City of Louisville

Industrial Development Design Standards & Guidelines

(IDDSG)

Adopted by Ordinance No. 1322, Series 1999
18 January 2000

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INTRODUCTION

A. Purpose

The *Industrial Development Design Standards and Guidelines* (**'IDDSG'**) establish design criteria and minimum standards for industrial developments within the City of Louisville. The purpose of the IDDSG is to:

1. Enhance and protect Louisville's quality of life and community image through clearly articulated industrial development design goals and policies, design guidelines and minimum design standards; and
2. Protect and promote Louisville's long-term economic vitality through industrial design standards which encourage and reward high quality development, while discouraging less attractive and less enduring alternatives; and
3. Minimize adverse impacts of vehicular circulation to existing neighborhoods and to the surrounding physical environment; and
4. Enhance and protect the security and health, safety and welfare of all residents of the City of Louisville; and
5. Facilitate an understanding of the City's expectations and to assist developers in compiling a complete and efficient application.

B. Applicability

The provisions of the IDDSG shall apply to all industrial development within the City, except industrial development for which there exists a vested property right to develop under other approved design guidelines and/or development standards.

The IDDSG provide general design guidelines, as well as mandatory minimum development standards. The IDDSG will be utilized by staff, Planning Commission, and City Council to review *Industrial* development applications submitted under the City's PUD Development Plan review process. All industrial areas must be developed as PUD-I district, including site specific development plans.

The goals and policies set forth in this document are expected to be met through compliance with all mandatory design standards and consideration of design guidelines. Modifications to or waivers from mandatory design standards may be recommended by the Planning Commission and authorized by City Council as part of the PUD Development Plan Review process.

Industrial development applications seeking modifications or waivers to these requirements should anticipate additional review time and must demonstrate a clear benefit to the City in relaxing one or more of these requirements.

C. Who Uses the IDDSG

The IDDSG is to be used by property owners/ applicants and their design consultants in the planning of industrial development projects within the City of Louisville. The IDDSG will also be utilized by staff, Planning Commission, and City Council as part of the PUD Development Plan process in their reviews of industrial projects to which the IDDSG apply.

D. Desirable Elements of Industrial Project Design

The City considers the following design features to be desirable elements of industrial development, and the standards and guidelines set forth in following chapters are intended to facilitate the incorporation of these features into an *Industrial* project:

1. Prominent access driveways with clear visibility of entrances.
2. Multi-modal transportation.
3. Controlled site access.
4. Landscaped and screened parking, and loading and service areas.
5. Service areas located at the rear of buildings.
6. Quality exterior building materials, surfaces, and textures.
7. Significant landscape, streetscape and hardscape elements.
8. Placement of structures that creates

opportunities for plazas, courtyards, or gardens/patio areas which can be utilized as pedestrian gathering places and common employee gathering areas with appropriate site furniture and lighting.

9. A variety of architectural design treatments, including articulated building footprints to reduce massing and to promote architectural definition and interest.
10. Preservation of natural site features.
11. Enhancement of view corridors to open areas and mountain vistas.
12. Support services to industrial development, such as child care accessory to a large corporate campus, may be appropriate in accordance with currently adopted codes and ordinances.
13. Site design and improvements should anticipate the potential re-use of the building for other purposes.
14. Quality architectural designs and building materials should be incorporated into industrial projects.
15. The appearance of both the building and the site landscaping should have a strong emphasis toward public street views, incorporating a concept that emphasizes the 'public zone'.

E. Undesirable Elements of Industrial Project Design

The City considers the following design features to be undesirable elements of industrial development:

1. Poorly defined site access points.
2. Disjointed parking areas, or confusing or unsafe circulation pattern.
3. Square, 'box-like' structures with large, blank, unarticulated wall surfaces.
4. Highly reflective surfaces or repetitious and continuous glazing patterns.
5. Metal siding used as a primary exterior façade treatment.
6. Visible outdoor storage, loading, and equipment areas.
7. Signage which is redundant or out of scale with building architecture.

F. Relation of the IDDSG to Other City Regulations, Ordinances and Private Development Covenants

The IDDSG is a supplement to the City of Louisville's Zoning and Subdivision Regulations, PUD Ordinance, *City of Louisville Department of Public Works Engineering Division Design and Construction Standards*, and *City of Louisville Storm Drainage Design and Technical Criteria*.

Where a mandatory standard in this document is in conflict with any provision of the City of Louisville municipal code, the most restrictive requirement shall take precedence and shall apply. Building and life safety codes, *the City of Louisville Department of Public Works Engineering Division Design and Construction Standards, and the City of Louisville Storm Drainage Design and Technical Criteria take* precedence over the standards in this document in cases where the standards in this document require action that is in conflict with those codes.

All industrial development within the City of Louisville shall meet the requirements of the Americans with Disabilities Act (ADA).

G. How to Use the IDDSG

The IDDSG is generally organized in a descending order of scale, from overall site planning concerns, to circulation issues, to buildings, site details, and then signs and exterior lighting. When first developing overall planning concepts for a parcel, the earlier chapters will be most relevant. At advanced stages of design, when architectural details and specific landscaping ideas are being developed, chapters appearing later in the document will be most relevant.

Each chapter has four basic components:

1. A goal statement, which sets forth the City's overall design goal to be achieved in the PUD Industrial Planned Unit Development Plan review process with regard to the subject matter of the chapter.
2. A policy statement, which establishes a

more specific design goal with regard to a more specific subject matter.

3. The statements of **standards,** indicated with an **(S)**, and **guidelines,** indicated with a **(G)**, which establish the specific design standards with which compliance is mandatory, and the design guidelines with which compliance is strongly encouraged. **A failure to meet a mandatory standard may be the basis for denial of an application.**
4. Illustrations showing one or more suggested design solutions that would be appropriate or inappropriate with respect to the standards and guidelines. These may be photographs or sketches. In the event of conflict between an illustration and the text of the IDDSG, the text shall control.

H. Definitions

For purposes of this document, the following terms shall have the following meanings:

"Industrial Development" Any land development activity in the city, including but not limited to non-offensive types of industry, processing and manufacturing activities, but not including development activity intended solely for residential, retail and or office use. Industrial development also includes any addition, remodeling, relocation or construction requiring an amendment to an approved, Final Industrial Planned Unit Development Plan. Specifically, industrial uses as enumerated in Louisville Municipal Code § 17.12.030 and/or in an established Planned Community Zone District-Industrial Plan (PCZD-I).

"Flex Space or Flex Building" A building designed for occupancy by single or multiple, undefined tenants in spaces designed to suit their varied needs. The tenants need significant amounts of fully finished interior space and have employee densities that are higher than the traditional industrial tenant, though the tenant must still have some industrial component, such as warehousing, distribution, assembly, or manufacturing. The building will have more of an office/ commercial appearance on some or all building elevations.

"Landscape Coverage" Land that is undeveloped or developed that can support plant materials; or has decorative landscape treatment; or that may be used by customers for recreation, circulation, or may be viewed by them. Paved parking lot areas used for auto circulation or parking do not qualify as landscape coverage.

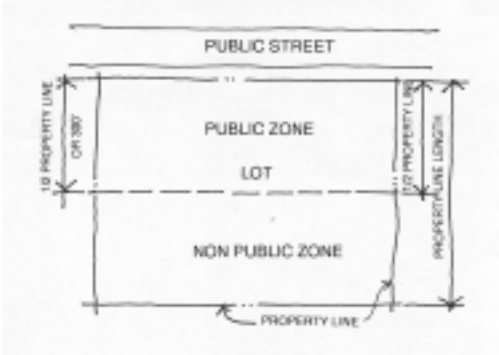
"Parcel" A parcel is the minimum amount of real property that a single user may occupy. In many cases, more than one lot will be combined into a single parcel for development of a single building or cluster of buildings to be used by a single user.

"Pedestrian Scale/Human Scale" The relationship between the dimensions of a building, street, outdoor space, or streetscape element to the average dimensions of the human body as well as space and the built environment as perceived by the senses of a human being.

"Public Zone" Building and other associated site improvements located on a development parcel which are within 300-feet of a public right-of-way or within the front half of the parcel (as measured from the front property line to the midpoint of the lot depth) whichever is less.

"Non-Public Zone" Building and other associated site improvements located on a development parcel that is located outside the Public Zone.

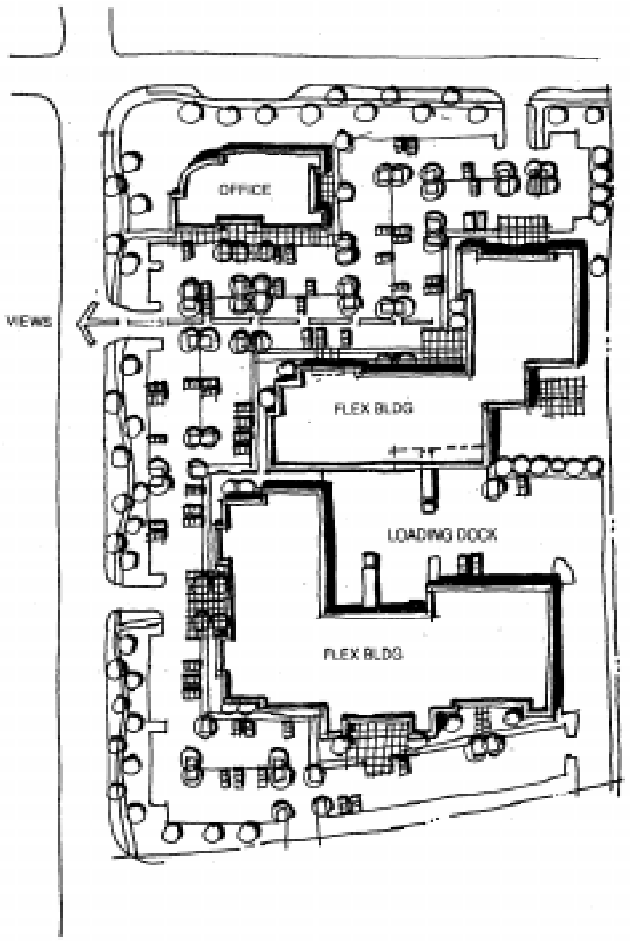
"Effective Landscaping" An area is considered landscaped to the extent it provides sufficient quantity and quality of plant materials to screen parking, building, or hardscaped areas of a project and provides color and viewing interest.



1. Site Planning

Goal:

Locate buildings so as to maximize the presentation of streetscaping and primary building entries to major roadways, to provide clear orientation and access for both vehicles and pedestrians and to facilitate internal pedestrian circulation. Place structures in consideration of the existing built context, the location of adjoining uses, and the location of major roads. Create pedestrian courtyards and common employee gathering areas.



1.1 POLICY - OVERALL CONCEPT

1.1 Building Siting and Orientation

Policy:

Buildings should be sited so that the character of existing landforms and site features is enhanced; the relationships between buildings are strengthened; and pedestrian and vehicular circulation is facilitated.

Standards and Guidelines:

A. Provide pedestrian connections from building entries and required exits to public walkways to buffer pedestrians from vehicle circulation areas. (S)
B. Provide plazas at primary building entrances as a means of distinguishing primary entries from secondary and service entries. (S)
C. Provide employee-gathering places in areas that are of a sufficient size and scale and buffered from traffic and circulation areas. (S) Employee gathering areas shall not be located in proximity to primary public entrances. (S) Appropriately screened break areas may be considered in proximity to public entrances. (G)
D. Orient buildings to promote views of the mountains through the development. (G)
E. Position entries to buildings so they are easily identifiable from adjoining public right-of-ways and primary access drives. (G)

1.2 Building and Parking Setbacks

Policy:

Provide a well-landscaped image along major streets, which promotes a formal streetscape appearance. To attain this objective, all buildings and parking should be set back from perimeter and interior streets a sufficient distance to create a distinct landscape zone between buildings, parking, and adjacent roadways. Varying building setbacks to enhance visual interest along the streetscape is strongly encouraged. Parking setbacks from all streets should allow for adequate visual buffering or screening.

Standards and Guidelines:

A. Minimum Building Setbacks: (S)

Front, side or rear yards from arterial streets	60-feet
Front yard at a local public street	30-feet
Side yard from a local public street	30-feet
Side yard interior (abutting a similar zoning district)	10-feet
Side yard interior (abutting residential and agricultural zoning districts, or public open space)	25-feet
Rear yard (abutting a similar zoning district)	15-feet
Rear yard (abutting residential and agricultural zoning districts or public open space)	25-feet
Northwest Parkway or other limited access highways	200-feet

B. Minimum Parking Setbacks: (S)

Front, side or rear yards from arterial streets	30-feet
Front yard at a local public street	20-feet
Side yard from a local public street	20-feet
Side yard interior (abutting a similar zoning district)	10-feet
Side yard interior (abutting residential and agricultural zoning districts, or public open space)	10-feet

C. Only architectural projections that do not include floor area, such as roof eaves or other architectural enhancements, may encroach into the above setbacks not more than 3-feet. (S)
D. For multi-building proposals, building setbacks should be varied to enhance visual interest along the streetscape. (S)
E. Building setbacks shall not encroach into platted landscape, drainage and or railroad easements. (S)
F. No portion of any building may encroach or project into any easement. (S)

1.3 Pedestrian Amenities

Policy:

Plazas, courtyards or similar visitor and employee amenities should be incorporated into both overall and individual site development plans. These areas should be easily accessible and comfortable for a substantial part of the year.

