DESIGN CRITERIA MANUAL

CHAPTER 3 LANDSCAPE

MUNICIPALITY OF ANCHORAGE

PUBLIC WORKS DEPARTMENT
PROJECT MANAGEMENT &
ENGINEERING DIVISION

JULY 2013

DESIGN CRITERIA MANUAL
REVISION LOG
Chapter 3 – Landscape

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FIGURES

Acronyms and Abbreviations

AMC.....Anchorage Municipal Code
CBD.....Central Business District
M.A.S.S……Municipality of Anchorage Standard Specifications
P&Z……Planning and Zoning Commission
UDC……Urban Design Commission

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. Landscape improvements are viewed as significant tools 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 an attractive and sustainable landscape.

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, landscape improvements include planting, pedestrian amenities (e.g. seating, trash cans, etc.), fencing, special sidewalk texturing, walls, specialized grading, incorporation of art, or other improvements that provide integration of the project into the local setting and provide visual interest.

Landscape improvements should be considered with reference to the larger effects of the project on the neighborhood and the ability of the project to be "fit" to the setting. "A Strategy for Developing Context Sensitive Transportation Projects" (AR 2008-237) should be used as a guide for determining neighborhood needs and the ability of the landscape to provide for Context Sensitive Solutions.

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 landscape 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 or offsetting centerlines on road projects to maximize benefit of landscaping where it provides the greatest benefit.

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 acquisition of additional right-of-way 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 Temporary Construction Permits or easements to allow use of private property to meet landscape goals, particularly to increase plantings or accommodate grading. Often, private property owners will maintain plantings where they provide benefit to the property owner.

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.

END OF SECTION 3.1

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 landscape requirements are found in AMC 21.04 – Zoning Districts and in AMC 21.07.080 – Landscaping, Screening, and Fences.

AMC 21.03.190 Street and Trail 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 21.03.190 Street and Trail 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 21.02.030. Review and make recommendations to the assembly regarding public facility site selection for municipal facilities (21.03.140).

AMC 21.02.030. The planning and zoning commission has decision-making authority over draft design study reports for new construction and reconstruction of streets of collector class or greater in the OS & HP (21.03.190)

AMC 21.02.040.B 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, landscape and structure design. Generally, however, a public facility site plan is reviewed by the P&Z.

Urban Design Commission Authority

AMC 21.02.040.A.4 Review and decide upon street and highway landscape plans in accordance with section 24.15.030.

3.2 B Municipal Policies

AMC 21.01.080 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 21.01.080.A. Identifies the purpose of the comprehensive plan as follows:

The purpose of the comprehensive plan is to set forth the goals, objectives, strategies, and policies governing land use development of the municipality. As adopted, this section and the documents incorporated in this section constitute the comprehensive plan of the municipality.

AMC 21.01.080.B Adopted Elements lists all adopted plans that comprise the Comprehensive Plan. The plans are listed in Table 21.01-1: Comprehensive Plan Elements.

3.2 C Street Reviews

AMC 21.03.190.B.2 The street review section outlines the approval process for streets, which is made up of the following components:

1. pre-application conference with the department director;

2. community meeting, required in accordance with subsection 21.03.020.G;

3. application submittal: packets are available at the public counter of the Planning Division or on-line at http://www.muni.org/Departments/OCPD/Planning/Pages/Forms.aspx. 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;

4. public notice, provided in accordance with subsection 21.03.020H;

5. departmental review, the department shall review each proposed application and provide a report to the Planning and Zoning Commission or Urban Design Commission, as applicable;

6. commission review, the applicable commission shall hold a public hearing on the proposed application;

7. concept report, the report shall be distributed to the Planning and Zoning Commission as an informational item;

8. Draft design study report review, the Planning and Zoning Commission shall review the design study report and issue a decision. A public hearing may or may not be held;

9. Plans in Hand Design Drawings, submit plans in hand design drawings to the Urban Design Commission for review and approval of all landscaping, streetscape and pedestrian facilities for streets of collector classification or higher in the OS & HP.

Based on the complexity of the project some of the steps described above may be waived by the Planning Director.

3.2 D Trail Reviews

AMC21.03.190.C.3. This section outlines the approval process for new construction and reconstruction of trails in the municipality.

The review process generally consists of the following steps:

1. pre-application meeting, consultation with the director;

2. application submittal in accordance with the Title 21 users guide;

3. Public notice in accordance with section 21.03.020.H;

4. department shall review each proposed application and provide a report to the Planning and Zoning Commission; Urban Design Commission shall approve, approve with conditions, or reject the application. A public hearing is not required but may be held at the commission's discretion.

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 Site Plans

AMC 21.03.180. This section outlines the site plan review process. Site plans will either require an Administrative Site Plan Review or Major Site Plan Review as identified in table 21.05-1, Tables of Allowed Uses and table 21.09-, Table of Allowed Uses (Girdwood) in Title 21.

The procedure for Administrative Site Plan review is specified in AMC 21.03.180.C and includes:

1. Application submittal to the planning department in accordance with the Title 21 user's guide on the form provided by the department. Forms are available at the public counter of the Planning Division or on-line at http://www.muni.org/Departments/OCPD/Planning/Pages/Forms.aspx;

2. The department will review each proposed administrative site plan application. Based on the review the director shall take final action on the site plan application and approve, approve with conditions, or deny the applications; and

3. Denial of an administrative site plan may be appealed to the urban design commission, in which case it shall be treated as a major site plan review.

The procedure for a Major Site Plan review is specified in AMC 21.03.180.D and includes:

1. pre-application conference with the department director;

2. community meeting, required in accordance with subsection 21.03.020.G;

3. application submittal: packets are available at the public counter of the Planning Division or on-line at http://www.muni.org/Departments/OCPD/Planning/Pages/Forms.aspx. 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;

4. public notice, provided in accordance with subsection 21.03.020H;

5. departmental review, the department shall review each proposed application and provide a report to the Planning and Zoning Commission or Urban Design Commission, as applicable;

6. commission action, the applicable commission shall hold a public hearing on the proposed application and, taking into account the recommendations of the department and public input, shall act to approve, approve with conditions, or deny the proposed major site plan; and

7. Denial of a major site plan may be appealed to the board of adjustment.

3.2 F Order of Reviews

Anchorage Title 21 Land Use Code requires Municipal review of public improvement projects for consistency with the Comprehensive Plan and the requirements of the code. The Municipality of Anchorage Planning Division oversees the review process for plans for public facilities and streets.

Each of the submittals and approvals requires approximately two months of process and review prior to the date of the public hearing. The submittal must meet the requirements of the Planning Division, including submittal on a form provided by the Planning Division. The designer/engineer is required to first attend a pre-submittal conference prior to submitting the application for review. The schedule for submittal and review must be factored into the project schedule and engineers/designers must have a well-founded understanding of the issues that will be subject to review for each project.

Application forms for Planning Division Commissions can be found at the following link: http://www.muni.org/Departments/OCPD/Planning/Pages/Forms.aspx.

