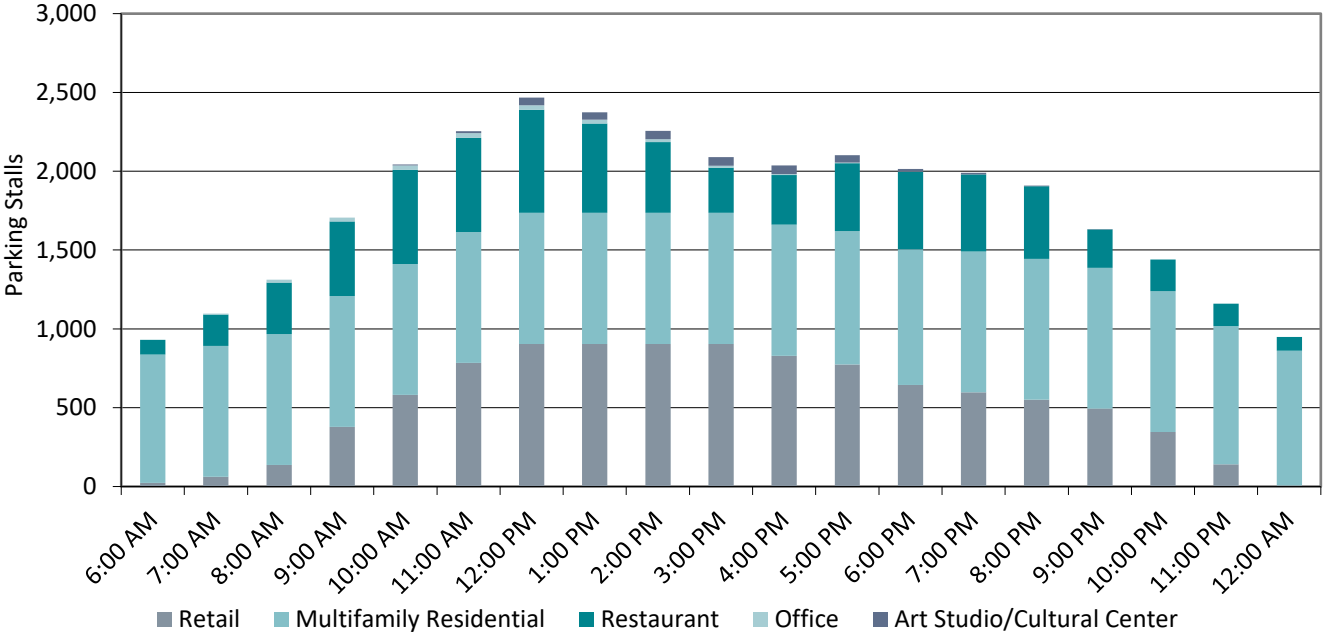


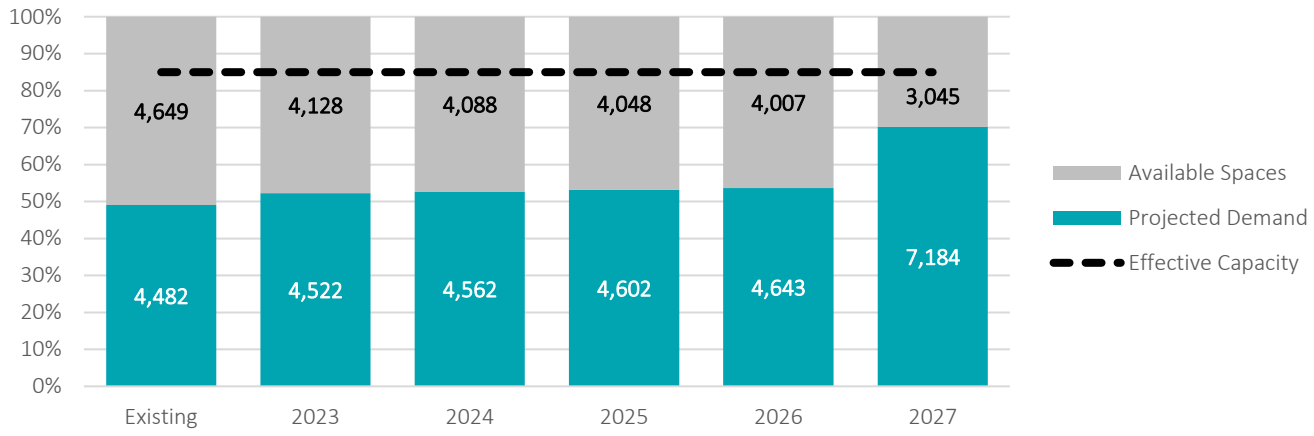
Figure 14. Hourly Distribution of Future Development Parking Needs Analysis, Weekend



With the assumed loss of approximately 481 spaces to occur in 2023 to accommodate the new developments considered in this analysis and applying the background growth trend for the population and visitors, the overall parking system is anticipated to continue operating below effective capacity through 2027. However, as shown in **Figure 15**, once these developments complete, they are projected to have a significant impact on the parking system. These projections assume no change in parking and transportation behaviors associated with existing land uses from those observed in April 2022. They do include the addition of 1,579 parking spaces of the adjusted parking required by code outlined in **Figure 12** on **Page 20**. These developments and the trending growth in

population and visitors are projected to increase utilization of the parking system from the existing 49% to 70% occupied by 2027.

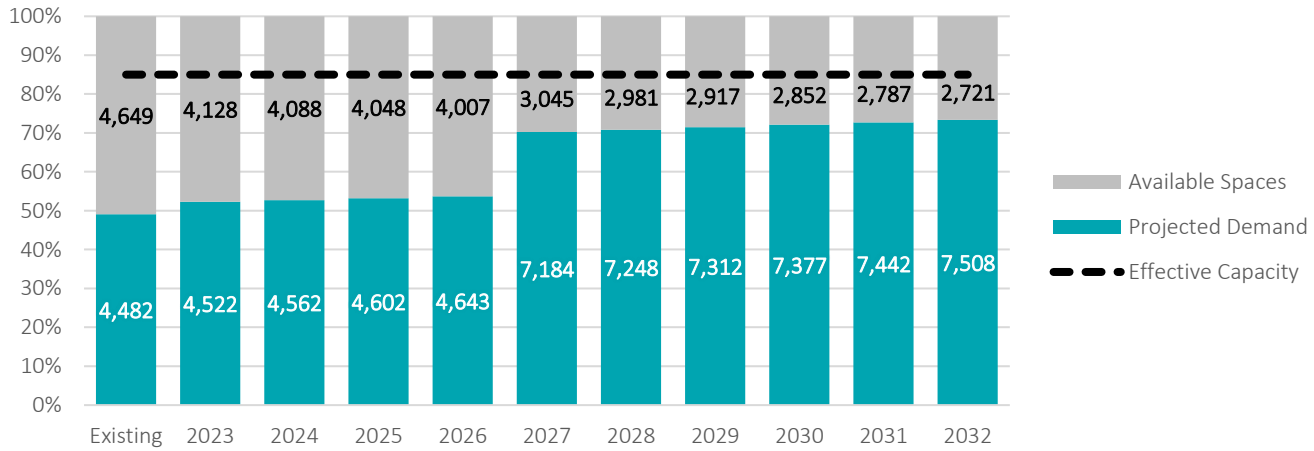
Figure 15. Future Parking Needs Analysis, Near-Term



Long-Term Parking Needs

While no additional developments were considered beyond the immediate five years, continued growth in population and visitors at existing rates is projected to cause the Downtown parking system to approach its effective capacity, as shown in **Figure 16**. By 2032 the parking system is projected at just over 73% occupied during typical weekday conditions. However, should background exceed 1%, the parking system could reach effective capacity by or before 2032. For example, an average annual growth in residents and visitors of 2.4%, in addition to the new development considered here, is projected to result in the Expanded Study Area reaching 85% occupied during typical conditions.

Figure 16. Future Parking Needs Analysis, Long-Term

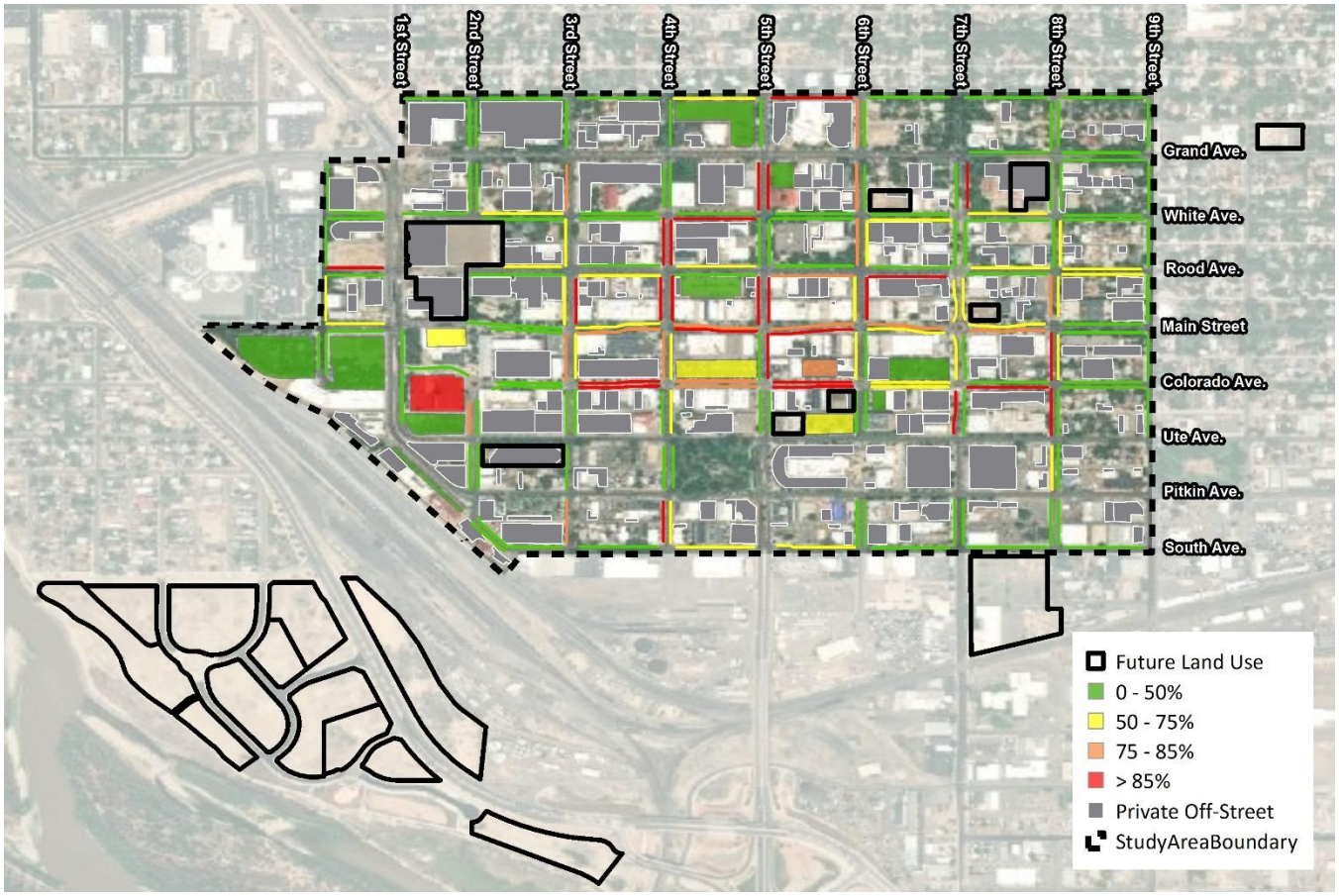


Future Parking Needs Summary

As demonstrated in the projections above, the parking system is projected to approach the overall system's effective capacity upon completion of the developments considered in this analysis based on parking behaviors observed in April 2022. These models are intended only as a guide and do not account for potential private parking supply adjustments, alternative parking plans, provision of parking in excess of minimum code requirements or developments not provided and included above.

Figure 17 maps the locations of the developments included in the future parking needs analysis in relation to the existing parking occupancy observed at 12:00 PM. This map helps to highlight locations of potential parking supply losses associated with these projects and the surrounding publicly accessible parking supply available to absorb displaced vehicles and new parking demands associated with these projects that are not accommodated on site.

Figure 17. Future Developments Mapped with Existing Peak Observed Parking Occupancy



05 Next Steps for Consideration

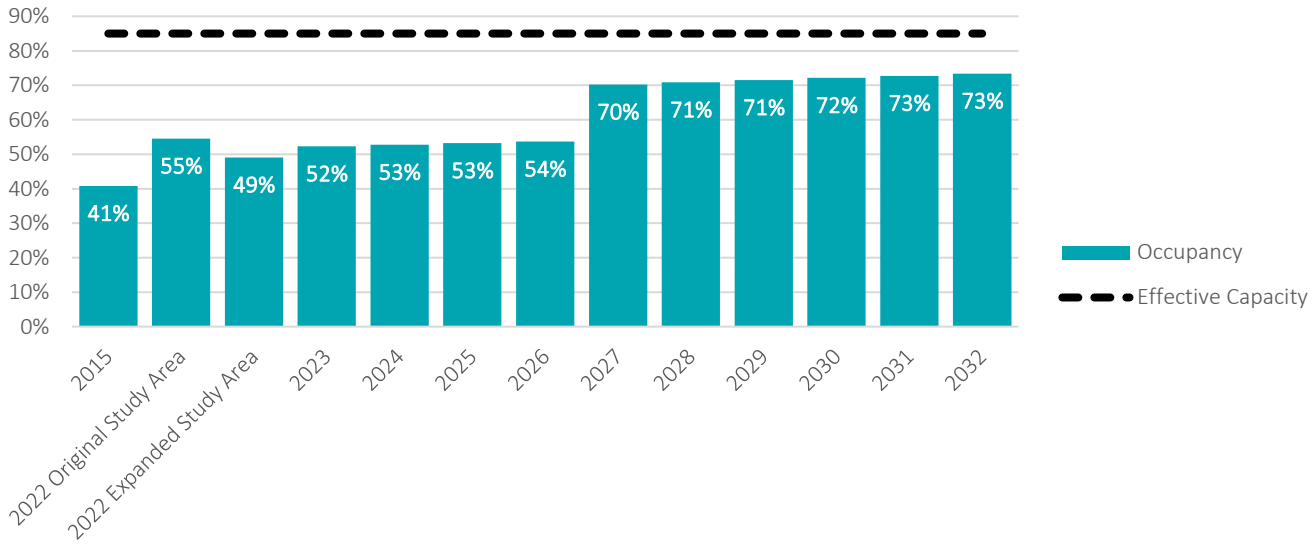
Next Steps for Consideration

As the city continues to develop and the employee, resident, customer, and visitor demands for parking within Downtown grow, additional strategies to manage parking should be considered. As demonstrated in the future parking needs analysis, the public parking system is projected to approach effective capacity by approximately 2032. With the anticipated timing to construct a new parking facility exceeding three years, the City should begin exploring policy updates, transportation demand management strategies to reduce reliance on vehicles, potential funding sources for new parking supplies, or some combination of these based on community goals and resources.

Pricing policy may also be considered for adjustment beyond demand management, particularly in areas with lower price sensitivity. Managed parking systems generate costs related to their ongoing operations and maintenance. Pricing may provide for these expenses in addition to future investments in capital projects to support a growing district's transportation needs, such as those projected for Downtown Grand Junction. Capital projects may include expanding alternative mode infrastructure, additional parking supplies, or a combination of these or other investments. Other options for funding these activities include one or a combination of strategies such as taking on debt through conventional financing or issuance of bonds, creating a parking tax district, allowing for parking payment in lieu of new supply with development, or operating as part of a parking authority or enterprise fund.

This parking study concludes that as of April 2022, and with the addition of the developments discussed in the Future Parking Needs section, parking occupancy is projected to exceed effective capacity during typical weekday conditions by 2030. The existing occupancy observed in 2015 and in the Original and Expanded Study Area in 2022 is compared to the projected occupancy through 2032 in **Figure 18**.

Figure 18. Comparison of Existing and Projected Parking Utilization



A list of potential next steps to be disused and evaluated are as follows, including but not limited to:

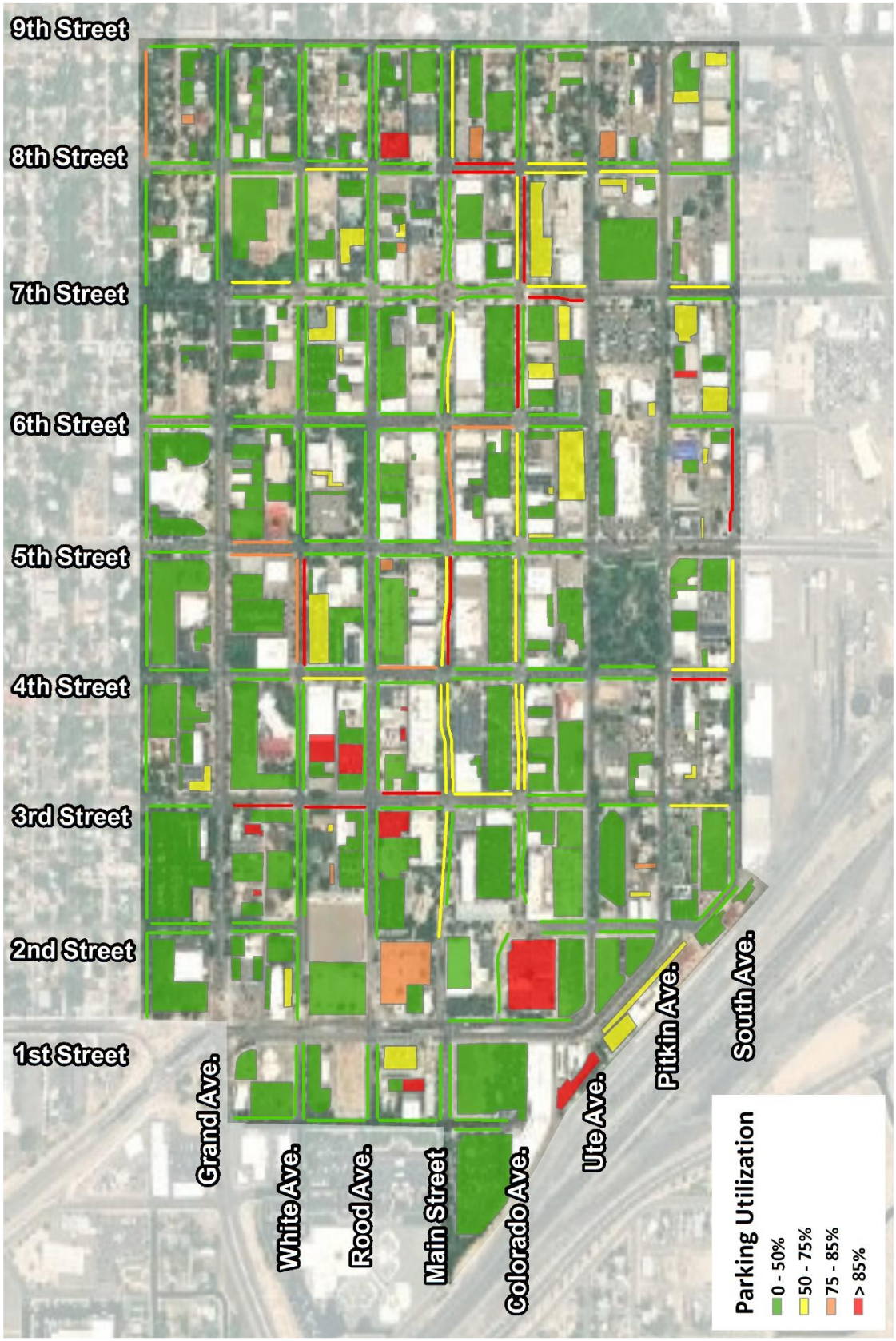
- Evaluate potential funding sources for additional public parking supplies
- Identify potential sites for potential additional public parking supplies
- Assess existing parking fees and their ability to support the parking program or other mobility initiatives
- Audit parking enforcement technologies and practices
- Analyze compliance with posted time limits for potential adjustments
- Update signage and wayfinding to maximize the efficient use of existing supplies
- Review parking and mobility fines, fees, and policies to ensure support of community goals related to environmental and financial sustainability
- Develop a curbside management plan and strategies
- Develop of transportation and mobility master plan that draws on the parking study and curb management plan, along with the community's comprehensive master planning, transit planning, and sustainability goals to a provide a holistic, strategic framework for all transportation, access, and mobility decisions.

06 Appendix

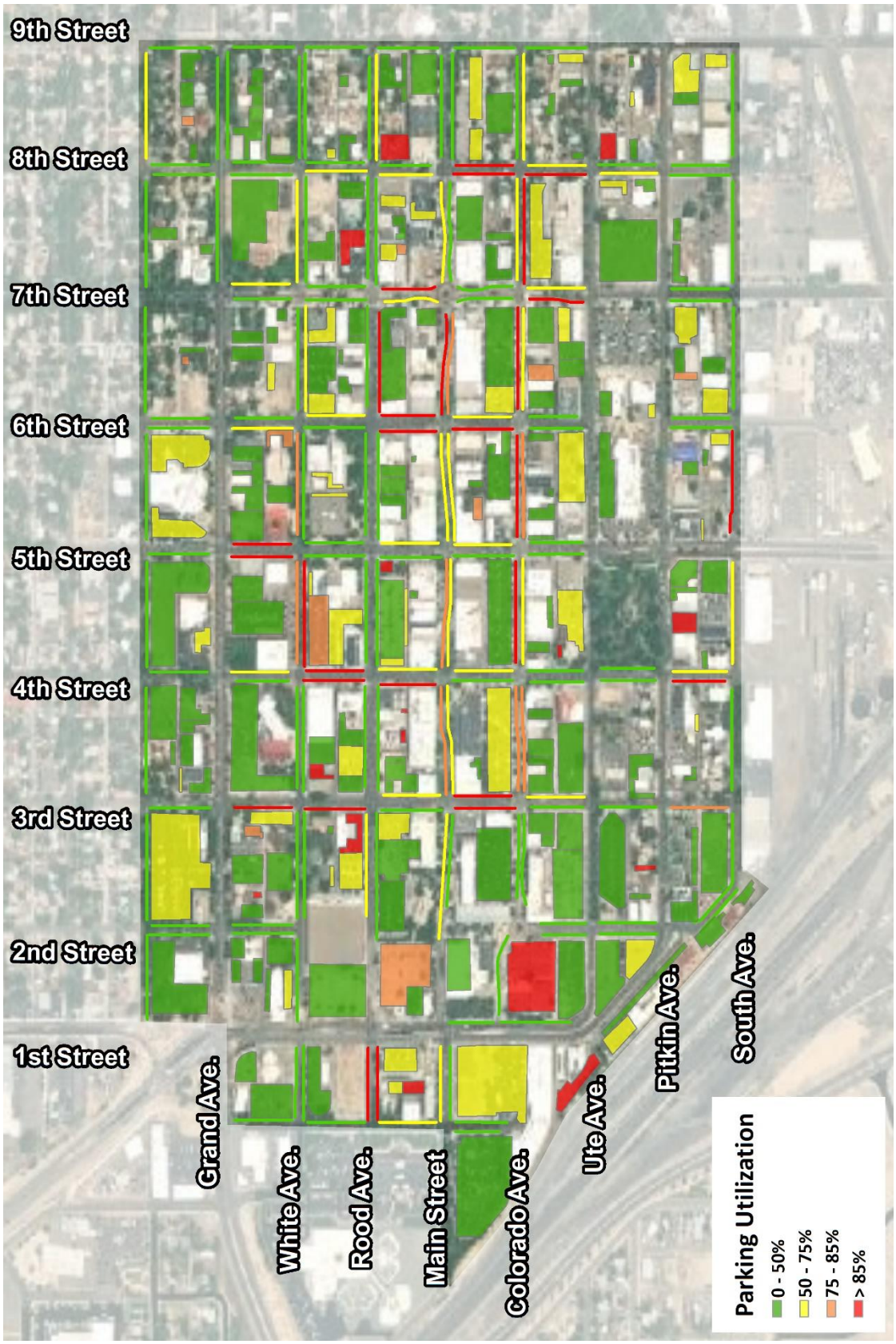
Appendix

Occupancy Maps

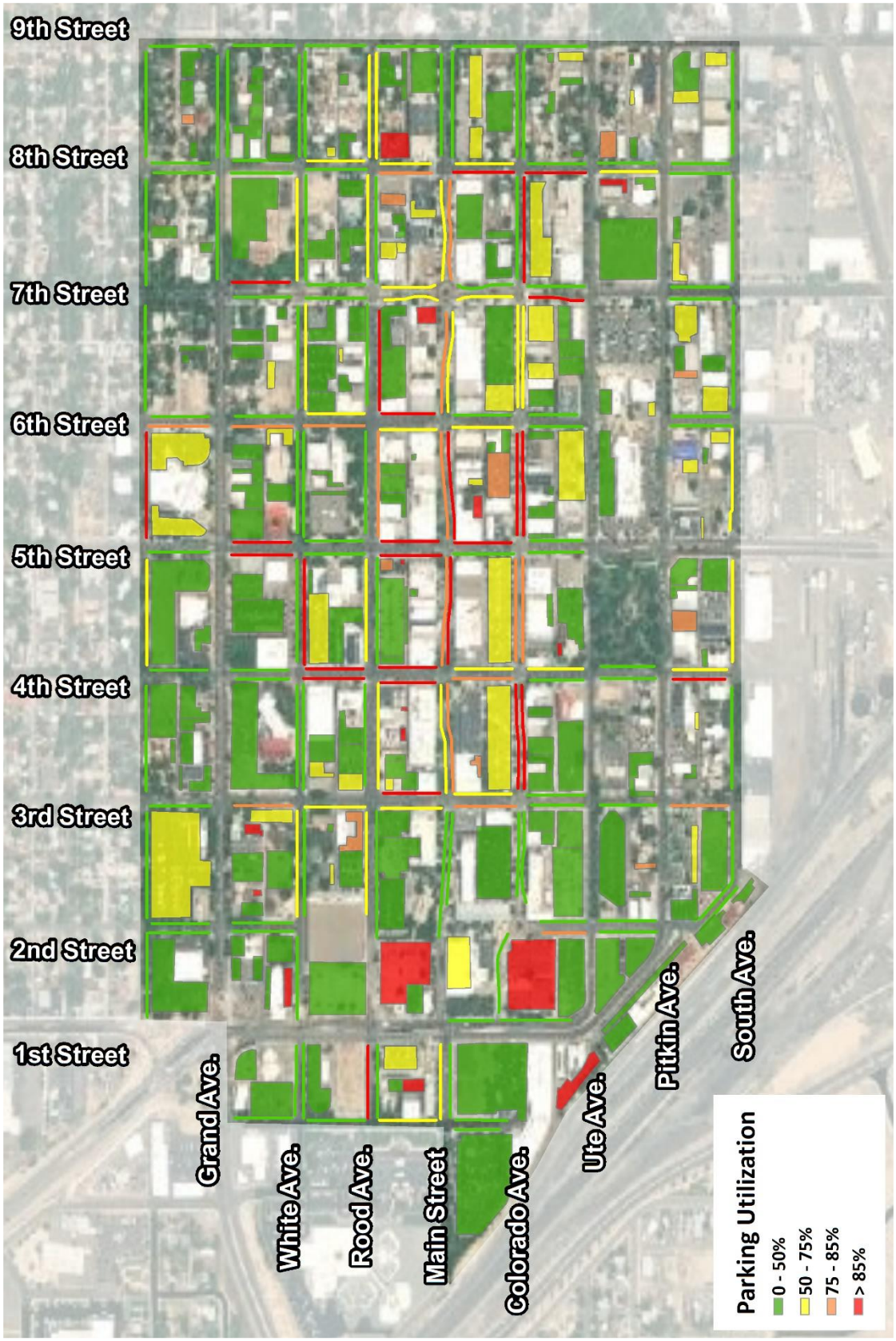
Tuesday, April 26, 2022 - 8:00 AM



Tuesday, April 26, 2022 - 10:00 AM



Tuesday, April 26, 2022 - 12:00 PM



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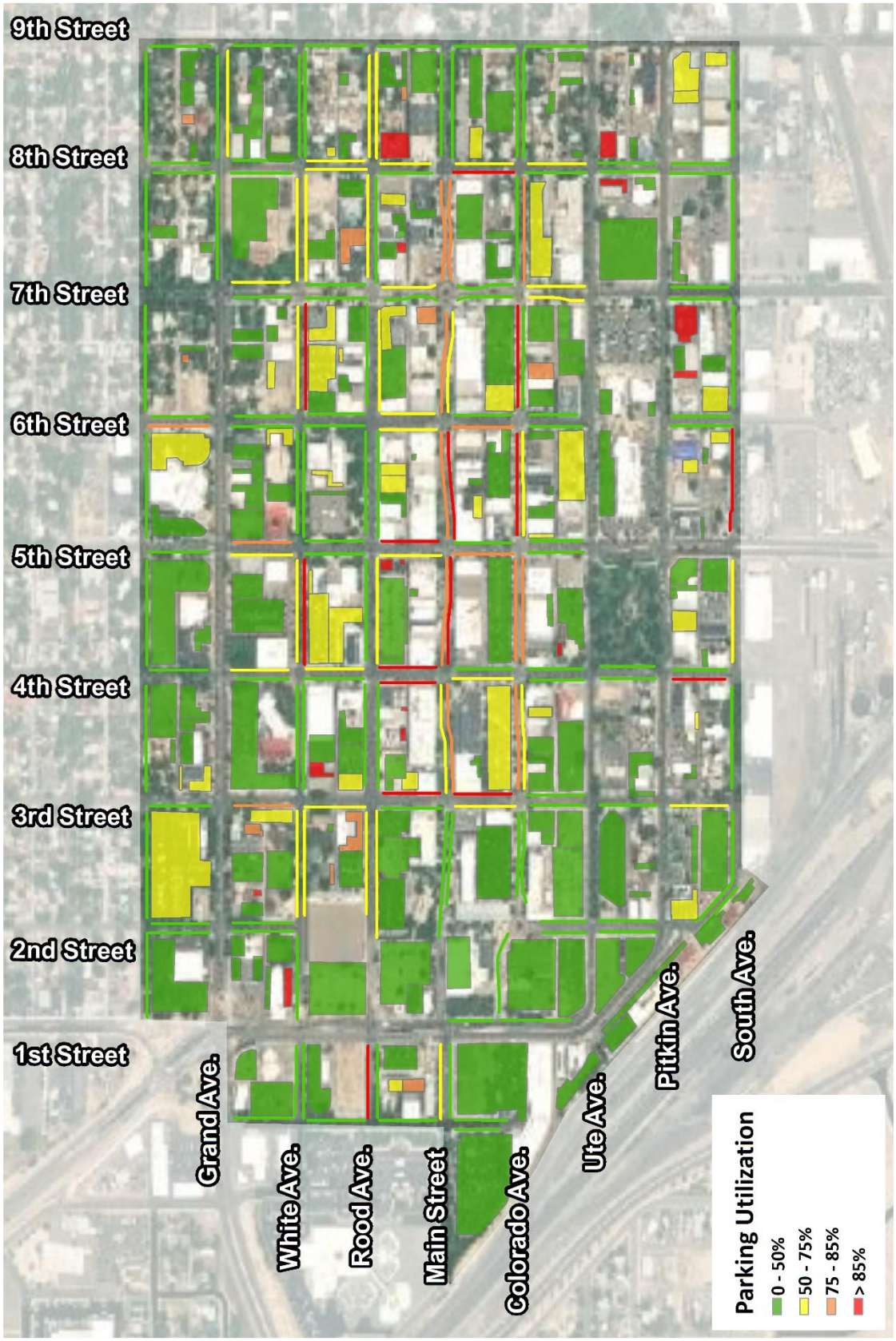
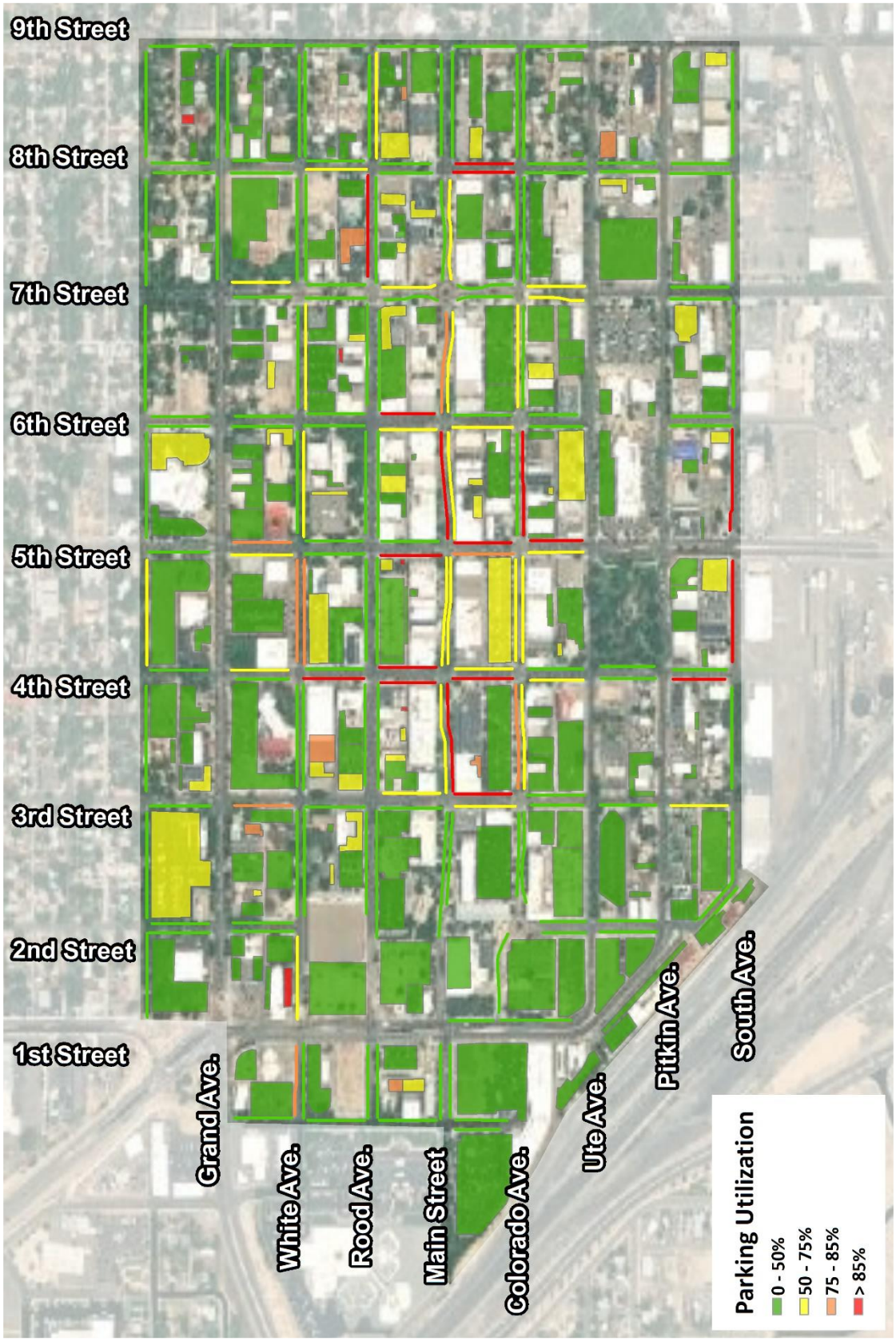
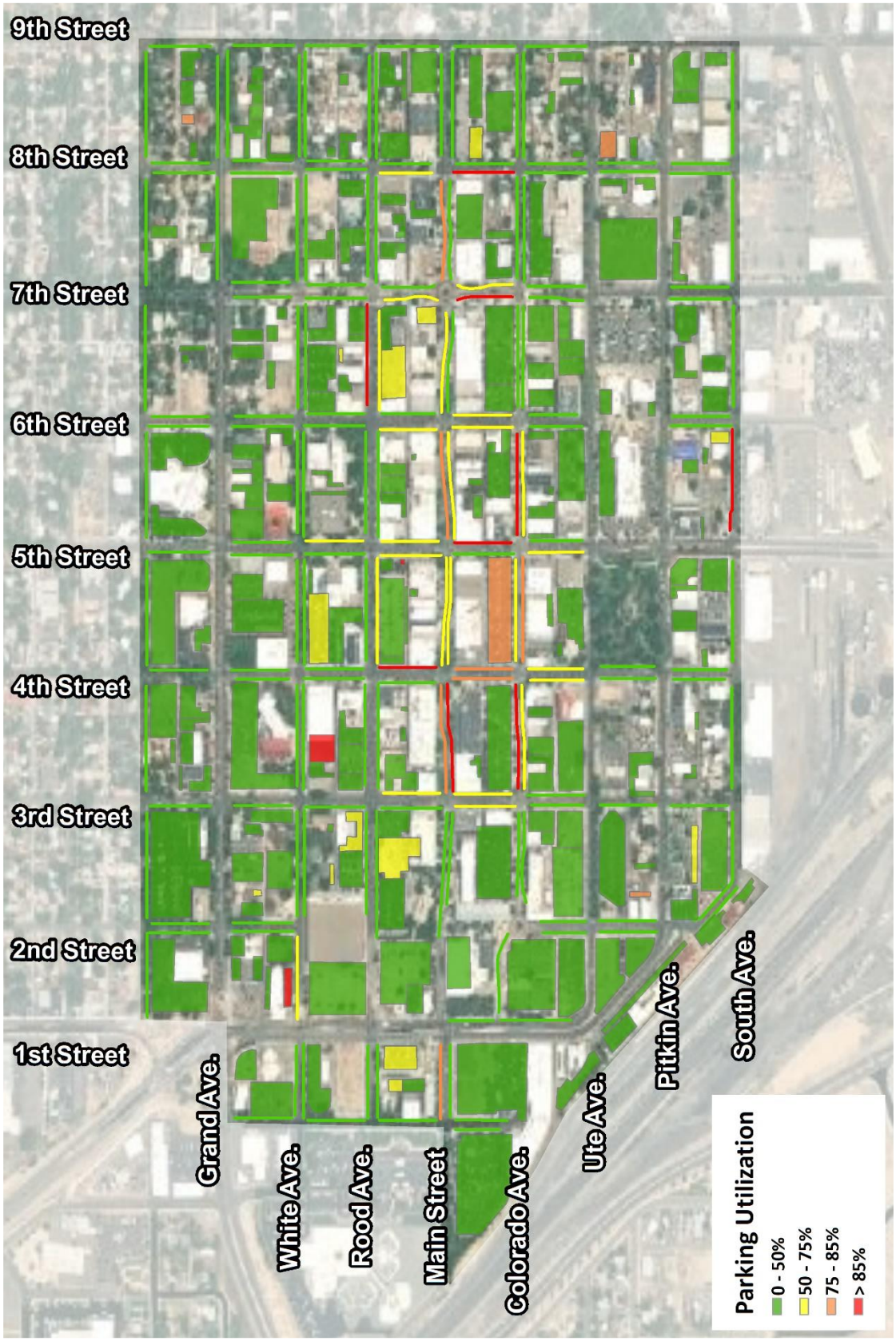


Tuesday, April 26, 2022 - 4:00 PM



Tuesday, April 26, 2022 - 6:00 PM



Grand Junction City Council

Workshop Session

Item #1.d.