Standards and Guidelines:

A. Furnish spaces with pedestrian amenities such as benches, landscaping, and/or recreational areas. These outdoor spaces shall be functional and shall not appear as 'left-over' spaces. (S)
B. Provide seating that is useable year-round. Position seating such that it is buffered from exposed areas and takes advantage of sunny locations. (S)
C. All common amenities within industrial developments shall be owned and maintained by the developer or by an organization established for such purposes. (S)
D. Where feasible, create a sense of enclosure for outdoor seating areas. (G)

1.4 Site Coverage Requirements

Policy:

Open space and landscaped areas are valued amenities. Building, parking, and driveway site coverage within each parcel should be limited.

Standards and Guidelines:

A. The maximum building, parking, walkway and driveway coverage within each parcel and for the entire development is 75%. (S)
B. The minimum amount of landscape coverage provided within an industrial development is 25%. (S) This landscape coverage area is in addition to any required public land dedication. (S)
C. Detention ponds may be included in landscape coverage if located fully within the building lot, and when those areas can be effectively landscaped. Detention ponds that are off-site, but contiguous to the building lot, and that can be effectively landscaped may be credited up to, but not

exceeding one-third of the total required landscape coverage requirement. (G)

1.5 Utilities, Mechanical, and Telecommunications Equipment

Policy:

The visual and noise impacts of utilities, mechanical equipment, data transmission dishes, towers, and similar antennas and equipment should be mitigated.

Standards and Guidelines:

A. Install all permanent utility lines underground. (S)
B. Temporary overhead power and telephone facilities are permitted during construction only. (S)
C. Locate transformers away from major pedestrian routes and outdoor seating areas. (G)
D. Buffer all transformers, telecommunications devices, equipment switching boxes and other utility cabinets from street and pedestrian areas with landscaping or architectural screens. (S) Do not leave meters exposed where visible to the public. (S) (See also Chapter 6: Screen Walls and Fencing). (S)
E. The location of exterior mechanical equipment associated with industrial processing or manufacturing operations shall be such that it minimizes visual and auditory impacts from adjacent property and public streets and shall be mitigated with structural or landscape screening and buffering. (G)

1.5.D - SCREEN THESE AREAS FROM PUBLIC VIEW

1.6 Service, Delivery and Storage Areas

Policy:

Service, delivery and storage areas should not be visually obtrusive. The visual impact of service and delivery areas should be minimized; especially views of such areas from public ways and along designated view corridors.

Standards and Guidelines:

A. Locate loading docks, outside storage, and service areas in areas of low visibility such

as at the side or at the rear (non-street side) of buildings. (S) Outside storage of any kind in public street rights of way, building setbacks or easement areas is not permitted. (S)

B. With the exception of outside storage areas, when it is not possible to locate loading facilities and service areas on a non-street side of a building, loading docks and doors shall not dominate the building frontage and must be screened from all adjoining public rights of way. Loading and service facilities shall be offset from driveway openings. (S) In no case may outside storage areas be located in the front of a building. (S)

C. Combine loading docks and service areas between multiple sites. (G) Screen from public view with fencing, walls, other structures and/or landscaping. (S)

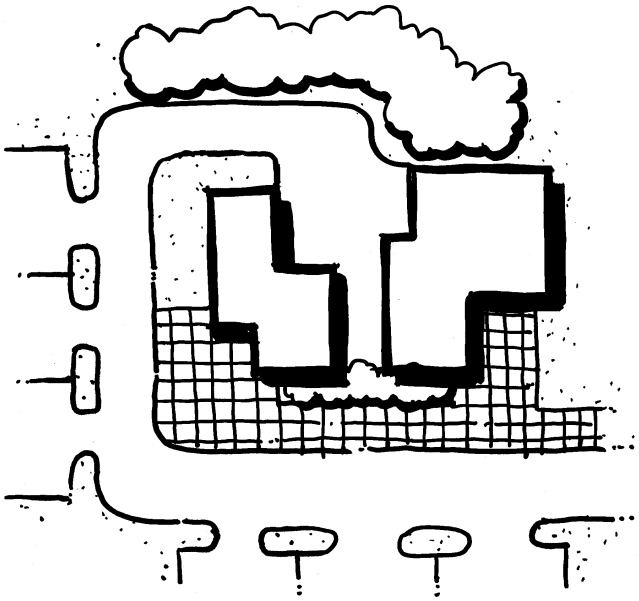
D. Clearly identify service entrances with signs to discourage the use of main entrances for deliveries. (G)

E. Service and refuse areas shall not encroach into the parking setback. (S) Such areas shall be screened with a minimum six-foot wall height enclosure (as measured from finished grade). (S) Service and refuse areas shall be paved with an impervious surface of asphalt or concrete. (S)

F. Service and outside storage enclosures shall be constructed of materials to match or compliment the building material. No enclosure shall be made of any form of chain link or wood fencing. Gates and/or access doors may be constructed of materials different from the actual enclosure material to facilitate operation of the gates or access doors. (S) Trash enclosures shall enclose an area large enough to accommodate the peak needs of varied potential industrial users of the building. (S)

G. Outside storage areas shall not exceed 10% of the floor area of the principal structure and when authorized must be typically associated with the specific industrial operation proposed for the building. (S)

H. Outside storage areas shall be fully screened by screen wall enclosures. (S) Screen walls shall have a minimum height of 6-feet, and a maximum height of 10-feet. Stored materials may not be stacked or be visible above the enclosure height. (S)



1.6.C - WELL SCREENED SHARED SERVICE COURTYARD

1.6.H - THIS IS NOT PERMITTED - OUTSIDE STORAGE MUST BE FULLY SCREENED

I. Storage areas shall be paved with an impervious surface of asphalt or concrete and designed in accordance with required fire access, and fire lane requirements. (S)
J. Trash compaction and recycling are strongly encouraged and should be accommodated in industrial project design. (G)
K. Sites shall not be designed to accommodate ongoing storage of truck trailers or other cargo storage trailers. (S)

1.6.K - ONGOING PARKING OR STORAGE OF TRUCK TRAILERS IS DETRIMENTAL TO GOOD URBAN DESIGN

1.7 Water Quality Control and Drainage

Policy:

Storm water and snowmelt from rooftops, paved areas, and lawns carry plant debris, soil particles, and dissolved chemicals into the City's storm drainage system. Site development plans should employ management and engineering practices to protect stormwater from these undesirable elements, before releasing water into the City's storm drainage system.

Site drainage should be designed to minimize water collection near building foundations, entrances and service ramps. In addition to the City of Louisville's Storm Drainage and Technical Criteria, the following standards and guidelines apply:

1.7.C - AVOID HARD CHANNELS SUCH AS THIS

Standards and Guidelines:

A. Storm water shall not drain directly into the public storm drainage system without first going through a natural, landscaped detention pond and/or a grassy swale. (S)
B. Design and maintain all grassy swales and other drainage channels in accordance with City of Louisville Storm Drainage Design and Technical Criteria. (S)
C. Avoid hard concrete-lined channel designs, unless recommended by the City's Public Works Department. If a hard channel design is required use a more natural approach that incorporates river rock or natural rock channel lining when possible. (G)
D. Utilize accepted design criteria and recommendations of the Urban Drainage and Flood Control District (UD & FCD) and the City of Louisville for detention pond design to enhance water quality. (S)

1.7.A - GOOD EXAMPLE OF NATURAL GRASSY SWALE

E. The use of consolidated detention pond facilities is encouraged on multi-lot developments. (G)
F. Avoid design of landscape berms that would shed irrigation and stormwater directly onto adjacent paved surfaces. (G)
G. To more effectively implement Best Management Practices (BMPs), detention ponds shall be consolidated on individual developments so there is no more than one pond per five acres, unless otherwise approved by Public Works. (G)
H. Functional detention pond BMPs shall be incorporated to the extent practical, in accordance with Volume III of the Urban Drainage manual, latest edition, and approved by Public Works, or be incorporated in accordance with a comparable design, approved by Public Works. Said BMPs shall be implemented on developments where the surface area tributary to the detention pond is five acres or greater (including the detention pond surface area.) (G) For detention ponds having tributary areas between two and five acres (including the detention pond surface area) grass or cobble lined swales shall be incorporated. Other proposed BMPs shall be reviewed and approved on an individual basis by Public Works. (G)
I. Parking lot detention shall not be permitted, with the exception of development sites smaller than two acres, regardless of the tributary basin size to the detention pond. (G)
J. For developments smaller than two acres, detention up to the 10-year storm event shall be contained completely within a grass lined area of a detention pond. The remainder of the storm water detention volume, between the 10 and 100-year events, may extend into paved areas. The ponding depth may not exceed 8 inches within paved areas. (S)
K. Detention pond landscape materials and planting densities shall be incorporated into the landscape plan in a manner that will minimize the potential for clogging at the outlet structure. Landscaping in and around detention ponds shall not be designed in a manner that would potentially reduce the functionality of the pond. (G) The developer's engineer shall certify in the

drainage report that they have reviewed the landscape plan and that it is consistent in preserving the functionality of the storm water detention system. The proposed landscaping in and around detention ponds shall be subject to Public Works review and approval. (S) Property owner obligations pertaining to detention pond maintenance shall be contained in the final approved drainage report associated with the PUD. (S)

1.8 Site Grading, Excavation and Erosion Control

Policy:

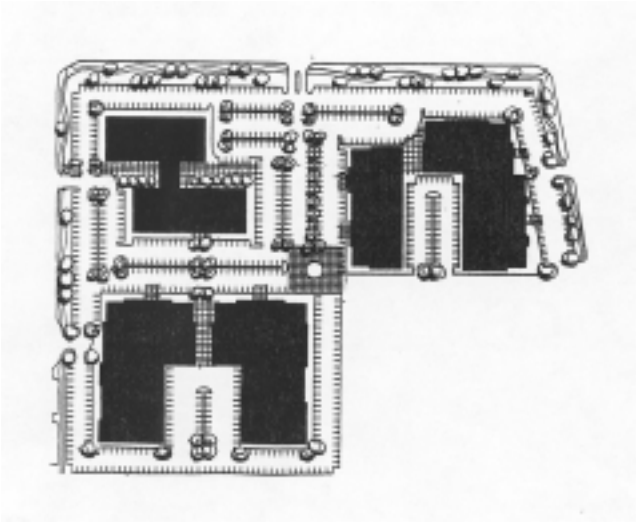
The design of site improvements should minimize cut-and-fill in order to preserve each site's natural terrain to the maximum extent possible. Site grading designs should be executed in such a manner to avoid drainage impacts (such as erosion and road damage), both on-site and downstream.

Standards and Guidelines:

A. Preserve the natural setting with grading designs that are sensitive to existing landforms and topography. (G)
B. In developing sites, limit slopes to 4:1 or less. (G) Slopes in excess of 4:1 may be allowed when engineering or site constraints dictate a steeper slope, and when appropriate erosion control measures are incorporated. (G)
C. In general, transition grades between old and new elevations should be rolling rather than one continuous straight slope. (G)
D. Avoid grade changes within the drip-line of existing trees that are to be maintained. (G)
E. Preserve existing significant site vegetation, to the extent possible, during over-lot grading and construction activities. (G) Replant all disturbed soil and slopes with an approved grass mixture or ground cover. (S) Prepare the soil prior to seeding. (S)
F. Terracing of the finished floor elevations in relation to natural grades on a site should be considered on larger buildings, when appropriate, particularly on multi-tenant flex buildings. (G)

1.8.F - TERRACE BUILDINGS WITH SLOPES

2. Vehicular Circulation & Parking



Goal:
The on-site vehicular circulation and parking system is a critical factor in the safety and success of an industrial development. The parking/access/circulation system should provide for the safe, efficient, convenient, and functional movement of multiple modes of transportation both on and off the site where pedestrian/bicycle/vehicle conflicts are minimized. The site planning process should make provision for alternate modes of transportation, including public transit, bicycles and pedestrians.

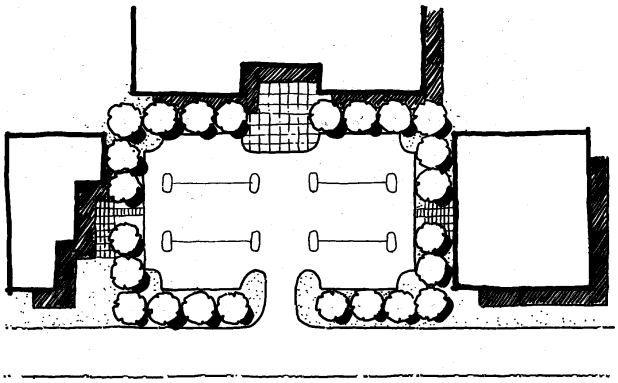
2.1 Site Access and Vehicular Circulation

2.1.1 Vehicular Access

Policy:
Promote the safety and mobility of through traffic by minimizing the number of access points to private property from public streets.

