

**CITIZENS' WATER ADVISORY COMMITTEE (CWAC) AGENDA**

June 8, 2021, 6:00 p.m.

Water-wise Garden, AMC 15151 E Alameda Pkwy

*In the event of inclement weather*

Webex Link:

<https://auroragov.webex.com/auroragov/j.php?MTID=m3efde6b946bf6d8d6b0c0be460a07323>

Public Participation through call in number (listen only)

720-650-7664

Access code: 187 416-6886

Members: Janet Marlow - Chair, Angie Binder -Vice Chair, Jay Campbell, Tom Coker, Brandy DeLange, Richard Eason, William Gondrez, David Patterson, Mike Spatter

- |     |  |                             |           |
|-----|--|-----------------------------|-----------|
| 1.  | Tour - Water-wise Garden                             | Adam Waters                 | 6:00 p.m. |
| 2.  | Approval of Minutes – May 11, 2021                   | Chair                       | 6:30 p.m. |
| 3.  | Introductions/Public Invited to be Heard             | Chair                       | 6:35 p.m. |
| 4.  | New/Old Business                                     | Chair                       | 6:40 p.m. |
| 5.  | Communications Update                                | Rory Franklin               | 6:45 p.m. |
| 6.  | Proposed Aurora Water Course                         | Rory Franklin               | 6:50 p.m. |
| 7.  | Future conservation efforts discussion               | Marshall Brown/<br>Tim York | 7:10 p.m. |
| 8.  | Review Follow-Up Questions Generated at this Meeting | Chair                       | 7:25 p.m. |
| 9.  | Confirm Next Meeting – Tuesday, July 15, 2021        | Chair                       | 7:30 p.m. |
| 10. | Adjourn  | Chair                       | 7:35 p.m. |

CITIZENS' WATER ADVISORY COMMITTEE (CWAC) MINUTES  
May 11, 2021, 6:00 p.m.  
Webex

Members Present: Janet Marlow (Chair), Angie Binder (Vice-Chair), Richard Eason, David Patterson, William Gondrez, Mike Spatter, Brandy DeLange

Absent: Tom Coker

Staff Present: Greg Baker, Jo Ann Giddings, Rory Franklin, Greg Hansen, Gail Thrasher, Swirvine Nyirenda, Sarah "Sam" Miller, Tim York, Zach Vernon, Adam Waters, Sandy Moore

Visitors Present: None.

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The meeting was called to order at 6:03 p.m.

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**1. Approval of Minutes – April 13, 2021**

The April 13, 2021 minutes were reviewed. D. Eason noted two corrections. The minutes were approved as amended.

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**2. Introductions/Public Invited to be Heard**

There were none.

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**3. New/Old Business**

There were none.

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**4. Communications Update**

G. Baker stated, J.D. Power announced on May 5, 2021 that Aurora Water had achieved the top ranking for customer satisfaction among mid-sized water utilities in the west. This is Aurora Water's first year participating in the program because we had reached a threshold of 400,000 or more residential and business customers. It is quite an achievement to win this award. It speaks volumes of our employees, and we will be looking for ways to improve.

With the rain and chilly weather, this has been one of the wettest springs in some time. The news media had recently announced the drought is over, and the statement will need to be addressed.

In an opinion editorial in the Denver Gazette, M. Brown provided the public with useful and insightful information on the steps to meet Aurora's water needs.

The average snowpack for both the Colorado and Arkansas Rivers is quite a bit lower. We are waiting to see how much runoff we will have from the mountains and how much runoff goes into the reservoirs. The Upper South Platte seems to have improved recently because of the precipitation. With the moisture we are receiving, the hope is that we will not need to add any additional water restrictions for the current year.

J. Marlow asked, what was the total number of people that had participated in the survey? G. Baker replied, J.D. Powers sends 37,000 surveys to people across the nation. We are not informed of the specifics. There are four quarterly surveys during the year. It is beneficial to have the surveys by J.D Power, a nationally recognized company that has been doing this for some years.

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## **5. Quarterly Financial Report – First Quarter 2021**

J. Giddings, reviewed the First Quarter Financial Report of 2021 and the Capital Improvement Project of the Spinney Caretaker's Houses Replacement Project, highlighting areas of importance.

Aurora Water is getting ready to go to pricing for the Southeast Aurora Maintenance Facility (SEAM) project. The bond ratings received from Fitch for the water bonds is an AA+, and the sewer bonds are an AAA. The bond ratings received from (Standard and Poor's) S & P for both the water bonds and sewer bonds is an AA+.

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## **6. Fitz-Peoria Stormwater Outfall Project Update**

S. Nyirenda and S. Miller, presented the Fitzsimons-Peoria Stormwater Outfall Project, which will upgrade the stormwater conveyance capacity in the Fitzsimons-Peoria corridor. It will meet current city standards in a cost effective and timely manner while minimizing community impacts. The project includes installing 13,000 feet of pipe ranging in diameter from 18 inches to 96 inches and all associated Stormwater appurtenances. The improvements will provide flood protection from the 100-year storm events to 230 residences and 40 businesses. The project remains under budget, even though there was a necessary change order due to asbestos materials in the Fitzsimons area.

J. Marlow asked, when was the last 100-year flood? S.Young replied, that the previous 100-year flood was in the year 2013, and in some areas, it was close to a 1,000-year flood. It was a unique and large storm for the area.

J. Campbell stated, this has been a very well run project. The disruption of traffic has been minimal. The work has been performed admirably, and the Fitzsimons Campus has not seen any impacts. The constant communications and updates have been wonderful.

G. Baker replied, that the University of Colorado Anschutz Medical Campus and University Colorado Hospital have been very cooperative with communications as well. J. Campbell is with the University of Colorado Anschutz Medical Campus and has been directly impacted by this project

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## **7. Water Conservation overview & Annual Report**

T. York presented the annual Water Conservation overview and Annual report providing an update on programs and projects from the previous year and reviewed the programs showing the water savings for 2020 of indoor programs and the year 2019 outdoor programs. The staff presented highlights of 2020 programs and updates on the changes for 2021. The presentation focused on the overall numbers, touching on specific highlights and points of interest. Alliance for Water Efficiency awarded Aurora Water Conservation with the Platinum Award (operating standards) G480 Recognition. Aurora Water Conservation is one of seven teams in the county and the only one in Colorado to receive a platinum award.

D. Patterson stated, that he has been participating in Aurora Water's program Know Your Flow. It is a fantastic email every month. Being a member of the Metro District Board for Tallyn's Reach, he is impressed with the progress of the commercial management pieces. Upgrading the infrastructure will allow Tallyn's Reach, to be a better commercial customer.

G. Baker stated, that a presenter at a J.D. Powers webinar was fascinated with our Water Conservation web page and is using it as an example going forward for best practices. The online class repairing irrigation systems was mentioned as well.

D. Patterson asked, if the water irrigation audits had been reinstated? Tim York replied, yes, and we are currently scheduling appointments. A new online program will soon be available to schedule appointments.

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## **9. Review Follow-Up Question Generated at this Meeting**

G. Baker requested feedback from the committee members about scheduling the next CWAC Meeting outside around the Waterwise Garden area with proper distancing. There could be a tour and discussion concerning the garden. In the event of poor weather and public health orders, the meeting would be scheduled via WebEx.

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## **10. Confirm Next Meeting – Tuesday, June 8, 2021**

J. Marlow confirmed the next meeting Tuesday, June 8, 2021.

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## **11. Adjourn**

The meeting was adjourned at 7:37 p.m.

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Janet Marlow, Chair  
Citizens' Water Advisory Committee

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Submitted by Sandy Moore  
Administrative Specialist, Aurora Water

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# MEMORANDUM




City of Aurora

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**TO:** Citizen's Water Advisory Committee

**THROUGH:** Marshall P. Brown, General Manager, Aurora Water 

**FROM:** Greg Baker, Manager of Public Relations, Aurora Water   
Rory Franklin, Senior Public Information Officer, Aurora Water

**DATE:** May 20, 2020

**SUBJECT:** Proposed Aurora Water Course

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## Purpose

This memo and presentation provide information about a proposed class, Aurora Water Course, to introduce residents to Aurora's water system, as well as key concepts about water issues and strategies. The class, conducted by staff from Water Resources and Public Affairs, would take place one evening in July (TBD), at Aurora Reservoir. Residents who take the course would then be among the first considered for the two-day water tour. The annual tour, held by Aurora Water staff for more than two decades, takes residents, the mayor, city council, city management, legislators, legislative staff and important stakeholders to tour Aurora's water system.

This class eventually would become part of a larger water academy to communicate with the public and create advocates for policy, legislation and value of water messaging.

## Background

In order to ensure a sustainable water supply for Colorado by 2050, the State of Colorado launched the Colorado Water Plan in 2015, is the state's framework for solutions to its water challenges. This plan was adopted by the Colorado Water Conservation Board. A main component of the plan includes the State Water Education and Action Plan. Colorado's ongoing drought, as well as the warming climate that includes prolonged dry periods, necessitates an informed public. To achieve a sustainable water future, Coloradans must be sophisticated water users, which includes expanded public outreach and education that engages the public and promotes well-informed community discourse regarding balanced water solutions.

The Aurora Water Course is being proposed to introduce residents to Aurora Water's system, as well as key concepts about water. The class, conducted by staff from Water Resources and Public Affairs, would take place one evening in July (TBD), Residents who take the course would then be among the first considered for the two-day water tour. The annual tour, held by Aurora Water staff for more than two decades, takes residents, the mayor, city council, city management, legislators, legislative staff and important stakeholders to tour Aurora's water system.

The Aurora Water Course would provide the foundational elements necessary for understanding the more complex information discussed in the water tour. Before the class, participants would be asked to review the Virtual Water Tour and complete a quiz with a passing grade of 80%.

# MEMORANDUM




City of Aurora

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**To:** Citizens' Water Advisory Committee

**Through:** Marshall P. Brown, Director, Aurora Water 

**From:** Greg Baker, Manager of Public Relations, Aurora Water  
Tim York, Water Conservation Supervisor

**Date:** June 9, 2021

**Subject:** Future conservation efforts discussion

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**Purpose:**

Aurora Water is continually assessing the effectiveness of water conservation programs and resulting water savings. These savings and trends are reported to the Citizens' Water Advisory Committee in the Conservation Annual Report. Aurora Water management and staff want to engage with the committee to explore future programs that can help result in meaningful and permanent water savings.

**Background:**

Aurora Water's Conservation section has been successful in educating and assisting customer in saving substantial amounts of water. These savings are considered to be permanent and are quantified annually. Conservation program savings are incorporated in the Integrated Water Master Planning efforts and can be considered as an offset to some of the need for additional water acquisitions.


Conservation efforts are not limited to traditional programmatic elements, such as appliance and fixture replacement, and low-water landscape installation. Aurora Water's heavy reliance on reuse through the Prairie Waters system and Sand Creek Water Reclamation Facility not only are probably the most effective conservation program within the utility, but it also increases the emphasis on reducing outdoor water use that results in evaporative loss. This need to focus on water loss through landscapes is addressed through the Uniform Development Code (UDO), which identifies landscape requirements various development types.

Additional water savings are achieved through conservation based rates and fees. Aurora Water's tiered rate structure for residential accounts and allocations for multifamily, commercial and irrigation customers, both encourage lower water use by increasing the costs associated with higher volume use.

To better facilitate this discussion with the committee, an example of a proposed landscape change in the Las Vegas area from Southern Nevada Water Authority to remove "non-functional turf" has been attached, as has the Landscape, Water Conservation, Stormwater Management sections on the UDO. Additional changes to water conservation programs, rates and fees structure and UDO can be considered.



# With water shortage likely, SNWA targets decorative grass

 [reviewjournal.com/news/politics-and-government/2021-legislature/with-water-shortage-likely-snwa-targets-decorative-grass-2325788](https://www.reviewjournal.com/news/politics-and-government/2021-legislature/with-water-shortage-likely-snwa-targets-decorative-grass-2325788)

April 9, 2021

Updated April 9, 2021 - 3:31 pm

CARSON CITY — With a likely water shortage looming next year, regulators in Southern Nevada are setting their turf-removal sights on the next big group of water hogs.

This week, the Southern Nevada Water Authority made a public ask of Nevada lawmakers to take up legislation that would ban nonfunctional, decorative grass across the Las Vegas Valley by the end of 2026, a move that the authority says will save roughly 12 billion gallons of water annually for the region.

And on Friday, [Assembly Bill 356](#) was amended heavily to include the authority's proposal. The Assembly Natural Resources Committee approved the amendment and passed the bill, sending it to the full Assembly for a vote.

"It's exciting to put forward an initiative that would save so much water in Southern Nevada, in my community, in the coming years," Assembly Natural Resources Committee Chairman Howard Watts, D-Las Vegas, said of the proposal on Thursday.

The water authority says it is targeting "unused turf" with this proposal. So what exactly is that?

It's the grass you see between roads and sidewalks, in medians and traffic circles and the decorative grass outside of businesses, housing developments and the like. It would not affect the grass in backyards, parks or areas generally used for recreation.

"We have a lot of grass in this community that nobody is playing Frisbee and nobody is having a picnic on," said Bronson Mack, a spokesman for Southern Nevada Water Authority.

The authority's push comes as Southern Nevada is facing a likely drop in water allowance from the Colorado River amid a decades-long drought in the West, which the authority and conservation advocates alike say underscores the need for the uptick in urgency that would come with the proposal.

For more than two decades the water authority has encouraged residents and business owners to tear out thirsty grass, with the current incentive program offering \$3 for every square foot of turf converted to desert landscaping.

Since that program started in the late 1990s, more than 4,500 acres of thirsty grass has been replaced with desert landscaping in the valley. The new proposal would lead to about 5,000 acres of non-functional turf being replaced in the valley, effectively doubling the removal efforts over the next five years.

Residential properties have removed about 60 percent of the authority's target for unused turf, Mack said. But businesses have lagged behind, having removed only about 20 percent of the authority's goal over the last 20 years.

"Residents have been doing a lot of the conversion, but we haven't seen that from the business community to the level that we think we need to," Mack said.

### Water levels dropping

The latest study from the Bureau of Reclamation in March predicts that Lake Mead's water level will drop low enough to trigger its first federally declared water shortage by June. A formal declaration on the shortage could come in August if those predictions hold true.

That shortage would reduce Southern Nevada's allocation of 300,000 acre feet of water from the Colorado River by 13,000 acre feet. The water authority estimates that the turf-removal proposal would save about 36,000 acre feet annually — or more than 10 percent of the area's Colorado River allocation.

"That's water that we can save for our future use. That's water we can use to meet water demands today, or even tomorrow," Mack said.

The proposal, which the authority announced during the neutral testimony comment period for AB356 on Monday, immediately drew praise from environmental groups, who lauded it as one of the most ambitious pieces of conservation legislation in decades.

"Southern Nevada Water Authority with this is telling everybody how urgent and how dire of a situation we're in," said Kyle Roerink, executive director of the Great Basin Water Network.

"I don't know if there's ever been a conservation bill as significant at this point in time in recent history," Roerink added.

### Other water bills die

In amending the bill, environmental groups flipped from opposing AB356 to being fervent supporters of the newly amended bill.

As originally written and presented by the state Division of Water Resources, the bill would have created a water conservation credit system modeled on one implemented in Oregon.

That bill, as well as another that was presented by the division in Assembly Bill 354, which would have created a water banking system where water rights holders could bank their unused water and allow others to use it, faced fierce opposition from rural farmers, environmentalists and Native American tribes — some thing that has become a common theme when it comes to proposed water law changes in the Nevada Legislature.

AB356 is being replaced by the turf removal proposal, and AB354 won't survive Friday's deadline for bills to pass out of committee.

Cathy Erskine, the senior policy analyst for the Nevada Department of Conservation and Natural Resources, said Friday that those bills, which would have been voluntary programs, would have added some flexibility within Nevada's century-old water laws.

Erskine said they hope to continue having discussions about the original proposals on the water banks and conservation credits, and that they hope those conversations will happen during the interim. She added that the department hopes that lawmakers will take a more hands-on approach to addressing Nevada's water laws, something that the department thinks could help bring the usual opponents more into the fold and encourage more meaningful discussions.

"We've been in drought for a number of years," Erskine said. "We really need some sort of leadership in the Legislature. We can't be hands off for this much longer."

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ASSEMBLY BILL NO. 356—COMMITTEE ON WAYS AND MEANS

(ON BEHALF OF THE OFFICE OF FINANCE  
IN THE OFFICE OF THE GOVERNOR)

MARCH 22, 2021

Referred to Committee on Natural Resources

SUMMARY—Makes various changes relating to the conservation of water. (BDR S-1090)

FISCAL NOTE: Effect on Local Government: No.  
Effect on the State: Yes.

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EXPLANATION – Matter in *bolded italics* is new; matter between brackets ~~omitted material~~ is material to be omitted.

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AN ACT relating to water; prohibiting, with certain exceptions, the use of water from the Colorado River to irrigate nonfunctional turf on certain property; requiring the Board of Directors of the Southern Nevada Water Authority to develop a plan for the removal of nonfunctional turf on certain property; creating and setting forth the duties of the Nonfunctional Turf Removal Advisory Committee; requiring the Legislative Committee on Public Lands to conduct a study concerning water conservation; and providing other matters properly relating thereto.

**Legislative Counsel’s Digest:**

1 Existing law authorizes public agencies to enter into cooperative agreements to  
2 perform any governmental service, activity or undertaking which the public agency  
3 is authorized to perform under law and, pursuant to which, the Southern Nevada  
4 Water Authority was created. (NRS 277.080-277.180) **Section 39** of this bill  
5 prohibits, with certain exceptions, the waters of the Colorado River that are  
6 distributed by the Southern Nevada Water Authority or one of the member agencies  
7 of the Southern Nevada Water Authority from being used to irrigate nonfunctional  
8 turf on any property that is not zoned exclusively for a single-family residence on  
9 and after January 1, 2027. **Section 39** also requires the Board of Directors of the  
10 Southern Nevada Water Authority to: (1) define nonfunctional and functional turf  
11 for the purposes of this prohibition; and (2) develop a plan to identify and facilitate  
12 the removal of nonfunctional turf within the service area of the Southern Nevada  
13 Water Authority on property that is not zoned exclusively for a single-family

14 residence before December 31, 2026, in phases based on the categories of water  
15 users. **Section 39** further authorizes the Board of Directors to approve an extension  
16 or waiver from: (1) the prohibition on the use of waters from the Colorado River to  
17 irrigate nonfunctional turf; and (2) the provisions of the plan developed by the  
18 Board of Directors for the removal of nonfunctional turf.

19 **Section 40** of this bill creates the Nonfunctional Turf Removal Advisory  
20 Committee. **Section 41** of this bill sets forth the duties of the Advisory Committee.

21 **Sections 37 and 38** of this bill define certain terms for the purposes of **sections**  
22 **36-41** of this bill.

23 Under existing law, the Legislative Committee on Public Lands is authorized to  
24 review and comment on laws, regulations and policies relating to the use, allocation  
25 and management of water in this State. (NRS 218E.525) **Section 42** of this bill  
26 requires the Legislative Committee on Public Lands to conduct a study concerning  
27 water conservation and to submit a report of its findings and any recommendations  
28 for legislation to the 82nd Session of the Nevada Legislature.

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THE PEOPLE OF THE STATE OF NEVADA, REPRESENTED IN  
SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

- 1 **Section 1.** (Deleted by amendment.)  
2 **Sec. 2.** (Deleted by amendment.)  
3 **Sec. 3.** (Deleted by amendment.)  
4 **Sec. 4.** (Deleted by amendment.)  
5 **Sec. 5.** (Deleted by amendment.)  
6 **Sec. 6.** (Deleted by amendment.)  
7 **Sec. 7.** (Deleted by amendment.)  
8 **Sec. 8.** (Deleted by amendment.)  
9 **Sec. 9.** (Deleted by amendment.)  
10 **Sec. 10.** (Deleted by amendment.)  
11 **Sec. 11.** (Deleted by amendment.)  
12 **Sec. 12.** (Deleted by amendment.)  
13 **Sec. 13.** (Deleted by amendment.)  
14 **Sec. 14.** (Deleted by amendment.)  
15 **Sec. 15.** (Deleted by amendment.)  
16 **Sec. 16.** (Deleted by amendment.)  
17 **Sec. 17.** (Deleted by amendment.)  
18 **Sec. 18.** (Deleted by amendment.)  
19 **Sec. 19.** (Deleted by amendment.)  
20 **Sec. 20.** (Deleted by amendment.)  
21 **Sec. 21.** (Deleted by amendment.)  
22 **Sec. 22.** (Deleted by amendment.)  
23 **Sec. 23.** (Deleted by amendment.)  
24 **Sec. 24.** (Deleted by amendment.)  
25 **Sec. 25.** (Deleted by amendment.)  
26 **Sec. 26.** (Deleted by amendment.)  
27 **Sec. 27.** (Deleted by amendment.)  
28 **Sec. 28.** (Deleted by amendment.)

1       **Sec. 29.** (Deleted by amendment.)

2       **Sec. 30.** (Deleted by amendment.)

3       **Sec. 31.** (Deleted by amendment.)

4       **Sec. 32.** (Deleted by amendment.)

5       **Sec. 33.** (Deleted by amendment.)

6       **Sec. 34.** (Deleted by amendment.)

7       **Sec. 35.** (Deleted by amendment.)

8       **Sec. 36.** As used in sections 36 to 41, inclusive, of this act,  
9 unless the context otherwise requires, the words and terms defined  
10 in sections 37 and 38 of this act have the meanings ascribed in those  
11 sections.

12       **Sec. 37.** “Board of Directors” means the Board of Directors of  
13 the Southern Nevada Water Authority.

14       **Sec. 38.** “Southern Nevada Water Authority” means the  
15 political subdivision of the State of Nevada created on July 25,  
16 1991, by a cooperative agreement entered into on that date pursuant  
17 to the provisions of NRS 277.080 to 277.180, inclusive.

18       **Sec. 39.** 1. Except as otherwise provided in this section, on  
19 and after January 1, 2027, the waters of the Colorado River  
20 distributed by the Southern Nevada Water Authority or one of the  
21 member agencies of the Southern Nevada Water Authority may not  
22 be used to irrigate nonfunctional turf on any property that is not  
23 zoned exclusively for a single-family residence.

24       2. The Board of Directors shall:

25       (a) Define “functional turf” and “nonfunctional turf” for the  
26 purposes of subsection 1 and promulgate the definitions in the  
27 service rules of the member agencies of the Southern Nevada Water  
28 Authority; and

29       (b) Develop a plan to identify and facilitate the removal of  
30 existing nonfunctional turf within the service area of the Southern  
31 Nevada Water Authority on property that is not zoned exclusively  
32 for a single-family residence. The plan must, without limitation:

33       (1) Establish phases for the removal of nonfunctional turf  
34 based on categories of water users; and

35       (2) Establish deadlines within the service area of the  
36 Southern Nevada Water Authority for existing customers to remove  
37 nonfunctional turf on property that is not zoned exclusively for a  
38 single-family residence before December 31, 2026.

39       3. The Board of Directors may approve an extension or a  
40 waiver from:

41       (a) The prohibition set forth in subsection 1; and

42       (b) The provisions of the plan developed pursuant to  
43 subsection 2.

44       4. The provisions of this section do not prohibit a person from:

1 (a) Complying with any requirement adopted by the governing  
2 body of a county or city pursuant to chapter 278 of NRS to maintain  
3 open space or drought tolerant landscaping on any property that is  
4 not zoned exclusively for a single family residence; or

5 (b) Using alternative sources of water to irrigate nonfunctional  
6 turf on and after January 1, 2027, on any property that is not zoned  
7 exclusively for a single-family residence.

8 **Sec. 40.** 1. The Nonfunctional Turf Removal Advisory  
9 Committee is hereby created. The Advisory Committee consists of  
10 the following nine voting members appointed by the Board of  
11 Directors:

12 (a) One member who represents an office park with existing  
13 nonfunctional turf at the time the member is appointed;

14 (b) One member who represents an organization representing  
15 businesses;

16 (c) One member who represents an industrial or commercial  
17 business with existing nonfunctional turf at the time the member is  
18 appointed;

19 (d) Two members who represent a common-interest community  
20 with existing nonfunctional turf at the time the member is  
21 appointed;

22 (e) One member who represents multi-family housing with  
23 existing nonfunctional turf at the time the member is appointed;

24 (f) One member who represents an environmental organization;

25 (g) One member who represents a local government with  
26 existing nonfunctional turf at the time the member is appointed; and

27 (h) One member who represents a golf course with existing  
28 nonfunctional turf at the time the member is appointed.