END OF SECTION 3.2

SECTION 3.3 GENERAL CONSIDERATIONS FOR LANDSCAPE INSTALLATION AND MAINTENANCE

3.3 A Preservation and Protection of Existing Vegetation

1. How to Protect Existing Vegetation

The retention of existing vegetation on a site is an important goal for many projects, whether the reason is aesthetics or function. Existing trees or groupings of trees should be preserved whenever possible. Particular efforts should be made to retain healthy trees and vegetation that have special character due to size, age, habit, or that have value as screening or buffering elements. Many factors must be weighed in the decision to preserve trees and vegetation including existing and proposed grading concepts, age, condition and health, types of trees, percentage of critical root mass that can remain undisturbed, and the locations of site improvements and utilities. 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.

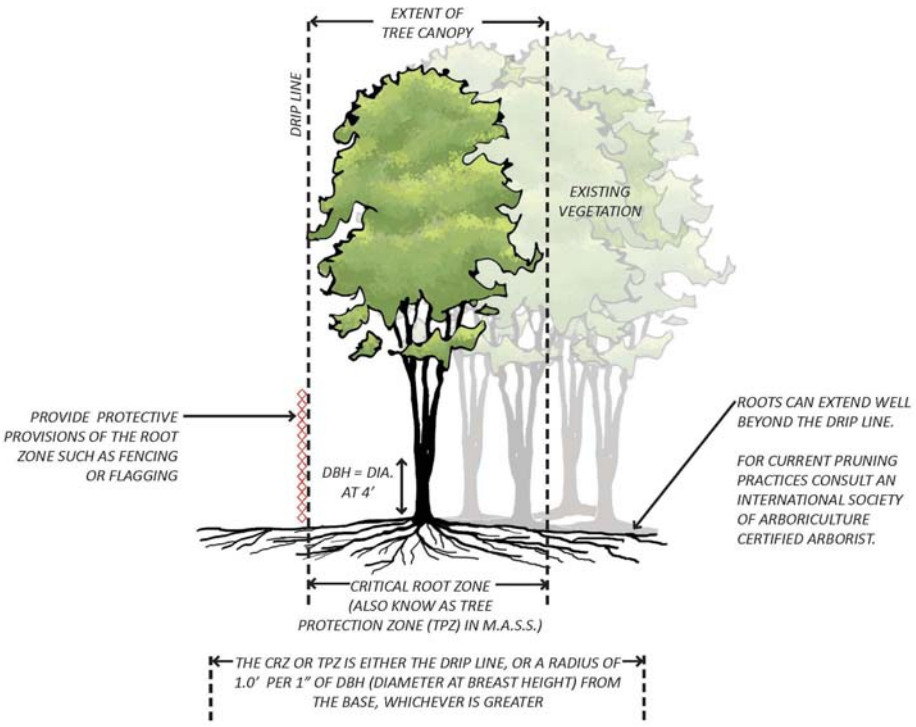

Figure 3-1 - Critical Root Zone

Excavation and compaction of soils in the root zone of existing vegetation is a significant threat to the survival of plant material, which in some cases may pose a threat to public safety. Plant failure in the case of trees would raise safety and hazard concerns. Trees that have experienced compaction to the Critical Root Zone (CRZ) (Figure 3-1) have a reduced ability for their roots to anchor into the soils and make use of air pockets that have been permanently lost due to compaction. 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 topsoil (24" maximum; 18" minimum depth) to accommodate a typical tree planting (Figure 3-2). This is the minimum size bed that will accommodate a tree with an eventual size of 4-inch caliper Diameter Breast Height (DBH). However, designers should size the root zone to provide for a mature plant, recognizing that a mature tree requires space beyond the 200 cubic feet and that this higher standard should be sought. Failure to provide adequate space will result in a reduction in the size of tree and potentially a shorter life span. 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.

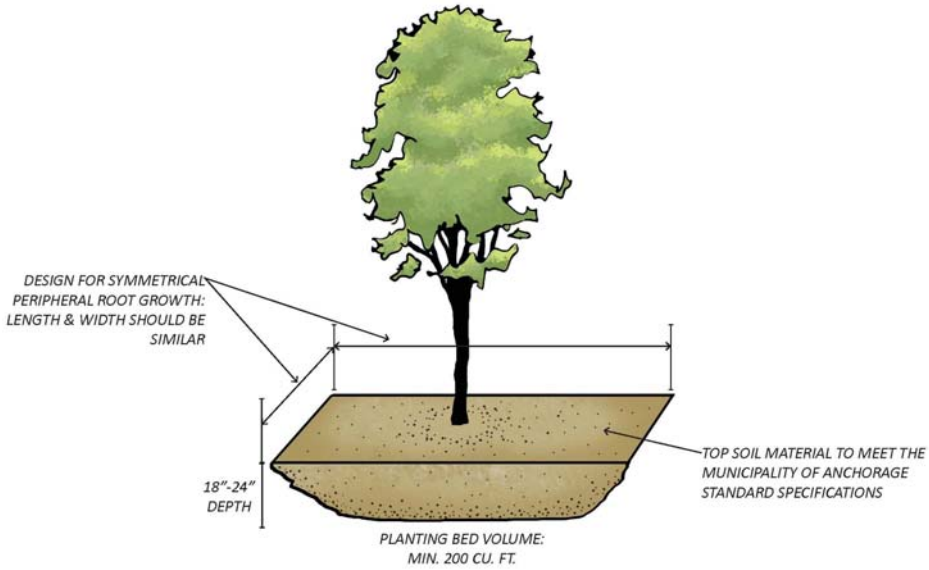

Figure 3-2 - Planting Bed Sizes and Shapes

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 (Figure 3-3). Outer edges of planting beds should maintain a minimum seven-foot clearance to allow mowing equipment between trees planted in lawn.

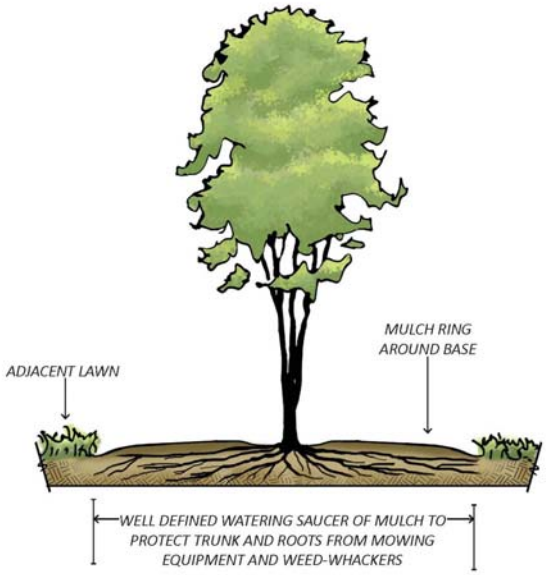

Figure 3-3 - Tree Planting in Lawns

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 (Figure 3-4).