Standards and Guidelines:

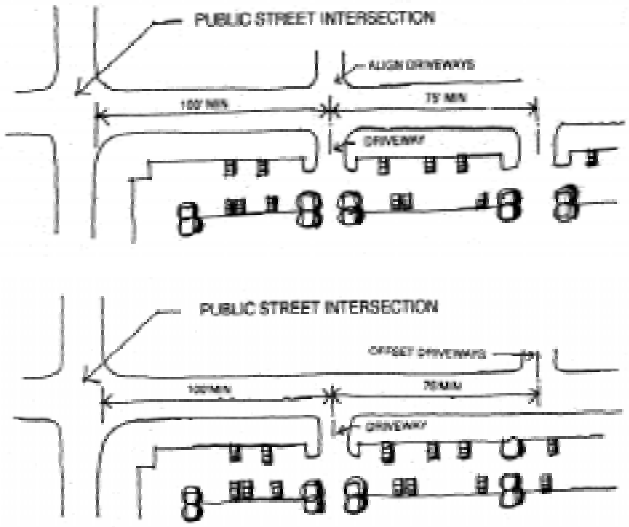
A. Enhance the intersections of entrance drives with arterial and collector streets by incorporating signs, accent paving, special landscaping and lighting. (S)
B. Materials used for entry features shall be consistent with other materials used in the development. (S)
C. Two-way access drives shall have a minimum width of 28-feet. (S) One way access drives shall have a minimum width of 18-feet. (S)
D. The number of driveways per street frontage to any building site is determined by the size of building site. Building sites less than two acres shall be permitted **one** driveway, two acres to five acres shall be allowed **two** driveways and greater than five acres shall be permitted **three** driveways. (G)
E. Driveways shall be separated from street intersections by a minimum of 100-feet or by maintaining similar directions of travel and



2.1.1 - VEHICULAR ACCESS POLICY

as required by the Public Works Department. (S)

F. Driveways serving building sites on either side of a public street shall either be aligned or offset to provide a minimum separation of 75-feet when not located adjacent to a public street intersection. (S)
G. Driveways on the same side of a public street shall be separated by a minimum 75-foot distance when not located adjacent to a public street intersection. (S)
H. When possible, shared driveways located on the property line of two building sites are encouraged. (G) If incorporated into the improvements, the City will require evidence that an access easement is in place providing for joint use of the shared driveway. (S)
I. Entrances that lead directly into head-in parking are not allowed. (S)
J. Accent pavement materials located within the public right-of-way must meet City of Louisville Public Works Department criteria. (S).
K. AASHTO site visibility triangles should be considered on parcels located on the inside of horizontal street curves. (G)



2.1.1.E,F,G

2.1.1.K

2.1.2 Vehicular Circulation

Policy:

Projects with multiple building sites or parcels should include a hierarchy of internal roadways, including the following: 1) internal collector, 2) internal private drives serving multiple buildings and parcels, 3) parking aisles, and 4) service drives and truck routes. This hierarchy should be implemented by engineering and landscape treatments. The street, access and parking network shall provide for the smooth, safe, convenient and functional movement of all modes of transportation, including vehicles, public transit, bikes and pedestrians, with priority to the pedestrians.

Standards and Guidelines:

A. Provide separate and safe vehicular and pedestrian circulation systems. (G)
B. For large parking lots, separate parking aisles from truck circulation routes and entry drives. (G)
C. Avoid conflicts between adjacent parking lots

parking designs. (G)

D. Truck and vehicle backing from a public street onto the site for loading or any other purpose is prohibited. (S)
E. Vehicle circulation routes requiring movement onto a public street in order to move from one area to another on the same building site is prohibited. (S)

2.1.3 Service/Delivery, Emergency and Utility Access

Policy:

Routes for service, emergency and utility access should be clearly marked. Service circulation within a development shall be designed to provide safe movements for all anticipated vehicles. The design of individual parcels to accommodate truck access shall meet all regulatory requirements for turning radii without sacrificing other important goals and policies of the IDDSG.

Standards and Guidelines:

A. Meet all Louisville Fire Protection District regulations in the design and provision of emergency access to buildings for fire suppression, police, ambulance and other emergency vehicles. (S)
B. Avoid the creation of 'blind areas' that cannot be patrolled by police or security staff. (G)
C. Provide shared service and delivery access ways between adjacent parcels and/or buildings. (G)

2.1.4 Transit Facilities

Policy:

Transit facilities should be accommodated within all major employment centers that could generate high volumes of transit use. Transit routes, access points and shelter locations should be addressed along major roadways within and on the perimeter of such projects. Transit facilities shall be provided in a manner to make transit an attractive mode of travel for both employees and patrons.

Standards and Guidelines:

A. Locate bus shelters close to significant clusters of buildings. Provide a concrete pad in front of bus shelters. Provide protection for bus shelters from the prevailing winds. Consider incorporating passive solar heating features. (G)
B. Coordinate any shelter design and locations with RTD. (S)
C. Identify locations and define easements for future shelters. (G)

2.2 Parking Lot Design

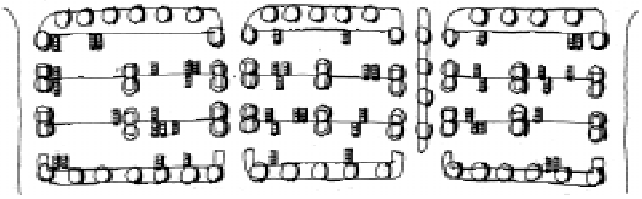
This Chapter provides standards and guidelines for the siting and layout of parking lots. Specific landscape standards for parking areas are included in Section 5.3, Parking Lot Landscaping.

2.2.1 Surface Parking Lots

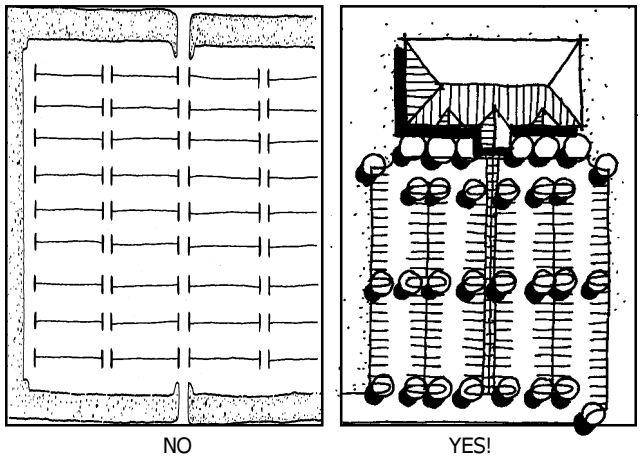
Policy:
Vehicle parking should be provided to meet the location and quantity requirements of specific uses without requiring overflow parking within a public right-of-way, or undermining the function of other modes of transportation.

Standards and Guidelines:

A. Design parking lots to avoid dead-end aisles. (G)
B. Where a dead-end aisle is authorized, adequate space for unimpeded turn-around must be provided. (S)
C. Avoid parking that creates hazardous backing movements into major drive aisles. (G)
D. Design parking areas that incorporate pedestrian walkways in a manner that links buildings to the street sidewalk system. (S)
E. Divide parking areas that accommodate more than 125 vehicles into a series of smaller, connected lots. (S)
F. Landscape and offset portions of the lot to reduce the visual impact of large parking areas. (G)
G. Avoid aligning all travel lanes in parking lots in long straight configurations. (G)
H. Provide cross-access easements between adjacent lots to facilitate the flow of traffic between complementary users. (G)



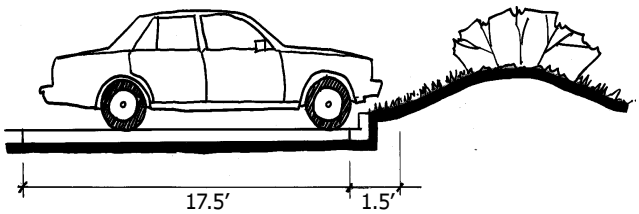
2.2.1.E - PARKING LOTS WITH 125 SPACES OR MORE MUST BE BROKEN UP INTO SMALLER LOTS WITH NO MORE THAN 125 CARS TOTAL



NO YES!

2.2.1.F

I. Each standard parking space located perpendicular to the access drive shall have a minimum width of 9-feet and a minimum depth of 19-feet. A 1.5-foot overhang is permitted for parking spaces adjacent to landscaped areas provided additional width is provided in the sidewalk or landscape area. (S)



2.2.1.I

J. An appropriate number of handicap spaces shall be provided on the building site as required by applicable code and regulations. Handicap parking shall be located in close proximity to building entrances as permitted by the overall design of the improvements. (S)

K. No compact parking spaces are allowed. (S)

L. Minimum Parking Ratios: The minimum number of parking spaces required per parcel is based on the following ratios (# Parking Spaces/Gross Building Floor Area) (S):

Office space	4 spaces/1000 SF (1:250)
Manufacturing and Research and Development space	2 spaces/1000 SF (1:500)
Warehouse space	1 space/1000 SF (1:1000)
Showroom space	4.5 spaces/1000 SF (1:225)

M. 'Flex' buildings shall plan for total parking at a ratio ranging between 4 and 5 spaces/1000 SF and will be authorized for any permitted Industrial building occupancy. (S) For sites/buildings with parking ratios lower than 4:1000, minimum parking requirements will be reviewed on a tenant finish building permit basis, relative to the average parking ratio provided on the site. All sites shall provide a minimum parking ratio of 2.0 spaces/1000 SF, except that some parking may be deferred when the total parking demand of the intended occupant falls below that ratio. (S)

N. Public on-street parking may not be used to satisfy all or part of a building's required off-street parking. (S)

O. For specific users, additional off-street parking may be necessary to satisfy unusual occupant requirements exceeding the above noted criteria. (G)

P. Locate special parking spaces for vanpool and car pool parking close to building entrances. (G)

Q. Use curbed landscaped islands to designate a change in direction of parking stalls and aisles. (S)
R. Provide landscaped islands at the ends of all rows of parking. (S)
S. Parking bumpers in surface lots are prohibited. (S)

3. Pedestrian & Bicycle Circulation

Goal:
Pedestrian and bicycle systems should be incorporated into all developments and designed to be safe and invite walking and bicycling throughout the project. Individual parcels and sites (within larger projects) should be integrated with adjacent properties designed to form a comprehensive system and to provide convenient access to transit stops, as well as to regional trail systems.

3.1 Overall Pedestrian and Bicycle Circulation

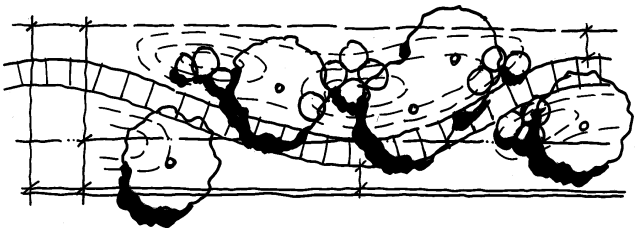
Policy:
Pedestrian spaces and routes should be designed to invite walking throughout and around each development. Routes should be integrated to form a comprehensive circulation system providing convenient, safe and visually attractive access to all destinations on the site. Ease of maintenance should be considered.

Standards and Guidelines:

A. Locate buildings and design on-site circulation to minimize pedestrian/vehicle conflicts. (G)
B. Separate pedestrian and vehicle movements with the use of landscaping, barriers or other appropriate design solutions. (G)
C. Differentiate areas of pedestrian and bicycle/vehicle interface with accent pavement and signage to alert drivers to potential conflicts. (S)
D. Provide well-identified connections from the primary pedestrian and bicycle paths within the development to the perimeter sidewalks and bike paths. (S)
E. Locate pedestrian access and walkways away from the north sides of buildings. (G)
F. Sidewalks within the Colorado Technological Center, The Business Center at CTC, and The Park at CTC shall be constructed in accordance with the master sidewalk plan. (S)
G. Sidewalks shall be at least 5-feet wide and detached from all arterial, collector and local

public streets by a minimum 6-foot wide landscaped parkway, except at intersections where acceleration & deceleration lanes are provided. (S)

H. In cases where a meandering sidewalk is desired along an arterial street, provide adequate width within which to accommodate berming and landscaping that enhances the meander and defines the walkways. (G) If the appropriate width is not provided within the public right of way to meet this guideline, a sidewalk easement will be required. (S)



3.1.H

3.2 Bicycle Parking

Policy:

Functional and attractive bike parking shall be provided in convenient locations and in adequate numbers for employees.