29 2. Members of the Advisory Committee serve without  
30 compensation.

31 **Sec. 41.** The Nonfunctional Turf Removal Advisory  
32 Committee:

33 1. Shall discuss issues related to the use and removal of  
34 nonfunctional turf by each water use sector, including, without  
35 limitation, issues relating to the plan developed pursuant to section  
36 39 of this act to identify and remove nonfunctional turf; and

37 2. May provide written recommendations to the Board of  
38 Directors regarding the plan developed pursuant to section 39 of this  
39 act, including, without limitation, any recommendations for waivers  
40 or exemptions to the provisions of section 39 of this act. Any  
41 recommendation made by the Advisory Committee must be  
42 approved by a majority vote of all of the voting members of the  
43 Advisory Committee. Any dissenting opinion of a member of the  
44 Advisory Committee to a recommendation must be fully



1 documented and included with the recommendation to the Board of  
2 Directors.

3 **Sec. 42.** 1. The Legislative Committee on Public Lands shall  
4 conduct a study during the 2021-2022 interim concerning water  
5 conservation in this State. The study must include, without  
6 limitation, an examination of:

7 (a) The management of water resources in this State; and

8 (b) Programs and policies to promote water conservation in this  
9 State that also protect and support existing water rights.

10 2. In addition to any report required by NRS 218E.525, the  
11 Committee shall, on or before February 1, 2023, submit a report of  
12 its findings and any recommendations for legislation to the Director  
13 of the Legislative Counsel Bureau for transmittal to the 82nd  
14 Session of the Nevada Legislature.

15 **Sec. 43.** 1. This section and sections 36 to 39, inclusive, of  
16 this act become effective upon passage and approval.

17 2. Sections 1 to 35, inclusive, of this act become effective:

18 (a) Upon passage and approval for the purpose of adopting any  
19 regulations and performing any other preparatory administrative  
20 tasks that are necessary to carry out the provisions of this act; and

21 (b) On July 1, 2021, for all other purposes.

22 3. Sections 40 and 41 of this act become effective:

23 (a) Upon passage and approval; and

24 (b) Expire by limitation on December 31, 2026.

25 4. Section 42 of this act becomes effective on July 1, 2021.

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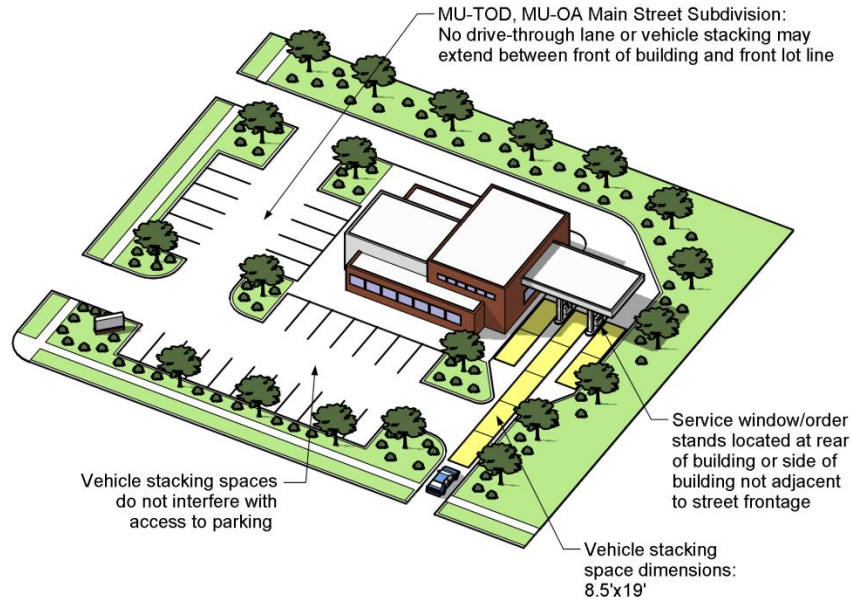


Figure 4.6-2: Drive-Through Stacking Areas

6. Drive-up or drive-through accessory facilities shall be designed to meet all applicable standards in Sections 146-3.3.6.E (Drive-Up or Drive-Through Facility) and 146-4.4 (Neighborhood Protection Standards).

## 4.7 LANDSCAPE, WATER CONSERVATION, STORMWATER MANAGEMENT

### 4.7.1. INTENT

The intent of this Section 146-4.7 is to establish landscape standards to be used in the preparation of landscape plans that will promote, preserve, and enhance existing and new developments and the image of the city as a whole. Landscaping has many benefits some of which are to improve the visual quality and compatibility within and between developments and differing land uses. It provides green spaces that improve site permeability, contribute to the reduction of erosion and stormwater runoff, and, in a number of studies, are essential for long term well-being. In addition, landscaping can be water conserving and contribute to the implementation of Low Impact Development (LID) standards through the use of native and indigenous plant materials that are well adapted to local climatic conditions. Overall, the intent of this Section is to achieve the following goals:

- A. Create a sense of place based upon the existing or planned context of an area;
- B. Create a high standard of landscape quality for all development;
- C. Promote water efficiency through the use of Water-wise plant materials as well as Water-wise principles and practices;
- D. Create landscape designs that integrate Low Impact Development principles;
- E. Buffer transportation corridors, view corridors, private common space, public park land, and public open space areas;
- F. Establish tree-lined canopy streets;

- G. Reduce heat island effects and protect citizens from the harmful impacts of the sun;
- H. Mitigate the impacts of developments;
- I. Discourage the use of seed mixtures or sod containing blue grass, fescue or rye grass cultivars;
- J. Preserve existing trees; and
- K. Promote biodiversity and habitat for pollinators.

#### **4.7.2. APPLICABILITY**

##### **A. General**

The provisions of this Section 146-4.7 apply to all development and redevelopment within Subareas A, B and C and shall be included as part of the Site Plan submittal process or as part of a Redevelopment Plan. The landscape focus for Subareas A, B and C, as described in Section 146-2.2 (Three Character Areas) will vary depending on the type of development and redevelopment that is expected to occur and the given zoning of a parcel. Landscaping shall be required for the following:

1. All development on vacant land or cleared land;
  2. All new development of residential, mixed-use, and non-residential primary structures;
  3. Redevelopment of a site that involves replacement of an existing structure or expansion of the gross floor area by more than 25 percent.
  4. Construction of new parking lots containing 10 or more parking spaces, and the redesign or reconfiguration of existing primary use parking lots containing 10 or more parking spaces.
- B.** All parks and open space areas that are to be owned and maintained by the City but constructed by a developer, shall comply with the design standards and procedures in the Aurora Parks, Recreation and Open Space Dedication and Development Criteria Manual rather than the standards found in this Section 146-4.7.
- C.** The City Council may declare a drought emergency, and during such times, the installation of various types of landscaping as required by this Section may be postponed. In the event of a declared drought emergency, the following landscape preparation measures shall be completed in lieu of specific landscape plantings prior to the issuance of a certificate of occupancy:
1. Final grading;
  2. Installation of main irrigation system components;
  3. Installation of plant beds, including edging, weed barrier, and mulch, without plant materials; and
  4. Completion of sedimentation and soil erosion best management practices including placement of soil erosion materials on areas to be sodded or seeded. Types of materials include roof leader extensions, straw wattles, hay bales, and soil erosion blankets.

### 4.7.3. GENERAL LANDSCAPING STANDARDS

#### A. Landscape Reference Manual

Prior to the preparation of a formal landscape plan submittal, designers shall consult the Landscape Reference Manual, which is available on the City’s website, for specific requirements regarding plan setup, scale, notes, plant symbology, standard tables, and the Water-wise plant list.

#### B. Plant Material Requirements

##### 1. General

Landscaping for all development shall include a variety of Water-wise plant materials, such as trees, shrubs, ornamental grasses, groundcovers, annual and perennial flowering species, turf grasses, and mulches that will provide visual interest during all seasons.

- a. The use of plant materials adapted to the climatic conditions of the area shall be used to the maximum extent practicable in order to reduce water consumption, general maintenance, and the dependence on fertilizers and insecticides.
- b. Landscape materials such as stone, masonry, wood, and steel may also be used to define space and create visual interest. When landscaped areas are adjacent to natural areas or open spaces, plants shall be selected to continue that native appearance along the border with the open space or natural area.
- c. At least 75 percent of all annuals and trees, and 100 percent of shrubs, perennials, groundcovers, and ornamental grasses used to landscape each site regulated by this Section shall be selected from the Water-wise Plant List in the Landscape Reference Manual; the Colorado State University Cooperative Extension Facts Sheet on Xeriscaping; or other approved Water-wise, resource wise, or Xeriscape plant material references.
- d. Trees and shrubs specified from another source other than the Water-wise plant list will be considered if the source for the Water-wise designation is listed on the plan. Such sources may consist of the Colorado State University Extension office or similar sources. Applicants may also consult with the City Forester regarding any proposed tree species not on the approved Water-wise plant list.
- e. Evergreen trees such as Austrian and Ponderosa Pine as well as Spruce, shall not be planted closer than 20 feet to a street edge, sidewalk, or parking area as measured from the trunk of the tree to the edge of the pavement.
- f. Planting within rip-rap lined swales is prohibited. No trees, shrubs, and/or perennials shall be planted within the rock.

##### 2. Minimum Plant Sizes

Plant material shall be installed in the minimum sizes shown in Table 4.7-1. Trees shall be measured six inches above ground level for all trees up to four inches in caliper and 12 inches above ground level for larger trees.

<b>Table 4.7-1 Minimum Plant Sizes</b>		
<b>Type of Planting</b>	<b>General Minimum Size Requirement</b>	<b>Special Locations [1]</b>
<b>Shade trees</b>	Two inch caliper minimum standard. Two and one-half inch caliper minimum for street trees along arterial and collector streets.	Three-inch caliper

<b>Table 4.7-1 Minimum Plant Sizes</b>		
<b>Type of Planting</b>	<b>General Minimum Size Requirement</b>	<b>Special Locations [1]</b>
<b>Ornamental trees</b>	Two-inch caliper minimum (for single stem varieties). Clump forms, multi-stemmed, and similar are acceptable and shall be six to eight feet in height at time of installation.	Two and one-half inch caliper
<b>Evergreen trees</b>	Six feet tall	8 -10 feet high
<b>Shrubs</b>	Five-gallon container	
<b>Ornamental grasses and perennials</b>	One-gallon container	

Notes:

[1] Special Locations include non-residential or mixed-use development along property lines adjacent to residential uses.

### 3. Tree and Shrub Diversity

Tree and shrub diversity shall comply with the Landscape Reference Manual to the maximum extent practicable.

### 4. Prohibited Plant Species

- a. The following plants shall be prohibited from being planted in the city:
  - i. Russian Olive (all *Elaeagnus Angustifolia* species and cultivars);
  - ii. Aspen (all *Populus Tremuloides* species and cultivars);
  - iii. Cottonwood (all species), unless being used to continue the native appearance along the border with open space or natural areas or within non-street frontage buffers, but not in connection with curbside landscape areas or abutting walks and/or buildings;
  - iv. Tamarisk (all species); and
  - v. Ash (*Fraxinus* species).
- b. Plants listed as an invasive species by the Colorado State University Extension Service are prohibited.
- c. Plants listed on the Colorado Noxious Weed List are prohibited.
- d. Siberian Elm (*Ulmus pumia*)
- e. Tree of Heaven (*Ailanthus* sp.).

### 5. Living Material Requirements

#### a. General Requirements

This section 146-4.7.3.B.5 applies to all required landscapes unless exempted by Subsection b below or by another provision of this UDO.

#### b. Exceptions

- i. Areas within and immediately adjacent to public rights-of-way having no reasonable means of providing an underground automatic irrigation system shall with the approval of the Planning Director be landscaped with a minimum of two materials as listed below. One of the two materials must be plant material. Forty percent of the total landscape area must be permeable materials. Twenty percent of the permeable material area must be plant material. A homeowner's yard visible from the public right-of-way shall not consist of entirely non-living materials.
  - a. Plant material – to be hand watered if no automatic irrigation system is available
  - b. Rock, no white rock

- c. Natural or manmade pavers over a compacted base
- d. Integrally colored stamped decorative concrete
- e. Shredded cedar or wood chip mulch

## 6. Plant Quality and Installation

All plant materials shall meet or exceed minimum standards as outlined by the Colorado Nursery Act Regulations and the current edition of the Uniform Nursery Standards, and shall be installed according to specifications of the Associated Landscape Contractors of Colorado.

## 7. Tree and Shrub Equivalentents

### a. Tree Equivalentents

The following tree equivalentents are provided to allow design flexibility in applicable situations as provided in this UDO. One tree equivalent shall be equal to:

- i. One 2.5 inch caliper deciduous shade tree;
- ii. One 2 inch caliper deciduous shade tree;
- iii. One 2 inch caliper ornamental tree;
- iv. One 6 foot tall evergreen tree;
- v. Twelve 5 gallon shrubs per one 2.5 inch caliper tree or 8 foot to 10 foot tall evergreen tree; or
- vi. Ten 5 gallon shrubs per one 2 inch caliper tree or 6 foot tall evergreen tree.

### b. Shrub Equivalentents

The following shrub equivalentents are provided to allow design flexibility in applicable situations as provided in this UDO. Shrub equivalentents apply to either deciduous or evergreen species. One five gallon shrub equivalent shall be equal to:

- i. Three 1 gallon perennials; or
- ii. Three 1 gallon ornamental grasses

## 8. Plant Beds

- a. Plant beds shall be separated from turf and other areas by metal edging or approved equivalent material.
- b. All shrubs, ornamental grasses, perennials, and groundcovers shall be located within plant beds.
- c. The installation of individual shrub species in turf or native seed areas without metal edging, but with hand-dug spade edges, may be approved by the City based on likelihood of survival and potential impacts on surrounding vegetation.
- d. Where rock is the chosen mulch treatment and no plant material will be installed, weed barrier fabric shall be used to block weed growth and conserve moisture.
- e. Trees and shrubs shall be mulched by either rock or wood mulch, or a combination of both, at the discretion of the designer. Shredded cedar is the preferred mulch treatment around all plant material as it has moisture retention qualities unlike rock mulch that retains and radiates heat around plants.
- f. For wood mulch applications, all trees shall be surrounded by an area of mulch that shall be no less than three inches in depth and no less than three inches from the trunk to reduce potential damage from insects. Mulch shall be a minimum of three inches from trunks to reduce insect and trunk damage.

- g. All plant beds shall be mulched to a minimum depth of three inches. Areas planted with perennials and groundcovers species shall be mulched to a minimum two inches in depth.

**9. Thorny Plants and Shrubs**

Shrubs that have thorns shall not be planted within 8' of public walks or within parking lot islands. Trees that drop fruits or have thorns shall not be planted within 20 feet of public walks or within parking lot islands or medians.

**10. Clear Space Above Walks**

Trees planted adjacent to public sidewalks shall maintain an eight foot or greater tree branching height above the walks when mature.

**11. Artificial Turf Standards**

Where this UDO permits the use of artificial turf, it shall comply with the following standards.

**a. Allowed Use**

- i. Artificial turf may be used in sports field applications.
- ii. Artificial turf may be used in front yards to replace sod or native seed areas of single-family residential lots if approved by a homeowners' association and/or Title 32 District, but may not be used in the Water-wise landscape option in which no turf is allowed. Homeowners shall meet the Residential Yard Landscape Requirements per Table 4.7-3 in addition to providing artificial turf.
- iii. Artificial turf may be used in commercial developments.

**b. Materials**

Artificial turf shall be of a type known as cut pile infill and shall be manufactured from polypropylene, polyethylene, or a blend of polypropylene and polyethylene fibers stitched onto a polypropylene or polyurethane mesh or hole-punched backing. Hole-punched backings shall have holes spaced in a uniform grid pattern with spacing not to exceed four inches by six inches on center.

**c. Installation**

Artificial turf shall be installed per the manufacturer's recommendations.

**d. Slope Restrictions**

The installation of artificial turf on slopes greater than 6.6 percent shall require the applicant to consult with the manufacturer on recommendations for installation and use.

**e. General Appearance**

Artificial turf shall be installed and maintained to effectively simulate the appearance of a well-maintained turf grass.

**f. Specific Prohibited Uses**

- i. Artificial turf may not be used within curbside planting areas in any zone district.
- ii. Artificial turf may not be used in street frontage buffers.
- iii. Artificial turf may not be used in dog parks.
- iv. Artificial turf may not be used to satisfy any requirements of this Section 146-4.7 (Landscape, Water Conservation, Stormwater Management) unless this Section 146-4.7 or another section of this UDO contains a specific provision allowing such use.



- v. Where this UDO permits the use of artificial turf or natural turf, the use of indoor or outdoor plastic or nylon carpeting or other materials or combinations of materials as a replacement for artificial turf or natural turf is prohibited.

## 12. Turf Regulations

### i. Turf Area Limitations

- i. The design of all new turf areas shall comply with the following requirements:
  - a. Turf Area Limitations i. Turf area limitations for each lot containing single-family detached, two-family and single-family attached duplex homes. Turf requirements for such areas shall be subject to all the requirements listed in Table 4.7-3 Residential Yard Landscape Requirements. 20
  - ii. Turf area limitations for all other development areas except playfields and golf courses. In all other development sites except playfields and golf courses, the use of cool-season grass sod, seed and seed mixtures that contain cool-season grass species shall be limited to not more than 33 percent of the site's total landscaped areas. The area consisting of high-water using species of cool-season grasses such as Kentucky Blue Grass, shall be contiguous, and patches located throughout the site shall be avoided. For the purposes of these standards "contiguous" shall mean all abutting areas and areas that may be separated by a pedestrian walk or trail. Areas separated by pavement used for vehicular circulation are not considered contiguous.

### b. Cool Season Grass

- i. High water usage cool season grasses. A cool season grass species shall be considered high water use if it requires one and one-half inches of water or more per week to survive.
- ii. Exceptions and exemptions. Tot lots and recreational areas that benefit from the durability of cool season grasses are exempt from contiguity requirements of this section. All other requirements shall apply.

### C. Irrigation

1. New landscaped areas, plant beds, raised planters, and plant containers, with the exception of non-irrigated native, dryland, and restorative grasses shall be watered by a permanent automatic irrigation system meeting all adopted Aurora Water engineering standards, which may be found on the City's website.
2. Automatic rain shutoff sensors shall be installed in all irrigation systems.
3. The Aurora Water Department requires all non-single-family landscapes to be divided into water conserving (non-turf), non-water conserving (turf), and non-irrigated areas (e.g., pavement). A separate hydrozone plan is required for submittal with the landscape plan. Refer to the Landscape Reference Manual for plan requirements.

#### 4.7.4. PRIVATE COVENANTS CONTRARY TO PUBLIC POLICY ARE DISALLOWED

Any private covenant(s) that purports to invalidate or disallow the xeriscaping provisions contained in this UDO are invalid and a nullity, as to those provisions, as being against the expressed public policy of the Aurora City Council and of the state legislature as expressed in Section 37-60-126 (11) of the Colorado Revised Statutes.

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## 4.7.5. REQUIRED LANDSCAPING

### A. Requirements

All of the areas listed in this Section 146-4.7.5 shall be landscaped as described in this Section 146-4.7.5. If there is a conflict between the various landscaping standards, the more restrictive standard shall apply. Wherever the requirements for two or more landscaping standards overlap, the same plant material may be counted toward meeting the requirements of both standards, however the more restrictive standard must be met. Cross-references to some subsections of Section 146-4.7.5 commonly applicable to development and redevelopment are provided below, but additional subsections address specific areas, types of development, or development situations, and all applicable provisions in this Section 146-4.7.5 shall apply regardless of whether cross-referenced below.

- a. Curbside Landscape, See Section 146-4.7.5.C
- b. Street Frontage Landscape Buffers, See Section 146-4.7.5.D
- c. Parking Lot Landscaping - Exterior, See Section 146-4.7.5.K
- d. Parking Lot Landscaping - Interior, See Section 146-4.7.5.K
- e. Building Perimeter Landscaping, See Section 146-4.7.5.J
- f. Non-Street Perimeter Buffers, See Section 146-4.7.5.E
- g. Detention Pond and Water Quality Ponds, See Section 146-4.7.5.M.

### B. Landscape Components

Figure 4.7-1 below represents the typical landscape components required in a land development application and corresponds with the list of cross-references below. The specific landscape requirements can be found in this Section 146-4.7.5. The figure below is illustrative only; quantities shown are not necessarily representative of the requirements.



Figure 4.7-1: Landscape Components

## C. Curbside Landscaping

### 1. General

- a. Curbside landscaping shall include requirements for detached walks, street trees, curbside planting, mulches, and fence locations. Street trees and curbside planting are required whether on a public or private street.
- b. Streets with attached walks shall have curbside landscapes that include the area within the right-of-way as measured between the back of curb and face of walk. The curb is not counted as part of the curbside landscape.
- c. Street trees shall be centered within the curbside planting area unless defined by another provision of the Aurora City Code or an approved Master Plan. The uniform placement of street trees is intended to create a continuous street edge. Trees may be grouped to achieve a specific aesthetic; however, the intent is to avoid large areas without street trees. No gap between groupings of street trees shall exceed 120 feet, and no trees shall be placed in easements unless permitted by the easement holder.
- d. Street trees shall be deciduous, thornless, fruitless canopy trees of species that mature to heights of between 30 and 60 feet and with canopies that mature to at least 25 feet wide.
- e. Street trees shall be set back at least 50 feet from the face of a stop sign in order to maintain a regulatory sign visibility zone as shown in Figure 4.7-2.

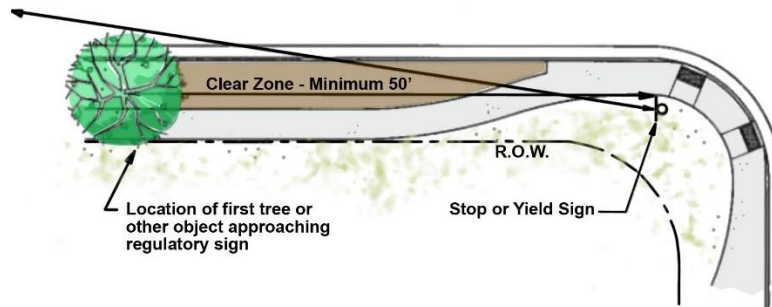


Figure 4.7-2: Regulatory Sign Visibility Zone

- f. Applicants shall retain City-owned street trees in order to preserve the city's urban forest. Removal of City-owned street trees requires prior approval of the City Forester. If removal is necessary, tree mitigation fees may be applicable and will be determined upon inspection by the Forestry Department.
- g. Applicants requesting to develop or redevelop within the Havana Overlay District shall not be required to comply with the curbside landscaping standards within this Section. Instead, all properties shall comply with right-of-way planting standards in Section 146-2.6.7 (Havana Street Overlay (-HSO)).
- h. Curbside landscaping is required and is in addition to street frontage landscape buffers described in Section 146-4.7.5.D.

## 2. Detached Sidewalks

### a. Minimum Plant Material Quantities

One tree per 40 linear feet of street frontage plus sod, native seed, or a combination of shrubs, ornamental grasses, and perennials, as required by this Section 146-4.7.5.C.

- i. Curbside landscape areas that are less than three feet in width shall be mulched with rock mulch, no white rock. Rock shall be a minimum of 2.5 inch diameter.
- ii. Curbside landscape areas that are between three and six feet in width shall be planted at a minimum with shrubs. Ornamental grasses may also be provided. Refer to Figure 4.7-3 below.

