

Land Development Ordinance

New Braunfels, Texas

Installment 2: Development Standards

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Public Review Draft

October 2023

CLARION



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Article 1: General Provisions

[To be included in Installment 3]

Article 2: Zoning Districts

[Included in Installment 1]

Article 3: Land Uses

[Included in Installment 1]

Article 4: Development Standards

4.1 Purpose

This article includes standards that regulate the physical layout and design of development within New Braunfels to ensure the protection of the health, welfare, safety, and quality of life. These standards address the physical relationship between development and adjacent properties, public streets, neighborhoods, and the natural environment, in order to implement the comprehensive plan vision for a more attractive, efficient, and livable community.

4.2 Landscaping

COMMENTARY

As recommended in the Assessment Report, this section proposes new landscaping requirements for both multi-family and non-residential development. These requirements focus mainly on the provision of street trees, along with a requirement for a certain percentage of site area to be landscaped. To allow for some flexibility, how this percentage is achieved is left to the developer, subject also to the newly proposed limitation on turf grass coverage. Landscape planting is required for all development except one-to four-family, townhomes of up to four attached units, and mobile home parks.

This draft carries forward the parking lot landscaping standards from Chapter 144-5.3 with significant edits, as noted below.

Throughout this section, the proposed minimum diameter for tree planting has been increased from one and one-half inches to two inches. This increase should not significantly increase costs for tree installation, but it should provide slightly more robust tree specimens at planting.

Enhanced sustainability features located throughout this section include:

- Where plantings are required, the focus is on provision of trees rather than shrubs or other groundcover that does provide shade or contribute to reducing heat island effects.
- Limitations on the use of turf grass, which is water-intensive to maintain, are proposed.
- Larger tree size required at time of planting.
- In addition to stronger tree requirements for parking lots, LID elements are required in the landscape design.

4.2.1 Purpose⁹

The purpose of this section is, through the preservation, protection, maintenance, and planting of trees and other plant materials, to:

- A. Provide visual buffering and enhance the visual appeal of the city, and eliminate or minimize conflicts between potentially incompatible but otherwise permitted land uses on adjoining lots through buffering;
- B. Promote native and/or adapted, drought-tolerant species to conserve water and promote local biodiversity;
- C. Reduce the heat island effect that is generated by excessive amounts of hardscape by providing for organic ground cover and shade;

⁹ Based on 144-5.3-1(b)(1).

- D. Realize the environmental benefits of landscaping such as: storm water retention; recharging groundwater; retaining soil moisture; preventing erosion; providing bird and wildlife habitat; and improving air quality, while mitigating water pollution, dust, noise, heat, and glare;
- E. Establish an attractive streetscape that contributes to the character and appearance of the city; and
- F. Improve the appearance of development to protect and enhance public and private investments and property values.

4.2.2 Applicability¹⁰

The requirements of this §4.2 shall apply to development within the city limits, as described below.

A. New Development

Landscaping as described in this section is required for all new construction that requires a building permit.

B. Additions and Redevelopment

1. Any expansion or enlargement of an existing primary structure that results in an increase of floor area of up to 25 percent shall provide additional landscaping in proportion to the extent of expansion. An expansion of 25 percent of greater shall be required to comply with all landscaping requirements of this section.
2. Landscaping as described in this section is required for redevelopment of a lot that involves the demolition of 50 percent or more of an existing primary structure, and its replacement with any new construction, whether to the same, greater, or lesser extent than the building footprint that previously occupied the lot.
3. When an expansion or redevelopment of a building on a lot requires the removal of landscaping, that landscaping shall be replaced elsewhere on the lot.
4. Expansion is measured cumulatively, so that separate expansions that add up to a 25 percent or greater increase in building area within a span of five years shall be required to meet the requirements of this section.

C. Expansion of Parking Area

1. Landscaping as described in this section is required for an existing parking lot that is being expanded or altered to an extent between 25 and 50 percent of the lot's surface area prior to expansion.
2. Only the parking lot area being added shall be required to meet the standards of this section. For instance, if a parking lot is expanded in an area not adjacent to a street, no street yard landscaping is required, and only the expanded area shall be subject to the parking lot landscaping standards in §4.2.6, *Parking Lot Landscaping*.¹²
3. When a parking lot is expanded by more than 50 percent of its surface area, the entire parking lot shall meet all of the requirements of §4.2.6, *Parking Lot Landscaping*.
4. Expansion is measured cumulatively, so that separate expansions that add up to a 25 percent or greater increase in parking lot surface area within a span of five years shall be required to meet the landscaping requirements of §4.2.6, *Parking Lot Landscaping*.

¹⁰ 144-5.3-1(a) with new and expanded content regarding instances when requirements apply.

¹² 144-5.3-1(b)(2)(iv)(2).

D. Change of Use

1. Any change of use that requires the expansion of the parking area shall result in a requirement for landscaping within the expanded area of the parking lot to be brought into conformance with the requirements of this section.
2. If the change of use requires the expansion of the existing parking lot by 50 percent or more of its surface area, the entire parking lot shall meet all the requirements of §4.2.6, *Parking Lot Landscaping*, as well as any applicable requirements in §4.4, *Buffering and Residential Adjacency*.

E. Exceptions¹³

1. Minor Deviation or Variance

A development that cannot meet the standards of this section may request a minor modification, as described in §X.X, to allow for deviation of up to ten percent from a specified standard, or a variance, as described in §X.X, to allow for a deviation of greater than ten percent from a specified standard, or deviation from more than one of the standards described in this §4.2.

2. Downtown

Within the boundaries of the New Braunfels Downtown historic district, the standards of this §4.2 shall not apply.

3. Agricultural Uses

Agricultural uses within the AG zoning district shall not be required to provide landscaping if there is no operational component open to the public, such as a farm stand or retail shop.

4. Airfields

Along the inside or "air side" of an airport's perimeter boundary fence for airfields that have a concrete runway at least 5,000 feet in length, the minimum landscape requirements of this section shall not apply. However, airports and airfields must comply with parking lot landscaping and parking area buffering requirements, including the planting of street trees. 

5. Parking Lot Maintenance

This section does not apply to parking lot re-striping and repaving where there is no expansion of the parking area.

6. Natural Disaster or Other Structural Damage

During a 12 month period subsequent to a structure being damaged by a fire, explosion, flood, tornado, other natural disaster, civil unrest or other accident of any kind, while the damaged structure is being restored.

4.2.3 Administration¹⁵

A. Landscape Plan¹⁶

1. A landscape plan shall accompany all development applications and/or building permit requests that require landscaping pursuant to this §4.2, and shall include the minimum information specified by the City.¹⁷

¹³ New.

¹⁵ 144-5.3-1(b)(4)

¹⁶ Many communities require that the landscape plan/alternative landscaping plan be prepared by a registered landscape architect or landscape designer. Should that requirement be added?

¹⁷ This does not carry forward the submittal requirements from Section 144-5.3-1(b)(5). We generally recommend keeping the submittal requirements (along with related materials like fee schedules) outside the code where they may be updated without going through formal code amendments.

2. If the landscape plan complies with the requirements of this §4.2, the landscape plan shall be approved. If the landscape plan does not comply, the plan shall be disapproved, accompanied by a written statement setting forth the changes necessary for compliance.

B. Permits and Certificate of Occupancy¹⁸**1. Permits**

No building permit shall be issued until a landscape plan is submitted and approved by the Planning and Development Services Department. A landscape plan shall be required as part of the building permit application submission for all applicable properties.

2. Certificate of Occupancy

- a. No certificate of occupancy shall be issued for any building or structure until all landscaping is in place in accordance with the landscape plan, unless extenuating circumstances beyond the control of the owner and related to climate conditions (too wet, too dry, too hot, or too cold) prevent installation of trees, shrubs, or groundcover, or the successful establishment of turf area 
- b. When landscaping installation is deferred on account of such circumstances, a certificate of occupancy may be issued to a property that does not have all landscaping installed, if the property owner provides the City with a financial guarantee (escrow deposit, bond, letter of credit, or other guarantee acceptable to the City). The landscaping shall be installed within six months, unless further deferral is requested in writing, and approved by the City because circumstances still preclude installation of the landscaping.
- c. Financial guarantee shall be provided prior to issuance of the certificate of occupancy, and the obligations and responsibilities of the property owner shall become those of the property owner's transferees, successors and assigns; and the liability therefore shall be joint and several.
- d. If landscaping is not installed according to the timeline agreed between the property owner and the city, the city may use the funds provided in the financial guarantee to install landscaping according to the approved landscape plan.

C. Alternative Landscaping Plan¹⁹**COMMENTARY**

The description of the current Alternative Landscaping Plan in Chapter 144 indicates that it is used both for flexibility (to accommodate innovative landscaping proposals, or efforts to conserve existing mature trees & landscaping) and also as a variance, when the request to deviate from standards is less than 25% of the standard (more than 25% requires an actual variance).

We carry forward the possibility for submission of an Alternative Landscaping Plan. It would still be used for innovative proposals, but we propose two alternative approaches for its use when an applicant cannot meet a standard.

Option 1: Apply a points system, similar to what is employed in Austin. There, the Alternative Compliance system deducts a defined number of points for requirements that are not met (e.g., inadequate percentage of street yard devoted to landscaping = minus 20 points; inadequate parking lot landscaping = minus 10 points) and then requires the applicant to "regain" those points by including alternative landscaping options to compensate (e.g., use of all native plantings = positive 5 points; buffer increased above minimum = positive 10 points).

-One advantage of this system is that it includes allowance for alternative options such as shaded seating or public art, if New Braunfels decides it would like to consider those options.

¹⁸ 144-5.3-1(b)(3).

¹⁹ 144-5.3-1(b)(4)(ii). If Alternative Landscaping Plan carried forward according to current usage, ensuing drafts can revisit this language, to add greater detail about what is "appropriate."

-A potential disadvantage is the complexity of administration. Since the new standards proposed here are relatively basic, it adds a level of possibly unnecessary complication to assign points and tradeoffs to requests for flexibility. A somewhat simpler approach is proposed as option 2.

Option 2: A similar requirement for exchange could be implemented without using a points system. In this approach, a request to provide less than the required street yard landscaping would be approved if a greater number than the required trees are provided on site; or a request to provide less than the required parking lot landscaping would be approved if a larger buffer is provided.

-This offers a similar benefit to the system that Austin uses, but would be simpler to administer, once appropriate correlations were determined.

