



**DESIGN CRITERIA
MANUAL**

CHAPTER 3 LANDSCAPING

MUNICIPALITY OF ANCHORAGE

**PROJECT MANAGEMENT &
ENGINEERING DEPARTMENT**

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TABLE OF CONTENTS

| | |
|---|-------------|
| SECTION 3.1 PROJECT PLANNING..... | 3-1 |
| 3.1 A Objectives..... | 3-1 |
| 3.1 B Decision-Making..... | 3-1 |
| 3.1 C Design Variances..... | 3-2 |
| SECTION 3.2 LANDSCAPE CODES, POLICIES AND REVIEW ROCESSSES..... | 3-3 |
| 3.2 A Anchorage Municipal Code..... | 3-3 |
| 3.2 B Municipal Policies..... | 3-3 |
| 3.2 C Planning and Zoning Commission Review Procedure..... | 3-3 |
| 3.2 D Urban Design Commission Review Procedure..... | 3-4 |
| 3.2 E Order of Reviews..... | 3-4 |
| SECTION 3.3 GENERAL CONSIDERATIONS FOR LANDSCAPING INSTALLATION AND MAINTENANCE..... | 3-6 |
| 3.3 A Existing or Natural Vegetation..... | 3-6 |
| 3.3 B Best Management Practices for Optimizing Growth and Minimizing Maintenance in New Plantings..... | 3-6 |
| 3.3 C Plant Selection..... | 3-10 |
| SECTION 3.4 BUILDING/PARKING LOT LANDSCAPING..... | 3-12 |
| SECTION 3.5 STREET AND HIGHWAY LANDSCAPING..... | 3-13 |
| 3.5 A Existing Vegetation..... | 3-13 |
| 3.5 B New Landscaping..... | 3-13 |
| 3.5 C Landscaping Primary Streets..... | 3-14 |
| SECTION 3.6 CONSIDERATIONS FOR ADDITIONAL RIGHTS-OF-WAY FOR LANDSCAPING..... | 3-19 |
| SECTION 3.7 PARK PROJECTS..... | 3-20 |
| SECTION 3.8 GENERAL GUIDELINES FOR LANDSCAPE FOR WATER TREATMENT AREAS..... | 3-21 |
| FIGURES | |
| FIGURE 3-1 DECIDUOUS TREE PLANTING DETAIL..... | 3-8 |
| FIGURE 3-2 EVERGREEN TREE PLANTING DETAIL..... | 3-8 |
| FIGURE 3-3 SHRUB PLANTING DETAIL..... | 3-8 |
| FIGURE 3-4 SLOPE AFFECTED PLANTING DETAIL..... | 3-8 |
| FIGURE 3-5 BRIDGED SIDEWALK SLAB DETAIL..... | 3-9 |
| FIGURE 3-6 CBD STREET..... | 3-15 |
| FIGURE 3-7 MAJOR ARTERIAL STREET..... | 3-15 |
| FIGURE 3-8 MAJOR ARTERIAL STREET PLANTING..... | 3-15 |
| FIGURE 3-9 MAJOR ARTERIAL LANDSCAPE BUFFER..... | 3-16 |
| FIGURE 3-10 MAJOR ARTERIAL LANDSCAPE MEDIAN..... | 3-16 |
| FIGURE 3-11 RURAL MINOR ARTERIAL..... | 3-17 |
| FIGURE 3-12 RURAL MINOR ARTERIAL WITH LANDSCAPE BUFFER..... | 3-18 |
| FIGURE 3-13 COLLECTOR STREET..... | 3-18 |
| FIGURE 3-14 COLLECTOR STREET WITH LANDSCAPE BUFFER..... | 3-18 |

Acronyms and Abbreviations

AMC.....Anchorage Municipal Code
CBD.....Central Business District

SECTION 3.1 PROJECT PLANNING

3.1 A Objectives

Anchorage has grown rapidly in the past 20 years and has significantly changed its character from a rural town to Alaska's dominant city. Aesthetically speaking, the community now demands that urban design be held to a higher standard of environmental quality. Landscaping is viewed as a significant tool to provide the community with a visual connection to the magnificent natural setting that surrounds it. It is also an element of development that provides functional, aesthetic, economic, and environmental benefits to individual projects and the community as a whole.

The objective of this chapter is to assist project managers and designers in complying with Municipal codes and policies and provide guidelines that help create attractive and sustainable landscape design projects.

The chapter addresses the procedures for obtaining approvals from review boards, provides guidelines for landscape design and addresses stormwater treatment as part of landscape design.

For the purposes of Municipal projects, landscaping is considered to include plantings, pedestrian amenities (e.g. seating, trash cans, ash urns, etc.), fencing, special sidewalk texturing, walls, specialized grading, incorporation of art, or other improvements that provide integration of the project into the local setting.

State law requires that licensed landscape architects prepare project documents for landscape work that is provided for public spaces. In general, this requires that all drawings be stamped for work within the public right-of-way or for public facilities. Not only is this state law, but it is also in the interests of the Municipality to consult with professional landscape architects in the planning and design of public landscape improvements. Landscape architecture is an evolving art and science and appropriate professional input should be employed for each project type.

3.1 B Decision-Making

Limitations in available rights-of-way and project budgets will often complicate strict application of the criteria that is provided in this section. It is the policy of the Municipality to achieve the criteria described in this section while achieving needed safety improvements and an acceptable level of service. The Municipality should seek to set a high standard on its street and building projects that should be emulated by the private sector.

The desired level of landscaping improvements will vary greatly on a project by project basis. It is the role of the landscape architect or designer to work closely with the community and with other members of PM&E to determine the appropriate level of investment.

There are a number of ways of resolving the need for landscaping. It is incumbent on the project manager and designers to investigate all available options prior to deciding the appropriate level of improvements. Following are possible solutions:

1. Use an integrated approach to design and engineering. Include the landscape architect in initial project discussions so that possible solutions are fully investigated before arriving at a decision. Possible considerations could include location adjustments of buildings or streets, locational adjustments to provide additional landscaping space where impact could be greatest, or allow variations in design detailing such as lane width or corner radii.
2. Determine the role of the project in addressing community needs. A roadway that is a "gateway" to a neighborhood or the community is considerably different from that of a roadway in a residential area or an industrial area. Also, different communities will have different

priorities with respect to needed improvements. Community identification may be important on some projects, while simple street plantings may be important on other projects. The public involvement process should be used to identify community issues and concerns.

3. Consider whether additional right-of-way should be acquired to meet the project goals and concerns of the public. The public involvement part of the project is important for determining whether this level of fund commitment is appropriate.
4. Consider whether Temporary Construction Permits or easements could be acquired that would allow use of private property to meet landscaping goals (particularly for plantings or grading considerations) while meeting the concerns of the public.
5. Integrate design detailing into the project so that changes in texture, pattern, line, or form become part of the project and are not add-ons.

In addition to the criteria presented in this manual, the Municipal Engineer may at his/her sole discretion impose greater standards and criteria when deemed appropriate to protect the safety and welfare of the public.