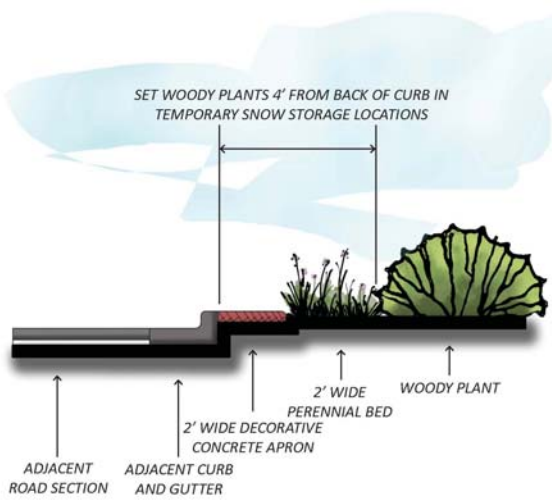

Figure 3-4 - Woody Plants and Snow Storage

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 flare 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 recommended for areas where there is little wind and a relatively small chance of 3rd party damage.

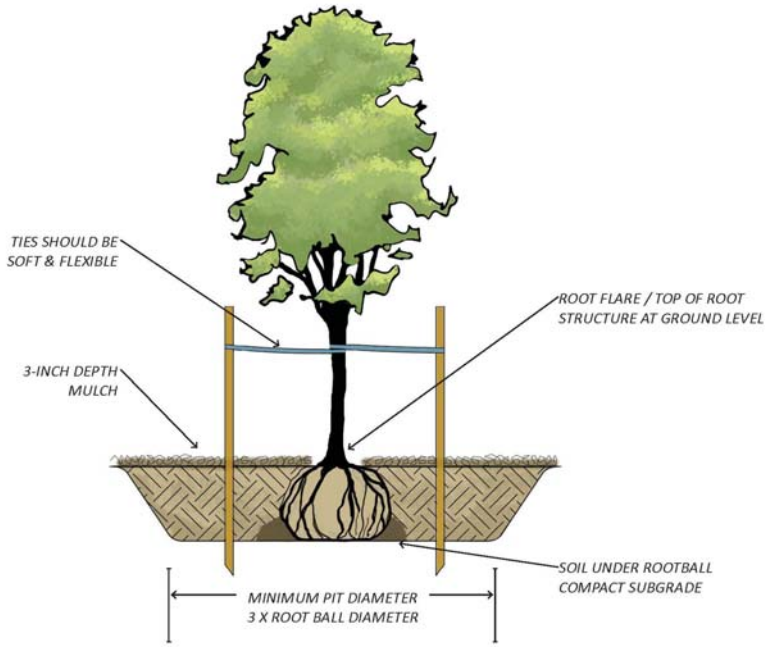

Figure 3-5 - Tree Detail with Staking

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 (Figure 3-5). 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.

Planting beds and tree saucers should always contain mulch: generally bark, rock, or wood – three inches in depth. Rock may be a suitable alternative, but caution should be used to ensure that it does not provide a walking/slipping hazard, or the potential of being swept or kicked onto sidewalks, paths, or roadways where it may pose hazards to pedestrians, bicyclists, or automobiles. 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.

3. Urban Settings

An urban setting is characterized by areas with higher population densities generally resulting in greater pedestrian traffic. In Anchorage, the Central Business District (CBD) and Town Centers are both considered urban settings, and in these areas, where high pedestrian activities may occur adjacent to planting beds, trees specified should either have an upright branching habit or can be successfully trimmed at maturity to an eight-foot height. Trees should not be pruned at the time of installation.

Urban settings invite considerations to sidewalk construction and tree growth. In an urban location where virtually all horizontal surfaces are paved, "bridged sidewalk slabs" should be used to provide an adequate zone for healthy root development. This approach provides a bridged sidewalk slab that simply spans a planting mix/topsoil bed, allowing the needed cubic footage of planting mix while permitting pedestrians to walk above. The bed should be designed to ensure that salt-laden runoff is not concentrated in the pit. Other techniques, such as "structural soil sub-base", have been successfully implemented in other municipalities but they remain untried in Anchorage.

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 and the surface of the bark can be damaged by the tree guard. 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. Raised planters should have a minimum height of 18", which allows the planter to be high enough to be noticed in snowy situations and not act as a tripping hazard.

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 (Figure 3-6).