Once discussion on the proposed base landscaping standards determines what level of detail to proceed with, further discussion on the options for Alternative Landscaping Plan will be included as part of the Installment 3, Administration and Procedures, discussion.

Questions to consider:

Should an Alternative Landscaping Plan be permitted if there is no site constraint that precludes installation of landscaping as required in this section?

Should it allow for installation of features other than landscaping, such as public art or other public-facing site amenities such as water features or plazas?

1. Purpose

The purpose of this section is to provide an opportunity for a property owner to propose innovative alternatives that meet or exceed the quality and/or quantity of the landscaping otherwise required by this §4.2.

2. Applicability

- a. An alternative landscaping plan may be approved by the Planning and Development Services Department when the proposed landscape design does not meet the requirements of this §4.2, but proposes innovative, high-quality alternatives that enhance the physical environment of the site and the surrounding area to an equal or greater extent than would be achieved by strict compliance with these standards.
- b. An alternative landscaping plan may also be approved by the Planning and Development Services Department to allow for the preservation of existing, mature landscaping, or on-site trees, in the same quantity but in different locations than is required by this §4.2. Such preserved plantings may not be substituted for buffering as required in §4.4, *Buffering and Residential Adjacency*, unless they are in the location where buffering is to be installed, or interior parking lot landscaping requirements, as described in §4.2.6D.
- c. The alternative landscaping plan shall not be used to alleviate inconveniences, financial burdens, or self-imposed hardships.
- d. The burden of proof for demonstrating that the alternative landscaping plan satisfies the purpose and meets or exceeds the standards of §4.2 rests with the applicant, who shall describe the reasons for deviation from the provisions of §4.2, and demonstrate why the alternative plan is appropriate, and how it is consistent with the purpose of this section, as described in §4.2.1.
- e. Alternative landscaping plans may be submitted for lots that receive approval to provide parking above the maximum allowance, as described in §4.5.3B.2; however, the plan may not vary from the requirements for parking lot landscaping described in §4.2.6, *Parking Lot Landscaping*, unless the request is to preserve heritage or protected trees, as described in §4.3, *Tree Preservation and Tree Removal*, within a parking lot.

3. Alternative Landscaping Plan Equivalencies²⁰

[Reserved, pending determination on options for different implementation approaches.]

4.2.4 Landscape Materials Standards²¹

The following standards apply to landscape materials and installation:

- A. All landscaping shall be selected from the Approved Plant List in Appendix A.
- B. Artificial plant materials shall not be used to satisfy the requirements of this section, except for limited use of inorganic materials such as mulch, pea gravel or river rocks, or granite that may be allowed as ground cover under the dripline of trees, in an area extends one and one-half feet out from the trunk of a tree.
- C. Plant materials shall conform to the standards of the current edition of the "American Standard for Nursery Stock" (as amended), published by the American Association of Nurserymen.
- D. Grass seed, sod, and other material shall be clean and free of noxious or invasive weeds and noxious pests and insects.
- E. Grass areas shall be sodded, plugged, sprigged, hydro-mulched and/or seeded, except that solid sod or other erosion control devices shall be used in swales, earthen berms, or other areas subject to erosion.
- F. Grass or turf areas over the Edwards Aquifer Recharge Zone may not be painted.
- G. Ground covers shall be planted in such a manner as to present a finished appearance and reasonably completed coverage within one year of planting.
- H. Any healthy trees preserved on a site may be credited toward meeting the total tree requirement of this section, except those undesirable species included in Appendix B of this chapter. See §4.3.7 for information on *Tree Survey and Preservation/Replacement Plan*.
- I. Canopy trees shall be planted, unless a combination of canopy trees and ornamental trees is required, as described in §4.4.1, *Buffering*, or as described in provision J below.
- J. No trees or other landscaping may be planted on public or private property that will mature within ten lateral feet of any overhead utility wire, or over or within five lateral feet of any underground water line, sewer line, electric line, or other utility. Where required canopy trees would intersect with overhead lines at maturity, understory or ornamental trees as listed in Appendix A, Approved Plant List, shall be substituted in the affected landscaping areas as required. Two ornamental trees are required as a replacement for one canopy tree.

4.2.5 Minimum Landscaping Requirements²³**COMMENTARY**

New basic standards for both non-residential and residential development – including new development of one- to four-family dwellings where there are five or more units -- are included. The street frontage and site coverage requirements are common in many communities and are set here at modest thresholds. Street frontage requirements focus on trees, without additional requirements for accompanying shrubs and grasses. As concern about water usage increases in many areas, limitations on turf grass are becoming more common and are proposed here for discussion in support of greater sustainability.

²⁰ 144-5.3-1(b)(4)(iv). The approval criteria have been removed from this draft, and will be included as part of installment 3, Administration and Procedures. Criteria will be adapted based on thresholds established during public review for what procedures apply to requests for flexibility/deviation from standards.

²¹ 144-5.3-1(b)(6), with edits.

²³ New, for subsections 1-4.

Questions to consider:

Should the city proceed with the adding requirements for one- to four-family developments?

This draft focuses on landscaping and tree planting in the street yard. It does not include street tree requirements, which are trees that have to be planted in the right-of-way, generally in the area between the back of the curb and the edge of the sidewalk (when there is a detached sidewalk). Should there be requirements for street trees in addition to the on-site requirements listed below?

Should street frontage requirements, if separated from general requirements, be tied to street type, as listed in the Thoroughfare Plan? This would add detail to the requirements, with the benefit of ensuring that planting is appropriately spaced and sized based on the adjacent street; however, it would also require more staff time and expertise to implement.

A. General Standards

1. Any part of a site not used for building coverage, parking areas, driveways, sidewalks, or other site improvements shall be landscaped with live plant material according to the standards of this §4.2. This landscaped area may exceed but shall not be less than the minimum landscape standards specified below.
2. When a buffer area is required, as described in §4.4.1, *Buffering*, the plantings may be counted towards the overall site coverage and tree planting requirements.
3. Canopy trees shall be used, unless there is a potential conflict with overhead or underground utility lines, as described in §4.2.4J above, in which case ornamental trees may be substituted at the rate specified.
4. All proposed landscaping shall be appropriate for the site in relation to both proposed use and location within the site, and in relation to the underlying geology, i.e., proximity to a river/watershed, over the Edwards Aquifer Recharge Zone, on the more arid and thin-soiled escarpment as opposed to in the fertile clay valley, or on slopes with a grade of 15 percent or greater.
5. For multi-family and non-residential development, turf grass shall comprise no more than 25 percent of required street yard landscaping, unless provided as part of required common open space for multi-family development, as described in §4.6.3A. Grass areas not using one of the grasses listed on the [Approved Plant List in Appendix A](#) will not be credited as landscaped areas except in shaded areas receiving less than six hours of sunlight per day.

B. Exceptions

These requirements do not apply to existing one- to four-family residential development, development of a one to four residential units on a previously subdivided lot, or manufactured homes in manufactured home parks.

C. Minimum Requirements

1. Tree planting and site landscaping is required as described in Table 4-2 below.
2. The street yard area is calculated by finding the total lot square footage which lies between the street right of way line and the front wall of a building or buildings on a site.²⁴ This street yard boundary extends from the outward most corners of the front wall, parallel to the street until it intersects with the side property lines.

Table 4-1: On-Site Landscaping Requirements

Type of Development	Tree Planting Requirement	Site Landscaping Requirement
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²⁴ Street yard is a defined term.

One- to Four-Family Residential Development [1]	1 canopy tree per 1,000 sq feet of lot area up to 10,000 square feet; at least one tree in street yard area	All site area
Multi-Family Residential Development	1 canopy tree per 1,000 sq feet of street yard area	50% of street yard area
Mixed-Use Development	1 canopy tree per 1,000 sq feet of street yard area	25% of street yard area
Non-Residential Development	1 canopy tree per 1,000 sq feet of street yard area	15% of street yard area
Industrial Development [2]	1 canopy tree per 1,000 sq feet of street yard area	10% of street yard area

[1] If there is insufficient space to plant a tree on the lot in the street yard area with at least ten feet of distance from the building foundation, the tree may be planted as a street tree in the right-of-way.

[2] An industrial uses that provides enhanced landscaping as described in §4.2.5.F.2 may count that landscaping towards fulfilling the requirement in this Table 4-2.

D. Additional Standards for One- to Four-Family Residential Development

1. Planting requirements apply to any new development that contains five or more residential units, whether in the form of detached single dwellings, duplex, triplex, quadplex, townhome or cottage home, in any zoning district. The requirements apply per building, not per unit.
2. This requirement may be waived if a sufficient number of existing trees are preserved on the development site, as described in §4.3, *Tree Preservation and Tree Removal*.
3. All site area not covered by a building, parking area, driveway, sidewalk, or other site improvements shall be landscaped.

E. Additional Standards for Multi-Family, Mixed-Use, and Non-Residential Development

Parking lot landscaping as described in §4.2.6 is also required.

F. Industrial Development

1. Parking lot landscaping as described in §4.2.6 is also required.
2. An industrial use in an industrial zone that does not comply with the building design standards in §4.6.7, shall be required to provide enhanced landscaping as follows:²⁵
 - i. A minimum of one canopy tree and four shrubs for every 40 linear feet or portion thereof of building facade that is visible from a public roadway, public park, or residential district.
 - ii. Canopy trees shall be planted no closer than 20 feet apart, ornamental trees shall be planted no closer than ten feet apart, and planting areas shall be a minimum of six feet in width.
 - iii. Trees shall be planted a sufficient distance from the front of the building so that anticipated crown spread at maturity does not interfere with the building.
 - iv. Ornamental trees may be substituted for canopy trees at the rate specified in §4.2.4J, above, to avoid conflicts with utility lines.

²⁵ Should this be instead of what is specified in provision 1., or in addition to it? We did add a provision that parking lot trees can count, if they are within fifty feet of the building (see provision vi).

- v. Canopy trees shall be provided with a permeable surface of 90 square feet per tree under the drip line. Ornamental trees shall be provided with a permeable surface of 60 square feet per tree under the drip line.
- vi. If a tree installed to meet the requirements of §4.2.6, *Parking Lot Landscaping*, is installed within fifty feet of the façade of the building, it may be counted towards fulfilling this requirement.

4.2.6 Parking Lot Landscaping²⁶

- A. The following standards apply to surface parking lots.
- B. An existing parking area that is voluntarily retrofitted to meet the standards of this section shall qualify for a **15 percent reduction** in the minimum parking space requirement.