Meeting Date: July 18, 2022

Presented By: Felix Landry, Planning Supervisor

Department: Community Development

Submitted By: Felix Landry, Planning Supervisor

Information

SUBJECT:

Discussion Regarding an Amendment to the Landscaping Portion of the Zoning and Development Code

EXECUTIVE SUMMARY:

The proposed changes occur in Section 21.06.040 Landscape, Buffering, and Screening Standards; Section 21.10.020 Terms Defined; Section 21.03.030 Measurements; Section 21.03.080 Mixed Use and Industrial Bulk Standards Summary Table; and Section 21.04.030 Use-Specific Standards of the Grand Junction Municipal Code.

City staff has engaged in this process due to input from the public and the development community, as well as goals expressed in the 2020 One Grand Junction Comprehensive Plan. The aims were to provide more clarity and technical sophistication, decrease the amount of required landscaping while achieving better quality, and to have better landscaping options for water conservation.

To guide refinement of draft revisions, the Community Development Department has conducted extensive outreach and research over a five-month period. The City has held three Planning Commission Workshops, a Forestry Board discussion, and a five-session stakeholder process involving a Landscaping Taskforce comprised of community landscaping experts and development professionals. Additional feedback has been sought from local plant nurseries, engineers, landscape architects, and real estate developers.

BACKGROUND OR DETAILED INFORMATION:

Updates and Additional Information Based on 16 May City Council Workshop Discussion

Irrigation Text Change
Further discussion with task force members, staff, and local professionals have resulted in the following edits to a portion of the ordinance regulating landscape plans.The ordinance now requires that irrigation systems have enough capacity to support the installed landscaping at maturity and that the property owner or irrigation installer certify that it does. That portion of the code is shown below with the changes indicated.

21.06.040(c)(7)(vii):

(vii) Landscape plans shall be stamped by a landscape architect licensed in the State of Colorado. A licensed landscape architect must certify~~Inspection and~~ that the installed landscaping compli~~esance~~ with the approved landscape plan prior to issuance of a certificate of occupancy, or the release of DIA security funds. Additionally, the property owner or irrigation installer must provide a letter describing that adequate additional capacity exists in the irrigation system to support the landscaping materials at maturity ~~must be certified by a licensed landscape architect~~ prior to issuance of a certificate of occupancy or the release of DIA security funds.

(A) A licensed landscape architect is not required to produce landscape plans if the plans are submitted for a Minor Site Plan review unless required by State statute. All other requirements continue to apply to landscaping for Minor Site Plans.

~~(viii) All landscape plans shall include an irrigation plan. The irrigation plan shall comply with the standards in the SSID manual. See GJMC 21.06.010(c).~~

Applicability of the Ordinance & Regarding Turf
The existing landscaping regulations do not apply to landscaping on properties with single-family dwelling units or duplexes. The new regulations do not propose to regulate landscaping on properties with single family dwelling units or duplexes.Some cities in dry climates have restricted turf to much higher degrees and also regulate landscaping in residential developments. Las Vegas has banned all decorative turf, including residential front yard lawns. Las Vegas also limits turf in rear and side yards to a maximum of 50% of the total area of the rear and side yards or 5,000 square feet, whichever is less. Aurora, Colorado has also taken steps to limit turf with a 40% max for single family and two family residential front lawns, a 45% max for single family and two family residential rear yards, and a 33% max in landscaped areas for non-residential development.

Turf In Grand Junction
The existing regulations and the proposed regulations regarding turf would apply to any

development except for single family and two family residences. Its difficult to say exactly how much turf would be allowed in different developments because the regulations are flexible by design and we don't have a minimum amount required. The proposed language takes more of a "carrot" approach to avoiding turf. Previously,the ordinance allowed turf and shrubs to account for any required minimum ground coverage, but did not allow for tree canopy to count as coverage. This created scenarios where a landscaper might plant additional turf, even beneath a tree canopy, simply to meet the minimum coverage requirement. Moving forward, tree canopy coverage will count towards overall plant coverage requirements, reducing the need for a landscaper to plant turf just to meet the coverage requirement.

The proposed ordinance language has a couple instances of removing the potential for turf. Previously, landscapers had the option of trading shrubs for turf. That option has been removed, potentially eliminating some cases where turf might have been planted. Lastly, the option for the Director to allow turf to cover up to 50% of the 14 foot street frontage landscaped area, or 100% turf coverage of that area if parking is 30 feet or more from the right-of-way, has been removed.

The existing regulations and the proposed changes are outlined below:

General Landscaping Standards
21.06.040(b)(14)(i)- 25% of shrubs may be converted to turf – 50 sq/ft of turf per one 50 gallon shrub
UPDATE: This language has been removed
21.06.040(b)(16)(ii) - At least 75 percent of the unpaved adjacent right-of-way shall be landscaped with turf, low shrubs or ground cover. The Director may vary the required landscaping to obtain a consistent appearance in the area or with existing or planned right-of-way landscaping.
UPDATE: This language has been updated to allow tree canopy to count towards the 75% coverage, which could reduce the use of turf.

Parking Lots
21.06.040(c)(3)(iii) - If a landscape area is 30 feet wide or greater between a parking lot and a right-of-way, the 30-inch-high screen is not required. This 30-foot-wide or greater area must be 100 percent covered in plant material within three years. Turf is allowed.
UPDATE: This language now lists tree canopy, ground cover, shrubs, and turf as planting materials

Street Frontage Landscape
21.06.040(d)(2) - A minimum of 75 percent of the street frontage landscape shall be covered by plant material at maturity.
UPDATE: Language now lists tree canopy coverage, shrubs, ground cover, and turf as options to meet the 75%
21.06.040(d)(3) - The Director may allow for up to 50 percent of the 14-foot-wide street frontage to be turf, or up to 100 percent turf coverage may be allowed if the parking lot

setback from the right-of-way exceeds 30 feet. Low water usage turf is encouraged.
UPDATE: Removed

Buffers
21.06.040(e)(1)(i) - Seventy-five percent of each buffer area shall be landscaped with turf, low shrubs or ground cover.
UPDATE: This language now includes tree canopy coverage as an option for meeting the 75% coverage.

Residential Subdivision Perimeter Enclosures
21.06.040(g)(5)(iv) - A minimum of 75 percent of the landscape buffer area shall be covered by plant material at maturity. Turf may be allowed for up to 50 percent of the 14-foot-wide landscape strip, at the Director's discretion. Low water usage turf is encouraged;
UPDATE: This language has replaced "plant material" with the more specific "tree canopy coverage, shrubs, and ground cover. The max 50% turf is still in place.

Proposed Water Wise and High Desert landscaping options have a maximum allowed turf area of 25% and15% respectively.They also require that a minimum percentage (Water Wise = 50%, High Desert = 90%) of their shrubs and ground cover come from the species of plants identified on the plant list as low water or xeric. If a developer does not choose to pursue either of these options then the project would still be held to the general landscaping requirements.

Options for Moving Forward

- Add maximum turf allowances in situations where the code allows it as a ground cover option.
- Require that any ground cover required by the ordinance consist of plants identified on the preferred plant species list.
- Require use of the Water Wise or High Desert landscaping approaches in areas already regulated by the ordinance, such as industrial and commercial developments, parking lots, medians, subdivision boundaries, etc. This would warrant revisiting the required tree counts for those two options.

The Zoning and Development Code Committee, formed to discuss updating the code, has already expressed interest in revisiting the landscaping code and provides a good setting to continue discussing the potential for stricter regulations such as regulating single family and two family residences, turf buy back programs, or other regulations similar to what Las Vegas, Aurora, and other dry climate cities have adopted.

Original 16 May City Council Workshop Report

Planning Commission voted to recommend approval 6-1, but extensive discussion

occurred during the hearing about a variety of items in the proposed amendments. Some of the major topics are described below, but an extensive description of the proposed changes can be found in the attached packet from the Planning Commission meeting.

Significant Trees
The amendments offer:
- a clearer definition of what qualifies as a significant tree (15 inches, and not on the invasive species list)
- The type of development projects will require preservation of significant trees (major site plans, not including single family homes and duplexes)
- how many must be preserved (30% of the trees that meet the requirement)
- credit for preserving them (the developer gets 2 caliper inch credits against required new trees for every caliper inch of significant tree preserved).

Lot Coverage
The proposed amendments adjust the maximum lot coverage allowed in zoning districts described in Mixed Use and Industrial Bulk Standards Table. Currently, the ordinance allows a 100% coverage of a property with impervious surfaces. Impervious surfaces currently include structural footprints but exclude paved surfaces such as parking and driveways. The amendments would include paved surfaces such as parking and driveways. The changes in percentage range from 70% in RO (Residential Office) to 100% in B2 (Downtown). These changes would make the code more consistent. The code requires a minimum amount of landscaping, making 100% coverage impossible to legally achieve. Also, it implements portions of the comprehensive plan, specifically Planning Principle 8(1)(c) "Pervious Surfaces: promote efforts to improve water quality of run off, including designing with impervious surfaces that allow on-site infiltration of storm water and features designed to remove pollutants".

Irrigation
Currently, our code requires irrigation by a pressurized or drip system, but the irrigation often gets designed, installed, and inspected by someone other than the Landscape Architect who designs the landscaping. The amendments will require a development to provide an irrigation plan approved by a Landscape Architect for site plan approval. This change came from a goal to have installed irrigation systems match with the installed landscaping. For the sake of water conservation, landscaping survival, and cost efficiency for the city, land owners, and developers, the amendment requires the landscape architect to approve the proposed irrigation system.

Ute Water
Currently, Ute Water does not grant taps for irrigation. Some at the Planning Commission hearing proposed adding language to the ordinance that would only require irrigation for landscaping where it's available. Currently, irrigation is required everywhere and staff have seen very few occurrences where a developer has simply been unable to find irrigation for the required landscaping. Development projects that

have run into this issue have largely been successful in finding creative ways to irrigate landscaping. Burkey Park is a good example. Also, adding the proposed language would require significant discussion about who staff would review and enforce the required landscaping and its maintenance without irrigation provided.

FISCAL IMPACT:

This code amendment will not have a fiscal impact to the city.

SUGGESTED ACTION:

Discuss the proposed changes of the ordinance.

Attachments

1. PC_Packet_10May2022

Grand Junction Planning Commission

Regular Session

Item #2.

Meeting Date: May 10, 2022

Presented By: Felix Landry, Planning Supervisor, Lance Gloss, Senior Planner

Department: Community Development

Submitted By: Felix Landry, Planning Supervisor

Information

SUBJECT:

Consider an amendment to the Zoning and Development Code Section 21.06.040 Landscape, Buffering, and Screening Standards; Section 21.10.020 Terms Defined; Section 21.03.030 Measurements; Section 21.03.080 Mixed Use and Industrial Bulk Standards Summary Table; and Section 21.04.030 Use-Specific Standards of the Grand Junction Municipal Code | **Staff Presentation** | Comment code: **3110**

RECOMMENDATION:

Staff recommends approval of the request.

EXECUTIVE SUMMARY:

Section 21.06.040 of the Zoning and Development Code requires that site development include landscaping. Ordinance ZCA-2022-170 proposes revisions to the landscaping requirements. The proposed ordinance changes balance many goals including: clarity; modernization; infrastructure cost savings; water efficiency; successful maintenance; increased tree canopy; and design flexibility.

The proposal derives from a series of compromises among the City's stated goals. Overall, the ordinance strikes a balance between minimizing infrastructure costs to the City of Grand Junction, limiting the costs of landscaping during real estate development, and maximizing the services that landscaping provides to the Grand Junction community.

Proposed revisions draw on stakeholder input from local landscape practitioners and real estate development professionals, and from best practices for landscaping regulations in the Southwest. A Suitable Plants List is also provided for reference. This List is a critical supplement to the proposed Code revisions.

Primary changes include allowing for development to pursue alternative landscaping standards where designs maximize water conservation and native pants. It also clarifies the existing requirement to identify and protect significant trees during development. Other changes allow for greater design flexibility within the minimum planting requirements. Furthermore, these changes include an assortment of adjustments meant to increase the odds of long-term planting health and successful maintenance.

BACKGROUND OR DETAILED INFORMATION:

Process
Section 21.06.040 of the Zoning and Development Code requires that site development include landscaping. The City Community Development Department applies those regulations on landscaping to development proposals in the City. That section of the Code is complemented by several other sections of the Code, such as those concerning wildlife and wildfire (GJMC 21.07.020) and others that are specific to particular land uses (GJMC 21.04.030).

The Community Development Department, in collaboration with the Parks and Recreation Department, has drafted a revision to the landscaping regulation. The proposal includes many minor adjustments. It also includes substantive changes. These include stronger pathways to climate-appropriate landscaping, clarity regarding the preservation of significant trees, and the quality of planting practices related to irrigation, soil, and plant diversity.

The proposed regulations emerge from public discourse and public policy. They featured in discussions by the City's Development Roundtable, Forestry Board, City Council, and Planning Commission. They also recur in the process of development review, and in the experiences of development professionals, residents, conservation advocates, and staff. Sustainability and quality of life also appear as overarching goals in the City's most recent Strategic Plans, the 2020 One Grand Junction Comprehensive Plan, and the 2021 Parks, Recreation, and Open Space (PROS) Master Plan.

The One Grand Junction Comprehensive Plan discusses water conservation extensively and identifies updating landscaping regulations as a means of achieving this goal. Plan Principle 8: Resource Stewardship identifies directs the City to "Evaluate landscaping standards to promote the use of native and/or drought-tolerant plant materials, efficient irrigation, and appropriate soil amendments to support plant health and resiliency, and other water-conserving practices." The Comprehensive Plan also speaks to the need to "manage the City's urban forest," promote "water-wise landscaping within the City," and address "tree installation, replacement, and protection." Likewise, the 2021 PROS Master Plan calls for the "championing a healthy tree canopy."

To guide refinement of draft revisions, the Community Development Department has conducted extensive outreach and research over a five-month period. The City has held three Planning Commission Workshops, a Forestry Board discussion, and a five-

session stakeholder process involving a Landscaping Taskforce comprised of community landscaping experts and development professionals. Additional feedback has been sought from local plant nurseries, engineers, landscape architects, and real estate developers.

A primary aim of these workshops was to clarify goals for the revision, choose between policy approaches, and to draw on local expertise to ensure that changes benefit the health and manageability of landscape installations in the future. General goals to considered in workshop settings reflected the general goals of the revision, namely:

1. Clarifying the existing landscaping regulations.
2. Aligning landscaping regulations with best practices for landscape architecture and meeting the City of Grand Junction's strategic goals for sustainability, water conservation, and canopy growth.
3. Aligning landscaping regulations with the realistic constraints of real estate development and the overarching goal of economic development.
4. Limiting long-term infrastructure costs to the City of Grand Junction.

Existing Standards
The proposed changes to the landscaping requirement are broadly consistent with the existing approach to landscaping in the Zoning and Development Code. The standards continue to approach landscaping in four primary ways.

The first is by setting minimum standards for the portions of a development site that must be landscaped. The Code identifies the adjacent right-of-way, parking lots, screens, buffers, street frontages, and perimeter enclosures for residential subdivisions. Revisions retain this standard.

The second is a numerical approach to plantings. A minimum number of trees, shrubs, groundcover, and coverage of landscaped areas is based on improved area. Revisions seek to make coverage more flexible through equivalencies and substitutions. Landscape plans must meet these minimum plant counts.

A third, and more limited, component of regulation concerns how development may plant, irrigate, and maintain sites. The manner in which landscaping is carried out must align with best practices as specified in the Code. The Ordinance addresses those requirements to reflect growth in best practices and the evolution of the City's planning goals.

Fourth, when a landscape plan is approved for a property, a property owner must maintain the site in perpetuity. While challenging to enforce, maintenance is crucial to landscape health in the long-term. The proposed revisions retain the general approach of requiring maintenance per plan. However, the revisions add a requirement for a viable, long-term maintenance strategy as an element of the approved plan. This allows for a more dynamic version of perpetual maintenance without allowing landscapes to fall into disrepair (see *Plan Requirements* below).

Balancing Goals
In many cases, these goals suggest different strategies. Water conservation and expanded tree canopy are not always aligned. Flexibility and clarity sometimes run counter to a strict understanding of best practices. Above all, high quality of landscaping represents a cost to development, and it is imperative that landscaping requirements not inhibit the ability of real estate development to create housing and business opportunities in Grand Junction.

Therefore, the process and result reflect a high degree of compromise. In many instances, stakeholders with differing professions have requested that the same standard be lessened or strengthened. Wherever possible, compromises have been decided in favor of the alternative the meets a majority of the four goals described above.

Two illustrative examples follow. Further below, the essential changes to the code are enumerated in detail.

For a first example, consider the landscaped area in which trees are planted. Shade trees are unlikely to succeed in a planting area that is less than eight feet wide; if they do, they tend to damage adjacent concrete. However, the existing requirement provides for landscape strips as narrow as five feet or six feet, depending on context. Adjusting the minimum width to eight feet as proposed represents a compromise resolved in favor of long-term landscape health outcomes. In short, some landscaping areas may increase in size so that healthier trees result. This is directly related to the adjust

For a second example, consider the relationship between tree canopy coverage and water conservation. Even among healthy and climate-appropriate trees, many require supplemental irrigation. Yet canopy is essential to a livable environment within City limits. Achieving both goals without compromise requires a level of design detail and care that may not be reasonably assumed to occur in all landscape design. Moreover, reducing turf is a primary mechanism for reducing water use, but successful trees are often linked to the presence of adjacent turf. These factors are related in complex and challenging ways.

The proposed requirements achieve both canopy and conservation goals where possible. One clear pathway is by creating a substantial requirement to retain existing, mature trees. Water conservation goals are also served directly by requiring irrigation plans as part of development review. Where these goals are potentially in conflict, they are resolved through the creation of two alternative landscape plan options, wherein a high degree of water conservation in plant selection and design is accompanied by a reduction in total tree count.

Flexibility
Nearly every instance of public outreach on this topic resulted in discussions of flexibility. The Landscaping Taskforce spoke to a “menu” option, which resulted in the

drafting of two alternative standards for low-water designs and high desert areas to the baseline standards. This method was preferred to another approach, wherein different standards would be varied by their location on a property-by-property basis. Adoption of map-based variation in landscaping standards would require a level of public engagement and an assessment of property-by-property growing conditions that exceed the scope of this revision. Such a map-based approach to landscaping regulation is also without known precedent. Future revisions of this requirement may reconsider this conclusion. As proposed, Alternative Landscape Plans pivot away from the uniform requirement in place today, in favor of flexibility.

A desire for increased flexibility on the part of licensed landscape architects—whose stamp is required for most landscape designs—has been voiced during the revision process and in the review of many development applications. Revisions respond to this interest in several ways. One is to clarify and expand conversion rates when substituting among trees, shrubs, and groundcover. This may facilitate more responsiveness of landscape architects to specific site conditions.

The code also addresses flexibility by clarifying and slightly reducing the ratio of required tree plantings to disturbed or improved area. This occurs in the context of other changes that would restrict flexibility of site design. Chiefly, significant tree regulations would increase the required number of plantings in the many cases were significant trees exist (see below).

Thus, the total number of required trees is reduced in some zone districts. Specifically, two-caliper inches of tree plantings (equal to one minimum-size shade tree) are now required for every 3,000 square feet of improved area for all single-family, multifamily, business, and commercial zones, compared to the existing requirement of one tree per 2,500 square feet. Trees continue to be required at existing rates of one per 40 linear feet for street frontage landscaping.

Similarly, the required number of shrubs is proposed to be reduced. This change is intended to improve design flexibility and reduce costs to development. The relative impact on ecosystem services is anticipated to be minimal, given that shrubs provide far fewer of these services than trees do. In most zone districts, the current requirement for shrubs is one shrub per 300 square feet of improved area. This is proposed to be reduced to one shrub per 450 square feet of improved area, for a 33% reduction in total required shrubs.

Significant Trees
Significant trees often feature in the landscaping regulations of Colorado jurisdictions. A minimum diameter of a tree at breast height (“caliper”) is identified in the regulation. Size varies among jurisdictions. The proposed definition for a significant tree herein is a tree exceeding 15 inches in diameter.

Currently, significant trees are generally required to be preserved during development. The regulation currently reads as follows:

“To the extent the Director deems practicable, such features shall be preserved by the final plans and to such extent, count toward landscape and open space area requirements. Features to be preserved shall be protected throughout site development.”

This regulation leaves substantial room for discretion on the part of City staff. This leads to unpredictable conditions for real estate developers and for the community at large. The proposed revision would clarify this requirement.

Under the clarified regulation, a development proposal would be required to identify any existing significant trees at the time of application. Any development would be required to preserve at least 30% of significant trees found on the property at the time of application.

Any significant trees to be removed would be required to be replaced at a rate of one new caliper inch of planted tree for every two caliper inches of significant tree destroyed during development. The same ratio would apply to the preservation of trees (significant or otherwise). Thus, a development that preserves exactly half of the significant trees on the property “breaks even” and is subject to only the baseline requirement for plantings.

Because preserving significant trees may represent a substantial challenge for site design, this new regulation occurs alongside a minor reduction in the total number of trees required per area of disturbed property (see *Flexibility* above).

Alternative Landscape Plans
Currently, only one standard for landscape plans is applied to all development proposals, regardless of their planting composition or access to water. The public process for the proposed revisions generated substantial interest in creating standards that might apply in water constrained areas or when water conserving design choices are made. In response, two alternative standards are provided: Waterwise Landscape Plans and High Desert Landscape Plans.

The Waterwise Landscape Plan alternative may be pursued by a development proposal if it meets a minimum number of low-water plantings per the Suitable Plant List (50% of shrubs and groundcover) and a maximum proportion of landscaped area that is planted with turf (25%). This strategy is incentivized by reducing costs to development. Specifically, a reduced size of groundcover is permitted at time of planting, and a 20% reduction in total required tree plantings is enforced.

A more intensive alternative is also available in the form of a High Desert Landscape Plan. To qualify for this alternative, development must demonstrate relevant geotechnical constraints, limited access to irrigation water, or a high desert ecological context. Development must also propose a higher minimum number of low-water plantings (90% of shrubs and groundcover), a minimum number of native plantings

(50% shrubs and groundcover), and a maximum turf area of 15% of landscaped areas. As in the Waterwise Landscape Plan alternative, stricter planting standards apply. A reduced size of groundcover is permitted at time of planting. A 50% reduction in total required tree plantings is enforced. A higher minimum percentage (60%) of significant trees are required to be preserved. The intended effect, overall, create a water conserving pathway for sites with unique conditions.

Suitable Plant List
A Suitable Plant list is provided as a reference document in this packet. Previously, this list was not a major element of regulations. The Code currently regulation refers to a list of plants to be maintained by the Director GJMC 21.06.040(b)((4)). The attached list is a departure from previous, shorter version of the list. The list is not an adopted part of the Zoning and Development Code; it is an administrative document that need not be adopted or revised by a decision of City Council.

The list reflects a blend of inputs. One is best practice, drawing on the expertise of City staff and Landscaping Taskforce members. Another is common practice: almost all plants included on landscaping plans approved by the City since 2017 are included. Another is water conservation goals, as high water use plants are generally not included.

The Suitable Plants List is proposed to become more important to the Zoning and Development Code. It is to be used as the basis for water use expectations used to evaluate alternative landscape plans (see *Alternative Landscape Plans* above). Substitutions of plants in the field would be restricted to those plants on the list. Perhaps most importantly, it is designed to serve as a menu for landscape architects. Landscape plans should consist of species found on the list. However, landscape plans can propose to use plants that are not on the Suitable Plants List and include provide adequate detail to substantiate the proposal. Plants approved by the Director in this way may be administratively added to the Suitable Plants List.

City Forester and Trees in Right-of-Way
Private development is required to plant and maintain landscapes in the public right-of-way in many circumstances. An additional chapter of the Grand Junction Municipal Code (8.32 – Trees) addresses many of the relevant concerns for trees planted in the right-of-way. This revision clarifies the authority of the City Forester over landscaping in the right-of-way and the requirement for the City Forester's permission to remove any tree in the right-of-way. The Ordinance also continues to require one tree per 40 feet of street frontage landscaping. It adjusts the language for coverage of planting areas in the right-of-way to allow canopy coverage as a surface area coverage pathway. And, it reduces the amount of right-of-way landscaped with turf to 50% of the right-of-way area associated with a development proposal, encouraging shrubs and groundcover.

Impervious Surfaces
Proposed revisions also address the need for pervious surface to allow groundwater to infiltrate soils. Pervious surface relates to both plant health and stormwater

management. The regulation is to reduce the area of a development that is covered by impervious surfaces. One mechanism is direct, with the establishment of a maximum impervious surface coverage ("lot coverage"). Under today's regulations, lot coverage refers to the area covered by structures. This is revised to mean impervious surfaces, including pavement.

The maximum lot coverage is also revised in GJMC 21.03 – Zoning Districts. Previously, up to 100% of lots in commercial, industrial, and business districts could be covered by impervious surfaces (except R-O). The revision reduces this coverage to 80% in most cases. The exceptions are for B-2 (Downtown Business) zones, at 100% coverage, and CSR (Community Services and Recreation) zones, at 75% coverage. This is potentially impactful where certain uses often result in large masses of impervious surface, such as auto storage associated with automobile dealerships (General Retail Sales, Outdoor Operations, Display or Storage).

Diversity Requirements
Minor adjustments are made to ensure a minimum species diversity in landscape designs. Minimum diversity ratios for trees and shrubs reflects slight increases. The regulation is also revised to require diversity at the botanical level of genus, rather than of species, to ensure that numerical diversity requirements result in an appreciable diversity of planting survival conditions.

Best Horticultural Practices
As discussed above, the City's landscaping regulations address planting practices only to a moderate extent. This allows the Code to remain succinct and allows practitioners to operate based on their expertise. However, a series of essential requirements are proposed that may be critical to ensuring long-term plant survival and aesthetic outcomes. These include reduced applications of weed fabric; removal of "orchard style parking island" options not viable for plant success; widened frontage strips and planting islands (to a minimum width of eight feet); requiring soil amendments in planting areas; requiring organic mulch for shrub beds; and setting minimum widths for planting holes.

Plan Requirements
Additional changes are proposed that would increase the level of landscaping-related detail required to be submitted with development applications. Specifically, revisions call for landscape plans to include an irrigation plan.

An irrigation plan is commonly required by Colorado jurisdictions whenever a landscape plan is required. While the City maintains submittal standards for irrigation plans and such plans are referenced in GJMC 21.06.010(c), there is no clear requirement that such plans be provided. Under the proposed revisions, irrigation plans would be required as a component of landscape plan submittals.

Other Considerations
A large number of other changes are introduced that are smaller or more narrowly

applicable. These include minor adjustments to the landscaping standards for mini-warehouses. The City's right to inspect landscaping is also reframed to more clearly respect the rights of private property owners. The revision also provides for greater contribution of landscaping in the right-of-way toward the minimum total required plant count, which is currently limited.

Alignment with the Comprehensive Plan
The Comprehensive Plan identifies the aim of implementing water conservation through adjusted landscaping requirements in Plan Principle 8: Resource Stewardship, and specifically in the following goals:

i. *Principle 8(1)(b)* – Drought Tolerant Landscaping: Evaluate landscaping standards to promote the use of native and/or drought-tolerant plant materials, efficient irrigation, and appropriate soil amendments to support plant health and resiliency, and other water conservation practices.
ii. *Principle 8(1)(c)* – Pervious Surfaces: Promote efforts to improve the water quality of runoff, including designing with pervious surfaces that allow on-site infiltration of stormwater and features designed to remove pollutants
iii. *Principle 8(5)* – Manage the City's Urban Forest and Water Wise Landscaping within the City.

ANALYSIS
In accordance with Section 21.02.140(c), a proposed Code amendment shall address in writing the reasons for the proposed amendment. There are no specific criteria for review because a code amendment is a legislative act and within the discretion of the City Council to amend the Code with a recommendation from the Planning Commission. Reasons for the proposed amendments are provided in the Background section of this report.

NOTIFICATION REQUIREMENTS
Notice was completed as required by Section 21.02.080(g). Notice of the public hearing was published on May 3, 2022 in the Grand Junction Daily Sentinel.

RECOMMENDATION AND FINDINGS OF FACT
After reviewing ZCA-2022-170, requested amendment to the Zoning and Development Code Section 21.06.040 Landscape, Buffering, and Screening Standards; Section 21.10.020 Terms Defined; Section 21.03.030 Measurements; Section 21.03.080 Mixed Use and Industrial Bulk Standards Summary Table; and Section 21.04.030 Use-Specific Standards of the Grand Junction Municipal Code the following findings of fact have been made:

1. The proposed amendments to the Zoning and Development Code are useful in that they ensure the health, safety, and general welfare of the public, and refine

processes that assist in the logical and orderly development of the city as described in the background information of this report; and
2. The proposed revisions implement and are consistent with the One Grand Junction 2020 Comprehensive Plan.

Therefore, Staff recommends approval of this request.

SUGGESTED MOTION:

On the request to amend the Zoning and Development Code Section Section 21.06.040 Landscape, Buffering, and Screening Standards; Section 21.10.020 Terms Defined; Section 21.03.030 Measurements; Section 21.03.080 Mixed Use and Industrial Bulk Standards Summary Table; and Section 21.04.030 Use-Specific Standards Grand Junction Municipal Code, file number ZCA-2022-170, I move that the Planning Commission forward a recommendation of approval to City Council with the findings of fact listed in the staff report.

Attachments

1. Existing Code
2. Landscaping Ordinance _ Public Review _ DRAFT _ May 2022 _ City of GJ
3. City of Grand Junction Suitable Plants List _ For Packet
4. Grand Junction Street Treet List_03.09.21
5. Landscaping Ordinance _ Clean_ May 2022 _ City of GJ
6. Summary of Engagement Process

21.06.040 Landscape, buffering and screening standards

(a) **Purpose and Goals.** The purpose of this section is to enhance the aesthetic appeal of new development **and contribute to a livable urban environment**. Landscaping reduces heat and glare, facilitates movement of traffic within parking areas, shades cars and parking surfaces reducing local and ambient temperatures, buffers and screens cars from adjacent properties, promotes natural percolation of surface waters, improves air quality, buffers and screens potentially incompatible uses from one another, and conserves the value of property and neighborhoods within the City.

(b) **General Landscape Standards.**

(1) All landscaping required by this code shall comply with the standards and requirements of this section. The landscaping requirements of this code shall not apply to a lot zoned for one or two dwellings. Landscaping for new developments shall occur in buffer areas, all interior parking areas, along the perimeter of the property, around new and existing structures, and along street frontages and within any right-of-way not used nor planned to be used for infrastructure.

(2) Plant Quantities. The amount of landscaping is based on gross area of proposed development.

(3) Landscaping Standards. All new development must install and maintain landscaping as required by this code. (See subsection (b)(1) of this section for an example of the landscaping requirements of this section.)

(i) On-site frontage landscaping may not apply in the B-2 zone downtown commercial. (See zone district standards.)

(ii) Landscaping in the abutting right-of-way is required in addition to overall site landscaping requirements.

(iii) Buffer landscaping is required in addition to overall site landscaping requirements.

(4) Acceptable Plant Material. Vegetation must be suitable for Grand Junction's climate and soils. The Director may allow the use of any plant if sufficient information is provided to show suitability including salt tolerance, sun and shade requirements based on planting locations, growth habit, etc. Noxious weeds are not allowed. (The Director will keep a list of suitable plants.)

(5) Minimum plant sizes are:

(i) Shade tree, two-inch caliper (measured six inches above root ball) at time of planting. At maturity, a shade tree has a height and/or spread of 30 feet or greater. If two-inch caliper trees are not available due to seasonal shortages or shortages in desired varieties, the Director may approve the installation of smaller trees, provided the proportional difference in caliper inches is compensated for by installing additional trees. For example, the installation of six one-and-one-half-inch caliper shade trees would result in a shortfall of three caliper inches, which could be compensated for with two additional one-and-one-half-inch trees. However, a minimum caliper of one and one-half inches shall be required.

(ii) Ornamental tree, one-and-one-half-inch caliper (measured six inches above root ball) at time of planting. At maturity, an ornamental tree has a spread and height between 15 feet and 30 feet.

(iii) Evergreen tree, six feet tall at time of planting.

(iv) Deciduous shrub, five-gallon container.

(v) Evergreen shrub, five-gallon container.

(vi) Perennials and ground covers, one-gallon container.

(vii) Turf mix, native grasses and wild flower mix are the only vegetation that may be planted as seed.

(6) Irrigation. All vegetation and landscaped areas must be provided with a permanent irrigation system.

(i) Nonpotable irrigation water shall be used unless the Director allows the use of potable water.

(ii) An underground pressurized irrigation system and/or drip system is required for all landscape areas on the property and in any right-of-way.

(iii) If connected to a drinking water system, all irrigation systems require State-approved backflow prevention devices.

(iv) All irrigation for nonpotable irrigation water systems must have adequate filters easily accessible above ground or within an appropriately sized valve box.

(v) Native grasses must have a permanent irrigation source that is zoned separately from higher water demand landscapes. Once the grasses are established, irrigation to native grass areas can be reduced to a level that maintains coverage typical of the grass mix and to suppress weed growth.

(7) Landscape Plans and Equivalent Plants.

(i) Landscape plans must identify the species and sizes of vegetation (SSID manual).

(ii) All landscaping shall be installed as shown on the approved plan.

(iii) An equivalent species may be substituted in the field without prior approval of the Director, provided a revised drawing is submitted to the Department. Plants are "equivalent" if they have the same growth habit and rate, same cover, leafing, shade characteristics and function, have similar water requirements, thrive in the same microclimate, soils and water conditions.

(iv) All other changes to the landscape plan require prior approval from the Director.

(v) All development plans shall designate required landscaping areas. Subdivision plats shall designate required landscaping areas.

(vi) The owner shall keep each fire hydrant unobscured by plant material.

(vii) Landscape plans shall be stamped by a licensed landscape architect. Inspection and compliance with approved landscape plan must be certified by a licensed landscape architect prior to issuance of a certificate of occupancy.

(8) Preservation of Significant Landscape Features. Existing landscape features such as escarpments, large or old trees or stands, heavy vegetative cover, ponds and bluffs shall be identified by the Director as part of the development review process. To the extent the Director deems practicable, such features shall be preserved by the final plans and to such extent, count toward landscape and open space area requirements. Features to be preserved shall be protected throughout site development. If a significant live feature which was to be preserved dies or is substantially damaged, the developer shall replace it with an equivalent feature as determined by the Director. No person shall kill or damage a landscape feature required to be preserved by this section. The developer shall protect trees from compaction under the canopy drip line of the tree unless the City Forester says otherwise.

(i) During construction, fencing or similar barriers shall isolate and protect the landscape features to be preserved.

(ii) All protection measures shall be clearly identified on the construction and landscape plans.

(iii) No vehicles or equipment shall be driven or parked nor shall any materials be piled within the canopy drip line of any tree to be preserved.

(9) Protection of Landscape Areas. All landscape areas (except in the right-of-way where a street side curb does not exist) shall be protected from vehicles through the use of concrete curbing, large rocks, or other similar obstructions.

(10) Utility Lines. If the location of utilities conflicts with the landscaping provisions, the Director may approve an equivalent alternative.

(i) Utility composite plans must be submitted with landscape plans.

(ii) Trees which will grow to a height of greater than 15 feet at maturity shall not be planted under electrical lines.

(iii) Ornamental and evergreen trees planted under an electrical line may count towards the total tree requirement.

(11) Sight Distance. The owner shall maintain all vegetation, fences, walls and berms so that there is no site distance hazard nor road or pedestrian hazard.

(12) Soil. Soil in landscape areas must be amended and all vegetation planted in accordance with good horticultural practices.

(i) Details for the planting of trees, shrubs and other vegetation must be shown on the landscaping plans.

(ii) Shrub beds adjacent to turf or native grass areas are to be edged with concrete, metal, brick or substantial wood material. Plastic and other light duty edgings are not allowed.

(iii) Mulch and weed fabric are required for all shrub beds.

(iv) The minimum square footage of planting area for a five-gallon evergreen or deciduous shrub is 16 square feet. These minimum square footages may be varied by a qualified professional.

(13) Trees.

(i) Trees should not be planted near a light pole if eclipsing of light will occur at maturity. Placing light poles in the parking lot, away from landscape area and between parking bays, helps eliminate this conflict and should be considered.

(ii) Tree canopies may overlap by up to 20 percent of the diameter of the tree at maturity. Tree clustering may be allowed with some species so long as clustering does not adversely affect the mature canopy.

(iii) At planting, tree trunks must be reasonably straight with minimal doglegs.

(iv) Wire baskets, burlap wrappings, rope, twine or any similar shipping materials shall be removed before planting.

(v) The minimum square footage of planting area for a shade tree is 140 square feet. The Director may vary the minimum square footage.