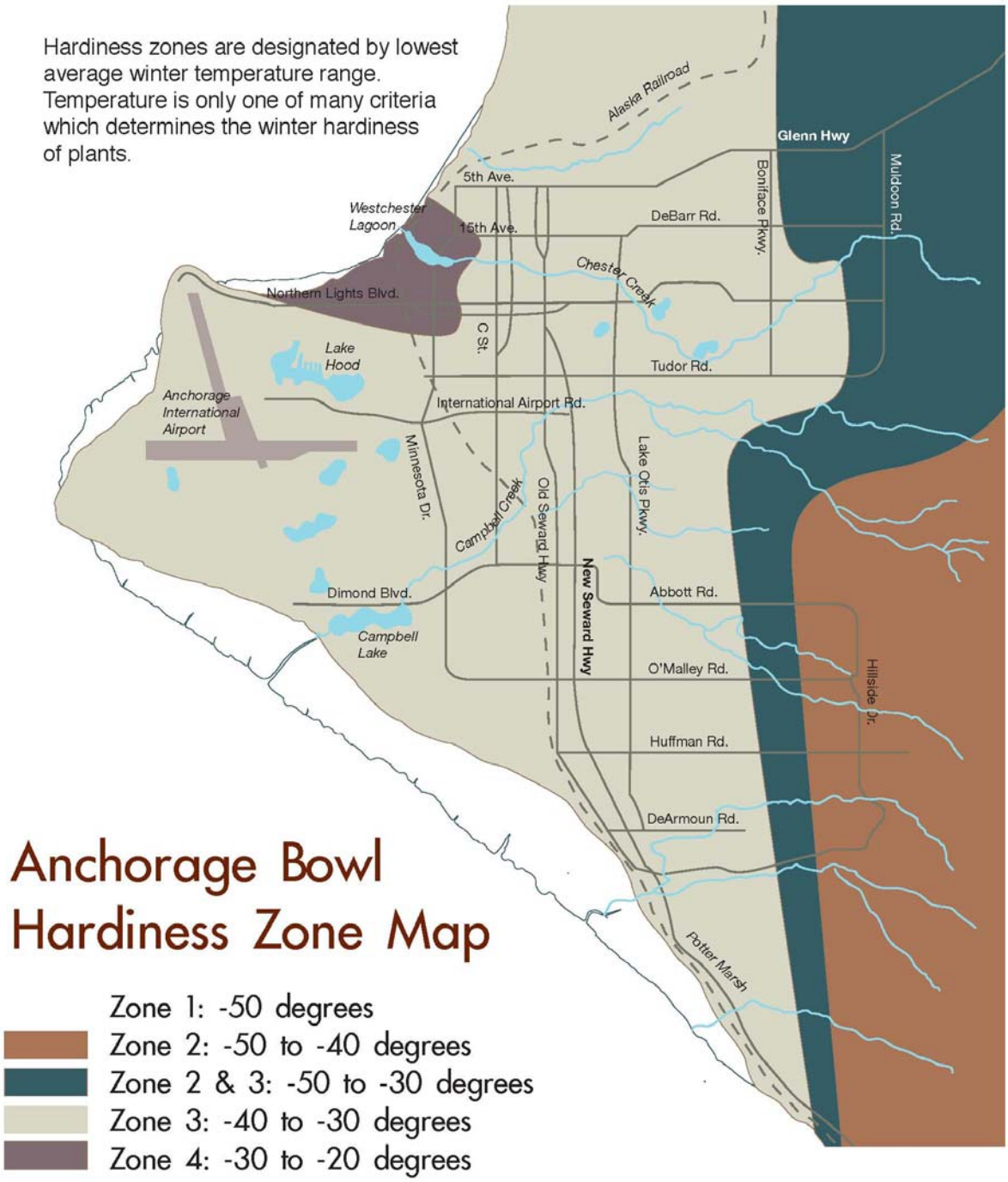

Figure 3-6 - Anchorage Bowl Hardiness Zone Map

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 Municipal Horticulture 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. PVC should only be used if "flexible PVC" rated for cold climates is used.

3.3 C Plant Selection

Plant Selection
In a well-designed landscape plan, plants are carefully selected and arranged to perform a design function, not used to fill space. Designing such a plan is a complex process that requires taking into account the growth preferences and habits of plants while maintaining a clear understanding of the design problems to be solved with planting. The following information is intended to provide guidance in this process.

1. Design Elements
The aesthetic qualities of plants, including form, bark and crown characteristics, and type of fruit, should be taken into account when selecting plants to create a pleasing appearance. Some general principles of composition that apply to planting design include axis, symmetry, hierarchy, emphasis, balance, repetition, rhythm, and scale.

2. Design Criteria: Functional and Aesthetic Values of Plants
In an effective planting design, there should be a dominant material, color, or texture to provide unity to the composition. Accent planting can then be used to create contrast. Masses of a predominant species with a few individual accent plants will usually produce the most satisfying visual effects.

3. Maintenance
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 neighborhoods and receive levels of maintenance that rate higher than other streets. Certain park settings also receive a higher level of maintenance than other parks. 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.

4. Native Plants
Native plant material is 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. With limited available sources of native plant material in Alaska, obtaining these materials in large quantities can be problematic. Thus, the plant palette is largely composed of imported ornamentals.

5. Invasive Plants
There is growing recognition that some species of trees, shrubs, and herbaceous plants are considered invasive and threaten to displace native materials. Designers should make themselves familiar with the Cooperative Extension Services list of invasive species (latest edition).

6. Appropriateness of Plant Selection

Designers should be aware that although the USDA has recently reclassified Anchorage as Zone 4B), there is a wide range of hardiness zones within the Anchorage Bowl and all Zone 4B plants will not fit all situations. The designer should carefully consider the many factors that may affect plant survivability for a given locale including: microclimate, sun exposure, soils, wind, wildlife attraction, and moisture conditions. Care should also be taken in selecting trees to avoid species which suffer from weak branching (limb drop), heavy fruiting, invasive root systems, or allergen production.

7. Landscape Functions

A. Visual Control – Plants may be used to:
   i. reduce negative effects of reflection and glare from paving or structures and direct light from the sun, headlights, streetlights, parking lot lights, floodlights, signage, etc.;
   ii. create privacy;
   iii. screen unsightly views;
   iv. provide visual relief from paved areas; and
   v. direct views.

B. Architectural Definition – Plants may be used to:
   i. define public and private spaces;
   ii. delineate pedestrian and vehicular circulation;
   iii. create pedestrian friendly environments; and
   iv. promotes compatibility between land uses by mitigating the visual, noise, and lighting impacts of adjoining developments.

C. Low Impact Development – Plants may be used to:
   i. reduce heat island, and minimizing effects on microclimates by providing shading and increasing evapotranspiration;
   ii. modify windflow (block harsh winter wind, amplify summer breeze, and direct snowdrift);
   iii. filter pollution from stormwater and reduce stormwater temperature, rate, and volume of flow;
   iv. absorb carbon dioxide; and
   v. improve water quality.

D. Community Health and Wellness – Plants may be used to:
   i. promote pedestrian activity by enhancing pedestrian environments and safety; and
   ii. provide cleaner air by filtering air pollution.

E. Economic Benefits – Plants may be used to:
   i. enhance commercial viability by improving aesthetic appeal and expressing vitality to potential customers, investors, or residents;
   ii. increase home values; and
   iii. Minimize utility costs in the summer by providing cooling through shading and increased evapotranspiration and in the winter keep reducing heat loss through reduced wind speed and allowing for passive solar heating.

F. Scenic– Plants may be used to:
   i. Protect and enhance scenic landscapes; and
   ii. Enhance and preserve scenic viewshed.

G. Erosion Control – Plants may be used to control soil erosion caused by wind or stormwater runoff.

H. Wildlife Habitat – Plants may be used to provide cover and food for birds and other wild animals.

8. Landscape Elements

A. Shade Trees

Shade trees have the greatest overall impact on the built environment because of their size, character, and permanence and should be the first element considered for a planting design. Shade trees provide unity, character, and identity for residential neighborhoods and can soften architecture, create a transition between the built and natural environment, and provide a human scale for nonresidential neighborhoods. Shade trees should also be used to:

- Define major active and passive open spaces and direct both vehicular and pedestrian movement;
- Define and enhance views;
- Modify climate;
- Provide shade in summer;
- Reduce the impact of direct and reflected light; and
- Screen and buffer undesirable or incompatible views and activities.

B. Street Trees

Street trees may perform the same functions as shade trees but are differentiated because they have a specific relationship to the street. They define the street space with overhead or canopy elements (the crown) with vertical elements (trunks), establishing it as a unified space that connects distant and sometime disparate uses. To perform this function, street trees should be planted relatively close to the curb or edge of pavement so that the canopy at maturity will extend over the street. Careful consideration should be given to balancing snow storage areas with trees along the street. The importance of street trees, which will eventually become large, is greater for wider streets. Large street trees are the first and perhaps the only plant material noticed while traveling down a wide road. In developing areas, street trees will have the most significant effect on future travelers along the road.

C. Ornamental Trees

Ornamental trees are generally utilized to architecturally define outdoor spaces, such as entry areas or small pedestrian use areas; provide a transitional or softening element for architecture; provide color and variety of form; and as an accent or major focus.

D. Evergreen Trees

Evergreen trees are most often utilized as a vertical architectural element, such as a wall or screen to define space and direct views. They may also be used to provide winter interest and variety in color and form as well as an accent and to soften architecture.