COMMENTARY

This section provides additional detail, and slightly higher requirements, than presently required by Chapter 144 for parking lots. To reduce unshaded expanses of parking lot asphalt, this draft is more specific about landscaping being distributed throughout the parking lot through the use of landscape islands. Since one of the primary objectives of parking lot landscaping is to create shade and mitigate heat island effects, the focus here is on planting trees rather than shrubs and ground cover.

As a means of promoting LID principles, the draft also proposes that parking lot landscaping is installed slightly below grade, with openings in the surrounding curb to allow infiltration.

This draft proposes requiring a certain number of trees per number of parking spaces; an alternate approach would be to require a certain percentage of parking lot area to be shaded based on anticipated tree crown at maturity. While this approach is more difficult for staff to administer, it can offer greater flexibility to developers. If staff would rather approach parking lot landscaping that way, it can be adjusted in the public draft.

Interior parking lot landscaping subsection proposes a change to the number of spaces when a tree is required from every 14 to every ten, increases the minimum caliper for the tree, and specifies the tree must be a canopy tree. The intention of these provisions is to ensure higher quality plantings that, at maturity, will provide shade in the lot, lessening heat island effects.

In this subsection, street frontage requirements are separated from internal landscape island requirements. This should avoid development that fulfills the requirement by placing all trees on the parking lot perimeter, with none dispersed throughout the parking area to provide shade.

Planting strips between parking rows are proposed as an alternative to landscape islands dispersed throughout the lot. Both islands and planting strips are required to be installed slightly below grade and surrounded by permeable curbs to allow for stormwater runoff and infiltration. Only trees and ground cover are required in planting strips and islands, since shrubs and other low plantings don't contribute to shading the lot. Two alternatives are provided to these requirements, by means of covered parking (including cover provided by solar canopy), or parking rows separated by walkways.

Standards related to parking (and other development) over the Edwards Aquifer are addressed in a section on Sensitive Lands.

C. Street Frontage Landscape Buffer Area

Where a parking lot is adjacent to and within 50 feet of public street right-of-way, and there is no building located between the parking area and the right-of-way, a Level 1: Basic buffer, as described in Table 4-4: *Buffer Types and Configurations*, adjacent to the right-of-way is required to screen the parking area from the street view.²⁷ Plantings required are per 100 linear feet of street

²⁶ 144-5.3-1(b)(7), with edits as noted.

²⁷ 144-5.3-1(b)(7)(i)(1).

frontage. If the area to be buffered is less than this distance, a quantity of plantings commensurate with the reduced length shall be provided.

1. Lots adjacent to more than one street frontage shall be required to observe the Level 1: Basic buffer on all frontages.²⁸
2. Minimum specifications at time of planting for trees and other ground cover is described in §4.4.1E.2, *Minimum Planting Specifications*. Existing trees may be preserved to meet this requirement.
3. Where an existing canopy tree is being preserved, or where overhead utility lines may intersect with the spread of the tree canopy at maturity, utility-friendly ornamental trees included on the Approved Plant List in Appendix A must be substituted for canopy trees at a rate of two ornamental trees for each required canopy tree.³⁰
4. Plants shall be chosen from the Approved Plant List in Appendix A.³¹
5. All new canopy trees shall be provided with a permeable surface of 90 square feet per tree under the drip line. Ornamental trees shall be provided with a permeable surface of 60 square feet per tree under the drip line.³²
6. Trees within street rights-of-way shall not count toward the number of trees required for a development site, unless site constraints preclude installation of trees as required by this §4.2.6.³³
7. Plantings in the Clear Vision Area at the intersections of streets and driveways shall not interfere with *Sight Distance and Visibility* requirements in §4.2.8.



D. Interior Parking Lot Landscaping

COMMENTARY

This section provides two options for consideration regarding landscaping requirements in parking lots. Both are presented for further discussion on which approach is best suited to New Braunfels.

OPTION 1 is more detailed, but would offer less flexibility to developers in meeting requirements. It would likely be easier for staff to administer, as the requirements are explicit.

OPTION 2 has less detail, and would allow more flexibility for developers in its implementation. Because this is less prescriptive, it could lead to negotiation on what meets the requirement, and additional staff time in review to ensure projects comply.

1. Applicability

In addition to complying with any applicable requirements for street frontage landscaping, all parking lots with 10 or more parking spaces shall provide either landscape islands or planting strips pursuant to §4.2.6D.2 or 4.2.6D.3.³⁴

2. **OPTION 1: Landscape Islands**³⁵

- a. An interior landscape island shall be provided for every ten parking spaces, and a terminal island shall be provided at both ends of each row of parking. See Figure 4.2.6-1.³⁶
- b. Interior and terminal landscapes island shall be no less than six feet wide and no shorter than the length of the adjacent parking space(s).

²⁸ 144-5.3-1(b)(7)(i)(1).

³⁰ 144-5.3-1(b)(7)(i)(2).

³¹ 144-5.3-1(b)(7)(i)(2), specification of two ornamental trees per 40 linear feet is new.

³² 144-5.3-1(b)(7)(i)(2).

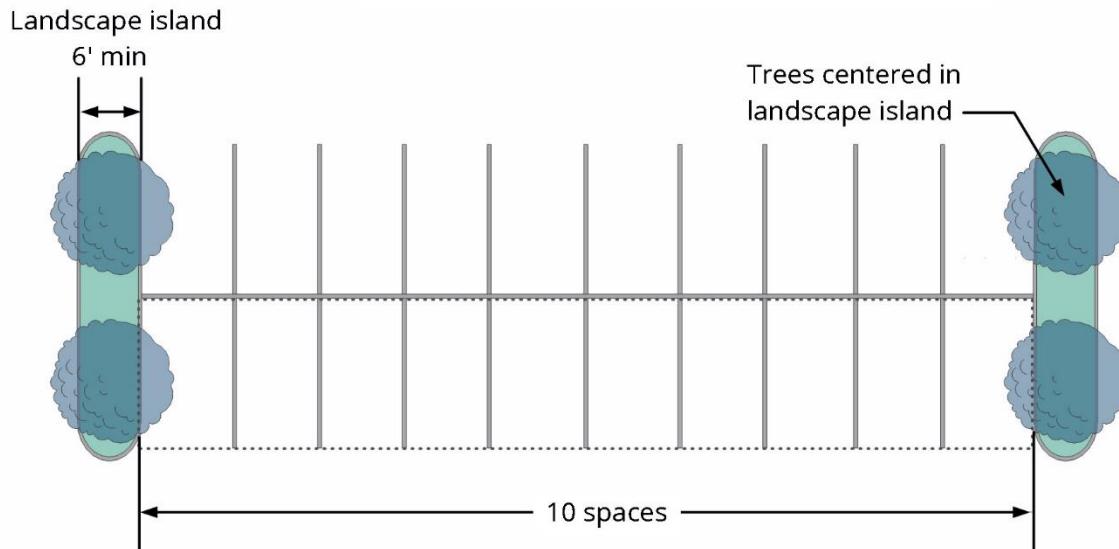
³³ 144-5.3-1(b)(7)(i)(1); clause regarding site constraints is new.

³⁴ New.

³⁵ This increases the minimum diameter of trees to be planted, and specifies height.

³⁶ Though related to 144-5.3-1(b)(7)(i)(3), additional detail regarding provision of landscape islands, their frequency, and location is new.

- c. An island adjacent to the length of one parking space shall contain at least one canopy tree, a minimum of two inches in diameter measured six inches above the ground and at least six feet in height at time of planting, surrounded by 90 square feet of permeable surface area.
- d. A double-length island adjacent to the length of two parking spaces shall provide at least two canopy trees of two inches in diameter measured six inches above the ground and at least six feet in height at time of planting.
- e. Trees in double length islands shall be planted no less than 15 apart. Each tree shall have a minimum permeable surface area of 90 square feet.
- f. Trees shall be selected from the Approved Plant List, and the species chosen shall have a root spread at maturity that will not be constrained by the island width.³⁷
- g. Any remaining surface area of the island shall be covered with living plant material.

Figure 4.2.6-1: Landscape Islands

³⁷ It would be helpful to have input from the city's arborist on whether the combination of these requirements is practical or not.

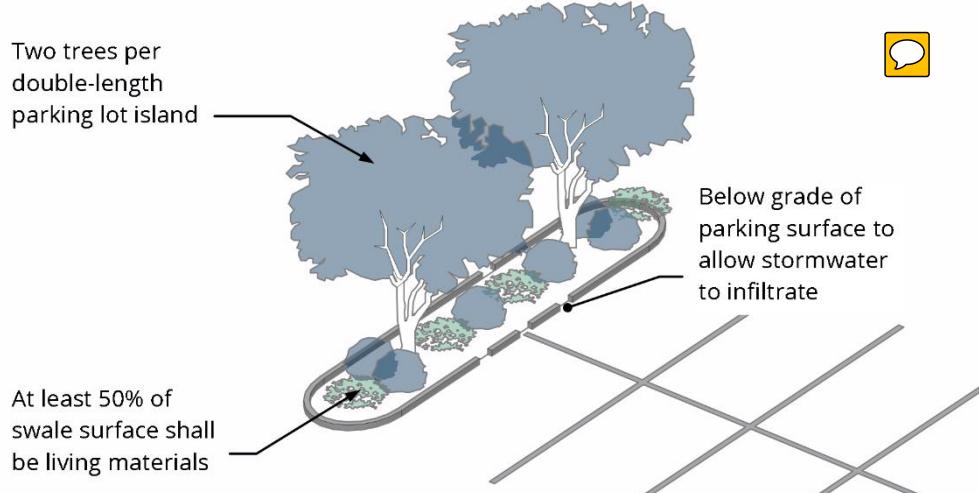
- h. Each landscape island shall be depressed slightly below the grade of the parking lot to allow stormwater to infiltrate, and shall be protected by raised concrete curbs, which shall include openings at grade as necessary to allow storm water to flow into any below grade landscaped areas. See Figure 4.2.6-2. This requirement for the surface of the island to be below grade shall not apply to existing trees that are being preserved within a parking lot.
 - i. Parking lot lighting shall not be installed within landscape islands.

3. **Median Planting Strip**

Median planting strips may be installed as an alternative to landscape islands dispersed throughout the parking lot.