(vi) Species Diversity. The percent of any one type of tree that can be planted in a development shall be as follows:

(A) Zero through five trees: No limitation.

(B) Six to 21 trees: No more than 50 percent of one species.

(C) 21 or more trees: No more than 20 percent of one species.

(14) Shrubs.

(i) Twenty-five percent of the required shrubs may be converted to turf based on one five-gallon shrub per 50 square feet of turf.

(ii) Ten percent of the required shrubs may be converted to perennials and/or ground covers at a ratio of three one-gallon perennials and/or ground covers for one five-gallon shrub.

(iii) Species Diversity. The percent of any one type of shrub that can be planted in a development shall be as follows:

(A) Ten through 19 shrubs: 50 percent.

(B) Twenty through 39 shrubs: 33 percent.

(C) Forty through 59 shrubs: 25 percent.

(D) 60 or more shrubs: 15 percent.

(iv) When calculating tree and shrub quantities, any fraction of a shrub or tree or other requirement is rounded up to the next whole number.

(v) With the approval of the Director, the number of shrubs may be reduced in exchange for additional trees or tree size at a rate of three shrubs per caliper inch.

(15) Maintenance. The owners, tenants and occupants for all new and existing uses in the City must:

(i) Maintain landscaping in a healthy, growing, neat and well-maintained condition.

(ii) Maintenance includes watering, weeding, pruning, pest control, trash and litter removal, replacement of dead or diseased plant material, reseeding and other reasonable efforts.

(iii) Any plant that dies must be replaced with an equivalent live plant within 90 days of notification or, if during the winter, by the next April 1st.

(iv) Hay mulch used during the preparation or establishment of landscaping must be certified weed-free by the Colorado Department of Agriculture.

(v) On his own or based on a citizen complaint, the Director may, without notice and without a warrant, walk on the landscaped portion of the property from time to time to inspect the condition of landscaping.

(vi) Between one and two years after installation of required landscaping, Code Enforcement shall conduct a site inspection to verify that all required landscaping has been maintained in a healthy, growing, neat and well-maintained condition. Property owners shall be notified of necessary corrective action for failure to comply with the maintenance provisions of this section.

(16) Public Right-of-Way. Except where a detached sidewalk exists or is proposed and approved (see subsection (b)(16)(iv) of this section), landscaping on public right-of-way shall not be counted toward any landscape or open space requirements of this code, unless specifically provided otherwise in this code.

(i) All unimproved right-of-way adjacent on the side abutting a development which is not in the City's one-year capital plan to be improved must be landscaped. All right-of-way landscaping shall be irrigated and maintained by the adjoining private property owner, unless the City agrees to accept it for maintenance. If it is to be maintained by the City, a separate irrigation system shall be provided.

(ii) At least 75 percent of the unpaved adjacent right-of-way shall be landscaped with turf, low shrubs or ground cover. The Director may vary the required landscaping to obtain a consistent appearance in the area or with existing or planned right-of-way landscaping.

(iii) The owner of the nearest property shall keep all rights-of-way, which are not hard surfaced, free of weeds, litter, junk, rubbish and obstructions. To prevent weed growth, erosion and blowing dust, right-of-way areas not covered by vegetation or

paving shall be covered with mulch, wood chips, bark chips, decorative rocks or cobble or similar natural materials, to be underlain by weed fabric or other barrier.

(iv) Where detached sidewalks exist, or are proposed, a maximum of 50 percent of the public right-of-way landscaping may be counted toward the total required landscaping. The right-of-way landscaping between the curb and sidewalk shall contain street trees spaced every 40 feet.

(v) The Director may allow decorative paving in landscaped areas in commercial or other high pedestrian traffic areas if the decorative paving is compatible with nearby right-of-way paving and landscaping.

(17) Pervious Coverage. Landscaped and buffer areas count toward the pervious area requirement.

(18) Authority.

(i) The Director shall decide all questions of soils, plant selection and care, irrigation installation and other vegetation and landscaping questions.

(ii) The Director may approve an applicant's request to vary from the required number and types of plants or landscaped area if:

(A) The number of trees exceeds 25 percent of the minimum number of trees; and/or

(B) Trees exceed the minimum caliper requirement by one inch or more; and/or

(C) Additional berming or other attractive buffering, public art, enhanced paving treatments for public plazas (brick or concrete pavers, tinted and stamped concrete, etc.) is provided. The Director may grant up to a 10 percent reduction of the square footage of improved area used to calculate the landscape requirement where these types of enhancements are included in a development.

(D) Additional trees or larger trees can be exchanged on a per-caliper-inch basis with three shrubs equaling one caliper inch. Credit for using larger trees would be based on a direct exchange of caliper inches. For example: 10 three-inch caliper trees equaling 30 caliper inches is the same as 15 two-inch caliper trees equaling 30 caliper inches; one two-inch caliper tree equals six shrubs. Trees may be substituted for shrubs, but shrubs may not be substituted for trees.

(E) If the total amount of required landscaping is provided, the Director may allow the owner to place the landscaping on another appropriate part of the lot.

(19) Water Wise. Because of Grand Junction's desert environment, water wise design and the use of xeric (low water use) plants are strongly encouraged. Water wise designs shall employ the seven basic principles of xeric design which include "comprehensive planning and design for low water use, creating practical turf areas, selecting low water use plants and organizing plants by water usage, using adequate soil prep, using water conserving mulches, irrigating efficiently and maintaining the landscape appropriately" (source: Denver Water Board).

(i) Low water use plants are encouraged for use in the "typical" urbanized landscape, especially where the plants can be irrigated (zoned) separately from higher water use plant material. This way of using xeric plants is compatible with any of the requirements of this code.

(ii) Landscaping designs that mimic the "desert" character of Grand Junction's setting are also encouraged, but must be carefully designed so that the basic requirements for shade, screening and buffering are met. Because of this, the Director must approve "desert" or xeric landscape plans as well as variances from the required plant coverage ratios. To further encourage xeriscaping, one-gallon xeric plants shall be equivalent to five-gallon traditional plants. Trees shall be installed in accordance with subsection (b) of this section.

(c) **Parking Lots.**

(1) Interior Landscaping Requirement. Landscaping is required in the interior of parking lots to direct traffic, to shade cars and structures, to reduce heat and glare and to screen cars from adjacent properties. The interior of all parking lots shall be landscaped as follows:

(i) One landscaped island, parallel to parking spaces, is required for each 20 parking spaces. In lieu of the standard landscape island, one "orchard style" landscape island may be used for every six parking spaces. The orchard style landscape islands shall be evenly spaced between end landscape islands. (See subsection (j) of this section.)

(ii) Landscape islands must be at least 140 square feet. The narrowest/smallest dimension of a parking lot island shall be eight feet, measured from back of curb to back of curb.

(iii) One landscaped divider island, parallel to the parking lot drive aisles, designed to prevent diagonal movement across the parking lot, shall be located for every three parking lot drive aisles.

(iv) A landscape island is required at the end of every row of parking spaces, regardless of length or number of spaces.

(v) Wheel stop barriers on all sides adjacent to the parking lot surface are required to protect landscape islands from vehicles.

(vi) A corner area (where it is not feasible to park a vehicle) may be considered an end island for the rows on the perimeter of the parking lot.

(vii) Landscaping of the interior of a parking lot shall include trees and shrubs.

(2) Parking Lot Perimeter. Landscaping is required around the entire perimeter of a parking lot to assist in the shading of cars, to assist in the abatement of heat and to reduce the amount of glare from glass and metal, and to assist in the screening of cars from adjacent properties. The perimeter of a parking lot is defined as the curb line defining the outer boundaries of the parking lot, including dumpster enclosures, bike racks, or other support facilities that are adjacent to the outer curb. Entry drives between a parking lot and the street, drives connecting two internal parking lots or building entry plazas are not included in the perimeter area.

(i) Screening shall occur between a street and a parking lot and street frontage landscape shall apply. (See subsections (c)(3) and (l) of this section.)

(ii) The minimum dimension allowed for the parking lot perimeter landscape strip is six feet. The width of a landscape strip can be modified by the Director, provided the intent of this section is met.

(iii) Landscaping along the perimeter of parking lots shall include trees and shrubs.

(iv) Parking lots shared by more than one owner shall be landscaped around the perimeter of the combined lots.

(3) Screening. All parking lots abutting rights-of-way, entry drives, and adjacent properties must be screened. For this subsection, a “screen” means a turf berm and/or shrubs.

(i) A 30-inch-high screen is required along 70 percent of parking lots abutting rights-of-way, entry drives, and adjacent properties, excluding curb cuts. The 30-inch screen shall be placed so as to maximize screening of the cars in the parking lot, when viewed from the right-of-way and shall be measured from the ground surface, or the elevation of the roadway if the adjacent road is higher than the property.

(ii) Screening shall not be required between parking lots on adjoining lots where the two lots are designed to function as one.

(iii) If a landscape area is 30 feet wide or greater between a parking lot and a right-of-way, the 30-inch-high screen is not required. This 30-foot-wide or greater area must be 100 percent covered in plant material within three years. Turf is allowed.

(iv) The Director may approve a screen wall between a parking lot and a right-of-way if the lot or parcel is unusually small.

(v) A screen wall must not be taller than 30 inches, unless the adjacent roadway is higher than the property, in which case the screen wall shall be 30 inches higher than the adjacent roadway.

(vi) Two five-gallon shrubs may be substituted for four linear feet of wall; shrubs must reach a height of at least 30 inches at maturity.

(vii) A column or jog or equivalent architectural feature is required for every 25 linear feet of wall.

(viii) The back of the wall must be at least 30 inches from the face of curb for bumper overhang.

(ix) Shrubs must be planted on the street side of the wall.

(x) There must be at least five feet between the right-of-way and the paved part of a parking lot to use a wall as a screen.

(xi) Wall elevations and typical cross sections must be submitted with the landscape plan at a minimum scale of one-half inch equals one foot.

(xii) Walls shall be solid masonry with finish on both sides. The finish may consist of stucco, brick, stone or similar material. Unfinished or merely painted concrete block is not permitted.

(xiii) Shrub plantings in front of a wall are not required in the B-2 downtown district.

(d) **Street Frontage Landscape.**

(1) Within all zones (except single-family uses in single-family, B-2 and form based zone districts), the owner shall provide and maintain a minimum 14-foot-wide street frontage landscape adjacent to the public right-of-way.

(2) A minimum of 75 percent of the street frontage landscape shall be covered by plant material at maturity.

(3) The Director may allow for up to 50 percent of the 14-foot-wide street frontage to be turf, or up to 100 percent turf coverage may be allowed if the parking lot setback from the right-of-way exceeds 30 feet. Low water usage turf is encouraged.

(4) All unimproved right-of-way adjacent to new development projects shall be landscaped and irrigated by the owner and/or homeowners' association as per subsection (b)(16) of this section.

(5) Landscaping within the street frontage shall include trees and shrubs. If detached walks are not provided with street trees, street trees shall be provided in the street frontage landscape, including one tree for every 40 feet of street frontage.

(6) Where detached walks are provided, a minimum street frontage landscape of five feet is acceptable.

(e) **Buffers.**

(1) Buffers shall be provided between different zoning districts as indicated in subsection (k) of this section.

(i) Seventy-five percent of each buffer area shall be landscaped with turf, low shrubs or ground cover.

(ii) One medium sized tree is required per every 40 linear feet of boundary between different zones.

(2) Exceptions.

(i) Where residential or collector streets or alleys separate zoning districts, the Director can require more landscaping instead of a wall or fence.

(ii) Where walkways, paths, or a body of water separates zoning districts, the Director may waive a fence or wall requirement provided the buffering objectives are met by private yards.

(iii) Where a railroad or other right-of-way separates zoning districts, the Director may waive the buffer strip if the buffering objectives are met without them.

(f) **Fences, Walls and Berms.**

(1) Fences and Walls. When a higher density or intensity zoning district abuts a lower density or intensity zone district, it is the responsibility of the higher density or intensity property to buffer the abutting zone district according to subsection (k) of this section. When an existing fence or wall substantially meets the requirements of this section, and

subsection (k) of this section requires the same form of buffering, an additional fence on the adjacent developing property shall not be required. However, if the new development requires the placement of a wall, and a fence exists on the adjacent property, the wall shall be required. If a wall is required and a fence is in place, the wall must be placed adjacent to the fence. (Subsection (k) of this section should be referenced to determine when a wall or a fence is required. The more stringent standard shall apply; i.e., if a wall is required and a fence is in place, the wall must be placed adjacent to the fence.) Fences must comply with GJMC 21.04.040(i), any design guidelines and other conditions of approval. Fences and walls required by this section must meet the following:

(i) Maximum height: six feet (outside of front setback, 30-inch solid height or four feet height if two-thirds open within the front setback and must meet all sight distance requirements).

(ii) Fence type: solid wood or material with a similar appearance, finished on both sides.

(iii) Wall type: solid masonry finished on both sides. Finish may consist of stucco, brick, stone or similar material but unfinished or merely painted concrete block is not permitted.

(iv) Location: within three feet of the property line unless the space is needed to meet landscaping requirements.

(v) A wall must have a column or other significant architectural feature every 30 feet of length.

(vi) Any fence or wall over six feet in height requires a building permit.

(vii) No person shall construct or maintain a fence or a wall without first getting a fence/wall permit from the Director.

(2) Berms. Minimum requirements for berms are as follows:

(i) Maximum slope of 4:1 for turf areas and 3:1 for shrub beds; and

(ii) To control erosion and dust, berm slopes must be stabilized with vegetation or by other means consistent with the requirements for the particular landscape area.

(g) **Residential Subdivision Perimeter Enclosures.**

(1) Intent. The decision-maker may require (where deemed necessary) perimeter enclosures (fences and/or walls) around all or part of the perimeter of a residential development. Perimeter enclosures shall be designed to meet the following objectives of

protecting public health, safety and welfare: screen negative impacts of adjoining land uses, including streets; protect privacy; maintain a consistent or complementary appearance with enclosures in the vicinity; maintain consistent appearance of the subdivision; and comply with corridor overlay requirements.

(2) Specifications. Unless specified otherwise at the time of final approval:

(i) A perimeter enclosure includes fences, walls or berms, and combinations thereof, located within five feet of the exterior boundary of a development.

(ii) The maximum height is six feet, including within front setbacks; however, an enclosure constructed on a berm shall not extend more than eight feet above the adjoining sidewalk or crown of road, whichever is lower.

(iii) New enclosures shall be compatible with existing enclosures in the vicinity, if such enclosures meet the requirements of this code.

(iv) A perimeter enclosure in excess of six feet is a structure and requires a building permit.

(v) A perimeter wall must have a column or other significant architectural feature every 30 feet.

(3) Required Perimeter Enclosures. The decision-maker may require a perimeter enclosure as a condition of the final approval if:

(i) Use or enjoyment of property within the development or in the vicinity of the development might be impaired without a perimeter enclosure.

(ii) A perimeter enclosure is necessary to maintain a consistent and complementary appearance with existing or proposed perimeter enclosures in the vicinity.

(iii) A perimeter enclosure is necessary to control ingress and egress for the development.

(iv) A perimeter enclosure is necessary to promote the safety of the public or residents in the vicinity.

(v) A perimeter enclosure is needed to comply with the purpose, objectives or regulations of the subdivision requirements.

(vi) A perimeter enclosure is needed to comply with a corridor overlay district.

(vii) The Director will notify applicants of the need for a perimeter enclosure, if required.

(4) Design of Perimeter Enclosures. A complete landscape plan for the required landscape buffer and a detail drawing of the perimeter enclosure must be submitted at the time of final approval: perimeter enclosure detail at a scale of one-half inch equals one foot.

(5) Landscape Buffer. On the outside of a perimeter enclosure adjacent to a right-of-way, a 14-foot-wide landscape buffer shall be provided between the perimeter enclosure and the right-of-way for major and minor arterial streets and major or minor collectors. A five-foot-wide landscape buffer for side and rear yard perimeters shall be provided on all other streets between the perimeter enclosure and the right-of-way.

(i) Vegetation in the sight triangle (see TEDS, GJMC Title 29) shall not exceed 30 inches in height at maturity;

(ii) In the landscape buffer, one tree per 40 linear feet of perimeter must be provided;

(iii) All perimeter enclosures and landscape buffers must be within a tract dedicated to and maintained by the homeowners' association. The perimeter enclosure and landscaping must be installed by the developer and made a part of the development improvements agreement;

(iv) A minimum of 75 percent of the landscape buffer area shall be covered by plant material at maturity. Turf may be allowed for up to 50 percent of the 14-foot-wide landscape strip, at the Director's discretion. Low water usage turf is encouraged;

(v) Where detached walks are provided, a minimum buffer of five feet shall be provided. In which case, the right-of-way parkway strip (area between the sidewalk and curb) will also be planted as a landscape buffer and maintained by the HOA.

(6) Construction of Perimeter Enclosures. The perimeter enclosure and required landscape buffer shall be installed by the developer and included in the development improvements agreement.

(7) Ownership and Maintenance. The developer shall refer to the perimeter enclosure in the covenants and restrictions and so that perpetual maintenance is provided for either that the perimeter enclosure be owned and maintained by the owners' association or by individual owners. The perimeter enclosure shall be identified on the plat.

(8) Alternative Construction and Ownership. If the decision-maker finds that a lot-by-lot construction, ownership and/or maintenance of a perimeter enclosure landscape strip

would meet all applicable objectives of this section and the design standards of GJMC 21.06.060, the final approval shall specify the type and size of materials, placement of fence posts, length of sections, and the like.

(9) Overlay District Conflicts. Where in conflict, the perimeter enclosure requirements or guidelines of approved overlay districts shall supersede the requirements of this section.

(10) Variances. Variances to this section and appeals of administrative decisions (where this code gives the Director discretionary authority) shall be referred to the Planning Commission.

(h) **I-1 and I-2 Zone Landscape.**

(1) Parking Lot Perimeter Landscape. Landscaping for the parking lot perimeter shall be per subsection (c)(2) of this section with the following addition:

(i) Turf may be allowed for up to 50 percent of the parking lot perimeter, at the Director's discretion. Low water usage turf is encouraged.

(ii) A minimum of 75 percent of the parking lot perimeter landscape shall be covered by plant material at maturity.

(2) Street Frontage Landscape. Landscaping for the street frontage shall be per subsection (d) of this section with the following additions:

(i) Vegetation in the sight triangle in the street frontage must not exceed 30 inches in height at maturity.

(ii) One tree for every 40 linear feet of street frontage (excluding curb cuts) must be provided, 80 percent of which must be shade trees.

(3) Public Right-of-Way Landscape. Landscaping for the public right-of-way shall be per subsection (b)(16) of this section.

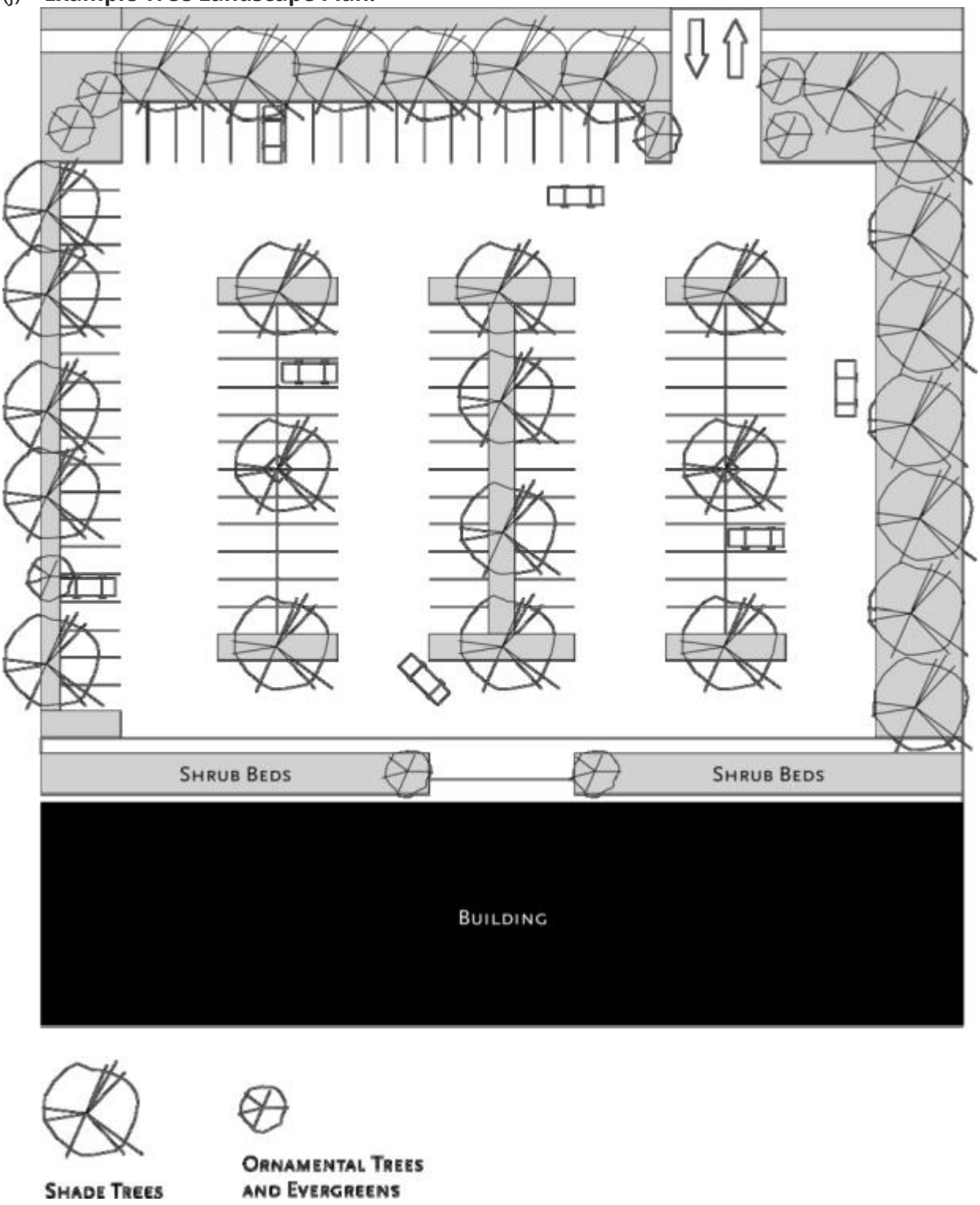
(4) Maintenance. Each owner or the owners' association shall maintain all landscaping.

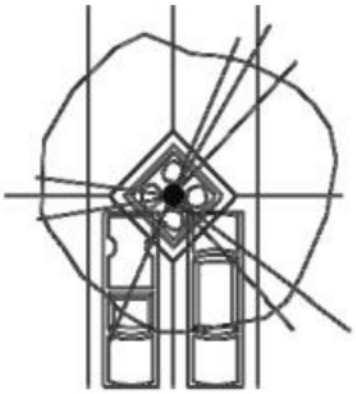
(5) Other Applicable Sections. The requirements of subsections (i), (j), (k) and (l) of this section shall also apply.

(i) **Landscaping Requirements.**

Zoning of Proposed Development	Landscape Requirement	Location of Landscaping on Site
Single-family residential (R zones)	As required for uses other than single-family residential; and as required in subsections (b)(16) and (g) of this section	As required for uses other than single-family residential; and landscape buffer and public right-of-way
R-5, R-8, R-12, R-16, R-24, R-0, B-1, C-1, C-2, I-O, CSR, MU	One tree per 2,500 square feet of improved area, with no more than 20 percent of the total being ornamental trees or evergreens. One five-gallon shrub per 300 square feet of improved area	Buffer, parking lot, street frontage perimeter, foundation plantings and public right-of-way
B-2	One tree per 2,500 square feet of improved area, with no more than 20 percent of the total being ornamental trees or evergreens. One five-gallon shrub per 300 square feet of improved area	Parking lot, park strip (in right-of-way)
I-1, I-2	As required in subsection (h) of this section and in other subsections of this section where applicable	Street frontage, parking lots, buffers and public right-of-way
MXR, MXG, MXS, MXOC	One tree per 3,000 square feet of improved area, with no more than 20 percent of the total being ornamental trees or evergreens. One five-gallon shrub per 300 square feet of improved area. Plantings must be evenly distributed throughout the development	Buffer, parking lot, street frontage perimeter, foundation plantings and public right-of-way
Facilities: mining, dairy, vineyard, sand or gravel operations, confined animal feeding operation, feedlot, forestry commercial, aviation or surface passenger terminal, pasture	One tree per 5,000 square feet of improved area. One five-gallon shrub per 600 square feet of improved area	Perimeter, buffer and public right-of-way

(j) **Example Tree Landscape Plan.**





6' X 6' SQUARE SHOWN
7' X 7' ALSO POSSIBLE

ORCHARD-STYLE LANDSCAPE ISLAND

(k) **Buffering Between Zoning Districts.**

Zoning of Proposed Development	Zoning of Adjacent Property																	
	SF	R-5	R-8	R-12 R-16	R-24	R-O & MXOC	B-1	B-2	C-1	C-2 I-O	I-1	I-2	M-U	CSR	BP	MXR-	MXG-	MXS-
SF (Subdivisions)	-	-	-	-	-	-	F	-	F	W	W	W	F	-	F	-	-	-
R-5	-	-	-	-	-	-	F	-	F	W	W	W	-	-	F	-	-	-
R-8	-	-	-	-	-	F	F	-	F	W	W	W	F	-	F	A	-	-
R-12 & R-16	-	-	-	-	-	-	F	-	W	W	W	W	F	-	F	A	-	-
R-24	-	-	-	-	-	-	F	-	W	W	W	W	F	-	F	A	-	-
RO & MXOC	A	A	A	A	A	-	A or F	-	A or F	W	W	W	A or F	-	A or F	A	-	-
B-1	F	F	F	A or F	A or F	A or F	A or F	-	A or F	A or F	A or F	A or F	A or F	-	A or F	A	-	-
B-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C-1	A&W	W	W	W	W	W	-	-	-	-	-	-	-	-	-	-	-	-
C-2 & I-O	W	W	W	W	W	W	F	-	-	-	-	-	A or F	A or F	A or F	A&W	-	-
I-1	W	W	W	W	W	W	F	-	-	-	-	-	A or F	B&W	A or F	B&W	A or F	A or F
I-2	B&W	W	W	W	W	W	F	-	-	-	-	-	A or F	B&W	A or F	B&W	A or F	A or F
M-U	A or F	A or F	A or F	A or F	A or F	A or F	A or F	-	A or F	A or F	A or F	A or F	-	-	-	-	-	-
CSR3 [1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Zoning of Proposed Development	Zoning of Adjacent Property																	
	SF	R-5	R-8	R-12 R-16	R-24	R-O & MXOC	B-1	B-2	C-1	C-2 I-O	I-1	I-2	M-U	CSR	BP	MXR-	MXG-	MXS-
BP	A or F	A or F	A or F	A or F	A or F	A or F	A or F	-	-	-	-	-	-	-	-	A or F	A or F	A or F
MXR-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-
MXG-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-
MXS-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-

Notes
•A berm with landscaping is an alternative for a required fence or wall if the total height is a minimum of six feet.
•Where alleys or streets separate different zone districts, the Director may approve increased landscaping rather than requiring a wall or fence.
•The Director may modify this table based on the uses proposed in any zone district.
[1] Gravel operations subject to buffering adjacent to residential.

(l) **Buffer Requirements.**

Buffer Types	Landscaping Requirements	Location of Buffers on Site
Type A	Eight-foot-wide landscape strip with trees and shrubs	Between different uses
Type B	15-foot-wide landscape strip with trees and shrubs	Between different uses
Type F, W	Six-foot fence and wall (see subsection (f) of this section)	Between different uses

CITY OF GRAND JUNCTION, COLORADO

ORDINANCE NO. XXXX

AN ORDINANCE AMENDING TITLE 21 OF THE GRAND JUNCTION MUNICIPAL CODE SECTION 21.06.040 LANDSCAPE, BUFFERING, AND SCREENING STANDARDS, SECTION 21.10.020 TERMS DEFINED, SECTION 21.03.030 MEASUREMENTS, SECTION 21.03.080 MIXED USE AND INDUSTRIAL BULK STANDARDS SUMMARY TABLE, AND SECTION 21.04.030 USE-SPECIFIC STANDARDS OF THE GRAND JUNCTION MUNICIPAL CODE

Recitals:

The City Council desires to maintain effective zoning and development regulations that implement the vision and goals of the Comprehensive Plan while being responsive to the community's desires and market conditions. Accordingly, the City works to review and amended the Code as necessary to achieve those objectives.

The proposed amendments modernize the code and reduce redundancy while modifying the regulation of landscaping applied to new development and the maintenance of landscaping for developments approved by the City of Grand Junction.

The proposed code revisions align with the adopted goals and strategies of the 2020 One Grand Junction Comprehensive Plan, which identifies the City's goals to support the efficient and reliable management of water resources; promote water conservation including through water efficient landscaping and irrigation; improve street tree plantings and urban forest health; improve ongoing maintenance of landscaping; establish criteria for the identification of significant trees and preservation thereof; and promote the planting of species appropriate to Grand Junction's climate.

After public notice and public hearing, the Grand Junction City Council finds that the Code amendments provided for in this ordinance are necessary to maintain effective regulations to implement the Comprehensive Plan

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GRAND JUNCTION THAT:

Title 21 of the Grand Junction Municipal Code (GJMC) shall be amended as follows (additions are underlined and deletions shown in ~~strikethrough~~):

21.10.020 Terms defined.

Approved Street Trees for Grand Junction's Rights-of-Way means the list of trees, shrubs, vines, and evergreens in public rights-of-way maintained by the Forestry Board (see Section 8.32.020).

Buffer/Buffering means an object or area with landscaping, including trees, shrubs, a wall, fence, berm, or any combination thereof that serves as a visual and auditory screen between properties.

Colorado Nursery Act means C.R.S. Title 35 Article 26 as amended.

Caliper means the diameter of the tree trunk measured 4.5 feet above the ground on the uphill side of the tree or 6 inches above the root ball at time of planting.

Canopy drip line means the area directly located under the outer circumference of the tree branches from which water drips onto the ground.

Evergreen tree means any tree having foliage that persists and remains green throughout the year.

Improved area means the developed portion of a property consisting of areas occupied by buildings, asphalt, concrete, gravel, or landscaped area. Where phased development is proposed, the improved area shall be identified and measured separately for each phase of development.

Lot coverage means that area of the lot or parcel which may be occupied by impervious surfaces.

Noxious or invasive species means non-native plants that have a recognized harmful impact on natural habitats and/or are likely to displace native plant species for light, space, soil moisture and nutrients, including those noxious species identified under the Colorado Noxious Weed Act codified at C.R.S. Title 35 Article 5.5, as amended.

Ornamental tree means a tree that has a height and spread between 15 feet and 30 feet at maturity.

Shade tree means a tree that has a height and/or spread of 30 feet or greater at maturity.

Suitable Plant List means a list maintained by the Director of plant species and genera approved to be installed in accordance with this code.

Root ball means the mass formed by the roots of a plant and the soil surrounding them at the time of planting.

Rootzone means the area of the ground around the base of the tree where rooting occurs, as measured from the trunk to a distance twice the radius of the canopy drip line.

Significant Tree means a tree not identified as a noxious or invasive species, nor as a member of the genus *Populus,* that has a diameter exceeding 15 caliper inches.

Tree canopy coverage means the area of ground directly beneath the leaves and branches of trees.

Waterwise means landscaping that minimizes water waste and improve maintenance outcomes by grouping plants based on similar watering requirements, selecting climate-appropriate plants, and designing irrigation for optimal efficiency.

Xeriscape or xeriscaping means landscape plantings that reduce the need for irrigation.

21.03.030 Measurements.

(e) Lot Coverage. Lot coverage is measured as the percentage of the total lot area covered by impervious surfaces ~~buildings~~. It is calculated by dividing the square footage of impervious surface by the square footage of the lot.

21.03.080 Mixed Use and Industrial Bulk Standards Summary Table

	R-O	B-1	B-2	C-1	C-2	CSR	M-U	BP	I-O	I-1	I-2
Lot											
Area (min. ft. unless otherwise specified)	5,000	10,000	None	20,000	20,000	1 ac	1 ac	1 ac	1 ac	1 ac	1 ac
Width	50	50	None	50	50	100	100	100	100	100	100
Frontage	None	None	None	None	None	None	None	None	None	None	None
Setback											
Principal structure											
Front (min. ft.)	20	20	0	15	15	15	15	15	15	15	15
Side (min. ft.)	5	0	0	0	0	0	0	0	0	0	0
Side – abutting residential (min. ft.)	0	10	0	10	10	10	10	10	10	10	10

Rear (min. ft.)	10	15	0	10	10	10	10	10	10	10	10
Accessory structure											
Front (min. ft.)	25	25	25	25	25	25	25	25	25	25	25
Side (min. ft.)	3	0	0	0	0	0	0	0	0	0	0
Side – abutting residential (min. ft.)	0	5	0	5	5	5	5	5	5	5	0
Rear (min. ft.)	5	15	0	10	10	10	10	10	10	10	10
Other Dimensional Requirements											
Lot coverage (max.)	70%	~~100%~~ 80%	100 %	~~100%~~ 80%	~~100%~~ 80%	~~100 %~~ 75%	~~100 %~~ 80%	~~100 %~~ 80%	~~100 %~~ 80%	~~100 %~~ 90%	~~100 %~~ 90%
Height (max. ft.)	40	40	80	65	65	65	65	65	65	50	50
Density (min. units per acre)	4	8	8	12	n/a	n/a	8	8	n/a	n/a	n/a
Density (max. units per acre)	None	16	None	24	None	None	24	24	None	None	None
** Gross floor area	10,000	15,000	None	None	None	None	None	None	None	None	None
Notes											
B-1: Max. gross floor area varies by use; retail – 15,000 sf (unless a CUP is approved), office 30,000											
B-2: Parking front setback for parking as a principal use – 30 ft., as an accessory use – 6 ft. **C-1:** Min. rear setback – 0 if an alley is present **CSR:** Maximum building height abutting residential – 40 ft. ** Gross floor area calculated for maximum size may exclude eaves, covered or uncovered porches, upper story decks and balconies, breezeways, exterior covered stairwells and attached decorative walls which are less than or equal to three feet in height.											

21.04.030 Use-Specific Standards

(g) Mini-Warehouse.

(1) Purpose. This subsection sets standards for the establishment of safe and attractive mini-warehouse developments. These standards apply to all mini-warehouses, including those that provide indoor and/or outdoor units.

(2) Accessory Uses. Accessory uses may include living quarters for a resident manager or security and leasing offices.

(3) Uses Prohibited.

(i) No owner, operator or lessee of any mini-warehouse or portion thereof shall offer for sale or sell any item of personal property, or conduct any type of commercial activity of any kind whatsoever, including such uses as sales, service and repair operations, manufacturing, or truck/equipment rentals, other than leasing of the units, or permit same to occur upon any area designated for the mini-warehouse use, except that estate or foreclosure sales held by the mini-warehouse owner or operator shall be allowed.

(ii) No outside storage shall be permitted except the storage of licensed vehicles within approved areas designated for such storage. This storage shall meet the requirements of GJMC 21.04.040.

(4) Landscaping and Screening. All mini-warehouses shall provide the following in addition to meeting standards of GJMC 21.06.040:

(i) <u>One of the following shall be provided:</u>

a. A 30-inch-high by 10-feet-wide landscaped berm ~~is required~~ between storage units and the abutting public right-of-way. The berm shall include trees that are planted every 30 feet; or~~.~~

b. A four-foot screen wall between storage units and the abutting public right-of-way.

~~(ii) For outdoor mini-warehouse units, landscaping islands shall be provided at the end of each row of storage units. Landscape islands shall be planted with shrubs that reach at least five feet of height at maturity.~~

(<u>4</u>~~5~~) Off-Street Parking and Driveways Standards.

(i) Drive aisles within outdoor mini-warehouse facilities shall be a minimum of 26 feet wide for single-load aisles and 30 feet for double-load aisles.

(ii) A minimum of two parking spaces shall be provided adjacent to the primary entry structure.

(5~~6~~) Architectural and Site Design Standards. All mini-warehouses shall meet the following standards:

(i) Mini-warehouses that front public rights-of-way shall provide a primary entry structure at the entrance of the development that meets the following standards:

(A) No parking shall be placed between the building and the street.

(B) Windows or similar architectural features shall cover at least 30 percent of the street-facing facade.

(C) Building materials such as brick, stone, wood, architectural-grade metal, or similar exterior shall be used.

(D) Two of the following features shall be utilized in the design of the primary entry structure:

a. Tower feature.

b. Facade articulations on the street-facing facade.

c. Roofline articulations in the street-facing facade.

d. Decorative lighting on the street-facing facade. This lighting must comply with all standards found in GJMC 21.06.080.

(ii) Any street-facing facade of each storage unit must be covered with building materials such as brick, stone, wood, architectural-grade metal, or similar exterior.

(6~~7~~) Signage. All mini-warehouses shall provide the following in addition to meeting standards of GJMC 21.06.070:

(i) Individual mini-warehouses shall be clearly marked with numbers or letters identifying the individual units and a directory of the unit locations shall be posted at the entrance or office of the facility.

(ii) Signs or other advertising shall not be placed upon, attached to, or painted on any walls or fences required for landscaping and buffering in the mini-warehouse development.

21.06.040 Landscape, buffering and screening standards.

(a) Purpose and Goals. The purpose of this section is to enhance the aesthetic appeal and sensitivity to context of new development, achieve efficient use of water resources, expand urban tree canopy, and contribute to a livable urban environment. Landscaping reduces heat and glare, ~~facilitates movement of traffic within parking areas,~~ shades ~~cars and~~ parking surfaces, reduces~~ing~~ local and ambient temperatures, buffers and screens cars from adjacent properties, promotes natural percolation of surface waters, improves air quality, ~~buffers and screens potentially incompatible uses from one another,~~ and conserves and enhances the value of property and neighborhoods within the City.

(b) ~~General Landscape Standards.~~

(~~1~~) Authority.