Standards and Guidelines:

A. Locate bicycle parking spaces near employee building entrances. (S)
B. Do not position racks where they will obstruct building entrances or the flow of pedestrian traffic. (S)
C. Provide bicycle parking spaces in the following minimum ratio: One (1) bicycle space for every 20 required off-street automobile parking spaces up to a total maximum requirement of 21 bicycle parking spaces. (S) A minimum of 3 bicycle parking spaces shall be provided per parcel or building, regardless of building size. (S)
D. Providing protection from the elements for bicycle parking is encouraged. (G) Consider the use of shelters. (G) Coordinate the design of the bicycle shelter with adjacent buildings or other street furniture designs. (G)
E. Use bicycle racks that accommodate a range of bicycle types and a variety of security devices. (G)

4. Architectural Design

Goal:

Simple rectangular box-type structures, typically of masonry, or concrete 'tilt-up' materials characterize conventional industrial architecture. These relatively low profile, simple shapes comprise a strong element of continuity throughout a light industrial district such as the Colorado Technological Center in Louisville. Given this premise, it is the variations and fenestration details that provide the needed variety.

Architectural design should seek to add to community character, while providing flexibility to avoid rigid uniformity of design. While a wide variety of design techniques may be utilized, a basic harmony of architecture shall be developed to promote the quality and attractiveness of the business environment. All elements including the scale and mass of buildings, materials, colors, roof styles, door and window openings, and details should be responsive to functional architectural design and promote a cohesive design statement.

All buildings should be energy efficient to conserve natural resources.

Building masses should respond to a 'human scale' with materials and details that are proportionate to human height and provide visual interest at the street and sidewalk level. Buildings should be reduced in apparent mass or articulated to avoid large monolithic, box-like shapes.

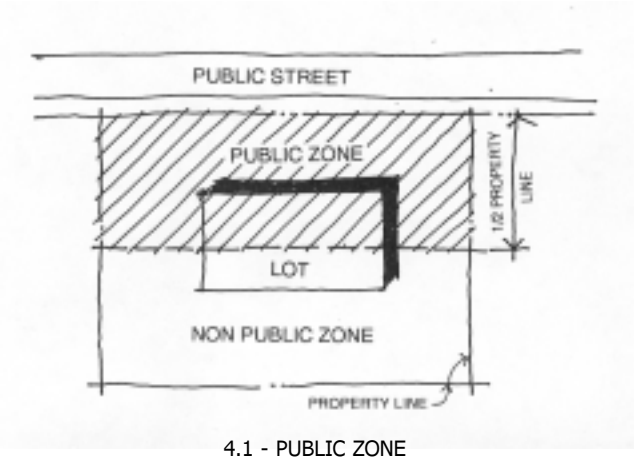
4.1 Building Relationships and Compatibility

Policy:

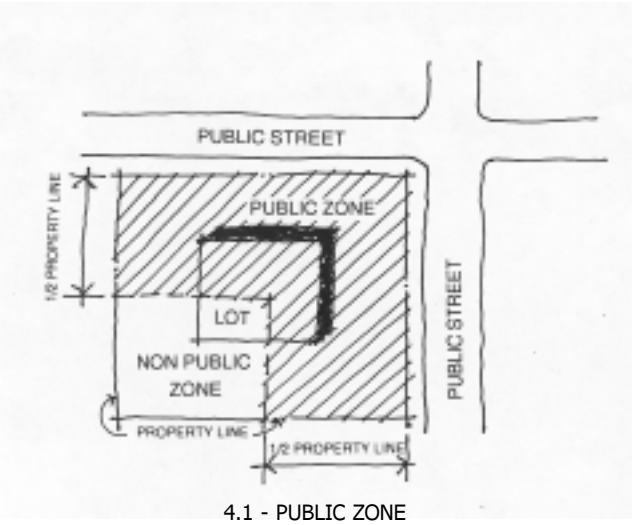
Building or portions of buildings within the 'Public Zone' should be oriented on a site to create a strong relationship to adjacent structures, providing visual continuity, and compatibility within the overall development.

Standards and Guidelines:

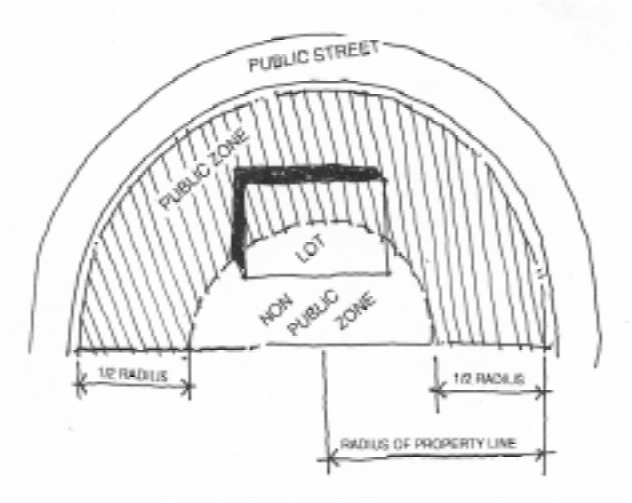
A. Building orientation to the site shall maximize from the adjoining public right-of-way identity of building user, primary building character.



4.1 - PUBLIC ZONE



4.1 - PUBLIC ZONE



4.1 - PUBLIC ZONE

entries and plaza areas and formal landscaped areas. (S)

B. Building location should optimize internal efficiencies, especially in multi-building developments, in screening service and loading areas from adjoining public streets, designation of regional facilities for stormwater detention, implementing cross access easements, and providing for common /functional employee recreational areas. (G)
C. Building location shall act to minimize from all adjoining public streets, view of truck parking and loading areas, outside storage areas, ground mounted mechanical equipment, as well as trash and service enclosures. (S)

4.2 Building Height

Policy:

Building heights should be not be out of scale with existing or planned development.

Standards and Guidelines:

A. The height of new development should be compatible with and transition from the height of adjacent development. (G)
B. The maximum building height is 40.0-feet to the top of the building parapet and 50.0-feet for architectural projections. (S)
C. Building height may exceed the 40.0-foot height limit up to 50.0-feet, when authorized through the PUD process for buildings/users that require specialized equipment. (G)

4.3 Building Massing, Forms, and Pedestrian Scale

Policy:

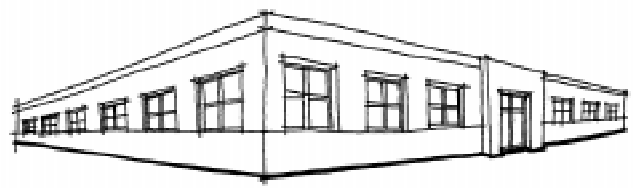
Buildings should relate to the terrain and each other in their massing and forms. Square 'box-like' structures with large, blank, unarticulated wall surfaces are not an acceptable form.

Buildings should respond to pedestrian scale in the immediate vicinities. Buildings should have features and patterns that provide visual interest at the scale of the pedestrian, which reduces apparent mass and that relate to local architectural character.

4.3.1 Public Zone

Standards and Guidelines:

A. Any wall within a Public Zone shall incorporate significant architectural features and treatments to diminish the building mass. (S) Use a combination of the techniques listed in the following sections 1-3 or other appropriate techniques to be reviewed through the PUD process. (S)
   1. Variations in facade elements can reduce perceived mass and scale. For example:
      i. Variations in color and/or texture should be used.
      ii. Step downs and step backs should follow the terrain and be tiered and reinforced by landscape elements.
      iii. Compositions that express rhythms and patterns of windows, columns, and other architectural features are encouraged.
   2. Avoid blank walls at ground-floor levels. (S) Use windows, trellises, wall articulation, arcades, material changes, awnings, canopies, clerestory, or other features. (G)
   3. Architectural features such as columns, pilasters, canopies, porticos, awnings, brackets or arches should be included. (G)



4.3.1.A - NOT DESIRABLE

4.3.2 Non-Public Zones

Standards and Guidelines:

A. All building materials shall comply with accepted materials under these standards and guidelines. (S)

4.4 Roof Forms and Materials

Policy:

Rooftops should contribute to the unified appearance of each development and should be considered as seen from: higher areas, ground level, other buildings and roadways.

Standards and Guidelines:

A. Avoid roof/parapet lines running in continuous planes absent variations in the building footprint. Building architecture may incorporate variation in parapet heights. (G)
B. All mechanical, electrical, optical and electronic equipment attached to or mounted on the building roof shall be set a minimum of a 20-feet from the building parapet. (S)
C. All roof-mounted equipment as described in section 4.4.B, shall be either (1) painted a color compatible with the dominant building color, if the equipment is self contained without exposed ductwork or process piping. (S) or (2) shall be screened if the equipment does not meet the criteria specified in C.1. Screen material shall be compatible with materials and colors utilized on the building and shall be specified with a detail on the PUD plans. (S)
D. Design roof forms to correspond to and denote building elements and functions such as entrances, arcades, and porches. (S)

4.4.A

4.4.A

4.5 Building Materials and Colors

Policy:

Exterior materials and colors should be aesthetically pleasing, of a high quality and compatible with materials and colors of nearby structures. Compatibility of building materials is desired throughout a development project consisting of multiple buildings.

4.4.C - RTU's NOT PROPERLY SET BACK FROM BUILDING EDGE

4.5.1 Building Materials

Standards and Guidelines:

A. Building exterior materials shall be factory finished, stained, integrally colored, or otherwise suitably treated. (S) Materials may include:
   1. split face or fluted concrete masonry unites (CMU)
   2. factory glazed concrete masonry units (CMU)
   3. face brick
   4. stone veneer,
   5. insulated glazing and framing systems

4.4.D

6. architectural pre-cast concrete
7. painted or stained site-cast concrete
8. architectural concrete
9. factory finished, standing seam metal roofing (for application to pitched roof systems only)
10. EIFS
11. architectural metal as building accent only

B. Highly reflective materials such as bright aluminum or metal are not permitted as the primary building material. (S)
C. Do not use glossy metal. (S)

4.5.1A - ACCEPTABLE MATERIAL

4.5.2 Building Colors

A. Do not use paints or other covering materials with unproven durability. (S) Do not use bright colors, (including bright white) that may streak, fade or generate glare. (S) While subdued or muted colors generally work best as a dominant, overall color, a brighter color can also be appropriate for accent elements, such as door and window frames, and architectural details. (G)
B. Choose color palettes for new buildings that are compatible with the colors of adjacent structures. (S)
C. Minimize the number of colors appearing on a structure's exterior. (G)
D. Paint architectural detailing to complement the facade and coordinate with adjacent buildings. (S)
E. Roof colors shall be muted and compatible with the dominant building color. (S)

4.5.1A - ACCEPTABLE MATERIAL

4.6 Building Entrances

Policy:

Primary building entrances should be easily identifiable and relate to human scale.

Standards and Guidelines:

A. Locate main entrances to be clearly identifiable from primary driveways and drop-offs. (S) For example:
   1. Design building entrances to contrast with the surrounding wall plane. (G)
   2. Consider tinted glass, painted doors, or

4.6.A

recessed features that will create a shaded effect. (G)
3. Create a frame around doorways, by changing materials from the primary facade material. (G)
4. Design primary entrances to be accessible to handicapped users without complex ramp systems. (G)

B. All building entrances shall be well-lit. (S) (see also Chapter 8: Exterior Site Lighting.)

C. Consider using building entranceways as a transition from the building to the ground. Incorporate walls, terraces, grading and plant materials to accomplish this transition. (G)

4.6.A

4.7 Energy Conservation Measures

Policy:

Buildings should be designed and sited to maximize the use of solar gain for energy savings, and respect the solar access requirements of adjacent (existing and proposed) buildings.

Standards and Guidelines:

A. Applicants are encouraged to consider energy conserving design concepts, including, but not limited to the following: (G)
   1. Proper orientation and clustering of buildings to take advantage of the prevailing summer winds and to buffer against adverse winter wind conditions.
   2. Types of material and their insulation characteristics.
   3. The arrangement and design of windows and doors.
   4. Direct solar or photovoltaic energy.
   5. Day-lighting concepts.
   6. Earth sheltering with creative land forming.
   7. Natural ventilation of outdoor, indoor and attic spaces.