- a. The planting strip shall be a minimum of eight feet wide, installed slightly below grade between facing rows of parking stalls, as shown in Figure 4.2.6-3.
- b. One canopy tree of two inches in diameter measured six inches above the ground and at least six feet in height at time of planting shall be installed for every 30 linear feet of planting strip or portion thereof.³⁸
- c. The remaining surface area of the island shall be covered with living plant material, except the 60 or 90 square foot mulched area located around the base of each tree.
- d. The planting strip shall be protected by raised concrete curbs, which shall include openings at grade as necessary to allow storm water to flow into any below grade landscaped areas.

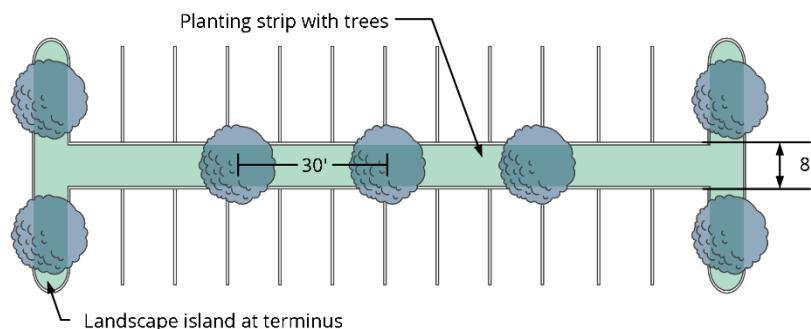
Figure 4.2.6-2: Landscaping Permeable Perimeter



³⁸ This increases the minimum diameter of trees to be planted, and specifies height and ground cover requirements.

- e. If this planting strip is provided, only terminal landscape islands shall be required at the terminus of each row of parking. Parking lot lighting may be installed within the planting strip, at the midpoint between adjacent canopy trees.

Figure 4.2.6-3: Median Planting Strip



4. OPTION 2: Landscape Islands

- a. For every 12 parking spaces in a parking lot, a minimum of 90 square feet of landscaped area shall be required within the interior of the parking lot. Landscaped areas shall be disbursed throughout the lot, rather than clustered in one location.
- b. In addition to the interior landscaping described above, terminal islands shall be provided at both ends of each row of parking.

Grey highlighted material is the same content as is included in OPTION 1.

- c. Terminal landscapes island shall be no less than six feet wide and no shorter than the length of the adjacent parking space(s).
- d. An island adjacent to the length of one parking space shall contain at least one canopy tree, a minimum of two inches in diameter measured six inches above the ground and at least six feet in height at time of planting, surrounded by 90 square feet of permeable surface area.
- e. A double-length island adjacent to the length of two parking spaces shall provide at least two canopy trees of two inches in diameter measured six inches above the ground and at least six feet in height at time of planting.
- f. Trees in double length islands shall be planted no less than 15 apart. Each tree shall have a minimum permeable surface area of 90 square feet.
- g. Each landscape island shall be depressed slightly below the grade of the parking lot to allow stormwater to infiltrate, and shall be protected by raised concrete curbs, which shall include openings at grade as necessary to allow storm water to flow into any below grade landscaped areas. See Figure 4.2.6-2. This requirement for the surface of the island to be below grade shall not apply to existing trees that are being preserved within a parking lot.
- h. Parking lot lighting shall not be installed within landscape islands.
- i. Trees shall be selected from the Approved Plant List, and the species chosen shall have a root spread at maturity that will not be constrained by the island width.³⁹
- j. Any remaining surface area of the island shall be covered with living plant material.

³⁹ It would be helpful to have input from the city's arborist on whether the combination of these requirements is practical or not.

5. No parking space shall be located more than 50 feet from a landscaped area, or more than 50 feet from a tree. Trees installed as part of street frontage or lot line buffers may be counted in this calculation.

E. Additional Buffer Requirements

When a parking lot is located along a property line shared by a residential use or zone, additional buffering, as described in §4.4.1, is required.

4.2.7 Irrigation⁴⁰

- A. All landscaped areas shall be irrigated, except where preserved landscaping is established, and the irrigation system must provide sufficient moisture to sustain plant growth on a permanent basis.
- B. An underground automatic drip or bubbler system is preferred. If spray-type irrigation heads are used, irrigation spray outside of the landscaped area is prohibited.
- C. Landscaped areas located more than 100 feet from an outside hose bib (faucet) are required to have an underground automatic irrigation system.
- D. Rain and freeze shutoff sensors shall be installed in all irrigation systems.
- E. Irrigation lines shall be installed in a manner that does not disturb the critical root system of existing trees.
- F. All necessary permits and approvals must be obtained prior to installation.
- G. Irrigation must be operational for final inspection, or fiscal surety must be posted. The irrigation system shall be maintained in operational condition, even after plantings are established, to be used in event of drought or prolonged heat.
- H. Any request to not provide irrigation shall require approval of a variance, as described in §XX.

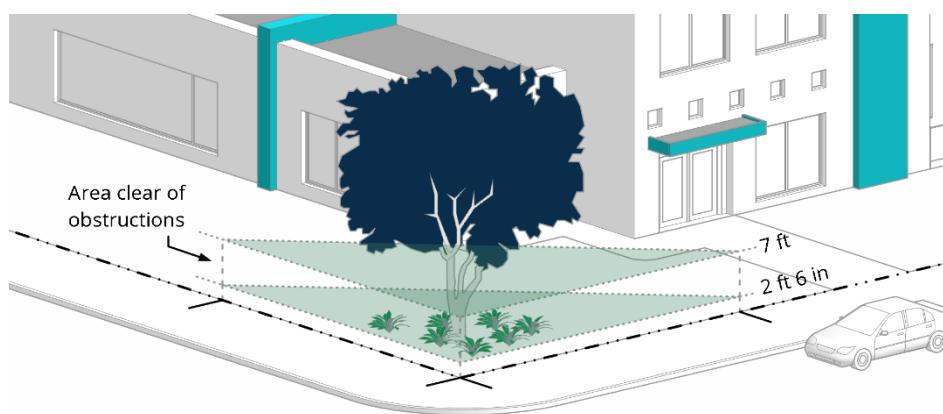
4.2.8 Sight Distance and Visibility⁴¹

- A. To ensure that landscape materials do not constitute a driving or pedestrian hazard, a "clear vision area" shall be observed at all intersections of driveways with streets, street intersections, and street and alley intersections.
- B. Within the clear vision area, no landscape material, fence, or other obstruction shall be permitted between the height of two and one-half feet and seven feet above the street, alley, or driveway elevation.

⁴⁰ 144-5.3-1(b)(9)(ii), with edits.

⁴¹ 144-5.3-1(b)(8).

Figure 4.2.8-1:Clear Vision Area Dimensions



C. The clear vision area shall comply with the linear distance along the curb line, on each street frontage, described in Table 4-2. Where intersections are not 90 degrees, dimensions having a similar effect on obstructed views shall be applied.

Table 4-2: Clear Vision Area Requirements

Street	Length along the curb on outer edge of the shoulder
Uncontrolled street with two or fewer through lanes in one direction [1]	25 feet
Controlled street with two or fewer through lanes in one direction, driveways, and alleys	15 feet
Uncontrolled street with more than three lanes in one direction [1]	40 feet

[1] Uncontrolled street means a street without a yield, stop, or traffic signal at the intersection.

4.2.9 Clearance⁴²

It shall be unlawful for any tree, shrub, vine, palm, or any plant of any description to overhang or obtrude upon or over any surface or structure without the minimum clearances between the ground and the plant, as specified below.

A. Over Sidewalks and Rights-of-Way

A seven-foot clearance shall be maintained between the surface of the sidewalk or right-of-way and the overhanging tree, limb, shrub, vine, palm, or plant.

B. Over Streets

A 12-foot clearance shall be maintained between the surface of the street or highway and the overhanging tree, limb, shrub, vine, palm, or plant.

C. Near Fire Hydrants

A minimum ten-foot distance shall be maintained between any plant and any fire hydrant in the city; provided, however, that all canopy trees growing prior to March 10, 1975, between the sidewalk and/or the city's right-of-way and the curb on any public street or highway in the city less than ten feet from any such fire hydrant shall not be affected by the terms of this section.

⁴² 144-5.3-1(b)(9)(iii), with edits for brevity.

4.2.10 Maintenance and Enforcement⁴³

COMMENTARY

To avoid repetition, we generally recommend that code text related to enforcement, penalties, and remedies be consolidated into one section in the General Provisions chapter of the code that will be drafted as part of installment 3, Administration and Procedures. However, for review purposes, enforcement information is maintained in this draft, and can be relocated when the third installment is prepared.

- A. The land or property owner, tenant, and/or their agent, if any, shall be jointly and severally responsible for the maintenance of all landscaping.
- B. All required landscaping shall be maintained in a neat and orderly manner at all times. This shall include, but not to be limited to, mowing, edging, pruning, fertilizing, watering, weeding, and other such activities common to the maintenance of landscaping.
- C. Landscaped areas shall be kept free of trash, litter, noxious weeds and invasive species, and other such material or plants not a part of the landscaping.
- D. All plant material shall be maintained in a healthy and growing condition as is appropriate for the season of the year. Plant materials that die shall be replaced with plant material of similar variety, including replacement trees of at least two inches in diameter measured six inches above the ground and at least six feet in height at time of planting. To be granted landscaping credit towards meeting the requirements of this section, all trees must be a species on the **Approved Plant List in Appendix A**.
- E. For all landscaping installed as a requirement of this section, if at any time after the issuance of a certificate of occupancy, the approved landscaping dies or is otherwise determined not to be in conformance with the standards and criteria of this §4.2, the code compliance division shall issue notice to the owner, citing the violation and describing what action is required to comply with this article. The owner shall have 30 days from date of said notice to establish, replace, or restore the landscaping, as required. If the violation is not remedied within the allotted time, then the owner shall be in violation of this chapter, and subject to penalties and remedies as described in §X.X, [General Provisions/Remedies and Penalties].⁴⁵
- F. A time extension of six months may be granted by the Planning and Development Services Department for remedying any violation identified in a citation if extenuating circumstances beyond the control of the owner and related to climate conditions (too wet, too dry, too hot, or too cold) prevent installation of trees, shrubs, or groundcover, or the successful establishment of turf areas.
- G. The provisions of this article are subject to the provisions of Chapter 130, Utilities. However, trees or other landscaping which die or are permanently damaged for lack of water during periods of required water conservation must nevertheless be replaced in accordance with the provisions of this §4.2.⁴⁷

⁴³ 144-5.3-1(b)(9)(i), with minor edits.