(1) The Director shall decide all questions of soils, plant selection and care, irrigation installation and other vegetation and landscaping questions, except for trees, shrubs, vines, and evergreens in the right-of-way. The City Forester shall decide all questions of plantings in the right-of-way.

(2) Variances to this section and appeals of administrative decisions (where this code gives the Director discretionary authority) shall be referred to the Planning Commission.

(c) General Landscape Standards.

(1) Compliance. All landscaping required by this code shall comply with the standards and requirements of this section. ~~The landscaping requirements of this code shall not apply to a lot zoned for one or two dwellings.~~ Landscaping for new developments shall occur in buffer areas, all interior parking areas, along the perimeter of the property, around new and existing structures, and along street frontages and within any right-of-way not used ~~nor planned to be used~~ for infrastructure.

(2) Plant Quantities. The amount of landscaping is based on ~~gross area~~ the improved area of proposed development.

(3) Landscaping Standards. All new development must install, ~~and~~ maintain, and protect landscaping as required by this code. ~~(See subsection (b)(1) of this section for an example of the landscaping requirements of this section.)~~

~~(i) On-site frontage landscaping may not apply in the B-2 zone downtown commercial. (See zone district standards.)~~

(i) The landscaping requirements of this code shall not apply to a lot where the principle use is a single-family residence or duplex. Requirements for residential subdivisions shall continue to apply.

(ii) Landscaping in the abutting right-of-way is required in addition to overall site landscaping requirements and must be installed and maintained as required this Code.

(iii) Buffer landscaping is required in addition to overall site landscaping requirements as required by this Code.

(4) Acceptable Plant Material. ~~Vegetation must be suitable for Grand Junction's climate and soils. The Director may allow the use of any plant if sufficient information is provided to show suitability including salt tolerance, sun and shade requirements based on planting locations, growth habit, etc. Noxious weeds are not allowed. (The Director will keep a list of suitable plants.)~~

(i) Vegetation must be suitable for Grand Junction's climate and soils and shall be selected from the City of Grand Junction Suitable Plant List ("Plant List"), to be maintained by the Director. Applicants may petition the inclusion of plants not found on the Plant List and shall provide sufficient information about the proposed species to facilitate review. The Director may allow the use of any plant if sufficient information is provided to show its suitability for the proposed use. Noxious ~~weeds~~ or invasive species are not allowed to be planted in development but may be preserved in development.

(A) The Director maintains the right not to approve a plant species that appears on the Plant List if the Director deems it inappropriate under the planting conditions proposed in a development.

(ii) Plant materials shall meet or exceed the plant quality and species standards of the current American Standard for Nursery Stock and be consistent with the Colorado Nursery Act.

(iii) All plants proposed for installation shall be selected, spaced, and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.

(5) Minimum P~~p~~lant S~~s~~izes ~~are:~~ All plants shall meet the following minimum plant sizes when installed.

(i) Shade tree, two~~-inch~~ caliper inches. ~~(measured six inches above root ball) at time of planting. At maturity, a shade tree has a height and/or spread of 30 feet or greater.~~ If two~~-inch~~ caliper-inch shade trees are not available due to documented seasonal shortages or shortages in desired varieties, the Director may approve the installation of smaller trees, provided the proportional difference in caliper inches is compensated for by installing additional trees. ~~For example, the installation of six one-and-one-half-inch~~

~~caliper shade trees would result in a shortfall of three caliper inches, which could be compensated for with two additional one-and-one-half-inch trees.~~ However, a minimum caliper of one and one-half inches shall be required.

(ii) Ornamental tree, one-and-one-half~~-inch~~ caliper inches. ~~(measured six inches above root ball) at time of planting. At maturity, an ornamental tree has a spread and height between 15 feet and 30 feet.~~

(iii) Evergreen tree, one-and-three-quarters caliper inches and six feet tall at time of planting.

(iv) ~~Deciduous~~ Sshrub, #5 ~~five-gallon~~ container.

~~(v) Evergreen shrub, five-gallon container.~~

(v~~i~~) Perennials and ground covers, #1 ~~one-gallon~~ container.

(vi~~i~~) Turf mix, native grasses and wild flower mix are the only vegetation that may be planted as seed or by plugs. Turf may be planted as sod rolls.

Minimum Plant Sizes	
Planting Type	**Size at Time of Planting**
Shade Tree	Two caliper inches
Ornamental Tree	One-and-one-half caliper inches
Evergreen Tree	One-and-three-quarters caliper inches and six feet tall
Shrub	#5 container
Perennial	#1 container
Groundcover	#1 container
Turf	As seed, by plug, or as sod roll

(6) Irrigation. All vegetation and landscaped areas must be provided with a permanent irrigation system.

(i) Non-potable irrigation water shall be used if it is available to the proposed development area unless the Director allows the use of potable water.

(ii) An underground pressurized irrigation system and/or drip system is required for all landscape areas ~~on the property and in any right-of-way~~.

(iii) If connected to a ~~drinking~~ potable water system, all irrigation systems require State-approved backflow prevention devices.

(iv) All irrigation for non-potable irrigation water systems must have adequate filters easily accessible above ground or within an appropriately sized valve box.

(v) Native grasses must have a permanent irrigation source that is zoned separately from higher water demand landscapes. Once the grasses are established, irrigation to native grass areas can be reduced to a level that maintains coverage typical of the grass mix and to suppress weed growth.

(vi) Irrigation applied to trees shall be expanded or supplemented as appropriate to rootzone expansion over the life of the tree.

(7) Landscape Plans ~~and Equivalent Plantings~~.

(i) All applications for development shall identify the required landscaped areas and include a landscape plan in accordance with the requirements with this section. ~~Landscape plans must identify the species and sizes of vegetation (SSID manual)~~.

(ii) All landscaping shall be installed, maintained, and protected as shown on the approved plan.

(iii) All changes to the landscape plan require prior written approval from the Director.

(iv) An equivalent species may be substituted in the field with prior written approval of the Director ~~without prior approval of the Director, provided that a written record of substitutions revised drawing is submitted to the Department.~~ Plants are “equivalent” if they have the same growth habit and rate, same cover, leafing, shade characteristics and function, have similar water requirements as identified by the Plant List, and thrive in the same microclimate, soils and water conditions.

~~(iv) All other changes to the landscape plan require prior written approval from the Director.~~

(v) All development plans shall designate required landscaping areas. ~~Subdivision plats shall designate required landscaping areas.~~

(vi) Landscape plans must identify the species and sizes of vegetation.~~The owner shall keep each fire hydrant unobscured by plant material.~~

(vii) Landscape plans shall be stamped by a ~~licensed~~ landscape architect licensed in the State of Colorado. Inspection and compliance with approved landscape plan must be certified by a licensed landscape architect prior to issuance of a certificate of occupancy.

(A) A licensed landscape architect is not required to produce landscape plans if the plans are submitted for a Minor Site Plan review unless required by State statute. All other requirements continue to apply to landscaping for Minor Site Plans.

(viii) All landscape plans shall include an irrigation plan. The irrigation plan shall comply with the standards in the SSID manual. See GJMC 21.06.010(c).

(ix) Utility composite plans must be submitted with landscape plans.

(x) Expansion of a developed site as defined in GJMC 21.02.100(f) that requires a Site Plan Review shall require a landscaping plan and correction of nonconforming landscaping as provided in GJMC 21.08.040.

(xi) Tree protection measures shall be clearly identified on the construction and landscape plans.

(xii) Wall and fence elevations and typical cross sections must be submitted with the landscape plan at a minimum scale of one-half inch equals one foot.

(8) Preservation of Significant ~~Landscape Features~~ Trees

(i) Existing landscape features such as escarpments, large or mature ~~old~~ trees or stands, heavy vegetative cover, ponds and bluffs shall be identified by ~~the Director~~ the applicant as part of the development review process. This identification shall include a written inventory of significant trees to be produced with a landscaping plan. Any significant tree as defined in subsection (c) below shall be identified on the proposed landscaping plan. ~~To the extent the Director deems practicable, such features shall be preserved by the final plans and to such extent, count toward landscape and open space area requirements. Features to be preserved shall be protected throughout site development. If a significant live feature which was to be preserved dies or is substantially damaged, the developer shall replace it with an equivalent feature as determined by the Director. No person shall kill or damage a landscape feature required to be preserved by this section. The developer~~

~~shall protect trees from compaction under the canopy drip line of the tree unless the City Forester says otherwise.~~

~~To the extent the Director deems practicable, such~~ by the final plans and ~~to such extent, count toward landscape and open space area requirements~~.

(ii) All trees not identified as noxious or invasive species, nor as a member of the genus *Populus,* that have a diameter exceeding 15 caliper inches shall be considered significant trees.

(iii) Where significant trees exist on a property, no fewer than 30 percent of significant trees shall be preserved during development. Significant trees that are removed shall be replaced at a rate of one caliper inch of tree per two caliper inches of the significant tree to be removed, in addition to new tree plantings otherwise required by this Code. See GJMC 21.06.040(i)(6) for credit applied to preserved trees.

(iv) Significant trees to be preserved shall be visibly healthy and free from disease or parasite infection.

(v~~i~~) Features to be preserved shall be protected throughout site development. ~~If a significant live feature which was to be preserved dies or is substantially damaged, the developer shall replace it with an equivalent feature as determined by the Director.~~ No person shall kill or damage a landscape feature required to be preserved by this section. The developer shall protect trees from compaction ~~under the canopy drip line of the tree unless determined impractical by the City Forester says otherwise~~.

(~~i~~A) During construction, ~~fencing or similar barriers shall isolate and protect the landscape features to be preserved.~~ existing plant material to be preserved shall be enclosed by a temporary fence at least five feet outside the canopy dripline. In no case shall vehicles be parked or materials or equipment be stored or stockpiled within the enclosed area.

~~(ii) All protection measures shall be clearly identified on the construction and landscape plans.~~

~~(iii) No vehicles or equipment shall be driven or parked nor shall any materials be piled within the canopy drip line of any tree to be preserved.~~

(B) Irrigation shall be provided to trees preserved during construction of sufficient quantity to ensure their health and survival.

(C) If a significant tree which was to be preserved dies or is substantially damaged, the developer shall replace it at the rate of one newly planted tree per 2 caliper inches of damaged or destroyed tree.

(9) Protection of Landscape Areas. All landscape areas (except in the right-of-way where a street side curb does not exist) shall be protected from vehicles through the use of concrete curbing, large rocks, or other similar obstructions.

(10) Utility Lines. If the location of utilities conflicts with the landscaping provisions, the Director may approve an equivalent alternative.

~~(i) Utility composite plans must be submitted with landscape plans.~~

~~(ii) Trees which will grow to a height of greater than 15 feet at maturity shall not be planted under electrical lines.~~

~~(iii) Ornamental and evergreen trees planted under an electrical line may count towards the total tree requirement.~~

(11) Sight Distance. The owner shall maintain all vegetation, fences, walls and berms so that there is no sight ~~site~~ distance hazard nor road or pedestrian hazard (see TEDS).

(12) Soil and Planting Beds. Soil in landscape areas must be amended and all vegetation planted in accordance with best horticultural practices.

(i) Details for the planting of trees, shrubs and other vegetation must be shown on the landscaping plans.

(ii) Shrub beds adjacent to turf or native grass areas are to be edged with concrete, metal, brick or substantial wood material. Plastic and other light duty edgings are not allowed.

(iii) Organic m~~M~~ulch to a minimum depth of 3 inches ~~and weed fabric are~~ is required for all shrub beds.

(iv) ~~The minimum square footage of planting area for a five-gallon evergreen or deciduous shrub is 16 square feet. These minimum square footages may be varied by a qualified professional.~~ Prior to planting, compacted soils shall be transformed to a friable condition.

(v) Compost, soil amendments, or retained topsoil shall be incorporated into the soil to a minimum depth of 6 inches for tree and shrub plantings.

(13) Trees.

~~(i) Trees should not be planted near a light pole if eclipsing of light will occur at maturity. Placing light poles in the parking lot, away from landscape areas and between parking bays, helps eliminate this conflict and should be considered.~~

(~~i~~ii) Tree canopies may overlap by up to ~~20~~ 30 percent of the diameter of the tree canopy drip line at maturity. Tree clustering may be allowed with some species so long as clustering does not adversely affect the mature canopy.

(ii) Trees which will grow to a height of greater than 25 feet at maturity shall not be planted under overhead electrical lines.

(iii) Weed fabric shall not be used within 8 feet of the base of a tree.

(~~ii~~iv) At planting, trees shall be healthy and free of disease. Tree trunks must be reasonably straight with minimal doglegs. Roots shall be checked prior to planting and corrected for optimal growth patterns.

(v) Wire baskets, burlap wrappings, rope, twine or any similar shipping materials shall be removed before planting.

(vi) Tree planting holes shall be of sufficient depth so that the flare of the tree above the root ball is no higher than 1 inch above grade.

(vii) Tree planting holes shall be of a diameter no less than three times the diameter of the tree's root ball at time of planting.

(viii) The minimum square footage of planting area for a shade tree is 140 square feet. ~~The Director may vary the minimum square footage.~~

(ix) Ornamental trees shall be planted in a landscape strip that is no less than six feet in width (not including curb and gutter). Shade trees shall be planted in a landscape strip that is no less than eight feet in width (not including curb and gutter).

(~~v~~x) ~~Species~~ Tree Diversity. The percent of any one ~~type~~ genus of tree that can be planted in a development shall be as follows:

(A) Zero through five trees: No limitation.

(B) Six to 10 trees: No more than 50 percent of one ~~species~~ genus.

(C) Eleven to 20 trees: No more than 33 percent of one genus.

(D) ~~21~~ Twenty-one or more trees: No more than 20 percent of one ~~species~~ genus.

(xi) A minimum of 50% of proposed tree plantings shall be identified as of preferred trees by the Plant List.

(xii) Trees shall not be planted near a light pole if eclipsing of light will occur at maturity. Placing light poles in the parking lot, away from landscape areas and between parking bays, helps eliminate this conflict and should be considered.

(xiii) When calculating tree quantities, any fraction of a tree is rounded up to the next whole number.

(14) Shrubs.

~~(i) Twenty-five percent of the required shrubs may be converted to turf based on one five-gallon shrub per 50 square feet of turf.~~

~~(ii) Ten percent of the required shrubs may be converted to perennials and/or ground covers at a ratio of three one-gallon perennials and/or ground covers for one five-gallon shrub.~~

(ii) ~~Species~~ Shrub Diversity. The percent of any one ~~type~~ genus of shrub that can be planted in a development shall be as follows:

(A) Ten through 19 shrubs: 50 percent per genus.

(B) Twenty through 39 shrubs: 33 percent per genus.

(C) Forty or more ~~through 59~~ shrubs: 25 percent per genus.

~~(D) 60 or more shrubs: 15 percent.~~

(~~ii~~iv) When calculating ~~tree and~~ shrub quantities, any fraction of a shrub ~~or tree or other requirement~~ is rounded up to the next whole number.

(iii) The minimum square footage of planting area for an evergreen or deciduous shrub is 16 square feet. ~~With the approval of the Director, the number of shrubs may be reduced in exchange for additional trees or tree size at a rate of three shrubs per caliper inch.~~

(15) Maintenance. ~~The owners, tenants and occupants for all new and existing uses in the City must:~~

(i) The owners, tenants, and occupants, including homeowners' associations, for all new and existing uses in the City must ~~M~~maintain landscaping in a healthy, growing, neat and well-maintained condition.

(A)~~(ii)~~ Maintenance includes watering, weeding, pruning, fertilization, pest control, trash and litter removal, replacement of dead or diseased plant material, reseeding and other reasonable efforts.

(B) ~~(iii)~~ Any plant that dies or that is substantially damaged due to improper maintenance must be replaced with an equivalent live plant within 90 days of plant death ~~notification or~~, if during the winter, by the next April 1st.

(i~~iv~~) Hay mulch used during the preparation or establishment of landscaping must be certified weed-free by the Colorado Department of Agriculture.

(iii~~v~~) ~~On his own or based on a citizen complaint, t~~The Director or designee may~~, without notice and without a warrant, walk on the landscaped portion of the property~~ from time to time, ~~to~~ inspect the condition of landscaping wherever no reasonable expectation of privacy exists.

(A~~vi~~) ~~Between one and two years after installation of required landscaping, Code Enforcement shall conduct a~~ The purpose of such site inspections shall be to verify that all required landscaping has been maintained in a healthy, growing, neat and well-maintained condition. Property owners shall be notified of necessary corrective action for failure to comply with the maintenance provisions of this section.

(iv~~i~~) Maintenance of landscaping in unimproved rights-of-way shall be the responsibilities of owners, occupants and tenants.

(v) Fire hydrants shall not be unobscured by plant material. Fire hydrants shall be visible from the center of the right-of-way at an angle of 45 degrees.

(vi) These requirements shall be specified in the articles of incorporation or bylaws for a homeowners' association whenever the homeowners' association is assigned the responsibility of maintaining landscape areas.

(16) Public Right-of-Way. ~~Except where a detached sidewalk exists or is proposed and approved (see subsection (b)(16)(iv) of this section), landscaping on public right-of-way shall not be counted toward any landscape or open space requirements of this code, unless specifically provided otherwise in this Code.~~

(i) All unimproved right-of-way adjacent on the side abutting a development which is not in the City's one-year capital plan to be improved must be landscaped. All right-of-way landscaping shall be irrigated and maintained by the adjoining private property owner, unless the City agrees to accept it for maintenance. If it is to be maintained by the City, a separate irrigation system shall be provided.

(ii) At least 75 percent of the unpaved abutting ~~adjacent~~ right-of-way shall be landscaped with turf, tree~~s~~ canopy coverage, low shrubs or ground-cover. No more than 50 percent of the right-of-way shall be landscaped with turf. ~~The Director may vary the required landscaping to obtain a consistent appearance in the area or with existing or planned right-of-way landscaping.~~

(iii) For the purpose of meeting minimum plant quantities, 50% of landscaping plantings on public right-of-way shall be counted toward the landscape or open space requirements of this code, unless specifically provided otherwise in this Code.

(iv) The owner of the nearest property shall keep all rights-of-way, which are not hard surfaced, free of weeds, litter, junk, rubbish and obstructions. To prevent weed growth, erosion and blowing dust, right-of-way areas not covered by vegetation or paving shall be covered with organic mulch, wood chips, ~~bark chips, decorative rocks or cobble~~ or similar natural materials~~, to be underlain by weed fabric or other barrier~~.

(v) ~~Where detached sidewalks exist, or are proposed, a maximum of 50 percent of the public right-of-way landscaping may be counted toward the total required landscaping.~~ The right-of-way landscaping between the curb and sidewalk shall contain street trees spaced every 40 feet. Right-of-way landscaping shall be a minimum of eight feet wide in any direction.

(vi) No tree shall be removed from the public right-of-way without the approval of the City Forester. Trees removed from the right-of-way without approval shall be subject to penalties per GJMC 9.04.100.

(vii) Trees planted in the public right-of-way shall be of species identified on the list of Approved Street Trees for Grand Junction's Rights-of-Way.

(17) Pervious Coverage. Landscaped and buffer areas shall ~~count toward the pervious area requirement.~~ contribute to the area of impervious surfaces used to calculate lot coverage.

~~(18) Authority.~~

~~(i) The Director shall decide all questions of soils, plant selection and care, irrigation installation and other vegetation and landscaping questions, except for plantings in the right-of-way.~~

~~(ii) The Director may approve an applicant's request to vary from the required number and types of plants or landscaped area if:~~

~~(A) The number of trees exceeds 25 percent of the minimum number of trees; and/or~~

~~(B) Trees exceed the minimum caliper requirement by one inch or more; and/or~~

~~(C) Additional berming or other attractive buffering, public art, enhanced paving treatments for public plazas (brick or concrete pavers, tinted and stamped concrete, etc.) is provided. The Director may grant up to a 10 percent reduction of the square footage of improved area used to calculate the landscape requirement where these types of enhancements are included in a development.~~

~~(D) Additional trees or larger trees can be exchanged on a per-caliper-inch basis with three shrubs equaling one caliper inch. Credit for using larger trees would be based on a direct exchange of caliper inches. For example: 10 three-inch caliper trees equaling 30 caliper inches is the same as 15 two-inch caliper trees equaling 30 caliper inches; one two-inch caliper tree equals six shrubs. Trees may be substituted for shrubs, but shrubs may not be substituted for trees.~~

~~(ED) If the total amount of required landscaping is provided, the Director may allow the owner to place the landscaping on another appropriate part of the lot.~~

~~(19) Water Wise.~~

~~Because of Grand Junction's desert environment, water wise design and the use of xeric soil. Water wise designs shall employ the seven basic principles of xeric design which include "comprehensive planning and design for low water use, creating practical turf areas, selecting low water use plants and organizing plants~~

~~by water usage, using adequate soil prep, using water conserving mulches, irrigating efficiently and maintaining the landscape appropriately" (source: Denver Water Board).~~

~~(i) Low water use plants are encouraged for use in the "typical" urbanized landscape, especially where the plants can be irrigated (zoned) separately from higher water use plant material. This way of using xeric plants is compatible with any of the requirements of this code.~~

~~(ii) Landscaping designs that mimic the "desert" character of Grand Junction's setting are also encouraged, but must be carefully designed so that the basic requirements for shade, screening and buffering are met. Because of this, the Director must approve "desert" or xeric landscape plans as well as variances from the required plant coverage ratios. To further encourage xeriscaping, one-gallon xeric plants shall be equivalent to five-gallon traditional plants. Trees shall be installed in accordance with subsection (b) of this section.~~

(18) Alternative Landscaping Plans. Two alternative standards for landscape plans may be applied at the time of a development proposal. The applicant may request that landscape plans be reviewed under the standards for Waterwise Landscape Plan or High Desert Landscape Plan if the landscape plan meets the specified criteria for the alternative standard.

(i) Waterwise Landscape Plans. A Waterwise Landscaping Plan shall be subject to all requirements of this Code except where this subsection provides for an alternative standard, in which case this subsection will control.

(A) Criteria. A Waterwise Landscape Plan shall be a landscape plan where:

(1) At least 50 percent of trees, shrubs, and groundcover are xeric or low water use as identified in the Plant List; and

(2) No more than 25 percent of the landscaped area is planted with turf.

(B) Waterwise Landscape Plans shall employ the seven basic principles of xeric design. These principles are:

(1) Appropriate planning and design.

(2) Limiting turf areas to locations where it provides functional benefits.

(3) Efficient irrigation systems.

(4) The use of soil amendments to improve water holding capacity of the soil.

(5) The use of mulches, where appropriate.

(6) The use of drought-tolerant plants.

(7) Appropriate and timely maintenance.

(~~C~~) #1 container low water use or xeric groundcover and perennial plants may be substituted for #5 container traditional groundcover and perennial plants when the landscape plan meets the definition of a Waterwise Landscape Plan.

(D) A 20 percent reduction in total required tree plantings is permitted when the landscape plan meets the definition of a Waterwise Landscape Plan.

(E) A minimum of 30 percent of identified significant trees in the development area shall be preserved in a Waterwise Landscape Plan.

(ii) High Desert Landscape Plans. Where geotechnical constraints, limited access to irrigation water, or a high desert ecological context affect a development area, a High Desert Landscape Plan may be proposed. A High Desert Landscaping Plan shall be subject to all requirements of this Code except where this subsection provides for an alternative standard, in which case this subsection will control.

(A) Criteria. A High Desert Landscape Plan shall be a landscape plan where:

(1) At least 50 percent of shrubs, and groundcover are native species as identified in the Plant List;

(2) At least 90 percent of shrubs and groundcover are xeric or low water use as identified in the Plant List; and

(3) Less than 15 percent of the landscaped area is planted with turf.

(B) High Desert Landscape Plans shall employ the seven basic principles of xeric design as identified in GJMC 21.06.040(b)(18)(i)(B).

(C) A 50 percent reduction in required tree plantings is permitted when the landscape plan meets the definition of a High Desert Landscape Plan. High Desert Landscape Plans shall be exempt from the street frontage and buffer tree spacing requirements of GJMC 21.06.040(e)(3), (b)(16)(v), (h)(5)(1), and (f)(1)(ii).

(D) A minimum of 60 percent of identified significant trees in the development area shall be preserved in a High Desert Landscape Plan.

(E) #1 container low water use or xeric groundcover and perennial plants may be substituted for #5 container traditional groundcover and perennial plants when the landscape plan meets the definition of a High Desert Landscape Plan.

(F) High Desert Landscaping Plans may provide temporary irrigation in lieu of permanent irrigation for the watering of shrubs, groundcover, and grasses. The Director may approve temporary irrigation only if the following criteria are met:

(1) Temporary irrigation is provided for a minimum of two years from time of planting; and

(2) Construction practices minimize the disturbance of natural vegetation such that no more than 75 percent of the proposed landscaped area is disturbed during construction.

(iii) All Alternative Landscaping Plans must be carefully designed so that the basic requirements for shade, screening and buffering are met. Low water use landscaping includes xeriscaping. The term "xeri" shall not be interpreted to mean "zero".

(d~~c~~) Parking Lots. The requirements of this subsection are applicable to all public and private parking areas but not to automobile display areas for automobile dealerships (General Retail Sales, Outdoor Operations, Display or Storage) and self-service storage as defined in GJMC 21.04.

(1) Interior Landscaping Requirement.

Landscaping is required in the interior of parking lots to direct traffic, to shade cars and structures, to reduce heat and glare and to screen cars from adjacent properties. The interior of all parking lots shall be landscaped as follows:

(i) One landscaped island, parallel to parking spaces, is required for each 20 parking spaces. ~~In lieu of the standard landscape island, one "orchard style" landscape island may be used for every six parking spaces. The orchard style landscape islands shall be evenly spaced between end landscape islands. (See subsection (j) of this section.)~~

(ii) Landscape islands must be at least 140 square feet. The narrowest/smallest dimension of a parking lot island shall be eight feet, measured from back of curb to back of curb.

(iii) One landscaped divider island, parallel to the parking lot drive aisles, designed to prevent diagonal movement across the parking lot, shall be located for every three parking lot drive aisles.

(iv) A landscape island is required at the end of every row of parking spaces, regardless of length or number of spaces.

~~(v) Wheel stop barriers on all sides adjacent to the parking lot surface are required to protect landscape islands from vehicles.~~

(vi) A corner area (where it is not feasible to park a vehicle) may be considered an end island for the rows on the perimeter of the parking lot.

(vii) Landscaping of the interior of a parking lot shall include trees and shrubs.

(viii) To improve the management of stormwater runoff, structurally-sound permeable pavers may be used in parking areas, subject to the approval of the Director. Use of permeable pavers for ten parking stalls shall result in a reduction of one required parking stall per the required parking ratios in GJMC 21.06.050.

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(ix) Trees planted in parking lot islands shall be selected from those identified as Parking Lot Island Trees on the Plant List.

(x) The use of bioswales in parking lot designs is encouraged to facilitate stormwater management.

(2) Parking Lot Perimeter. Landscaping is required around the entire perimeter of a parking lot to assist in the shading of cars, to assist in the abatement of heat, and to reduce the amount of glare from glass and metal, and to assist in the screening of cars from adjacent properties and rights-of-way. The perimeter of a parking lot is defined as the curb line defining the outer boundaries of the parking lot, including dumpster enclosures, bike racks, or other support facilities that are adjacent to the outer curb. Entry drives between a parking lot and the street, drives connecting two internal parking lots or building entry plazas are not included in the perimeter area.

(i) Screening shall occur between a street and a parking lot. ~~and~~ When screening is required, street frontage landscape standards shall apply. (See subsections (d~~c~~)(3) and (~~l~~k) of this section.)

(ii) The minimum dimension allowed for the parking lot perimeter landscape strip is ~~six~~ eight feet. ~~The width of a landscape strip can be modified by the Director, provided the intent of this section is met.~~

(iii) Landscaping along the perimeter of parking lots shall include trees and shrubs.

(iv) Parking lots that occupy multiple properties that are shared by one or more ~~than one~~ owners shall be landscaped around the perimeter of the combined lots.

(3) Screening.

All parking lots abutting rights-of-way, entry drives, and adjacent properties must be screened. For this subsection, a “screen” means a turf or groundcover berm and/or shrubs.

(i) A 30-inch-high screen is required along 70 percent of parking lots abutting rights-of-way, entry drives, and adjacent properties, excluding curb cuts. The 30-inch screen shall be placed so as to maximize screening of the cars in the parking lot, when viewed from the right-of-way and shall be measured from the ground surface, or the elevation of the roadway if the adjacent road is higher than the property.

(ii) Screening shall not be required between parking lots on adjoining lots where the two lots are designed to function as one.

(iii) If a landscape area is 30 feet wide or greater between a parking lot and a right-of-way, the 30-inch-high screen is not required. This 30-foot-wide or greater area must be at least 75 ~~100~~ percent covered in plant material including tree canopy coverage, shrubs, turf, and groundcover at maturity ~~within three years~~. ~~Turf is allowed.~~

~~(iv) The Director may approve a screen wall between a parking lot and a right-of-way if the lot or parcel is unusually small.~~

(iv) A screen wall ~~must~~ shall not be taller than 30 inches, unless the adjacent roadway is higher than the property, in which case the screen wall shall be 30 inches higher than the adjacent roadway.

~~(vi) Two five-gallon shrubs may be substituted for four linear feet of wall; shrubs must reach a height of at least 30 inches at maturity.~~

~~(vii) A column or jog or equivalent architectural feature is required for every 25 linear feet of wall.~~

(~~viii~~) The back of the wall must be at least 30 inches from the face of curb for bumper overhang.

(~~ix~~viii) Shrubs must be planted on the street side of the wall.

(viix~~x~~) There must be at least five feet between the right-of-way and the paved part of a parking lot to use a wall as a screen.

~~(x) Wall elevations and typical cross sections must be submitted with the landscape plan at a minimum scale of one-half inch equals one foot.~~

(xiii) Walls shall be solid masonry with finish on both sides. The finish may consist of stucco, brick, stone or similar material. Unfinished or merely painted concrete block is not permitted.

(xivi~~i~~) Shrub plantings in front of a wall are not required in the B-2 downtown district.

(ed~~d~~) Street Frontage Landscape.

(1) Within all zones (except single-family uses in single-family, B-2 and form based zone districts), the owner shall provide and maintain an average 14-foot-wide street frontage landscape adjacent to the public right-of-way.

(2) A minimum of 75 percent of the street frontage landscape shall be covered by plant material including tree canopy coverage, shrubs, turf, and groundcover at maturity.

(3) ~~The Director may allow for up to 50 percent of the 14-foot-wide street frontage to be turf, or up to 100 percent turf coverage may be allowed if the parking lot setback from the right-of-way exceeds 30 feet. Low water usage turf is encouraged.~~

~~(4) All unimproved right-of-way adjacent to new development projects shall be landscaped and irrigated by the owner and/or homeowners' association as per subsection (b)(16) of this section.~~

~~(5)~~ Landscaping within the street frontage shall include trees and shrubs. If detached walks are not provided with street trees, street trees shall be provided in the street frontage landscape, including one tree for every 40 feet of street frontage.

~~(6) Where detached walks are provided, a minimum street frontage landscape of five feet is acceptable.~~

(f~~e~~) Buffers.

(1) Buffers shall be provided between different zoning districts as indicated in subsection (k) of this section.

(i) Seventy-five percent of each buffer area shall be landscaped with ~~turf, low shrubs or ground cover~~ tree canopy coverage, shrubs, turf, and groundcover at maturity.

(ii) One ~~medium sized~~ tree is required per every 40 linear feet of boundary between different zones.

(2) Exceptions.

(i) Where residential or collector streets or alleys separate zoning districts, the Director can require more landscaping instead of a wall or fence.

(ii) Where walkways, paths, or a body of water separates zoning districts, the Director may waive a fence or wall requirement provided the buffering objectives are met by private yards.

(iii) Where a railroad or other right-of-way separates zoning districts, the Director may waive the buffer strip if the buffering objectives are met without them.

(g~~f~~) Fences, Walls and Berms.

(1) Fences and Walls. When a higher density or intensity zoning district abuts a lower density or intensity zone district, it is the responsibility of the higher density or intensity property to buffer the abutting zone district according to subsection (k) of this section. When an existing fence or wall substantially meets the requirements of this section, and subsection (k) of this section requires the same form of buffering, an additional fence on the adjacent developing property shall not be required. However, if the new development requires the placement of a wall, and a fence exists on the adjacent property, the wall shall be required. If a wall is required and a fence is in place, the wall must be placed adjacent to the fence. (Subsection (k) of this section should be referenced to determine when a wall or a fence is required. The more stringent standard shall apply~~; i.e., if a wall is required and a fence is in place, the wall must be placed adjacent to the fence~~.) Fences must comply with GJMC 21.04.040(i), any design guidelines and other conditions of approval. Fences and walls required by this section must meet the following:

(i) Maximum height: six feet (outside of front setback, 30-inch solid height or four feet height if two-thirds open within the front setback and must meet all sight distance requirements).

(ii) Fence type: solid wood, architectural metal not including chain link, or material with a similar appearance, finished on both sides.

(iii) Wall type: solid masonry finished on both sides. Finish may consist of stucco, brick, stone or similar material but unfinished or merely painted concrete block is not permitted.

(iv) Location: within three feet of the property line unless the space is needed to meet landscaping requirements.

(v) A wall must have a column, jog, or other significant architectural feature every 25 ~~30~~ feet of length.

(vi) Any fence or wall over six feet in height requires a building permit.

(vii) No person shall construct or maintain a fence or a wall without first getting a fence/wall permit from the Director.

(2) Berms. Minimum requirements for berms are as follows:

(i) Maximum slope of 4:1 for turf areas and 3:1 for shrub beds and groundcover berms; and

(ii) To control erosion and dust, berm slopes must be stabilized with vegetation or by other means consistent with the requirements for the particular landscape area.

(h~~g~~) Residential Subdivision Perimeter Enclosures.

(1) Intent. The ~~decision-maker~~ Director may require ~~(where deemed necessary)~~ perimeter enclosures (fences and/or walls) around all or part of the perimeter of a residential development. Perimeter enclosures shall be designed to meet the following objectives of protecting public health, safety and welfare: screen negative impacts of adjoining land uses, including streets; protect privacy; maintain a consistent or complementary appearance with enclosures in the vicinity; maintain consistent appearance of the subdivision; and comply with corridor overlay requirements.

(2) Applicability. When required by the Director, the standards of this subsection shall apply to all residential subdivisions as well as to all mixed-use subdivisions

where the square footage of proposed residential uses exceeds the square footage of proposed non-residential uses.

(32) Specifications. Unless specified otherwise at the time of final approval:

(i) A perimeter enclosure includes fences, walls or berms, and combinations thereof, located within five feet of the exterior boundary of a development.

(ii) The maximum height is six feet, including within front setbacks; however, an enclosure constructed on a berm shall not extend more than eight feet above the adjoining sidewalk or crown of road, whichever is lower.

(iii) New enclosures shall be compatible with existing enclosures in the vicinity, if such enclosures meet the requirements of this code.

(iv) A perimeter enclosure in excess of six feet is a structure and requires a building permit.

(v) A perimeter wall must have a column or other significant architectural feature every 30 25 feet.

(34) Required Perimeter Enclosures. The decision-maker Director may require a perimeter enclosure as a condition of the final approval if the following conditions are met. The Director will notify applicants of the need for a perimeter enclosure, if required.

(i) Use or enjoyment of property within the development or in the vicinity of the development might be impaired without a perimeter enclosure.

(ii) A perimeter enclosure is necessary to maintain a consistent and complementary appearance with existing or proposed perimeter enclosures in the vicinity.

(iii) A perimeter enclosure is necessary to control ingress and egress for the development.

(iv) A perimeter enclosure is necessary to promote the safety of the public or residents in the vicinity.

(v) A perimeter enclosure is needed to comply with the purpose, objectives or regulations of the subdivision requirements.

(vi) A perimeter enclosure is needed to comply with a corridor overlay district.

~~(vii) The Director will notify applicants of the need for a perimeter enclosure, if required.~~

~~(4) Design of Perimeter Enclosures. A complete landscape plan for the required landscape buffer and a detail drawing of the perimeter enclosure must be submitted at the time of final approval: perimeter enclosure detail at a scale of one-half inch equals one foot.~~

(5) Residential Subdivision Landscape Buffer. On the outside of a perimeter enclosure adjacent to a right-of-way, an average 14-foot-wide landscape buffer shall be provided between the perimeter enclosure and the right-of-way for major and minor arterial streets and major or minor collectors. A five-foot-wide landscape buffer for side and rear yard perimeters shall be provided on all other streets between the perimeter enclosure and the right-of-way.

~~(i) Vegetation in the sight triangle (see TEDS, GJMC Title 29) shall not exceed 30 inches in height at maturity;~~

(ii) In the landscape buffer, one tree per 40 linear feet of perimeter must be provided;

(iii) All perimeter enclosures and landscape buffers must be within a tract dedicated to and maintained by the homeowners' association. The perimeter enclosure and landscaping must be installed by the developer and made a part of the development improvements agreement;

(iiiv) A minimum of 75 percent of the landscape buffer area shall be covered by plant material including tree canopy coverage, shrubs, and groundcover at maturity. Turf may be allowed for up to 50 percent of the 14-foot-wide landscape strip, at the Director's discretion. Low water usage turf is encouraged;

(iv) Where detached walks are provided, a minimum buffer of ~~five~~ eight feet shall be provided. In ~~which~~ this case, the right-of-way parkway strip (area between the sidewalk and curb) will also be planted as a landscape buffer and maintained by the ~~HOA~~ homeowners' association.

(6) Construction of Perimeter Enclosures. The perimeter enclosure and required landscape buffer shall be installed by the developer and included in the development improvements agreement.

(7) Ownership and Maintenance. The developer shall refer to the perimeter enclosure in the covenants and restrictions and so that perpetual maintenance is

provided for either that the perimeter enclosure be owned and maintained by the owners' association or by individual owners. ~~The perimeter enclosure shall be identified on the plat.~~

(8) Alternative Construction and Ownership. If the Director ~~decision-maker~~ finds that a lot-by-lot construction, ownership and/or maintenance of a perimeter enclosure landscape strip would meet all applicable objectives of this section and the design standards of GJMC 21.06.060, ~~the final approval~~ approved plans shall ~~specify~~ note specifications including the type and size of materials, placement of fence posts, and length of sections~~, and the like~~.