END OF SECTION 3.1

3.1 C Design Variances

Designers, whether Municipal or private, shall adhere to the criteria established in this Design Criteria Manual and other referenced documents, unless compliance with such will compromise their judgment as professional engineers with regard to safety, welfare, cost effectiveness, and/practicality. In such cases, a written variance request of the standard or criteria may be requested from the Municipal Engineer. Written variance requests shall be submitted through the municipal project manager or private development coordinator for a determination by the Municipal Engineer. Variance requests should contain supporting information, justification and suggested solutions.

SECTION 3.2 LANDSCAPE CODES, POLICIES AND REVIEW PROCESSES

3.2 A Anchorage Municipal Code (AMC)

Note: The Anchorage Municipal Code is continually being revised. Always refer to the most recently printed edition.

General landscaping requirements are found in AMC 21.40 – Zoning District Regulations and in 21.45 – Supplementary District Regulations, such as 21.45.125 and 21.45.080.W.

AMC 21.15.015 Public Facility Site Review requires that the Planning & Zoning Commission (P&Z) review and make recommendations on public facilities, including streets of collector or higher OS & HP - classification.

AMC 21.15.025 Public Facility Project Landscaping Review requires that the Urban Design Commission (UDC) review and make recommendations regarding the public facility project landscaping, where the definition of public facilities includes streets and highways subject to AMC 24.15.

AMC 24.15 – Street and Highway Landscaping establishes a landscaping requirement for streets and highways classified as minor arterials or greater designation, as identified the (OS&HP).

Planning and Zoning Commission Authority

AMC 21.10.015.A.7 Review and make recommendations to the mayor and assembly regarding public facility sites in accordance with section 21.15.015.

AMC 21.10.015.C The P&Z may delegate to the UDC the authority to review and decide upon a site plan subject to review by the P&Z, with regard to site design, landscaping and structure design. Generally, however, a public facility site plan is reviewed by the P&Z.

Urban Design Commission Authority

AMC 21.10.028.D Review and decide upon street and highway landscape plans in accordance with section 24.15.025.

AMC 21.10.028.D Review and decide upon public facility project landscaping plans in accordance with section 21.15.025.

AMC 21.10.028E Review and make recommendations to the P&Z on public facility site plans.

3.2 B Municipal Policies

AMC 21.05 Comprehensive Plan identifies the purpose and elements of the Municipal Comprehensive Plan, which contains adopted municipal policies by which all public facility projects are required to adhere.

AMC 21.05.020 Purposes. Identifies the purpose of the comprehensive plan as follows:

The purpose of the comprehensive plan is to set forth the goals, objectives and policies governing the future land use development of the Municipality that guide the assembly in taking legislative action to implement the plan.

AMC 21.05.030 Elements lists all adopted plans that comprise the Comprehensive Plan.

Some of the plans applicable to public facility projects include Anchorage 2020 – Anchorage Bowl Comprehensive Plan, the Areawide Trails Plan, the Official Streets and Highways Plan, the Turnagain Arm Comprehensive Plan, the Girdwood Area Plan, the Chugiak-Eagle River Comprehensive Plan, and the Street and Highway Landscape Plan.

3.2 C Planning and Zoning Commission Review Procedure

AMC 21.15.030 Approval of site plans and conditional uses. This section outlines the approval process, which is made up of the following components:

1. pre-application conference, with Planning staff;
 2. application: packets are available at the public counter of the Planning Department or on-line at <http://www.muni.org/planning/Forms.cfm>. Submittal deadlines vary greatly depending on the commission's schedule: 8-16 weeks prior to scheduled hearing, which typically occurs on the first Monday of the month
 3. post-application conference, with staff;
 4. final approval, which may include a public hearing;
 5. Submit revised drawings, complying with all approval conditions, to the Planning Department for stamp of "approval" by the chair of the commission;
 6. Appeal;
 7. Submit stamped drawings to Building Safety prior to obtaining building or land use permits.
- Based on the complexity of the project some of the steps described above may be waived by the Planning Director.

3.2 D Urban Design Commission Review Procedure

AMC 21.15.025 Public facility project landscaping review. This section outlines the approval process, planning and design criteria, and project definitions.

The review process generally consists of the following steps:

1. pre-application meeting, consultation with Planning staff;
2. application for preliminary review: schematic design drawings (35%)- due eight weeks prior to scheduled hearing, typically the third Thursday of the month, forms

available at the Planning counter or at: <http://www.muni.org/planning/Forms.cfm>;

3. post-application conference;
4. preliminary review hearing;
5. application for final approval: (95%), due eight weeks prior to scheduled hearing;
6. final approval hearing;
7. Submit revised drawings, complying with all approval conditions, to the Planning Department for stamp of "approval" by the chair of the commission;
8. Submit stamped drawings to Development Services prior to obtaining building or land use permits.

Based on the complexity of the project, some of the steps may be waived by the UDC.

No land use permit or building permit may be issued prior to the UDC approval.

3.2 E Order of Reviews

The interrelationship between the Urban Design Commission review and the Planning and Zoning Commission review prompted the Planning Department to issue a memorandum to the petitioners of UDC project reviews in February 1995 regarding the order of reviews. The following is the hearing sequence for projects requiring review and approval by both commissions:

- a. Preliminary UDC review approval
- b. P&Z site plan review approval
- c. Final UDC review approval
- d. Building and Land Use permits

Preliminary UDC review occurs after the schematic design is complete in the design

development phase of the project with the exception of street and highway projects, in which case the preliminary review may be based on a completed design study report of the project.

Project managers should seek approval of the design study report by the commissions in order to avoid costly delays later in the design process.

END OF SECTION 3.2

SECTION 3.3 GENERAL CONSIDERATIONS FOR LANDSCAPING INSTALLATION AND MAINTENANCE

3.3 A Existing or Natural Vegetation

1. How to Protect Existing Vegetation

The retention of existing vegetation on a project is an important goal for many projects, whether the reason is aesthetics or function (wind break, visual barrier). Existing vegetation that is to remain on a project should be protected from construction operations. The contract documents should clearly denote areas to be protected and should specify procedures that contractors should employ to protect vegetation.

Excavation and compaction of soils in the root zone of existing vegetation is a significant threat to the survival of plant material. This area can generally be defined as that area on the ground directly under the branching structure of the tree or shrub, or within the “drip line”. Designers shall require contractors to provide positive means of protecting the root zone including such provisions as fencing or flagging of the drip line, temporary bracing, root pruning or other current horticultural practices recommended by an International Society of Arboriculture certified arborist. Specific provisions shall be in the contract documents to require replacement of plant materials where root zones are not protected or where other structural damage is inflicted on existing vegetation.

2. Evaluation of Plant Materials

Contractor-furnished plant materials shall be closely inspected to ensure compliance with the contract documents. The current edition of the *American Standard for Nursery Stock* (ANSI Z60.1) shall be referenced in the contract documents and, in concert with the contract documents, shall be used by inspectors in determining whether furnished materials meet specifications.