E. Shrub and Ground Plane Planting

Shrub and ground plane planting include low shrubs, ground covers, and perennials. They should be used to define minor pedestrian spaces, such as entries and sitting areas; direct pedestrian traffic; provide color and variety; and to accent the overall landscape design. In accordance with sustainable landscape principles, shrubs and ground plane planting may be

installed to control erosion, enhance the absorption of stormwater runoff, and reduce lawn maintenance and the need for application of chemical fertilizers.

Plant material should be massed in beds rather than planted as independent units on the lawn, and it should relate to the architecture.

F. Screening and Buffering Plantings

Screening and buffering landscaping provide value to landscapes and are defined in AMC Title 21. As such, vegetative screening may consist primarily of evergreen trees and shrubs, but finely branched deciduous trees and shrubs planted in masses or tightly spaced may also be considered. Because of their density and opacity, evergreen trees often create the effect of a very large wall. Other screening elements, such as walls, fences, and berms, should be carefully designed to avoid unnecessarily obstructing views, restricting light and air, or creating hazardous blind spots.

Where buffer planting is required, a combination of evergreens, deciduous plant materials, walls/and or fencing may be used to achieve the desired effect. When a linear screen is required, such as along a property line, the screening planting may be staggered, naturalistically designed, or laid out employing a more formal approach using, for example, a hedge or formal planting scheme and fencing.

END OF SECTION 3.3

SECTION 3.4 BUILDING/PARKING LOT LANDSCAPE

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 Regulations21.07 Development and Design Standards specify the need for landscape plans as well as the types of landscaping that are required. AMC 21.45.130 and AMC 21.07.080 discuss screening along highways and the need for a specific type of landscaping.

AMC 21.45.080, 21.07.080.E.2 and 21.07.090.H.3 addresses parking lot landscape requirements. Parking lot landscape 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. Landscaping in parking lots is used to:

- Delineate both pedestrian and vehicular corridors within the parking lot;
- Minimize the heat island effect created by large expanses of asphalt;
- Assist with storm water treatment;
- Define traffic movements for safety; and
- Soften the appearance of large expanses of paving.

Interior landscaping in particular or planting islands should be used to define both vehicular and pedestrian circulation patterns and parking bays. Larger islands may be utilized to provide greater visual relief and a healthier long-term environment for tree growth.

Trees in or at the edge of parking lots should be a species that branch (or can be successfully trimmed at maturity) no lower than twelve feet from the ground at maturity to allow cars, trucks, and campers to circulate beneath the canopy without causing damage. Good visibility in the parking lot is important, both for security and traffic safety reasons. Plants or other elements that restrict visibility, such as low-branching trees and tall, dense shrubbery should be avoided. Plant material at vehicular entrances must be located to maintain safe sight distances. Plants in parking lots are subject to considerable adverse conditions and the choice of plant material should reflect this harsh environment that may include minimal maintenance, lack of water, heavy snow load from snow storage, and restricted planting space.

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 LANDSCAPE

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. Many factors must be weighed in the decision to preserve trees and vegetation including existing and proposed grading requirements, age, health, condition, species, social significance, utility locations and the percentage of critical root zone that can remain undisturbed. The location of the improvements 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 pathway improvements and the property line.

The exception to retention of vegetation is for cottonwood and invasive trees. These trees are detrimental to the roadway and path prism and, at a minimum, should be removed to the ground surface for a distance of thirty feet, preferably as much as fifty feet, from the centerline of the trail. Where cottonwood removal is not possible, consider the inclusion of a commercial root barrier between the prism and the tree.

3.5 B New Landscaping

The amount of new landscaping is dependent on the type of road to be constructed. Although AMC 21.07 requires all streets and highways of collector or greater designation to have a site plan/landscaping review by the Planning and Zoning Commission or Urban Design Commission, landscaping is not a mandatory component of all road projects. However, landscaping on local roads significantly improves the streetscape and can help roads compliment the character of 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 plantings in municipal rights-of-way is the location of conflicting land uses within the available space. Plantings develop at a relatively slow place in Anchorage because of the climatic conditions and cold soils. Thus, it is important that plantings are 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 planting for infiltration, sedimentation and drainage areas, including rain gardens, where moisture tolerant 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 also 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 and pathway 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. Having clear vision without obstructions allows drivers to see pedestrians, bicyclists, or

other cars approaching. AMC 21.07.080.F.2.b references "Clear Vision Area Requirements". 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 and utility boxes, 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. 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. Additionally, trees in sight distance triangles should be spaced apart such that, cumulatively, mass plantings do not obscure the driver's vision of oncoming traffic.

Plantings at intersections should provide intersection sight triangle requirements of D.C.M. Chapter 1 Streets.

3.5 C Landscaping Primary Streets

1. Central Business District Streets

Central Business District (CBD) streetscapes are intended to foster good pedestrian passage in an urban setting. Streetscapes should be designed to facilitate window-shopping and enjoyable pedestrian spaces (Figure 3-7). 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 landscape improvements. While trees readily provide environmental benefits such as dust control, stormwater and pollution management, and shade control, they can also have positive economic benefits through improved public perception of the downtown district resulting in increased public patronage. When redevelopment opportunities occur in the CBD, designers should strive to maximize the distance from the back of the curb to allow for improved landscape opportunities including space for healthier trees, greater pedestrian maneuverability, and other streetscape strategies.

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 a minimum of 200 cubic feet (24" maximum depth; 18" minimum depth) 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. Tree grates must be designed to recognize the need for accessibility for all.

Trees in business districts face challenges of limited root and canopy volumes, compacted and low nutrient soils, water stress, and interactions with utilities. Pedestrians and passing vehicles pose daily risks in terms of tree damage and health. Lack of bicycle racks can encourage damage when bicycles are chained to trees. Pruning strategies must balance building visibility with plan viability. Trees specified for the CBD should be species that branch (or can be successfully trimmed at maturity) at eight feet.

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

Parking lots in the CBD should be screened from the adjacent street or right-of-way. Ideally, the minimum and maximum screening heights at maturity should be 42” and 48”, respectively, and may take form through shrubs, decorative screens, fences, or a combination of these materials. 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, plantings, and decorative screens help define the entry and exit point to parking lots, providing visual cues to pedestrians and drivers as to where vehicles may enter the traffic way.

Except where larger planting beds 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.