4.6.A

4.6.A

PUBLIC ZONE DESIGNS

4.3.1 - PUBLIC ZONE

4.3.1 - PUBLIC ZONE

4.3.1 - PUBLIC ZONE

4.3.1 - PUBLIC ZONE

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4.3.1 - PUBLIC ZONE

4.3.1 - PUBLIC ZONE

4.3.1 - PUBLIC ZONE

4.3.1 - PUBLIC ZONE

NON-PUBLIC ZONE DESIGNS

4.3.2 - NON-PUBLIC ZONE

4.3.2 - NON-PUBLIC ZONE

4.3.2 - NON-PUBLIC ZONE

4.3.2 - NON-PUBLIC ZONE

5. Landscape Design

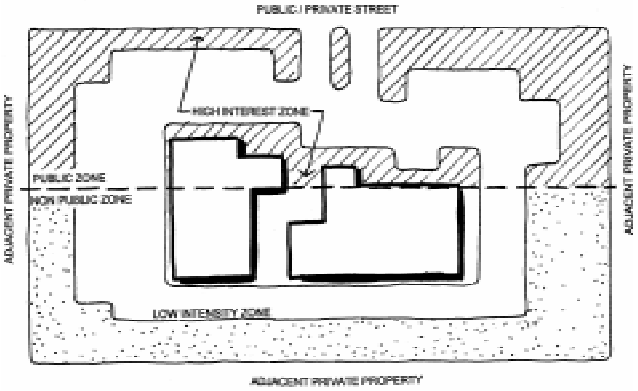
Goal:
Landscaping for industrial areas is provided within each building site to: 1) enhance the aesthetics of industrial developments; 2) create a pedestrian friendly environment; 3) break up the mass of industrial buildings; 4) soften architectural materials; 5) provide screening of service structures and loading areas; 6) enhance the streetscape/parkway environment; 7) define building and parking area entrances; 8) provide shade and climate control; 9) control airborne particulates; 10) provide buffers between incompatible land uses or site areas; 11) filter drainage and stormwater runoff from parking areas and streets.

Drought tolerant plant species that are native to the region or suitable to this climate should be used.

This chapter addresses 4 distinct zones corresponding to the 4 major design influences on each industrial site:

1. *Perimeter Landscaping Adjacent to Public and Private Roads*
2. *Perimeter Landscaping Adjacent to Abutting Property*
3. *Parking Lot Landscaping*
4. *Individual Building and Loading and Service Area Landscaping*

Policy:
Water conservation concepts should be considered in all zones. Generally, the highest intensity of materials, including variety, concentration, and interest, is located along a public or private street and the front or entrance to a building, while the rear of a property not abutting a public or private street would be in a less intensive zone.



LANDSCAPE ZONES POLICY

5.1 Perimeter Landscaping Adjacent to Public and Private Roads

Policy:
The corridors along perimeter arterial streets and internal collectors should provide a visually cohesive open space system. Similar landscape treat-

ments should be used at all entrances and intersections. Plant materials, massing, spacing, and height characteristics should reinforce the hierarchy of roadways. Planting and grading should work together to create a variety of experiences along these roadways and to call attention to open space amenities. Perimeter edge treatments should establish identity for the project and convey a high-quality image while seeking to conserve water through appropriate Xeriscape planting selections.

Standards and Guidelines:

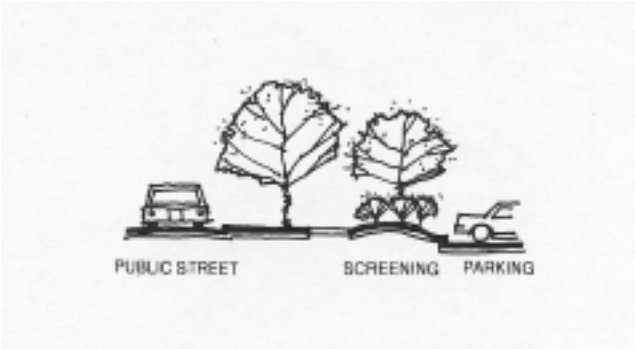
A. Include a combination of manicured and enhanced natural landscape areas. (G)
B. Place perennial flower beds at entries. (S)
C. Utility appurtenances should be softened with landscape materials, to the extent practicable. (G)
D. Streetscape Plantings:
   1. Vary street tree planting species in medians and parkways. (S) However, maintain the desired rhythm of plantings by selecting street trees with similar characteristics (i.e., height and branching patterns). (S)
   2. Provide a minimum quantity of 1 tree per 20 linear feet of street frontage within the streetscape landscape setback area. (S)
      i. In the street right of way, deciduous shade trees shall be provided at regular 40-foot intervals, along with fully irrigated sod or other approved ground cover. (S) (These trees count toward the minimum quantity noted in E.2.)
   3. Shrub beds within the streetscape area are limited to 20% of the total area. (G)
   4. Provide a minimum of 6 shrubs per tree plus perennial flower beds, ground cover or grass lawn within the streetscape landscape setback area. (S)
   5. Berming shall be incorporated into the streetscape landscape design. (S)
   6. Placement of plant materials in the right-of-way and in public utility easements adjacent to the right-of-way shall be subject to review and approval by the City. However, in the event of conflicts,

5.1.D - TYPICAL STREETSCAPE

minimum planting requirements shall still be maintained. (S)

7. To prevent interference with motorist visibility, plant shrubs a minimum of 3-feet from the back of curb and choose shrubs that do not exceed 24-inches mature height. (S)
8. Street trees shall have their branches pruned up to a height of 8-feet to avoid conflict with motorist visibility. (S)

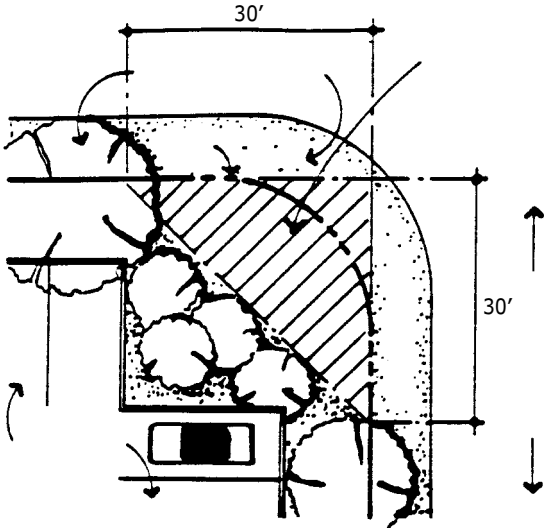
E. Visually buffer all parking lots adjacent to perimeter roadways with adequate screening within a planting strip between the public right of way and the edge of the parking lot pavement. (S) Provide adequate shrub plantings with a variety of seasonal colors to create a dense visual buffer between parking lots and perimeter roadways. (S) Whenever practical, incorporate berming with a maximum 4:1 slope within this planting strip. (G)



5.1.E - PARKING LOT SCREENING

F. Sight Lines at Public Street Intersections and within Medians

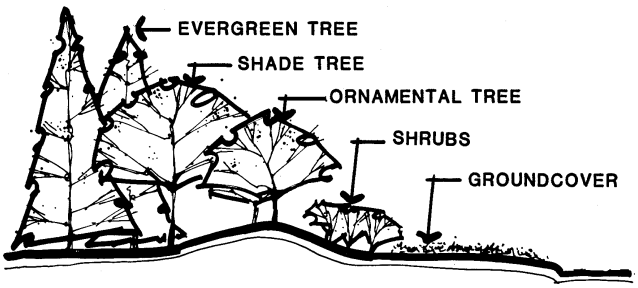
1. Provide adequate sight lines for an effective 30-foot sight triangle measured from the right of way. (S) Plants and signage are allowed within the sight triangle if: 1) plants do not exceed 30-inches in height at full maturity and 2) signs do not exceed 30-inches in height (measured from top of curb height) unless they are more than 80 percent open. (S)



5.1.F - SITE VISIBILITY TRIANGLE

G. Provide a diversity of landscaping materials at entry drives to development parcels. (S) Therefore:

1. Provide a minimum of 3 levels of scale, including shade, evergreen, and/or ornamental trees, shrubs, annual and perennial flowers, and ground covers. (S)
2. Plant clusters that appear as a cohesive visual element, and that complement the overall landscape theme and palette. (G)
3. Integrate the plant design with the entry sign. Plantings shall frame or provide a visual base for the signs. (S)



5.1.G - ENTRY LANDSCAPE CONCEPT

H. Deciduous trees shall be planted a minimum of 5-feet and evergreen trees a minimum of 10-feet from public utilities and public sidewalks, unless modified by PUD street tree plans. (S)

5.2 Perimeter Landscaping Adjacent to Abutting Property

Policy:

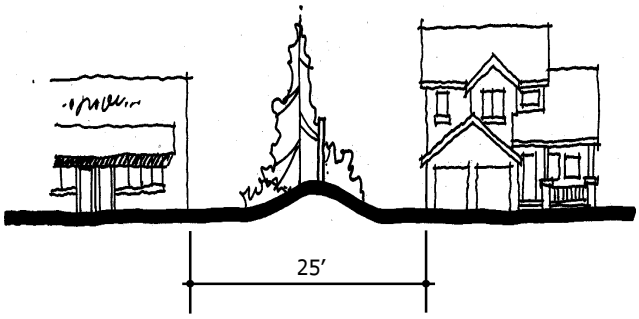
Visual buffers should be provided between similar land uses to accomplish transitions and to mitigate potential conflicts between dissimilar uses.

Standards and Guidelines:

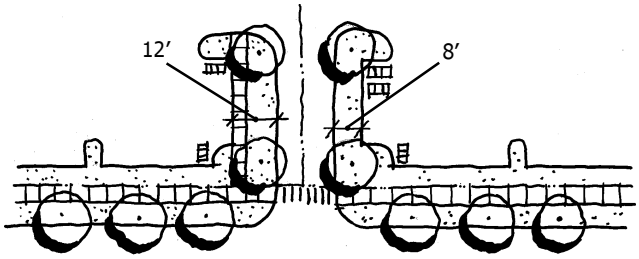
A. Between properties within the same zone district:
   1. Provide a minimum 10-foot wide buffer planting strip along internal side property lines. For the public zone portion of the side property line, provide 1 tree for every 30 linear feet of property line and appropriate shrubs, ground cover and/or turf areas. (S) This may not apply to internal property boundaries within a multiple-lot development to the extent the lots are developed under a single PUD Development Plan and achieve other site design policies of these guidelines. (G)

B. Adjacent to residential and agricultural zoning districts, and/or open space:
   1. Provide a minimum 25-foot wide buffer planting strip incorporating an average 3-foot high berm containing a minimum of 1 tree for every 20 linear feet of property line and a screen hedge incorporating both deciduous and evergreen shrubs a minimum of 3-feet in height (at maturity) along a minimum of 75% of this perimeter area. (S)

C. Common/Shared Access Drives:
   1. Provide a minimum 8-foot wide buffer strip along both sides of a shared access drive when no sidewalk is included. (S)
   2. Provide a minimum 12-foot wide buffer strip along both sides of a shared access drive when a sidewalk is included. (S)



5.2.B - BUFFER PLANTING STRIP



5.2.C - COMMON/SHARED ACCESS DRIVES

5.3 Parking Lot Landscaping

Policy:

Parking lots are necessary features of building sites which, if not designed properly,

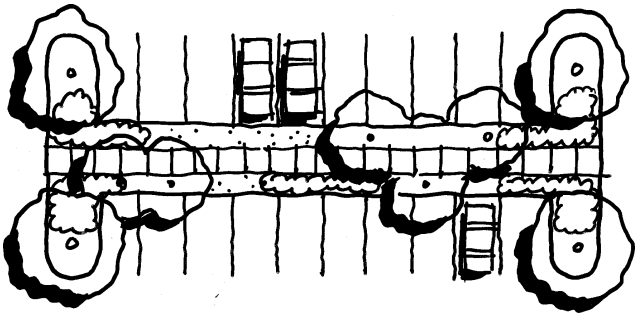
can visually detract from the overall development character. Parking lots should be designed to blend with each building site's character using landscape plantings and grading, and should not be readily visible from public streets.

Standards and Guidelines:

A. Use low, opaque walls and/or flowering plants combined with berming and/or raised planting beds to create a visual buffer of parking areas from peripheral streets or frontages. (S)
B. Lower the grades of parking lots below existing street elevations to aid in obscuring views of automobiles, while promoting views of architectural elements of the structures beyond. (G)
C. A minimum of 1 canopy shade tree per 16 parking spaces is required in all parking lots, to be planted in islands, medians, and perimeter areas adjacent to lots (excluding streetscape tree plantings). (S) To be considered a parking lot shade tree, trees shall be located in a protected landscape area, which are bounded on at least 3 sides by parking area paving (unless the tree is located within a corner island). (S)
D. Utilize landscaped islands and medians to improve the definition of circulation patterns, provide shading for paved areas and break up continuous rows of parking. (G)
E. Landscaped Islands
   1. Provide a minimum 6-foot wide landscaped island at the end of every row of parking, equal in length to the parking space(s). (S)
   2. In addition to the trees, plant each island with a minimum of 8 shrubs, not exceeding 3 feet in height at maturity. (S)
F. Landscaped Medians
   1. Place 12-foot wide landscape medians between every other parking bay in lots for more than 125 cars to visually break large parking lots into smaller modules. (S)
   2. Where walkways in medians will not be utilized, the medians may be reduced to a width of 8-feet. (G)

5.3.A - VISUALLY BUFFER PARKING AREAS

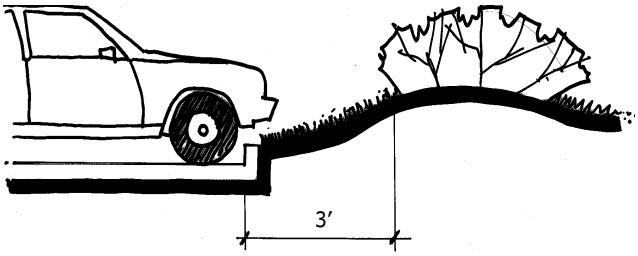
5.3.A - VISUALLY BUFFER PARKING AREAS



5.3.F - LANDSCAPED MEDIAN

3. Provide a minimum of 1 canopy shade tree and 8 shrubs for each 30 linear feet of median. (S)
4. The use of landscape medians is encouraged as a transition slope between parking bays on hillside parking lots (maximum slope of 4:1). (G)

G. Where head-in parking occurs, locate all shrubs a minimum of 3-feet from the edge of the parking lot curb. (S)



5.3.G - SHRUB SPACING

5.4 Building Site Landscaping

Policy:

The coordination of landscape design for individual building sites and larger, multi-parcel projects is essential for creating a consistent, high-quality character. A coordinated design unifies the various buildings and strengthens the cohesiveness of the development. Individual landscape treatments for building sites should compliment the roadway landscapes, create distinctive settings for buildings, reinforce the design of the open space systems, and provide amenities for pedestrians.