3.3 B Best Management Practices for Optimizing Growth and Minimizing Maintenance in New Plantings

1. Planting Bed Sizes and Shapes

Designers should provide a minimum of 200 cubic feet of available planting bed with topsoil. This is the minimum size bed that will accommodate a tree with an eventual size of 4-inch caliper. While in rural situations trees have the ability to establish roots outside of the original planting basin or bed, urban trees are confined to the volume of prepared planting mix that is provided. Classified materials typically used for road, sidewalk, or building construction do not hold water or nutrients required for vegetative growth. Thus a topsoil material meeting Municipality of Anchorage Standard Specifications (unless modification is specifically needed) should be provided to provide for the minimum size bed required for the eventual growth of the tree.

The bed should assume a maximum depth of two feet for root development. Depths greater than this seldom provide for additional root development due to low soil temperatures at depth even in the summer growing period. The one exception may be in the case of elevated planters where the exterior wall of the planter allows for solar gain, thereby increasing soil temperatures in the planter.

To the extent possible, planting areas should be designed to allow peripheral root growth in a roughly symmetrical pattern, keeping in mind achieving at least a 200 cubic foot growing area. Narrow strips often force roots to grow in one or two directions only, providing no lateral stability for trees in windy locations.

Groupings and planter beds of trees and shrubs have more significant visual impact than individual plants. This “massing” of vegetation tends to provide increased survivability of plant materials and helps to consolidate maintenance needs.

Placement of trees should keep maintenance operations in mind. Trees in lawn areas suffer from injuries from mowing equipment and powered weed-whackers. New trees in lawn areas should be established with a well-defined watering saucer that is maintained with mulch. Outer edges of planting beds should maintain a minimum seven-foot clearance to allow mowing equipment between trees planted in lawn.

Woody plant material in areas adjacent to curbs and medians where snow is stored often suffer serious annual damage. The plants should be set back at least four feet from the back of curb in such areas. A two-foot accent concrete apron may be installed adjacent to curbs in place of grass to reduce maintenance and improve appearance of the street landscape. Placement of woody plants should be avoided in temporary snow storage areas. Where color, texture or pattern beyond that of turf would be a suitable addition to the landscape, perennials may be considered in lieu of turf in locations where plow damage will not remove perennial root stock.

2. Planting Details

Planting details should provide for plants (both trees and shrubs) to be placed in pits that have a minimum diameter of three times the width of the root ball that is to be planted. The hole should only be deep enough to provide for the top of the root structure to be at the ground surface. There is no significant benefit to providing topsoil under the root ball, and in fact this can lead to settlement that may damage the plant.

Staking should be considered on a case by case basis. Staking is not usually required for areas where there is little wind and a relatively small chance of 3rd party damage. However, staking may be required for plant materials planted “bareroot.” Many plant materials shipped to Alaskan nurseries arrive in a “bareroot” condition, meaning no soil material is attached to the roots during shipping. Plants are then placed in containers or are “balled and burlapped”, but have no true support. As a

result, trees that have been recently shipped are often without soil structure that would provide stability. Thus, it is important that trees be staked unless there is certainty that the planted material has a developed rooting/soil matrix that will support the tree.

Wires or straps from staking can abrade or cut tree bark, causing “girdling”, the damage to a tree’s growth tissue. Trees must be staked using broad ties of soft, flexible materials such as webbing or nylon and should allow the trunk to move without injury. Ties should be checked regularly to be sure they are not too tight and are not damaging the bark. Staking should be placed and flagged such that it does not cause tripping or potential injury. Generally, all staking should be removed after one year.

Plants should always be surrounded with a surface cover using shredded bark mulch or pea gravel – three to four inches in depth. Wood chip mulch typically will decompose relatively rapidly which robs the soil of nitrogen, a key ingredient in plant growth. Bark mulch decomposes slower and does not have the same nitrogen demands. Pea gravel or river rock may be a suitable alternative, but caution should be used to ensure that pea gravel (or river rock in some cases) does not provide a walking/slipping hazard, or pose potential of being swept into roadways where it may pose hazards to automobiles. Landscape fabric placed under the mulch may initially limit weed growth; but because over time soil will collect on top of the fabric which allows weeds to grow, landscape fabric is not recommended for most projects.

In many locations, moose are attracted to plants as food sources which sometimes results in damage to the plants. This reality is most prevalent in the winter when many preferred food sources are covered by snow. Designers should consider provision of temporary winter fencing to a height of ten-feet, using welded wire mesh or other material to protect trees during the maintenance period. Consideration to the visual impact of the temporary fencing should be factored into the materials selection.

Specification of larger trees is also an important method in curbing moose-browse damage. Using smaller number, but larger caliper (2-inch or greater) trees may help ensure that the plantings reach maturity without broken leaders or destruction of the branching structure. Larger trees are more costly than average and this cost must be factored into the decision-making process.