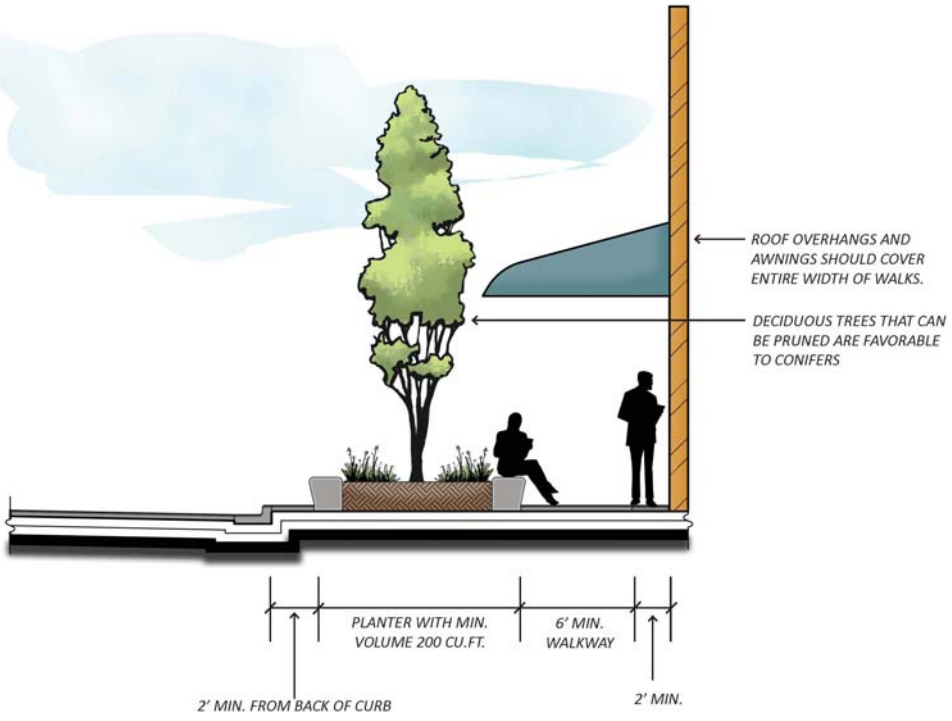

Figure 3-7 - CBD Street

2. Major Arterials (Class III-IIIC)

Major Arterial streets have high traffic volumes where separation is desired between back of curb and pedestrian facilities. Landscape 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 (Figure 3-8) should be provided adjacent to the curb with no obstruction or plantings. This area typically receives topsoil and seed. Designers should consider including a textured and colored concrete band at the back of curb (Figure 3-9) 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.

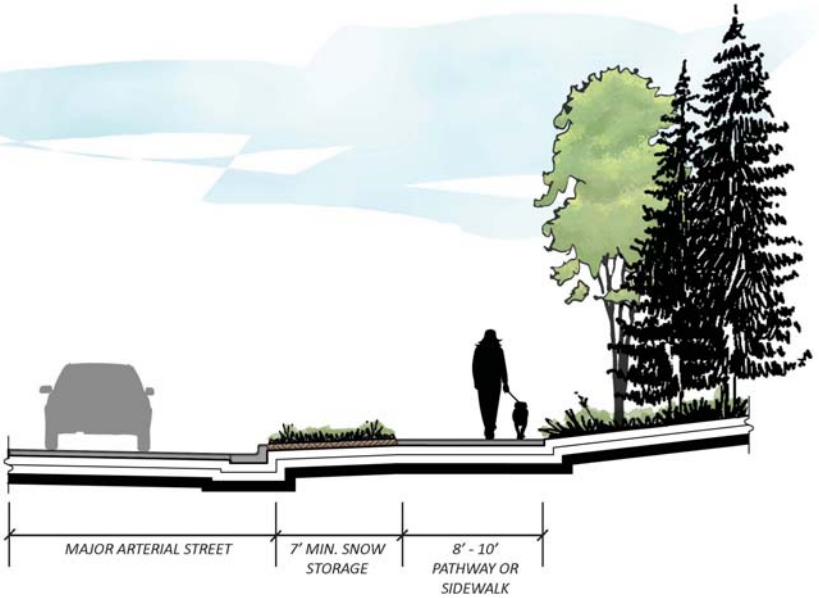

Figure 3-8 - Major Arterial Street

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 (Figure 3-9). When using shrubs, 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 shrub plantings in beds to increase survivability and facilitate easier maintenance. When using a formal arrangement of street trees (and no shrubs) sufficiently sized tree rings should be employed for easier maintenance as well as plant protection. Spaces between plantings address safety issues by allowing drivers to observe adjacent pedestrians or wildlife activity.

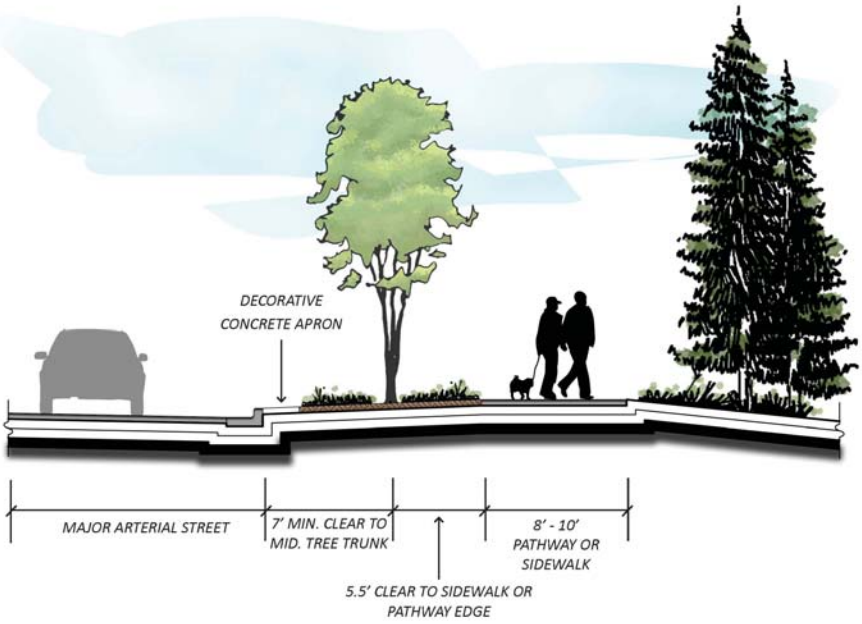

Figure 3-9 - Major Arterial - Tree Planting

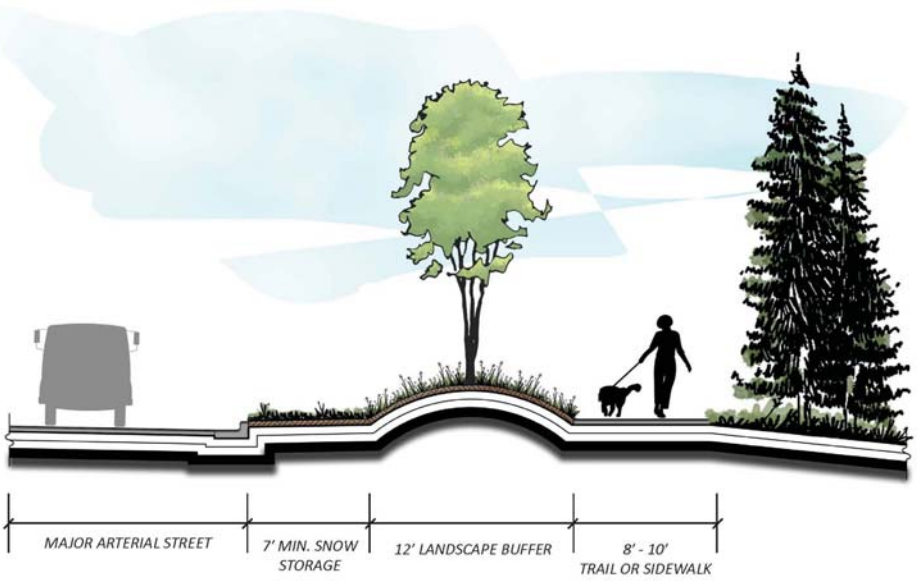

Figure 3-10 - Major Arterial Street Landscape Buffer

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 (12" ht.) can also be used to help elevate plant material and provide additional separation from vehicles (Figure 3-10).