(9) Overlay District Conflicts. Where in conflict, the perimeter enclosure requirements or guidelines of approved overlay districts shall supersede the requirements of this section.

~~(10) Variances. Variances to this section and appeals of administrative decisions (where this code gives the Director discretionary authority) shall be referred to the Planning Commission.~~

(i) Substitutions. The requirements outlined in GJMC 21.06.040(i) above may be varied based at the following rates of substitution.

(1) Required trees may be substituted for shrubs and required shrubs may be substituted for trees at a rate of three shrubs equaling one caliper inch of tree. For example: 3 two-inch caliper trees equaling 6 caliper inches may be exchanged for 12 shrubs, or vice versa.

(A) No more than 50 percent of the number of trees required by GJMC 21.06.040(j) may be substituted for shrubs.

(2) Two #5 container shrubs may be substituted for four linear feet of wall when walls are required per GJMC 21.06.040(c)(3). Shrubs substituted for walls must reach a height of at least 30 inches at maturity.

(3) Ten percent of the required shrubs may be converted to perennials and/or ground covers at a ratio of three #1 container perennials and/or ground covers for one #5 container shrub.

(4) The number of shrubs may be reduced in exchange for additional trees or tree size at a rate of three shrubs per caliper inch.

(5) Substitutions for waterwise landscape plantings are described in GJMC 21.06.040(b)(20). To use substitute using the requirements of this section, the landscape plan must qualify as a Waterwise Landscape Plan or High Desert Landscape Plan per the requirements of GJMC 21.06.040(b)(19)(i) and (ii).

(6) Existing trees preserved during development shall count toward the total tree requirement at a ratio of two caliper inches of preserved tree to one caliper inch of required tree plantings.

	Tree	Shrub	Groundcover/Perennials	Wall
Tree	Two caliper inches preserved tree to one caliper inch required	Three shrubs for one caliper inch of tree	n/a	n/a
Shrub	Three shrubs for one caliper inch of tree	n/a	Three #1 container perennials and/or ground cover for one #5 container shrub	Two #5 container shrubs (minimum 30 inches in height) for four linear feet of wall
Groundcover/Perennials	n/a	Three #1 container perennials and/or ground cover for one #5 container shrub	n/a	n/a
Wall	n/a	Two #5 container shrubs (minimum 30 inches in height) for four linear feet of wall	n/a	n/a

(~~h~~i) I-1 and I-2 Zone Landscape.

(1) Parking Lot Perimeter Landscape. Landscaping for the parking lot perimeter shall be per subsection (c)(2) of this section with the following addition:

~~(i) Turf may be allowed for up to 50 percent of the parking lot perimeter, at the Director's discretion. Low water usage turf is encouraged.~~

(ii) A minimum of 75 percent of the parking lot perimeter landscape shall be covered by plant material including tree canopy, shrubs, turf, and groundcover at maturity.

(2) Street Frontage Landscape. Landscaping for the street frontage shall be per subsection (d) of this section with the following additions:

~~(i) Vegetation in the sight triangle in the street frontage must not exceed 30 inches in height at maturity.~~

(ii) One tree for every 40 linear feet of street frontage (excluding curb cuts) must be provided, ~~80~~ 70 percent of which must be shade trees.

(3) Public Right-of-Way Landscape. Landscaping for the public right-of-way shall be per subsection (b)(16~~7~~) of this section.

(4) Maintenance. Each owner or the owners' association shall maintain all landscaping.

(5) Other Applicable Sections. The requirements of subsections ~~(i),~~ (j)~~,~~ and (k) ~~and (l)~~ of this section shall also apply.

(i~~k~~) Landscaping Requirements.

Zoning of Proposed Development	**Landscape Requirement**	**Location of Landscaping on Site**
Single-family residential (R zones)	As required for uses other than single-family residential; and as required in subsections (b)(16) and (g) of this section	As required for uses other than single-family residential; and landscape buffer and public right-of-way
R-5, R-8, R-12, R-16, R-24, R-0, B-1, C-1, C-2, I-O, CSR, MU	~~One tree~~ Two caliper inches of tree plantings per 3,000 ~~2,500~~ square feet of improved area, with no more than ~~20~~ 40 percent of the total being ornamental trees or evergreens. One #5 container shrub per 45~~30~~0 square feet of improved area	Buffer, parking lot, street frontage perimeter, foundation plantings and public right-of-way

Zoning of Proposed Development	Landscape Requirement	Location of Landscaping on Site
B-2	~~One tree~~ Two caliper inches of tree plantings per 3,000 ~~2,500~~ square feet of improved area with no more than ~~20~~ 40 percent of the total being ornamental trees or evergreens. One #5 container shrub per 45~~30~~0 square feet of improved area	Parking lot, park strip (in right-of-way)
I-1, I-2	As required in subsection (h) of this section and in other subsections of this section where applicable	Street frontage, parking lots, buffers and public right-of-way
MXR, MXG, MXS, MXOC	~~One tree~~ Two caliper inches of tree plantings per 3,000 ~~2,500~~ square feet of improved area, with no more than ~~20~~ 40 percent of the total being ornamental trees or evergreens. One #5 container shrub per 45~~30~~0 square feet of improved area. Plantings must be evenly distributed throughout the development	Buffer, parking lot, street frontage perimeter, foundation plantings and public right-of-way
Facilities: mining, dairy, vineyard, sand or gravel operations, confined animal feeding operation, feedlot, forestry commercial, aviation or surface passenger terminal, pasture	~~One tree~~ Two caliper inches of tree plantings per 5,000 square feet of improved area. One #5 container shrub per 600 square feet of improved area	Perimeter, buffer and public right-of-way

~~(j) **Example Tree Landscape Plan.**~~

DIAGRAM REMOVED: EXAMPLE TREE LANDSCAPE PLAN

DIAGRAM REMOVED: ORCHARD-STYLE LANDSCAPE ISLAND

(k<u>l</u>) **Buffering Between Zoning Districts.**

Zoning of Proposed Development	Zoning of Adjacent Property																	
	SF	R-5	R-8	R-12 R-16	R-24	R-O & MXOC	B-1	B-2	C-1	C-2 I-O	I-1	I-2	M-U	CSR	BP	MXR-	MXG-	MXS-
SF (Subdivisions)	-	-	-	-	-	-	F	-	F	W	W	W	F	-	F	-	-	-
R-5	-	-	-	-	-	-	F	-	F	W	W	W	-	-	F	-	-	-
R-8	-	-	-	-	-	F	F	-	F	W	W	W	F	-	F	A	-	-
R-12 & R-16	-	-	-	-	-	-	F	-	W	W	W	W	F	-	F	A	-	-
R-24	-	-	-	-	-	-	F	-	W	W	W	W	F	-	F	A	-	-
RO & MXOC	A	A	A	A	A	-	A or F	-	A or F	W	W	W	A or F	-	A or F	A	-	-
B-1	F	F	F	A or F	A or F	A or F	A or F	-	A or F	A or F	A or F	A or F	A or F	-	A or F	A	-	-
B-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C-1	A&W	W	W	W	W	W	-	-	-	-	-	-	-	-	-	-	-	-
C-2 & I-O	W	W	W	W	W	W	F	-	-	-	-	-	A or F	A or F	A or F	A&W	-	-
I-1	W	W	W	W	W	W	F	-	-	-	-	-	A or F	B&W	A or F	B&W	A or F	A or F
I-2	B&W	W	W	W	W	W	F	-	-	-	-	-	A or F	B&W	A or F	B&W	A or F	A or F
M-U	A or F	A or F	A or F	A or F	A or F	A or F	A or F	-	A or F	A or F	A or F	A or F	-	-	-	-	-	-
CSR3 [1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BP	A or F	A or F	A or F	A or F	A or F	A or F	A or F	-	-	-	-	-	-	-	-	A or F	A or F	A or F

Zoning of Proposed Development	Zoning of Adjacent Property																	
	SF	R-5	R-8	R-12 R-16	R-24	R-O & MXOC	B-1	B-2	C-1	C-2 I-O	I-1	I-2	M-U	CSR	BP	MXR-	MXG-	MXS-
MXR-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-
MXG-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-
MXS-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-

Notes
•A berm with landscaping is an alternative for a required fence or wall if the total height is a minimum of six feet.
•Where alleys or streets separate different zone districts, the Director may approve increased landscaping rather than requiring a wall or fence.
•The Director may modify this table based on the uses proposed in any zone district.
[1] Gravel operations subject to buffering adjacent to residential.

(~~l~~m) **Buffer Requirements.**

Buffer Types	Landscaping Requirements	Location of Buffers on Site
Type A	Eight-foot-wide landscape strip with trees and shrubs	Between different uses
Type B	15-foot-wide landscape strip with trees and shrubs	Between different uses
Type F, W	Six-foot fence and wall (see subsection (f) of this section)	Between different uses

Note: Fences and walls are required for most buffers.

DIAGRAM REMOVED: TYPE A AND TYPE B EXAMPLES

Introduced on first reading the ____ day of ____ 2022 and ordered published in pamphlet form.

Adopted on second reading this ____ day of ____ 2022 and ordered published in pamphlet form.

ATTEST:

_____
Anna M. Stout
President of City Council

_____
Laura J. Baurer
Interim City Clerk

Suitable Plants List

Common	Scientific Name	Plant Type	Height (ft)	Spread (ft)	Water Needs	Native Status (CO / GJ)	Preferred Tree	Parking Lot Island Tree
Indian Ricegrass	*Achnatherum (Oryzopsis) hymenoides*	Grass, Ornamental	2	1	xeric-low	native		
Big Bluestem	*Andropogon gerardii*	Grass, Ornamental	3-6	2-3	xeric-low	native		
Sideoats Grama	*Bouteloua curtipendula*	Grass, Ornamental	1.5-2	1.5-2	low	native		
Blue Grama Grass	*Bouteloua gracilis*	Grass, Ornamental	1-2	1.5-2	xeric-medium	native		
Karl Foerster Feather Reed Grass	*Calamagrostis acutiflora*	Grass, Ornamental	4	2	low	non-native		
Fireburst Paperbark Maple	*Acer grisum*	Tree, Deciduous	20-25	15	medium	non-native		
State Street Maple	*Acer miyabei*	Tree, Deciduous	45-50	35	medium	non-native	*Preferred*	
Desert Saltgrass	*Distichlis spicata*	Grass, Ornamental	1-3	indet.	xeric-low	native		
Black Maple	*Acer nigrum*	Tree, Deciduous	60	40	medium	non-native		
Norway Maple	*Acer platanoides*	Tree, Deciduous	40-50	30-50	medium	non-native		
Sycamore Maple	*Acer pseudosieboldianum*	Tree, Deciduous	15	20	medium	non-native		
Red Maple	*Acer rubrum*	Tree, Deciduous	40-60	40	medium	non-native		
Sugar Maple	*Acer saccharum*	Tree, Deciduous	25-40	35	medium	non-native		
Sand Love Grass	*Eragrostis trichodes*	Grass, Ornamental	2-4	2-3	low-medium	native		
Three Flower Maple	*Acer triflorum*	Tree, Deciduous	25	20	medium	non-native		
Shantung Maple	*Acer truncatum*	Tree, Deciduous	20-35	20	medium	non-native		
Blue Oat Grass	*Helictotrichon sempervirens*	Grass, Ornamental	2-3	2-2.5	low-medium	non-native		
Chinese Silver Grass	*Miscanthus sinensis*	Grass, Ornamental	2-6	1-3.5	low-medium	non-native		
Little Bluestem	*Schizachyrium scoparium*	Grass, Ornamental	1.5-2.5	1-2	low-medium	native		
Snow-on-the-Mountain	*Aegopodium podagraria*	Perennial/Ground Cover	1	1-2, rhizomous	medium	non-native		
Yellow Buckeye	*Aesculus flava*	Tree, Deciduous	35	35	medium	non-native		
Ohio Buckeye	*Aesculus glabra*	Tree, Deciduous	20-40	20-40	medium	non-native		
Horsechestnut	*Aesculus hippocastanum*	Tree, Deciduous	45-60	35-40	medium	non-native		
Mountain Alyssum	*Alyssum montanum*	Groundcover	0.5	1-1.5	low	non-native		
Mt. Atlas Daisy	*Anacyclus pyrethrum var. depressus*	Groundcover	.258	1	low-medium	non-native		
Parry's Agave	*Agave parryi*	Shrub, Evergreen	1.5-2	2-3	medium	non-native		
Lady's Mantle	*Alchemilla mollis*	Perennial	1.5-2	1.5-2	medium-high	non-native		
Small Leaf Pussytoes	*Antennaria parvifolia*	Groundcover	.25	.5	low	native		
Bearberry or Kinnikinnick	*Arctostaphylos uva-ursi*	Groundcover	1	2	low	native		
Mesa Verde Ice Plant	*Delosperma 'Kelaidis'*	Groundcover	0.25	1.5	low-medium	native		
Utah Serviceberry	*Amelanchier utahensis*	Shrub, Deciduous	10-14	5-7	medium	native		
Trailing Fleabane	*Erigeron flagellaris*	Groundcover	0.5	1	low	native		
Sulfur Buckwheat	*Eriogonum umbellatum var. umbellatum*	Groundcover	1	1	low	native		
Shadblow Serviceberry	*Amelanchier canadensis*	Shrub, Deciduous	15-30	10-20	medium	non-native		
Mat Penstemon	*Penstemon caespitosus*	Groundcover	1	1	low-medium	native		
Stonecrop species	*Sedum spp.*	Groundcover	0.5	1-4	low-medium	varies by spp.		
Dwarf Ephedra	*Ephedra monosperma*	Groundcover, Evergreen	1	3	xeric-low	non-native		
Texas Hummingbird Mint or Sonoran Hyssop	*Agastache cana*	Perennial	1.5-3	1-2	xeric-medium	non-native		
Sunset Hyssop or Licorice Mint	*Agastache rupestris*	Perennial	1.5-2	1-1.5	xeric-medium	non-native		
Hubricht's Blue Star	*Amsonia hubrichtii*	Perennial	2-3	2-3	medium	non-native		
Rocky Mountain Columbine	*Aquilegia caerulea*	Perennial	1-2	1-2	low	native		
Denver Gold Columbine	*Aquilegia chrysantha*	Perennial	2-2.5	1-2	low-medium	native		
Prickly Poppy	*Argemone polyanthemos*	Perennial	1-3	1-2	xeric-low	native		
Fringed Sage	*Artemisia frigida*	Perennial	0.5-1.5	1.5-2	xeric-low	native		
Dwarf Columbine	*Aquilegia flabellata*	Perennial	1	1	medium	non-native		
Seafoam Sage	*Artemisia versicolor 'Seafoam'*	Perennial	0.5-1	1.5-2.5	low	non-native		
Butterfly Milkweed	*Asclepias tuberosa*	Perennial	1.5	1.5	low	native		
Panchito Maznanita; Chieftan Manzanita; Mock Bearberry Manzanita	*Arctostaphylos x coloradoensis*	Shrub, Evergreen	5-7	3-5	medium	native		
Lavender Leaf Sundrops	*Calylophus lavandulifolius*	Perennial	1	1	low	native		
Siberian Wall Flower	*Cheiranthus allionii*	Perennial	1	1-2	low-medium	non-native		
Hairy Golden Aster	*Chrysopsis villosa*	Perennial	1	1-2	low	native		
Purple Coneflower	*Echinacea purpurea*	Perennial	2-5	1.5-2	low-medium	non-native		
Claret Cup Cactus	*Echinocereus triglochidiatus*	Perennial	0.5	1	low	native		
Blanketflower	*Gaillardia aristata*	Perennial	1	1	low-medium	native		
Marsh Milkweed	*Asclepias incarnata*	Perennial	1-2	1	high	native		
Broom Snakeweed	*Gutierrezia sarothrae*	Perennial	1.5	1.5	low	native		
Pawpaw	*Asimina triloba*	Tree, Deciduous	20-25	10-15	medium-high	non-native		
Scarlet Bugler	*Ipomopsis aggregata*	Perennial	1	1	low-medium	native		
Munstead Lavender	*Lavandula angustifolia 'Munstead'*	Perennial	1-1.5	1-1.5	low-medium	non-native		
Blue Wild Indigo	*Baptisia australis*	Perennial	3-4	2-3	medium	non-native		
Oxeye Daisy	*Leucanthemum vulgare*	Perennial	1-2.5	1-3	low-medium	non-native		
Perennial Lupine	*Lupinus perennis*	Perennial	1-2	1-2	low-medium	non-native		
Colorado Four O'Clock or Desert Four O'Clock	*Mirabilis multiflora*	Perennial	1	2-3	low	native		
Catmint	*Nepeta racemosa*	Perennial	1-2	2-3	low-medium	non-native		
Firecracker Penstemon	*Penstemon eatonii*	Perennial	1	2	low	native		
Rocky Mountain Penstemon	*Penstemon strictus*	Perennial	2-3	2-3	low	native		
Prairie Coneflower	*Ratibida columnifera*	Perennial	1-3	1-1.5	low-medium	native		
Columnar European Hornbeam	*Carpinus betulus*	Tree, Deciduous	35	20	medium	non-native		
Grayheaded Coneflower	*Ratibida pinnata*	Perennial	1-3	1-2	low-medium	non-native		
Shabark Hickory	*Carya ovata*	Tree, Deciduous	50	30	medium	non-native		
Scarlet Globemallow	*Sphaeralcea coccinea*	Perennial	0.5-1	1	low	native		
Pecan	*Carya illinoisensis*	Tree, Deciduous	60	40	medium	non-native		
Bluemist Spirea	*Caryopteris incana*	Shrub, Deciduous	3-6	3-4	medium	non-native		
Desert Prince's Plume	*Stanleya pinnata*	Perennial	2-6	1-2	low	native		
Prickly Thrift	*Acantholimon glumaceum*	Perennial/Ground Cover	0.5	1	xeric	non-native		
Yarrow species	*Achillea spp.*	Perennial/Ground Cover	1-3	1-3	xeric-low	varies by spp.		
Colorado Desert Blue Star or Jones' Bluestar	*Amsonia jonesii*	Perennial/Ground Cover	1	1-1.5	low	native		
Eastern Blue Star	*Amsonia tacernaemontana*	Perennial/Ground Cover	2-3	2-3	low	non-native		
Katsuratree	*Cercidiphyllum japonicum*	Tree, Deciduous	35	35	medium	non-native		
Poppy Mallow	*Callirhoe involucrata*	Perennial/Ground Cover	0.5-1	0.5-3	low-medium	native		
Lanceleaf Coreposis	*Coreopsis lanceolata*	Perennial/Ground Cover	1-2	1-1.5	low-medium	native		
Moonbeam Coreopsis	*Coreopsis verticillata 'Moonbeam'*	Perennial/Ground Cover	1-2	1-1.5	low-medium	non-native		
Shasta Daisy	*Leucanthemum × superbum*	Perennial/Ground Cover	1-2.5	1-3	low-medium	non-native		
Blue Flax	*Linum lewisii*	Perennial/Ground Cover	1.5	1	low	native		
Fireweed	*Chamerion angustifolium*	Perennial	2-5	0.5-1.5	medium	native		
Saskatoon Serviceberry	*Amelanchier alnifolia*	Shrub, Deciduous	10-15	10-30	low-medium	native		
Leadplant	*Amorpha canescens*	Shrub, Deciduous	2-3	2-2.5	xeric-medium	native		
False Indigo Bush	*Amorpha fruticosa*	Shrub, Deciduous	4-10	8-10	low	native		
Tokyo Tower Fringetree	*Chionanthus retusis*	Tree, Deciduous	15	5-10	medium	non-native		
Dwarf False Indigo	*Amorpha nana*	Shrub, Deciduous	1-3	1-3	low-medium	native		
Powis Castle Sage	*Artemisia 'Powis Castle' [arborescens x absinthium]*	Shrub, Deciduous	2-3	1-2	low	non-native		
Big Sagebrush	*Artemisia tridentata*	Shrub, Deciduous	1.5-6	1-5	xeric-low	native		
Yellowwood	*Cladrastis kentukea*	Tree, Deciduous	35-40	35-45	medium	non-native		
Saltbush	*Atriplex canescens*	Shrub, Deciduous	3-4	3-4	low	native		
Shadscale	*Atriplex confertifolia*	Shrub, Deciduous	1-3	1-3	low	native		
Red osier dogwood	*Cornus sericea*	Shrub, Deciduous	5-10	8-12	medium-high	native		
June Snow Dogwood	*Cornus controversa*	Tree, Deciduous	25	35	medium	non-native		
Corneliancherry Dogwood	*Cornus mas*	Tree, Deciduous	15	10-15	medium	non-native		
Turkish Filbert	*Corylus colurna*	Tree, Deciduous	40	25	medium	non-native		
Japanese Barberry	*Berberis thunbergii*	Shrub, Deciduous	2-6	3-7	xeric-medium	non-native		
Tom Thumb Cotoneaster	*Cotoneaster adpressus*	Groundcover or Shrub	0.5-1	4-6	medium	non-native		
Cranberry Cotoneaster	*Cotoneaster apiculatus*	Shrub, Deciduous	2-3	3-6	medium	non-native		
Butterfly Bush or Summer Lilac	*Buddleja davidii*	Shrub, Deciduous	6-8	3-5	low-medium	non-native		
Winter Fat	*Ceratodies lanata or Krascheninnikovia lanata*	Shrub, Deciduous	1-3	1-3	low	non-native		
Mountain Mahogany	*Cercocarpus ledifolius*	Shrub, Deciduous	8-12	4-8	low-medium	native		

Suitable Plants List

Common	Scientific Name	Plant Type	Height (ft)	Spread (ft)	Water Needs	Native Status (CO / GJ)	Preferred Tree	Parking Lot Island Tree
Mountain Mahogany	*Cercocarpus montanus*	Shrub, Deciduous	8-12	4-8	low-medium	native		
Fernbush	*Chamaebatiaria millefolium*	Shrub, Deciduous	6-8	6-8	xeric-low	non-native		
Gray Rabbitbrush	*Chrysothamnus nauseosus, or Ericameria nauseosa*	Shrub, Deciduous	4-7	4-7	low-medium	native		
Yellow Rabbitbrush	*Chrysothamnus viscidiflorus*	Shrub, Deciduous	4-7	4-7	low-medium	native		
Spanish Broom	*Cytisus purgans*	Shrub, Deciduous	2-3	4-6	low	non-native		
Scotch broom	*Cytisus scoparius*	Shrub, Deciduous	4-8	4-8	low-medium	non-native		
Shrubby Cinquefoil	*Dasiphora fruticosa*	Shrub, Deciduous	3	3	medium	native		
New Mexico Privet or Desert Olive	*Foresteria pubescens*	Shrub, Deciduous	6-8	5-8	low	native		
Sweet William	*Dianthus barbatus*	Perennial	1-2	.5-1	medium	non-native		
Red Berry Mahonia	*Mahonia haematocarpa*	Shrub, Deciduous	6-12	6-12	xeric-low	native		
Russian Sage	*Perovskia atriplicifolia*	Shrub, Deciduous	3-5	2-4	low-medium	non-native		
Littleleaf Mock Orange	*Philadelphus microphyllus*	Shrub, Deciduous	2-3	2-3	low-medium	native		
Ninebark	*Physocarpus opulifolius*	Shrub, Deciduous	5-8	4-6	low-medium	native		
Antelope Bitterbrush	*Purshia tridentata*	Shrub, Deciduous	6-12	6-12	low	native		
Fragrant Sumac	*Rhus aromatica*	Shrub, Deciduous	2-6	6-10	low-medium	non-native		
Skunkbush sumac	*Rhus trilobata*	Shrub, Deciduous	2-6	6-10	low-medium	native		
Staghorn Sumac	*Rhus typhina*	Shrub, Deciduous	15-25	20-30	low-medium	non-native		
Greasewood	*Sarcobatus vermiculatus*	Shrub, Deciduous	1.5-5	2-5	low	native		
Korean Lilac	*Syringa meyeri*	Shrub, Deciduous	5-8	6-10	low-medium	non-native		
Sand Sagebrush	*Artemisia filifolia*	Shrub, Evergreen	3-4	3-4	low	native		
Compact Burning Bush	*Euonymus alatus 'compactus'*	Shrub, Deciduous	5	5	medium	non-native		
American Beech	*Fagus grandifolia*	Tree, Deciduous	65	60	medium	non-native		
Eurpoean Beech	*Fagus sylvatica*	Tree, Deciduous	25-55	15-40	medium	non-native		
Apache Plume	*Fallugia paradoxa*	Shrub, Deciduous	3-5	3-5	medium	native		
Cholla species	*Cylindropuntia spp.*	Shrub, Evergreen	2-7	2-7	xeric-low	Varies by spp.		
Blue Stem Joint Fir	*Ephedra equistina*	Shrub, Evergreen	4	6	xeric-low	non-native		
Mormon Tea	*Ephedra viridis*	Shrub, Evergreen	2-3	3-6	xeric-low	native		
Common Broom	*Genista tinctoria*	Shrub, Evergreen	2-3	2-3	low-medium	non-native		
Gingko	*Ginkgo biloba*	Tree, Deciduous	40	20-30	medium	non-native		
Red Yucca	*Hesperaloe parviflora*	Shrub, Evergreen	3-5	4-6	xeric-low	non-native		
Desert Prickly Pear	*Opuntia phaeacantha*	Shrub, Evergreen	2-5	3-6	xeric-low	native		
Prickly Pear species	*Opuntia spp.*	Shrub, Evergreen	1-3	2-7	xeric-low	varies by spp.		
Narrowleaf Yucca	*Yucca angustissima*	Shrub, Evergreen	3	3	low	native		
Banana Yucca	*Yucca baccata*	Shrub, Evergreen	1-3	2-3	low	native		
Hardy Hibiscus or Swamp Rose Malow	*Hibiscus moscheutos*	Shrub, Deciduous	3-7	2-4	medium-high	non-native		
Rose of Sharon	*Hibiscus syriacus*	Shrub, Deciduous	8-12	6-10	medium	non-native		
Soapweed Yucca	*Yucca glauca*	Shrub, Evergreen	2-3	2-3	low	non-native		
Rocky Mountain Iris	*Iris missouriensis*	Perennial	1-2	1	medium-high	native		
Chinese Juniper	*Juniperus chinensis*	Shrub, Evergreen	40-50	15-20	medium	non-native		
Andorra Juniper	*Juniperus horizontalis 'Andorra'*	Shrub, Evergreen	1-2	8-10	medium	non-native		
Blue Chip Juniper	*Juniperus horizontalis 'Blue Chip'*	Shrub, Evergreen	.5-1	7-9	medium	non-native		
Hughes Juniper	*Juniperus horizontalis 'Hughes'*	Shrub, Evergreen	.5-1	7-9	medium	non-native		
Dwarf Yucca	*Yucca harrimaniae*	Shrub, Evergreen	3	1	low	native		
Arcadia Juniper	*Juniperus sabina 'Arcadia'*	Shrub, Evergreen	4-6	5-10	medium	non-native		
Calgary Carpet Juniper	*Juniperus sabina 'Calgary Carpet'*	Shrub, Evergreen	4-6	5-10	medium	non-native		
Scandia Juniper	*Juniperus sabina 'Scandia"*	Shrub, Evergreen	4-6	5-10	medium	non-native		
Trident Maple	*Acer buergeranum*	Tree, Deciduous	30	30	medium	non-native		
Hedge Maple	*Acer campestre*	Tree, Deciduous	30	15	medium	non-native	Yes	
Amur Maple	*Acer ginnala*	Tree, Deciduous	10-32	15	medium	non-native		
Rocky Mountain Maple	*Acer glabrum*	Tree, Deciduous	20	10-15	medium	native		
Bigtooth Maple	*Acer grandidentatum*	Tree, Deciduous	25	25	xeric-low	native	Yes	
London Planetree	*Platanus x acerifolia*	Tree, Deciduous	40-50	30-35	medium	non-native	*Preferred*	*Island Shade Tree*
Bleeding Heart	*Lamprocapnos spectabilis*	Perennial	2-3	1.5-2.5	medium	non-native		
Box Elder	*Acer negundo*	Tree, Deciduous	25-80	30-50	low	native	Yes	Yes
Tatarian Maple	*Acer tataricum*	Tree, Deciduous	15-20	15-20	xeric-low	non-native	Yes	
Downy Serviceberry	*Amelanchier arborea*	Tree, Deciduous	20	15	medium	non-native		
Dense Blazing Star	*Liatris spicata*	Perennial	2-4	1-2	medium	non-native		
Allegheny Serviceberry	*Amelanchier laevis*	Tree, Deciduous	20-25	10-15	medium	non-native		
Sweetgum	*Liquidambar styraciflua*	Tree, Deciduous	60	40	medium	non-native		
Tulip Tree	*Liriodendron tulipifera*	Tree, Deciduous	60-90	30-50	medium	non-native		
Apple Serviceberry	*Amelanchier x grandiflora*	Tree, Deciduous	20	15	medium	non-native		
American Hornbeam	*Carpinus caroliniana*	Tree, Deciduous	25	20-25	medium	non-native		
Pignut Hickory	*Carya glabra*	Tree, Deciduous	50	30	medium	non-native		
Cucumbertree Magnolia	*Magnolia acuminata*	Tree, Deciduous	45	30	medium	non-native		
Magnolia NCMX1 P.A.F.	*Magnolia NCMX1 P.A.F.*	Tree, Deciduous	20-15	10-15	medium	non-native		
Oregon Grape	*Mahonia aquifolium, or Berberis aquiifolium*	Shrub, Evergreen	3-6	2-5	medium	non-native		
Western Catalpa	*Catalpa speciosa*	Tree, Deciduous	40-70	20-50	xeric-low	non-native	Yes	Yes
Purple Catalpa	*Catalpa x erubescens*	Tree, Deciduous	50	35	medium	non-native	Yes	
Chinese Catalpa	*Catalpa ovata*	Tree, Deciduous	25	25	medium	non-native	Yes	
Common hackberry	*Celtis occidentalis*	Tree, Deciduous	30-60	40-60	xeric-low	non-native	Yes	Yes
Bee Balm or Wild Bergamont	*Monarda fistulosa var. menthafolia*	Perennial	2	2	medium	native		
Sugar Hackberry	*Celtis laevigata*	Tree, Deciduous	45	40	xeric-low	non-native	Yes	Yes
Redbud	*Cercis canadensis*	Tree, Deciduous	15-25	15-30	medium	non-native	Yes	
Desert Willow	*Chilopsis linearis*	Tree, Deciduous	20	20	xeric-low	non-native		
American Fringetree	*Chionanthus virginicus*	Tree, Deciduous	15	15	medium	non-native		
Hophornbeam	*Ostrya virginiana*	Tree, Deciduous	35	15-20	medium	non-native		
Prairie Switch Grass	*Panicum virgatum*	Grass, Ornamental	3-6	2-3	medium-high	native		
American Smoketree	*Cotinus obovatus*	Tree, Deciduous	15-20	10-15	low	non-native	Yes	
Dwarf Fountain Grass	*Pennisetum alopecuroides 'Hameln'*	Grass, Ornamental	2.5-5	2.5-5	medium-high	non-native		
Morden Hawthorn	*Crataegus × mordenensis [laevigata x succulenta]*	Tree, Deciduous	15-20	15-20	low	non-native	Yes	
Russian Hawthorn	*Crataegus ambigua*	Tree, Deciduous	18-24	18-24	xeric	non-native	Yes	
Green Hawthorn	*Crataegus viridis*	Tree, Deciduous	20-35	20-35	low	non-native	Yes	
Thornless Cockspur Hawthorn	*Crataegus crus-galli*	Tree, Deciduous	20	20	xeric	non-native	Yes	
Persian Ironwood	*Parrotia persica*	Tree, Deciduous	30	30	medium	non-native		
Washington Hawthorn	*Crataegus phaenopyrum*	Tree, Deciduous	25	25	low	non-native	Yes	
Northern Downy Hawthorn	*Crataegus submollis*	Tree, Deciduous	20	20	low	non-native	Yes	
Blue Spruce	*Picea pungens*	Tree, Evergreen	30-60	10-20	medium	non-native		
English Oak	*Quercus robur*	Tree, Deciduous	40-70	40-70	medium	non-native	*Preferred*	*Island Shade Tree*
Corktree	*Phellodendron amurense*	Tree, Deciduous	30-40	25-45	medium	non-native		
Hardy Rubbertree	*Eucommia ulmoides*	Tree, Deciduous	40	40	low	non-native	Yes	
Swiss Mountain Pine	*Pinus mugo*	Tree, Evergreen	15-20	15-20	medium	non-native		
Singleleaf Ash	*Fraxinus anomala*	Tree, Deciduous	12	6	xeric	native		
American sycamore	*Platanus occidentalis*	Tree, Deciduous	75-100	75-100	medium-high	non-native		
Honeylocust	*Gleditsia triacanthos inermis*	Tree, Deciduous	60-80	60-80	xeric	non-native	Yes	Yes
Quaking Aspen	*Populus tremuloides*	Tree, Deciduous	60	12-15	medium	non-native		
Sand Cherry	*Prunus besseyi*	Shrub, Deciduous	2-4	2-5	medium	native		
Cherry Plum	*Prunus cerasifera*	Tree, Deciduous	15-25	15-25	medium	non-native		
Mayday Tree	*Prunus padus*	Tree, Deciduous	20-40	20-40	medium	non-native		
Kentucky Coffeetree	*Gymnocladus dioicus*	Tree, Deciduous	60-80	40-55	xeric	non-native	Yes	Yes
Chinese flame tree	*Koelreuteria bipinnata*	Tree, Deciduous	30-40	30-40	low	non-native		
Chokecherry	*Prunus virginiana*	Tree, Deciduous	25	20	medium	non-native		
Golden Rain Tree	*Koelreuteria paniculata*	Tree, Deciduous	30-40	30-40	xeric	non-native	Yes	Yes
Amur Maackia	*Maackia amurensis*	Tree, Deciduous	20-30	15-20	xeric	non-native	Yes	Yes
Osage Orange	*Maclura pomifera*	Tree, Deciduous	30	30	xeric	non-native	Yes	Yes
Crabapple cultivars	*Malus spp.*	Tree, Deciduous	10-30	10-30	medium-high	non-native	Yes	

Suitable Plants List

Common	Scientific Name	Plant Type	Height (ft)	Spread (ft)	Water Needs	Native Status (CO / GJ)	Preferred Tree	Parking Lot Island Tree
Shingle Oak	*Quercus imbricaria*	Tree, Deciduous	50	50	medium	non-native		
Fruitless White Mulberry	*Morus alba*	Tree, Deciduous	30-50	30-50	low	non-native	Yes	Yes
Chinese Pistache	*Pistacia chinensis*	Tree, Deciduous	35	20	xeric-low	non-native	Yes	Yes
Ornamental Pear	*Pyrus spp.*	Tree, Deciduous	20-50	20-35	low	non-native	Yes	Yes
Swamp White Oak	*Quercus bicolor*	Tree, Deciduous	45	36	medium	non-native		
Texas Red Oak	*Quercus buckeyi*	Tree, Deciduous	35	35	xeric-low	non-native	Yes	Yes
Gambel Oak	*Quercus gambelii*	Tree, Deciduous	20-25	10-12	xeric	native	Yes	
Lacey Oak	*Quercus glaucoides*	Tree, Deciduous	30	25	xeric	non-native		
Bur Oak	*Quercus macrocarpa*	Tree, Deciduous	60-80	60-80	xeric	non-native	Yes	Yes
Northern Red Oak	*Quercus rubra*	Tree, Deciduous	50-75	50-75	medium	non-native		
Wavey Leaf Oak	*Quercus undulata*	Tree, Deciduous	20	15	xeric	native	Yes	
Colorado Foothills Oak	*Quercus x maxei*	Tree, Deciduous	35	30	xeric	native	Yes	
Sawtooth Oak	*Quercus accutissima*	Tree, Deciduous	50	50	medium	non-native		
Chinkapin Oak	*Quercus muehlenbergii*	Tree, Deciduous	45	50	low	non-native	Yes	Yes
Alba Meidiland Rose	*Rosa hybrida 'Alba Meidiland'*	Shrub, Deciduous	3-4	4-6	medium	non-native		
Rose of Sharon	*Hibiscus syriacus*	Shrub, Deciduous	1-8	1-10	medium-high	non-native		
Black-eyed Susan	*Rudbeckia hirta*	Perennial	2-3	1-2	medium	native		
New Mexico Locust	*Robinia neomexicana*	Tree, Deciduous	12-36	12-36	xeric	native		
Japanese Pagodatree	*Styphnolobium japonica*	Tree, Deciduous	50	40	xeric-low	non-native	Yes	Yes
Peking Tree Lilac	*Syringa pekinensis*	Tree, Deciduous	15	12	xeric-low	non-native	Yes	
Silver Buffaloberry	*Shepherdia argentea*	Shrub, Deciduous	8-12	8-12	medium	native		
Japanese Tree Lilac	*Syringa reticulata*	Tree, Deciduous	25	20	xeric-low	non-native	Yes	
Snowmound Spiraea	*Spiraea nipponica var. tosaensis*	Shrub, Deciduous	3-4	3-4	medium	non-native		
Hybrid Elm	*Ulmus spp.*	Tree, Deciduous	30-60	20-40	xeric-low	non-native	Yes	Yes
Japanese Zelkova	*Zelkova serrata*	Tree, Deciduous	50-80	50-80	xeric-low	non-native	Yes	Yes
Manchurian lilac	*Syringa pubescens subsp. Patula*	Shrub, Deciduous	4-9	5-7	medium	non-native		
Arizona Cypress	*Cupressus arizonica*	Tree, Evergreen	30-40	15-25	xeric	non-native	Yes	
Utah Juniper	*Juniperus osteosperma*	Tree, Evergreen	20	10	xeric	native	Yes	
Cologreen Juniper	*Juniperus scopulorum 'Cologreen'*	Tree, Evergreen	15-20	5-7	xeric	native	Yes	
American Linden	*Tilia americana*	Tree, Deciduous	50-80	30-50	medium	non-native		
Littleleaf Linden	*Tilia cordata*	Tree, Deciduous	50-80	35-50	medium	non-native		
Silver Linden	*Tilia tomentosa*	Tree, Deciduous	45	30	medium	non-native		
Gray Gleam Juniper	*Juniperus scopulorum 'Gray Gleam'*	Tree, Evergreen	10-15	4-6	xeric	native	Yes	
Arrowwood	*Viburnum carlesii*	Shrub, Deciduous	4-6	4-7	medium	non-native		
Skyrocket Juniper	*Juniperus scopulorum 'Skyrocket'*	Tree, Evergreen	15-20	4-6	xeric	native	Yes	
Wichita Blue Juniper	*Juniperus scopulorum 'Wichita Blue'*	Tree, Evergreen	18-23	4-8	xeric	native	Yes	
Piñon Pine	*Pinus edulis*	Tree, Evergreen	18-25	12	low	native	Yes	
Bosnian Pine	*Pinus heldreichii*	Tree, Evergreen	30-40	20-30	low	non-native	Yes	
Austrian pine	*Pinus nigra*	Tree, Evergreen	40-60	30-40	low	non-native	Yes	

Prohibited Plants List

Common	Technical	Notes
Siberian Elm	*Ulmus pumila*	Existing mature elms may be of value for preservation
Russian Olive	*Elaeagnus angustifolia*	
Ash	*Fraxinus spp.*	Exception of Single leaf ash; Fraxinus anomala
Black Walnut	*Juglans nigra*	Threat of thousand canker disease
Leafy Spurge	*Euphorbia esula*	
Tree of Heaven	*Ailanthus altissima*	
Ravenna Grass	*Saccharum ravennae*	
Absinth wormwood	*Artemisia absinthium*	
Bull Thistle	*Cirsium vulgare*	
Canada Thistle	*Cirsium arvense*	
Chinese Clematis	*Clematis orientalis*	
Common Tansy	*Tanacetum vulgare*	
Giant Reed	*Arundo donax*	
Houndstongue	*Cynoglossum officinale*	
Japanese Knotweed	*Polygonum Cuspidatum*	
Knapweed spp.	*Centaurea spp.*	
Musk Thistle	*Carduus nutans*	
Myrtle Spurge	*Euphorbia myrsinites*	
Cypress Spurge	*Euphorbia cyparissias*	
Oxeye Daisy	*Chrysanthemum leucanthemum*	
Perennial Pepperweed	*Lepidium latifolium*	
Plumeless Thistle	*Carduus acanthoides*	
Purple Loosestrife	*Lythrum salicaria*	
Scentless chamomile	*Matricaria perforate*	
Scotch Thistle	*Onopordum acanthium*	
Sulfur Cinquefoil	*Potentilla recta*	
Syrian Bean Caper	*Zygophyllum fabago*	
Tamarisk	*Tamarisk parviflora & Tamarisk ramosissima*	
Toadflax	*Linaria spp.*	
Hoary Cress	*Cardaria draba*	
Yellow Starthistle	*Centaurea solstitialis*	

CITY OF Grand Junction COLORADO PARKS & RECREATION

Approved Street Trees for Grand Junction's Rights-of-Way (ROW)

Trees within this list are those which, given proper and consistent maintenance including supplemental irrigation, proper pruning, and avoidance of chemical contaminants, will be assets to Grand Junction's public ROW's. **While this list is a good guide for private property planting**, there are additional quality tree species not included as their growth habit conflicts with the space near the edge of a street (conifers, weeping trees, etc.).