⁴⁵ 144-5.3-1(b)(9)(iv).

⁴⁷ 144-5.3-1(b)(9)(v).



4.3 Tree Preservation and Tree Removal

COMMENTARY

The current standards in Chapter 144 focus mainly on how to protect trees during construction, and the approval process for removal, without emphasizing tree preservation generally. Further, the section does not apply to residential zoning districts, and only concerns itself with protected and heritage trees (75" or greater **diameter**).

This draft defines "heritage tree," "protected tree," and "trunk circumference," and proposes new standards for preserving protected and heritage trees. This draft suggests that the standards should apply to any property within a defined historic district, including existing single-family residences, and all new construction (also including one- to four-family developments, with some exceptions). The need to obtain a clearance and grading permit is proposed, as is a defined procedure for surveying trees on a site, a minimum preservation requirement, and a replacement requirement for trees that are being removed. There is also the possibility for obtaining credit for preserved trees, protected or not, as long as they are not Undesirable Trees in Appendix B.

Prior to drafting this section, we reviewed the examples of both Austin and San Antonio. The regulations proposed here do not go as far as the programs in those cities, for the following reasons:

- This section proposes a significant broadening of the regulations, but recognizes that a more ambitious prior effort to extend tree protections in New Braunfels was not successful.
- Applying new requirements to almost every property within the city may generate significant pushback. This section's "starts smaller," but could be expanded over time.
- Administering these regulations will require staff time and staff knowledge, in greater amounts as the regulations become more complex.

4.3.1 Purpose

The purpose of this section is to promote the preservation and expansion of tree canopy, to facilitate site design and construction that contributes to the retention and long-term viability of existing trees, and to establish a process to manage the protection of protected and heritage trees.

4.3.2 Applicability

A. Generally

This section shall apply to all activities on private property in any zoning district that may result in the removal of protected trees, including:⁴⁸

1. Clearing and grading to prepare land for development;⁴⁹
2. New construction including the installation of infrastructure (roads, utilities, etc.);
3. Redevelopment in any zoning district that involves replacement of an existing structure or expansion of the gross floor area beyond the footprint of the original structure;
4. Any property within a defined historic district, including one- to four-family residential uses, applying for a tree removal permit for any tree on the property; or⁵⁰
5. Construction of new parking lots, or the redesign or reconfiguration of existing parking lots.

⁴⁸ The addition of "in any zoning district" in this provision and #3 below is intended to eliminate the exception in the current Chapter 144 regulations that allows site work and/or tree removal in one- and two-family residential districts prior to any review and approval being issued.

⁴⁹ This provision relies on the need for a clearance or grading permit, which would need to be created, as New Braunfels currently does not require such a permit.

⁵⁰ This draft proposes these regulations apply to single-to four-family dwellings. Since we understand that Texas law may preclude or limit this possibility, we would ask for feedback from the City Attorney on this topic.

B. Exceptions

The following are exempt from this section:

1. Properties used or zoned for agriculture; and
2. A project in any zoning district that involves interior remodeling, or exterior alterations that do not require the removal of trees on the property.

4.3.3 Tree Survey and Preservation/Replacement Plan⁵¹**A. When Required⁵²**

Any land use application, preliminary plat, replat, Master Development Plan, a clear and grade permit, or building permit subject to this section per §4.3.2, *Applicability*, shall include a tree survey documenting all protected trees on a development site and a preservation/replacement plan. Any proposed removal of a protected tree shall also require application for a tree removal permit per §4.3.4, *Tree Removal Permit*.

**B. Contents**

Each tree survey and preservation/replacement plan shall contain, but not be limited to, the following required elements:

1. The locations of all protected trees to be preserved and removed on the subject site.
2. A table containing the following information:
 - a. For all protected trees:
 - i. Tree number;
 - ii. Common name of each tree;
 - iii. Circumference of each tree;
 - iv. Diameter (DBH) of each tree;
 - v. General health and condition of each tree;
 - vi. Average canopy spread;
 - vii. Classification (protected or heritage) and status (preserve or remove) for each tree; and
 - b. Any non-protected trees on a site that are not of a variety listed in Appendix B, Undesirable Trees, that are eligible for tree preservation credit, as described in §4.3.7.

C. Preparation Requirements

1. The tree survey and preservation/replacement plan shall be prepared by or under the supervision of an ISA-certified or ASCA-registered arborist, a SAF-certified forester, botanist, professional land surveyor that has documented completion of at least eight hours of training in Texas tree identification, or a registered landscape architect.
2. If there are no protected trees on a property, then a signed and notarized letter indicating such shall be prepared by or under the supervision of an ISA-certified or ASCA-registered arborist, a SAF-certified forester, botanist, professional land surveyor that has documented completion of at least eight hours of training in Texas tree identification, or a registered landscape architect and submitted with the initial development application.

⁵¹ New.

⁵² This should be revisited following drafting of the new procedures chapter to ensure all appropriate application types are listed.

D. Relation to Other Applications

1. Residential subdivisions that are to be developed in phases per a Master Development Plan shall provide a plan that complies with the preservation requirements at full build-out as approved on the preliminary plat or Master Development Plan.
2. A notation shall be placed on the preliminary plat, final plat, approved land use application, and building permit identifying the DBH of trees to be preserved and the location of the lots that contain preserved trees. The notation shall limit any future unauthorized land-disturbing activity or construction that would impact and/or damage the tree(s) preserved.

E. Action on Application

A tree survey and preservation/replacement plan shall be approved if the minimum preservation and replacement requirements are met.

4.3.4 Tree Removal Permit⁵³**A. When Required****1. General**

No person or corporation shall recklessly remove, or cause the removal, of any tree without first applying for a tree removal permit and receiving approval pursuant to this subsection.

2. Exceptions

- a. A tree removal permit is not needed if the protected or heritage tree(s) to be removed is/are removed by a state or federal government agency in the scope of its authority 

B. Application

1. An application for tree removal permit shall provide the following information:
 - a. The location of the tree;
 - b. The trunk circumference of the tree;
 - c. The approximate drip-line area of the tree;
 - d. The species/common name of the tree; and
 - e. The reason for removal, including assessment of tree health.
2. The Planning and Development Services Department may require a professional arborist's report that defines the impact of the development upon existing trees affected by proposed construction. This report shall further define methods of tree protection during construction, impervious cover limitations adjacent to protected trees, proposal for tree replacement, and maintenance requirements for new planting.
3. Where practical, an application for protected or heritage tree removal shall be combined with any other applications required for development projects.
4. Failure to provide any of the above and foregoing information may constitute the sole grounds for denial of the permit.

C. Action on Application for Tree Removal Permit⁵⁴

1. Upon receipt of an application to remove a protected or heritage tree, the Planning and Development Services Department shall promptly inspect the tree to be removed and shall approve or deny the application in accordance with the provisions of this article.⁵⁵

⁵³ 144-5.3-2.(c)(2).

⁵⁴ Penalty removed, per general approach to remove all specific fees from the code to a separate administrative handbook or manual.

⁵⁵ Should "promptly" be qualified by some timeframe? It will mean different things to different people.

Article 4: Development Standards

4.3 Tree Preservation and Tree Removal

4.3.5 Minimum Preservation Requirements

2. The Planning and Development Services Department shall approve an application for the removal of a protected or heritage tree when a valid application is received and a determination is made that:
 - a. The tree is so located as to prevent reasonable access to the property or as to preclude reasonable and lawful use of the property; or
 - b. The tree is dead, dying, or diseased such that recovery is not practicable, or that an infestation is likely; or
 - c. The tree constitutes a hazard to life or property which cannot be mitigated without its removal; and
 - d. The applicant includes an approved code-required plan for mitigation/replacement.
3. If the application for a tree removal permit is denied, and the applicant disputes the decision of the Planning and Development Services Department, the applicant may appeal the decision according to the procedures described in §X.X, *[Appeal of Administrative Decision]*.

4.3.5 Minimum Preservation Requirements⁵⁶

A. Heritage Trees

All heritage trees on a site shall be preserved.

B. Protected Trees

1. Fifty percent of the total DBH of all the protected trees on a site shall be preserved.
2. Any development that proposes to preserve 50 percent or more of the total DBH of the protected trees on a site shall be eligible for one of the following incentives:
 - a. Ten percent reduction in minimum lot size for all lots in the development;
 - b. Ten percent increase in allowable density for multi-family projects;
 - c. Increase of one story above the maximum permitted height; or
 - d. Reduction of required on-site parking by ten percent.
3. Any development that proposes to preserve 75 percent or more of the total DBH of the protected trees on a site shall be eligible for two of the following incentives:
 - a. Ten percent reduction in minimum lot size for all lots in the development;
 - b. Fifteen percent increase in allowable density for multi-family projects;
 - c. Increase of two stories above the maximum permitted height; or
 - d. Reduction of required on-site parking by fifteen percent.
4. Removal of trees shall require replacement in accordance with §4.3.6 below.

C. Non-Protected Trees

There is no minimum requirement for preserving non-protected trees; however, tree preservation credit shall be granted for any healthy, non-invasive non-protected trees listed in Appendix A that are preserved on-site, in accordance with Table 4-3: *Tree Preservation Credit*.

D. Preservation Relief

The Board of Adjustment may approve relief of the minimum preservation requirements in accordance with §4.3.10, *Tree Preservation Request for Relief*, and where required by State law.

⁵⁶ New.

4.3.6 Tree Mitigation and Replacement



- A. For every one inch of DBH of protected tree that is removed from a site, one inch of replacement tree shall be provided.⁵⁷
- B. Should any required tree designated for preservation in the tree survey die within one year of approval of the application containing the tree survey, the owner shall replace the tree with one two-inch diameter tree for every two inches of tree credit originally granted for preservation.⁵⁸
- C. Any replacement tree required by this section shall be of a species on the **Approved Plant List in Appendix A**, and shall be a minimum of two-inch diameter measured six inches above the ground, and at least six feet tall, at time of planting. At least 60 percent of trees shall be canopy trees, unless near utility lines where a higher percentage of utility-friendly ornamental trees from the Approved Plant List may be used. See §4.2.4J.⁵⁹
- D. Replacement trees shall not be credited towards fulfilling any landscaping requirements for the site, nor shall trees included in required landscaping be counted as replacement trees.
- E. Standards for planting shall conform to current Texas Forest Service standards, and the following requirements:
 - 1. Tree replacement must occur within three months of the removal of a protected tree.⁶⁰
 - 2. Replacement trees that do not survive shall be replaced by the current property owner.
 - 3. If ten or more replacement trees are required, no more than 25 percent of the trees shall be of the same species.
 - 4. No artificial plant materials may be used to satisfy the requirements of this article.
- F. Planting must be complete prior to final inspection of a development. If planting is not complete, fiscal surety must be posted before the final Certificate of Occupancy is granted.
- G. Replacement relief may be granted by the Board of Adjustment, who may approve payment of a fee in lieu which will go to a tree replacement fund administered by the City and used to plant trees on public property, in the right-of-way, in parks, and on public school grounds. Alternately, the Board of Adjustment may approve a request for the applicant to plant replacement trees off-site, in the same locations specified above in this provision.