For medians with tree plantings, designers should provide 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 planting width may be reduced to as little as four feet. Where median widths are less than four feet, a native seed (no-mow) mix or concrete paving may be used as a surfacing material. 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. The designer should specify plant material that can withstand the harsh conditions found in these roadside environments.

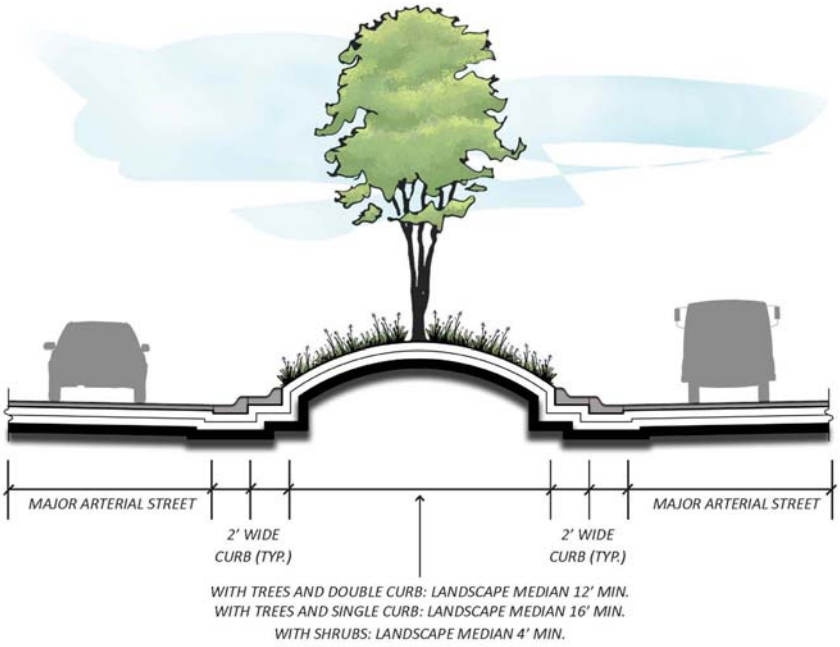

Figure 3-11 - Major Arterial Landscape Buffer

The area beyond the seven-foot snow storage area, if not dedicated to path use, should be planted 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 character and 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, utilities and ditches should be provided adjacent to the curb or roadway edge with no obstruction or landscaping. Minor arterial streets generally accommodate snow storage for the full accumulation of a winter season (Figure 3-12).

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 and rain gardens are beneficial landscape tools 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 benefit from the separation of sidewalks or side paths from roads 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 landscape. The utility installations are most desirable under trails and road areas to avoid conflict with the landscape installation.

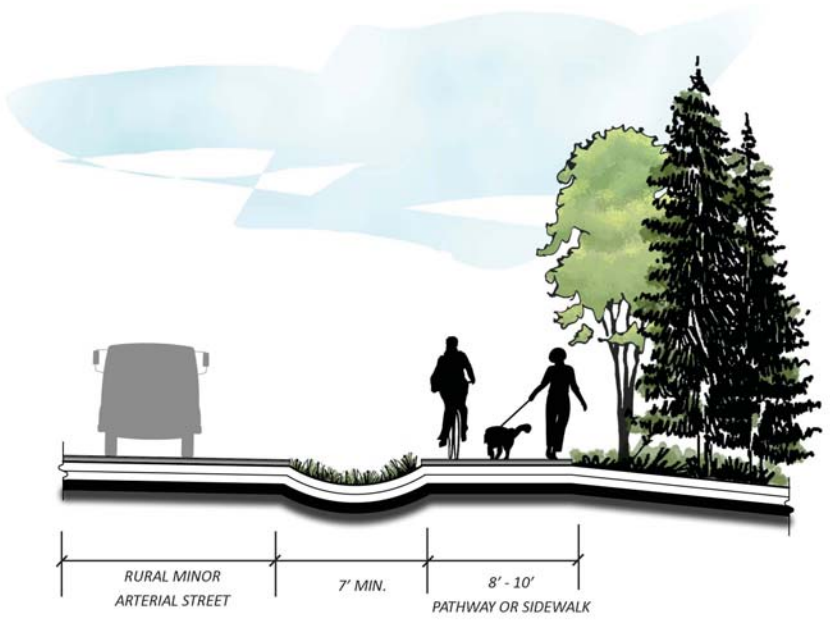

Figure 3-12 - Rural Minor Arterial

Rural locations may provide opportunities for an enhanced multi-use trail experience. An example would be Abbott Road east of Elmore Road, or Elmore Road north of Abbott Road, both of which provide opportunities for trail setbacks using landscape in some locations to provide buffers between users and vehicles (Figure 3-13). 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.