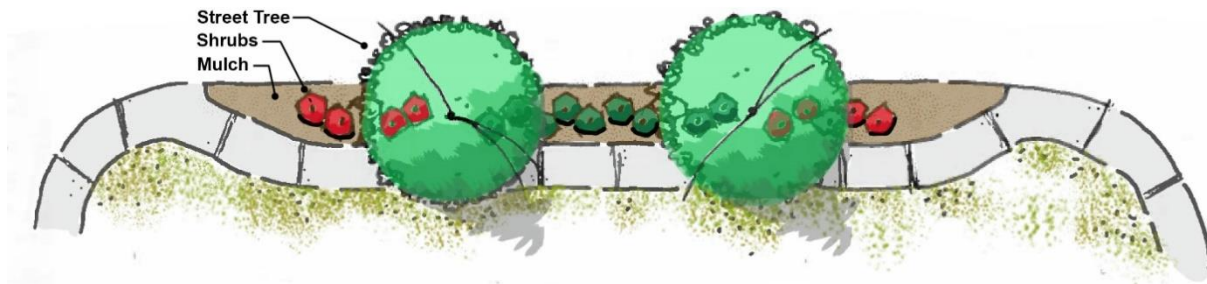


Figure 4.7-3: Substitute for Sod in Curbside Landscape Area

- iii. Curbside landscape areas that are between six and 10 feet in width shall be planted with shrubs at a minimum. Ornamental grasses are optional. Water conserving (xeric) seed and/or sod varieties may be provided in between shrub and ornamental grass beds. See Landscape Reference Manual for a list of optional water conserving native seed and sod varieties.
- iv. Curbside landscape areas that are 10 feet in width or wider may be planted entirely with either a water conserving (xeric) or cool season grass or native seed. A combination of shrubs and ornamental grass beds may be incorporated within the curbside landscape area.



Figure 4.7-4: Curbside Landscape Native Seed Application

- v. When shrub and ornamental grasses are used, no less than one shrub per 40 square feet or shrub equivalents may be installed within the curbside landscape area and no more than 40 percent of the shrub count can be ornamental grasses provided as shrub equivalents. Shrubs are assumed to be an average of four feet wide at maturity. No more than five percent of perennials may be provided as shrub equivalents. Calculations for the plant quantities shall be done first. Any area within the curbside planting bed that is remaining shall be completed with either wood or rock mulch, native seed or sod depending upon the width of the curbside landscape. Provide a variety of shrub species that differ in height, color and width for visual interest throughout the seasons. Shrubs and ornamental grasses shall be five gallon size at time of installation and perennials shall be provided at a ratio of three one-gallon perennials to one five-gallon shrub.
- vi. The use of native seed within the curbside planting areas within the MU-OA zone district may be approved on a case-by-case basis by the Planning Director based on appearance and durability in the location where it is to be installed. Given the urban and fully developed character of the MU-OA zone district, native seeding may not be appropriate.
- vii. When located within a sight distance triangle, plant materials shall comply with the provisions of Section 146-4.2.3.I. Refer to the Aurora Roadway Design and Construction Specifications Manual for sight distance triangle design parameters.

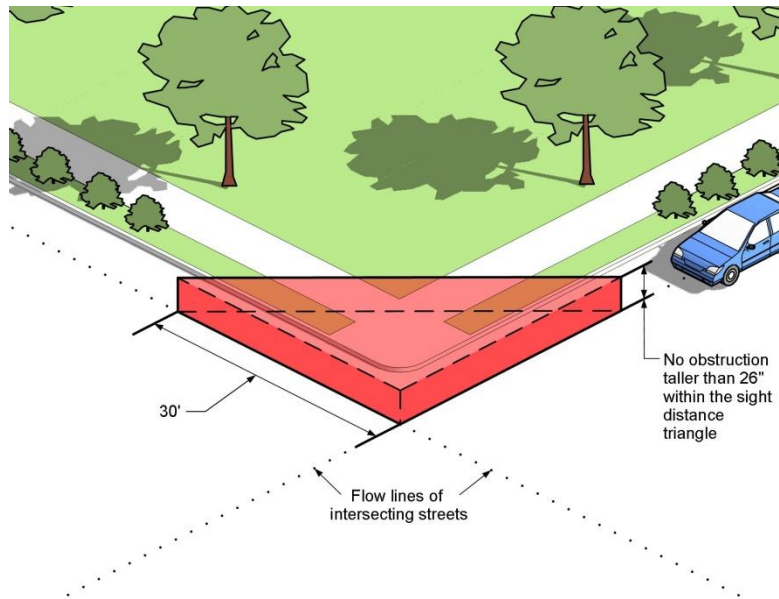


Figure 4.7-5: Visibility in Sight Triangles

- viii. Rock mulch within the curbside landscape area may be used in between planting beds, but may not be used as 100 percent coverage in the curbside planting area, unless the exception in Section 146-4.7.5.C.2.a.i applies.
- ix. Additional trees may not be provided in the curbside landscape area as a substitute for the living ground cover treatment such as shrubs, ornamental grasses, or perennials.

**b. Street Tree Measurements**

For detached sidewalks, street tree quantities shall be determined by taking the measurements as shown in Figures 4.7-6 and 4.7-7 below.

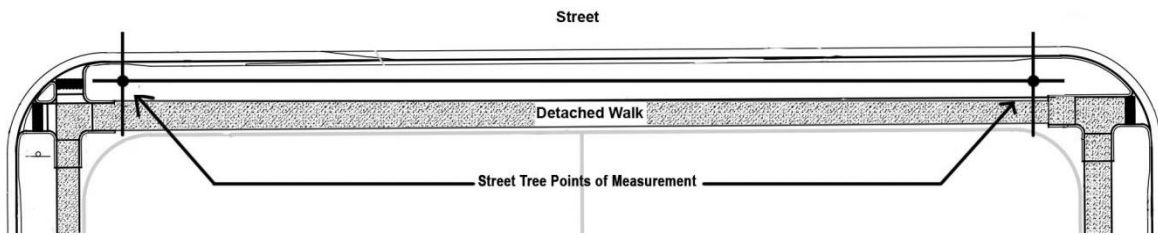


Figure 4.7-6: Street Tree Measurement – Detached

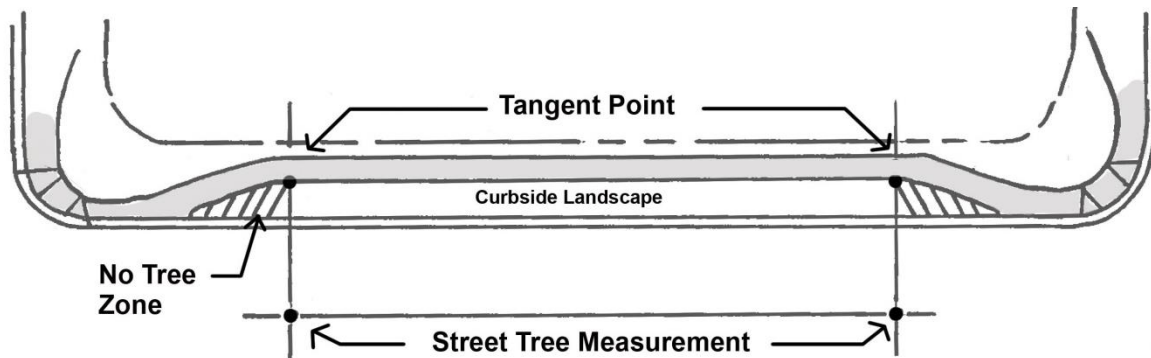


Figure 4.7-7: Street Tree Measurement – Detached

**c. Use of Living and Non-Living Materials**

The following standards apply to sites with detached sidewalks.

- i. In addition to the required street trees, curbside landscaping within the right-of-way may consist of both living and non-living landscape materials.
- ii. Living materials shall include Water-wise deciduous or evergreen shrubs, ornamental grasses, perennials, ground covers, sod, and/or native seed consistent with Section 146-4.7.5.C.2.a.ii.
- iii. Non-living landscape materials may consist of wood mulch and rock mulch in combination with living plant material consistent with Section 146-4.7.5.C.2.a.ii.



Figure 4.7-8: Examples of Detached Sidewalk Curbside Landscapes

### 3. Attached Sidewalks

#### a. Minimum Plant Material Quantities

One tree 40 per linear feet of street frontage.

#### b. Street Tree Measurements

For attached sidewalks, street tree quantities shall be determined by taking the measurements between the tangent points in Figure 4.7-9 below.

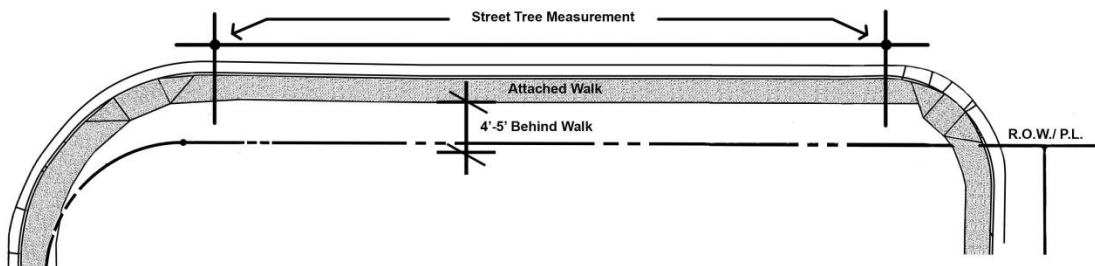


Figure 4.7-9: Street Tree Measurement - Attached

#### c. Location

- i. Adjacent to attached sidewalks, street trees shall be located between four to five feet from the back of curb or edge of sidewalk.
- ii. In an attached sidewalk condition, street trees and street frontage landscape buffers may overlap. In this scenario, street trees may count toward the buffer plantings if approved on a case-by-case basis by the Planning Director based on appearance and effectiveness as a buffer in the location where the trees are to be installed.



#### 4. Urban Street Frontages

Urban street frontages are those that are required to have attached walks with tree openings and no curbside landscape. Urban street frontages include widened sidewalks to accommodate outdoor cafes and pedestrian thruways, site amenities such as benches, lighting and wayfinding as well as landscaping to strengthen the urban tree canopy, plant containers and raised planters to enhance the pedestrian realm and minimize the appearance of hardscape.

##### a. Zones

The urban street cross-section is divided into functional areas or zones based upon a total 16 foot width. These zones are called the Edge Zone, the Furnishings Zone, the Pedestrian Throughway Zone, and the Frontage Zone. See Figure 4.7-10.

##### i. Edge Zones

The Edge Zone is located within approximately one and one-half feet from the face of curb, and does not contain landscaping, plant containers, raised planters, or other items that will interfere with traffic and/or snow plowing. Tree openings flush with the grade may encroach into the Edge Zone. The Edge Zone is only required when on street parking is provided.

##### ii. Furnishings Zone

The Furnishings Zone abuts the Edge Zone and is five feet wide. Its purpose is to accommodate street trees within tree openings, decorative pavement, site furnishings, bus shelters, and lighting. Landscape requirements include the installation of one street tree per 35 linear feet of street frontage. Street trees shall be located in tree openings at least five feet by 15 feet in size and near property lines to the maximum extent practicable. Street trees shall be accompanied by ornamental grasses, perennials and/or shrubs in the tree openings or by non-living materials such as rock and wood mulch. Street trees shall be either large deciduous canopy tree species or ornamental tree species. The combined height of groundcovers shall be not more than 26 inches tall when within a sight triangle.

##### iii. Pedestrian Throughway Zone

The intent of the Pedestrian Throughway Zone is to allow efficient, direct, and unobstructed access at least six feet wide along sidewalks. The Pedestrian Throughway Zone shall be clear of all plant containers, raised planters, plant beds, and other site amenities. Branches of maturing street trees encroaching into this zone shall be pruned to a height of not less than eight feet. Outdoor cafes may be located within this zone, but shall not obstruct pedestrian movements. To allow for a wider outdoor seating area, a five foot pedestrian throughway may be approved by the Planning Director on a case-by-case based on considerations of pedestrian access, pedestrian safety, and plant survival.

##### iv. Frontage Zone

The Frontage Zone abuts the façade of the building and is three-and-one-half feet wide. Whenever landscaping is voluntarily provided within the Frontage Zone adjacent to a building façade, landscaping may be provided within plant containers, raised plants beds or at grade. In addition to plantings, this area would be ideal for outdoor seating with tables and chairs. Any voluntary landscaping shall be in addition to street tree requirements.

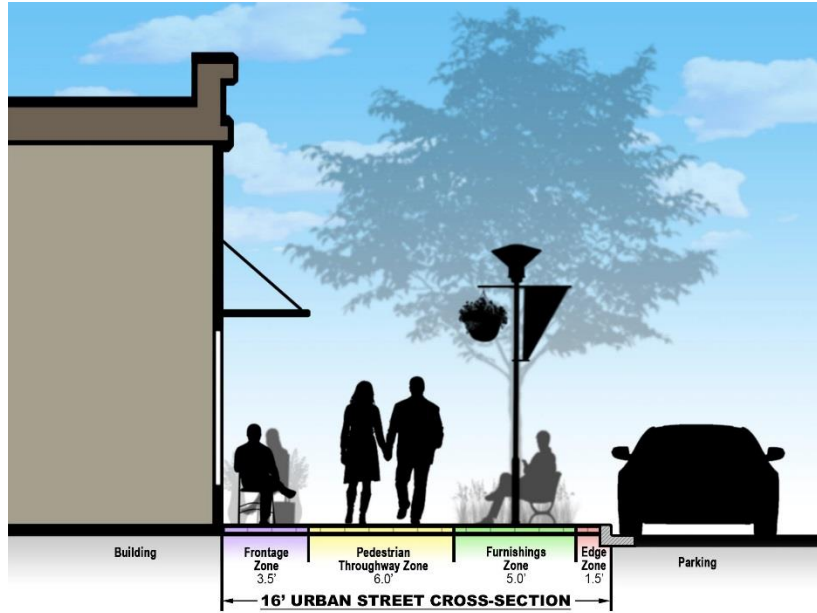


Figure 4.7-10: Urban Street Frontage Zones With Parallel Parking



Figure 4.7-11: Urban Street Frontage Zones Without Parallel Parking

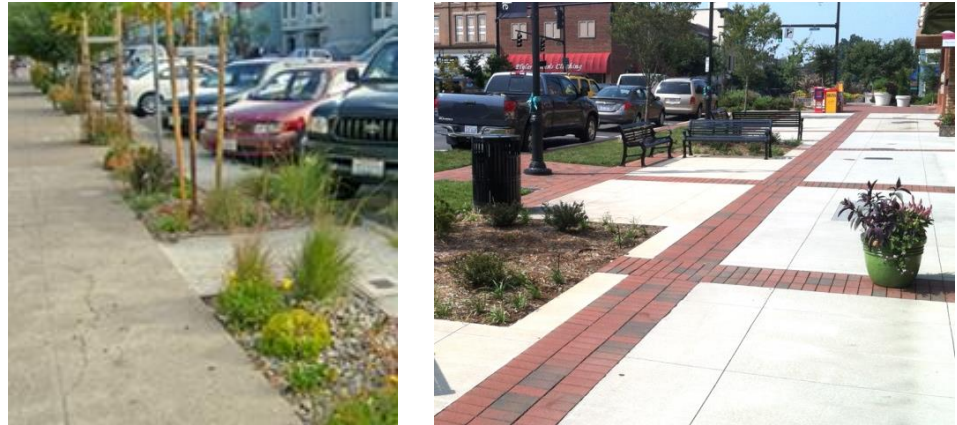


Figure 4.7-12: Urban Streetscape Examples

**b. Urban Street Trees**

Refer to the Landscape Reference Manual regarding the City of Aurora Recommended Xeriscape and No-Water Plant List for a list of recommended street trees.

**c. Mulch Rings**

A minimum four foot diameter mulch ring shall be placed around each tree planted within an urban turf area or within a tree opening within the pavement. The mulch ring shall consist of organic materials placed at a depth of not less than three inches. Crusher fines, crushed gravel or granite shall be not be used as a mulch in tree openings within pavement.

**d. Tree Opening Options**

Urban conditions often require special design considerations in an effort to preserve and promote urban tree canopy. Alternative tree planting and sidewalk modifications that could improve the life expectancy of an urban tree or that will provide a more advantageous growing area for tree roots and create opportunities for water quality may be approved by the Planning Director on a case-by-case basis based on appearance, durability, and potential success in achieving these goals in the location where the trees are to be installed. While not an all-inclusive list, designers may wish to consider the following options or propose other alternatives not currently listed below.

**i. Rubber Sidewalks**

Rubber sidewalks are not installed as deep and the material is not as thick as a traditional sidewalk thereby providing more space for tree root growth. The panels are pervious allowing storm water to seep down between the panels increasing infiltration rather than running into street gutters. Maintenance costs often associated with removing existing concrete, hauling it away and replacing it are reduced as panels can be easily be removed individually to examine and/or trim tree roots.



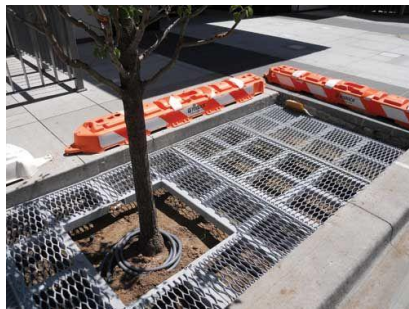
ii. **Structural Cells**

Structural cells are strong plastic structures that firmly support sidewalks and provide an expanded area for greater soil volume capacity. The increased soil volume can lead to an expanded rooting zone thereby supporting larger tree growth. It is an ideal low impact development option for the long-term co-existence of trees and streets.



iii. **Suspended Pavements**

Suspended pavements are a type of technology that support the weight of paving while creating a larger subsurface void space that is filled with native, excavated or a specified planting mix. The system allows for an increase in the soil capacity providing a greater rooting area composed of lightly compacted soil. This system aids in urban tree growth, provides a source for on-site treatment of storm water for water quality purposes and recharges the watershed.



## 5. Exceptions and Exemptions

- a. If an easement conflicts with the installation of street trees, applicants shall provide shrub equivalents. If vegetation of any type, other than grass is prohibited by the easement holder, then the applicant shall be required to provide the required trees elsewhere on site. Relocated street trees shall not be used to satisfy other required landscaping (i.e. building perimeter, open space tract landscaping, buffers etc.) If the applicant and the City determine that site constraints prohibit the relocation of the street trees, then the applicant shall request an administrative adjustment.
- b. Columnar trees will be permitted when a hardship is demonstrated, such as in confined planting areas or environmental conditions, and may be approved by the Planning Director on a case-by-case basis based on durability and appearance in the location where the tree is to be installed.
- c. Existing deciduous street trees in good health and condition may be used to satisfy the street tree requirement if they are part of the curbside landscaping as described in this Section 146-4.7.5.C.
- d. Evergreen trees shall not be used as street trees.

## D. Street Frontage Landscape Buffers

### 1. General

- a. Public and private street frontages shall include landscaping in accordance with this Section 146-4.7.5.D, unless another provision of this UDO or an approved Master Plan or Site Plan provides a different landscaping standard. The requirements of this Section shall be in addition to the required curbside planting (street trees and understory plantings) standards set forth in Section 146-4.7.5.C above.
- b. The required depth of a street frontage landscape buffer is measured inward from the back of sidewalk or from a public or private right-of-way when a sidewalk is not present. On private streets with no right-of-way line, the street frontage buffer depth shall be measured inward from the back of the sidewalk or if no sidewalk exists, the buffer is measured from the back of the nearest curb line. See Figure 4.7-13.

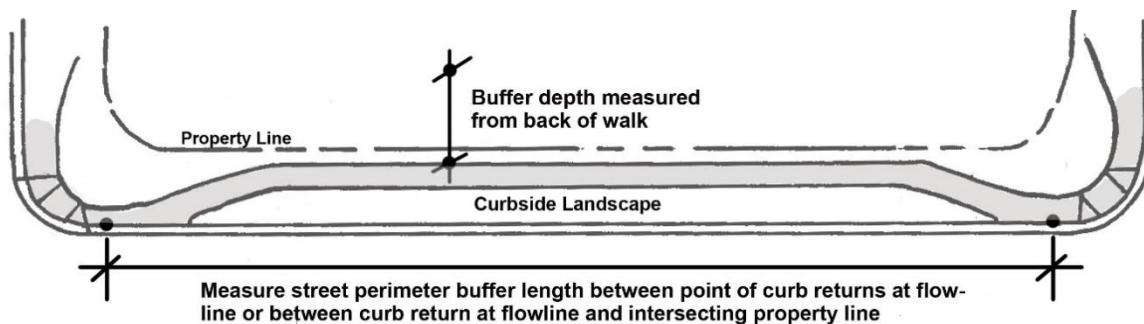


Figure 4.7-13: Street Frontage Landscape Buffer Measurement

### 2. Exceptions

- a. Landscape street frontage buffers for single-family detached and multifamily developments facing an arterial and/or collector street shall measure their street frontage buffer from the flow line. Refer to Figures 4.7-14 through 4.7-17.

- b. Street frontage landscape buffer requirements are not applicable to residential structures as noted in Table 3.2-1 (Permitted Use Table) with the exception of single-family detached homes whose rear lots face an arterial or collector street and multifamily residential developments fronting an arterial or collector street. Refer to Figures 4.7-14 through 4.7-17.

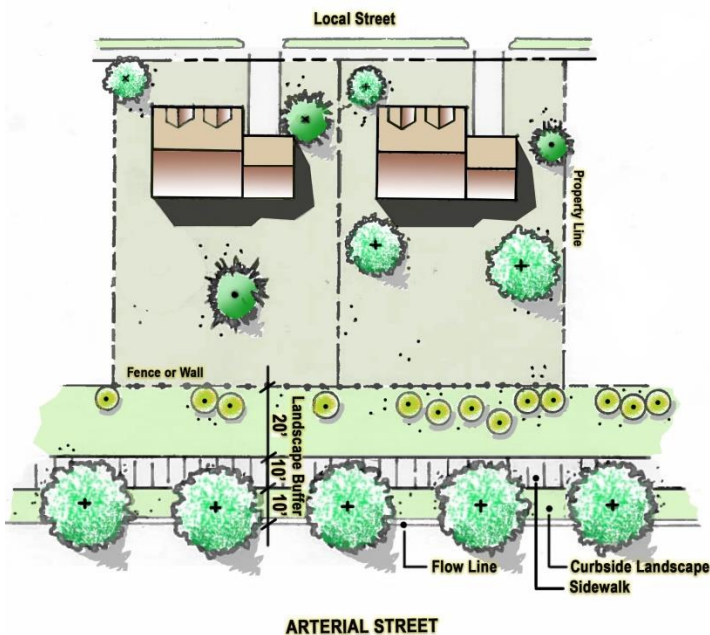


Figure 4.7-14: Arterial Street Frontage Buffer Measurement Detached Straight Walk



Figure 4.7-15: Arterial Street Frontage Buffer Measurement Detached Meandering Walk

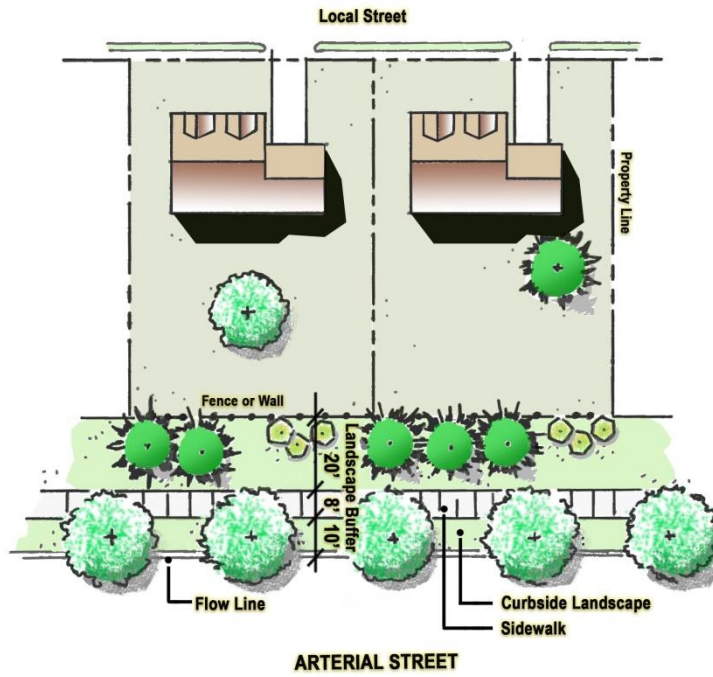


Figure 4.7-16: Arterial Street (Painted Median) Frontage Buffer Measurement Detached Straight Walk

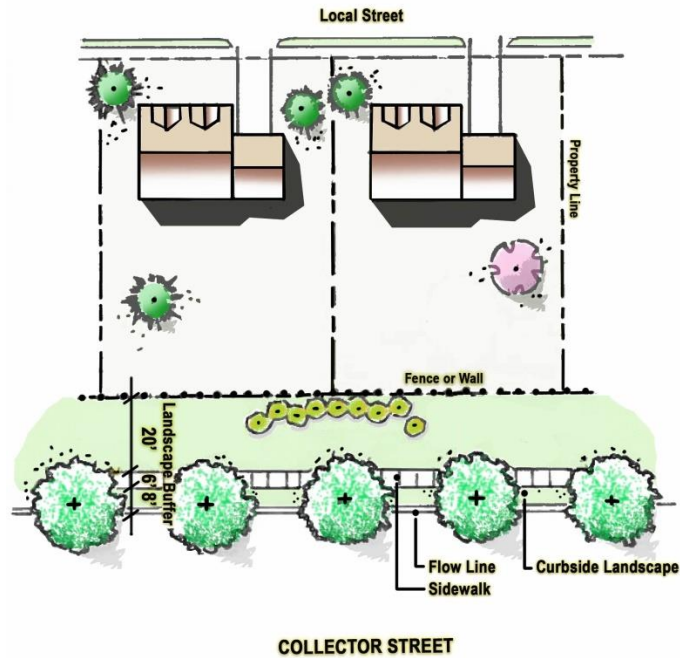


Figure 4.7-17: Collector Street Frontage Buffer Measurement Detached Straight Walk

### 3. Minimum Plant Material Quantities

#### a. Along Public or Private Rights-of-Way

- i. All required street frontage landscape buffers shall contain a minimum of one tree and 10 shrubs per 40 linear feet. Where single-family detached residential or multi-family residential abut an arterial or collector street, 50% of the trees provided shall be evergreen species. Buffer widths shall be in accordance with Table 4.7.2.