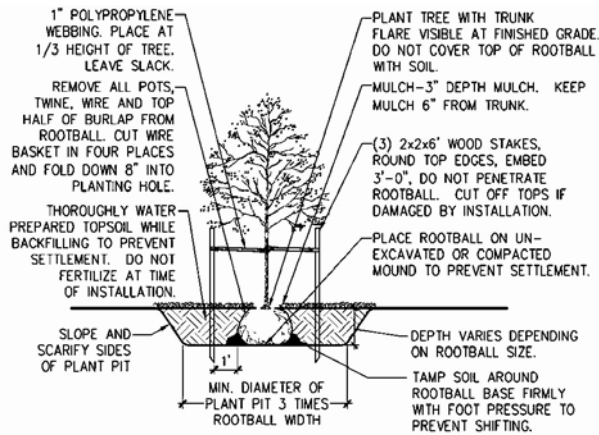


FIGURE 3-1 DECIDUOUS TREE PLANTING DETAIL

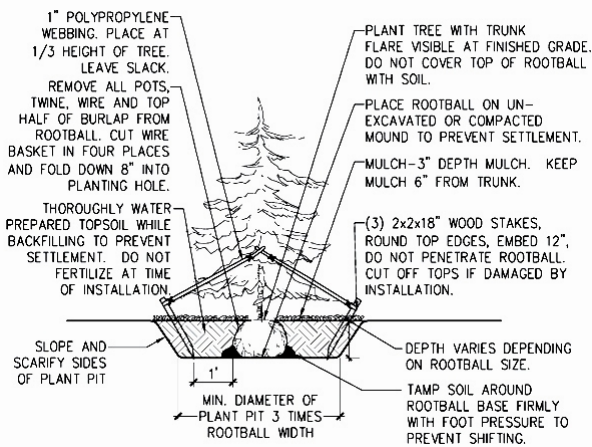


FIGURE 3-2 EVERGREEN TREE PLANTING DETAIL

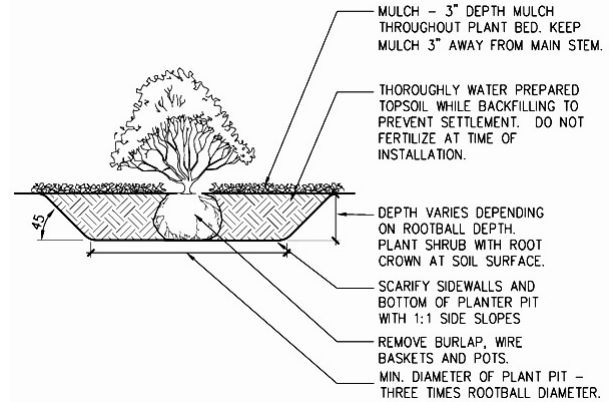


FIGURE 3-3 SHRUB PLANTING DETAIL

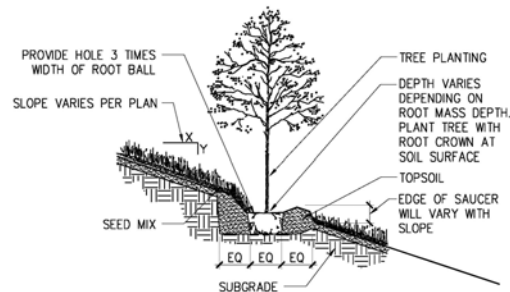
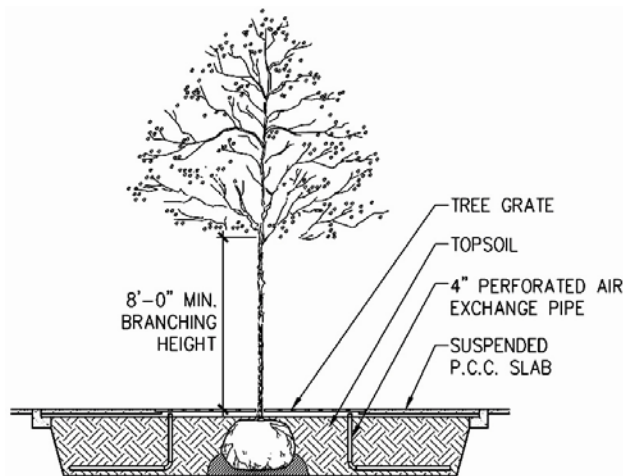


FIGURE 3-4 SLOPE-AFFECTED PLANTING DETAIL

3. Urban Settings

In an urban location where virtually all horizontal surfaces are paved, “bridged sidewalk slabs” should be used to provide an adequate root zone. This approach provides for a bridged sidewalk slab that simply spans a planting mix/topsoil bed, providing the needed cubic footage of planting mix while allowing pedestrians to walk above. The bed should be designed to ensure that salt-laden runoff is not concentrated in the pit. This can typically be done by providing a sealed joint where slabs join and providing a 12H:1V slope at the plant pit surface opening. An additional need is for a trough or air space via strip drain or perforated pipe that traverses the planting bed and allows for air exchange in the root zone.



**FIGURE 3-5 BRIDGED SIDEWALK SLAB
DETAIL**

An alternative to the “bridged sidewalk slab” approach that has been used in other locations is the “structural soil subbase”. The “structural soil subbase” is a soil mixture that has been developed at Cornell University and has been used in Lower 48 northern locations. This mix provides a structural material base that relies on larger structural material to handle loads. This then provides for the addition of fines to a greater degree than is typically used, but still addresses the frost and expansion characteristics of soil. The increased fine material allows the maintenance of an amount of water in the soil that will allow root growth, without jeopardizing structural integrity of the paving. Designers should discuss with project managers whether an individual project should consider such an approach.

Tree guards have often been used to protect trees from injury. While this provides a temporary benefit to young trees, it has been the source of injury to numbers of trees in Downtown Anchorage. Trees grow beyond the space that is provided by the guard and damages the surface of the bark. Tree guards should only be used when mechanical injury of some type is expected such as where locations where large concentrations of people are expected to gather.

Tree grates are typically used at the plant pit openings in urban locations. This allows air circulation and natural water to enter the root

zone while providing a safe walking surface for pedestrians. Designers should use grates with relatively small openings to ensure that tripping hazards are not caused for those wearing high heels or who are disabled. The tree grate opening should be designed to accommodate trunk growth.

Of all possible approaches for planting in urban locations, raised planters exhibit superior plant performance. The planters provide for protection of plants by elevating them above the ground surface and the planter walls absorb the warming rays of the sun which elevates soil temperatures, something very desirable in Anchorage.

Trees in urban areas should have a minimum branching height of six feet from the ground level in areas where pedestrian travel is expected next to the tree. The depth of the rootball from the top of a grate must be taken into consideration in the branching height calculation. In locations where sight distance is an issue, minimum branching height is eight feet.

4. Climate Zones

The selection of plant material should respond to the microclimatic conditions of the site. Most locations in Anchorage are USDA hardiness Zone 2 though locations range from USDA hardiness Zone 4 with rare Zone 5 pockets to high alpine Zone 1. Plants should be selected to withstand the environmental conditions of climate, vehicular traffic and general maintenance or the lack thereof. Consult with the University of Alaska Cooperative Extension Service should there be questions concerning the climatic zone of specific locations.

5. Irrigation

Landscape installations require access to a water source for use both during and after the contractor’s maintenance period. The project manager and the designer should consult with the Municipal Horticulture Department to determine the level of irrigation that is appropriate. At a minimum, designers shall

provide all buildings with an irrigation source and streets of “collector” and above (except in industrial areas) with a shallow-buried seasonally evacuated system of quick couplers for those projects within the water utility service areas. Service lines should be HDPE or other material capable of withstanding “frozen pipe” conditions. Avoid PVC for irrigation lines.

3.3 C Plant Selection

Plants must be matched to specific applications. Specific considerations related to selection must include survivability, maintenance, and aesthetic issues, as well as user concerns.

Designers are cautioned that there is a wide range of hardiness zones within Anchorage and that all plants will not fit all situations. Designers should carefully consider the many factors that may affect plant survivability for a given locale including:

- USDA Hardiness Zone
- Sun Exposure
- Soil conditions
- Moisture conditions
- Availability of irrigation
- Expected level of maintenance
- Wind conditions (leading to wind damage or drying)
- Presence of moose

The expected level of maintenance is an important consideration in the selection of plant material. As an example, some streets are “gateways” to the city or to neighborhoods and receive levels of maintenance that are higher than other streets. Also, some park settings receive increased maintenance above those of other park settings. Designers should discuss with PM&E staff the appropriateness of various levels of maintenance that would be expected for a given finished project. This may require discussion with the Parks Department and Street Maintenance.

Aesthetic considerations should match the plants to the setting. The landscape should complement the adjacent street and architectural character. Plants selected for an urban site would generally be different from those that would be selected for an industrial area. Size, form, color, texture, and pattern must be considered in selecting plant materials.