Moisture requirements are based on observed species averages following root establishment. All trees require some level of supplemental water for root establishment.

Per Grand Junction's Forestry Board, the following species are no longer permitted to be planted as street trees (invasive, poor performance, threatened by pests, weak-wooded, etc.):

- Any of the poplar (*Populus*) species including cottonwoods
- Aspen (*Populus tremuloides*)
- Any of the willow (*Salix*) species
- Siberian elm (*Ulmus pumila*)
- Weeping and pendulous trees
- Ash (*Fraxinus*) species
- Silver maple (*Acer saccharinum*)
- Autumn Blaze / Freeman maple (*Acer x freemannii*)
- Sunburst honeylocust (*Gleditsia triacanthos inermis* 'Sunburst')
- Russian-olive (*Elaeagnus angustifolia*)
- Tree-of-heaven (*Ailanthus altissima*)

This list may act as a guide for private property trees. Trees not included on the approved street tree list may not be planted in the public right-of-way (as a street tree) without express permission from the Grand Junction City Forester. If a tree is excluded, it may be permitted on a case-by-case basis. Contact the Office of the City Forester (970-254-3861 / forestry@gjcity.org) for details, site inspections, and planting permits.

Per Grand Junction municipal code (§8.32.080), the adjoining property owner is responsible for providing water to street trees, and the City of Grand Junction provides standard maintenance services (pruning and removal) for street trees.

A free permit is required from the Office of the City Forester for tree planting and removal of any trees in the public right-of-way.

Minimum Spacing Requirements

- 35' between shade trees
- 25' between ornamental trees
- 30' from curb at intersections
- 20' from streetlights
- 10' from alleys, driveways & fire hydrants
- 7' from attached sidewalks
- 5' from water meters

Shading indicates species suitable for planting under overhead utilities. These varieties should only be planted in situations where overhead growth restrictions exist.

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SMALLER TREES FOR UNDER POWERLINES — Updated March 2021

Family	*Botanical Name*	Acceptable Cultivar	Common Name	Hardiness Zone	Moisture Level	Soil Salt Tolerance	Height @ Maturity	Canopy Spread @ Maturity	Canopy Area @ Maturity	Growth Form/Shape	Flowers	Fruits	Leaf Color Spring	Leaf Color Fall	Additional Notes (includes compaction/tolerances/restrictions)
Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Aceraceae	*Acer campestre*		Hedge Maple	5	Min	Tolerant	30	30	707	Oval to rounded, dense	Small green-yellow in spring, insignificant	Green samaras	Dark green	Yellow	Tolerates dry soil. Intolerant of soil compaction. Prune to develop strong branching structure and overhead clearance.
Aceraceae	*Acer campestre*	Panacek	Metro Gold Hedge Maple	5b	Min	Tolerant	30	15	177	Upright to narrow oval	Small green-yellow in spring, insignificant	Green samaras	Dark green	Yellow	Upright, narrow form. Tolerates dry soil. Intolerant of soil compaction. Prune to develop strong branching structure and overhead clearance.
Aceraceae	*Acer campestre*	JFS Shichtel2	Streetside Maple	5	Min	Tolerant	32	15	177	Upright to narrow oval	Small green-yellow in spring, insignificant	Green samaras	Dark green	Yellow	Upright, narrow form. Tolerates dry soil. Intolerant of soil compaction. Prune to develop strong branching structure and overhead clearance. Availability may be limited.
Aceraceae	*Acer glabrum*		Rocky Mountain Maple	5	Min to Mod	Sensitive	20	13	133	Oval	Small green-yellow in spring, insignificant	Green samaras	Green	Yellow-orange-red	Plant in protected site - heat tolerance may be a concern. Prune to develop strong branching structure and overhead clearance. Depending on root stock, may have issues with higher pH soils.
Aceraceae	*Acer grandidentatum*	Schmidt	Rocky Mountain Glow	4	Xeric	Sensitive	20	13	133	Oval	Small green-yellow in spring, insignificant	Green samaras	Green	Yellow-orange-red	Faster growing than species. Intolerant of soil compaction. Prune to develop strong branching structure and overhead clearance.
Aceraceae	*Acer grandidentatum*		Bigtooth Maple	4	Xeric	Sensitive	25	25	491	Rounded to broad spreading	Small green-yellow in spring, insignificant	Green samaras	Green	Orange-red	Also known as Wasatch maple. Slow growing. Tolerant of alkaline soils. Typically multistem. Prune to develop central leader, strong branching structure and overhead clearance.
Aceraceae	*Acer grandidentatum*	JFS-NuMex 3 P.A.F.	Mesa Glow Bigtooth Maple	4	Xeric	Sensitive	25	15	177	Upright oval	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red to red	Upright form of parent species. Slow growing. Tolerant of alkaline soils. NM State introduction - Availability may be limited. Prune to develop central leader, strong branching structure and overhead clearance.
Aceraceae	*Acer grandidentatum x saccharum*	Hipzam	Highland Park Maple	4	Min	Sensitive	35	22	380	Narrow upright to pyramidal	Small green-yellow in spring, insignificant	Green samaras	Dark green	Red	Faster growing & more upright than bigtooth maple. More heat & drought resistant than sugar maple. Prune to develop overhead clearance.
Aceraceae	*Acer grandidentatum x saccharum*	Orbit	Canyon Treasure Bigtooth Maple	4	Min	Sensitive	35	22	380	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Red	Very cold hardy. NDSU introduced - Availability may be limited. Prune to develop overhead clearance.
Aceraceae	*Acer griseum*		Paperbark maple	4	Mod	Intermediate	25	20	314	Oval to vase	Small green in spring, insignificant	Brown samaras	Dark green	Yellow-orange-red	Very slow growing. Attractive, exfoliating bark. Tolerant of slightly alkaline soils. Intolerant of extended drought. Not recommended for planting in or near hardscape. Availability may be limited. Prune to develop single stem form and overhead clearance.
Aceraceae	*Acer griseum*	JFS KW8AGRI	Fireburst Paperbark Maple	5	Mod	Intermediate	22	15	177	Upright oval	Small green in spring, insignificant	Brown samaras	Dark green	Brilliant red	Faster growing variety of parent species. Attractive, exfoliating bark. Tolerant of slightly alkaline soils. Intolerant of extended drought. Not recommended for planting in or near hardscape. Availability may be limited. Improved branch structure over parent species. Prune to develop single stem form and overhead clearance.
Aceraceae	*Acer miyabei*	Morton	State Street Maple	4	Mod	Intermediate	45	35	962	Upright pyramidal to rounded	Small green-yellow in spring, insignificant	Green samaras	Green	Yellow-orange	Cold hardy & drought tolerant, chlorosis resistant; pest free.
Aceraceae	*Acer miyabei*	JFS-KW3AMI	Rugged Ridge Maple	4	Mod	Intermediate	50	35	962	Upright oval	Small green-yellow in spring, insignificant	Green samaras	Dark green	Yellow	Cold hardy & drought tolerant; chlorosis resistant; pest free; touted as most vigorous miyabe maple.
Aceraceae	*Acer negundo 'Sensation'*	Sensation	Sensation boxelder	3	Moderate	Tolerant	45	35	962	Rounded		Seedless male clone	Coppery-red	Red	A colorful and unique selection of the rugged North American native species. Spring leaves start red and turn green as the develop. Seedless male clone makes the tree less attractive to box elder bugs.
Aceraceae	*Acer nigrum*		Black Maple	4	Mod	Sensitive	60	40	1257	Upright oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Yellow-orange-red	More drought & heat tolerant than sugar maple. Intolerant of poorly drained soils. Availability may be limited.

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Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Aceraceae	*Acer nigrum*	Greencolumn	Greencolumn Maple	4	Min to Mod	Unknown	45	15	177	Narrow upright	Small green-yellow in spring, insignificant	Green samaras	Light green	Yellow-orange	Good heat and drought tolerance. May suffer some scorch in exposed sites.
Aceraceae	*Acer platanoides*		Norway Maple	See comments regarding Norway maple											Tree is susceptible to sunscald, leaf scorch, frost cracks, and chlorosis. Does not tolerate planting in exposed sites or hardscape. Tree should only be planted in large areas with organic surface treatments.
Aceraceae	*Acer pseudoplatanus*		Sycamore Maple	4	Mod	Tolerant	35	25	491	Upright spreading to rounded	Small green-yellow in spring, insignificant	Green samaras, turning red	Dark green	Yellow	Soil adaptable and salt tolerant. Intolerant of heavy clay soils. Plant in large tree lawn.
Aceraceae	*Acer pseudosieboldianum*	KorDak	Northern Spotlight Korean Maple	4	Mod	Unknown	15	20	314	Upright to broad spreading	Off-white in spring, insignificant	Brown-purple samaras	Green	Orange-deep red	Cold hardy cross between Korean & Japanese maple. Leaves resistant to scorch, persist through winter. Thin bark may be easily damaged. NDSU introduced - Availability may be limited.
Aceraceae	*Acer pseudosieboldianum x palmatum*	Hasselkus	Northern Glow Maple	4	Mod	Unknown	15	20	314	Upright to broad spreading	Off-white in spring, insignificant	Brown-purple samaras	Green	Orange-deep red	Cold hardy cross between Korean & Japanese maple. Leaves resistant to scorch. Thin bark may be easily damaged. NDSU introduced - Availability may be limited.
Aceraceae	*Acer rubrum*	Minnkota	Fall Grandeur Red Maple	3	Insufficient Data at this time - If tree can be obtained, Forestry is open to permitting planting on trial basis								Green	Red	Alkaline soil tolerant variety. NDSU introduced - Availability may be limited.
Aceraceae	*Acer saccharum*	John Pair	John Pair Caddo Maple	5	Min to Mod	Unknown	27	27	573	Rounded, symmetrical	Small green-yellow in spring, insignificant	Green samaras	Glossy green	Red	Heat, drought, and alkaline soil tolerant cultivar.
Aceraceae	*Acer saccharum*	Autumn Splendor	Autumn Splendor Caddo Maple	5	Min to Mod	Unknown	40	35	962	Broad oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Glossy green	Orange-red	Heat, drought, and alkaline soil tolerant cultivar.
Aceraceae	*Acer saccharum*	JFS-Caddo2	Flashfire Caddo Maple	4	Min to Mod	Unknown	40	35	962	Broad oval	Small green-yellow in spring, insignificant	Green samaras	Dark green	Bright red	Heat, drought, and alkaline soil tolerant cultivar. Brilliant, early fall color. Hardiest of Caddo maples.
Aceraceae	*Acer saccharum*	JFS-Caddo3	Oregon Trail Maple	5		Unknown	45	40	1257	Broadly oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange red-red	Drought & heat resistant; strong branch structure resists ice damage.
Aceraceae	*Acer saccharum*	Sisseton	Northern Flare Sugar Maple	3	Mod	Unknown	40	35	962	Oval	Small green-yellow in spring, insignificant	Green samaras	Green	Orange-red	Slow-growing, cold hardy cultivar. Tolerant of alkaline soils, but intolerant of compaction. NDSU introduced - Availability may be limited.
Aceraceae	*Acer saccharum*	Collins Caddo	Collins Caddo Maple	5	Insufficient Data at this time - If tree can be obtained, Forestry is open to permitting planting on trial basis										
Aceraceae	*Acer saccharum*	Green Mountain	Green Mountain Sugar Maple	3	Mod	Sensitive	45	35	962	Upright to broad oval	Small green-yellow in spring, insignificant	Green samaras	Dark green	Yellow-red-orange	Good scorch resistance. Leaves are tatter resistant. More drought tolerant than parent species.
Aceraceae	*Acer saccharum*	Legacy	Legacy Sugar Maple	4	Mod	Sensitive	45	30	707	Symmetrical oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Reddish orange-red	Good scorch resistance. Leaves are tatter resistant. More drought tolerant than parent species.
Aceraceae	*Acer tataricum*	JFS-KW2	Rugged Charm Tatarian Maple	3	Xeric	Intermediate to Tolerant	24	13	133	Upright oval, compact	White clusters in spring	Red samaras	Green	Yellow-orange-red	Form more narrow and symmetrical than parent species and Hot Wings. Rarely suckers. Showy, heavy seed crop.
Aceraceae	*Acer tataricum*	Gar-Ann	Hot Wings Tatarian Maple	3	Xeric	Intermediate to Tolerant	20	20	314	Rounded, spreading	White clusters in spring	Bright red samaras	Green	Yellow-red	Broadly spreading cultivar. Rarely suckers. Showy, heavy seed crop. Prune to develop strong branching structure.

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Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Aceraceae	*Acer tataricum*	Patdell	Pattern Perfect Tatarian Maple	3	Min	Intermediate to Tolerant	23	18	254	Upright oval	White clusters in spring	Red Samaras	Green	Yellow-orange-red	Oval form more narrow than parent species and Hot Wings. Rarely suckers. Showy, heavy seed crop. Faster growing than other cultivars of species.
Aceraceae	*Acer triflorum*		Three Flower Maple	4	Mod	Intermediate	15	20	314	Rounded	Green in spring, insignificant	Green samaras	Light green	Bright orange	Slow growing. Intolerant of drought and alkaline soil. Shallow root system. Availability may be limited - Obtain from northern seed sources. Unproven in the Grand Valley.
Aceraceae	*Acer truncatum x platanoides*	JFS-KW249	Ruby Sunset Maple	4b	Min	Unknown	22	17	227	Broad oval to rounded	Unknown	Green samaras	Glossy dark green	Deep red	Availability may be limited. Unproven in the Grand Valley.
Aceraceae	*Acer truncatum x platanoides*	JFS-KW187	Urban Sunset Maple	4b	Min	Unknown	35	20	314	Narrow pyramidal to upright oval	Yellow flowers in spring, very short bloom time	Green samaras	Glossy dark green	Red	Minimal pruning is required. Produces few seeds.
Aceraceae	*Acer truncatum x platanoides*	JFS-KW202	Crimson Sunset Maple	4	Min	Unknown	30	20	314	Upright oval	Yellow flowers in spring, very short bloom time	Green samaras	Deep purple	Reddish-bronze	More heat and drought tolerant than parent species. Thin bark may be easily damaged. Prune for street use to maintain shape and structure.
Aceraceae	*Acer truncatum x platanoides*	Keithsform	Norwegian Sunset Maple	4b	Min	Unknown	30	20	314	Upright oval	Yellow flowers in spring, very short bloom time	Green samaras	Dark green	Yellow-orange-red	More heat and drought tolerant than parent species. Japanese beetle resistant. Thin bark may be easily damaged. Prune for street use to maintain shape and structure.
Aceraceae	*Acer truncatum x platanoides*	Warrenred	Pacific Sunset Maple	4b	Min	Unknown	27	20	314	Upright spreading to rounded	Yellow flowers in spring, very short bloom time	Green samaras	Dark green	Yellow-orange-red	More heat and drought tolerant than parent species. Japanese beetle resistant. Thin bark may be easily damaged. Prune for street use to maintain shape and structure.
Hippocastanaceae	*Aesculus flava*		Yellow Buckeye	4	Mod	Intermediate	60	30	707	Upright oval to slightly spreading	Yellow-green flowers in spring, showy	Smooth, Pear-shaped capsule & nut	Dark green	Pumpkin-yellow	Greater leaf blotch resistance and less leaf drop than other Aesculus species. Leaf scorch may be an issue in windy, exposed sites.
Hippocastanaceae	*Aesculus glabra*		Ohio Buckeye	4	Mod	Intermediate	35	35	962	Rounded to oval, low branching	Yellow-green flowers in spring, showy	Spiny, oval-shaped capsule & nut	Bright green	Pumpkin-yellow	Intolerant of excess heat and drought. Powdery mildew, leaf scorch, and leaf drop may be issues. Prune to develop overhead clearance.
Hippocastanaceae	*Aesculus hippocastanum*		Common Horsechestnut	4	Mod	Intermediate	60	40	1257	Dense oval	White flowers in spring, showy	Spiny, round-shaped capsule & nut	Dark green	Yellow	Tolerant of restricted growing areas. Intolerant of excess heat and drought. Powdery mildew, leaf scorch, and leaf drop may be issues. May be subject to storm breakage; avoid planting in high wind areas.
Hippocastanaceae	*Aesculus hippocastanum*	Baumannii	Baumann Horsechestnut	4	Mod	Intermediate	45	36	1018	Broad oval	Double white flowers w/ red & yellow tints in spring, showy	Fruitless	Dark green	Yellow	Recommended over standard horsechestnut. Tolerant of restricted growing areas. Intolerant of excess heat and drought. Powdery mildew, leaf scorch, and leaf drop may be issues. May be subject to storm breakage; avoid planting in high wind areas.
Hippocastanaceae	*Aesculus x arnoldiana*	Autumn Splendor	Autumn Splendor Buckeye	4	Mod	Intermediate	30	25	491	Rounded, low branching	Off-white flowers in spring, showy	Spiny, oval-shaped capsule & nut	Dark green	Red-orange-purple	Resistant to leaf scorch. Intolerant of excess drought. Prune to develop overhead clearance.
Hippocastanaceae	*Aesculus x Bergeson*		Prairie Torch Buckeye	3	Mod	Intermediate	27	27	573	Slightly weeping, globose	Yellow-green in spring, showy	Spiny, round-shaped capsule & nut	Dark green	Orange-red	Excellent cold hardiness. Resistant to leaf scorch. Intolerant of drought.
Hippocastanaceae	*Aesculus x carnea*	Ft McNair	Ft McNair Horsechestnut	4	Mod	Intermediate	29	27	573	Rounded, low branching	Pink w/ yellow tints in spring, showy	Small, spiny, round-shaped capsule	Dark green	Yellow	More leaf blotch resistant than parent species and other cultivars. Leaf scorch in windy sites may be and issue. Less leaf drop than other Aesculus sp..
Hippocastanaceae	*Aesculus x carnea*	Briotii	Briotti Horsechestnut	4	Mod	Intermediate	27	32	804	Rounded, low branching	Bright red flowers in spring, showy	Nearly fruitless	Dark green	Yellow	Nearly fruitless cultivar. Intolerant of drought. Prefers moist, well-drained soil.
Hippocastanaceae	*Aesculus x 'Homestead'*		Homestead Buckeye	4	Mod	Intermediate	35	22	380	Broad oval to rounded, low branching	Yellow-red flowers in spring, showy	Spiny, oval-shaped capsule & nut	Dark green	Bright red-orange	Intolerant of excess heat and drought. Powdery mildew, leaf scorch, and leaf drop may be issues. Prune to develop overhead clearance.

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Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Rosaceae	*Amelanchier arborea*		Downy Serviceberry	4	Min to Mod	Intermediate	20	15	177	Rounded	White flowers in spring, showy	Small, purple-red fruit, edible	Dark green	Orange-red-yellow	Intolerant of pollution. Thin bark may be easily damaged. Prefers moist, well-drained soil.
Rosaceae	*Amelanchier canadensis**		Shadblow Serviceberry	3	Xeric	Intermediate to Tolerant	20	15	177	Rounded to upright vase, typically multistemmed	White flowers in spring, showy	Small, purple-red fruit, edible	Dark green	Orange-red-yellow	Thin bark may be easily damaged. Prune to develop single stem form.
Rosaceae	*Amelanchier laevis*		Allengheny Serviceberry	4	Min to Mod	Intermediate to Tolerant	22	13	133	Upright oval, irregular	White flowers in spring, showy	Small, black-purple fruit, edible	Blue-green	Red-orange-yellow	Tolerant of full shade and confined planting spaces. Thin bark may be easily damaged. Taller and more upright than other Amelanchier species. Good selection for single stem form.
Rosaceae	*Amelanchier laevis*	JFS-Arb PP 15304	Spring Flurry Serviceberry	4	Min to Mod	Intermediate to Tolerant	25	15	177	Upright oval vase	White flowers in spring, showy	Small, black-purple fruit, edible	Green	Red-orange-yellow	Tolerant of full shade and confined planting spaces. Thin bark may be easil;y damaged. Taller and more upright than other Amelanchier species. Dominant central leader with upward scaffold branches. Good selection for single stem form.
Rosaceae	*Amelanchier x grandiflora*	Autumn Brilliance, Princess Diana, Robin Hill	Apple Serviceberry	4	Xeric to Min	Intermediate to Tolerant	20	15	177	Upright to moderate spreading	White, light pink flowers in spring, showy (Robin Hill)	Small, purple-red fruit, edible	Dark green	Orange-red-yellow	Cold hardy. Thin bark may be easily damaged. Prune to develop single stem form. Robin Hill best cultivar for single stem form.
Annonaceae	*Asiminia triloba*		Pawpaw	5	Mod	Unknown	23	12	113	Upright to Rounded	Purple-maroon flowers in early spring	2"-4" elongated fruit, green maturing to brown, edible	Green	Yellow	Tolerant of full shade, medium-wet soils, and slightly alkaline pH.. Fruit results from multiple tree cross-pollination. Plant in areas where fruit is not problematic. Prune to develop strong branching structure. Availability may be limited. Unproven in the Grand Valley.
Betulaceae	*Carpinus betulus*	Frans Fontaine, Fastigiata	Columnar European Hornbeam	5	Mod	Sensitive	35	20	314	Upright, narrow	White flowers in spring, insignificant	Insignificant	Dark green	Yellow	Intolerant of excess & reflective heat, resulting in scorch and poor vigor. Plant in protected sites with large rooting space.
Betulaceae	*Carpinus caroliniana*		American Hornbeam	3	Mod	Sensitive	25	22	380	Columnar-oval to pyramidal, low branching	Orange-yellow catkins in early spring, insignificant	Insignificant	Green	Orange-red-yellow	Tolerant of periodic flooding. Intolerant of compacted soils. Prefers slightly acidic soils. May be difficult to transplant. Highly resistant to storm damage due to hard, dense wood. Availability may be limited.
Betulaceae	*Carpinus caroliniana*	Uxbridge	Rising Fire American Hornbeam	4	Mod	Sensitive	27	12	113	Upright, narrow	Orange-yellow catkins in early spring, insignificant	Insignificant	Green	Red-orange	Columnar form of parent species. Tolerant of periodic flooding. Intolerant of compacted soils. Prefers slightly acidic soils. May be difficult to transplant. Highly resistant to storm damage due to hard, dense wood. Availability may be limited.
Juglandaceae	*Carya glabra*		Pignut Hickory	5	Min to Mod	Sensitive	50	30	707	Dense oval	Yellow-green catkins in spring, insignificant	1" Nut	Green	Yellow-copper	May be difficult to transplant & establish due to taproot. Unproven in the Grand Valley.
Juglandaceae	*Carya illinoisensis*		Pecan	5	Mod	Sensitive	60	40	1257	Oval to spreading	Yellow catkins in spring, insignificant	1"-2" Edible nut	Green	Yellow	Northern seed source is critical. May be difficult to transplant & establish due to taproot. Large root system requires large tree lawn. Prune to develop strong branching structure when young.
Juglandaceae	*Carya ovata*		Shagbark Hickory	5	Mod	Intermediate	50	30	707	Oval	Yellow catkins in spring, insignificant	1" Nut	Deep yellow-green	Burnt yellow	May be difficult to transplant & establish due to taproot. Unproven in the Grand Valley.
Bignoniaceae	*Catalpa ovata*		Chinese Catalpa	4	Xeric to Min	Tolerant	25	25	491	Spreading	Yellow-white flowers in spring to summer; showy	Long, brown bean pod	Green	Yellow	Smaller than Catalpa speciosa. Heat, drought, and alkaline soil tolerant. Decay when wounded or as tree ages may be an issue. Availiability may be limited.
Bignoniaceae	*Catalpa speciosa*		Western Catalpa	5	Xeric to Min	Intermediate	50	35	962	Irregular pyramidal to rounded oval	Large, white flowers in spring to summer; showy	Long, brown bean pod	Green	Yellow	Heat, drought, and alkaline soil tolerant. Decay when wounded or as tree ages may be an issue.
Bignoniaceae	*Catalpa speciosa*	Hiawatha 2	Heartland Catalpa	5	Xeric to Min	Intermediate	45	23	415	Upright narrow oval	Large, white flowers in spring to summer; showy	Long, brown bean pod	Green	Yellow	Narrow, upright form of parent species. Uniform branching habit.

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Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Bignoniaceae	*Catalpa x erubescens*	Purpurea	Purple Catalpa	5	Xeric to Min	Intermediate	40	35	962	Rounded	Large, yellow-purple-spotted white flowers in spring to summer; showy	Long, brown bean pod	Purple	Yellow	Purple leaved cultivar of parent species.
Ulmaceae	*Celtis laevigata*	All Seasons, Magnifica	Sugar Hackberry	5	Xeric to Min	Tolerant	45	40	1257	Rounded vase to broad oval	Green in spring, insignificant	Small berry, insignificant	Dark green	Yellow	Varieties are more hardy than parent species. Magnifica has similar growth habit to elm & improved insect resistance.
Ulmaceae	*Celtis occidentalis*	Prairie Pride	Common Hackberry	3	Xeric to Min	Tolerant	45	35	962	Rounded vase	Green in spring, insignificant	Small berry, insignificant	Green	Yellow	Tolerant of urban growing conditions. Nipple gall may be an aesthetic issue. Intolerant of mechanical damage. Transplant in spring (B&B)
Ulmaceae	*Celtis occidentalis*	Chicagoland	Common Hackberry	3	Xeric to Min	Tolerant	45	35	962	Rounded vase, strong central leader	Green in spring, insignificant	Orange-red to deep purple berry	Green	Yellow	Tolerant of urban growing conditions. Nipple gall may be an aesthetic issue. Intolerant of mechanical damage. Transplant in spring (B&B)
Ulmaceae	*Celtis occidentalis*	JFS-KSU1	Prairie Sentinel Hackberry	4	Xeric to Min	Tolerant	45	12	113	Columnar	Green in spring,insignificant	Orange-red to deep purple berry	Green	Yellow	Columnar cultivar of parent species. Tolerant of urban growing conditions, including confined planting spaces. Nipple gall may be an aesthetic issue. Intolerant of mechanical damage. Transplant in spring (B&B)
Ulmaceae	*Celtis reticulata*		Netleaf Hackberry	3	Xeric to Min	Unknown	25	25	491	Rounded, spreading	Green in spring, insignificant	Small, orange-red berry	Green	Yellow	Slow growing. Nipple gall may be an aesthetic issue. Prune to develop strong branching structure and overhead clearance. Also known as western hackberry.
Cercidiphyllaceae	*Cercidiphyllum japonicum*		Katsuratree	5	Mod	Intermediate to Sensitive	35	35	962	Upright, pyramidal to rounded	Green in spring, insignificant	1/2"-1" elongated pod	Blue-green	Yellow-orange	Intolerant of soil compaction and confined planting spaces. Shallow surface roots; plant in a site with large rooting space.
Fabaceae	*Cercis canadensis*		Eastern Redbud	4	Min to Mod	Sensitive	25	30	707	Irregular, rounded vase	Lavendar/pink/ purple in spring (before leaves), showy	Small, brown pod 2-3" long	Green	Yellow	Tolerant of partial shade. Flowers emerge before leaves. Plant in protected area. Prune to develop strong branching structure and overhead clearance.
Fabaceae	*Cercis canadensis*	Forest Pansy	Forest Pansy Redbud	5	Min to Mod	Sensitive	15	20	314	Irregular, rounded vase	Magenta-rose in spring (before leaves), showy	Small, brown pod 2-3" long	Purple-bronze green	Yellow-orange	Tolerant of partial shade. Flowers emerge before leaves. Plant in protected area. Prune to develop strong branching structure.
Fabaceae	*Cercis canadensis*	Pink Trim	Northern Herald Redbud	4	Min to Mod	Sensitive	22	28	616	Spreading, rounded	Magenta-rose in spring (before leaves), showy	Small, brown pod 2-3" long	Burgundy to forest green	Yellow	Cold hardy variety of parent species. Tolerant of urban conditions. Prune to develop strong branching structure.and overhead clearance
Fabaceae	*Cercis canadensis*	JN2PP21451	Rising Sun Redbud	5	Min to Mod	Sensitive	13	18	254	Spreading, rounded	Magenta-rose in spring (before leaves), showy	Small, brown pod 2-3" long	Yellow w/ orange new growth	Yellow	Tolerant of partial shade. Flowers emerge before leaves. Plant in protected area. Prune to develop strong branching structure.
Bignoniaceae	*Chilopsis linearis*		Desert Willow		Very low	Unknown	20	20	314	Rounded and spreading	White, pink, purple, violet	Longer narrow seed pods	Green	Yellow	Exotic-looking blooms, rapid growth, drought tolerance, and ease of maintenance have made it a sought-after plant within its range, which in nature is from south-central Texas south to Nuevo Leon and Zacatecas in Mexico and west all the way to southern California and Baja California.
Oleaceae	*Chionanthus retusis*		Chinese Fringetree	5b	Mod	Sensitive	15	15	177	Broad oval	Large Green-white clusters in spring, fragrant	1/2"-1" Blue-purple fruit	Dark green	Yellow	Slow growing. Tolerant of urban conditions. Intolerant of drought. Species is not affected by emerald ash borer. Prune to develop strong branching structure and overhead clearance. Availability may be limited.
Oleaceae	*Chionanthus retusis*	Tokyo Tower	Tokyo Tower Fringetree	5b	Mod	Sensitive	15	8	50	Narrow upright vase	Large White clusters in spring, fragrant	1/2"-3/4" Blue-black fruit	Dark green	Yellow	Tolerant of confined planting spaces and urban conditions. Intolerant of drought. Species is not affected by emerald ash borer. Golden-tan exfoliating bark.
Oleaceae	*Chionanthus virginicus*		American Fringetree	4	Min to Mod	Sensitive	15	15	177	Spreading, oval	Green-white in spring, fragrant	1/2"-3/4" Blue-black fruit	Green	Yellow	Slow growing. Tolerant of urban conditions, including minor drought. Susceptible to emerald ash borer - increased risk of damage or death. Prune to develop strong branching structure and overhead clearance.

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Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Fabaceae	*Cladrastis kentukea*		American Yellowwood	4	Mod	Intermediate to Sensitive	35	35	962	Rounded to oval	Creamy white-yellow clusters in spring, showy, fragrant	2"-4" Elongated pod	Bright green	Yellow	Flowers are significant source of nectar for bees. Thin, smooth bark may be easily damaged. Prune to develop strong branching structure and overhead clearance.
Fabaceae	*Cladrastis kentukea*	Perkins Pink	Perkins Pink Yellowwood	5	Mod	Intermediate to Sensitive	40	45	1590	Rounded to oval	Pink clusters in spring, showy, fragrant	2"-4" Elongated pod	Yellow-green	Yellow	Flowers are significant source of nectar for bees. Thin, smooth bark may be easily damaged. Prune to develop strong branching structure and overhead clearance.
Cornaceae	*Cornus controversa*	June Snow	June Snow Dogwood	5	Mod	Unknown	25	35	962	Horizontally layered, spreading	White in early summer	1/4" Blue-black berry cluster	Dark green	Orange-red	Tolerant of partial shade, but prefers full sun. Tolerant of alkaline soils. Prune to develop overhead clearance. Availability may be limited. Unproven in the Grand Valley.
Cornaceae	*Cornus mas*	Many - Consult with Forestry	Corneliancherry Dogwood	5	Mod	Unknown	15	12	113	Rounded oval, commonly multistem	Yellow in early spring (before leaves)	Bright red fruit in mid-summer	Dark green	Purple-red	Flowers emerge before leaves. Highly resistant to storm damage due to hard, dense wood. Prune to develop strong branching structure and overhead clearance.
Betulaceae	*Corylus colurna*		Turkish Filbert	4	Xeric	Sensitive	40	25	491	Pyramidal	Catkins in spring, insignificant	Oval nut	Green	Yellow	Plant in sites with large rooting space (tree lawns 8' and wider). Tree is slow to establish. Prune to develop strong branching structure.
Anacardiaceae	*Cotinus obovatus*		American Smoketree	4	Min to Mod	Intermediate to Sensitive	18	13	133	Rounded to broad spreading	Small pink/purple on long stem in late spring, showy	Small purple-brown fruit	Light green	Orange-red-yellow	Blooming flowers create smoke-like effect. Single stem form may be difficult to locate. Prune to develop strong branching structure.
Rosaceae	*Crataegus ambigua*		Russian Hawthorn	4	Xeric	Sensitive	15	15	177	Rounded to spreading	White in spring, showy	1/2" Dark red-purple berry, persistant	Green	Yellow	Tolerant of urban conditions, including alkaline soil and drought. Thorns are sparse and branches may be essentially thornless.
Rosaceae	*Crataegus crus-galli*	Inermis	Thornless Cockspur Hawthorn	4	Xeric	Tolerant	20	20	314	Rounded to spreading	White in spring, showy	1/2" Dull red berry, persistant	Deep green	Orange-bronze	Thornless variety of parent species. Extensive fruit litter may be an issue. Prune to develop strong branching structure and overhead clearance.
Rosaceae	*Crataegus laevigata*	Crimson Cloud	Crimson Cloud Hawthorn	4	Xeric to Min	Sensitive	20	15	177	Upright, spreading oval	Bright red w/ white centers in spring, showy	Max 1/2" Glossy red berry	Glossy green	No fall color change	Nearly thornless cultivar. More disease resistant than parent species. Prune to develop strong branching structure and overhead clearance.
Rosaceae	*Crataegus laevigata*	Paulii	Paul's Scarlet Hawthorn	4	Xeric to Min	Sensitive	20	15	177	Spreading to oval	Deep pink double flowers in spring, showy	Small pink-red berry, sparse	Glossy green	No fall color change	Tree slightly more susceptible to fireblight than cockspur hawthorn. Leaf spot and cedar apple rust may be an issue.
Rosaceae	*Crataegus phaenopyrum*		Washington		Moderate		20	20	314.159265	Upright oval to spreadi	Double white in spring	3/8" Red berry	Glossy green	No fall color change	Drought tolerant. Snowbird is hardier cultivar than Toba. Fireblight may be an issue.
Rosaceae	*Crataegus submollis*		Northern Downy Hawthorn	4	Min to Mod	Unknown	20	20	314	Rounded to spreading	White in spring	3/4" Red-purple berry	Green	Yellow	Branches feature thorns up to 3" in length. Prune to develop strong branching structure. Also known as Quebec hawthorn. Availability may be limited. Unproven in the Grand Valley.
Rosaceae	*Crataegus viridis*	Winter King	Winter King Hawthorn	4	Min to Mod	Unknown	20	15	177	Upright to rounded	White in spring, showy	3/4" Bright red berry	Glossy dark green	Yellow	More disease resistant cultivar. Mostly spineless but occasional thorns up to 1.5" in length. Prune to develop strong branching structure. Also known as Green hawthorn.
Rosaceae	*Crataegus x mordensis*	Snowbird; Toba	Snowbird/Toba Hawthorn	3	Xeric to Min	Unknown	15	15	177	Upright oval to spreading	Double white in spring, fragrant	3/8" Red berry	Glossy green	No fall color change	Drought tolerant. Snowbird is hardier cultivar than Toba. Fireblight may be an issue.
Eucommiaceae	*Eucommia ulmoides*		Hardy Rubber-tree	5	Min	Intermediate	40	40	1257	Rounded	Brown in spring, insignificant	Fruitless	Dark green	Yellow	Prune to develop strong branching structure. Availability may be limited.
Eucommiaceae	*Eucommia ulmoides*	Empozam	Emerald Pointe Hardy Rubber-tree	5	Min	Intermediate	35	15	177	Upright, narrow	Brown in spring, insignificant	Fruitless	Dark green	Yellow	Availability may be limited.