While shrubs may be provided as equivalents for trees as listed in Section 146-4.7.3, perennials may not be used as equivalents to meet screening requirements. Perennials may be provided as accents but may not count toward the minimum plant quantities. Shrubs and ornamental grasses may only be substituted for trees if the applicant demonstrates to staff that the site is encumbered.

- ii. Encumbrances shall include overhead and underground utilities, floodplain, easements, or the like. Self-imposed encumbrances such as drainage swales shall not be deemed encumbrances. Minimum required buffer depths and plant materials shall be required. Plant material shall be a combination of evergreen and deciduous trees and shrubs. Shrubs shall be chosen based upon their ability to provide appropriate screening and shall reach minimum mature height of between three to four feet. No more than twenty percent (20%) of the buffer plant material shall be ornamental grasses due to their limited buffering ability during the late fall through summer months. All plant material conversions shall be approved by the Planning Director on a case-by-case basis based on durability and appearance in the location where the materials are to be installed. See Figure 4.7-18.

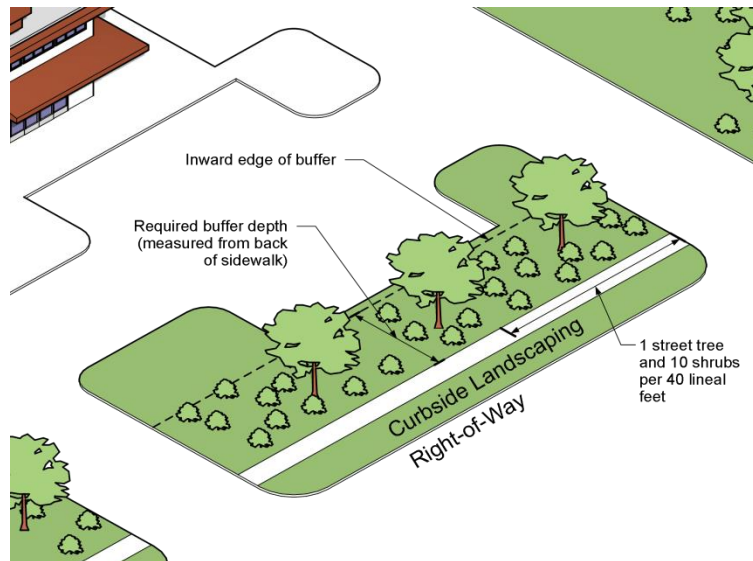


Figure 4.7-18: Street Frontage Landscape Buffer

### 4. Planting Design

Buffer plant material may not be concentrated in one location within the buffer, but shall be distributed to provide the necessary screening along its entire length. A minimum eight foot wide planting bed shall be maintained from the face of a wall or fence.



## 5. Encroachments into Buffers

No buildings or portions of buildings including porches or patios, drive lanes, sidewalks, detention ponds, parking stalls, dumpsters, or dumpster enclosures may intrude into the minimum required buffer.

## 6. Exceptions for Subarea A

- a. Street frontage buffers shall not be required for single-family detached, single-family attached, or two-family front yards and corner side yards visible from public view.
- b. Street buffers are not required adjacent to public or private park land.
- c. Properties in the MU-OA zone district area not required to comply with the street frontage buffer standards in this Section 146-4.7.5.D but are required to comply with the standards in Section 146-2.4.4 (Mixed-Use -- Original Aurora District (MU-OA)).
- d. Properties within the Havana Overlay District shall not be required to comply with the street frontage buffer standards within this Section 146-4.7.5.D, with the exception that grasses and perennials may not be provided as shrub equivalents for trees. Shrubs may only be provided as equivalents for trees when the site is encumbered. Encumbrances shall include overhead and underground utilities, floodplain, easements, or the like. Self-imposed encumbrances such as drainage swales shall not be deemed encumbrances. Minimum required buffer depths and plant materials shall be required. Plant material shall be a combination of evergreen and deciduous trees and shrubs. Shrubs shall be chosen based upon their ability to provide appropriate screening and shall reach a minimum mature height of between three to four feet. No more than twenty percent (20%) of the buffer plant material shall be ornamental grasses due to their limited buffering ability during the late fall through summer months. All other street frontage buffer requirements shall be required to comply with the standards in Section 146-2.6.7 (Havana Street Overlay (-HSO)).
- e. The MU-OA, MU-FB, MU-TOD, and MU-R zone districts call for intensive types of development that might be associated with an urban center, transit oriented development or main street. Such districts emphasize pedestrian friendly design, traditional main streets, mixing of uses and the creation of unique places. Development in such places is often characterized in part by relatively short blocks, narrow lots and narrow to zero building setbacks on the fronts and sides of the lots. Strict adherence to the requirements for setbacks or buffers as described in this UDO could limit the achievement of the purposes of such districts. Such development can benefit from flexibility in otherwise generally applicable zoning standards. The Planning Director may approve a modification of street frontage buffer standards in these zone districts pursuant to Section 146-5.4.4.F (Administrative Adjustments).

## 7. Exceptions for Subareas B and C

- a. All development and redevelopment shall meet the street frontage buffer requirements except when residential uses abut an arterial and collector street whose buffer depths shall be measured from the flow line. Refer to Figures Figure 4.7-14: Arterial Street Frontage Buffer Measurement Detached Straight Walk through 4.7-17.
- b. When a tract platted as a private common space tract is 20 feet or less in depth and separates the rear lot lines of a residential development from an arterial or

collector street, then a street buffer is required meeting the standards of this Section 146-4.7.5.D and Figures 4.7-14 through 4.7-17 is required.

- c. Where residential rear lots abut a private common space tract and the separation between the residential rear lot line and the arterial or collector street is greater than 20 feet, no street buffer is required, but the private common open space/tract landscaping standards in Section 146-4.7.5.I shall apply. See Figure 4.7-14.
- d. Street frontage landscape buffers shall not be required for single-family detached, single-family attached, or two-family front yards and corner side yards visible from public view.
- e. Street frontage landscape buffers are not required adjacent to public or private park land.

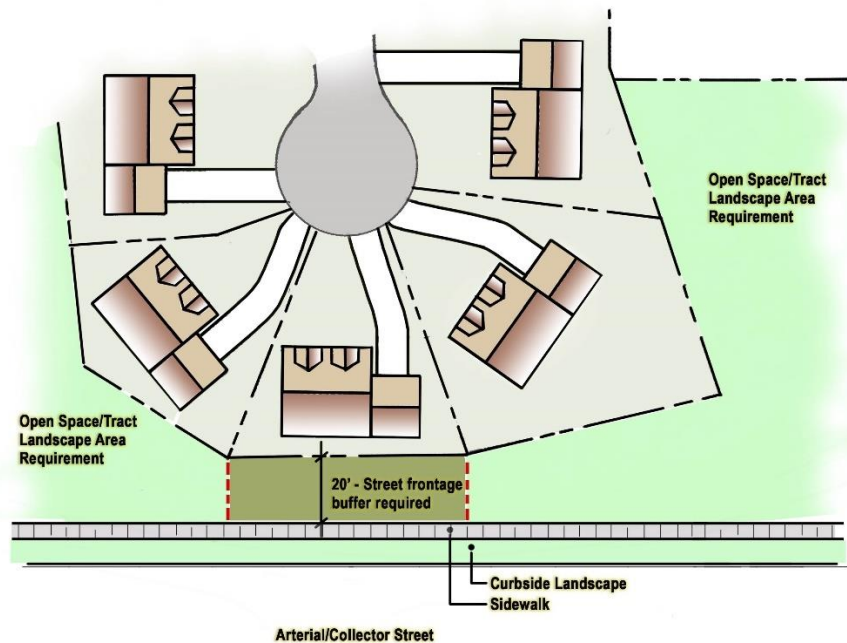


Figure 4.7-19: Street Buffer for Homeowners' Association Tracts Abutting Public or Private Streets

## 8. Fence and Wall Placement

- a. Where screen walls and fences are placed within a street frontage buffer, they shall be placed at the inward edge of the buffer or berm and shall not be used to reduce the buffer width to a distance less than the prescribed buffer or to prohibit the installation of the required landscaping unless permitted as stated in Table 4.7-2. Required buffer plantings shall be installed on the exterior or street-facing side of the buffer.
- b. If a wall or fence is provided along the rear property lines of residential homes along a street frontage, the required landscape buffer shall be provided within a designated lot or tract owned by a homeowners' association or Title 32 District. The tract containing the buffer and the plant material shall be located on the exterior or street-facing side of the wall or fence. Access for future maintenance and irrigation shall be provided by the property owner, homeowners' association, or Title 32 District.

- c. If a wall or fence is provided along the rear property lines of residential homes along a street frontage and there is a designated easement abutting the rear lots, a landscape buffer shall be provided within the developer's property or within a separate dedicated easement behind the public right-of-way approved by the Planning Director as consistent with other easements and service requirements. Access for future maintenance and irrigation shall be provided by the property owner, homeowners' association, or Title 32 District.
- d. Side yard fences and walls placed at corner lots of single-family, two-family, and single-family detached homes may be placed at the minimum fence setback line allowed by Section 146-4.7.9 (Fence and Wall Regulations).
- e. For fence and wall setback and material requirements along arterial, collector and other public and private streets and alleys, see Section 146-4.7.9 (Fence and Wall Regulations).

## **E. Non-Street Perimeter Buffers**

### **1. General**

- a. Non-street perimeter buffers occur along property lines with no street frontages. Non-street perimeter buffer requirements within the MU-OA zone district shall focus on screening surface parking lots, loading areas and drive-through lanes.
- b. All new development or redevelopment proposed adjacent to dedicated public park land and open space areas, including trail corridors, within Subarea A, B or C shall provide the required buffer in accordance with the Section 146-4.7.5.H (Special Landscape Buffers for Development Adjacent to I-70, I-225, E-470, Public Parks, Open Space, and Trails).
- c. Plant material shall be a combination of evergreen and deciduous trees and shrubs. Shrubs shall be chosen based upon their ability to provide appropriate screening and shall be selected to reach a mature height of between four and five feet. While upright junipers are commonly used for buffers, alternative plant material shall be integrated that are better suited to winter snow loads and provide year round visual interest such as the following:
  - i. Evergreen Trees: Compact White Spruce, Bakeri and Fastigiata Spruce, Emerald Arrow and Mint Truffle Bosnian Pine, Columnar Austrian Pine
  - ii. Deciduous Trees: Columnar oaks, upright Norway Maple, Tallhedge Buckthorn, Tower Poplar, Columnar Purple Plum

### **2. Plant Quantities**

- a. **Commercial and Industrial Buffers**
  - i. Commercial or industrial buffers adjacent to commercial, industrial, or other non-residential developments shall include one tree and five shrubs per 40 linear feet of buffer. At least 30 percent of the tree species shall be evergreen.
  - ii. Commercial and industrial buffers proposed adjacent to residential development shall include one tree and five shrubs for each 25 linear feet of buffer and 50 percent of the trees shall be evergreen species.
  - iii. Plant sizes shall be increased to three-inch caliper for deciduous shade trees and eight feet tall for evergreen trees between non-residential and residential uses.
  - iv. While shrubs may be provided as equivalents for trees as listed in Section 146-4.7.3.B.7, perennials may not be used as equivalents to meet screening requirements. Perennials may be provided as accents but may not count toward the minimum plant quantities. Shrubs and ornamental

grasses may only be submitted for trees if the applicant demonstrates that the site is encumbered.

Encumbrances shall include overhead and underground utilities, floodplain easements or the like. Self-imposed encumbrances such as drainage swales shall not be deemed encumbrances. Minimum required buffer depths and plant materials shall be required. No more than twenty percent (20%) of the buffer plant material shall be ornamental grasses due to their limited ability to buffer during the late fall through summer months.

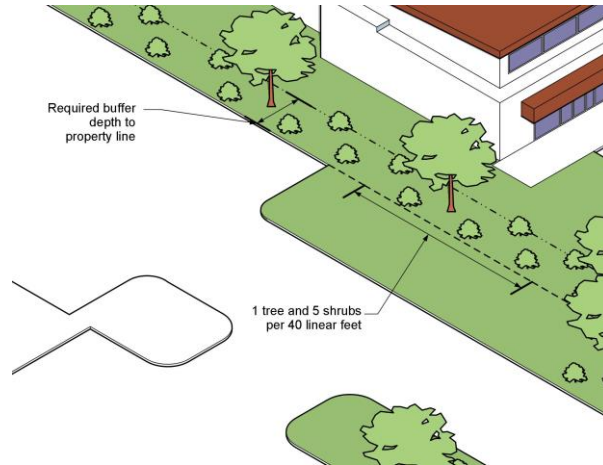


Figure 4.7-20: Commercial and Industrial Uses Adjacent to Commercial and Industrial Uses

## b. Residential Buffers

- i. Residential development proposed adjacent to industrial, commercial, commercial mixed-use properties, and all other non-residential properties shall include one tree and five shrubs for each 25 linear feet of buffer and 50 percent of the trees shall be evergreen species. See Figure 4.7-21.
- ii. When multifamily dwellings are located abutting lots containing any Household Living use listed in Table 4.3-1, the multifamily dwelling use shall provide one tree and five shrubs for each 40 linear feet of buffer.
- iii. Plant sizes shall be increased to three inch caliper for deciduous shade trees and eight feet tall for evergreen trees between non-residential and residential uses.
- iv. While shrubs may be provided as equivalents for trees as listed in Section 146-4.7.3.B.7, perennials may not be used as equivalents to meet screening requirements. Perennials may be provided as accents but may not count toward the minimum plant quantities. Shrubs and ornamental grasses may only be submitted for trees if the applicant demonstrates that the site is encumbered.

Encumbrances shall include overhead and underground utilities, floodplain easements or the like. Self-imposed encumbrances such as drainage swales shall not be deemed encumbrances. Minimum required buffer depths and plant materials shall be required. No more than twenty percent (20%) of the buffer plant material shall be ornamental grasses due to their limited ability to buffer during the late fall through summer months.

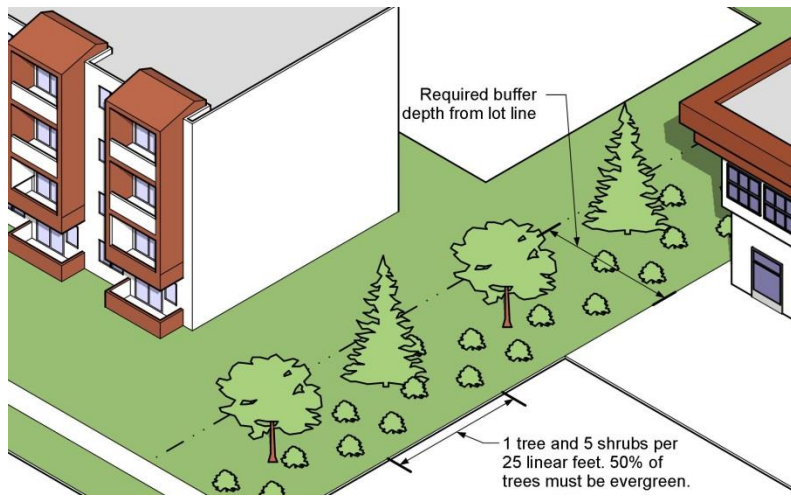


Figure 4.7-21: Residential Uses Adjacent to Non-residential Uses

### 3. Buffer Exceptions for Subareas A, B, and C

The following exceptions apply to development on individual lots or parcels.

- a. Non-street perimeter buffers shall not be required between the same or differing land uses within multiple phases of a single approved Master Plan.

Non-street perimeter buffers shall not be required between the same land use categories, as shown in Table 146-3.2-1 (

- b. Permitted Use Table) located in two adjacent approved Master Plans.
- c. Alternatives to non-street perimeter buffers adjacent to active rail lines may be approved on a case-by-case basis if the Planning Director determines that compliance with standards of this Section 146-4.7.5.E (Non-Street Perimeter Buffers) is impracticable due to rail-related maintenance operations associated with vegetative management. Approved alternatives shall meet one of the following standards, or a combination of them, as approved by the Planning Director:
  - i. Required plant material for the buffer shall be distributed elsewhere on site; or
  - ii. A minimum of 30 percent of the required plant material required to comply with other landscaping standards in this Section 146-4.7 (Landscape, Water Conservation, Stormwater Management), including but not limited to street perimeter, building perimeter, or detention pond landscaping, shall be upsized to compensate for the missing buffer plant material.
- d. Within the MU-OA zone district, proposed development and redevelopment shall be exempt from required non-street perimeter buffer standards in Table 4.7-2. Instead, all developments and redevelopments shall comply with the buffer requirements as defined in Tables 2.4-8 and 2.4-9 in Section 146-2.4.4.

#### 4. Encroachments into Buffers

No buildings or portions of buildings including porches or patios, drive lanes, sidewalks, structured or unstructured detention ponds, parking stalls, dumpsters, or dumpster enclosures may encroach into the minimum required buffer.

#### 5. Fence and Wall Placement

- a. Where screen walls and fences are permitted between property lines, they shall be placed at the inward edge of the buffer and shall not be used as a mechanism to reduce the buffer width less than required or prohibit the installation of the required landscaping unless permitted as stated in Table 4.7-2.
- b. Fences and walls may be used in combination with berming in order to negate the appearance of fence and wall canyons. Fences shall be on the inward side of the berm or buffer with plant material placement on the exterior side of the wall or fence.
- c. If a wall or fence is chosen as a buffer reduction feature or for the screening of outdoor storage and the adjacent property has an existing fence or wall, the installation of a new fence or wall may be approved by the Planning Director on a case-by-case basis to ensure maintenance access between the two fences. If approved, landscape shall be located on the interior side of the proposed wall or fence, or distributed to other areas of the site, as approved by the Planning Director based on effectiveness as a visual buffer and appearance from abutting streets or lots. Access for future maintenance and irrigation shall be provided by the property owner, homeowners' association, or Title 32 District.
- d. If the Planning Director determines that an existing fence on an adjoining lot may be used as a buffer reduction feature, the Director may require that the amount of buffer plant material being installed by the new development be increased in order to provide the same level of visual and sound buffering that would have been achieved through the installation of a second wall or fence.

**F.Required Landscape Buffer Widths and Allowed Reductions**

Buffer widths may be reduced when landscape incentive features are provided in addition to landscaping requirements otherwise required by this UDO. The required landscape buffer widths and permitted reductions in the Table below apply to all portions of Subareas A, B, and C except the following:

1. The MU-OA zone district
2. If a required buffer width is already located between a proposed residential use and multi-family or a non-residential use, then the residential development shall only be required to provide one-half the standard buffer width. Required plant quantities shall remain the same.

**G. Buffer Widths and Allowed Reduction Table**

1. All development and redevelopment shall comply with the provisions of Table 4.7-2 unless an exception or alternative standard is included in this UDO.

**Table 4.7-2  
Required Landscaping Buffer Widths and Allowed Reductions  
(N.A. = not applicable)**

	Residential [1]	Multi-family	Institutional [2]	Office, Commercial and Mixed-Use	Industrial
<b>STANDARD DESIGN [3]</b>					
Plant material quantities per code requirements. Standard design means without buffer reduction incentive features.					
At ROW [4] [5] [6]	N.A.	20 feet	10 feet	20 feet	Arterial ROW: 25 feet Other Public ROW: 10 feet
At adjacent residential property lines	N.A.	15 feet	25 feet	25 feet	25 feet
At adjacent multi-family property lines	15 feet	15 feet	25 feet	25 feet	20 feet
At adjacent non-residential property lines	25 feet	25 feet	25 feet	10 feet	18 feet
Adjacent to E-470, I-225, and I-70	25 feet	25 feet	25 feet	25 feet	25 feet
Adjacent to Parks & Open Space [7]	N.A. [8]	25 feet	25 feet	25 feet	25 feet

**INCENTIVE FEATURES TO REDUCE BUFFER WIDTHS [9]**

**Low Hedge or Berm with Hedge**  
Hedge: 3 to 4 foot high hedge planted in a triangular pattern in a double row with shrubs three feet on center.  
Berm: Must be a minimum of 3 feet in height. Slope no steeper than 1:3 rise: run. Berm to include the above noted hedge plant material.

At ROW	N.A.	18 feet	9 feet	15 feet	Arterial ROW: 25 feet Other Public ROW: N.A.
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**Table 4.7-2**  
**Required Landscaping Buffer Widths and Allowed Reductions**  
 (N.A. = not applicable)

	Residential [1]	Multi-family	Institutional [2]	Office, Commercial and Mixed-Use	Industrial
<b>Low Wall</b> Standard design plus 3 to 4 foot high masonry wall with landscaping on exterior side.					
At ROW	N.A.	15 feet	6 feet	10 feet	Arterial ROW: 25 feet Other Public ROW: N.A.
<b>Tall Landscape Screen [10]</b> Tall landscape screen shall consist of one of the following: (1) A mixture of evergreen shrubs planted 42" on center and deciduous trees planted 25' on center (2) A row of evergreen trees planted no less than 20' -25' on center with deciduous and evergreen shrubs interspersed.					
At ROW	N.A.	N.A.	N.A.	N.A.	Arterial ROW: 25 feet Other Public ROW: 8 feet
At adjacent residential property lines	N.A.	12 feet	20 feet.	20 feet	20 feet
At adjacent multifamily property lines	12 feet	10 feet	20 feet	20 feet	15 feet
At adjacent non-residential property lines	20 feet	20 feet	20 feet	5 feet	18 feet
Adjacent to E-470, I-225, and I-70	20 feet	20 feet	20 feet	20 feet	20 feet
<b>Fences [11] [12]</b> Standard design plus six-foot decorative fence per the fence code Section 4.7.9 with landscaping on exterior side					
At ROW	20' [10]	N.A.	N.A.	N.A.	Arterial ROW: 25 feet Other Public ROW: 8 feet
At adjacent residential property lines	N.A.	10 feet	18 feet	18 feet	18 feet
At adjacent multi-family property lines	10 feet	10 feet	18 feet	18 feet	18 feet
At adjacent non-residential property lines	18 feet	18 feet	18 feet	5 feet	12 feet
Adjacent to E-470, I-225, and I-70	20 feet	20 feet	20 feet	20 feet	15 feet
<b>Masonry Walls</b> Standard design plus six-foot masonry wall with landscaping on exterior side					
At ROW	20' [11]	N.A.	N.A.	N.A.	Arterial ROW: 25 feet Other Public ROW: 6 feet
At adjacent residential property lines	N.A.	N.A.	12 feet	15 feet.	12 feet



**Table 4.7-2**  
**Required Landscaping Buffer Widths and Allowed Reductions**  
 (N.A. = not applicable)

	<b>Residential [1]</b>	<b>Multi-family</b>	<b>Institutional [2]</b>	<b>Office, Commercial and Mixed-Use</b>	<b>Industrial</b>
At adjacent multi-family property lines	N.A.	N.A.	12 feet	12 feet	12 feet
At adjacent non-residential property lines	15 feet	12 feet	12 feet	N.A.	N.A.
<b>Adjacent to E-470, I-225, and I-70</b>	15 feet	15 feet	15 feet	15 feet	15 feet

[1] Includes all residential uses listed in Table 3.2-1 ( Permitted Use Table) except multifamily dwellings.