4.3.7 Preservation Credit

COMMENTARY

Table 4-2 increases the credit for preserved trees and applies to both preservation of protected trees beyond the minimum 50% requirement, and any healthy, non-invasive non-protected trees listed in Appendix A that are preserved. This is a higher ratio than the current Chapter 144, which, in combination with the new requirement for replacement, may function as a greater incentive to preservation.

- A. Preserving existing, healthy trees on a site, provided the trees appear on the Approved Plant List in Appendix A, shall earn credit toward meeting the tree planting requirements for new development or redevelopment on that site.
- B. Tree preservation credit applies for any protected trees preserved on-site beyond the minimum 50 percent requirement, and any non-protected trees listed in Appendix A that are preserved.

⁵⁷ New.

⁵⁸ This proposes a higher replacement ratio (1 replacement tree per two inches of credit granted, rather than per four inches of credit granted), and requires a two-inch diameter replacement, rather than one and 1/2 inch diameter. Should a lower rate be required if the preserved tree dies because of a natural disaster?

⁵⁹ 144-5.3-1C(7)(i), with edits.

⁶⁰ 144-5.3-1C(7)(i)(c), edited to remove 12 month time limitation.

C. To encourage the preservation of healthy trees that are already established and growing, particularly heritage trees, additional credit as outlined in Table 4-3 shall be given for existing trees. To receive credit, the existing tree must be preferred species included in the **Approved Plant List in Appendix A**. Tree credits for preserving existing trees can be used to meet either the landscaping requirements for trees or the mitigation requirements for other removed trees.

D. Credit shall be granted according to Table 4-3.⁶¹

Table 4-3: Tree Preservation Credit

Diameter of Existing Tree measured 4.5 feet above ground [1]	Credit Toward Tree Requirement
0" to 2½"	No credit
2½" to 8"	Two inch credit for each inch diameter of existing tree
8" to 16"	Four inches of credit for each inch diameter of existing tree
16" to 24"	Eight inches of credit for each inch diameter of existing tree
24" or more	Twelve inches of credit for each inch diameter of existing tree
Multi-Trunk Trees For tree preservation credit, the diameter of a multi-trunk tree = sum of the diameter of the largest trunk, plus ½ diameter of each additional trunk.	Credit assigned based on total caliper inches of the cluster as indicated above

[1] Applicant may request additional tree preservation credit for preserving native understory trees, including but not limited to Texas Madrone, Texas Mountain Laurel, Redbuds, Yaupons, Buckeyes, Texas Persimmon, as these species will not achieve the same size upon maturity as the shade trees, which may be appropriate based on site conditions.

4.3.8 Protection Measures⁶²

A. Marking and Fencing

1. Prior to any land-disturbing activities on a site, the developer shall clearly tag or mark all trees that are to be preserved.
2. Trees to be preserved shall be surrounded by minimum four-foot-tall safety fencing around the root protection zone. Tree protection measures must remain in place until the final building/site inspection.

B. Root Protection Zone

1. Identification

The root protection zone is an area with a radius of one-half-foot for each inch of trunk diameter measured four and one-half feet above the ground, or if branching occurs at four and one-half feet, the diameter is measured at the point where the smallest diameter closest to the branching occurs. The zone need not be exactly centered around the tree or circular in shape, but it should be positioned so that no disturbance occurs closer to the tree than one-half of the radius of the zone or within five feet of the tree, whichever is less. For any tree or groups of trees, the zone need not exceed 1,000 square feet in size. The radial root protection

⁶¹ This section proposes to grant tree credit at a somewhat higher rate than Chapter 144, in an effort to provide a greater incentive for retaining existing trees.

⁶² Section 144-5.3-2(c)(6).

Article 4: Development Standards

4.3 Tree Preservation and Tree Removal

4.3.9 Tree Removal Permit Approval Authority and Appeal

zones of trees may overlap one another so that the area of protection required for one tree may be shared by the area of protection required for another tree to minimize the total square footage of protected area where possible.

2. Activities Prohibited

The following activities shall be prohibited in the root protection zone:⁶³

a. Material Storage

No materials intended for use in construction or waste materials shall be placed within the limits of the root protection zone of any tree being preserved.

b. Equipment Cleaning/Liquid Disposal

No cleaning or other liquids shall be deposited or allowed to flow over land within the limits of the root protection zone of any tree being preserved. This includes, but is not limited to paint, oil, solvents, asphalt, concrete, mortar or similar materials.

c. Tree Attachments

No signs, wires, nails, screws, zip ties, or other attachments, other than those of a protective nature, shall be attached to any tree being preserved.

d. Construction Equipment/Vehicular Traffic

No vehicular and/or construction equipment traffic or parking shall take place within the limits of the critical root zone of any tree being preserved other than on existing street pavement. This restriction does not apply to access within the root protection zone for purposes of clearing underbrush, establishing the building pad and associated lot grading, vehicular traffic necessary for routine utility maintenance, emergency restoration of utility service, or routine mowing operations. No heavy equipment including trucks and tractors shall be allowed inside the drip-line of any tree on any construction site.

e. Grade Changes

- i. No grade changes shall be allowed within the limits of the root protection zone of any tree being preserved unless the City Arborist approves the construction methods.
- ii. No grading or filling shall be permitted within the required critical root protection zone of the protected tree to be preserved.
- iii. Grading adjacent to the protected tree to be preserved shall require a retaining wall or tree well of rock, brick, landscape timbers or other approved materials constructed around the tree to separate the area impacted by the grading from the critical root zone of the tree, which shall remain at natural grade.
- iv. The retaining wall shall be no closer than the drip line of the protected tree. The top of the retaining wall or tree well shall be constructed at the new grade.

f. Paving in Root Protection Zone Prohibited

Unless a health, safety, and welfare issue arises due to access and circulation requirements, and a corresponding variance is approved by the Board of Adjustment, no paving with asphalt, concrete, or other materials may be placed within the limits of the root protection zone of a tree that is being preserved.

4.3.9 Tree Removal Permit Approval Authority and Appeal

[Reserved – Installment 3, Administration and Procedures]

4.3.10 Tree Preservation Request for Relief⁶⁴

COMMENTARY

⁶³ Some provisions new; others add greater detail to current content in Section 144-5.3-2(c)(6).

⁶⁴ New.

Article 4: Development Standards

4.4 Buffering and Residential Adjacency

4.3.10 Tree Preservation Request for Relief

The procedure described below is one way for an applicant to request relief from the Tree Preservation Requirement. There are, however, other methods the City could consider, in addition to or instead of this procedure.

One option some cities implement is a payment-in-lieu. This payment is not permitted in cases where a project can meet the requirement, but just does not want to – there must be some hardship or limitation with the project site that prevents complying with the requirement. If approved, the payment goes into a tree fund (such as is already under consideration for creation in New Braunfels) devoted to purchasing and planting trees elsewhere in the city, as needed.

Alternately, an applicant may donate trees to the Parks Department, in an equal number to those that would have been required on the site, subject to the approval of the Parks Department Director. This option avoids the complication of who would administer a new financial instrument, and how, but does pose the risk of more donated trees than can be used at a given time and place.

The procedure below is based on the notion of hardship. It does not propose any alternative for tree provision if it is approved by the Council, but it certainly could. It could, in fact, be combined with either or both of the options above.

A. Purpose

The purpose of this provision is to allow an applicant to request a determination from the Planning and Development Services Department regarding the possibility of relief from complying with the tree preservation requirements of this section. Relief may be granted if the Planning and Development Services Department determines that compliance with the requirements places an unreasonable burden on the development of the property.

B. Review Procedure

1. A property owner or their authorized agent may file an application for relief under this subsection demonstrating why and how compliance with the requirements of the section poses a hardship upon development of the subject property.
2. No application shall be accepted for filing until it is complete and the fee established by the City Council has been paid.
3. If the Planning and Development Services Department grants full or partial relief based on the request, a tree removal permit shall be issued by the Planning and Development Services Department, and the accompanying land use application shall be proposed in accordance with the applicable provisions of this LDO.
4. A denial of an application for relief by the Planning and Development Services Department may be appealed to the Board of Adjustment, as described in §~~X~~~~X~~, [Appeal of Administrative Decisions].

C. Criteria for Approval

In deciding whether to grant relief to the applicant, the City shall consider whether there is any evidence from which it can reasonably conclude that the application of all or a part of the provisions of this subsection that apply to tree preservation may deprive the applicant of all economically viable use of the property, based on the following factors:

1. Whether there is a unique physical circumstance on the property.
2. Whether the proposed design has minimized the loss of trees to the extent possible.
3. Whether preservation and/or mitigation unduly burdens the development of the property.

4.4 Buffering and Residential Adjacency

COMMENTARY

This section proposes more detailed requirements than those in Chapter 144 to help minimize conflicts between residential and non-residential zones, particularly as land uses change and grow more intense with community growth over time.

Buffering and screening is required only between different zoning districts. This avoids “punishing” a non-residential use next to a residential one if the residential use is in a non-residential zoning district. It also avoids the unintended consequence of requiring significant buffering when, for example, a single-family residence is converted to a small office, as occurs downtown, and then has to install fences and 20 feet of buffering.

Residential adjacency, on the other hand, does apply in some cases between uses, and not just between districts. This is to address situations where buffering would be required regardless of district, because of an adjoining site feature, such as with a parking lot, drive-through, or **loading zone**. Other situations are described, and each specifies if it applies only between different districts, or between uses, regardless of zone.