5.4.B - ENTRY LANDSCAPING

Standards and Guidelines:

A. Use landscaping that is of appropriate scale relative to the proposed adjacent structures. (G)
B. Intensify landscaping at building entrances. (S)
C. Loading areas shall incorporate evergreen trees and shrubs for screening intermixed with deciduous shrubs for seasonal color. (S)
D. Provide a minimum planting width of 10-feet adjacent to a minimum of 50 percent of the building, with emphasis given to portions of the building visible to the street, or with public entries. These planting areas shall contain the following: deciduous trees at a ratio of one tree per 30 linear feet of building frontage, along with appropriate shrubs, perennial flowers, and ground cover. (S) Provide additional landscaping around the perimeter of buildings to soften the edge between sidewalks/parking lots and structures. (G)
E. Protect landscaping from vehicular and pedestrian encroachments with raised

5.4.C - LANDSCAPE SCREENING OF SERVICE AREAS

5.4.C - LANDSCAPE SCREENING OF SERVICE AREAS

planting surfaces, depressed walks, and/or curbs. (G)

F. Use flowering perennial plants to enhance employee break or other pedestrian gathering areas. (G)

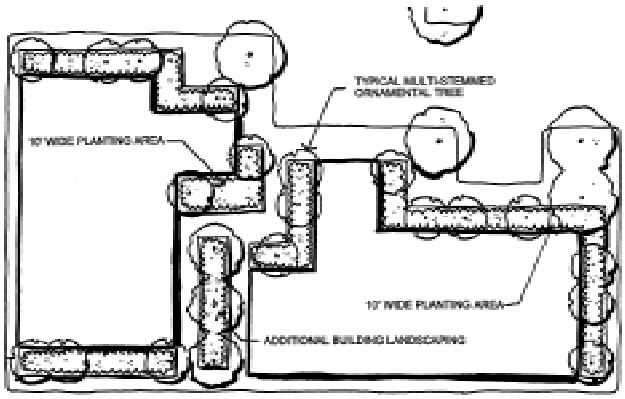
G. Employee break areas or other pedestrian gathering areas shall include a heavy landscape treatment to provide interest, shelter from wind and summer sun, and highlight the area. (S)

H. Minimum Landscape coverage required within each building site and within the entire development shall be 25 percent. (S)

I. In stormwater detention areas, consider landscape materials that help remove debris and potentially toxic substances found in non-point source runoff. (G) Wetland plantings are appropriate in these areas. (G)

J. No organic mulch materials shall be located below the surface level of the 100-year storm detention level. (S)

K. Landscaping within Public Easements
   1. Landscaping within public easements is generally limited to shrubs, ground cover, and small ornamental trees. (G) No canopy/shade trees shall be planted within such easements. (S)
   2. Berming is generally acceptable within public easements in conjunction with plant material. (G) Berming is not to be used instead of plant material. (S)



5.4.D - BUILDING LANDSCAPING

5.4.D - ENTRY LANDSCAPING

5.5 Landscape Irrigation/Water Conservation

Policy:

A significant percentage of the City's treated water supply is used to irrigate plant materials and grasses. Every effort should be made to conserve water by utilizing alternative means for maintaining a suitable landscape environment.

Standards and Guidelines:

A. Low water use and water conservation concepts can be incorporated into the landscape design of each industrial development without compromising the intent to establish significant visual amenities through landscaping. For example:

5.4.G - EMPLOYEE BREAK AREA

1. Incorporate a 'zoned planting scheme' to reduce water demand by grouping plants with similar water requirements. (S)
2. Use drought tolerant plant species suitable to this climate that have minimum watering and pruning requirements. (G)
3. The use of water conserving grasses, such as fescue sods, is preferred. Limit the use of blue grass to areas which function as recreation areas or have high foot traffic. (G)
4. Non-irrigated native grasses are encouraged in areas of low visibility from public and private streets. (G) As such grasses only experience short periods of growth, avoid mowing native grasses too low. (G)
5. Incorporate heavily mulched planting beds to aid in retaining moisture and to make planting areas easier to maintain. Improve the soil prior to planting for better water absorption and retention. (G)
6. Incorporate advanced irrigation measures and scheduling. Install an efficient automatic irrigation system that will incorporate water conservation measures. Spray heads are recommended for lawn and ground cover areas, with drip irrigation for shrubs and trees. (S)

5.6 Landscape Standards and Plant Material Selection

Policy:

For a strong visual impact, plants should be used in masses of the same species. Random spotting of many different types is not appropriate. Planting should reinforce the site planning concepts and complement architectural forms. Plant materials selections from the Recommended Plant Materials List (Appendix 'A') are encouraged. Contact the Planning Division for other Xeriscape planting guides.

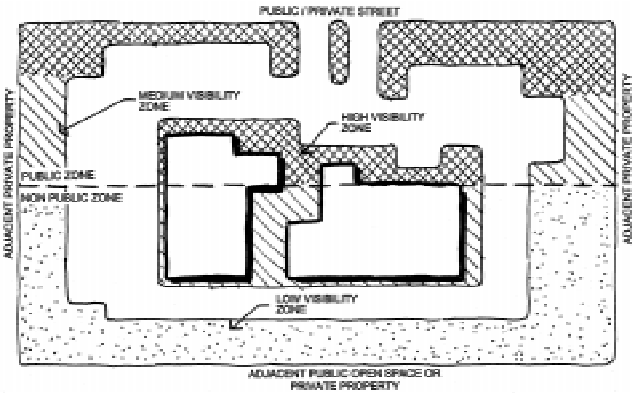
Standards and Guidelines:

A. *Landscape Zones*: Depending on the size and magnitude of an individual parcel, the project's landscape areas should be divided

into one or more of the following basic zones. (G)

1. *High Visibility Zone* (located at site and building entrances and pedestrian areas and within the streetscape planting area) This zone may include:
   i. Manicured lawns that require weekly mowing and regular watering (including blue grass/fescue mixes or other suitable grasses).
   ii. Formal plantings of trees and shrubs.
   iii. Perennial beds.
2. *Medium Visibility Zone* (located along side property lines and other interior areas of the site) This zone may include:
   i. Drought tolerant grasses which require less water and maintenance (but still provide a manicured green look during the growing season - including fescue-type grasses)
   ii. Shrubs
   iii. Trees
   iv. Irrigated Seed
3. *Low Visibility Zone* (located in environmentally sensitive areas, along waterways; adjacent to public open spaces; and the balance of the site. These may include:
   i. Natural areas and native grasses (which require very low water and maintenance)
   ii. Existing vegetation
   iii. Drought resistant plant species
   iv. Meadow-like/open fields
   v. Wetlands areas

B. Selection of plant materials is encouraged from the *Recommended Plant Materials List* attached as Appendix A, (G), and in light of the following standards and guidelines:
   1. Select plant materials on the basis of suitability to climate, setting and compatibility with other development plantings, character and functions. (G)
   2. Select plant materials that are free of disease and harmful insect problems. (S)
   3. Tree species shall be varied to minimize the impact and spread of disease. (S) A given species shall not account for more



5.6.A.1,2,3 - VISIBILITY ZONES

Standard for Nursing Stock" by the American Association of Nurserymen. (S)

5. Proper drainage is required for all major plantings to ensure the establishment of a good root system and healthy growth. (S)
6. The installation of all landscaping shall be done by an established landscape contractor who follows the procedures set forth by the American Association of Landscape Contractors and its local agencies (S).
7. In situations where installation of landscaping is deferred to after the issuance of the first Certificate of Occupancy, which may be approved, at the City's discretion, due to seasonal planting constraints, a performance guarantee for 125 percent of the value of the work, in a form acceptable to the City, is required to ensure completion of landscaping. (S)
8. Artificial plants of any type, size or color are not allowed as exterior landscaping within any development parcel. (S)

C. Encourage the use of water conserving landscapes by minimizing irrigated sod areas (such as blue grass) which require significant watering and maintenance. (G) In general, where grass lawn areas are used, choose a species that will require low maintenance in cutting and less watering than typical blue grass (fescue sods are preferred). (G)

D. Choose plant materials that provide variety and year-round color and screening. Select materials which highlight each season (G) :
   1. Spring: Flowering plants
   2. Summer: Shade
   3. Fall: Leaf color
   4. Winter: Branch form and texture

E. Edging is required to separate grass areas from shrubs, ground cover and mulch. (S)

F. Utilize porous paving materials for paths, plazas, etc., such as patio bricks, interlocking pavers, concrete stepping stones and/or sandstone and crusher fines. (G)

G. Plant perennial flowerbeds in visible areas such as pedestrian plazas, building entries. (S)

H. Mulching:
   1. All planting beds should be mulched with wood or decorative rock to stabilize soils,

than 30% of trees on a given site. (S)

4. The quality of plant material selected will follow the guidelines of the "American

control erosion, and conserve water use. (S)

2. Where rock mulch is used, a minimum of 1 shrub per 25 square feet of mulch shall be provided except as required by an soils engineering report when used adjacent to a building foundation. (S)
3. Rock mulch shall be varied in size and coloration. (S)
   i. Rock mulch size is restricted to the 1- to 3-inch range. (S)
   ii. Rock mulch shall only consist of river rock, crushed granite and/or Colorado sandstone varieties. (S)

I. Use landscape or weed barrier fabric within all shrub beds and mulched areas to control weeds. (S)
J. Deciduous to evergreen shrub ratio should approach 3:1 unless reduced by exceptional screening requirements. (G)
K. All Landscape Plans should be prepared by a

qualified Landscape Architect. (S)

5.7 Planting Size Standards

Policy:

An immediate landscape impact is desired within all industrial developments, and to facilitate this, minimum plant-size standards are required. Larger sizes are encouraged.

Standards and Guidelines:

A. Provide landscaping according to the following minimum sizes*: (S)

Deciduous shade/canopy trees	2.5″ caliper
Ornamental trees	2.0″ caliper
Evergreen trees	6′-8′ height (minimum 25% must be 8′)
Multi-Stem Ornamentals	8′-10′ height
Shrubs	5 gallon container
Vines	1 gallon container
Ground Cover/Perennials	2 ¼″ pots

*Caliper measured by ANSI standard Z60.1.

5.8 Landscape Maintenance and Replacement

Policy:

The property owner is responsible for providing, protecting and maintaining all landscaping in a healthy and growing condition.

Standards and Guidelines:

The following requirements shall be noted on the PUD landscape plan:

A. The property owner shall remove and replace dead or diseased plant materials immediately with the same type, size and quantity of plant material as originally installed. (S)
B. Avoid replacing landscape materials during the dry winter months between December and February and in mid-summer. (G)
C. Contact the Planning Division for specific time requirements for landscape material replacement. (G)
D. Landscape materials located in the public right-of-way are to be maintained by the abutting property owner. (S)

5.9 Site Furniture and Features

Policy:

Site furnishings include benches, waste receptacles, planters, railings and bollards. Visual consistency of these elements is desired throughout each development. All components of outdoor site furniture should be low maintenance, highly durable and resistant to vandalism and theft.

6. Fences & Walls

Goal:
Fences and walls should be decorative and contribute to the visual quality of the project and the overall development. Walls, fences, and landscape materials shall be used to screen service areas, loading areas, and outdoor storage areas. When not required for security, screening, or grade transitions, the size of walls and fences should be minimized. When required, however, fencing should be as inconspicuous as possible and walls should be low.

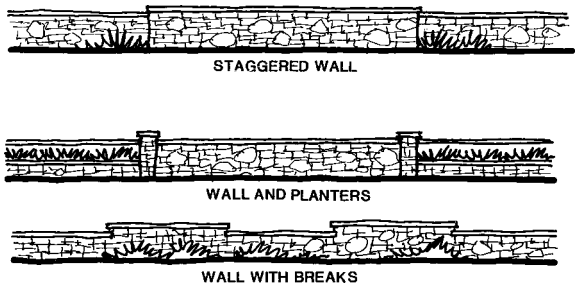
6.1 Wall and Fence Design and Materials

Policy:
Fencing and walls shall be constructed of materials that are compatible with the adjacent building architecture and their appearance softened with landscape materials.