[2] Includes all institutional uses listed in Table 3.2-1 ( Permitted Use Table) except parks and open spaces.

[3] Standard design refers to the required plant material per linear foot of required buffer.

[4] Buffer reductions are not permitted for industrial developments along arterial streets.

[5] When an Urban Street Frontage is required by or approved under this UDO, no street frontage buffers are required.

[6] Where the rear lots of single-family detached and multifamily, abut an arterial or collector roadway, a 20 foot wide landscape setback is required in accordance with Section 146-4.7.9.H Buffer reductions are not permitted for multi-family dwelling units adjacent to arterial and collector streets.

[7] Buffer reductions are not permitted adjacent to parks, trails, or open space.

[8] Single-family residential developments are exempt from the 25 foot buffer except under those circumstances noted in Section 146-4.7.5.H.2.b.iii

[9] Landscape plant material quantities shall remain the same regardless of any approved reduction in buffer width.

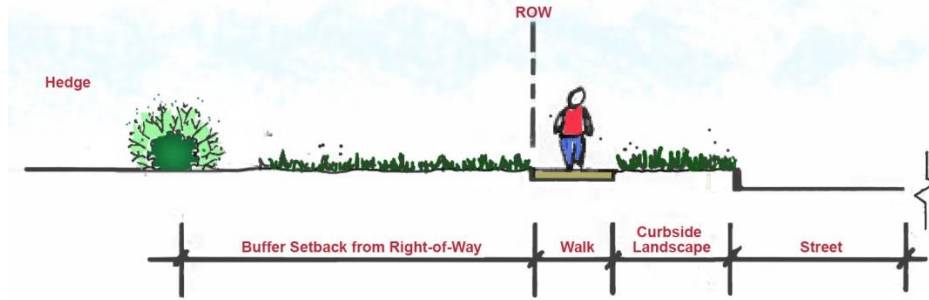
[10] For a tall landscape screen, deciduous trees and evergreen trees shall mature to a height of 15-25 feet tall, and shrubs shall mature to an average height of five feet tall. If option 2 in Table 4.7-2 is chosen, then 50 % of the buffer trees shall be evergreen species.

[11] Fences and masonry walls shall not be permitted as a buffer reduction feature installed along the rear lots of homes adjacent to arterial and collector streets.

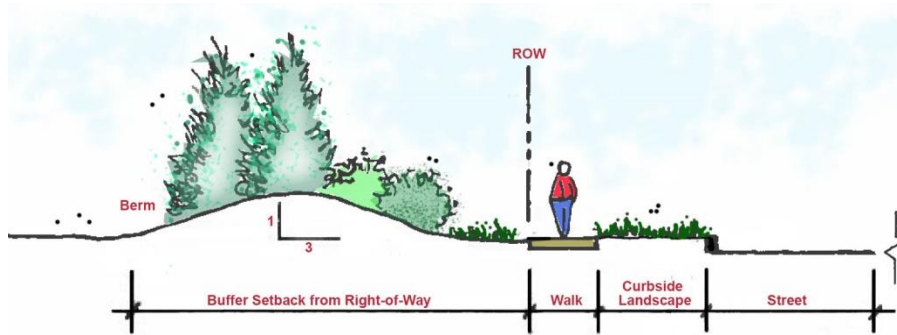
[12] Parallel fencing along adjoining properties shall be avoided to the maximum extent practicable to avoid inefficiencies in maintaining either fence. If two parallel fences are necessary, a minimum separation of 10 feet shall be maintained for maintenance purposes.

2. The incentive features listed in Table 4.7-2 are illustrated below.

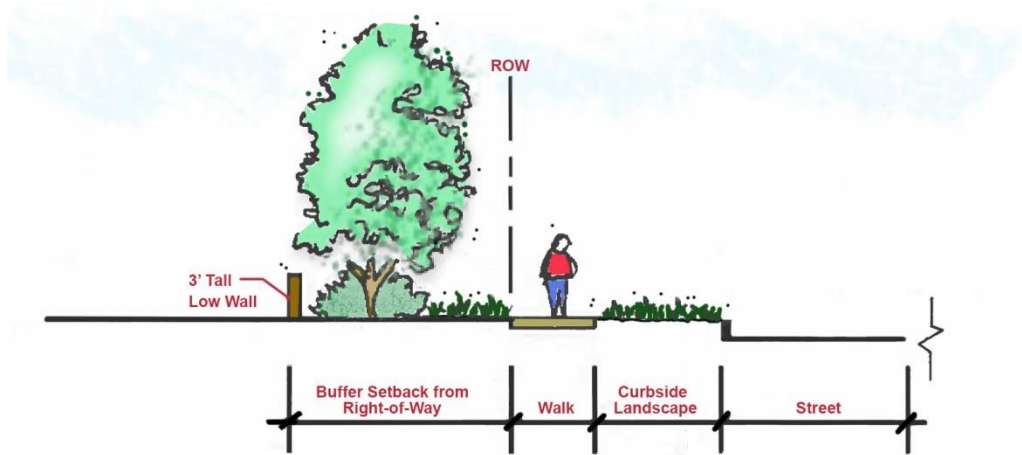
a. Hedge



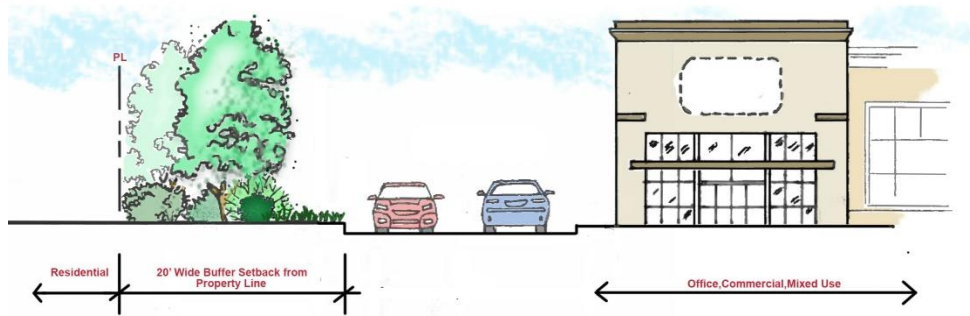
b. Berm with Hedge



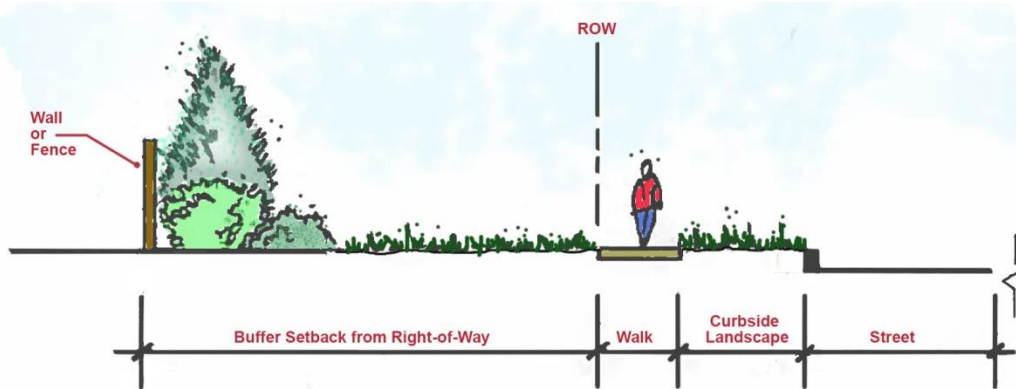
c. Low Wall



d. Tall Landscape Screen



e. Fence and/or Masonry Wall



**H. Special Landscape Buffers for Development Adjacent to I-70, I-225, E-470, Public Parks, Open Space, and Trails**

**1. General**

- a. The following additional standards apply to development adjacent to E-470, I-225, I-70, and public parks, open space, and trails. The purpose of these standards is to require a level of landscape quality with aesthetic characteristics appropriate for areas with high public visibility based on the type of adjacent landscape and uses. If the standards of this Section 146-4.7.5.H conflict with other buffer requirements in Section 146-4.7, the provisions of this Section 146-4.7.5.H shall apply.
- b. Landscaping shall include one tree and 10 shrubs per 25 linear feet of frontage when the site contains industrial development, and one tree and 10 shrubs per 30 feet when the site contains any other type of development.
- c. The encroachment of buildings or portions of buildings including porches and patios, trash enclosures, dumpsters, parking lots and internal vehicular drives, sidewalks and detention and water quality pond infrastructure into landscape buffers is prohibited. Exceptions to this rule in the case of public parks, open space and trail buffers including the provision of trail connections, may be made on a case-by-case basis by the Parks, Recreation and Open Space Department based on unique site conditions and alternatives to those impacts, including any proposed mitigation measures. The provision of trail connections through buffers is generally permitted, but at those locations approved by the Parks, Recreation and Open Space Department based on trail connectivity, public safety, and appearance.

## 2. Buffer Standards for Areas Adjacent to Public Parks, Open Space, and Trails

- a. These regulations apply to all development adjacent to public parks and open space areas and trails under the jurisdiction of the City, including lands that Title 32 Districts, homeowners' associations, business associations, or other entities manage for public use and benefit to comply with City land dedication requirement for park and open spaces purposes.
- b. The following buffer standards shall apply to buffer and screen public use areas and to minimize potential adverse impacts from adjacent land uses.
  - i. A 25 foot wide buffer shall be required, and plantings shall not encroach past the property line into the designated public use property.
  - ii. Buffer width reductions are not permitted for buffers adjacent to public open spaces, public parks, and public trails.
  - iii. Single-family detached residential developments shall be exempt from the buffer requirement, except when the rear yards of residential lots abut an open space or park that has sensitive natural features or is part of a special habitat area, in which case a buffer consistent with the protection needs of the resource or the planned ecological character for the habitat shall be required.
  - iv. The landscape design of buffers consisting of all living material including trees, shrubs, grasses, and groundcovers and non-living materials including boulders, cobble, rock, and wood chips/mulch and the proposed grading for buffers shall be coordinated with and approved by the Parks, Recreation and Open Space Department.
  - v. The Parks, Recreation, and Open Space Department may approve a landscape design having less plant material than required by the buffer standards based on the existing or proposed character and management objectives of the adjacent park, open space or trail, without the need for the applicant to obtain a Hardship Variance pursuant to Section 146-5.4.4.A or an Administrative Adjustment pursuant to Section 146-5.4.4.F.
  - vi. If a fence is proposed as an aesthetic enhancement or a functional element of a buffer, it must comply with standards of Section 146-4.7.9.K (Fences and Walls Along Open Space Tracts, Parks, Reservoirs, Golf Courses, Trails, and Drainage Ways.).
  - vii. If a wall is proposed to retain or transition surrounding grade as part of the buffer, the Parks, Recreation and Open Space Department may specify the material and method of construction to ensure compatibility with the character of the adjacent public use area. Walls must be contained within the buffer and not extend onto park or open space property.
  - viii. The Parks, Recreation, and Open Space Department may require that buffers be left undisturbed and be maintained and managed in a natural state to supplement an adjoining open space area or natural feature if resource management objectives support conservation of the acreage.

## 3. Buffer Standards for Areas Adjacent to the E-470 Multi-Use Easement

If not specifically stated in a Master Plan, buffer locations shall be determined by the E-470 Authority based upon the proposed use of their multi-use easement.

### a. Outside the E-470 Multi-Use Easement

Required trees shall consist of large deciduous shade tree species and large evergreen tree species. At least 50 percent of required trees shall be evergreen species and shrubs may consist of tall deciduous species and evergreen species planted a minimum of five feet on center.

**b. Within the E-470 Multi-Use Easement**

Landscaping shall include a combination of dryland grasses, trees, and shrubs. A minimum of 50 percent of the required trees shall be evergreen species.

**c. Spacing of Plantings**

Like tree species may be grouped with spacing not less than 25 feet on center for small deciduous trees; 35 feet on center for large deciduous trees; and 15 feet on center for evergreen trees. The maximum distance between groups may not exceed 45 feet on center. Planting a single row of trees the full length of the buffer is prohibited. Shrubs shall be massed and planted between the tree groups.

**I. Private Common Open Space/Tract Landscaping**

**1. General**

In all development, areas of land that have been disturbed during construction and are required or designated to be preserved and protected from future development for non-public active and passive recreation areas and facilities, trails, wildlife habitat, or the preservation of view corridors and natural land features, shall be landscaped in accordance with Subsections 2 and 3 below.

**2. Minimum Plant Material Quantities**

All private common open space not defined as street buffers shall contain a minimum of one tree and 10 shrubs (or the approved tree and shrub equivalents as listed in Section 146-4.7.3.B.7 per 4,000 square feet.

**3. Exceptions**

The calculation of required plant material in such open spaces excludes areas of the 100 year floodplain, floodways, lakes and ponds, undisturbed marshes, wetlands and detention and water quality ponds.

**J. Building Perimeter Landscaping**

**1. General**

Building perimeter landscaping shall be required for multifamily, single-family attached (townhouse), and non-residential developments. Plantings shall be arranged to screen utility hardware and mechanical equipment, define entrances, and soften featureless walls. Building perimeter landscaping shall be located in conjunction with site furniture in order to enhance entrances. Trees and/or tall growing shrub species shall be located within shrub beds at building corners, primary entrances and along expanses of walls. Sites having expansive soils requiring specialized landscaping, irrigation techniques and concepts in order to comply with these standards shall not be exempt from building perimeter landscape requirements found in this Section.

**2. Non-residential and Mixed-Use Structures**

**a. Requirements**

Building perimeter landscaping is required for all non-residential buildings in Subareas A (excluding the MU-OA zone district), B and C when said building elevations face public streets, transportation corridors, public open space, residential neighborhoods, or whenever an entrance door is present. Applicants shall provide one tree or tree equivalent for each 40 linear feet of elevation length.

**b. Exceptions**

Urban Street Frontages and portions of building perimeters occupied by service and/or loading dock doors are not required to comply with this Section 146-4.7.5.J.

**c. Types and Locations**

- i. Building perimeter landscaping shall be located within 20 feet of the building face unless prevented by loading docks.
- ii. Building perimeter landscaping may be installed in plant beds or raised planters. Plant beds located adjacent to building foundations shall be a minimum of five feet wide. The length shall be determined by the number of plants that are needed to meet code requirements. Planters shall be sized to accommodate the required plantings and ensure survivability.
- iii. Containers shall be constructed of materials that are durable, compatible, and complement the architecture of the building. The number of required containers shall be based on tree equivalents as found in this Section.
- iv. Landscaped parking lot islands located within 20 feet of the building elevation may be counted towards building perimeter landscaping.

**d. Parking Structures**

**i. Subarea A**

The installation of perimeter landscape around parking garages for infill and redevelopment sites is not always feasible due to existing site constraints. When this occurs, the applicant shall provide architectural enhancements to the parking structure in the form of decorative, ventilated walls and grill work to effectively obscure automobile and interior lighting from the exterior. Refer to Section 146-4.6.5.E (Parking Garage Design) for further suggested buffer/landscape treatments.

**ii. Subareas B and C**

Architectural enhancements such as screen and landscape walls as well as art may be used in combination with foundation plantings to create a highly effective buffer and screen. Plant quantities, types, and locations shall comply with standards as noted in Subsections 2.a and 2.c above. Landscaping shall be required along all building faces. If overlapping landscape requirements occur such as building perimeter, street and non-street frontage buffers, the more restrictive requirement shall be applicable and may count for meeting both requirements.



**3. Multifamily and Single-family Attached (Townhome) Residential Structures**

**a. Requirements**

Building perimeter landscaping is required for all multifamily and single-family townhome residential dwellings. Landscaping shall consist of a variety of plant material that will ensure seasonal interest.

**b. Types and Locations**

- i. Plant beds shall be an average of six feet wide and shall consist of landscaping, mulch, and metal edging. Edger shall be provided when adjacent to turf and rock mulched areas.
- ii. Perimeter plantings shall consist of a total number of plants equal to 1.25 plants per five linear feet of unit perimeter footage, of which:
  - a. At least five percent are a mixture of evergreen and deciduous trees;
  - b. At least 15 percent are tall shrubs with a mature height of at least six feet; and
  - c. Up to 80 percent are a mixture of evergreen and deciduous shrubs chosen to create seasonal interest. See Figure 4.7-22.

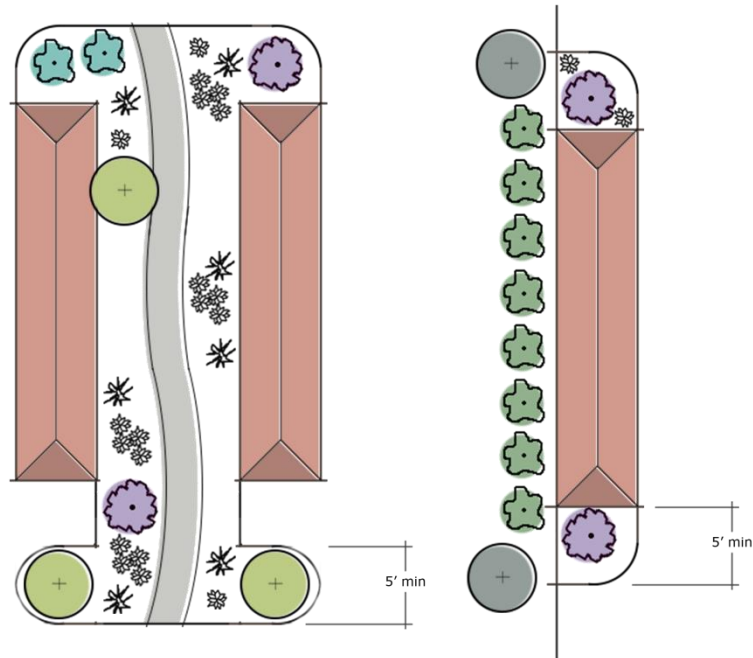


Figure 4.7-22: Building Perimeter Landscaping

**c. Garages**

For projects with detached garages or carports, landscaped islands a minimum of five feet in width shall be provided along the full width of both ends of the garages and/or carports. See Figure 4.7-23.

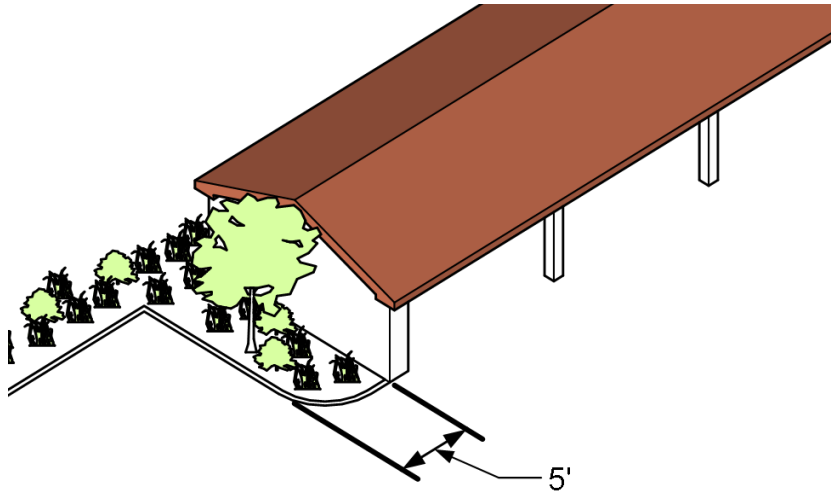


Figure 4.7-23: Perimeter Landscape for Detached Garages or Carports for Multifamily and Single-Family Attached Uses

## K. Parking Lot Landscaping

The following standards apply to surface Parking Lots. Parking Garages shall comply with Section 146-4.7.5.J (Building Perimeter Landscaping).

### 1. General

- a. Internal parking lot landscaping shall be required for parking lots containing more than 10 parking spaces.
- b. Screening of parking lots is required in all Subareas, and zone districts, and is not dependent upon the number of parking stalls or parking lot size.
- c. Trees shall not be eliminated due to the placement of light poles in parking lot islands or parking lot perimeter landscaping.
- d. No interior portion of a parking lot may contain turf, native seed, or artificial turf.
- e. Parking lot landscaping MU-OA zone district shall focus on perimeter screening of the parking lot. Trees shall be provided, at a minimum, at the ends of parking rows on the exterior or perimeter of the parking lot. Interior parking lot landscaping shall be approved by the Planning Director on a case-by-case basis to balance the need for landscaping consistent with the purpose of the MU-OA zone district with the competing requirements for fire lanes, adequate parking, access and development potential of small infill and redevelopment parcels.

### 2. Parking Lot Layout

- a. All surface parking lots shall comply with the par standards in Section 146-4.6.5.D (Parking Lot Layout and Design).
- b. To the extent consistent with other standards in this UDO and to the maximum extent practicable, all surface parking lots shall be designed to minimize negative visual impacts from adjacent primary roadways and properties.
- c. To the maximum extent practicable, on-site drainage shall be integrated into the parking lot planting islands and perimeter planting areas as a means of treating stormwater for water quality purposes in accordance with Public Works and Aurora Water criteria and Figure 4.7-24.



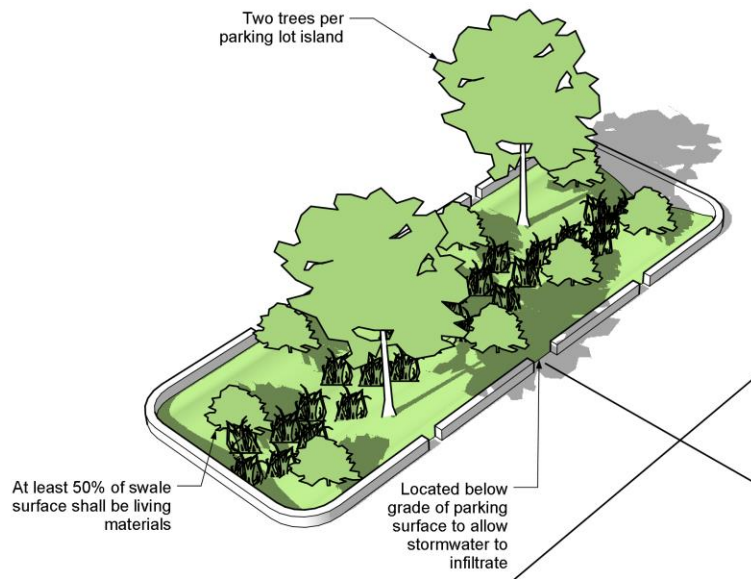


Figure 4.7-24: Parking Lot Stormwater Treatment Design



### 3. Interior Parking Lot Landscaping

- a. No parking row shall exceed 15 parking spaces without an intervening landscaped island, median or landscaped peninsula.
- b. All rows of parking spaces shall be provided with a terminal landscape island to protect parked vehicles, provide visibility, confine moving traffic to aisles and driveways, and provide space for landscaping.
- c. Each landscaped island shall be protected by raised concrete curbs, which shall include openings at grade as necessary to allow stormwater to flow into any below grade landscaped swales. The planting area per tree shall be not less than nine foot by 19 foot for a single island and not less than nine foot by 38 foot for a double island. See Figures 4.7-24 through 4.7-26.
- d. Interior parking lot islands shall be provided with a minimum of one canopy shade tree per nine foot by 19 foot island and two canopy shade trees per nine foot by 38 foot double island.
- e. Ornamental trees may be used as accents at the ends of parking rows, but shall not be used as the primary shade tree within the parking lot
- f. In addition to trees, grasses (maximum 30% per island) and shrubs with trees shall be provided at a ratio of six (6) plants per nine by 19-foot island or 12 plants per nine by 38-foot island. Plant materials shall be sited appropriately to not exceed the confines of the planting area.