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Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Fagaceae	*Fagus grandifolia*		American Beech	3	Mod	Sensitive	65	60	2827	Pyramidal to oval	Yellow-green in spring	1/2"-1" spiny capsule & nut	Dark green	Golden bronze	Slow growing. May be difficult to transplant. Tolerant of heavy shade. Intolerant of wet, poorly drained soils and drought. Large root system requires large tree lawn. Thin bark may be easily damaged. Prune to develop overhead clearance. Availability may be limited.
Fagaceae	*Fagus sylvatica*		Eurpoean Beech	4	Mod	Sensitive	50	40	1257	Pyramidal to oval	Yellow-green in spring	1/2"-1" spiny capsule & nut	Glossy dark green	Golden bronze	Slow growing. May be difficult to transplant. More tolerant of varying soil conditions than American beech. Intolerant of wet, poorly drained soils and extended drought. Prefers neutral to slightly acid soils. Large root system requires large tree lawn. Thin bark may be easily damaged. Prune to develop overhead clearance. Availability may be limited.
Fagaceae	*Fagus sylvatica*	Purpurea	Copper Beech	5	Mod	Sensitive	55	40	1257	Upright oval to rounded	Reddish in spring, insignificant	1/2"-1" spiny capsule & nut	Dark red to red-green	Red-orange	Slow growing. May be difficult to transplant. More tolerant of varying soil conditions than American beech. Intolerant of wet, poorly drained or compacted soils and extended drought. Prefers neutral to slightly acid soils. Large root system requires large tree lawn. Thin bark may be easily damaged. Prune to develop overhead clearance. Availability may be limited.
Fagaceae	*Fagus sylvatica*	Roseomarginata	Tricolor Beech	4	Mod	Sensitive	25	15	177	Oval	Yellow-green in spring	1/2"-1" spiny capsule & nut	Variegated purple, rose pink with cream margins	Light bronze	Slow growing. May be difficult to transplant. More tolerant of varying soil conditions than American beech. Intolerant of wet, poorly drained soils and extended drought. Thin bark may be easily damaged.
Ginkgoaceae	*Ginkgo biloba*	Autumn Gold	Autumn Gold Ginkgo	3	Mod	Intermediate	40	30	707	Broad pyramidal	Insignificant	Fruitless	Green	Golden yellow	Male (seedless) clone with slow growth rate.
Ginkgoaceae	*Ginkgo biloba*	JFS-UGA2	Golden Colonnade Ginkgo	4	Mod	Intermediate	40	20	314	Narrow oval	Insignificant	Fruitless	Green	Golden yellow	Male (seedless) clone with moderate growth rate.
Ginkgoaceae	*Ginkgo biloba*	Magyar	Magyar Gingko	4	Mod	Intermediate	45	20	314	Narrow to pyramidal	Insignificant	Fruitless	Green	Golden yellow	Male (seedless) clone with moderate growth rate (faster than Princeton Sentry).
Ginkgoaceae	*Ginkgo biloba*	The President	Presidential Gold Ginkgo	4	Mod	Intermediate	45	35	962	Broad pyramidal to oval	Insignificant	Fruitless	Green	Golden yellow	Male (seedless) clone with slow growth rate.
Ginkgoaceae	*Ginkgo biloba*	Princeton Sentry	Princeton Sentry Ginkgo	4	Mod	Intermediate	35	15	177	Narrow pyramidal	Insignificant	Fruitless	Green	Golden yellow	Male (seedless) clone with slow growth rate.
Ginkgoaceae	*Ginkgo biloba*	Shangri-la	Ginkgo	4	Mod	Intermediate	45	30	707		Insignificant	Fruitless			Male clone, fruitless. Slow grower
Fabaceae	*Gleditsia triacanthos inermis*	Imperial	Thornless Honeylocust	4	Xeric	Tolerant	35	35	962	Rounded	Insignificant	Fruitless	Green	Yellow	Thornless and fruitless cultivar. Genus overplanted in the Grand Valley.
Fabaceae	*Gleditsia triacanthos inermis*	Moraine	Moraine Honeylocust	4	Xeric	Tolerant	40	40	1257	Rounded	Insignificant	Fruitless	Dark green	Yellow	Thornless and fruitless cultivar. Genus overplanted in the Grand Valley.
Fabaceae	*Gleditsia triacanthos inermis*	Harve	Northern Acclaim Honeylocust	3b	Xeric	Tolerant	40	30	707	Broad pyramidal	Insignificant	Fruitless	Green	Yellow	Thornless and fruitless cultivar. Genus overplanted in the Grand Valley.
Fabaceae	*Gleditsia triacanthos inermis*	Shademaster	Shademaster Honeylocust	4	Xeric	Tolerant	40	30	707	Vase to rectangular	Insignificant	Fruitless	Green	Yellow	Thornless and fruitless cultivar. Central leader less present than Skyline. Genus overplanted in the Grand Valley.

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Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Fabaceae	*Gleditsia triacanthos inermis*	Skycole	Skyline Honeylocust	4	Xeric	Tolerant	40	30	707	Broad pyramidal	Insignificant	Fruitless	Green	Yellow	Thornless and fruitless cultivar. Tree features strong central leader. Form is more upright than Shademaster. Genus overplanted in the Grand Valley.
Fabaceae	*Gleditsia triacanthos inermis*	Draves PP21698	Street Keeper Honeylocust	4b	Xeric	Tolerant	40	15	177	Upright, narrow pyramidal	Insignificant	Fruitless	Dark green	Yellow	Columnar cultivar of parent species.Thornless and fruitless. Genus overplanted in the Grand Valley.
Fabaceae	*Gleditsia triacanthos inermis*	True Shade	True Shade Honeylocust	4	Xeric	Tolerant	40	30	707	Oval	Insignificant	Fruitless	Dark green	Yellow	Thornless and fruitless cultivar. Faster growth rate and better branch angles than other cultivars. Genus overplanted in the Grand Valley.
Fabaceae	*Gymnocladus dioicus*	Espresso	Kentucky Coffeetree	4	Xeric	Tolerant	60	40	1257	Spreading vase	Greenish-white clusters in late spring	Fruitless	Blue-green	Yellow	Male (fruitless) cultivar. Tolerant of urban growing conditions. No known insect or disease issues. Leaves, seeds, and pulp reported to be poisonous if ingested.
Fabaceae	*Gymnocladus dioicus*	JC McDaniel	Prairie Titan Coffeetree	4	Xeric to min	Tolerant	55	35	962	Upright, spreading	Greenish-white clusters in late spring	Fruitless	Blue-green	Yellow	Male (fruitless) cultivar. Tolerant of urban growing conditions. No known insect or disease issues. Leaves, seeds, and pulp reported to be poisonous if ingested.
Fabaceae	*Gymnocladus dioicus*	Stately Manor	Stately Manor Coffeetree	4	Xeric to Min	Tolerant	45	20	314	Narrow, upright	Greenish-white clusters in late spring	Fruitless	Blue-green	Yellow	Male (fruitless) cultivar. Tolerant of urban growing conditions. No known insect or disease issues. Leaves, seeds, and pulp reported to be poisonous if ingested.
Sapindaceae	*Koelreuteria paniculata*		Goldenraintree	5	Xeric	Intermediate	30	30	707	Open, rounded vase	Yellow in summer, very showy	Small, black fruit in brown seed pod, resembles small lantern	Green	Yellow	Volunteer seedlings could be an issue in mulched areas.
Sapindaceae	*Koelreuteria paniculata*	JFS-Sunleaf	Summer Burst Goldenraintree	5	Xeric	Intermediate	30	30	707	Open, rounded vase	Yellow in summer, very showy	Small fruit in brown seed pod w/ pink highlights, pod resembles small lantern	Dark green	Yellow	Cultivar more heat resistant than parent species. Volunteer seedlings could be an issue in mulched areas.
Altingiaceae	*Liquidambar styraciflua*		Sweetgum	5	Mod to Moist	Intermediate	60	40	1257	Pyramidal to rounded	Yellow-green in spring, insignificant	Spiny, round-shaped capsule & nut	Green	Red-orange-yellow	Shallow surface roots; plant in a site with large rooting space. Rotundiloba is a seedless cultivar. Fruit litter may be an issue for parent species and/or other cultivars.
Magnoliaceae	*Liriodendron tulipifera*		Tulip Tree	4	Mod to Moist	Sensitive	70	40	1257	Pyramidal to oval	Green-yellow in spring, showy	Insignificant	Green	Yellow	Large root system requires large tree lawn.
Magnoliaceae	*Liriodendron tulipifera*	JFS-Oz	Emerald City Tulip Tree	5	Mod to Moist	Sensitive	55	25	491	Upright oval	Green-yellow in spring, showy	Insignificant	Dark green	Yellow	Cold hardy cultivar. Form features strong, central leader and is more upright than parent species. Large root system requires large tree lawn. Unproven in the Grand Valley.
Fabaceae	*Maackia amurensis*		Amur Maackia	3	Xeric	Intermediate	25	18	254	Rounded vase	White in summer	Insignificant	Green	Yellow	Tolerant of urban conditions, including drought. Prune to develop strong branching structure and overhead clearance.
Fabaceae	*Maackia amurensis*	MaacNificent	MaacNificent Amur Maackia	3	Xeric	Intermediate	28	20	314	Upright vase	White in summer	Insignificant	Silvery green	Yellow	Tolerant of urban conditions, including drought. Branching more upright than species. Prune to develop strong branching structure and overhead clearance.
Fabaceae	*Maackia amurensis*	Summertime	Summertime Amur Maackia	3	Xeric	Intermediate	18	16	201	Upright to rounded	White in summer	Insignificant	Silvery green	Yellow	Small cultivar of parent species. Tree displays low branching habit (starting at 48" above ground). Plant where overhead clearance is not an issue.
Fabaceae	*Maackia amurensis*	Starburst	Starburst Amur Maackia	3	Xeric	Intermediate	27	18	254	Upright to rounded	White in summer	Insignificant	Silvery green	Yellow	Tree displays low branching habit (starting at 48" above ground). Plant where overhead clearance is not an issue.
Moraceae	*Maclura pomifera*	White Shield	White Shield Osage Orange	5	Xeric	Unknown	30	30	707	Upright spreading	Green in late spring, insignificant	Fruitless	Dark green	Yellow	Fruitless and thornless male cultivar. Tolerant of heat and drought. Highly resistant to storm damage due to hard, dense wood. Availability may be limited.

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Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Moraceae	*Maclura pomifera*	Wichita	Wichita Osage Orange	5	Xeric	Unknown	30	30	707	Upright spreading, rounded	Green in late spring, insignificant	Fruitless	Glossy dark green	Yellow	Fruitless and thornless male cultivar. Tolerant of wet soils, dry soils, heat, and drought. Highly resistant to storm damage due to hard, dense wood. Young trees may have few thorns but become thornless with age. Availability may be limited.
Magnoliaceae	*Magnolia*	NCMX1 P.A.F.	Mercury Magnolia	5	Mod	Unknown	23	12	113	Upright pyramidal	Large lavender pink flowers,very late blooming	Unknown	Dark green	Yellow	Upright pyramidal form with strong, central leader & branching structure. Flowers emerge much later than other magnolias, reducing susceptibility to frosts & freezes. NC State introduced - Availability may be limited. Unproven in the Grand Valley.
Magnoliaceae	*Magnolia acuminata*		Cucumbertree Magnolia	4	Mod	Intermediate	65	50	1963	Pyramidal to rounded	Yellow in spring, insignificant, fragrant	2"-3" red cucumber-shaped fruit, persistant	Dark green	Yellow-bronze	Fast growing species. Intolerant of compacted soils. Thin bark may be easily damaged. Large root system requires large tree lawn. Transplant in spring for best survivability. Availability may be limited.
Rosaceae	*Malus cv*	Check with Office of the City Forester for acceptable cultivars	Crabapple	4	Varies with Cultivar	Varies with Cultivar	Varies with Cultivar	Varies with Cultivar	-	No multi-stemmed or pendulous forms permitted	Varies with Cultivar	Varies with Cultivar	Varies with Cultivar	Yellow	Check with Office of the City Forester for guidance on cultivars.
Moraceae	*Morus alba*	fruitless cultivars	Fruitless mulberry	4	Min	Tolerant	40	40	1257	No pendulous forms permitted	Small yellowish-green in drooping catkins	Fruitless	Dark green	Yellow-bronze	Fast growing tree tolerant of urban conditions. Tree develops a wide / broad canopy. Tree can have
Betulaceae	*Ostrya virginiana*		American Hophornbeam	3	Min to Mod	Sensitive	30	30	707	Oval to rounded	Brown-green in summer, showy	1/4" Nut in hoplike sac, persistant	Dark green	Yellow	Tolerant of urban conditions. Tree is slow to establish, plant in early spring. Shallow root system. Prune to develop overhead clearance. Also known as ironwood.
Betulaceae	*Ostrya virginiana*	JFS-KW5	Autumn Treasure Hophornbeam	4	Min to Mod	Sensitive	35	17	227	Upright pyramidal to oval	Brown-green in summer, showy	1/4" Nut in hoplike sac, persistant	Dark green	Golden yellow	Upright, narrow form of parent species. Tolerant of urban conditions. Tree is slow to establish, plant in early spring. Shallow root system. Levaes do not persist through winter - Leaf drop is complete in fall. Availability may be limited. Unproven in the Grand Valley.
Betulaceae	*Ostrya virginiana*	Camdale	Sun Beam American Hophornbeam	3	Min to Mod	Sensitive	33	30	707	Oblong pyramidal to rounded	Brown-green in summer, showy	Nut in hoplike sac, persistant	Dark green	Yellow	Leaves may persist through winter. NDSU introduced - Availability may be limited.
Hamamelidaceae	*Parrotia persica*		Persian Ironwood	5	Min	Unknown	30	30	707	Upright oval to rounded	Red in spring	Insignificant	Red-purple to dark green	Orange-red-yellow	Few issues once established. Prune to develop overhead clearance. Availability may be limited.
Hamamelidaceae	*Parrotia persica*	JLColumnar P.A.F.	Persian Spire Parrotia	5	Min	Unknown	25	10	79	Columnar to Upright Oval	Red in spring	Insignificant	Red-purple to dark green	Orange-red-yellow	New introduction. Availability may be limited.
Hamamelidaceae	*Parrotia persica*	Vanessa	Vanessa Persian Spire Parrotia	5	Min	Unknown	25	12	113	Upright vase	Red in spring	Insignificant	Dark green	Orange-red-yellow	New introduction. Availability may be limited.
Rutaceae	*Phellodendron amurense*		Amur Corktree	3	Min to Mod	Intermediate	38	45	1590	Open, rounded to spreading	Green-white in spring, insignificant	Small, black berry-like fruit cluster, only on females.	Green	Yellow	Easy to transplant. Large, shallow root system requires large tree lawn. Use only male cultivars, as fruit from females can be messy. Naturalization & seeding may be an issue.
Rutaceae	*Phellodendron amurense*	His Majesty	His Majesty Amur Corktree	3	Min to Mod	Intermediate	30	25	491	Broad vase	Green-white in spring, insignificant	Generally Fruitless	Green	Yellow	Generally fruitless, but use only male cultivars. Large, shallow root system requires large tree lawn. Naturalization & seeding may be an issue.
Rutaceae	*Phellodendron amurense*	Longenecker	Eye Stopper Corktree	4	Min to Mod	Intermediate	30	25	491	Upright to rounded	Green-white in spring, insignificant	Generally Fruitless	Green	Yellow	Generally fruitless, but use only male cultivars. Large, shallow root system requires large tree lawn. Naturalization & seeding may be an issue.
Rutaceae	*Phellodendron amurense*	Macho	Macho Amur Corktree	4	Min to Mod	Intermediate	40	40	1257	Upright to rounded	Green-white in spring, insignificant	Fruitless	Green	Yellow	Male, seedless cultivar of parent species. Large, shallow root system requires large tree lawn.

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Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Anacardiaceae	*Pistacia chinensis*		Chinese Pistache	6	Min	Intermediate	35	20	314	Upright to rounded	Insignificant	1/4" red berry	Green	Yellow-orange	Good heat and drought tolerance. Foliage consists of compound dark green leaves. Trees are dioecious with sperate male and female parts.
Platanaceae	*Platanus occidentalis*		American Sycamore	4	Mod	Intermediate	75	60	2827	Pyramidal to rounded	Deep red in spring, insignificant	1" Round seed ball, persistant	Green	Yellow	Upper branches display showy bark. Large root system requires large tree lawn. Fruit litter may be an issue.
Platanaceae	*Platanus occidentalis*	Bismarck	Northern Advance American Sycamore	3	Mod	Intermediate	75	60	2827	Pyramidal to rounded	Insignificant	1" Round seed ball, persistant	Green	Yellow	Cold hardy cultivar of parent species. Large root system requires large tree lawn. NDSU introduced - Availability may be limited.
Platanaceae	*Platanus occidentalis*	Glabra	Texas Sycamore	Insufficient Data at this time - If tree can be obtained, Forestry is open to permitting planting on trial basis							Insignificant	1" Round seed ball, persistant	Green	Yellow	Alkaline soil tolerant cultivar. Faster growing than parent species. Anthracnose resistant. Large root system requires large tree lawn.
Platanaceae	*Platanus x acerifolia*	Bloodgood	Bloodgood London Planetree	5	Mod	Intermediate	40	35	962	Broad pyramidal	Insignificant	1" Round seed ball in cluster of 2-3, persistant	Green	Yellow	Upper branches display showy bark. Cultivar more resistant to anthracnose than parent species. Large root system requires large tree lawn.
Platanaceae	*Platanus x acerifolia*	Morton Circle	Exclamation London Planetree	5	Mod	Intermediate	50	30	707	Pyramidal	Insignificant	1" Round seed ball in cluster of 2-3, persistant	Green	Yellow	Upper branches display showy bark. Cultivar more resistant to anthracnose than parent species. Large root system requires large tree lawn.
Rosaceae	*Prunus sp.*	Check with Office of the City Forester for acceptable cultivars	Plum/Cherry	5	Varies with Cultivar	Varies with Cultivar	Varies with Cultivar	Varies with Cultivar	-	Varies with Cultivar	Varies with Cultivar	Varies with Cultivar	Varies with Cultivar	Varies with Cultivar	Check with Office of the City Forester for guidance on cultivars.
Rosaceae	*Prunus x virginiana*	P002s	Sucker Punch Chokecherry	2	Min to Mod	Intermediate	25	20	314	Rounded	White in spring, showy	1/4"-1/2" Dark purple berry	Green to deep purple	Purple-red	Non-suckering cultivar of parent species. Availability may be limited.
Rosaceae	*Prunus x virginiana*	Canada Red'	Canada Red	2	Moderate	Intermediate	25	20	314.159265	Rounded	White in spring, showy	1/4"-1/2" Dark purple berry	Green to deep purple	Purple-red	Non-suckering cultivar of parent species. Availability may be limited.
Rutaceae	*Ptelea trifoliata*		Common Hoptree	3	Xeric	Intermediate	15	15	177	Rounded to vase	White in summer, not showy but fragrant	3/4"-1" Round samara	Green	Yellow	Tolerant of urban conditions and full shade sites. Suckering may be an issue. Prune to develop strong branching structure.and overhead clearance.
Juglandaceae	*Pterocarya stenoptera*		Chinese Wingnut	6	Min to Mod	Unknown	60	60	2827	Rounded to vase	Light green catkins in spring, showy	3/4" Winged nut	Glossy dark green	Yellow-green	Suckering and cold hardiness may be an issue. Large root system requires large tree lawn. Prune to develop strong branching structure. Unproven in the Grand Valley.
Rosaceae	*Pyrus calleryana*	Aristocrat	Aristocrat Pear	4b	Min to Mod	Intermediate	30	22	380	Pyramidal	White in spring, showy	Less than 1/2" diameter fruit	Dark green	Deep red	Tolerant of urban conditions. Overplanting is a concern. Prune to develop strong branching structure.
Rosaceae	*Pyrus calleryana*	Autumn Blaze	Autumn Blaze Pear	4	Min to Mod	Intermediate	20	18	254	Rounded	White in spring, showy	Less than 1/2" diameter fruit	Emerges with red tint to glossy green	Bright red	Most cold hardy cultivar of parent species. Tolerant of urban conditions. Overplanting is a concern. Prune to develop strong branching structure
Rosaceae	*Pyrus calleryana*	Capital	Capital Pear	5	Min to Mod	Intermediate	30	10	79	Columnar	White in spring, showy	Less than 1/2" diameter fruit	Glossy green	Red-purple	Availability may be limited.
Rosaceae	*Pyrus calleryana*	Glen's Form	Chanticleer Pear	4	Min to Mod	Intermediate	30	15	177	Upright pyramidal	White in spring, showy	Less than 1/2" diameter fruit	Glossy green	Red	Greater fireblight resistance than other cultivars. Overplanting is a concern. Prune to develop strong branching structure
Rosaceae	*Pyrus calleryana*	Jaczam	Jack Pear	4	Min to Mod	Intermediate	12	8	50	Compact oval	White in spring, showy	Less than 1/2" diameter fruit	Dark green	Yellow	Dwarf cultivar of parent species.

Grand Junction Approved Street Tree List

SMALLER TREES FOR UNDER POWERLINES — Updated March 2021

Family	*Botanical Name*	Acceptable Cultivar	Common Name	Hardiness Zone	Moisture Level	Soil Salt Tolerance	Height @ Maturity	Canopy Spread @ Maturity	Canopy Area @ Maturity	Growth Form/Shape	Flowers	Fruits	Leaf Color Spring	Leaf Color Fall	Additional Notes (includes compaction/tolerances/restrictions)
Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Rosaceae	*Pyrus calleryana*	Cleveland Select	Cleveland Select	4	Min to Mod	Intermediate	12	8	50.2654825	Compact oval	White in spring, showy	Less than 1/2" diameter fruit	Dark green	Yellow	Dwarf cultivar of parent species.
Rosaceae	*Pyrus calleryana*	Redspire	Redspire	4	Min to Mod	Intermediate	12	8	50.2654825	Compact oval	White in spring, showy	Less than 1/2" diameter fruit	Dark green	Yellow	Dwarf cultivar of parent species.
Rosaceae	*Pyrus fauriei*	Westwood	Korean Sun Pear	4	Min to Mod	Intermediate	10	12	113	Compact round	White in spring, showy	Less than 1/2" diameter fruit	Green	Red-purple	Fast growing dwarf. Cultivar is more cold hardy than parent species.
Rosaceae	*Pyrus usseriensis*	Bailfrost	Mountain Frost Ussurian Pear	3b	Min to Mod	Intermediate	20	20	314	Narrow upright	White in spring, showy	1" diameter fruit	Dark green	Yellow-red	Greatest cold hardiness among pear species. Fireblight resistant. Fruiting is typically sparse.
Rosaceae	*Pyrus usseriensis*	MorDak	Prairie Gem Pear	3	Min to Mod	Intermediate	20	20	314	Rounded	White in spring, showy	1" diameter fruit	Dark green	Yellow	Greatest cold hardiness among pear species. Fireblight resistant. Fruiting may be abundant if planted adjacent to other pear cultivar(s).
Fagaceae	*Quercus accutissima*		Sawtooth Oak	5	Min to Mod		50	50	1963	Broad pyramidal to rounded	3"-4" catkins	1" Acorn	Dark green	Yellow-brown	Tolerant of heat & humidity. Chlorosis may be an issue. Availability may be limited. Unproven in the Grand Valley.
Fagaceae	*Quercus alba*		White Oak	3	Mod	Tolerant	60	60	2827	Oval to rounded	Insignificant	1/2"-1" Acorn	Green	Red	Relatively slow growing. May be intolerant of alkaline soils. Chlorosis may be an issue.
Fagaceae	*Quercus bicolor*		Swamp White Oak	4	Min to Mod	Intermediate	50	50	1963	Upright oval	Insignificant	1/2"-1" Acorn	Dark green	Copper-orange	Tolerant of urban conditions including periodic flooding, soil compaction, and drought. Depending on genetics, may be susceptible to bullet gall. Chlorosis may be an issue. Prune to develop central leader.
Fagaceae	*Quercus bicolor*	JFS-KW12 PP23632	American Dream Oak	4	Min to Mod	Intermediate	45	35	962	Broad pyramidal	Insignificant	1/2"-1" Acorn	Bright green	Yellow	Cultivar is faster growing than parent species. Tolerant of urban conditions including periodic flooding, soil compaction, and drought. Depending on genetics, may be susceptible to bullet gall. Chlorosis may be an issue. Prune to develop central leader.
Fagaceae	*Quercus bicolor*	Bonnie and Mike	Beacon Oak	4	Min to Mod	Intermediate	35	12	113	Narrow columnar	Insignificant	1/2"-1" Acorn	Glossy green	Yellow	Tolerant of urban conditions including periodic flooding, soil compaction, and drought. Depending on genetics, may be susceptible to bullet gall. Chlorosis may be an issue. Prune to develop central leader.
Fagaceae	*Quercus buckleyi*		Texas Red Oak	5b	Min	Tolerant	35	35	962	Broad rounded	Insignificant	1/2"-3/4" Acorn	Glossy green	Orange-red	Native of Texas is closely related to shumard oak. Tolerant of alkaline soils and drought. Check seed source for hardiness and soil tolerance.
Fagaceae	*Quercus gambelii*		Gambel Oak	5	Xeric	Intermediate	20	20	314	Irregular rounded	Insignificant	1/2"-3/4" Acorn	Dark green	Yellow-red-brown	Root suckers may be an issue. Prune to develop single stem form. Kermes scale is an increasing issue.
Fagaceae	*Quercus glaucoides*		Lacey Oak	6b	Xeric	Unknown	30	25	491	Irregular rounded	Insignificant	1/2"-3/4" Acorn	Pink turning to blue-green	Yellow-brown	Native of south-central Texas. Tolerant of heat, drought, and alkaline soils. Cold hardiness may be an issue. Prune to develop central leader. Unproven in the Grand Valley.
Fagaceae	*Quercus imbricaria*		Shingle Oak	5	Mod	Unknown	50	50	1963	Pyramidal to oval-rounded	Insignificant	1/2" Acorn	Green	Yellow-red	May be intolerant of alkaline soils. Transplant in spring for best survivability. Large root system requires large tree lawn. Chlorosis may be an issue.
Fagaceae	*Quercus macrocarpa*		Bur Oak	3	Xeric	Intermediate	70	60	2827	Rounded	Insignificant	1" Acorn	Dark green	Copper-yellow	Tolerant of urban conditions. Depending on genetics, may be susceptible to bullet gall. Large root system requires large tree lawn.
Fagaceae	*Quercus macrocarpa*	Bullet Proof	Bullet Proof Bur Oak	4	Xeric	Intermediate	70	60	2827	Rounded to upright	Insignificant	1" Acorn	Dark green	Copper-yellow	Tolerant of urban conditions. High resistance to bullet gall. Large root system requires large tree lawn.

Grand Junction Approved Street Tree List

	SMALLER TREES FOR UNDER POWERLINES								Updated March 2021						
Family	***Botanical Name***	**Acceptable Cultivar**	**Common Name**	**Hardiness Zone**	**Moisture Level**	**Soil Salt Tolerance**	**Height @ Maturity**	**Canopy Spread @ Maturity**	**Canopy Area @ Maturity**	**Growth Form/Shape**	**Flowers**	**Fruits**	**Leaf Color Spring**	**Leaf Color Fall**	**Additional Notes (includes compaction/tolerances/restrictions)**
Aceraceae	*Acer buergeranum*	Streetwise	Trident Maple	5	Min	Tolerant	30	30	707	Oval to rounded	Small green-yellow in spring, insignificant	Green samaras	Dark green	Orange-red	Slow growing. No pests or disease problems at this time. Snow & ice damage may be a concern.
Fagaceae	*Quercus macrocarpa*	JFS-KW14	Cobblestone Oak	3	Xeric	Intermediate	50	40	1257	Broad oval	Insignificant	1" Acorn	Dark green	Yellow	Bark displays more cork-like features than parent species.
Fagaceae	*Quercus macrocarpa*	JFS-KW3PP22815	Urban Pinnacle Oak	3	Xeric	Intermediate	50	20	314	Narrow pyramidal to oval	Insignificant	1/2" Acorn	Glossy dark green	Yellow	Tree features strong central leader.
Fagaceae	*Quercus muehlenbergii*		Chinkapin Oak	3	Mod	Intermediate	45	50	1963	Upright oval to rounded	Insignificant	1" Acorn	Yellow-green	Yellow	Tolerant of alkaline soils. Transplant in spring for best survival. Prune to develop central leader.
Fagaceae	*Quercus muehlenbergii*	Red Autumn	Red Autumn Chinkapin Oak	Insufficient Data at this time - If tree can be obtained, Forestry is open to permitting planting on trial basis							Insignificant	1" Acorn	Unknown	Unknown	Variety displays fall color than parent species.

CITY OF GRAND JUNCTION, COLORADO

ORDINANCE NO. XXXX

AN ORDINANCE AMENDING TITLE 21 OF THE GRAND JUNCTION MUNICIPAL CODE SECTION 21.06.040 LANDSCAPE, BUFFERING, AND SCREENING STANDARDS, SECTION 21.10.020 TERMS DEFINED, SECTION 21.03.030 MEASUREMENTS, SECTION 21.03.080 MIXED USE AND INDUSTRIAL BULK STANDARDS SUMMARY TABLE, AND SECTION 21.04.030 USE-SPECIFIC STANDARDS OF THE GRAND JUNCTION MUNICIPAL CODE

Recitals:

The City Council desires to maintain effective zoning and development regulations that implement the vision and goals of the Comprehensive Plan while being responsive to the community's desires and market conditions. Accordingly, the City works to review and amended the Code as necessary to achieve those objectives.

The proposed amendments modernize the code and reduce redundancy while modifying the regulation of landscaping applied to new development and the maintenance of landscaping for developments approved by the City of Grand Junction.

The proposed code revisions align with the adopted goals and strategies of the 2020 One Grand Junction Comprehensive Plan, which identifies the City's goals to support the efficient and reliable management of water resources; promote water conservation including through water efficient landscaping and irrigation; improve street tree plantings and urban forest health; improve ongoing maintenance of landscaping; establish criteria for the identification of significant trees and preservation thereof; and promote the planting of species appropriate to Grand Junction's climate.

After public notice and public hearing, the Grand Junction City Council finds that the Code amendments provided for in this ordinance are necessary to maintain effective regulations to implement the Comprehensive Plan

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GRAND JUNCTION THAT:

Title 21 of the Grand Junction Municipal Code (GJMC) shall be amended as follows (additions are underlined and deletions shown in):

21.10.020 Terms defined.

Approved Street Trees for Grand Junction's Rights-of-Way means the list of trees, shrubs, vines, and evergreens in public rights-of-way maintained by the Forestry Board (see Section 8.32.020).

Buffer/Buffering means an object or area with landscaping, including trees, shrubs, a wall, fence, berm, or any combination thereof that serves as a visual and auditory screen between properties.

Colorado Nursery Act means C.R.S. Title 35 Article 26 as amended.

Caliper means the diameter of the tree trunk measured 4.5 feet above the ground on the uphill side of the tree or 6 inches above the root ball at time of planting.

Canopy drip line means the area directly located under the outer circumference of the tree branches from which water drips onto the ground.

Evergreen tree means any tree having foliage that persists and remains green throughout the year.

Improved area means the developed portion of a property consisting of areas occupied by buildings, asphalt, concrete, gravel, or landscaped area. Where phased development is proposed, the improved area shall be identified and measured separately for each phase of development.

Lot coverage means that area of the lot or parcel which may be occupied by impervious surfaces.

Noxious or invasive species means non-native plants that have a recognized harmful impact on natural habitats and/or are likely to displace native plant species for light, space, soil moisture and nutrients, including those noxious species identified under the Colorado Noxious Weed Act codified at C.R.S. Title 35 Article 5.5, as amended.

Ornamental tree means a tree that has a height and spread between 15 feet and 30 feet at maturity.

Shade tree means a tree that has a height and/or spread of 30 feet or greater at maturity.

Suitable Plant List means a list maintained by the Director of plant species and genera approved to be installed in accordance with this code.

Root ball means the mass formed by the roots of a plant and the soil surrounding them at the time of planting.

Rootzone means the area of the ground around the base of the tree where rooting occurs, as measured from the trunk to a distance twice the radius of the canopy drip line.

Significant Tree means a tree not identified as a noxious or invasive species, nor as a member of the genus *Populus,* that has a diameter exceeding 15 caliper inches.

Tree canopy coverage means the area of ground directly beneath the leaves and branches of trees.

Waterwise means landscaping that minimizes water waste and improve maintenance outcomes by grouping plants based on similar watering requirements, selecting climate-appropriate plants, and designing irrigation for optimal efficiency.

Xeriscape or xeriscaping means landscape plantings that reduce the need for irrigation.

21.03.030 Measurements.

(e) Lot Coverage. Lot coverage is measured as the percentage of the total lot area covered by impervious surfaces. It is calculated by dividing the square footage of impervious surface by the square footage of the lot.

21.03.080 Mixed Use and Industrial Bulk Standards Summary Table

	R-O	B-1	B-2	C-1	C-2	CSR	M-U	BP	I-O	I-1	I-2
Lot											
Area (min. ft. unless otherwise specified)	5,000	10,000	None	20,000	20,000	1 ac	1 ac	1 ac	1 ac	1 ac	1 ac
Width	50	50	None	50	50	100	100	100	100	100	100
Frontage	None	None	None	None	None	None	None	None	None	None	None
Setback											
Principal structure											
Front (min. ft.)	20	20	0	15	15	15	15	15	15	15	15
Side (min. ft.)	5	0	0	0	0	0	0	0	0	0	0
Side – abutting residential (min. ft.)	0	10	0	10	10	10	10	10	10	10	10

Rear (min. ft.)	10	15	0	10	10	10	10	10	10	10	10
Accessory structure											
Front (min. ft.)	25	25	25	25	25	25	25	25	25	25	25
Side (min. ft.)	3	0	0	0	0	0	0	0	0	0	0
Side – abutting residential (min. ft.)	0	5	0	5	5	5	5	5	5	5	0
Rear (min. ft.)	5	15	0	10	10	10	10	10	10	10	10
Other Dimensional Requirements											
Lot coverage (max.)	70%	80%	100 %	80%	80%	75%	80%	80%	80%	90%	90%
Height (max. ft.)	40	40	80	65	65	65	65	65	65	50	50
Density (min. units per acre)	4	8	8	12	n/a	n/a	8	8	n/a	n/a	n/a
Density (max. units per acre)	None	16	None	24	None	None	24	24	None	None	None
** Gross floor area	10,000	15,000	None	None	None	None	None	None	None	None	None
Notes											
B-1: Max. gross floor area varies by use; retail – 15,000 sf (unless a CUP is approved), office 30,000											
B-2: Parking front setback for parking as a principal use – 30 ft., as an accessory use – 6 ft. **C-1:** Min. rear setback – 0 if an alley is present **CSR:** Maximum building height abutting residential – 40 ft. ** Gross floor area calculated for maximum size may exclude eaves, covered or uncovered porches, upper story decks and balconies, breezeways, exterior covered stairwells and attached decorative walls which are less than or equal to three feet in height.											

21.04.030 Use-Specific Standards

(g) Mini-Warehouse.

(1) Purpose. This subsection sets standards for the establishment of safe and attractive mini-warehouse developments. These standards apply to all mini-warehouses, including those that provide indoor and/or outdoor units.

(2) Accessory Uses. Accessory uses may include living quarters for a resident manager or security and leasing offices.

(3) Uses Prohibited.

(i) No owner, operator or lessee of any mini-warehouse or portion thereof shall offer for sale or sell any item of personal property, or conduct any type of commercial activity of any kind whatsoever, including such uses as sales, service and repair operations, manufacturing, or truck/equipment rentals, other than leasing of the units, or permit same to occur upon any area designated for the mini-warehouse use, except that estate or foreclosure sales held by the mini-warehouse owner or operator shall be allowed.

(ii) No outside storage shall be permitted except the storage of licensed vehicles within approved areas designated for such storage. This storage shall meet the requirements of GJMC 21.04.040.

(4) Landscaping and Screening. All mini-warehouses shall provide the following in addition to meeting standards of GJMC 21.06.040:

(i) One of the following shall be provided:

a. A 30-inch-high by 10-feet-wide landscaped berm between storage units and the abutting public right-of-way. The berm shall include trees that are planted every 30 feet; or

b. A four-foot screen wall between storage units and the abutting public right-of-way.

(5) Off-Street Parking and Driveways Standards.

(i) Drive aisles within outdoor mini-warehouse facilities shall be a minimum of 26 feet wide for single-load aisles and 30 feet for double-load aisles.

(ii) A minimum of two parking spaces shall be provided adjacent to the primary entry structure.

(6) Architectural and Site Design Standards. All mini-warehouses shall meet the following standards:

(i) Mini-warehouses that front public rights-of-way shall provide a primary entry structure at the entrance of the development that meets the following standards:

(A) No parking shall be placed between the building and the street.

(B) Windows or similar architectural features shall cover at least 30 percent of the street-facing facade.

(C) Building materials such as brick, stone, wood, architectural-grade metal, or similar exterior shall be used.

(D) Two of the following features shall be utilized in the design of the primary entry structure:

a. Tower feature.

b. Facade articulations on the street-facing facade.

c. Roofline articulations in the street-facing facade.

d. Decorative lighting on the street-facing facade. This lighting must comply with all standards found in GJMC 21.06.080.