Standards and Guidelines:

A. Avoid using retaining walls in excess of 30-inches in height (G). Where taller retaining walls are required, provide safety protection in the form of railings, fences or hedges, or create a terrace with two (2) shorter walls. (S)
B. Incorporate architectural treatment on both sides of perimeter walls. (S)
C. Provide landscaping in combination with walls and fences to soften their appearances. (G)
D. Chain-link fencing with or without wood slatting is not an acceptable screen material. (S)
E. Break up long expanses of fences or walls, with periodic columns, insets, landscape pockets or changes in materials. (S)
F. Construct walls and fences from durable materials such as stone, brick, or metal with dark finishes (wrought iron or similar), or a combination of these materials. (G)
    1. Wood fences are discouraged, however, if authorized, the following features must be included:
        i. Fence shall be stained. (S)

6.1.A - AVOID RETAINING WALLS IN EXCESS OF 30"



6.1.E

ii. Must include piers and/or pilasters a maximum distance of 15-feet on center that are faced with brick, stone or other appropriate heavy material. (S)

iii. The fence shall include a cap element. (S)

G. Concrete walls are permitted if faced with masonry or stone, or if the surface is scored or textured. (G)

H. Fence or wall runs greater than 50 linear feet shall be articulated with architectural offsets and incorporate landscape pockets. (S)

I. Bring berms up to the outside of a screening wall or reduce the grade on the inside to minimize its visibility. (G)

6.2.A - SCREEN LOADING AND SERVICE AREAS FROM STREET VIEW

6.2 Screening Requirements

Policy:

A project must include adequate screening of meters, transformers, storage and loading and service areas.

Standards and Guidelines:

A. *Where located within a side yard, or visible from street view,* screen loading docks and service areas with a minimum of 6-feet high screen wall constructed of the same materials and finishes as the main building. (S)

B. All authorized outside storage shall be screened using fencing, walls and/or landscape materials. (S)

C. Screen all utility equipment, including auxiliary power generators, from view with fencing, walls, and/or landscaping. (S)

7. Sign Design

Goal:
Signs should be consistent with overall project design but should be subordinate to architectural and landscape elements. Signs serve to identify, inform, direct, regulate and interpret. Each industrial building or group of industrial buildings should have a consistent and comprehensive sign program from project identification at the street through individual tenant suite identity. Placement, scale, and readability should be considered in developing a sign package.

TYPICAL MONUMENT SIGN

7.1 Sign Materials

Policy:
Design and construct signs of durable, high quality architectural materials.

Standards and Guidelines:

A. The sign package must utilize materials, colors, and designs that are compatible with the associated structures. (S)
B. Sign materials must be of proven durability. (S)

TYPICAL MONUMENT SIGN

7.2 Sign Number and Area

Policy:
The size of signs should be modest and afford businesses sufficient visibility and identification without becoming a dominant part of the landscape or interfering with vehicular movement along the public streets.

Standards and Guidelines:

A. Number of Signs
   1. The maximum number of flush-mounted signs allowed for freestanding buildings is one per individual tenant building frontage, not to exceed one sign per tenant, nor to exceed one per public entry door. Small informational signs not exceeding 5 square feet in area and 6-feet in height are permitted on rear man and loading door entrances. (S)
   2. One freestanding, ground-mounted,

TYPICAL MONUMENT SIGN

double-faced sign is permitted for each freestanding building. (S)

i. Where a freestanding office building contains multiple tenants, or multiple accesses off a public right of way, an increase in the number of freestanding ground mounted signs may be permitted through the planned unit development plan process. (G)

3. Window signage is limited to the individual tenant name only. (S)

B. Area of Signs
1. Surface-mounted signs shall not exceed 15 square feet of surface area each, nor exceed 80 square feet total per building. (S)
2. Freestanding, ground-mounted signs shall not exceed 25 square feet per face. (S)
3. Window signage not exceeding 10 percent of the area of the window in which it is located is permitted. (S)

C. Character Height
1. Individual tenant sign characters shall not exceed 18-inches in height regardless of area. (S)
2. If a single building is occupied by a single tenant, the maximum character size may be increased to 24-inches, however, the building is then restricted to one sign per public street frontage. (S)
3. Regardless of area, character heights shall be uniform for each project. (S)

D. Sign Height
1. Monument signs shall not exceed 6-feet in height. (S)
2. Surface-mounted signs should be mounted at a height that helps identify tenant entries. (G) Surface-mounted signs shall not exceed 25-feet in height from grade immediately below the sign. (S)

TYPICAL MONUMENT SIGN

7.2.C.2 - SINGLE TENANT SIGN

7.3 Location/Placement/Visibility

Policy:
Signs should be located to be visible from streets and paths without conflicting with safe vehicular movement and visibility.

Standards and Guidelines:

A. Signs should be sufficiently visible from public streets so that site entrances can be readily identified by both pedestrians and persons in vehicles. (G)
B. Locate monument signs in a planter setting within a landscaped area. (S)
C. Signs shall be set back a minimum of 10-feet from the right of way. (S)
D. Locate signs outside vision clearance areas and easements. (S) (see also 5.1.F.1)
E. Signs on roofs are not allowed. Signs shall not exceed the height of the roof parapet. (S)
F. Signs facing or visible to gateway arterial roadways and off-street multi-use paths are prohibited. (S)

7.4 Sign Illumination

Policy:

In industrial areas, sign illumination should serve to identify individual developments only.

Standards and Guidelines:

A. Monument signs may be illuminated with a maximum of one, ground-mounted 100-watt metal halide fixture per face. (S)
B. Building mounted signs may not be illuminated either directly or indirectly. (S)
C. When external light sources are directed at the sign surface, conceal the light source from the 'lines of sight' of pedestrians and motorists. (S)
D. Window signage shall not be illuminated. (S)
E. Visible neon tubing is not allowed as a method of sign illumination nor shall it be used as an architectural treatment. (S)

7.5 Allowable Sign Types

Policy:

The type of sign used should reinforce the urban environment of industrial developments. Signs should be designed as a 'family', incorporating similar, compatible materials that reinforce the design and style of the project architecture. The following standards and guidelines apply with regard to the listed sign types.

Standards and Guidelines:

A. Monument Signs
   1. Project monument signs, if authorized, may be located at the street or primary entries to industrial developments to provide for overall project identity. (G) Such signs should contain the name of the project that it identifies or the building street number and may include the names of individual tenants, but shall not contain change panels or advertising. (S)
   2. Affix monument signs to the ground in a continuous connection. (S)
   3. All monument signs shall provide the address and street of the building served, with minimum 3-inch text. (S)
   4. For flexible space projects containing multiple tenants, project identity signage requires additional variables that must be considered. Conceptual designs for signs serving these types of facilities must be submitted to the Planning Department. (S)

B. Surface-mounted Signs on Buildings
   1. For multi-tenant buildings, locate wall-mounted signs at the first floor level only. (S) Wall signs shall identify the individual business, building or building complex by name or trademark only. (S)
   2. Wall-mounted signs may not project more than 8-inches from the face of the building and external raceways are not permitted. (S)

C. Projecting Signs
   1. Projecting signs are not permitted. (S)

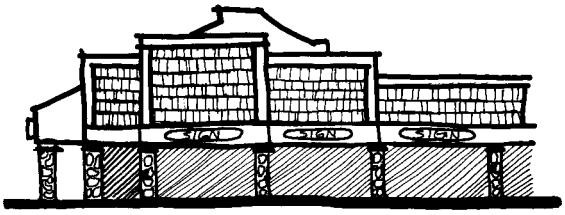
D. Pole-mounted Signs
   1. Pole-mounted signs are allowed only as traffic regulation signs or to provide appropriate directions to loading and receiving areas, visitor parking, and other areas within each development site. (S)
   2. Pole-mounted signs shall not exceed 4 square feet in area and 6-feet in height measured from grade. (S)

E. Flashing or moving signs are not permitted. (S)

TYPICAL WALL SIGN DESIGN AND LOCATION

TYPICAL WALL SIGN DESIGN AND LOCATION

DO THIS



EMPLOY A CONSISTENT SIGN PATTERN

DON'T DO THIS

INCONSISTENT SIGN PATTERNS CREATE CONFUSION. SIGNS WITHIN OR ABOVE ROOF AREA ARE PROHIBITED

8. Exterior Site Lighting

Goal:
Exterior lighting should be used to provide illumination for the security and safety of entry drives, parking, service and loading areas, pathways, courtyards and plazas, without intruding on adjacent properties. Site lighting shall be architecturally compatible and consistent in design between sites.

8.1 Fixture Design

Policy:
Exterior light fixtures should be compatible and relate to the architectural character of the buildings on a site. Site lighting should be provided at the minimum level to accommodate safe pedestrian and vehicle movements, without causing any off-site glare.

Standards and Guidelines:

A. Poles and fixtures should be designed to be architecturally compatible with structures and lighting on adjacent properties. (G)
B. Poles and fixtures shall be compatible with all other fixtures on site. (S)
C. Illuminate all intersections with perimeter public roads with similar poles and fixtures used internal to the development. (G)
D. Select and locate all lighting fixtures to shield or confine light spread within a site's boundaries. (S)
E. To facilitate security, specify lighting levels that are adequate for visibility, but not overly bright. All building entrances should be well-illuminated. (G)
F. Use metal halide or other white light fixtures. High-pressure sodium is not allowed in any application. (S)
G. Maximum height of all poles within landscaped and plaza areas is 20-feet, measured from grade. Pole pedestals (bases) are limited to a minmum of eight-inches in height. (S)
H. Decorative light fixtures, which are appropriately shielded, and provide visual interest, are allowed. (G)

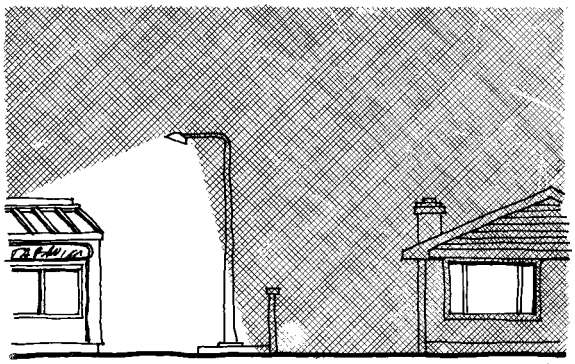
8.2 Parking Lot Lighting

Policy:

Parking lot lighting should be unobtrusive and provide safe light for orderly functions.

Standards and Guidelines:

A. Make all parking lot light fixtures similar in design for all surface parking areas. (S)
B. Select lighting with a concealed light source of the 'cut-off' variety to prevent glare and 'light trespass' onto adjacent buildings and sites. (S)
C. Provide separate, pedestrian scale lighting for all pedestrian ways through parking lots. (G)
D. Maximum height of parking lot poles is 24-feet measured from finish grade. (S)
E. Locate poles in medians wherever possible with a maximum base height of 2-feet. (G)
F. 'Wall packs' are permitted only in loading and service areas, and shall be down-lit and fully shielded from view. (S)



SELECT AND LOCATE LIGHT FIXTURES TO CONFINE LIGHT SPREAD

8.3 Pedestrian Area Lighting

Policy:

Walkway lighting should be scaled to the pedestrian and should provide for safe use of pathways and pedestrian areas. Walks should be lighted for the safe passage of pedestrians, as should areas that are dangerous if unlit, such as stairs, ramps, intersections, and underpasses.

Standards and Guidelines:

A. Bollard light fixtures or other low-level fixtures are encouraged to identify pedestrian walkways and drop-off areas at entrances to buildings. (G)
B. Emphasize pedestrian-to-vehicle intersections with low-level decorative streetlights. (G)
C. Illuminate all primary walkways, steps or ramps along pedestrian routes. (G)
D. Incandescent or metal halide lamps are strongly encouraged. (G)
E. Use building mounted fixtures for walkways and plazas near buildings. (G)

8.4 Site Security Lighting

Policy:

Security lighting may be necessary on some sites, but it should not negatively impact the site and building architecture or adjacent parcels.

Standards and Guidelines:

A. No light source (bulb) shall be directly visible from adjacent parcels. (S)
B. Provide only as much light/illumination as necessary to provide safety and security of the area. (G)

8.5 Light Intensity

Policy:

The light intensity levels within all areas should correspond to use and potential hazards.