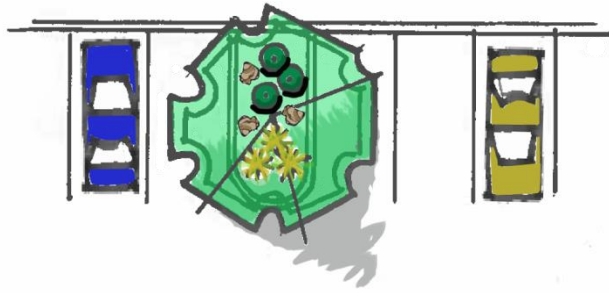


Figure 4.7-25: 9 foot by 18 foot Landscape Island Typical

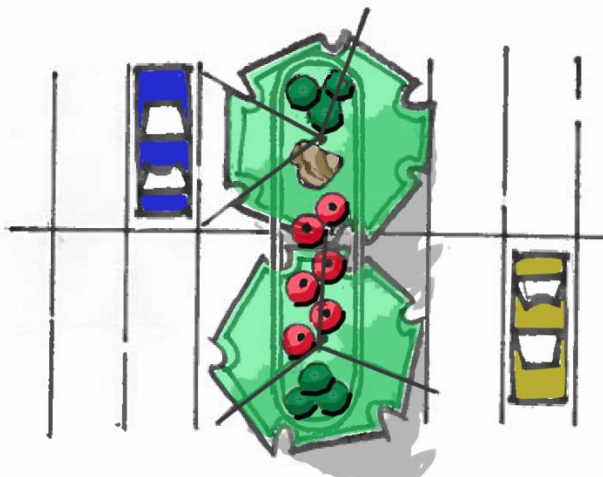


Figure 4.7-26: 9 foot by 38 foot Landscape Island Typical



- g. Landscaped islands may be mulched with either wood or rock mulch. The use of white rock mulch is prohibited.
- h. Where shared parking lots serve two or more adjacent lots, the requirements for perimeter landscaping between shall be determined by the Planning Director on a case-by-case basis to prevent parking lots on two adjacent lots from appearing as one large expanse of paving.
- i. Solar panels may be installed in lieu of parking islands. Trees shall be required around the perimeter of the parking lot and in terminal islands at the ends of parking rows.



#### 4. Parking Block Design

- a. No more than 120 parking spaces or two parking rows maximum. Provide a landscaped median 20 feet in width with a pedestrian walk. See Figure 4.7-27.

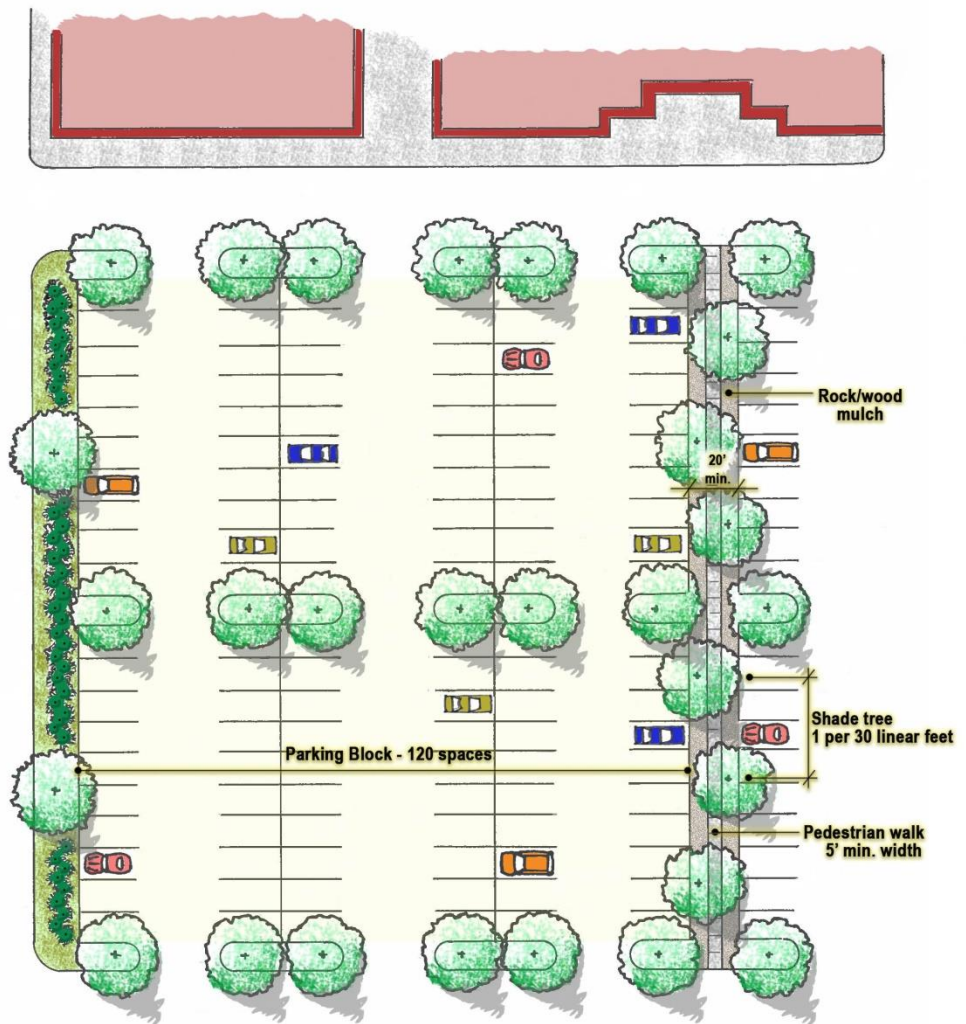
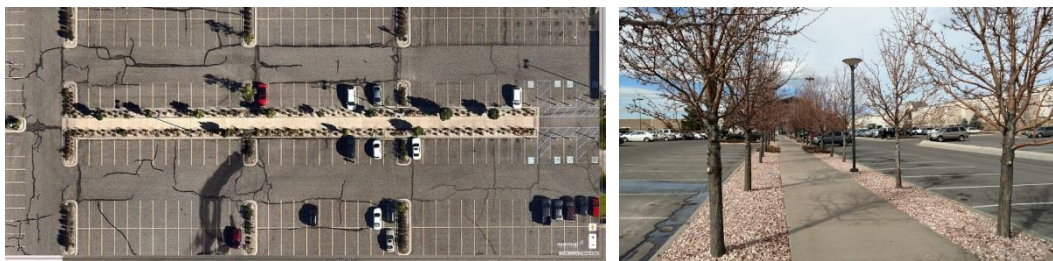


Figure 4.7-27: Landscape Areas in Surface Parking Lots



- b. Parking lot medians shall be landscaped with one shade tree per 30 linear feet of median length and one or more understory treatments that may include mulch, mulched shrub beds or decorative rock mulch. Shrubs shall be provided at a ratio of six shrubs per 36 linear feet of median. Shrubs may be grouped.



- c. Landscaping shall be protected from vehicles by the placement of wheel stops, curbs, or other acceptable means. If wheel stops are not used, the landscape bed shall not be reduced by two or more feet to accommodate vehicle overhang. If a pedestrian walkway is used for vehicle overhang, then the walk shall be widened by two feet.
- d. Whenever pedestrians must cross internal landscaped medians, the median shall be landscaped with a combination of hardscape materials and living plant material. Hardscape shall consist of concrete, modular pavers or decorative stamped and integral colored concrete.

## 5. Parking Lot Perimeter Screening

- a. Parking lots shall be visually screened from the public right-of-way, open space, and adjacent property. Such screening can be integrated into buffer requirements and is not in addition to such buffer requirements when the buffer and parking lot screening overlap with one another.
- b. When not integrated as part of a required buffer, a minimum four foot buffer width shall be provided for screening around the perimeter of all parking lots.
- c. Parking lots may be screened by one or more of the following methods:
  - i. A berm between three and four feet high with a maximum slope of 3 in 1 in combination with evergreen and deciduous trees and shrubs. Screening shall be integrated with incentive features and streetscape plantings whenever possible.
  - ii. In lieu of berms, a low continuous landscaped hedge between three and four feet high consisting of a double row of shrubs planted 3 feet on center in a triangular pattern. See Figures 4.7-28 and 4.7-29.
  - iii. A decorative masonry wall three feet high in combination with shrubs, ornamental grasses, and perennials. Plant material shall be placed on the exterior side of the wall.
  - iv. Openings in screening may be permitted to allow access ways and for drainage purposes.
  - v. Plant material used for screening shall achieve required opacity within three years of construction of the vehicular use area to be screened.

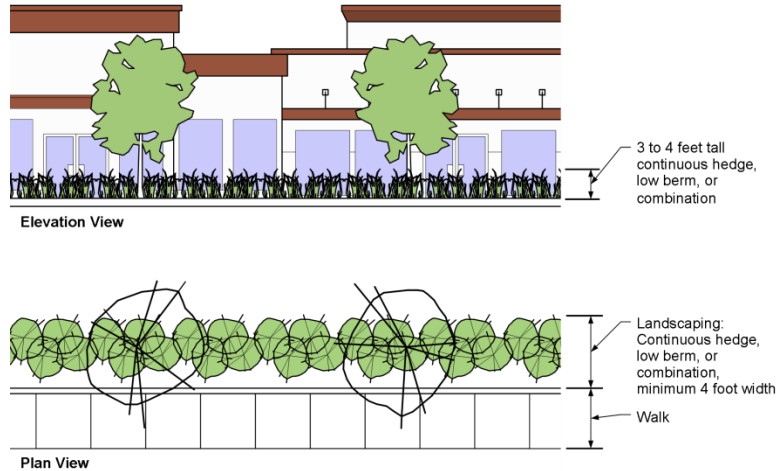


Figure 4.7-28: Parking Lot Screening



Figure 4.7-29: A Low Wall in Combination with Landscaping to Screen the Parking Lot

- d. Shrubs species shall be chosen that will reach a minimum height of three feet at maturity. At least 50 percent of the shrubs shall be deciduous flowering species. Whenever parking lots abut public open space plant materials shall be selected that are compatible with the natural character of the area.
- e. Large shade and evergreen tree species and/or small trees or large shrub species shall be used as accents throughout the screen planting in conjunction with buffer and street frontage plantings to offset the horizontal lines of a typical shrub bed. At least one tree per 40 linear feet of parking lot perimeter.
- f. Ornamental grasses shall not be used to screen parking lots.

## 6. Surface Parking Lots as a Primary Use

In addition to the standards in Subsections 1 through 5 above, surface parking lots as a primary use of land shall comply with the following standards. If the standards in this Section 146-4.7.5.K.6 conflict with standards in Subsections 1 through 5 above, the provisions of this Subsection 6 shall apply.

### a. Interior Landscaping

Developments whose primary purpose is for outdoor recreational vehicle storage, car sales, or airport parking are exempt from these requirements or have modified interior parking lot landscape requirements as noted below.

#### i. Outdoor recreational vehicle storage and car sales

Only patron and/or employee parking areas are required to comply with the interior parking lot landscape requirements in Section 146-4.7.5.K.3.

- ii. **Airport parking**
  - a. All parking rows shall be provided with a terminal landscaped island to protect parked vehicles, confine and direct moving traffic to aisles and driveways and provide space for landscaping.
  - b. Terminal end islands shall be provided with a minimum of one canopy large shade tree per nine foot by 19 foot island and two canopy large shade trees per nine foot by 38 foot island. Large canopy shade trees shall be those that achieve a minimum crown width of 25 feet at maturity.

**b. Perimeter Landscaping (Screening)**

A landscape buffer is required to provide the following types of screening for all outdoor recreational vehicle storage facilities, motor vehicle and light truck sales and rental facilities and airport-related parking lots:

**i. Car Sales**

Street and non-street frontage buffers shall be required for those portions of the development not being used for car sales/advertising immediately adjacent to a public or private street frontage and non-street frontage. Screening shall be provided in accordance with the required parking lot screening requirements and/or required non-street frontage buffer requirements as defined in Section 146-4.7.5.E (Non-Street Perimeter Buffers) and 146-4.7.5.K.54.7.5.K.5 (Parking Lot Perimeter Screening). For developments located within the Havana Overlay District, refer to Section 146-2.6.7 for street frontage landscaping requirements.

**ii. Airport Parking Facilities**

A landscape buffer shall be provided along the perimeter of all airport-related parking lots in accordance with the buffer requirements in Section 146-4.7.5.D (Street Frontage Landscape Buffers) and 146-4.7.5.E (Non-Street Perimeter Buffers). If a fence is installed for security, the fence shall be set back a minimum of 25 feet from the back of walk or property line. A 25 foot wide buffer shall be provided and the fence shall be placed on the inward edge of the buffer.

**L Site Entryways and Intersections**

1. Distinctive landscaped areas shall be provided at project entries and at intersections of public streets adjacent to proposed development, and those areas may be counted toward street buffer requirements. If specific guidance has not been provided within an approved Master Plan, then a design shall be provided at the time of Site Plan submission.



2. Entryway landscaping shall be installed within the MU-OA zone district to the maximum extent practicable given the existing site conditions and the extent of redevelopment

occurring on each lot. Site entry landscaping shall consist of plant specimens having a high degree of visual interest during all seasons. A mixture of shrubs, flowers, and/or ground cover shall be planted around sign bases and at curb returns near site entrances, and shall be located in plant beds that are edged and mulched.

## **M. Detention and Water Quality Ponds**

### **1. General**

Detention and water quality ponds shall be integrated physically, functionally, and aesthetically into the total landscape design. Standing water shall be avoided to the maximum extent practicable, unless part of a recirculating water feature or located in wetland vegetated areas. Water quality enhancement areas within the bottom of the pond shall be planted with vegetation that is consistent with the presence of saturated soils, such as cattails.

### **2. Slopes**

Generally, vegetated slopes shall not exceed one foot of rise to three feet of run (3 to 1). All pond turf areas shall be properly drained. Any mowed slope that is within a public right-of-way or any area proposed to be maintained by the public shall be no steeper than one foot of rise to four feet of run (4 to 1). If retaining walls are installed, they shall comply with the standards in Section 146-4.7.9.T (Retaining Walls).

### **3. Pond Grading**

Pond grading shall be designed to accommodate access for maintenance. Rockscaped or riprap slopes are only permitted when necessary for erosion control. All riprap areas not receiving direct flows shall be buried and seeded.

### **4. Landscape of Areas Surrounding Detention, Retention, and Water Quality Ponds**

The area within the tract surrounding a pond shall contain a minimum of one tree and 10 shrubs or the approved tree and shrub equivalents as listed in Subsection 2.1.1.A per 4,000 square feet above the 100 year water surface elevation. The 100 year water surface elevation shall be indicated on the landscape plan. The bottom of ponds shall be seeded and/or planted with water tolerant seed or plant materials that are capable of handling occasional water inundation. Plantings of willows and other wetland plant materials shall be included to the maximum extent practicable. The following areas may be deducted from tract square footage before calculating landscape requirements:

- a. Area within 100-year flood plain.
- b. Area within floodways.
- c. Surface area of lakes and ponds.
- d. Area within undisturbed marshes and wetlands.

### **5. Detention Ponds in Urban Landscapes**

In the UC-TOD Core and MU-OA-MS subdistrict, detention, retention, and water quality ponds shall not be located adjacent to the street or back of walk unless the City Engineer determines that alternative on site or off-site locations are not available or are impracticable. All detention, retention, and water quality ponds shall be integrated physically, functionally, and aesthetically into the total landscape design.





#### **N. Drive-Through Screening Adjacent to Street Frontages**

A wall between 42 and 48 inches in height shall be provided to mitigate noise and minimize the visual impacts associated with on-site signs with speakers as well as screen drive-through aisles, service areas and stacking lanes from abutting public or private street rights-of-way. The wall shall match or complement the colors, materials and aesthetic theming of the main structure. Landscaping consisting of low shrubs shall be provided along the exterior or street side to soften the appearance of the wall. Screen walls may be located within any required buffer setbacks.:

1. An earthen berm located around the perimeter of the fence and planted with turf grass or appropriate ground cover material.
2. Installation of ground covers, trees, and shrubs for screening and aesthetic purposes. The buffer shall be at least 25 feet wide and planted with one tree and five shrubs for each 25 linear feet of buffer. At least 50 percent of the trees shall be evergreen species.
3. Natural screens shall be used in the facility design to the maximum extent practicable.

#### **O. Medians**

All medians in the public street rights-of-way that are to be maintained by the Parks, Recreation & Open Space Department (PROS) shall be landscaped in accordance with the PROS Dedication & Development Criteria Manual. A copy of the manual is available on the city's website. The applicant shall prepare median design and construction drawings for submission to PROS for review and approval independent of the required site plan submittal to the Planning and Development Services Department. A separate review fee is collected by PROS at time of submission. Coordinate with PROS on specific submittal requirements.

All medians in the public street rights-of-way that are to be privately owned and maintained by a homeowner's association or Title 32 District shall be landscaped at a minimum in accordance with the following requirements: 27 Trees: One (1) deciduous canopy/shade tree (2.5") or ornamental tree (2") every 35' on average. At least half of the trees shall be canopy or shade trees. Evergreen trees are not permitted within medians unless a narrow species is selected and pre-approved by Planning staff. Ornamental trees may be grouped closer together to achieve a specific aesthetic look.

Shrubs: Shrubs shall be provided at a ratio of six (6) shrubs per 36 linear feet of median. Shrub installation size shall be five-gallon containers.

Ornamental Grasses: Ornamental grasses may be provided but may not count for more than 30% of the total shrub quantity. Ornamental grass installation shall be five-gallon containers.

Sod/Native Seed: The installation of sod is discouraged.

Native seed may be provided in combination with shrubs, ornamental grasses, and trees at a ratio of six (6) shrubs per 36 linear feet of median. The shrub quantity is calculated first and the remainder of the median may be native seed. Ornamental grasses may not count for more than 30% of the total shrub quantity.

Mulch: Mulch may be either organic or inorganic or a combination of both at the discretion of the designer. Shredded cedar is the preferred mulch treatment as it has moisture retention qualities, unlike rock mulch that retains and radiates heat. No white rock is permitted.

Irrigation: All landscaping requires irrigation. Temporary irrigation may be provided for the native seed, but all shrubs, trees and ornamental grasses must remain on a permanent irrigation system tied to a domestic water system i.e. a tap. An isolation valve may be provided to turn off the irrigation to the native seed areas once established. Native seed is established when no more than 10 percent of the native seed area consists of non-native species or weeds. In addition, no bare areas shall be larger than 12" by 12".

## **P. Residential Yard Landscape**

### **1. General**

Before issuance of a permanent certificate of occupancy, the developers of all new single-family detached, single-family attached, and two-family (duplex) residential developments shall provide front and side yards of corner lots visible from public view with landscaping on each lot meeting either the Water-wise or turf landscape options as described below. Temporary certificates of occupancy may be issued when landscaping as required by this Section 146-4.7.5.P cannot be completed due to weather or seasonal conditions.

### **2. Irrigation**

Landscaping for front, side and corner lots shall include automatic irrigation. Side yard landscaping and irrigation shall also be installed where the side yard faces a public right-of-way or public space in accordance with the City's irrigation ordinance.

### **3. Water-wise and Turf Options**

For calculations of allowed turf, curbside landscapes are considered part of the front lawn.

### **4. Plant Material Sizes**

All plant material shall meet the minimum plant sizes required by Section 146-4.7.3.B.2, and shall include a variety of shrubs and plants that will provide visual interest during all seasons. All plant beds, raised planters, plant containers, evergreen and deciduous trees and shrubs shall be mulched as required by Section 146-4.7.3.B.8. The mulch shall be applied to a circular area equal to the diameter of the tree.

### **5. Landscape Fabric**

Landscape fabric is only required when rock mulch is installed.

### **6. Residential Yard Landscape Requirements**

- a. The residential yard landscape requirements in Table 4.7-3 shall be provided. Measurement of areas referenced in Table 4.7-3 are shown in Figure 4.7-29.
- b. Curbside street trees are required and are in addition to any required front yard trees and landscaping shown in Table 4.7-3.
- c. For developments using the Small Residential Lot option as described in Section 146-4.2.3.A, incorporating Loop Lanes as described in Section 146-4.2.3.D, or Motor Courts as described in Section 146-4.2.3.E, the Planning Director may approve adjustments to the standards in this Section 146-4.7.5.P based on the degree of compliance with landscape standards reasonably

possible in light of site and utility constraints. The developer shall make every attempt to meet the intent of the front yard landscape requirements.

- d. For Green Court Dwellings on lots smaller than 4,000 square feet or less than 50 feet in width, as described in Section 146-4.2.3.B, the Planning Director may approve crediting Green Court open space landscaping towards required front yard landscaping, based on the degree of tract landscaping provided.

**Table 4.7-3**

**Residential Yard Landscape Requirements**

Front, side, and rear yard landscaping requirements for single-family detached and two-family (duplex) dwellings

Front yards for lots of 4,500 square feet or larger:

Areas located in front of the house elevation including the streetscape area between the sidewalk and street curbs.

Side and rear yards visible to the public shall comply with front yard standards.

<b>A</b>	<b>Turf</b>	Water-wise option: 0% turf Turf option: Min. = 400 sq. ft. Max. = 40% or 1,000 sq. ft., whichever is less; must be contiguous
<b>B</b>	<b>Trees[1]</b>	1 shade tree (≥ 2.5 in. caliper) and either 1 ornamental tree (≥ 2 in caliper) or 1 evergreen tree (≥ 6 ft. tall)
<b>C</b>	<b>Shrubs</b>	Min # of shrubs = (front yard landscaped area in sq. ft. minus turf area in sq. ft.) x 0.025. At least 30% of shrub count can be ornamental grasses or perennials When 9 or more shrubs are required, at least 3 plant species must be included to provide seasonal/visual interest
<b>D</b>	<b>Rock and Inorganic Mulches</b>	If Water-wise option is used, up to 50% of the area may be inorganic rock mulch
<b>E</b>	<b>Pavers</b>	If the xeric or non-turf option is used, up to 40% of landscape area can be provided as pavers such as brick and natural stone
<b>F</b>	<b>Features</b>	When the Water-wise option is used, one of the following shall be incorporated: a. Wall 1-2.5 ft. high made of decorative stone, stucco, or CMU b. Fence c. Earth berm ≤ 2.5 ft. tall with slopes not to exceed 1:4 rise:run d. Natural boulders ≥ 2 ft. x 2 ft. x 2 ft.
<b>G</b>	<b>Side Yards</b>	Side yards with no public view: No plant material required; mulch required Side yards with public view: Front yard standards apply + 1 tree per 25 linear feet
<b>H</b>	<b>Rear Yards</b>	Rear yards with no public view: No standards; ≤ 45% turf Rear yards with public view: Front yard standards apply

Note:

[1] This requirement may not be applicable based upon lot size and a reduction or exemption may be approved by the Planning Director based on lot and site constraints and other landscaping, screening, and buffering provided for the development.

**7. Yard Landscape Area Measurements**

Figure 4.7-30 identifies what constitutes front and side yards for required and allowed shrub and sod requirements

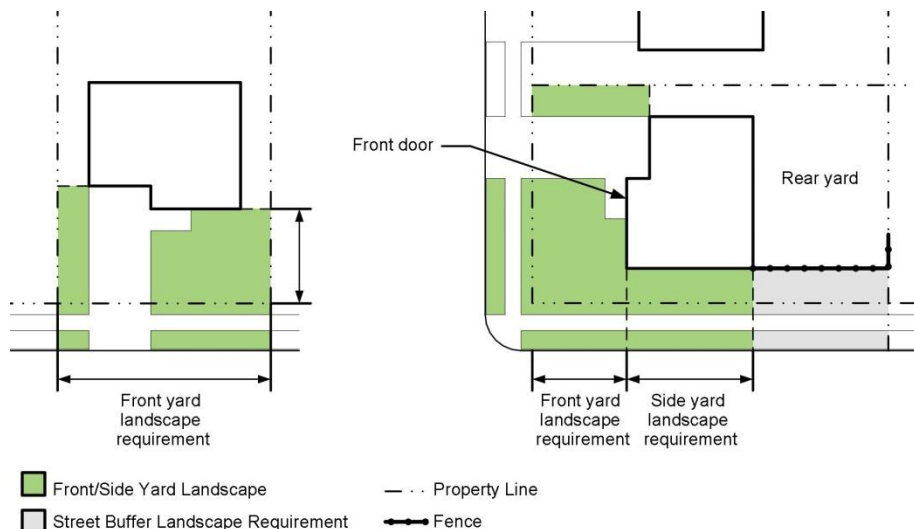


Figure 4.7-30: Residential Front Yards and Corner Side Yards



Figure 4.7-31: Water-Wise Front Yard Landscape Examples

## 8. Erosion Control

- a. Owners of all properties shall, within six months of the first occupancy, or as soon after that period as weather and survival of plants and vegetation will permit, install landscaping to control erosion. Such landscaping shall comply with Table 4.7-2 and the lawn permit and soil preparation procedures established by the Water Department, as well as any lawn establishment requirements contained in this UDO. Any second or later owner of a residential property that does not feature completed landscaping in its front and side yards shall complete the landscaping required in this Section 146-4.7.5.P within six months of the date that Code Enforcement first notifies a property owner, in writing, that the property has not been landscaped in compliance with the provisions of this UDO.
- b. No artificial trees, shrubs, plants, or other materials not derived from natural vegetation shall be used to fulfill the requirements as set forth in this Section 146-4.7.5.P, unless approved by the Planning Director based in order to better achieve the intent of this Section 146-4.7.