User concerns include those of safety and convenience. Careful attention must be paid to species’ branching patterns to provide ten-foot vertical clearances for pathways and fourteen-foot vertical clearances for panel vans and buses. For Anchorage Central Business District (CBD) conditions where bicycles are not allowed on sidewalks, a minimum branching height of six feet high from the sidewalk surface should be specified. Trees in the CBD should be selected for upright branching habits. Also, characteristics such as whether a plant is evergreen or deciduous, is thorny or not, is easy to maintain or requires care, can affect the appropriateness of different plant materials. Certain plants perform much better than others relative to proximity to streets and traffic. Designers must carefully consider each application and determine whether a particular species is matched to that application.

Native materials are often suggested as a solution to landscape situations. Unfortunately, only limited numbers of native species perform well in areas of significant paving or urban conditions. Thus, the plant palette is largely composed of imported ornamentals. Also, there are limited available sources of native materials. Designers should consult with local nurseries to determine the availability of plant materials and should specify materials accordingly.

There is a problem associated with specifying plant materials in the springtime for construction projects that call for autumn planting. Nurseries place orders in the autumn for the following spring and summer planting season. Thus, it is often difficult to find plants in the quantities that are specified on many projects.

Contractors charge a premium for plants that must be special ordered or often will immediately request a substitution with a different species or different sizes, many times compromising the quality of the end product. It is important that project managers and designers recognize the sequencing of landscaping and allow following-season planting when possible.

There is growing recognition that some species of trees and shrubs are invasive and threaten to displace native materials. As an example, May Day trees (*Prunus padus*) have spread along creek corridors and have displaced native plant materials. Designers should consult with the Cooperative Extension Service prior to selecting plant materials to ensure that selected materials are not invasive.

END OF SECTION 3.3

SECTION 3.4 BUILDING/PARKING LOT LANDSCAPING

Building/parking lot requirements are specified in Anchorage Municipal Code (AMC), Title 21 Anchorage Land Use Planning Regulations. AMC 21.45.125 of the Supplementary District Regulations specify the need for landscaping plans as well as the types of landscaping that are required. AMC 21.45.130 discusses screening along highways and the need for a specific type of landscaping.

AMC 21.45.080 addresses parking lot landscaping requirements. Parking lot landscaping requirements vary with respect to adjacent land uses. Also, parking lots larger than fifteen spaces have additional requirements and parking lots of sixty spaces or more have a requirement for interior landscaping. Parking structures also have specific landscape requirements.

Landscaping for buildings, while meeting Title 21 requirements, should specifically meet the needs of the building occupants and visitors. Plantings should be selected that do not crowd walkways when the plants mature. Thorny plants or plants with sharp needles such as spruce may be inappropriate unless adequate setback is available from the sidewalk or trail.

Designers should recognize the benefits of south-facing areas and should strive to develop pedestrian areas on the southern and western sides of buildings. Wind protection should be provided, particularly on the northern side of pedestrian areas.

END OF SECTION 3.4

SECTION 3.5 STREET AND HIGHWAY LANDSCAPING

3.5 A Existing Vegetation

The environmental and visual benefits, and cost savings that can be achieved by retaining existing vegetation on projects are significant. Therefore, the protection and retention of healthy appropriate native vegetation cover should enjoy high priority early in the design. The location of the road, the utilities, the trails and walkways shall take into account existing vegetation cover and preserve it with special protection throughout construction. In restricted-width rights-of-way, designers should work with utility companies to the extent possible to locate utilities in the minimum seven-foot open area adjacent to the curbs, preserving vegetation between the road and/or trail improvements and the property line.

The exception to retention of vegetation is for cottonwood trees. These trees are detrimental to the roadway and trail prism and should be removed to the ground surface for a minimum distance of thirty feet, preferably as much as fifty feet, from the centerline of the trail. Also, weed barrier fabric or an impermeable material may provide delay of the infiltration of roots into the road/trail prism and should be considered for the embankment material, particularly if it may be wet for significant periods.

3.5 B New Landscaping

The amount of new landscaping is dependent on the type of road to be constructed. Although AMC 21.15 requires all streets and highways of collector or greater designation to have a site plan/landscaping review by the Boards and Commissions, landscaping is not a mandatory component of all road projects, unless designated in an adopted plan. However, landscaping on local roads significantly improves the streetscape and helps roads fit into neighborhoods and the community. This section includes design criteria and establishes standards for landscaping improvements of all types of municipal streets.

1. Location

The biggest challenge in the placement of landscaping in municipal rights-of-way is the location of conflicting land uses within the available space. Plantings develop at a relatively slow pace in Anchorage because of the climatic conditions and cold soils. Thus it is important that landscaping is placed in areas within the ROW to minimize disturbance through the life of the facility. The most visible conflicts exist between landscaping and areas of temporary snow storage and underground utility corridors. Designers must strive to consolidate utilities, consistent with standard utility locations, and to maximize aesthetics, and at the same time provide a landscape that minimizes potential disturbance from road or utility reconstruction, or from routine snow plowing activities.

The one exception to the above is landscaping for infiltration, sedimentation and drainage areas where herbaceous wetland vegetation may be successfully established. This type of vegetation does not suffer if the area is used for temporary snow storage and recovers easier in case of damage. This type of planting is beneficial for treatment of runoff water and will be discussed later in this chapter.

2. Sight Distance Triangles

The term “Sight Distance Triangle” refers to the roadway area visible to drivers. The required length is the distance necessary to allow safe vehicular egress from a street, driveway, or alley to a major street. AMC 21.45.020 addresses “Clear Vision Areas”. It should be noted that there is a specific exception to the criteria for the “B-2” zoning area and exceptions for public utility poles, trees that are bare of branches to a height of eight feet, shrubs that reach a maximum height of thirty inches, and for warning signs or signals installed by a government agency. Mugo pines or other shrubs that require aggressive pruning to maintain a height below thirty inches are not allowed. The height calculation must include consideration of the elevation relative to the driver’s eye, thus planters or curbs that elevate the plant must be

deducted from the calculation, or can be added to the calculation for tree branching height. Also, AASHTO precludes planting of trees in sight distance triangles that will have a mature trunk caliper of four inches or greater.

Landscaping at intersections should conform with D.C.M. intersection sight triangles requirements of D.C.M. Chapter 1 Streets.

3.5 C Landscaping Primary Streets

1. Central Business District Streets

Central Business District (CBD) streets are intended to foster good pedestrian passage in an urban setting. Streets should be designed to facilitate window-shopping and enjoyable pedestrian spaces. Sidewalks for storefronts and buildings shall have a minimum six-foot wide clear zone for efficient pedestrian circulation and a two-foot friction zone for a storefront viewing area. Rooftop overhangs should cover the entire width of the sidewalk, shedding snow to the gutter and minimizing snow/ice accumulation in the center of the walkway.

CBD streets are also logical locations for the establishment of street trees as part of the landscaping improvements. Trees provide a desirable urban landscape while providing environmental benefits such as dust and pollution absorption as well as the provision of shade and control of glare. Designers should seek a distance behind the back of curb of eighteen feet or greater to allow broad areas for pedestrians and amenities. Window-shopping is an important street activity and street trees tend to hinder this activity along narrower sidewalks.