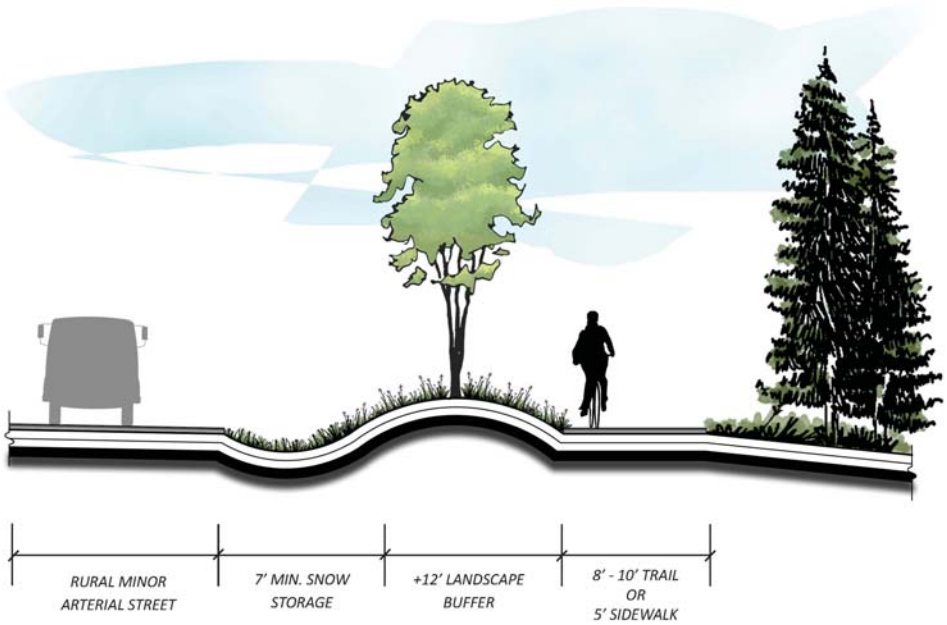

Figure 3-13 - Rural Minor Arterial with Landscape Buffer

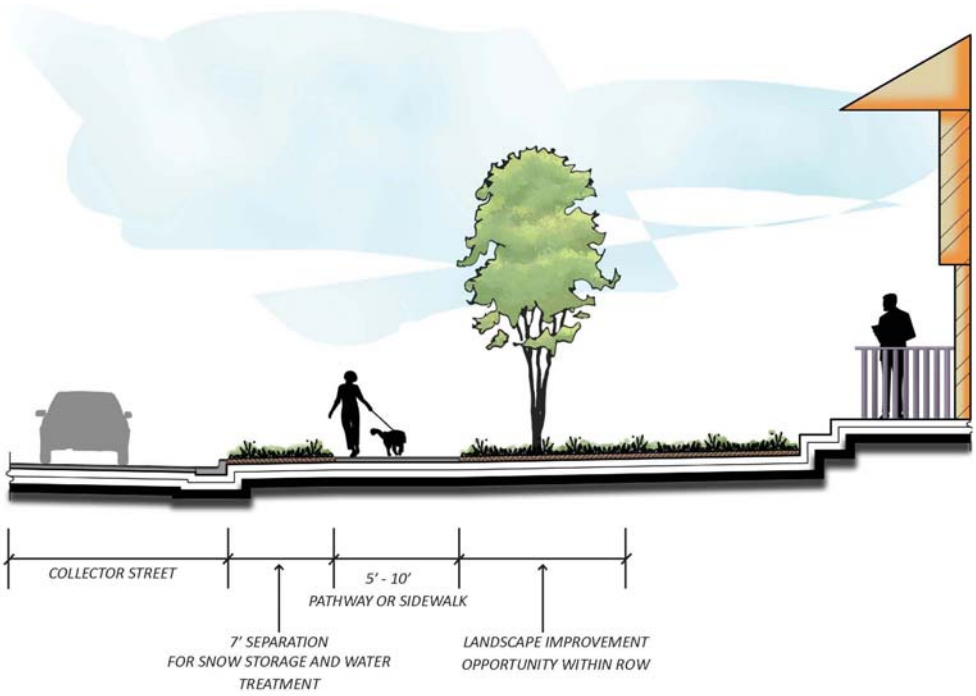

Figure 3-14 - Collector Street Landscaping

END OF SECTION 3.5

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

Rights-of-way are seldom sufficient to meet all of the needs for roadway, snow storage, paths, sidewalks, and landscaping. Thus the designer must, on a case by case basis, determine whether additional rights-of-way are necessary to appropriately 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 Boulevard 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 Parkway and Tudor Road 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 and "A Strategy for Developing Context Sensitive Transportation Projects" 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 one acre are subject to Major Site Plan Reviews as required by AMC 21.05.040.G.2.b.ii. 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 21.07.090.H.3 for parking lot landscaping. Park projects with greater than one acre of disturbed construction must have a Stormwater Pollution Prevention Plan (SWPPP) 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

Municipal facilities, including strip-paved road sections offer an opportunity for on-site water treatment and should be incorporated into the landscape design. Rain gardens, roadside ditches, bioswales, 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 herbaceous plants is beneficial in areas that will be inundated throughout most of the growing season. Specific seed mixes for various drainage situations have been developed.

Rain gardens are planted depressions that allow rainwater runoff from impervious surfaces like roofs, driveways, walkways, parking lots and compacted lawn areas, the opportunity to be absorbed into the ground rather than channeled into the stormwater system. The purpose of a rain garden is to improve water quality in nearby bodies of water. Rain gardens can cut down on the amount of pollution reaching lakes, creeks, and streams by up to 30 percent. Plants specified for use in a rain garden should be able to tolerate both saturated and dry soil. Using native plants is generally encouraged, when available. Rain gardens can be combined with ditches and bioswales for a more efficient system.

Anchorage has a wide array of woody and herbaceous plant species that thrive under wet conditions in poorly drained, cold and acidic soils. Sometimes donor sites may be found that offer prime material for salvaging operations. 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 water treatment areas 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 (COE). The COE governs placement of 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. Projects generally also require coordination with the Environmental Protection Agency and the U.S. Fish and Wildlife Service as well. The Alaska Department of Natural Resources may also be involved. Projects placing fill in wetlands will need to be analyzed through the COE Debit/Credit Analysis to determine scale of impacts and appropriate mitigation. It is important to include timing in the schedule for permitting as well as budgeting additional funds for mitigation costs. Often times, it is less expensive and faster to avoid wetlands.

END OF SECTION 3.8

GLOSSARY

CONTEXT SENSITIVE SOLUTIONS/CONTEXT SENSITIVE DESIGN (CSS/CSD): often used interchangeably, these terms refer to a process used by the Municipality of Anchorage in the project development process. The process seeks to achieve community building by inclusion of the public throughout the decision-making stages of project development. The process seeks solutions/designs that: are collaborative in nature; are in harmony with scenic, historic, and environmental values; are efficient with respect to use of time, budget, and community resources; create facilities that add lasting value to the community; allow the public to contribute to the definition of a project's scope; and balance competing desires.

CRITICAL ROOT ZONE (CRZ): area of soil around a tree where the minimum amount of roots considered critical to the structural stability or health of the tree are located. CRZ determination is sometimes based on the drip line or a multiple of Diameter Breast Height (DBH), but because root growth can be asymmetric due to site conditions, on-site investigation may be required. In general, the one-foot of radial distance for every inch of tree DBH is considered optimal for CRZ protection. It is also the same measurement employed by M.A.S.S. to determine Tree Protection Zone (TPZ).

CSS/CSD: acronym for Context Sensitive Solutions / Context Sensitive Design. CSS/CSD describes a process in which projects are developed through cooperation of stakeholders and design makers and guided by established community planning documents. The process is described in A Strategy for Developing Context Sensitive Transportation Projects as adopted by the Municipality of Anchorage on 10/14/2008.

FRICTION ZONE: the space near the building front in urban environments where pedestrians tend to window shop and/or gaze at building interiors. Users in this zone are often not attentive to traffic movement in their proximity and space needs to be provided for their safety and that of oncoming traffic.

LOW IMPACT DEVELOPMENT (LID): an ecologically-based stormwater management approach to manage rainfall on site through a vegetated treatment network including infiltration, storage, filtration, and evaporation.

STREETSCAPE: the visual elements of the street including the road, adjoining buildings, street furniture, plantings, sidewalks, and open space that combine to form the street's character.