### **Q. Landscape Requirements for Redeveloping Sites with Existing Development**

The following standards apply to sites with existing development when those sites are redeveloped. Redevelopment shall include changes or expansions to existing parking areas, landscaping, buildings when the gross floor area is expanded by 25 percent or more, or the removal of an existing structure(s) in an effort to construct parking or new buildings.

## 1. Intent

These redevelopment landscape standards are adopted to encourage improvement of redevelopment sites where existing structures or land uses are outdated, while ensuring that the resulting redevelopment improves the visual quality of the neighborhood and mitigates any negative impacts of the redevelopment on nearby residential development.

## 2. Landscape Plan Requirements

Landscape plans shall include all required information, symbology, and plan formatting that is typically associated with vacant or cleared land as set forth on application forms and as defined in the Landscape Reference Manual and Site Plan Manual.

## 3. Landscape Requirements

- a. Minimum plant sizes at time of installation shall comply with the requirements found in this UDO.
- b. Within the MU-OA zone district, the development potential of a property is often affected by lot size therefore in an effort to support redevelopment opportunities, the applicant and the City shall work together to include landscaping where screening or tree canopy may be most effective.
- c. Within the remaining Subarea A (excluding the MU-OA zone district) and all of Subareas B and C, the following landscape requirements shall be met if deficient and if the proposed redevelopment creates a negative impact as determined by the Planning Director to surrounding existing or future development on adjoining properties or street frontages.
- d. The landscape requirements as outlined in Sections 146-4.7.5.A through 4.7.5.P shall apply and be reviewed against each redevelopment application for applicability. This includes curbside streetscape, street and non-street frontage buffers, special landscape buffers, building perimeter landscaping, site entryway and intersection landscaping, parking lot landscaping & screening, urban street frontages, and residential front yard landscapes.

## R. Seeding of Disturbed Land for Future Construction Phases

All future development areas in phased development projects that have been disturbed by grading shall be seeded and stabilized in accordance with requirements found in the City of Aurora Water Department's Rules and Regulations Regarding Stormwater (Discharge) for Construction Activities to prevent wind and water erosion for the time the site remains without development. All such areas shall be shown on the landscape plan and information concerning tilling, seeding methods, seed mixtures, watering and mulching shall also be provided.

## S. Alternative Compliance

The Planning Director is authorized to approve alternatives to the location, amounts, or types of landscaping required under this Section 146-4.7.5 (Required Landscaping) provided that the applicant submits a landscape plan for alternative compliance and the Director determines that:

1. The need for an alternative compliance plan is based on site or development constraints not generally shared by other similar uses and structures in the area, including but not limited to topography; soil conditions; utility or access easement locations; or considerations of traffic, pedestrian, bicycle, or public transit safety; and
2. The alternative compliance plan will achieve the goals of the types of landscaping required by this Section 146-4.7.5, including but not limited to buffering of adjacent properties from the impacts of the proposed development of the site, visual appeal of the site from public and private streets and rights-of-way, creation of shade and cooling of the

environment, as well or better than compliance with the standards otherwise required by this Section 146-4.7.5 (Required Landscaping).

#### **4.7.6. SITE DESIGN FOR LOW IMPACT DEVELOPMENT - (LID)**

##### **A. General**

1. Treating and capturing stormwater at the source is a proactive process. Traditional stormwater management practices include the construction of large unattractive detention basins that are at the receiving end of a pipe located on public property and maintained by a public agency. Recently, the thought process has started to shift to more environmentally proactive practices that look at preventing stormwater contaminants from entering the stormwater conveyance system and or water body at the source rather than spending costly amounts of money retrofitting existing systems.
2. Today homeowners, developers, and local governments have opportunities to implement source control practices through the use of Low Impact Development (LID) options. These are typically located within a public right-of-way or on private property and are maintained by the property owner. A vegetated component is usually included that is directly tied to the treatment and infiltration functions. Plant selection is key to public perception and ultimately the acceptance of the integration of LID practices into the landscape.

##### **B. Purpose**

1. To encourage the incorporation of low impact development standards (LIDs) into landscape designs in an effort to mitigate the impacts of increased runoff and stormwater pollution from new development, redevelopment or infill developments close to the source as possible. LID practices are an integral part of the urban form and if designed and constructed correctly, will help ensure the preservation of permeable surfaces, encourage the use of native plants and promote infiltration into sub-soils to remove pollutants, regenerate ground water supplies and reduce subsidence rates.
2. The City acknowledges that project conditions associated with individual sites may justify approval of alternative methods of compliance when landscape is part of an integrated water management strategy or LID and the alternative proposal offers superior results. The standard landscape requirements may not be ignored or reduced by more than 35 percent in order to achieve the alternative. Planning staff will review the alternative design against standard landscape requirements and work with the applicant on a case-by-case basis to ensure compliance is achieved.
3. Applicants are encouraged to implement any of the following LID options at the time of site development. They are not intended to be prescriptive or inhibit creative design, but provide some ideas for consideration. Further descriptions and examples of Low Impact Development options that are permitted and promoted for use within the city are discussed in the Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual, Volume 3. By incorporating LIDs into parking lots, front yards and neighborhood streets, it becomes a tool to raise people's awareness and change their behavior relative to reducing and cleaning stormwater runoff.

##### **C. Low Impact Development (LID) Options**

1. Bioswales are vegetated swales planted with wet tolerant species of plants or ornamental grasses. They transport, store, and allow infiltration of water and can be designed as a landscape feature. Bioswales are not grassed, but are planted with a variety of plant species that can withstand occasional water inundation for short periods of time.



2. Grassed swales are designed conveyance devices used to transport water over the surface of the ground to a point of disposal that may be a catch basin, ditch, water body that will filter, infiltrate, evaporate, and clean the water of total suspended solids, solid waste and other pollutants. Swales are often appropriate along property lines, public streets, and around buildings.



3. Permeable pavers, porous surfaces, grass paving. Pavers allow water seepage through the joints and through the graded gravel base that they are placed on. This allows for the infiltration of rainwater thereby reducing the runoff leaving a site. When used in connection with street tree plantings, they allow for more air circulation around tree roots and can easily be removed in order to trim tree roots and regrade for a walkable surface.



4. Rain gardens are small shallow, depressions planted with a variety of native or ornamental plants that can treat small amounts of runoff to improve water quality. Rain gardens are generally small collections of water loving plants planted on a low site area that naturally collects rainfall.



5. Sand filters are depressions, trenches, barriers, or sand lens constructed of porous mineral matter that improve ground water recharge to filter, clean and trap waterborne pollutants.
6. In addition, other LID standards include extended detention basins that may be used in open space tracts to treat the runoff from multiple lots, roads, trails, and pathways.



#### **D. Water Conservation and Irrigation**

##### **1. Single-Family, Two-Family (Duplex), and Single-Family Attached Dwellings**

The design and installation of all new turf areas for each lot shall comply with all of the requirements listed in Section 146-4.7.5.P (Residential Yard Landscape) and the turf area limitations in Subsection 2. Below.

##### **2. All Other Development Except Playfields and Golf Courses**

In all other development sites except playfields and golf courses, the use of cool-season grass sod, seed, and seed mixtures that contain cool-season grass species shall be limited to not more than 33 percent of a site's total landscaped area. The area consisting of high water using species of cool season grasses, such as Kentucky Blue Grass, shall be contiguous and patches located throughout the site shall be avoided. For purposes of these standards "contiguous" shall mean all abutting areas and areas that may be separated by a pedestrian walk or trail. Areas separated by pavement used for vehicular circulation are not considered contiguous. A cool season grass species shall be considered a high water user if it requires one and one-half inches of water or more per week to survive. Tot lots and recreational areas that will benefit from the durability of cool season grasses are exempt from contiguity requirements of this Section. All other requirements shall apply.

##### **3. Z-Zone Program Option**

Applicants may choose to temporarily water native seed areas for a three-year period for establishment purposes under the Z-Zone Program administered by Aurora Water. The annual water allocation will be adjusted accordingly after three years or upon successful



establishment of the z-zone areas as determined by Aurora Water. The adjusted water allocation will be based upon the permanently irrigated areas. Contact Aurora Water, Water Conservation Division for details on the Z-Zone Program.

#### **4.7.7. TREE PRESERVATION**

##### **A. General Standards**

All applicants are required to comply with the tree preservation, relocation and mitigation requirements found in the City's adopted "Policy of Existing Trees", as amended. It shall be unlawful for any person to remove an existing tree unless such removal is in accordance with the City's policy on the preservation of existing trees. The Parks Recreation and Open Space Department's Division of Forestry administers the tree preservation policy, and applicants considering tree removal as part of their land development should first contact the City Forester to discuss the proposed removal.

##### **B. Additional Requirements for Black Forest Areas**

The following additional standards apply to lands in the Black Forest area. If these standards conflict with those found in the City's Policy on the Preservation of Trees, the provisions of this Section 146-4.7.7.B shall apply.

###### **1. Intent**

The standards in this Section 146-4.7.7 are intended to protect the Black Forest area's unique ecosystem of non-mountainous extensions of Ponderosa Pine onto the high plains; protect the wildlife habitat created by its high quality Gambel Oak and Ponderosa Pines; and to achieve additional benefits of mature tree preservation, including shade and evaporative cooling, absorption of carbon dioxide and ozone, reducing soil erosion, increasing real properties, and enhancing the visual appeal of the area. The standards for the Black Forest Area are enacted to:

- a. Maintain a sustainable tree cover within the Black Forest by locating new development in a manner that preserves existing trees to the maximum extent practicable;
- b. Protect existing trees during development from the impacts of nearby construction; and
- c. Provide standards governing the removal, relocation, and monitoring of trees that cannot be preserved in their original location.

###### **2. Applicability and Exemptions**

This Subsection applies to that portion of the Black Forest located in Aurora as defined in the Definitions. Exemptions include:

- a. Trees that are diseased or constitute a threat to the public health and safety; and
- b. Routine forestry management and fire safety practices in accordance with the Colorado State Forest's Forest Management Plan guidelines and developed by a professional forester.

###### **3. Development Review**

Any development activities and/or submittal of development applications to the City within the Black Forest shall include a tree protection plan in order to preserve existing Ponderosa Pine trees and associated Gambel Oak shrub vegetation to the maximum extent practicable. Development activities shall not result in the removal of any Black Forest trees and shrubs, except in accordance with this Section.

**a. Plan Requirements**

Any development activities or proposed development applications that involve disturbing the natural surface of the land or making any material change to any structure shall require the submittal of a tree protection plan that conforms to this Section and requirements set by the City Forester's office. Black Forest trees shall be protected according to the procedures in this Section. Following tree protection plan approval, any subsequent development activity requiring approvals or the issuance of any permits shall conform to the plan. Tree protection plans shall include the following:

- i. An inventory of trees and existing shrub vegetation, including a description of which trees are candidates for preservation, removal, and replanting. The inventory shall include Ponderosa Pine greater than four inches in diameter and all Gambel Oak plants greater than three inches in diameter.
- ii. A construction limit line, which shall include all building, parking, underground utilities, vehicular use areas, and all areas of required cut and fill.
- iii. Details and locations of permanent and/or temporary construction protection devices and measures to assure tree protection and normal growth after construction.
- iv. A description of the size and location of all new trees to be planted as part of the landscape design of the proposed project.
- v. A conservation escrow account to collect funds from the owner or representatives to ensure compliance with the tree preservation measures described in this Section. The amount to be collected will be based upon the "Guide to Plan Appraisal," published by the International Society of Arboriculture. This amount will be assessed as an average diameter calculated from the total inventoried number of only those trees remaining in place and potentially impacted by construction activities. It does not include those trees outside of the construction limit line and, therefore, not impacted by construction activities as well as those that are to be removed or replanted according to plan specification. The amount will be returned to the owner upon completion of construction activities and implementation of tree protection plan requirements. If these measures are not complied with, the City shall use these funds to mitigate tree loss.

**b. Plan Approval**

Review and approval of the tree protection plan according to requirements set by the Planning Director and the Forestry Division of the Parks, Recreation, and Open Space Department shall be completed by the City Forester's office before the commencement of any development or planned development activity. Plans will be approved, approved with condition, or denied based upon conformity with the requirements of this division. Failure to comply with the provisions of an approved tree protection plan is a violation of this UDO.

**c. Plan Amendment**

The City Forester may amend any approved tree protection plan after receipt of an application for amendment from a property owner. The amendment shall be approved if the City Forester determines that the proposed amendment complies with the requirements of this Section 146-4.7.7.B.

**d. Plan recordation**

After approval of a tree protection plan, it shall be recorded in the office of the county clerk and recorder and shall be binding on the property owner and the owner's heirs, successors, and assigns.

#### 4. Tree Removal and Mitigation

##### a. Tree Removal

Black Forest trees and associated vegetation shall not be removed from their existing location due to development or construction activity unless avoidance through modifications of proposed development plans and design is not feasible. Tree removal is unlawful unless it is pursuant to an approved tree protection plan.

##### b. Tree Mitigation

Trees to be relocated shall be replanted at a suitable location on the site. Candidate trees for replanting will be greater than four inches for Ponderosa Pine and three inches for Gambel Oak, but less than 10 inches in diameter measured at a point one foot above natural grade. When such replanting is not feasible, removed trees shall be replaced at a ratio of one-to-one with an approved single tree of similar size or combination of not more than six trees measured at a point one foot above the natural grade with a cumulative total diameter equal to the diameter of the tree to be replaced. Mitigated trees shall be measured per the "Guide to Plant Appraisal." Appropriate measures shall be undertaken to protect trees from construction activities.

##### c. Tree Protection

Appropriate measures shall be undertaken to protect trees from construction activities. If any of the trees required to be retained or replanted as part of the tree protection plan should die within a period of three years after completion of construction, the property owner shall replace trees within 6 months of the issuance to the owner of a notice to replace.

#### 5. Monitoring

In addition to protection during new construction pursuant to Section 146-4.3.5 (Avoidance of Sensitive Areas), the following monitoring requirements apply to ensure that trees will be retained after construction is completed.

- a. On-site supervision by the property owner or representative to ensure tree protection actions;
- b. Pre-construction conferences between the property owner or representative and the City Forester;
- c. Monthly meetings between construction management and the City Forester to review progress of the monitoring program; and
- d. Final site inspection to verify that protection provisions have been followed.

#### 6. Notice to Prospective Purchasers

Vendors of real property located within the Black Forest shall provide the following notice to prospective purchasers and cause such notice to be recorded with the Clerk and Recorder of Arapahoe County:

**"NOTICE:** The property described as (legal description and address) is located within an area governed by the Black Forest tree preservation ordinance, a tree protection plan, and is subject to the requirements Aurora City Code Section 146-4.7.7.B, as applicable."

#### 4.7.8. SCREENING OF SERVICE AREAS AND EQUIPMENT

The standards in this Section 146-4.7.8 apply in addition to the standards in Section 146-4.8.11 (Screening of Mechanical Equipment), but only one type of screening (through landscape or building design) is required for each area or piece of equipment required to be screened. If required screening for an area or piece of equipment is provided pursuant to this Section 146-

4.7.8, then additional screening of the same area or piece of equipment is not required pursuant to Section 4.8.11, and vice-versa.

#### **A. Utilities and Communication Lines**

Meters or similar utility apparatus attached to the building façade shall be screened from view and painted to match, using landscaping and screen walls that match the architecture of the building they are part of. Such utilities shall not be mounted on or in front of the primary building façade.

#### **B. Multifamily, Mixed-Use, Commercial, Institutional, and Industrial Developments**

##### **1. Mechanical Equipment Screening Standards**

- a. Roof-mounted mechanical equipment shall be screened from public view from the street centerline by a parapet or mechanical screen that is integrated into part of the building's architectural design.
- b. Ground-mounted mechanical equipment shall not be located between (i) a primary building façade or a patron or resident parking lot and (ii) a street or public open space.
- c. Ground mounted mechanical equipment shall be screened from public view by landscaping or by a decorative wall, or fence that is similar in appearance to the primary building.

##### **2. Service, Loading, Storage, and Trash Area Screening Standards**

###### **a. Service, Loading, and Storage Areas**

- i. All service, loading, and storage areas visible from residences, public or private streets, public open spaces or trails shall be screened by fences (excluding chain link fencing), walls, berms, or any combination of those items with landscaping. If walls are used, they shall not exceed nine feet in height and shall be similar in appearance and materials to the closest wall of the primary building structure they serve.
- ii. Fence and wall screening shall be accompanied by landscaping on the exterior side to soften the appearance of the wall and fence. Landscaping shall consist of evergreen trees and shrubs, installed at a minimum of one tree and 10 shrubs per 40 linear feet. This requirement shall not be in addition to street and non-street frontage buffer requirements. If screening of service loading and storage areas overlap with the buffer requirements, then the wall or fence shall be provided at the inside edge of the required buffer and the plant material provided for the buffer may satisfy both requirements.

###### **b. Trash Facilities**

All trash dumpsters and recycling bins placed on an existing or developing site must be enclosed and set back at least 12 feet from adjacent properties with residential or commercial uses. The enclosure shall be large enough to accommodate both a dumpster and a recycling bin and shall be completely screened from view of public streets and adjacent properties using one of the techniques listed in Subsection 2.a above. Dumpsters shall be screened on three sides by a minimum six foot high masonry wall or an opaque fence enclosed on the exterior by evergreen plantings. The access opening shall be oriented so that the container is not visible from adjacent properties or public streets and shall have an opaque gate. Chain-link gates with metal cladding are prohibited.

###### **c. Outdoor Storage**

- i. Where outdoor storage is permitted, the following standards shall apply.

- ii. Outdoor storage shall be located behind required front setbacks or buffer areas.
- iii. All outdoor storage facilities for manufacturing equipment, fuel, raw materials, subassemblies, finished goods and defective or repairable goods shall be enclosed by an opaque fence with a maximum height of nine feet, a berm, or a wall with a maximum height of nine feet in combination with landscaping that completely conceals the view of those materials from the locations listed in Subsection 2.a above. Chain link fencing may not be used for this purpose. Landscaping shall consist of one tree and 10 shrubs per 40 linear feet.
- iv. Outdoor storage not visible to the street or adjoining properties may not require screening, but will be evaluated for potential impacts on surrounding areas on a case-by-case basis.

#### **4.7.9. FENCE AND WALL REGULATIONS**

##### **A. Purpose**

1. To provide adequate screening by regulating the height, location and design of fences and retaining walls;
2. To maintain adequate visibility on public and private property and intersections;
3. To allow for adequate air and light visibility;
4. To mitigate noise;
5. To improve aesthetics;
6. To preserve and protect the value of adjacent property with durable materials; and
7. To avoid the appearance of fence and wall canyons along streets.

##### **B. Applicability**

1. All fences and walls shall comply with the provisions of this Section 146-4.7.9 except temporary fences and barricades around construction sites, which shall comply with all other applicable City regulations.
2. All fences and walls shall comply with any additional standards applicable to the use of the property in Section 146-3.3 (Use-Specific Standards).
3. In addition to the standards in this Section 146-4.7.9, all development shall comply with any additional fence and wall standards applicable to the development in any approved Master Plan that includes the property.

##### **C. General Standards**

###### **1. Avoidance of Traffic Hazards**

Notwithstanding other provisions of this Section 146-4.7.9, no fence, wall, or hedge shall be located in a location that the City determines will create a traffic hazard.

###### **2. Sight Triangle**

The location and height of all fences and hedges shall conform to the sight triangle requirements of Section 146-4.2.3.1. Corner lot fences shall have a 45 degree angle if located within the 30 foot sight triangle.

###### **3. Obstruction of Fire Hydrant or Fire Department Connection**

No person shall place or keep any post, fence, wall, retaining wall, tree, shrub, hedge, or any other structure or planting within five feet of a fire hydrant or Fire Department connection. Any variation from this standard shall require written approval from the Fire/Life Safety representative within the Building Division.

#### 4. Prevention of Fence Canyons

For existing subdivisions where the rear of the lots abut a street frontage, a homeowners' association, Title 32 District, or other approved quasi-public entity shall maintain a fence or wall meeting all applicable standards of this Section 146-4.7.9. Residential lots shall comply with Section 146-4.3 (Subdivision Standards), which restrict rear yards of homes facing streets. Refer to Section 146-4.7.5.G for fence setback requirements when rear lots abut an arterial or collector street.

#### D. Permitted Fence and Wall Materials

1. Fences and walls shall be made of high-quality durable materials that require low maintenance. Acceptable materials are as follows:
  - a. Brick, stone, and decorative concrete masonry unit (CMU) fences that meet the design requirements in this Section 146-4.7.9.



- b. Wrought iron style and metal picket fences that meet the definition and design requirements in this Section 146-4.7.9.



- c. Pre-cast concrete composed of integrally colored concrete and convincingly replicate the appearance of brick, stone, stucco and CMU fences as required by this Section 146-4.7.9.



- d. Closed style wood or stockade fencing. Wood or stockade fencing shall have a top rail.



- e. Chain link with or without weather resistant color coating.



f. Omega (Welded Wire)





g. Wood or concrete three-rail and/or split rail.



h. Composite wood.



**E. Prohibited Fences, Walls, and Materials**

The following types of fences, hedges, and materials are prohibited and cannot be erected:

1. Electrically charged fences.

2. Any sharp pointed fence of any material erected or maintained in Residential districts. Picket fences less than six feet six inches in height shall have the top of pickets sawed or rounded to provide a blunt end.
3. Barbed wire fences, except in Special Purpose districts, construction sites, and for enclosing a public or private utility installation. See Section 146-4.7.9.F.2 for time and placement limitations on these exceptions.
4. Any fence using concertina wire or similar materials except that government facilities may be exempt if approved by the Planning Director based on security needs.
5. Fences constructed of chicken wire, corrugated metal, fabric materials, fiberboard, garage door panels, plywood, snow fencing, agricultural, rope, and miscellaneous materials not commonly associated with residential fences.

## **F. Special Requirements for Specific Districts and Types of Development**

### **1. Residential Districts**

The following standards apply to fences and walls in Residential districts, but do not apply to multifamily developments.

- a. Maximum length of unbroken fence plane shall not exceed 660 feet along arterial streets and shall not exceed 330 feet along collector streets in Subarea A.
- b. Maximum length of unbroken fence plane shall not exceed 700 feet along arterial streets and shall not exceed 350 feet along collector streets in Subareas B and C.

### **2. Industrial Districts**

- a. No fence or wall shall exceed a maximum height of nine feet, except for oil and gas perimeter screening and sound walls.
- b. New wood closed-style fences are only allowed on Arterial streets in connection with industrial development, and only if they meet all the appearance and design requirements of this Section 146-4.7.9 and related graphics.
- c. Barbed wire is only permitted in industrial districts, but may not be installed adjacent to any residential or commercial uses or residential or commercially zoned districts or along arterial or collector streets.
- d. For major public or private utilities in any zone, barbed wire may be allowed if it is located outside of required buffer yards.
- e. The use of metal picket prongs is permitted in lieu of barbed wire.
- f. Where allowed, barbed wire shall not extend more than six inches above the height of a permitted fence.

### **3. All Other Development**

No continuous fence plane shall extend more than 700 feet without including an offset in fence alignment and/or a change in material, fence, and/or wall type.

## **G. Along E-470**

In all residential developments adjacent to E-470, a minimum eight-foot high solid sound attenuation wall shall be constructed along the development's E-470 frontage, and shall meet all the material and design requirements for fences and walls along arterial streets. The sound attenuation wall shall be constructed and maintained by the developer, Title 32 District, homeowners' association, or business district.