(ii) Any street-facing facade of each storage unit must be covered with building materials such as brick, stone, wood, architectural-grade metal, or similar exterior.

(7) Signage. All mini-warehouses shall provide the following in addition to meeting standards of GJMC 21.06.070:

(i) Individual mini-warehouses shall be clearly marked with numbers or letters identifying the individual units and a directory of the unit locations shall be posted at the entrance or office of the facility.

(ii) Signs or other advertising shall not be placed upon, attached to, or painted on any walls or fences required for landscaping and buffering in the mini-warehouse development.

21.06.040 Landscape, buffering and screening standards.

(a) Purpose and Goals. The purpose of this section is to enhance the aesthetic appeal and sensitivity to context of new development, achieve efficient use of water resources, expand urban tree canopy, and contribute to a livable urban environment. Landscaping reduces heat and glare, shades parking surfaces, reduces local and ambient temperatures, buffers, and screens cars from adjacent properties, promotes natural percolation of surface waters, improves air quality, and conserves and enhances the value of property and neighborhoods within the City.

(b) Authority.

(1) The Director shall decide all questions of soils, plant selection and care, irrigation installation and other vegetation and landscaping questions, except for trees, shrubs, vines, and evergreens in the right-of-way. The City Forester shall decide all questions of plantings in the right-of-way.

(2) Variances to this section and appeals of administrative decisions (where this code gives the Director discretionary authority) shall be referred to the Planning Commission.

(c) General Landscape Standards.

(1) Compliance. All landscaping required by this code shall comply with the standards and requirements of this section. Landscaping for new developments shall occur in buffer areas, all interior parking areas, along the perimeter of the property, around new and existing structures, and along street frontages and within any right-of-way not used for infrastructure.

(2) Plant Quantities. The amount of landscaping is based on the improved area of proposed development.

(3) Landscaping Standards. All new development must install, maintain, and protect landscaping as required by this code.

(i) The landscaping requirements of this code shall not apply to a lot where the principal use is a single-family residence or duplex. Requirements for residential subdivisions shall continue to apply.

(ii) Landscaping in the abutting right-of-way is required in addition to overall site landscaping requirements and must be installed and maintained as required this Code.

(iii) Buffer landscaping is required in addition to overall site landscaping requirements as required by this Code.

(4) Acceptable Plant Material.

(i) Vegetation must be suitable for Grand Junction's climate and soils and shall be selected from the City of Grand Junction Suitable Plant List ("Plant List"), to be maintained by the Director. Applicants may petition the inclusion of plants not found on the Plant List and shall provide sufficient information about the proposed species to facilitate review. The Director may allow the use of any plant if sufficient information is provided to show its suitability for the proposed use. Noxious or invasive species are not allowed to be planted in development but may be preserved in development.

(A) The Director maintains the right not to approve a plant species that appears on the Plant List if the Director deems it inappropriate under the planting conditions proposed in a development.

(ii) Plant materials shall meet or exceed the plant quality and species standards of the current American Standard for Nursery Stock and be consistent with the Colorado Nursery Act.

(iii) All plants proposed for installation shall be selected, spaced, and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.

(5) Minimum Plant Sizes - All plants shall meet the following minimum plant sizes when installed.

(i) Shade tree, two caliper inches. If two caliper-inch shade trees are not available due to documented seasonal shortages or shortages in desired varieties, the Director may approve the installation of smaller trees, provided the proportional difference in caliper inches is compensated for by installing additional trees. However, a minimum caliper of one and one-half inches shall be required.

(ii) Ornamental tree, one-and-one-half caliper inches.

(iii) Evergreen tree, one-and-three-quarters caliper inches and six feet tall at time of planting.

(iv) Shrub, #5 container.

(v) Perennials and ground covers, #1 container.

(vi) Turf mix, native grasses and wildflower mix are the only vegetation that may be planted as seed or by plugs. Turf may be planted as sod rolls.

Minimum Plant Sizes	
Planting Type	**Size at Time of Planting**
Shade Tree	Two caliper inches
Ornamental Tree	One-and-one-half caliper inches
Evergreen Tree	One-and-three-quarters caliper inches and six feet tall
Shrub	#5 container
Perennial	#1 container
Groundcover	#1 container
Turf	As seed, by plug, or as sod roll

(6) Irrigation. All vegetation and landscaped areas must be provided with a permanent irrigation system.

(i) Non-potable irrigation water shall be used if it is available to the proposed development area unless the Director allows the use of potable water.

(ii) An underground pressurized irrigation system and/or drip system is required for all landscape areas.

(iii) If connected to a potable water system, all irrigation systems require State-approved backflow prevention devices.

(iv) All irrigation for non-potable irrigation water systems must have adequate filters easily accessible above ground or within an appropriately sized valve box.

(v) Native grasses must have a permanent irrigation source that is zoned separately from higher water demand landscapes. Once the grasses are established, irrigation to native grass areas can be reduced to a level that maintains coverage typical of the grass mix and to suppress weed growth.

(vi) Irrigation applied to trees shall be expanded or supplemented as appropriate to rootzone expansion over the life of the tree.

(7) Landscape Plans.

(i) All applications for development shall identify the required landscaped areas and include a landscape plan in accordance with the requirements with this section.

(ii) All landscaping shall be installed, maintained, and protected as shown on the approved plan.

(iii) All changes to the landscape plan require prior written approval from the Director.

(iv) An equivalent species may be substituted in the field with prior written approval of the Director. Plants are “equivalent” if they have the same growth habit and rate, same cover, leafing, shade characteristics and function, have similar water requirements as identified by the Plant List, and thrive in the same microclimate, soils and water conditions.

(v) All development plans shall designate required landscaping areas.

(vi) Landscape plans must identify the species and sizes of vegetation.

(vii) Landscape plans shall be stamped by a landscape architect licensed in the State of Colorado. Inspection and compliance with approved landscape plan must be certified by a licensed landscape architect prior to issuance of a certificate of occupancy.

(A) A licensed landscape architect is not required to produce landscape plans if the plans are submitted for a Minor Site Plan review unless required by State statute. All other requirements continue to apply to landscaping for Minor Site Plans.

(viii) All landscape plans shall include an irrigation plan. The irrigation plan shall comply with the standards in the SSID manual. See GJMC 21.06.010(c).

(ix) Utility composite plans must be submitted with landscape plans.

(x) Expansion of a developed site as defined in GJMC 21.02.100(f) that requires a Site Plan Review shall require a landscaping plan and correction of nonconforming landscaping as provided in GJMC 21.08.040.

(xi) Tree protection measures shall be clearly identified on the construction and landscape plans.

(xii) Wall and fence elevations and typical cross sections must be submitted with the landscape plan at a minimum scale of one-half inch equals one foot.

(8) Preservation of Significant Trees

(i) Existing landscape features such as escarpments, large or mature trees or stands, heavy vegetative cover, ponds and bluffs shall be identified by the applicant as part of the development review process. This identification shall include a written inventory of significant trees to be produced with a landscaping plan. Any significant tree as defined in subsection (c) below shall be identified on the proposed landscaping plan.

(ii) All trees not identified as noxious or invasive species, nor as a member of the genus *Populus,* that have a diameter exceeding 15 caliper inches shall be considered significant trees.

(iii) Where significant trees exist on a property, no fewer than 30 percent of significant trees shall be preserved during development. Significant trees that are removed shall be replaced at a rate of one caliper inch of tree per two caliper inches of the significant tree to be removed, in addition to new tree plantings otherwise required by this Code. See GJMC 21.06.040(i)(6) for credit applied to preserved trees.

(iv) Significant trees to be preserved shall be visibly healthy and free from disease or parasite infection.

(v) Features to be preserved shall be protected throughout site development. No person shall kill or damage a landscape feature required to be preserved by this section. The developer shall protect trees from compaction.

(A) During construction, existing plant material to be preserved shall be enclosed by a temporary fence at least five feet outside the canopy dripline. In no case shall vehicles be parked, or materials or equipment be stored or stockpiled within the enclosed area.

(B) Irrigation shall be provided to trees preserved during construction of sufficient quantity to ensure their health and survival.

(C) If a significant tree which was to be preserved dies or is substantially damaged, the developer shall replace it at the rate of one newly planted tree per 2 caliper inches of damaged or destroyed tree.

(9) Protection of Landscape Areas. All landscape areas (except in the right-of-way where a street side curb does not exist) shall be protected from vehicles using concrete curbing, large rocks, or other similar obstructions.

(10) Utility Lines. If the location of utilities conflicts with the landscaping provisions, the Director may approve an equivalent alternative.

(11) Sight Distance. The owner shall maintain all vegetation, fences, walls, and berms so that there is no sight distance hazard nor road or pedestrian hazard (see TEDS).

(12) Soil and Planting Beds. Soil in landscape areas must be amended and all vegetation planted in accordance with best horticultural practices.

(i) Details for the planting of trees, shrubs and other vegetation must be shown on the landscaping plans.

(ii) Shrub beds adjacent to turf or native grass areas are to be edged with concrete, metal, brick, or substantial wood material. Plastic and other light duty edgings are not allowed.

(iii) Organic mulch to a minimum depth of 3 inches is required for all shrub beds.

(iv) Prior to planting, compacted soils shall be transformed to a friable condition.

(v) Compost, soil amendments, or retained topsoil shall be incorporated into the soil to a minimum depth of 6 inches for tree and shrub plantings.

(13) Trees.

(i) Tree canopies may overlap by up to 30 percent of the diameter of the tree canopy drip line at maturity. Tree clustering may be allowed with some species so long as clustering does not adversely affect the mature canopy.

(ii) Trees which will grow to a height of greater than 25 feet at maturity shall not be planted under overhead electrical lines.

(iii) Weed fabric shall not be used within 8 feet of the base of a tree.

(iv) At planting, trees shall be healthy and free of disease. Tree trunks must be reasonably straight with minimal doglegs. Roots shall be checked prior to planting and corrected for optimal growth patterns.

(v) Wire baskets, burlap wrappings, rope, twine or any similar shipping materials shall be removed before planting.

(vi) Tree planting holes shall be of sufficient depth so that the flare of the tree above the root ball is no higher than 1 inch above grade.

(vii) Tree planting holes shall be of a diameter no less than three times the diameter of the tree's root ball at time of planting.

(viii) The minimum square footage of planting area for a shade tree is 140 square feet. (ix) Ornamental trees shall be planted in a landscape strip that is no less than six feet in width (not including curb and gutter). Shade trees shall be planted in a landscape strip that is no less than eight feet in width (not including curb and gutter).

(ix) Tree Diversity. The percent of any one genus of tree that can be planted in a development shall be as follows:

(A) Zero through five trees: No limitation.

(B) Six to 10 trees: No more than 50 percent of one genus.

(C) Eleven to 20 trees: No more than 33 percent of one genus.

(D) Twenty-one or more trees: No more than 20 percent of one genus.

(x) A minimum of 50% of proposed tree plantings shall be identified as of preferred trees by the Plant List.

(xi) Trees shall not be planted near a light pole if eclipsing of light will occur at maturity. Placing light poles in the parking lot, away from landscape areas and between parking bays, helps eliminate this conflict and should be considered.

(xii) When calculating tree quantities, any fraction of a tree is rounded up to the next whole number.

(14) Shrubs.

(i) Shrub Diversity. The percent of any one genus of shrub that can be planted in a development shall be as follows:

(A) Ten through 19 shrubs: 50 percent per genus.

(B) Twenty through 39 shrubs: 33 percent per genus.

(C) Forty or more shrubs: 25 percent per genus.

(ii) When calculating shrub quantities, any fraction of a shrub is rounded up to the next whole number.

(iii) The minimum square footage of planting area for an evergreen or deciduous shrub is 16 square feet.

(15) Maintenance.

(i) The owners, tenants, and occupants, including homeowners' associations, for all new and existing uses in the City must maintain landscaping in a healthy, growing, neat and well-maintained condition.

(A) Maintenance includes watering, weeding, pruning, fertilization, pest control, trash and litter removal, replacement of dead or diseased plant material, reseeding, and other reasonable efforts.

(B) Any plant that dies or that is substantially damaged due to improper maintenance must be replaced with an equivalent live plant within 90 days of plant death, if during the winter, by the next April 1st.

(ii) Hay mulch used during the preparation or establishment of landscaping must be certified weed-free by the Colorado Department of Agriculture.

(iii) The Director or designee may from time to time, inspect the condition of landscaping wherever no reasonable expectation of privacy exists.

(A) The purpose of such site inspections shall be to verify that all required landscaping has been maintained in a healthy, growing, neat and well-maintained condition. Property owners shall be notified of necessary corrective action for failure to comply with the maintenance provisions of this section.

(iv) Maintenance of landscaping in unimproved rights-of-way shall be the responsibilities of owners, occupants, and tenants.

(v) Fire hydrants shall not be unobscured by plant material. Fire hydrants shall be visible from the center of the right-of-way at an angle of 45 degrees.

(vi) These requirements shall be specified in the articles of incorporation or bylaws for a homeowners' association whenever the homeowners' association is assigned the responsibility of maintaining landscape areas.

(16) Public Right-of-Way. (i) All unimproved right-of-way adjacent on the side abutting a development which is not in the City's one-year capital plan to be improved must be landscaped. All right-of-way landscaping shall be irrigated and maintained by the adjoining private property owner unless the City agrees to accept it for maintenance. If it is to be maintained by the City, a separate irrigation system shall be provided.

(i) At least 75 percent of the unpaved abutting right-of-way shall be landscaped with turf, tree canopy coverage, low shrubs or groundcover. No more than 50 percent of the right-of-way shall be landscaped with turf.

(ii) For the purpose of meeting minimum plant quantities, 50% of landscaping plantings on public right-of-way shall be counted toward the landscape or open space requirements of this code, unless specifically provided otherwise in this Code.

(iii) The owner of the nearest property shall keep all rights-of-way, which are not hard surfaced, free of weeds, litter, junk, rubbish and obstructions. To prevent weed growth, erosion and blowing dust, right-of-way areas not covered by vegetation or paving shall be covered with organic mulch, wood chips, or similar natural materials.

(iv) The right-of-way landscaping between the curb and sidewalk shall contain street trees spaced every 40 feet. Right-of-way landscaping shall be a minimum of eight feet wide in any direction.

(v) No tree shall be removed from the public right-of-way without the approval of the City Forester. Trees removed from the right-of-way without approval shall be subject to penalties per GJMC 9.04.100.

(vi) Trees planted in the public right-of-way shall be of species identified on the list of Approved Street Trees for Grand Junction's Rights-of-Way.

(17) Pervious Coverage. Landscaped and buffer areas shall contribute to the area of impervious surfaces used to calculate lot coverage.

(18) Alternative Landscaping Plans. Two alternative standards for landscape plans may be applied at the time of a development proposal. The applicant may request that landscape plans be reviewed under the standards for Waterwise Landscape Plan or High Desert Landscape Plan if the landscape plan meets the specified criteria for the alternative standard.

(i) Waterwise Landscape Plans. A Waterwise Landscaping Plan shall be subject to all requirements of this Code except where this subsection provides for an alternative standard, in which case this subsection will control.

(A) Criteria. A Waterwise Landscape Plan shall be a landscape plan where:

(1) At least 50 percent of trees, shrubs, and groundcover are xeric or low water use as identified in the Plant List; and

(2) No more than 25 percent of the landscaped area is planted with turf.

(B) Waterwise Landscape Plans shall employ the seven basic principles of xeric design. These principles are:

(1) Appropriate planning and design.

(2) Limiting turf areas to locations where it provides functional benefits.

(3) Efficient irrigation systems.

(4) The use of soil amendments to improve water holding capacity of the soil.

(5) The use of mulches, where appropriate.

(6) The use of drought-tolerant plants.

(7) Appropriate and timely maintenance.

(C) #1 container low water use, or xeric groundcover and perennial plants may be substituted for #5 container traditional groundcover and perennial plants when the landscape plan meets the definition of a Waterwise Landscape Plan.

(D) A 20 percent reduction in total required tree plantings is permitted when the landscape plan meets the definition of a Waterwise Landscape Plan.

(E) A minimum of 30 percent of identified significant trees in the development area shall be preserved in a Waterwise Landscape Plan.

(ii) High Desert Landscape Plans. Where geotechnical constraints, limited access to irrigation water, or a high desert ecological context affect a development area, a High Desert Landscape Plan may be proposed. A High Desert Landscaping Plan shall be subject to all requirements of this Code except where this subsection provides for an alternative standard, in which case this subsection will control.

(A) Criteria. A High Desert Landscape Plan shall be a landscape plan where:

(1) At least 50 percent of shrubs, and groundcover are native species as identified in the Plant List.

(2) At least 90 percent of shrubs and groundcover are xeric or low water use as identified in the Plant List; and

(3) Less than 15 percent of the landscaped area is planted with turf.

(B) High Desert Landscape Plans shall employ the seven basic principles of xeric design as identified in GJMC 21.06.040(b)(18)(i)(B).

(C) A 50 percent reduction in required tree plantings is permitted when the landscape plan meets the definition of a High Desert Landscape Plan. High Desert Landscape Plans shall be exempt from the street frontage and buffer tree spacing requirements of GJMC 21.06.040(e)(3), (b)(16)(v), (h)(5)(1), and (f)(1)(ii).

(D) A minimum of 60 percent of identified significant trees in the development area shall be preserved in a High Desert Landscape Plan.

(E) #1 container low water use, or xeric groundcover and perennial plants may be substituted for #5 container traditional groundcover and perennial plants when the landscape plan meets the definition of a High Desert Landscape Plan.

(F) High Desert Landscaping Plans may provide temporary irrigation in lieu of permanent irrigation for the watering of shrubs, groundcover, and grasses. The Director may approve temporary irrigation only if the following criteria are met:

(1) Temporary irrigation is provided for a minimum of two years from time of planting; and

(2) Construction practices minimize the disturbance of natural vegetation such that no more than 75 percent of the proposed landscaped area is disturbed during construction.

(iii) All Alternative Landscaping Plans must be carefully designed so that the basic requirements for shade, screening and buffering are met. Low water use landscaping includes xeriscaping. The term “xeric” shall not be interpreted to mean “zero”.

(d) Parking Lots. The requirements of this subsection are applicable to all public and private parking areas but not to automobile display areas for automobile dealerships (General Retail Sales, Outdoor Operations, Display or Storage) and self-service storage as defined in GJMC 21.04.

(1) Interior Landscaping Requirement.

Landscaping is required in the interior of parking lots to direct traffic, to shade cars and structures, to reduce heat and glare and to screen cars from adjacent properties. The interior of all parking lots shall be landscaped as follows:

(i) One landscaped island, parallel to parking spaces, is required for each 20 parking spaces.

(ii) Landscape islands must be at least 140 square feet. The narrowest/smallest dimension of a parking lot island shall be eight feet, measured from back of curb to back of curb.

(iii) One landscaped divider island, parallel to the parking lot drive aisles, designed to prevent diagonal movement across the parking lot, shall be located for every three parking lot drive aisles.

(iv) A landscape island is required at the end of every row of parking spaces, regardless of length or number of spaces.

(v) A corner area (where it is not feasible to park a vehicle) may be considered an end island for the rows on the perimeter of the parking lot.

(vi) Landscaping of the interior of a parking lot shall include trees and shrubs.

(vii) To improve the management of stormwater runoff, structurally-sound permeable pavers may be used in parking areas, subject to the approval of the Director. Use of permeable pavers for ten parking stalls shall result in a reduction of one required parking stall per the required parking ratios in GJMC 21.06.050.

(viii) Trees planted in parking lot islands shall be selected from those identified as Parking Lot Island Trees on the Plant List.

(ix) The use of bioswales in parking lot designs is encouraged to facilitate stormwater management.

(2) Parking Lot Perimeter. Landscaping is required around the entire perimeter of a parking lot to assist in the shading of cars, to assist in the abatement of heat, and to reduce the amount of glare from glass and metal, and to assist in the screening of cars from adjacent properties and rights-of-way. The perimeter of a parking lot is defined as the curb line defining the outer boundaries of the parking lot, including dumpster enclosures, bike racks, or other support facilities that are adjacent to the outer curb. Entry drives between a parking lot and the street, drives connecting two internal parking lots or building entry plazas are not included in the perimeter area.

(i) Screening shall occur between a street and a parking lot. When screening is required, street frontage landscape standards shall apply. (See subsections (d)(3) and (k) of this section.)

(ii) The minimum dimension allowed for the parking lot perimeter landscape strip is eight feet.

(iii) Landscaping along the perimeter of parking lots shall include trees and shrubs.

(iv) Parking lots that occupy multiple properties that are shared by one or more owners shall be landscaped around the perimeter of the combined lots.

(3) Screening.

All parking lots abutting rights-of-way, entry drives, and adjacent properties must be screened. For this subsection, a “screen” means a turf or groundcover berm and/or shrubs.

(i) A 30-inch-high screen is required along 70 percent of parking lots abutting rights-of-way, entry drives, and adjacent properties, excluding

curb cuts. The 30-inch screen shall be placed so as to maximize screening of the cars in the parking lot, when viewed from the right-of-way and shall be measured from the ground surface, or the elevation of the roadway if the adjacent road is higher than the property.

(ii) Screening shall not be required between parking lots on adjoining lots where the two lots are designed to function as one.

(iii) If a landscape area is 30 feet wide or greater between a parking lot and a right-of-way, the 30-inch-high screen is not required. This 30-foot-wide or greater area must be at least 75 percent covered in plant material including tree canopy coverage, shrubs, turf, and groundcover at maturity.

(iv) A screen wall shall not be taller than 30 inches, unless the adjacent roadway is higher than the property, in which case the screen wall shall be 30 inches higher than the adjacent roadway.

(v) The back of the wall must be at least 30 inches from the face of curb for bumper overhang.

(vi) Shrubs must be planted on the street side of the wall.

(vii) There must be at least five feet between the right-of-way and the paved part of a parking lot to use a wall as a screen.

(viii) Walls shall be solid masonry with finish on both sides. The finish may consist of stucco, brick, stone or similar material. Unfinished or merely painted concrete block is not permitted.

(ix) Shrub plantings in front of a wall are not required in the B-2 downtown district.

(e) Street Frontage Landscape.

(1) Within all zones (except single-family uses in single-family, B-2 and form-based zone districts), the owner shall provide and maintain an average 14-foot-wide street frontage landscape adjacent to the public right-of-way.

(2) A minimum of 75 percent of the street frontage landscape shall be covered by plant material including tree canopy coverage, shrubs, turf, and groundcover at maturity.

(3) Landscaping within the street frontage shall include trees and shrubs. If detached walks are not provided with street trees, street trees shall be provided

in the street frontage landscape, including one tree for every 40 feet of street frontage.

(f) Buffers.

(1) Buffers shall be provided between different zoning districts as indicated in subsection (k) of this section.

(i) Seventy-five percent of each buffer area shall be landscaped with tree canopy coverage, shrubs, turf, and groundcover at maturity.

(ii) One tree is required per every 40 linear feet of boundary between different zones.

(2) Exceptions.

(i) Where residential or collector streets or alleys separate zoning districts, the Director can require more landscaping instead of a wall or fence.

(ii) Where walkways, paths, or a body of water separates zoning districts, the Director may waive a fence or wall requirement provided the buffering objectives are met by private yards.

(iii) Where a railroad or other right-of-way separates zoning districts, the Director may waive the buffer strip if the buffering objectives are met without them.

(g) Fences, Walls, and Berms.

(1) Fences and Walls. When a higher density or intensity zoning district abuts a lower density or intensity zone district, it is the responsibility of the higher density or intensity property to buffer the abutting zone district according to subsection (k) of this section. When an existing fence or wall substantially meets the requirements of this section, and subsection (k) of this section requires the same form of buffering, an additional fence on the adjacent developing property shall not be required. However, if the new development requires the placement of a wall, and a fence exists on the adjacent property, the wall shall be required. If a wall is required and a fence is in place, the wall must be placed adjacent to the fence. (Subsection (k) of this section should be referenced to determine when a wall or a fence is required. The more stringent standard shall apply.) Fences must comply with GJMC 21.04.040(i), any design guidelines and other conditions of approval. Fences and walls required by this section must meet the following:

(i) Maximum height: six feet (outside of front setback, 30-inch solid height or four feet height if two-thirds open within the front setback and must meet all sight distance requirements).

(ii) Fence type: solid wood, architectural metal not including chain link, or material with a similar appearance, finished on both sides.

(iii) Wall type: solid masonry finished on both sides. Finish may consist of stucco, brick, stone or similar material but unfinished or merely painted concrete block is not permitted.

(iv) Location: within three feet of the property line unless the space is needed to meet landscaping requirements.

(v) A wall must have a column, jog, or other significant architectural feature every 25 feet of length.

(vi) Any fence or wall over six feet in height requires a building permit.

(vii) No person shall construct or maintain a fence or a wall without first getting a fence/wall permit from the Director.

(2) Berms. Minimum requirements for berms are as follows:

(i) Maximum slope of 4:1 for turf areas and 3:1 for shrub beds and groundcover berms; and

(ii) To control erosion and dust, berm slopes must be stabilized with vegetation or by other means consistent with the requirements for the particular landscape area.

(h) Residential Subdivision Perimeter Enclosures.

(1) Intent. The Director may require perimeter enclosures (fences and/or walls) around all or part of the perimeter of a residential development. Perimeter enclosures shall be designed to meet the following objectives of protecting public health, safety, and welfare: screen negative impacts of adjoining land uses, including streets; protect privacy; maintain a consistent or complementary appearance with enclosures in the vicinity; maintain consistent appearance of the subdivision; and comply with corridor overlay requirements.

(2) Applicability. When required by the Director, the standards of this subsection shall apply to all residential subdivisions as well as to all mixed-use subdivisions

where the square footage of proposed residential uses exceeds the square footage of proposed non-residential uses.

(3) Specifications. Unless specified otherwise at the time of final approval:

(i) A perimeter enclosure includes fences, walls or berms, and combinations thereof, located within five feet of the exterior boundary of a development.

(ii) The maximum height is six feet, including within front setbacks; however, an enclosure constructed on a berm shall not extend more than eight feet above the adjoining sidewalk or crown of road, whichever is lower.

(iii) New enclosures shall be compatible with existing enclosures in the vicinity if such enclosures meet the requirements of this code.

(iv) A perimeter enclosure in excess of six feet is a structure and requires a building permit.

(v) A perimeter wall must have a column or other significant architectural feature every 25 feet.

(4) Required Perimeter Enclosures. The Director may require a perimeter enclosure if the following conditions are met. The Director will notify applicants of the need for a perimeter enclosure, if required.

(i) Use or enjoyment of property within the development or in the vicinity of the development might be impaired without a perimeter enclosure.

(ii) A perimeter enclosure is necessary to maintain a consistent and complementary appearance with existing or proposed perimeter enclosures in the vicinity.

(iii) A perimeter enclosure is necessary to control ingress and egress for the development.

(iv) A perimeter enclosure is necessary to promote the safety of the public or residents in the vicinity.

(v) A perimeter enclosure is needed to comply with the purpose, objectives or regulations of the subdivision requirements.

(vi) A perimeter enclosure is needed to comply with a corridor overlay district.

(5) Residential Subdivision Landscape Buffer. On the outside of a perimeter enclosure adjacent to a right-of-way, an average 14-foot-wide landscape buffer shall be provided between the perimeter enclosure and the right-of-way for major and minor arterial streets and major or minor collectors. A five-foot-wide landscape buffer for side and rear yard perimeters shall be provided on all other streets between the perimeter enclosure and the right-of-way.

(i) In the landscape buffer, one tree per 40 linear feet of perimeter must be provided:

(ii) All perimeter enclosures and landscape buffers must be within a tract dedicated to and maintained by the homeowners' association. The perimeter enclosure and landscaping must be installed by the developer and made a part of the development improvements agreement;

(iii) A minimum of 75 percent of the landscape buffer area shall be covered by plant material including tree canopy coverage, shrubs, and groundcover at maturity. Turf may be allowed for up to 50 percent of the 14-foot-wide landscape strip, at the Director's discretion. Low water usage turf is encouraged;

(iv) Where detached walks are provided, a minimum buffer of eight feet shall be provided. In this case, the right-of-way parkway strip (area between the sidewalk and curb) will also be planted as a landscape buffer and maintained by the homeowners' association.

(6) Construction of Perimeter Enclosures. The perimeter enclosure and required landscape buffer shall be installed by the developer and included in the development improvements agreement.

(7) Ownership and Maintenance. The developer shall refer to the perimeter enclosure in the covenants and restrictions and so that perpetual maintenance is provided for either that the perimeter enclosure be owned and maintained by the owners' association or by individual owners.

(8) Alternative Construction and Ownership. If the Director finds that a lot-by-lot construction, ownership and/or maintenance of a perimeter enclosure landscape strip would meet all applicable objectives of this section and the design standards of GJMC 21.06.060, approved plans shall note specifications

including the type and size of materials, placement of fence posts, and length of sections.

(9) Overlay District Conflicts. Where in conflict, the perimeter enclosure requirements or guidelines of approved overlay districts shall supersede the requirements of this section.

(i) Substitutions. The requirements outlined in GJMC 21.06.040(i) above may be varied based at the following rates of substitution.

(1) Required trees may be substituted for shrubs and required shrubs may be substituted for trees at a rate of three shrubs equaling one caliper inch of tree. For example: 3 two-inch caliper trees equaling 6 caliper inches may be exchanged for 12 shrubs, or vice versa.

(i) No more than 50 percent of the number of trees required by GJMC 21.06.040(j) may be substituted for shrubs.

(2) Two #5 container shrubs may be substituted for four linear feet of wall when walls are required per GJMC 21.06.040(c)(3). Shrubs substituted for walls must reach a height of at least 30 inches at maturity.

(3) Ten percent of the required shrubs may be converted to perennials and/or ground covers at a ratio of three #1 container perennials and/or ground covers for one #5 container shrub.

(4) The number of shrubs may be reduced in exchange for additional trees or tree size at a rate of three shrubs per caliper inch.

(5) Substitutions for waterwise landscape plantings are described in GJMC 21.06.040(b)(20). To use substitute using the requirements of this section, the landscape plan must qualify as a Waterwise Landscape Plan or High Desert Landscape Plan per the requirements of GJMC 21.06.040(b)(19)(i) and (ii).

(6) Existing trees preserved during development shall count toward the total tree requirement at a ratio of two caliper inches of preserved tree to one caliper inch of required tree plantings.

	Tree	Shrub	Groundcover/Perennials	Wall
Tree	Two caliper inches preserved tree to one caliper inch required	Three shrubs for one caliper inch of tree	n/a	n/a

Shrub	Three shrubs for one caliper inch of tree	n/a	Three #1 container perennials and/or ground cover for one #5 container shrub	Two #5 container shrubs (minimum 30 inches in height) for four linear feet of wall
Groundcover/Perennials	n/a	Three #1 container perennials and/or ground cover for one #5 container shrub	n/a	n/a
Wall	n/a	Two #5 container shrubs (minimum 30 inches in height) for four linear feet of wall	n/a	n/a

(j) I-1 and I-2 Zone Landscape.

(1) Parking Lot Perimeter Landscape. Landscaping for the parking lot perimeter shall be per subsection (c)(2) of this section with the following addition:

(i) A minimum of 75 percent of the parking lot perimeter landscape shall be covered by plant material including tree canopy, shrubs, turf, and groundcover at maturity.

(2) Street Frontage Landscape. Landscaping for the street frontage shall be per subsection (d) of this section with the following additions:

(i) One tree for every 40 linear feet of street frontage (excluding curb cuts) must be provided, 70 percent of which must be shade trees.

(3) Public Right-of-Way Landscape. Landscaping for the public right-of-way shall be per subsection (b)(17) of this section.

(4) Maintenance. Each owner or the owners' association shall maintain all landscaping.

(5) Other Applicable Sections. The requirements of subsections (j) and (k) of this section shall also apply.

(k) Landscaping Requirements.

Zoning of Proposed Development	**Landscape Requirement**	**Location of Landscaping on Site**
Single-family residential (R zones)	As required for uses other than single-family residential; and as required in subsections (b)(16) and (g) of this section	As required for uses other than single-family residential; and landscape buffer and public right-of-way
R-5, R-8, R-12, R-16, R-24, R-0, B-1, C-1, C-2, I-O, CSR, MU	Two caliper inches of tree plantings per 3,000 square feet of improved area, with no more than 40 percent of the total being ornamental trees or evergreens. One #5 container shrub per 450 square feet of improved area	Buffer, parking lot, street frontage perimeter, foundation plantings and public right-of-way
B-2	Two caliper inches of tree plantings per 3,000 square feet of improved area with no more than 40 percent of the total being ornamental trees or evergreens. One #5 container shrub per 450 square feet of improved area	Parking lot, park strip (in right-of-way)
I-1, I-2	As required in subsection (h) of this section and in other subsections of this section where applicable	Street frontage, parking lots, buffers and public right-of-way
MXR, MXG, MXS, MXOC	Two caliper inches of tree plantings per 3,000 square feet of improved area, with no more than 40 percent	Buffer, parking lot, street frontage perimeter,

Zoning of Proposed Development	Landscape Requirement	Location of Landscaping on Site
	of the total being ornamental trees or evergreens. One #5 container shrub per 450 square feet of improved area. Plantings must be evenly distributed throughout the development	foundation plantings and public right-of-way
Facilities: mining, dairy, vineyard, sand or gravel operations, confined animal feeding operation, feedlot, forestry commercial, aviation or surface passenger terminal, pasture	Two caliper inches of tree plantings per 5,000 square feet of improved area. One #5 container shrub per 600 square feet of improved area	Perimeter, buffer and public right-of-way

DIAGRAM REMOVED: EXAMPLE TREE LANDSCAPE PLAN

DIAGRAM REMOVED: ORCHARD-STYLE LANDSCAPE ISLAND

(l) **Buffering Between Zoning Districts.**

Zoning of Proposed Development	Zoning of Adjacent Property																	
	SF	R-5	R-8	R-12 R-16	R-24	R-O & MXOC	B-1	B-2	C-1	C-2 I-O	I-1	I-2	M-U	CSR	BP	MXR-	MXG-	MXS-
SF (Subdivisions)	-	-	-	-	-	-	F	-	F	W	W	W	F	-	F	-	-	-
R-5	-	-	-	-	-	-	F	-	F	W	W	W	-	-	F	-	-	-
R-8	-	-	-	-	-	F	F	-	F	W	W	W	F	-	F	A	-	-
R-12 & R-16	-	-	-	-	-	-	F	-	W	W	W	W	F	-	F	A	-	-
R-24	-	-	-	-	-	-	F	-	W	W	W	W	F	-	F	A	-	-

Zoning of Proposed Development	Zoning of Adjacent Property																	
	SF	R-5	R-8	R-12 R-16	R-24	R-O & MXOC	B-1	B-2	C-1	C-2 I-O	I-1	I-2	M-U	CSR	BP	MXR-	MXG-	MXS-
RO & MXOC	A	A	A	A	A	-	A or F	-	A or F	W	W	W	A or F	-	A or F	A	-	-
B-1	F	F	F	A or F	A or F	A or F	A or F	-	A or F	A or F	A or F	A or F	A or F	-	A or F	A	-	-
B-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C-1	A&W	W	W	W	W	W	-	-	-	-	-	-	-	-	-	-	-	-
C-2 & I-O	W	W	W	W	W	W	F	-	-	-	-	-	A or F	A or F	A or F	A&W	-	-
I-1	W	W	W	W	W	W	F	-	-	-	-	-	A or F	B&W	A or F	B&W	A or F	A or F
I-2	B&W	W	W	W	W	W	F	-	-	-	-	-	A or F	B&W	A or F	B&W	A or F	A or F
M-U	A or F	A or F	A or F	A or F	A or F	A or F	A or F	-	A or F	A or F	A or F	A or F	-	-	-	-	-	-
CSR3 [1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BP	A or F	A or F	A or F	A or F	A or F	A or F	A or F	-	-	-	-	-	-	-	-	A or F	A or F	A or F
MXR-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-
MXG-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-
MXS-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-

Zoning of Proposed Development	Zoning of Adjacent Property																	
	SF	R-5	R-8	R-12 R-16	R-24	R-O & MXOC	B-1	B-2	C-1	C-2 I-O	I-1	I-2	M-U	CSR	BP	MXR-	MXG-	MXS-
Notes •A berm with landscaping is an alternative for a required fence or wall if the total height is a minimum of six feet. •Where alleys or streets separate different zone districts, the Director may approve increased landscaping rather than requiring a wall or fence. •The Director may modify this table based on the uses proposed in any zone district. [1] Gravel operations subject to buffering adjacent to residential.																		

(m) **Buffer Requirements.**

Buffer Types	Landscaping Requirements	Location of Buffers on Site
Type A	Eight-foot-wide landscape strip with trees and shrubs	Between different uses
Type B	15-foot-wide landscape strip with trees and shrubs	Between different uses
Type F, W	Six-foot fence and wall (see subsection (f) of this section)	Between different uses

Note: Fences and walls are required for most buffers.

DIAGRAM REMOVED: TYPE A AND TYPE B EXAMPLES

Introduced on first reading the ____ day of ____ 2022 and ordered published in pamphlet form.

Adopted on second reading this ____ day of ____ 2022 and ordered published in pamphlet form.

ATTEST:

_____
Anna M. Stout
President of City Council

_____
Laura J. Baurer
Interim City Clerk

Summary of Engagement Process – Landscaping Code Revision

Landscaping Taskforce Roster

Ted Ciavonne (PLA, Consultant, GJ)

Rob Breeden (PLA, Consultant, Fruita)

Julee Wolverton (PLA, Consultant, Montrose)

David Varner (Restoration Specialist)

Susan Carter (Master Gardener, CSU Tri-River Extension)

Ivan Geer (Principal Engineer, River City Consultants)

Doug MacDonald (Landscape Design, CMU)

Landscaping Taskforce Workshop Dates

1/27/2022

2/11/2022

2/25/2022

3/4/2022

.

Forestry Board Workshop Dates

2/3/2022

Planning Commission Workshop Dates

2/3/2022

3/3/2022