Consideration should be given to planting of trees where sidewalk widths are at least eleven feet wide and window-shopping is not expected to be a prevalent activity (such as along blank walls or parking lots) and where pedestrian volumes are lower than are typical in areas with high tourist or other pedestrian travel.

Trees should be set back a minimum of 3.5 feet from the back of curb to reduce the possibility of damage from car doors and splash from cars.

Tree guards may be considered for protection of trees where large numbers of people may gather, but they often cause damage to bark as trees grow into the tree guard or rub against tree guards when the wind blows. Also, the use of guards for tree support often reduces the development of buttress roots that are important for structural purposes as trees mature.

Trees should be planted such that 200 cubic feet of prepared soil mix is available to each tree. Techniques for achieving this may include raised planters or bridged sidewalk slabs. A sloping six-inch minimum (12-inch preferred) wide apron (1V:12H) around tree grates will allow for pedestrian circulation while protecting the growing medium from sidewalk runoff with high concentrations of melting agents. The tree grates must be designed to recognize the need for accessibility for the disabled for the full width of the sidewalks.

Primary streets in central business districts shall also provide a two-foot minimum setback from back of curb to parking meter, trash receptacle, hanging basket, tree guard, raised planter, or light post. This is the minimum required setback for safety and also provides temporary snow storage and access to curbside parking.

When providing sidewalk improvements in the CBD, consideration should be provided to defining parking lot edges with fences and landscaping or other restrictions. Providing a clean line that defines parking lot edges ensures that pedestrians are able to use the entire sidewalk, free of overhanging car bumpers. Also, fences or decorative screens help define the entry and exit point to parking lots, providing cues to pedestrians and drivers as to where vehicles may enter the traffic way.

Except where planting bed or raised planters are provided, deciduous trees are preferable to conifers. Spruce trees in particular have sharp “unfriendly” needles and with their low branching height are inappropriate in pedestrian settings where the public may have to walk directly adjacent to the tree. Also, the low branching height of conifers may block views of pedestrians or retail shops. They may be

appropriate where used to screen parking or objectionable visual elements, assuming bed width is adequate for the eventual spread of the tree.

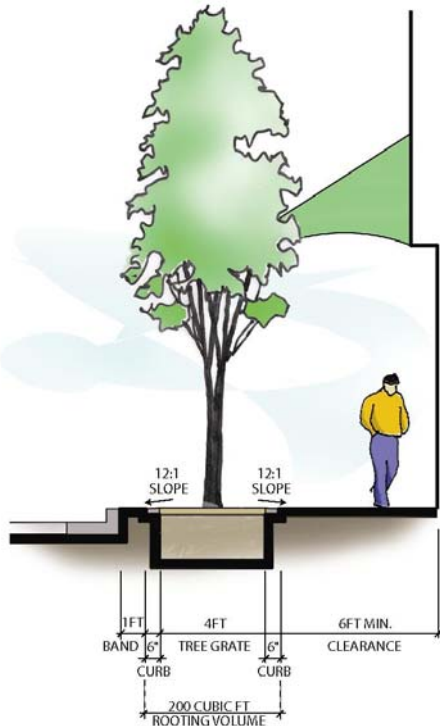


FIGURE 3-6 CBD STREET

2. Major Arterials (Class III-IIIIC)

Major Arterial streets have high traffic volumes where separation is desired between back of curb and pedestrian facilities. Landscaping serves not only as an aesthetic element to improve the streetscape, but has a significant role in defining the different functional zones within the road section.

A seven-foot minimum grass strip for snow storage utilities should be provided adjacent to the curb with no obstruction or landscaping. This area typically receives topsoil and seed. Designers should consider including a textured and colored concrete band at the back of curb for visual accent as well as a durable surface for snow removal. This two-foot of apron adjacent to the roadway or curb almost always accumulates sand and salt that precludes most vegetative growth.

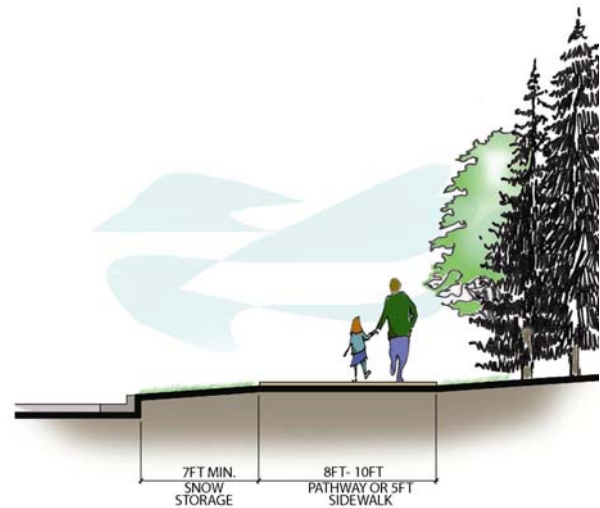
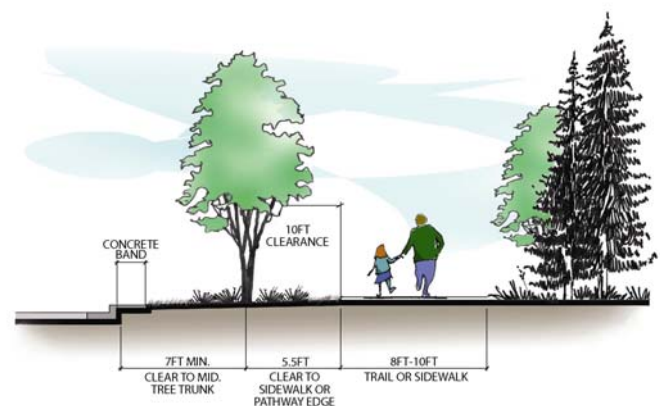


FIGURE 3-7 MAJOR ARTERIAL STREET

Additional width should be considered for street tree plantings and/or to create a landscape buffer to provide a visual separation between pedestrians and vehicles. The landscape buffer area should be composed of a series of large planting beds with enough open space between planting beds to create a visually cohesive separation but not a continuous barrier. It is important to group plantings in beds to increase survivability and facilitate maintenance. Also, the spaces between plantings address safety issues by allowing drivers to observe adjacent pedestrian or wildlife activity.



**FIGURE 3-8 MAJOR ARTERIAL STREET
TREE PLANTING**

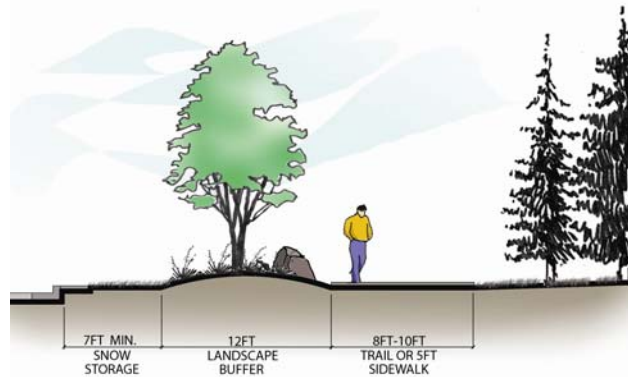


FIGURE 3-9 MAJOR ARTERIAL LANDSCAPE BUFFER

Divided roadways are a desirable treatment for many major arterials for purposes of safety, aesthetics, traffic-calming and reduced headlight glare. Medians designed for plant materials should be mounded to provide less exposure of plant material to road salts and wind damage. Slopes at medians or roadsides must comply with roadside design criteria. A double-mountable curb can also be used to help elevate plant material and provide additional separation from vehicles.