## H. Along Arterial and Collector Streets

### 1. Setbacks

Fences in new subdivisions shall be set back at least the following distances:

- a. Where the rear lots of residential homes front a street, fence and/or walls shall be set back a minimum of 40 feet from the flow line of arterial streets, 38 feet from the flow line of minor arterial streets and 34 feet from the flow line of collector streets. See graphics below.
- b. Fences and/or walls provided along the side yards continuous for a distance of 300 feet or more shall be required to be setback 10 feet from the back of walk unless the fence or wall is being provided in connection with outdoor storage screening, then the buffer setback requirements as specified in Table 4.7-2 shall apply.
- c. Residential fencing in the front yards shall comply with the front yard setback requirements and shall not exceed 42 inches in height.
- d. Fencing in the front yard of any commercial and/or industrial developments shall be limited to 42 inches in height unless such fencing is being provided in connection with the screening of outdoor storage, parking lots, equipment, or is to secure the site, in which case, fencing shall be limited to nine feet in height. Refer to Section 146-4.7.8.B.2.

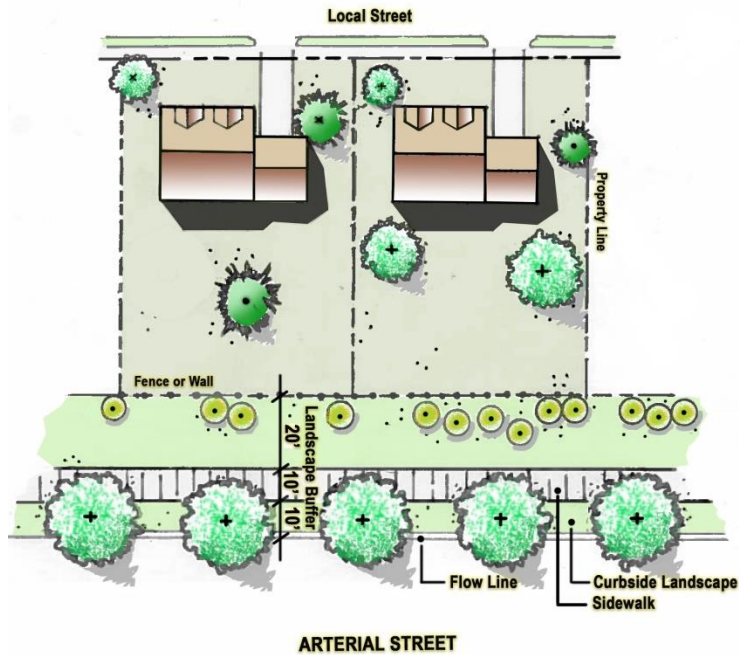


Figure 4.7-32: Arterial Street Frontage – Straight Walk



Figure 4.7-33 Arterial Street Frontage – Meandering Walk

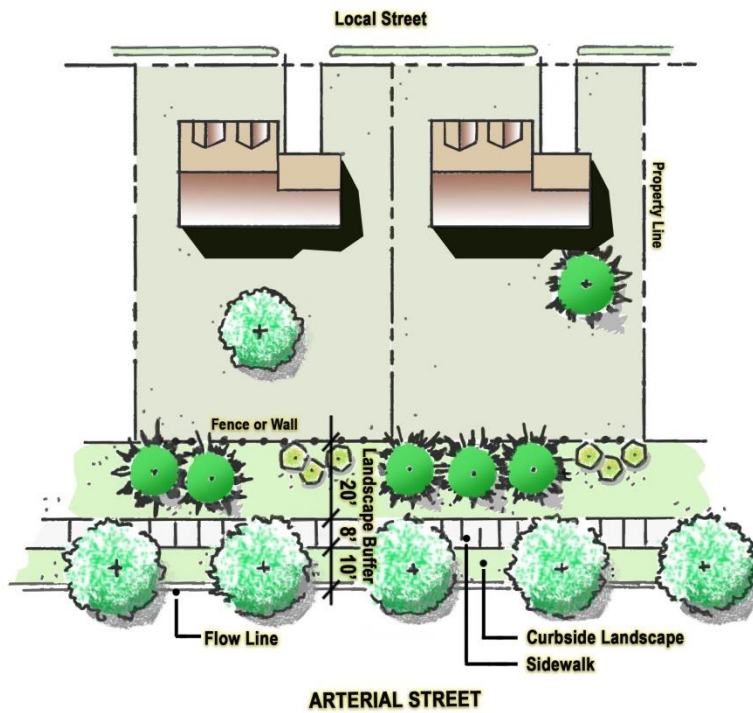


Figure 4.7-34: Minor Arterial Street Frontage

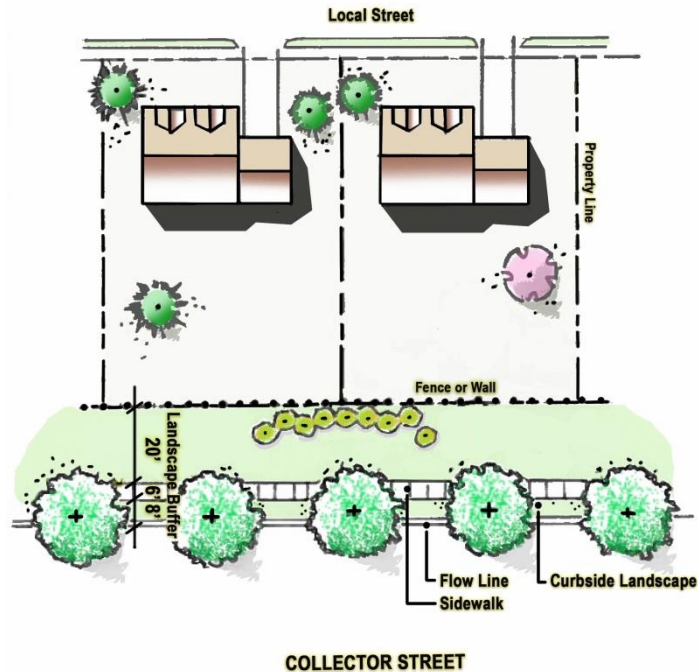


Figure: 4.7-35 Collector Street Frontage

## 2. Allowable Materials

The following materials are permitted, except as required or permitted in Section 146-4.7.8.B.2.c (Outdoor Storage).

- a. Brick, stone, and integrally colored decorative concrete masonry units (CMUs);
- b. Decorative and durable pre-cast concrete panels and rails;
- c. Wrought iron, metal picket, and other metals simulating the appearance of wrought iron;
- d. Composite wood (not including vinyl);
- e. Closed-style wood fences, but only for industrial uses and only if located outside of the required buffer yards;
- f. Open-style three-rail fences made of wood or simulated wood adjacent to private open space areas and private common spaces; and
- g. Open-style three-rail fences made of wood adjacent to public parks and open space areas.

## 3. Masonry Columns

- a. All fence types along arterial and collector streets shall incorporate masonry columns of a minimum cross-section of 18 by 18 inches.

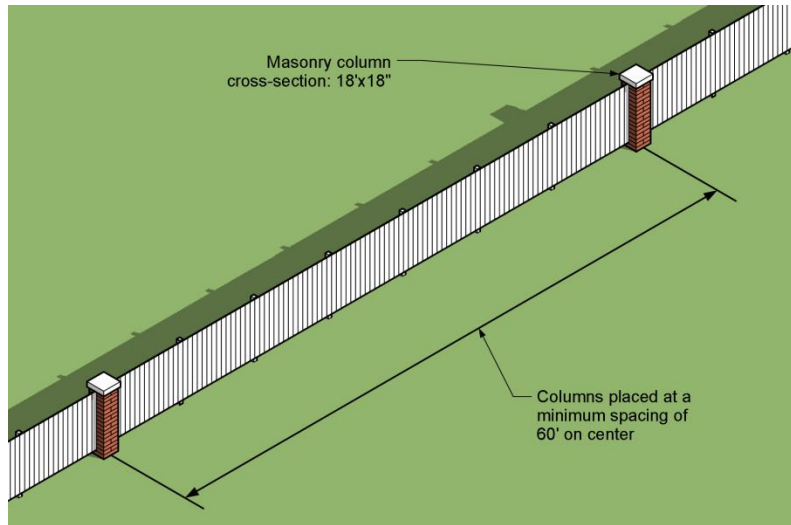


Figure 4.7-36: Street Frontage Fencing

- b. For all fence and wall types and locations, columns shall be placed at all fence corners, points of transition to other fence styles along a run of fence, and fence termination points.
- c. In addition to the requirements of Subsection b, in residential developments, columns adjacent to residential uses shall be placed at a minimum spacing of 60 feet on center, or one for every two residential lots, and columns adjacent to community uses shall be placed at a minimum spacing of 60 feet on center.
- d. In addition to the requirements of Subsection b, in commercial and industrial uses, columns shall be placed at a minimum spacing of 120 feet on center, and shall extend 75 feet down interior lot lines.

#### 4. Special Requirements for Closed-Style Fences and Walls Over Four Feet in Height

- a. Maximum length of continuous fence shall not exceed 1,500 feet along arterial streets and shall not exceed 1,000 feet along collector streets.
- b. Maximum length of unbroken fence plane within length of fence shall not exceed 500 feet along arterial streets and shall not exceed 320 feet along collector streets.

#### I. Fences and Walls Along Other Public and Private Streets

For fences and walls along other public and private streets, allowable materials shall include those permitted for arterial and collector streets plus:

1. Wood fences, provided they meet the design standards in this Section 146-4.7.9 and related graphics; and
2. Wood or wood simulated open-style three rail fences, provided they meet the design requirements in this Section 146-4.7.9 and related graphics.

#### J. Fences and Walls Along Interior Property Boundaries and Alleys

##### 1. Permitted Materials

- a. Permitted materials shall include those permitted for arterial and collector streets, except as modified by Subsections b through d below.

- b. Chain link fencing for industrial development, provided it is not visible from a street and is not located on a lot adjacent to commercially or residentially zoned properties.
- c. Chain link fencing within industrial zone districts must be color cladded and may not include fabric mesh or slats.
- d. Color cladded chain link, welded wire, and Omega or similar welded wire fencing may not be used to meet screening requirements.

**2. Locations**

- a. Shared fences and walls shall be placed on lot lines.
- b. Fences and walls shall not be located in required lot buffer areas but shall be located on the inner edge or interior buffer line with landscaping located along the exterior of the fence or wall. Exceptions are decorative low walls or seat walls.

**K. Fences and Walls Along Open Space Tracts, Parks, Reservoirs, Golf Courses, Trails, and Drainage Ways.**

1. Fences adjacent to open space tracts, parks, trails, and drainage ways shall meet the design standards shown in Figure 4.7-37 and the screening requirements of Section 146-4.7.5.H.2 (Buffer Standards for Areas Adjacent to Public Parks, Open Space, and Trails) shall also apply.
2. Fences adjacent to public golf courses or reservoirs shall be an open wrought iron style with masonry columns, or other styles or column spacing as may be specified by the Director of Parks, Recreation, and Open Space. Screening requirements of Section 146-4.7.5.H.2 (Buffer Standards for Areas Adjacent to Public Parks, Open Space, and Trails) shall also apply.
3. Fences may be up to four feet in height for parks and open space, and up to nine feet for athletic courts and fields and may exceed those maximum heights if the Parks, Recreation and Open Space Department determines that the additional height is needed and will not create a traffic hazard.

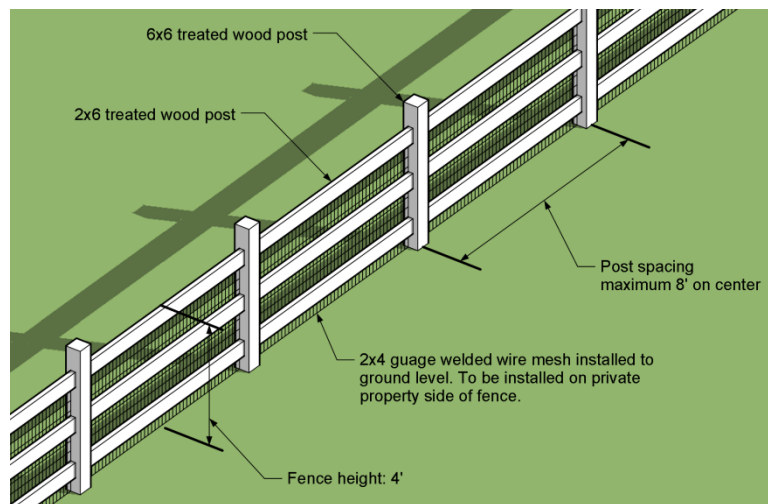


Figure 4.7-37: Fencing Along Open Areas

## L Fences and Walls in Residential Developments

The standards in Table 4.7-4

Figure 4.7-38, Figure 4.7-39, and Figure 4.7-40 apply to all Single-Family Detached, Single-Family Attached, Two-Family, Co-housing, and Cottage Development or similar residential uses. In case of a conflict with other standards in this Section 146-4.7.9, these standards shall govern.

### 1. Location and Height

<b>Table 4.7-4 Fence Location and Height: Residential Uses</b>	
<b>Standard</b>	<b>Requirements</b>
<b>Front Yards</b>	
Height	Maximum 42 inches
Setback	Fence – 18 inches minimum from back of sidewalk, unless larger setback required per by another provision of this UDO.
<b>Side Yards (See Section 146-4.7.9.H for new fencing along Arterial and Collector Streets)</b>	
Height	Maximum six feet
Setback	Fence – four feet minimum from back of sidewalk
	Fence abutting an adjacent lot's front yard shall meet the front yard fence requirements. Where existing homes that share an internal fence, the fence may be chain link or welded wire and may be located on the lot line.
<b>Rear Yards (See Section 146-4.7.9.H for new fencing along Arterial and Collector Streets)</b>	
Height	Maximum six feet
Setback	Four feet minimum from back of sidewalk, if replacing an existing fence
	Where existing homes that share a rear yard fence, the fence may be located on the lot line.
<b>Corner Lots</b>	
Height	Maximum 42 inches.
Setback	A fence that meets the front yard requirements may wrap a corner and shall be set back a minimum of 18 inches from back of sidewalk.
	New side yard fences shall be set back a minimum of 10 feet from the back of sidewalk adjacent to the street, but in no case less than 15 feet from the street flowline .
	A replacement for an existing fence shall be set back a minimum of 4 feet from the back of sidewalk.

### 2. Design and Opacity

- a. An open-style fence on a solid base is permitted in the front yard, provided the base does not exceed 18 inches in height. Where a solid base is proposed as part of the open fence, only stucco and masonry materials are allowed. A wood base is not allowed.
- b. Open style picket fences that are at least 50 percent opaque are permitted in front yard.



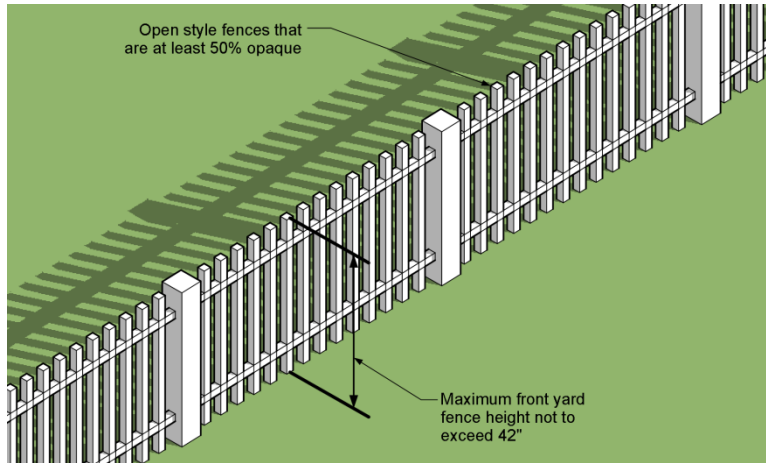


Figure 4.7-38: Street Frontage Fencing

- c. Solid base fences with bases no taller than 18 inches above grade, and picket fences no taller than 18 inches mounted on top of that base, are permitted in front yards.

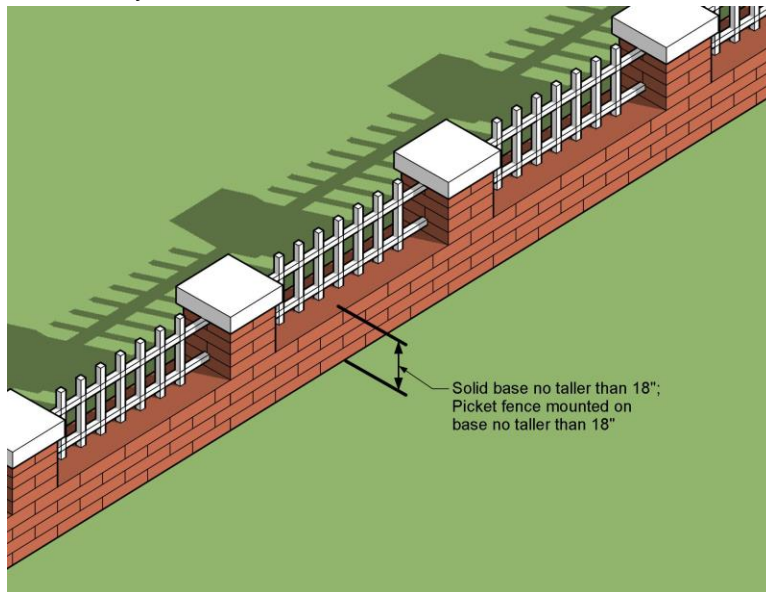


Figure 4.7-39: Solid Fencing

d. Fencing on corner lots shall meet the requirements shown in Figure 4.7-39.

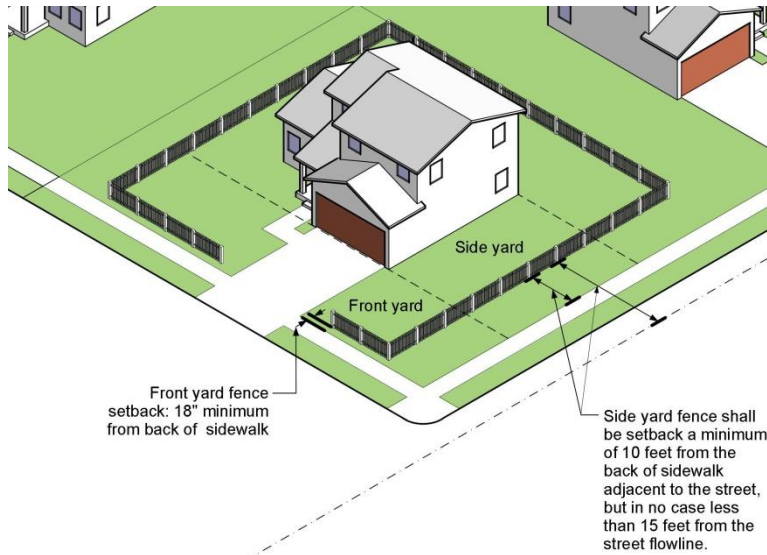


Figure 4.7-40: Corner Lot Fencing Setbacks

**M. Fences and Walls for Other Development**

The standards in this Section 146-4.7.9.M apply to all mixed-use and non-residential development for which this UDO does not provide a different standard for fence and wall height and location.

**Table 4.7-5  
Fence Location, Type and Height: All Other Uses [1]**

Standard	Requirements	
	Other Uses	Industrial
<b>Front Yards:</b>		
Height	Max. 48 in.	Max. 9 ft.
Setback	Fence: 4 ft. min. from back of sidewalk, unless a larger setback required by another provision of this UDO	
<b>Side Yards</b>		
Height	Max. 6 ft.	Max. 9 ft.
Setback	Fence: 4 ft. min. from back of sidewalk Where existing developments that share an internal fence, the fence can be on the lot line	
<b>Rear Yards</b>		
Height	Max. 6 ft.	Max. 9 ft.
Setback	Fence: 4 ft. min. from back of sidewalk; If replacing an existing fence, the fence may be on the lot line.	

[1] Multi-family perimeter fencing shall not be located closer to a street or property line than the required buffer depth for setbacks.

## **N. Swimming Pools**

The swimming pool area shall be completely enclosed by a fence not less than four feet in height with openings of not more than four inches. The fence shall be located not more than 100 feet from the edge of the pool. All gates shall be equipped with self-latching and self-closing devices placed on the inside top of the gate. See the International Building Code for additional restrictions on height, vertical member spacing, and access gates. Chain link and welded wire fences are prohibited.

## **O. Screening of Outdoor Storage, Equipment, Asphalt, Concrete, Landscape Yards, Surface Parking Lots, Oil and Gas Facilities, Substations or Pump Stations**

### **1. Permitted Materials**

Permitted materials include the following, all of which must be opaque:

- a. Walls consisting of brick, stone, and integrally colored decorative concrete masonry units (CMUs);
- b. Decorative and durable pre-cast concrete panels
- c. Composite wood
- d. Closed style wood fences

### **2. Prohibited Materials**

Color clad, welded wire, chain link, Omega or similar welded wire may not be utilized to meet screening requirements.

## **P. Fence Replacement Program**

### **1. General Requirements**

All portions and side of a fence shall be finished with the same quantity and quality of materials as the predominant side facing the street.

### **2. Minimum Column Spacing**

Except for panelized construction, all masonry fences shall include masonry columns with a minimum cross-section of 18 inches by 18 inches placed at a maximum interval of 120 feet along the length of the fence. Additional columns shall also be required at all fence corners and turning points and at all fence termination points.

### **3. Color**

All fence colors shall be integral to the material. Fence materials shall not be painted or stained with exterior coat systems. All colors shall be earth tones such as tans, browns, and traditional red brick tones. Uncolored concrete is not permitted.

### **4. Masonry Unit Sizes**

When brick and concrete masonry are used, individual unit sizes shall not exceed 16 inches in length by eight inches in height. When panelized construction is used, the design of individual panels shall replicate the appearance of individual unit sizes as described above, or of a fence constructed of irregularly shaped stones.

### **5. Texture**

Fences consisting of masonry units shall have a surface texture. Masonry units in excess of four inches in height shall have a decorative split-face texture. Units designed to resemble stone shall have a natural-looking stone texture. Panelized materials shall duplicate the textures of masonry and stone units as described above and may be painted to simulate masonry or stone.

**6. Concrete Split Rail**

Pre-cast concrete split rail and other open rail fence designs are not approved under this program for use along streets.

**Q. Substitute Materials**

Materials other than those required by this Section 146-4.7.9 may be allowed upon determination by the Planning Director that they are of comparable durability and quality, and have a similar appearance.

**R. General Fence and Wall Construction Standards**

All fences shall meet all the following general construction standards:

1. All construction materials shall be new and shall not include construction debris or salvaged material. Durable reprocessed and recycled materials sold as building materials for new construction may be approved by the Planning Director.
2. Wood fence posts shall be pressure treated. Cedar and redwood are not required to be pressure treated.
3. All fence posts for fences over 42 inches in height shall be set in circular concrete bases a minimum of two feet deep and one-foot diameter.
4. All wood fences shall conform to the post size and spacing requirements of Table 4.7-6

<b>Table 4.7-6 Nominal Post Sizes and Spacing for Wood and Composite Wood Fences</b>			
<b>Fence Type</b>	<b>Minimum Nominal Post Cross-Section</b>	<b>Maximum Fence Post Spacing</b>	
		<b>Along arterials</b>	<b>All other locations</b>
Wood fences	Four inches x four inches	Five feet	Eight feet
	Four inches x six inches	Eight feet	Eight feet
Composite Wood fences	Four inches x four inches	Five feet	Five feet
	Five inches x five inches	Eight feet	Eight feet

5. Rails and/or posts shall be securely fastened.
6. Pickets and boards shall be securely attached to rails and posts. Wood picket or slat fences over 42 inches in height shall be constructed with a minimum of three, two inch by four inch horizontal rails and have a minimum nominal dimension for pickets or slats widths of four inches.
7. All brick and masonry fences shall be properly mortared and securely attached with foundations.
8. Where chain link fences are permitted, they shall have top rails.
9. The finished side of the fence shall face the public right-of-way or private streets or alleys, as applicable. Posts and rails shall be on the interior side along streets.

**S. Gate Standards**

1. All gates shall have hardware to secure the gate in a closed position.
2. All gates shall be installed to the maximum fence height at all entrances.
3. All unattended gates shall be self-closing, self-latching, and locked when not in use.
4. If a fence or wall along a sidewalk includes a gate, the gate shall not open into the public sidewalk area except when a person is entering or exiting the gated area.
5. All gates must be set back 35 feet from the street entry point.