4.4.1 Buffering

A. Purpose

Buffering shall be provided as required by this section along a shared lot line between two different zoning districts with varying intensities of use. The intent of a buffer zone is to mitigate impacts to existing development from adjacent new development of a different scale or intensity.

B. Applicability

It is the responsibility of development in the more intense zoning district to provide buffering along shared interior and rear lot lines where a more intense zoning district abuts a less intense zoning district, per the requirements of this section. See also §4.4.3, *Residential Adjacency*, for additional requirements that may apply to uses adjacent to residential development.

C. Deferral of Installation⁶⁵

1. When development in the more intense district occurs abutting a vacant parcel in the less intense district, the more intense district may be granted a deferral for installing required screening fences and buffers.
2. The deferral is valid until development on the less intense parcel begins. At that time, any required screening fences and buffers shall be installed by the property owner of the parcel in the more intense zoning district, unless a notarized agreement from the property owner in the less intense district is provided to the Planning and Development Services Department, as described in §X.X.
3. A request to defer installation of required screening fence and buffers shall be submitted to the Planning and Development Services Department along with a financial guarantee to be held by the Department against future installation costs. This financial surety shall accompany any request for a building permit, or submittal of a land use application.
4. Staff shall approve the deferral request upon verification that the less intense abutting parcel is vacant, and has no pending building permit or land use applications.

D. Exceptions

The standards of this section do not apply:

1. To development that exists at the time of adoption of this ordinance; however, with any redevelopment of the parcel in the more intense district, the requirements of this §4.4 shall apply;

⁶⁵ New. This section addresses the issue with applying buffering standards when development in the more intense district is “there first;” for example, if a more intense district develops adjacent to a vacant lot zoned for future residential development. This draft proposes allowing the first-established use to defer installation of required fences and buffers until development occurs on the abutting vacant parcel.

2. To abutting uses within the same zoning district; however, standards in §4.4.3, *Residential Adjacency*, may apply;
3. When a public right-of way, not including an alley, is between the two properties;
4. When there is a distance of 200 feet or more between the property line in the more intense district, and any structure, parking or loading area, or drive aisle on the lot in the more intense district;
5. If a modification or elimination of the buffer requirement is approved per §X.X, *Procedure*.⁶⁸

E. Buffer Types⁶⁹

1. Buffer Levels

Four levels of buffers are described in Table 4-4 and illustrated in Figure 4.4.1-1: *Buffer Level Illustrations*. The levels vary in extent of required planting and screening, depending on the intensity of the districts they separate.

Table 4-4: Buffer Types and Configurations

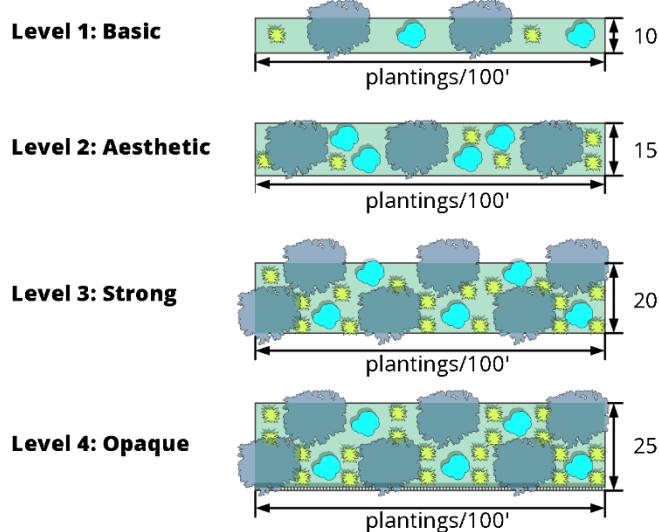
Type and Configuration	Description	Minimum Requirements per 100 Linear Feet
Level 1: Basic	Functions as a basic edge demarcating individual properties with a slight visual obstruction	Minimum width of 10 feet, 2 canopy trees, 2 understory/ornamental trees, and 2 shrubs. No screening fence required.
Level 2: Aesthetic	Functions as an intermittent visual obstruction and creates the impression of spatial separation without eliminating visual contact between adjacent properties	Minimum width of 15 feet, 3 canopy trees, 4 understory/ornamental trees, and 6 shrubs. Screening fence optional.
Level 3: Strong	Functions as a strong buffer to help mitigate impacts from the differing intensity associated with the two adjacent districts	Minimum width of 20 feet, 6 canopy trees, 5 understory/ornamental trees, and 20 shrubs. Screening fence required.
Level 4: Opaque	Functions as an opaque screen that prevents visual contact between abutting properties, and creates an impression of total separation	Minimum width of 25 feet, 6 canopy trees, 5 understory/ornamental trees, 20 shrubs. Screening fence or berm required.

⁶⁸ Can any existing procedure be used to request small deviations from these standards, aside from a hardship variance? If not is there any interest in allowing an alternative similar to what could be proposed with an Alternative Landscaping Plan?

⁶⁹ New.

2. Minimum Planting Specifications

Figure 4.4.1-1: Buffer Level Illustrations



At time of planting, the minimum specifications for the required plants are as follows:

a. Canopy Trees

A minimum of two inches in diameter measured six inches above the ground and at least six feet in height at time of planting.

b. Ornamental Trees

A minimum of one and one-half inches in diameter measured six inches above the ground at time of planting.

c. Multi-Trunk Trees

The sum of the diameter of the largest trunk plus $\frac{1}{2}$ diameter of each additional trunk shall be a minimum of two inches at time of planting, with anticipated height at maturity between 8 and 12 feet.

d. Shrubs

May be 1 or 5 gallon, provided that anticipated height at maturity is a minimum of three feet tall.

F. When Required

Buffers of the level specified shall be provided as shown in Table 4-5.

Table 4-5: Minimum Buffer Required Between Zoning Districts

Developing Use ^[1]	Existing Adjacent Use					
	Agricultural	One- to four-family residential	Multi-family	Mixed-Use	Commercial	Industrial
Agricultural	N/A	Level 1	Level 2	Level 2	None	None
One- to four-family residential	Level 1	N/A	Level 1	Level 1	Level 1	Level 1
Multi-family	Level 1	Level 3	N/A	Level 2	Level 2	Level 3

Table 4-5: Minimum Buffer Required Between Zoning Districts

Developing Use ^[1]	Existing Adjacent Use					Commercial	Industrial
	Agricultural	One- to four-family residential	Multi-family	Mixed-Use			
Mixed-Use	Level 2	Level 3	Level 2	N/A	None	Level 3	
Commercial	Level 2	Level 4	Level 3	None	N/A	Level 2	
Industrial	Level 2	Level 4	Level 3	Level 3	Level 2		N/A

Notes:

[1] Six feet is the minimum required fence height; taller fences may be installed where permitted. All fences required by this section shall be screening fences as described in §4.4.1G.2 below.

G. Screening Standards

1. Buffer Materials

Plant materials shall be installed to provide a continuous screen of living materials at maturity. Material requirements are as follows:

- a. Canopy trees shall be planted for every 20 linear feet of buffer length, or fraction thereof.
- b. At least 50 percent of canopy trees shall be evergreen with a minimum height of six feet at time of planting.⁷⁰
- c. The remainder of the buffer area shall be planted with understory trees and shrubs, in quantities as described in Table 4-4: *Buffer Types and Configurations*, distributed evenly throughout every 20 linear feet.
- d. Other living ground cover that will attain a height of three feet at maturity may be used in place of shrubs, and perennials may be interspersed with other plantings along the length of the buffer.
- e. Open ground beneath trees and shrubs, or ground not otherwise occupied with plantings in the buffer area, may be planted with shade- and drought-tolerant turf grasses.
- f. Areas within the dripline extending one and on-half feet outward surrounding a tree trunk may be covered with wood chips, mulch, or pea gravel.
- g. Level 2, 3, and 4 buffers may contain sidewalks, bike paths, multi-use trails, seating areas, or stormwater facilities, provided that the planting requirements for the specified level of required buffer are met.

2. Screening Fences

- a. Where a screening fence is required by Table 4-4, the screening fence shall be constructed of materials that are 90 percent or more opaque along the length of the shared property line. See §4.4.2E for permitted fence materials.
- b. When Table 4-4 requires a screening fence next to an adjacent, existing screening fence, the requirement for a new fence may be waived:
 - i. If the property owner of the existing fence provides a signed and notarized letter of consent, agreeing that the existing fence is sufficient screening, regardless of the height of the existing fence.
 - ii. Any other required buffer plantings on the developing property side of the fence shall still be required.

⁷⁰ Is this requirement valid in Texas? It normally applies to conifers; however, if canopy trees can be evergreen, perhaps this is not needed, as minimum specifications for height of canopy tree at time of planting is six feet.

iii. If the existing fence is removed **for any reason**, invalidating the notarized letter of consent, the property owner of the developing property may be required to install any fencing that was deferred while the notarized letter of consent was valid.⁷¹

3. **Parking Lot Screening**

Additional standards may apply when a parking or loading area is located along the shared lot line or within 30 to 50 feet of an adjacent residential use or zone. See §4.4.3E.8, *Off-Street Parking and Loading Areas*.

4. **Utility and Mechanical Equipment Screening**

Requirements for the screening of utility and mechanical equipment are described in §4.6.3B, *Utility and Mechanical Equipment Screening*.

5. **Trash and Dumpster Screening**

Requirements for the screening of trash receptacles and dumpsters are described in §4.6.3C, *Trash and Dumpster Screening*.

4.4.2 Fences⁷²

COMMENTARY

This section carries forward content from Section 144-5.3-2, with edits as indicated in the footnotes. The term "wall" is no longer used to indicate a solid masonry (or other opaque material) fence. Instead, the term "screening fence" is used to indicate a solid fence. This is included as a new defined term.

Question to consider:

Are there instances, aside from those outlined below, when a fence taller than eight feet should be permitted?

A. **Fence Height⁷³**

1. Unless a different height is specified elsewhere in this Code, the maximum height for fences in any zoning district is eight feet.
2. Ornamental features may be placed on top of the fence, and may exceed the fence height limit on top of fence posts, pillars, or columns.