For medians with tree plantings, designers should seek to achieve sixteen feet between the backs of each curb. This width is needed to provide adequate branching space and provide protection of plants from vehicle damage. This width can be narrowed, but care should be exercised by the designer to ensure that both branching structure and rooting areas are appropriate to the space provided. Also, as medians narrow, less planting mix is available, thus designers should ensure that planting details provide adequate rooting volume within the median.

If only shrubs are to be planted, the minimum width may be reduced to as little as four feet. Where median widths are less than four feet, should be used as a concrete surface material it is difficult to maintain lawn in a narrow median environment. Designers should consider the use

of pigment or texture to enrich the landscape where concrete median treatments are used.

Medians typically are exposed to far more wind and sun than other locations. As a result, plants tend to dry out very quickly. Median landscape designs should include an irrigation system to ensure that adequate water is available to the plants.



FIGURE 3-10 MAJOR ARTERIAL LANDSCAPE MEDIAN

The area beyond the seven-foot snow storage area, if not dedicated to trail use, should be landscaped to be compatible with or to buffer the adjacent land use, depending on the character of the land use. The use of decorative or barrier fences, buffer and visual enhancement landscaping should be considered with respect to the existing visual qualities of the neighboring lots. Enhancement of existing landscape installations allows the new roadway project to better fit the surrounding community functionally and visually.

Designers should carefully consider the desired setting of the roadway and seek additional right-of-way (ROW) to provide adequate space for both roadway and landscape improvements.

This is particularly true where traffic volumes are high next to residential neighborhoods. West Northern Lights Boulevard and 15th Avenue are two examples of situations where purchase of additional right-of-way was an important component of the project.

As with medians, roadsides along major arterials typically are exposed to more sun and wind than in other settings. Designers should include irrigation into the design in order to provide a water source for watering of plants.

3. Minor Arterial (Class II) – Urban and Rural

The landscape treatment of minor arterials should be similar to that of major arterials. However, lower traffic volumes and typically lower speeds may reduce the need to provide specific attention to impacts to adjoining properties, depending on the location and available right-of-way.

A seven-foot minimum grass strip for snow storage and utility easement should be provided adjacent to the curb with no obstruction or landscaping. Minor arterial streets generally accommodate snow storage for the full accumulation of a winter season.

Urban Minor Arterial - Reference Section 3.5 C.2 Major Arterials for street tree and landscape buffer discussions.

Rural Minor Arterials - Rural streets are built with strip-paved road sections without curbs. The drainage is handled in roadside ditches that also serve for the storage of snow throughout the winter without hauling. This function of rural roads requires a cross section where drainage can adequately be handled adjacent to the shoulders of the roads. The low areas are suitable for herbaceous vegetation and landscaping would interfere with the maintenance of the drainage ways for siltation.

In situations where high water tables and peat subgrades continue to maintain wetlands on properties adjacent to the roadways, the

installation of wetland vegetation is a beneficial landscape tool to aid the removal of sediments, pollutants and excess salts and nutrients. These installations can be functional and attractive at the same time and their design can significantly benefit the project.

Rural streets where sidewalks or trails are installed benefit from the separation of roads and trails especially in terms of safety and maintenance. As a result, the combined drainage and landscape area will vary in size based on topography with a minimum twelve feet devoted to landscaping. The utility installations are most desirable under trails and road areas to avoid conflict with the landscape installation.

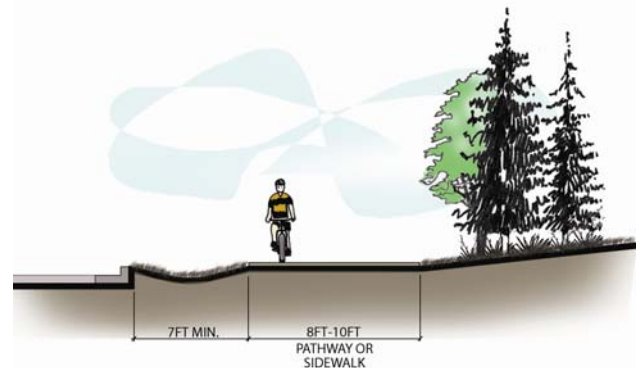


FIGURE 3-11 RURAL MINOR ARTERIAL

Rural locations may provide opportunities for an enhanced multi-purpose trail experience. An example would be Abbott Road which provides opportunities for trail setbacks, using landscape in some locations to provide buffers between users and vehicles. When possible, additional width should be considered to create a landscape buffer to provide a visual separation between pedestrians and vehicles. The buffer area should be mounded and include both shrubs and trees.

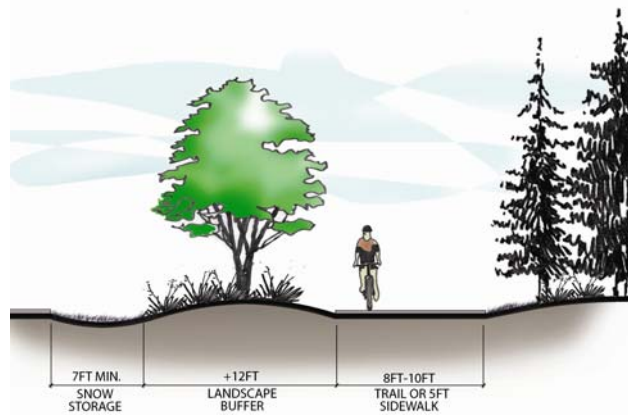


FIGURE 3.12 RURAL MINOR ARTERIAL WITH LANDSCAPE BUFFER

The area outside of the roadway and/or trail prism should be landscaped to be compatible with or to buffer the adjacent land use. The use of decorative or barrier fences, buffer and visual enhancement landscaping should be considered with respect to the existing visual qualities of the neighboring lots.

Designers should carefully consider the desired setting of the roadway and, where impacts to neighborhoods are adverse, seek additional right-of-way to provide adequate space for both roadway and landscape improvements.

4. Collector Streets (Class I-IC) – Residential, Industrial and Neighborhood Streets

Neighborhood collector streets are generally local residential streets where protection of the pedestrian from vehicular traffic is not as critical a concern as on arterial streets. These streets are usually lined with residential properties where an attractive landscape is beneficial to the overall visual character of the neighborhood. Landscaping efforts should provide plantings that integrate new improvements with those of adjacent residential properties to provide an attractive transition between the street and the buildings.

A 7-foot separation is desired between back of curb and the pathway or sidewalk to provide for temporary snow storage. Consideration should

be given to placing underground utilities as close to the curb as possible to minimize conflicts with area residents. The 7-foot width may be reduced or deleted if a 5-foot shoulder is provided.