Standards and Guidelines:

A. A photometric lighting plan is required for all proposed industrial developments to ensure adequate and appropriate light levels are provided for each site condition. (S)
B. The following levels of illumination should be maintained for each of the specific locations[1]: (G)

Building Entrances	5.0 footcandles	54 lumens/square meter
Sidewalks	2.0 footcandles	22 lumens/square meter
Bikeways	1.0 footcandles	11 lumens/square meter
Courts/Plazas/Terraces	1.5 footcandles	16 lumens/square meter
Ramps	5.0 footcandles	54 lumens/square meter
Stairways	5.0 footcandles	54 lumens/square meter
Underpasses	5.0 footcandles	54 lumens/square meter
Waiting Areas	1.0 footcandles	11 lumens/square meter
Parking Lots	1.0 footcandles	11 lumens/square meter
Roadways	1.5 footcandles	16 lumens/square meter

[1] Values given area in minimum average maintained horizontal, footcandles (lumens/square meter) which are measured at the average point of illumination between brightest and darkest areas, 4'-5' above the ground surface. (Source: IES Lighting Handbook - 4th Edition).

[2] Metric conversion is provided for convenience only. Photometric plans must be submitted using imperial measurement values.

C. Site lighting should provide consistent levels of illumination, avoiding pockets of very high or low levels of illumination. (G)
D. Maximum 400-watt fixtures are permitted for parking lot pole lighting. (S)
E. Wall packs of a full cut-off and fully shielded design shall not exceed a maximum of 70-watts for man doors and 175-watts in loading areas. (S)

(END)

APPENDIX A
RECOMMENDED PLANT MATERIALS LIST

DECIDUOUS TREES

Common Name	Botanical Name	Water Requirement	Maintenance Requirement	Street Tree	Remarks
Norway Maple	(Acer platanoides) (3)	M	L	Yes	Good fall color (yellow)
Red Maple	(Acer rubrum)	M	L	Yes	Good (yellow to red) fall color
Wier's Cutleaf Maple	(Acer saccharinum 'Wier')	M	H	No	Very susceptible to snow storm breakage
Sugar Maple	(Acer saccharum)	H	L	Yes	
Ohio Buckeye	(Aesculus glabra)	M	L	Yes	Poisonous seeds, good fall color
Native Riverbirch	(Betula fontinalis)	H	L	No	
Western Catalpa	(Catalpa speciosa)	M	M	No	Fruits can be messy
Western Hackberry	(Celtis occidentalis)	M	L	Yes	
Autumn Purple Ash	(Fraxinus americana 'Autumn Purple')	M	L	Yes	Good fall color (yellow to red)
Green Ash	(Fraxinus pennsylvanica lanceolata) (3)	M	L	Yes	Good fall color (yellow)
Honeylocust	(Gleditsia triacanthos inermis) (3)	M	L	Yes	
Lanceleaf Cottonwood	(Populus acuminata) (1)	M	H	No	Best used in parks, open space, & riparian areas
Narrowleaf Cottonwood	(Populus angustifolia) (1)	M	H	No	Best used in parks, open space, & riparian areas
Siouxland Cottonwood	(Populus deltoides) (1)	M	H	No	Best used in parks, open space, & riparian areas
Plains Cottonwood	(Populus sargentii) (1)	M	H	No	Best used in parks, open space, & riparian areas
Bur Oak	(Quercus macrocarpa)	M	L	Yes	
Pin Oak	(Quercus palustris)	M	L	Yes	Good fall color (bronze to red)
English Oak	(Quercus robur)	M	L	Yes	Good fall color
Northern Red Oak	(Quercus rubra borealis)	M	L	Yes	
Peachleaf Willow	(Salix amygdaloides) (1)	H	H	No	Best used in parks, open space, & riparian areas
Weeping Willow	(Salix elegantissima) (1)	H	H	No	Best used in parks, open space, & riparian areas
Niobe Weeping Willow	(Salix x blanda 'Niobe') (1)	H	H	No	Best used in parks, open space, & riparian areas
American Linden	(Tilia americana)	M	L	Yes	
Little Leaf Linden	(Tilia cordata)	M	L	Yes	
Redmond Linden	(Tilia euchlora 'Redmond')	M	L	Yes	

ORNAMENTAL TREES

Common Name	Botanical Name	Water Requirement	Maintenance Requirement	Street Tree	Remarks
Amur Maple	(Acer ginnala)	M	L	NA	Good fall color (orange to red)
Shadblow Serviceberry	(Amelanchier canadensis)	M	L	NA	Nice fall color (yellow to red)
Eastern Redbud	(Cercis canadensis)	M - H	L	NA	Showy flowers
Cornelian Dogwood	(Cornus mas)	M	L	NA	Showy flowers
Thornless Cockspur Hawthorn	(Crataegus crus-galli inermis)	L	L	NA	Thornless, good fall color (orange to red)
Cockspur Hawthorn	(Crataegus crus-galli)	L	L	NA	Thorns, good fall color (orange to red)
Downy Hawthorn	(Crataegus mollis)	L	L	NA	
Golden Raintree	(Koelreuteria paniculata)	M	L	NA	Showy flowers
Flowering Crab	(Malus varieties) (3)	L - M	M	NA	
Wild Plum	(Prunus americana)	L	M	NA	Suckers
Newport Purple Plum	(Prunus cerasifera 'Newport')	M	L	NA	Red-purple foliage
Shubert Chokecherry	(Prunus virginiana)	M	L	NA	Red-purple foliage
Bradford Pear	(Pyrus calleryana 'Bradford')	M	M	NA	Not too hearty in this region, showy flowers
Ussurian Pear	(Pyrus ussuriensis)	M	L	NA	Showy flowers
Peking Lilac	(Syringa pekinesis)	M	L	NA	Showy flowers
Japanese Tree Lilac	(Syringa reticulata)	L - M	L	NA	Showy flowers, good fall color (yellow)
Washington Hawthorn	Crataegus phaenopyrum)	M	L	NA	Good fall color, red

DECIDUOUS SHRUBS

Common Name	Botanical Name	Water Requirement	Maintenance Requirement	Street Tree	Remarks
Thin Leaf Alder	(Alnus tenuifolia)	M	L	NA	Nice fall color (yellow)
Serviceberry	(Amelanchier alnifolia)	L	L	NA	Nice fall color
Chokeberry	(Aronia melanocarpa)	H	M	NA	Suckers, good fall color (red)
Sagebrush	(Artemisia) (3)	L	L	NA	
Four Wing Saltbush	(Atriplex canescens)	L	M	NA	
Korean Barberry	(Berberis koreana)	M	M	NA	Thorns
Mentor Barberry	(Berberis mentorensis)	M	M	NA	Thorns, good fall color (yellow to red)
Redleaf Japanese Barberry	(Berberis thunbergii atropurpurea)	M	M	NA	Thorns
Green Japanese Barberry	(Berberis thunbergii)	M	M	NA	Thorns
Blue Mist Spirea	(Caryopteris x clandonensis)	L	L	NA	
Curlleaf Mountain Mahogany	(Cercocarpus ledifolius)	L	M	NA	
Mountain Mahogany	(Cercocarpus montanus)	L	M	NA	
Quince	(Chaenomeies spp.)	M	M	NA	Showy flowers
Rabbit Brush	(Chrysothamnus nauseousus)	L	M	NA	
Variegated Dogwood	(Cornus alba bariegata)	M - H	M	NA	
Colorado Redosier Dogwood	(Cornus sericea coloradense) (3)	M - H	M	NA	Colored twigs provide nice winter color
Yellowtwig Dogwood	(Cornus sericea flaviramea) (3)	M - H	M	NA	Colored twigs provide nice winter color
Kelsey Dwarf Dogwood	(Cornus sericea kelseyi)	M	M	NA	
Redtwig Dogwood	(Cornus stolonifera)	M - H	M	NA	Colored twigs provide nice winter color
Cranberry Cotoneaster	(Cotoneaster apiculata)	M	M	NA	
Spreading Cotoneaster	(Cotoneaster divaricata)	M	M	NA	
Rock Cotoneaster	(Cotoneaster horizontalis)	M	M	NA	
Silverberry	(Eleagnus commutata)	M	M	NA	
Burning Bush	(Euonymus alata) (3)	M	M	NA	Nice fall color (red)
New Mexico Privet	(Forestiera neomexicana)	M	M	NA	
Forsythia	(Forsythia intermedia)	M	M	NA	Showy flowers
Honeysuckle	(Lonicera) (3)	M	M	NA	
Mockorange	(Philadelphus) (3)	L - M	M	NA	
Mountain Ninebark	(Physocarpus monogynus)	M	M	NA	
Potentilla	(Potentilla fruticosa) (3)	M	M	NA	Showy flowers
Sandcherry	(Prunus besseyi)	M	M	NA	
Cistena Plum	(Prunus cistena)	M	M	NA	
Native Chokecherry	(Prunus virginiana melanocarpa)	L - M	M	NA	
Scrub Oak	(Quercus gambelii)	L	L	NA	

Tallhedge Buckthorn	(Rhamnus frangula columnaris)	M	M	NA	
Smooth Sumac	(Rhus glabra)	L	M	NA	Nice fall color (orange to red)
Threeleaf Sumac	(Rhus trilobata)	L	M	NA	Nice fall color (orange to red)
Staghorn Sumac	(Rhus typhina)	L	M	NA	
Alpine Currant	(Ribes alpinum)	L - M	M	NA	
Golden Currant	(Ribes aureum)	L - M	M	NA	
Rose	(Rosa) (3)	L - M	M	NA	
Coyote Willow	(Salix exigua)	M - H	M - H	NA	Best in moist areas
Bluestem Willow	(Salix irrorata)	M - H	M - H	NA	
Dwarf Willow	(Salix purpurea nana)	M - H	M - H	NA	
Arctic Willow	(Salix purpurea)	M - H	M - H	NA	
Elder	(Sambucus canadensis)	M - H	M	NA	
Buffaloberry	(Shepherdia argentea)	L	M	NA	
Spiraea	(Spiraea) (3)	M	M	NA	
Snowberry	(Symphoricarpos albus)	M	M	NA	
Lilac	(Syringa) (3)	M	M	NA	
Viburnum	(Viburnum) (3)	L - M	M	NA	Nice fall color (varies)
Privet	(Vulgare) (3)	M	M	NA	

EVERGREEN TREI (2)

Common Name	Botanical Name	Water Requirement	Maintenance Requirement	Street Tree	Remarks
White Fir	(Abies concolor)	M - H	L	No	
Oneseed Juniper	(Juniperus monosperma)	L	L	No	
Rocky Mountain Juniper	(Juniperus scopulorum 'Varieties')	L - M	L	No	
Red Cedar	(Juniperus virginiana 'Varieties')	M	L	No	
Black Hills Spruce	(Picea glauca densata)	M - H	L	No	
Colorado Blue Spruce	(Picea pungens 'Glauca')	M - H	L	No	
Colorado Green Spruce	(Picea pungens)	M	L	No	
Bristlecone Pine	(Pinus aristata)	L - M	L	No	
Pinon Pine	(Pinus edulis)	L - M	L	No	
Limber Pine	(Pinus flexilis)	L - M	L	No	
Swiss Mountain Pine	(Pinus mugo)	L - M	L	No	
Austrian Pine	(Pinus nigra)	L - M	L	No	
Ponderosa Pine	(Pinus ponderosa)	L	L	No	
Southwestern White Pine	(Pinus strobiformus)	L - M	L	No	
Scotch Pine	(Pinus sylvestris)	L - M	L	No	
Douglas Fir	(Pseudotsuga menziesii 'Taxifolia')	M	L	No	

EVERGREEN SHRUBS

Common Name	Botanical Name	Water Requirement	Maintenance Requirement	Street Tree	Remarks
Euonymus Sarcoxie	(Euonymus fortunei 'Sarcoxie')	M	M	NA	
Bigleaf Wintercreeper	(Euonymus fortunei vegeta)	M	M	NA	
Euonymus Manhattan	(Euonymus kiautschovicus 'Manhattan')	M	M	NA	
Juniper	(Juniperus sp.) (3)	L - M	L	NA	
Oregongrape	(Mahonia aquifolium)	M	M	NA	Nice fall colors (red to purple)
Creeping Hollygrape	(Mahonia repens)	M	M	NA	Nice fall/winter colors (red to purple)
Gnome Firethorn	(Pyracantha angustifolia 'Gnome')	M	M	NA	
Firethorn	(Pyracantha coccinea) (3)	M	M	NA	
Yew	(Taxus x media 'Hicksii')				

PERENNIALS, GROUND COVERS, AND ORNAMENTAL GRASSES

Due to the large quantity, variety, and changing availability of these plants, please consult your local nursery (preferably a C.N.A. Member). Height, color, texture, moisture, light requirement, and heartiness need to be considered when specifying these plants. Most local nurseries provide a yearly catalog of available plants and their descriptions.

Notes:

1. These plants are not recommended to be planted within 10' of any foundation, curb, road, walkway, or other site structure that may be damaged by their vigorous/shallow root systems.
2. Mature size of all evergreen trees must be considered when determining location for planting. They are not recommended within 8' of any roadway, walkway, entrance, or window as they will eventually obstruct passage or view. Evergreen trees shall not be placed within roadway site triangles. During winter, icy conditions often occur on the north side of evergreen trees. This must be considered for their placement.
3. These plants have numerous different species, varieties and/or cultivars. Consult a local nursery for current availability and proper selection.

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