B. **Measuring Fence Height**

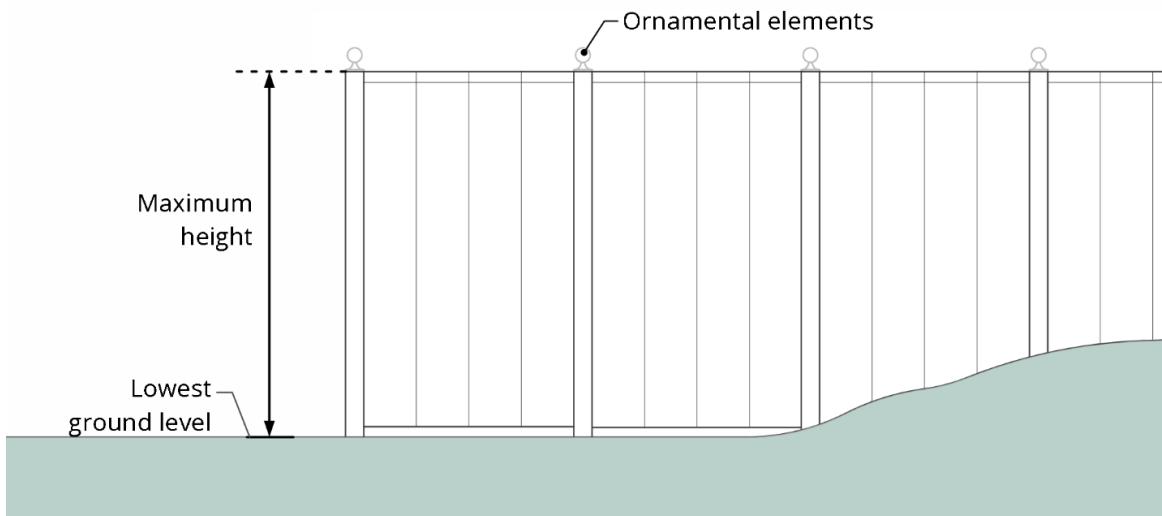
1. Fence height shall be calculated as the vertical distance measured from the lowest adjacent ground level (inside or outside the fence) to the top of the tallest element of the fence, not including ornamental features affixed to the top of any fence post, pillar, or column.

⁷¹ What should happen if the existing fence is removed, for example, due to deterioration, and the property owner just doesn't replace it? Should it then be the responsibility of the other property owner to install a fence? Should the code try to control for such instances, or leave them to enforcement?

⁷² Section 144-5.3-2.

⁷³ Section 144-5.3-2.(a).

Figure 4.4.2-1: Measuring Fence Height



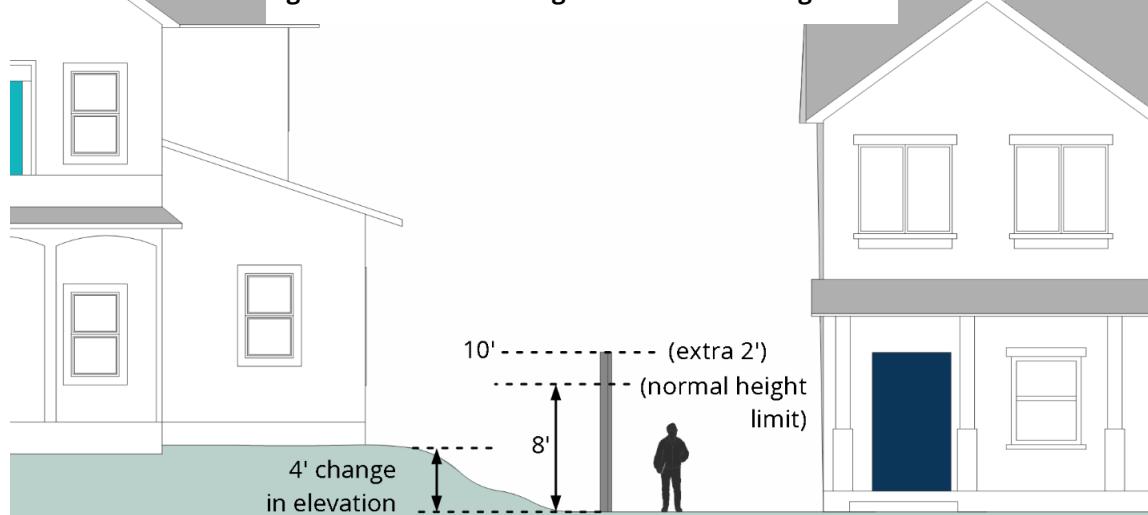
2. When a fence is erected on top of a retaining wall, fence height measurement shall include the height of the retaining wall and the height of the fence, except when the retaining wall is:
 - a. Necessary to the structural soundness of building construction on the lot; or
 - b. Abutting a drainage easement or other drainage infrastructure.

C. Exceptions

A fence of up to ten feet in height may be approved when:

1. The ground floor elevation of either the principal dwelling on the property or the principal dwelling on an abutting lot is at least four feet higher than the elevation at the shared lot line;

Figure 4.4.2-2: Fence Height with Grade Change



2. The fence is erected along a side or rear lot line which abuts an alley, railroad, or a street that is not classified as local by the Thoroughfare Plan;
3. The fence is a sound dampener or a security fence for a public, institutional, or industrial use;
4. In any side or rear yard where a slope is present, the height of a fence may be adjusted to allow the top of the fence to be level, and perpendicular to the support posts at a height

greater than eight feet, provided that the height of the fence at the highest elevation does not exceed eight feet; or

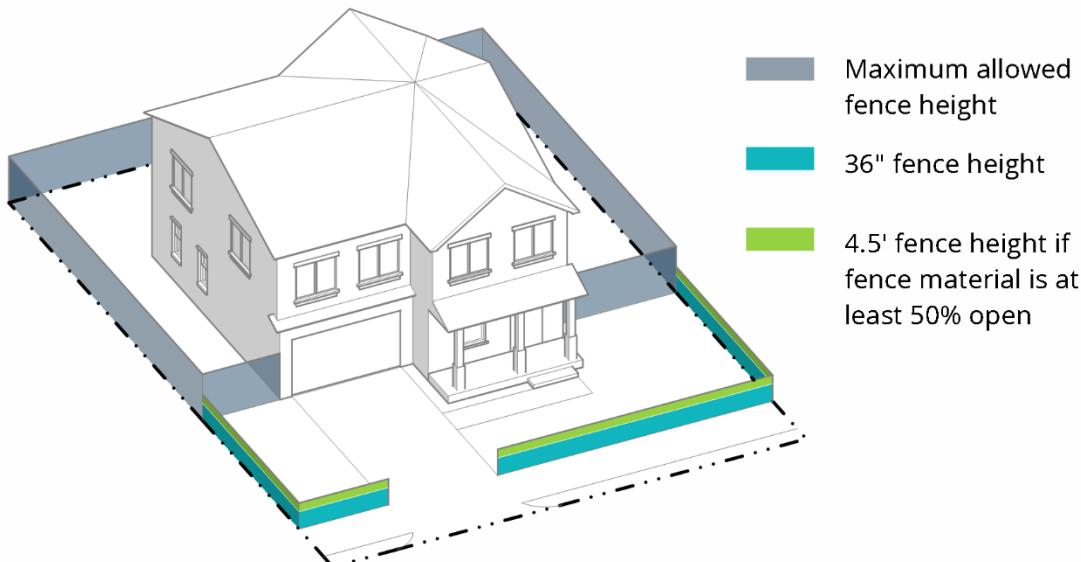
5. The City Council authorizes a taller fence height as part of any land use application review.

D. Fence Location

1. Front Yards⁷⁵

- a. A fence in the front yard shall be no taller than 36 inches, unless the fence is at least 50 percent open, in which case the fence may be four and one-half feet tall.
- b. If an existing, legally non-conforming building has more or less than the required setback, the front yard shall be measured from the front building line.⁷⁶
- c. A fence from the front or rear corners of a building may extend through the side yard at the maximum height allowed.

Figure 4.4.2-3: Permitted Front Yard Fence Height



2. Corner Lots

Fences on corner lots shall not encroach into the clear vision area, as described in §4.2.8, *Sight Distance and Visibility*.

3. Fences in Easements⁷⁸

- a. Fences are prohibited within drainage easements.
- b. A fence within any other type of public easement shall have a gate or removable panel to allow for maintenance access to the easement, and shall be approved by the entity responsible for the public easement.

E. Fence Materials

1. Screening Fences

- a. When a screening fence is required by §4.4.1, *Buffering*, the fence shall be constructed of one of the following materials, to form a solid screen, or one that is opaque for at least 90 percent of its length:

⁷⁵ Section 144-5.3-2.(b), (c), and (d).

⁷⁶ It is not clear how provision relates to fences. Does provision a. above suffice to explain how tall a fence can be for a nonconforming building, regardless of whether it has a full front yard or not?

⁷⁸ Section 144-5.3-2.(f) and (g), with edits.

- i. Brick;
- ii. Stone;
- iii. Cast stone;
- iv. Rock;
- v. Marble;
- vi. Granite;
- vii. Split-face concrete block;
- viii. Poured-in place concrete; or
- ix. Precast concrete.

- b. In no instance shall a screening fence be constructed of fiber cement, such as James Hardie brand products or equivalent.
- c. Any new screening fence shall be consistent with any existing fence, as long as the existing fence complies with the materials requirements described in subsection §4.4.2E.1.a.

2. Other Fences

Fences that are not required for screening may be opaque, or may be constructed of materials that allow for transparency along their length. Such fences may use wood, wrought iron or other decorative metal, decorative concrete block, or a combination of opaque and transparent materials.

3. All Fences

No fence may use barbed wire or razor wire.

F. Permit Required⁸²

All fences require building permits and shall comply with all permit/plan review submittal requirements including engineered foundation when necessary.

4.4.3 Residential Adjacency⁸³

COMMENTARY

Question to consider:

Many of the topics in this section -- such as lighting, site design, trash and recycling areas -- are related to information covered in other sections of this LDO.

-Is it easier to find and use these standards when they are consolidated in one location, as in this draft, or should they be re-organized into their respective topic sections in future drafts?

A. Purpose

The purpose of this section is to promote compatible transitions between land use areas of differing intensities and to reduce potential negative impacts that may occur when mixed-use and non-residential development is located near residential zoning districts.

B. Applicability

This section applies to all non-residential development built on or within 150 feet of any property in a residential zoning district, exempting non-residential developments that are no greater than three stories in height or 10 acres in size and are separated from residentially zoned property by a freeway or major arterial. For mixed-use development, this section applies to non-residential project components, including access and circulation routes. This section applies in addition to any applicable buffering and screening required by §4.4.1, *Buffering*.

⁸² Section 144-5.3-2.(e).

⁸³ New.