The strip between the travelway and sidewalks/trails should be turfed and used for runoff treatment during those periods that snow is not stored. Landscaping should be placed to the outside edge of the right-of-way adjacent to the property lines to take advantage of landscape improvements in the front yard setbacks.

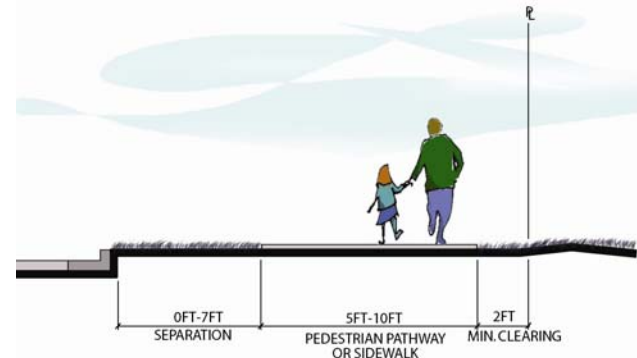


FIGURE 3.13 COLLECTOR STREET

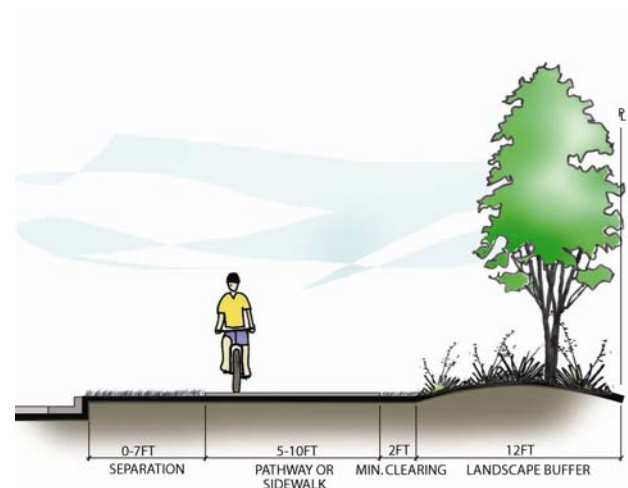


FIGURE 3.14 COLLECTOR STREET WITH LANDSCAPE BUFFER

END OF SECTION 3.5

SECTION 3.6 CONSIDERATIONS FOR ADDITIONAL RIGHTS- OF-WAY FOR LANDSCAPING

Rights-of-way are seldom sufficient to meet all of the needs for roadway, snow storage, trails, sidewalks, and landscaping. Thus the designer must on a case by case basis determine whether additional rights-of-way are necessary to appropriate integrate roadway needs into the neighborhood.

The Municipality of Anchorage on many occasions has chosen to acquire additional rights-of-way to meet project needs. West Northern Lights and 15th Avenue are two projects where this was the case. However, these projects are exceptions and are expensive solutions.

Designers should seek creative means to solve landscape issues. Art is often an appropriate amenity that can be employed in tight spaces or places where plant materials may not survive. One example is the sculpture adhered to wall at the Lake Otis and Tudor intersection where limited right-of-way required creative problem-solving to address aesthetic issues.

There will be occasions where purchase of additional right-of-way must be considered. These decisions require close coordination between the Project Manager, the engineer, and the landscape architect. A significant part of this determination will be input received from the public relative to how the project affects the neighborhood. The approach of “context-sensitive design” is often used to describe an interactive decision-making approach that ensures the public is integrated into project decisions. Designers should refer to PM&E’s Project Management Manual for direction on integrating the public into project decisions.

Generally speaking, designers should weigh the following in determining whether additional rights-of-way are necessary:

- Community vision of the roadway
- Existing vegetation locations
- Utility alignment locations
- Adjacent landowner uses
- Plant selection for the allowable spaces

END OF SECTION 3.6

SECTION 3.7 PARK PROJECTS

Parks projects are subject to many of the same aspects of development as are building and road projects. While parks are generally seen as compatible elements of neighborhoods, significant development can be controversial. Parking lot landscaping and Site Plan Review requirements in particular should be addressed early in proposed plans.

Park development projects encompassing over 1-1/2 acres are subject to Public facility site reviews as required by Section 21.15.015 of the Anchorage Municipal Code. Project managers should ensure that these projects are scheduled for appropriate reviews.

Park development projects are also typically scheduled with presentations and hearings (both concept and final) before the Parks and Recreation Commission, the Eagle River Board of Supervisors, or the Girdwood Board of Supervisors. Master plans in particular must be presented to the appropriate commission prior to being scheduled before the Planning and Zoning Commission.

There are additional code requirements that projects are subject to. Park projects that provide parking are subject to the requirements of AMC 21.45.080 for parking lot landscaping. Park projects with greater than one acre of disturbed construction must have an SWPPP (Stormwater Pollution Prevention Plan) prepared. The preparation of this plan is generally placed on the contractor through the special provisions for contracted work.

END OF SECTION 3.7

SECTION 3.8 GENERAL GUIDELINES FOR LANDSCAPE DESIGN FOR WATER TREATMENT AREAS

Strip-paved road sections offer an opportunity for on-site water treatment that is incorporated into the landscape design. Roadside ditches, swales, infiltration and sedimentation basins are prime areas to establish wetland landscapes that are highly productive, diverse ecosystems with significant habitat values. These landscape projects are site specific and their success heavily relies on the thorough study and careful design of the post construction hydrology, topography and soils.

Seeding is the most common landscape method for treatment of drainage areas. Using a variety of seed mixes to accommodate the changes in hydrology is the best way to ensure proper coverage for the project. The use of emergent herbaceous plants is beneficial in areas that will be inundated throughout most of the growing season.

Anchorage has a wide array of woody and herbaceous plant species that thrive under wet conditions in poorly drained, cold and acidic soils. These plants are generally present in low-lying construction sites and are prime material for salvaging operations because of their smaller size. The salvaging and transplanting of this material is most successful in winter because of the relative ease of site access by equipment and the reduced damage to the frozen root mass and snow-protected branch structure.

Design of wetland landscape projects requires an interdisciplinary team composed of at least a civil engineer, hydrologist and landscape architect. Based on the complexity and the number of variables present, other professionals and scientists may be valuable resources for such design projects.

Projects that affect wetlands almost always require obtaining State and Federal permits as part of the design and construction process. The extent of involvement by individual agencies depends on the bodies with jurisdiction over the

affected waters. This usually requires coordination and permitting through the U.S. Army Corps of Engineers, Regulatory Branch. It governs fill into wetlands as defined and regulated in Section 404 of the Clean Water Act as well as structures affecting water bodies in accordance with Section 10 of the Rivers and Harbors Appropriation Act of 1899. This will generally require coordination with the Environmental Protection Agency and the U.S. Fish and Wildlife Service as well. The Alaska Department of Natural Resources may be involved as well with respect to review of consistency with the Alaska Coastal Management Program.

END OF SECTION 3.8